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# **Hidden Depths and Empty Spaces?**

**A remote sensing approach to the exploration of  
settlement patterns, identity and social hierarchy in  
early medieval Ireland (AD 400-1100)**

## **Volume 1 of 2**

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**07805381**

This thesis is submitted to University College Dublin in fulfilment of the requirements for the degree of Doctor of Philosophy in the College of Social Sciences and Law.

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***September 2019***



# Table of Contents

## **VOLUME 1**

Table of Contents	ii
List of Tables	vii
List of Charts	viii
Volume 2 Listing	ix
Abstract	x
Statement of Original Authorship	xi
Acknowledgements	xii
Acronyms	xiv

<b>Chapter 1</b>	<b>Introduction</b>	<b>1</b>
1.1	Introduction	1
1.2	Early Medieval Ireland	2
1.3	Aims and Objectives	5
1.4	Outline of Methodology	12
1.5	Thesis Outline and Structure	14

---

<b>Chapter 2</b>	<b>The Archaeology of Early Medieval Ireland</b>	<b>15</b>
2.1	Introduction	15
2.2	Components of the Early Medieval Landscape: Secular Settlement	16
2.2.1	<i>Raths</i>	17
2.2.2	<i>Conjoined Raths</i>	19
2.2.3	<i>Cashels</i>	21
2.2.4	<i>Crannógs</i>	23
2.2.5	<i>Unenclosed Settlement</i>	28
2.2.6	<i>Early Medieval Houses</i>	30

2.2.7	<i>Souterrains</i>	34
2.3	Components of the Early Medieval Landscape: Ecclesiastical Settlement	36
2.4	Components of the Early Medieval Landscape: Farming and Agriculture	42
2.5	Components of the Early Medieval Landscape: Communal Areas	47
2.6	Key Early Medieval Landscape Studies	51
2.7	Conclusion	54
<hr/>		
<b>Chapter 3</b>	<b>Methodology</b>	<b>56</b>
3.1	Introduction	56
3.2	The Principles of Remote Sensing	57
3.2.1	<i>The Principles of Lidar Survey</i>	57
3.2.2	<i>The Principles of Geophysical Survey</i>	58
3.3	The Development of Archaeological Remote Sensing	59
3.3.1	<i>Aerial Photography</i>	59
3.3.2	<i>Lidar Analysis</i>	63
3.3.3	<i>Geophysical Survey</i>	66
3.3.4	<i>Key Remote Sensing Projects</i>	69
3.4	Remotely Sensing Early Medieval Ireland	72
3.5	The Lidar Analysis	73
3.5.1	<i>Phase 1: Processing &amp; Visualisation</i>	73
3.5.2	<i>Phase 2: Prospection</i>	76
3.5.3	<i>Phase 3: Classification</i>	77
3.5.4	<i>Phase 4: Analysis</i>	81
3.5.5	<i>Phase 5: Reporting New Discoveries</i>	86
3.6	The Geophysical Survey Analysis	88
3.7	Geographic Information Systems (GIS)	90
3.8	Data Management Framework	92
3.8.1	<i>Datasets</i>	92

3.8.2	<i>Building the Monuments Database</i>	93
3.9	Excavation Evidence	94
3.10	Artefactual Evidence	96
3.11	Documentary Evidence	97
3.12	Toponymics	98
3.13	Pollen	99
3.14	Conclusion	99
<hr/>		
<b>Chapter 4</b>	<b>Case Study 1: Leitrim/Roscommon</b>	<b>100</b>
4.1	Introduction	100
4.1.1	<i>Physical Geography</i>	100
4.1.2	<i>Administrative Divisions</i>	101
4.2	Archaeological Evidence	102
4.2.1	<i>Prehistoric</i>	103
4.2.2	<i>Early Medieval</i>	106
4.2.3	<i>Medieval &amp; Later</i>	106
4.3	Historical and Documentary Evidence	107
4.4	Previous Research	108
4.4.1	<i>Excavation</i>	108
4.4.2	<i>Lidar Survey</i>	109
4.4.3	<i>Geophysical Survey</i>	110
4.5	New Geophysical Survey	111
4.5.1	<i>Surveys at Ecclesiastical Sites</i>	112
4.5.2	<i>Surveys at Secular Sites</i>	116
4.6	The Early Medieval Landscape	120
4.6.1	<i>Ecclesiastical Settlement</i>	121
4.6.2	<i>Secular Settlement</i>	126

4.6.3	<i>Field Systems</i>	138
4.7	Overall Distribution of Settlement	140
4.8	Discussion: Key Site Types and Key Areas	143
4.9	Conclusion	150
<hr/>		
<b>Chapter 5</b>	<b>Case Study 2: Monaghan</b>	<b>152</b>
5.1	Introduction	152
5.1.1	<i>Physical Geography</i>	152
5.1.2	<i>Administrative Divisions</i>	153
5.2	Archaeological Evidence	154
5.2.1	<i>Prehistoric</i>	155
5.2.2	<i>Early Medieval</i>	157
5.2.3	<i>Medieval and Later</i>	157
5.3	Historical and Documentary Evidence	159
5.4	Previous Research	160
5.4.1	<i>Excavation</i>	161
5.4.2	<i>Geophysical Survey</i>	162
5.4.3	<i>Other</i>	162
5.5	Lidar Survey Findings	164
5.6	The Early Medieval Landscape	165
5.6.1	<i>Ecclesiastical Settlement</i>	166
5.6.2	<i>Secular Settlement</i>	174
5.6.3	<i>Field Systems</i>	186
5.6.4	<i>Souterrains</i>	187
5.7	Overall Distribution of Settlement	190
5.8	Discussion: Key Site Types and Key Areas	193
5.9	Conclusion	198

<b>Chapter 6</b>	<b>Beyond the Study Areas</b>	<b>199</b>
6.1	Introduction	199
6.2	Settlement and Status	201
6.3	A Matter of Life and Death	206
6.4	Gathering the Community	213
6.5	Ecclesiastical Communities	216
6.6	Conclusion	221
<hr/>		
<b>Chapter 7</b>	<b>Discussion and Conclusions</b>	<b>223</b>
7.1	Introduction	223
7.2	What can we learn about the two case study areas in the early medieval period through the intensive exploration of their archaeological remains?	224
7.3	How was early medieval settlement organised in practical, social, and ideological terms?	225
7.4	How does the application of remote sensing techniques contribute to our understanding of early medieval settlement?	226
	7.4.1 <i>Lidar Analysis</i>	226
	7.4.2 <i>Geophysical Survey</i>	230
7.5	Discussion	231
	7.5.1 <i>Changing our Approach</i>	232
	7.5.2 <i>A Question of Time</i>	237
	7.5.3 <i>Ireland in an International Context</i>	240
7.6	Future Research	243
	7.6.1 <i>Classification and Recording</i>	243
	7.6.2 <i>Targeting Key Monument Types</i>	244
	7.6.3 <i>Fields and Farming</i>	247
	7.6.4 <i>Research-driven Excavation</i>	247
7.7	Final Thoughts	250
<hr/>		

**List of Tables**

<b>Table 1.1</b>	Classification of Early Medieval Secular Monuments	3
-----		
<b>Table 2.1</b>	Excavations per Monument Type 1930-2007 ( <i>Republic of Ireland</i> )	15
<b>Table 2.2</b>	House Size and Social Status	32
<b>Table 2.3</b>	Key Elements of Early Ecclesiastical Sites	37
<b>Table 2.4</b>	Landholding per Grade	46
<b>Table 2.5</b>	Physical Characteristics of <i>Óenach</i> Sites	50
-----		
<b>Table 3.1</b>	Lidar Point Files	74
<b>Table 3.2</b>	Monument Period Groupings	78
<b>Table 3.3</b>	Settlement Variables Identified by Stout	82
<b>Table 3.4</b>	Database Fields Available on Sites and Monuments Record	93
<b>Table 3.5</b>	Database Fields Added for Each Case Study Area	94
<b>Table 3.6</b>	Number of Early Medieval Excavations 1930-2004	95
-----		
<b>Table 4.1</b>	Geophysical Surveys Undertaken as Part of this Project	111
<b>Table 4.2</b>	Ecclesiastical Monument Type per Townland	123
<b>Table 4.3</b>	Breakdown of Rath Types	127
<b>Table 4.4</b>	Project Rating of Newly Discovered Monuments ( <i>not on SMR</i> )	127
<b>Table 4.5</b>	Internal Diameter of Cashels	135
<b>Table 4.6</b>	Early Medieval Settlement within 1km of Carroward/Toormartin Cashel	148
<b>Table 4.7</b>	Rath Diameters in Kiltoghert Townland	149
-----		
<b>Table 5.1</b>	Recorded Medieval Parish Church & Graveyard Sites	159
<b>Table 5.2</b>	Ecclesiastical Monument Type per Townland	168
<b>Table 5.3</b>	Probable Early Ecclesiastical Foundations	169

<b>Table 5.4</b>	Rating of Newly Discovered Monuments ( <i>not on SMR</i> )	175
<b>Table 5.5</b>	Internal Diameter Range of Univallate Rath	176
<b>Table 5.6</b>	Distribution of Large Enclosures per Civil Parish	178
<b>Table 5.7</b>	Bivallate Rath	179
<b>Table 5.8</b>	Early Medieval Settlement within 2.5km of Lissaraw	181
<b>Table 5.9</b>	Conjoined Rath	184
<b>Table 5.10</b>	Internal Diameter Range of Cashels	184
<b>Table 5.11</b>	Recorded Souterrains within the Study Area	188
<b>Table 5.12</b>	Possible Unrecorded Souterrains within the Study Area	189
<b>Table 5.13</b>	Possible Settlement-Cemeteries	193

<b>Table 6.1</b>	Comparison of Rath Diameter with House Size	204
------------------	---	-----

<b>Table 7.1</b>	Leitrim/Roscommon: Lidar recovery of Monuments with No Visible Surface Remains	227
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<b>Table 7.2</b>	Monaghan: Lidar Recovery of Monuments with No Visible Surface Remains	228
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### **List of Charts**

<b>Chart 2.1</b>	Recorded Ecclesiastical Enclosures per County	38
------------------	---	----

<b>Chart 4.1</b>	Probable Early Medieval Monuments	121
------------------	-----------------------------------	-----

<b>Chart 4.2</b>	Internal Diameter Range of Univallate Rath	128
------------------	--	-----

<b>Chart 5.1</b>	Probable Early Medieval Monuments	166
------------------	-----------------------------------	-----

<b>Chart 5.2</b>	Breakdown of Rath Types per SMR Classification	175
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<b>Chart 6.1</b>	Combined Average Univallate Rath Diameters across Both Case Study Areas	203
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**VOLUME 2**

Figures

Appendices



## Abstract

*This project investigates the organisation of early medieval settlement in social and ideological terms through the comprehensive application of multiple remote sensing techniques. The study also engages with a range of primary documentary and mapping resources in conjunction with existing excavation evidence.*

*Ireland's early medieval archaeology is ever present throughout the modern countryside, a testament to the past communities who inhabited the landscape more than 1,000 years ago. Visible traces of settlement associated with this important period can be found throughout the modern landscape, most commonly in the form of raths, crannógs, cashels, and ecclesiastical sites. This project utilises the wealth of divergent evidence already available for this period, and builds on it by employing a range of non-invasive remote sensing techniques to further enhance our knowledge and understanding.*

*Two case study areas—the first straddling the counties of Leitrim and Roscommon, and the second within the north-eastern portion of County Monaghan—have been selected for analysis, each with varying levels of early medieval settlement evidence. Although the topography within the respective areas is not identical, both locations are within the drumlin belt which stretches across the country from Strangford Lough in north-east Ulster to the Sligo and Donegal bays on the western coast. These case studies are used as a basis for the exploration of the application of the remote sensing techniques and subsequent analysis of early medieval settlement patterns. The investigation will be further developed and expanded upon in an examination of the findings within the wider early medieval landscape of Ireland.*

*This PhD constitutes one of the first genuine landscape archaeological studies in Ireland to use lidar as its core dataset. Whilst lidar has, of course, been applied to archaeological research, its primary function has often been to simply prospect for 'new' monuments or examine already well-known archaeological landscapes. Ultimately, this research project seeks to move beyond prospection to a more valuable stage where the advantages afforded by lidar—particularly in conjunction with other techniques—can be incorporated into our analysis of the early medieval landscape, thereby increasing our knowledge and understanding of this complex period.*

## **Statement of Original Authorship**

I hereby certify that the submitted work is my own work, was completed while registered as a candidate for the degree stated on the Title Page, and I have not obtained a degree elsewhere on the basis of the research presented in this submitted work.

## Acknowledgements

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When I started out on this project, my geophysical survey experience was in its infancy and many people were involved in helping me to develop my skills from moving lines to ultimately undertaking my own surveys and producing reports. Many thanks to Rob Shaw, Gary Devlin, and Anthony Corns (The Discovery Programme), Dr Chris Carey, Dr James Bonsall, and Heather Gimson. Particular thanks to Dr Ger Dowling for his guidance and training which have played a huge part in the successful outcome of this project’s geophysical surveys. However, none of these surveys would have been possible without the help of hard-working volunteers: Johann Farrelly, Peter Dodd, Paul Codd, Dr Karen Dempsey, Karen O’Toole, Jeanne Connolly, Martin Duffy, Arlene Coogan, Christine Brown, Christine Melia, and Jordan Young. I am also hugely grateful to UCD School of Archaeology and the Discovery Programme for the use of their survey equipment throughout the project.

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*Go raibh maith agaibh go léir!*

## Acronyms

<b>ALS</b>	Airborne Laser Scanning
<b>CHERISH</b>	Climate, Heritage and Environments of Reefs, Islands and Headlands
<b>DEM</b>	Digital Elevation Model
<b>DTM</b>	Digital Terrain Model
<b>EAC</b>	European Archaeological Council
<b>EMAP</b>	Early Medieval Archaeology Project
<b>ERT</b>	Electrical Resistivity Tomography
<b>GIS</b>	Geographic Information System
<b>GPR</b>	Ground Penetrating Radar
<b>GPS</b>	Global Positioning System
<b>GSI</b>	Geological Survey Ireland
<b>IMU</b>	Inertial Measurement Unit
<b>LIARI</b>	Late Iron Age and Roman Ireland
<b>Lidar</b>	Light Detection and Ranging
<b>LiVT</b>	Lidar Visualisation Toolbox
<b>NI SMR</b>	Northern Ireland Sites and Monuments Record
<b>NIEA</b>	Northern Ireland Environment Agency
<b>NMI</b>	National Museum of Ireland
<b>NMS</b>	National Monuments Service
<b>NRA</b>	National Roads Authority (now TII)
<b>OPW</b>	Office of Public Works
<b>OSI</b>	Ordnance Survey Ireland
<b>RVT</b>	Relief Visualisation Toolbox
<b>SMR</b>	Sites and Monuments Record
<b>TII</b>	Transport Infrastructure Ireland (formerly NRA)
<b>UAV</b>	Unmanned Aerial Vehicle
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization

*“At all events, I am still slaving at the Irish and their kine. No sooner do I set about finishing off the little I have to say about some aspect of the subject than I find something else calling for expansion or further elucidation. The thing keeps sticking to my fingers and I wonder if I will ever get it to come clean away”*

*A.T. Lucas, 30<sup>th</sup> January 1974*

# CHAPTER 1

## *Introduction*

### **1.1 Introduction**

More than 1,000 years have passed since their homes and settlements were last inhabited, yet the enduring presence of the early medieval population is still evident across the Irish landscape. The people of early medieval Ireland have left an indelible mark on the landscape, and the country is home to perhaps the richest and best preserved early medieval settlement archaeology in Europe (O'Sullivan et al. 2014, 1; O'Sullivan & McCormick 2017, 101). Remains of tens of thousands of monuments from this important period can be found throughout the Irish landscape, often still visible to the naked eye and frequently in prominent positions. Given the richness of the upstanding archaeological remains and the incredible multidisciplinary corpus of material on the topic, one could be forgiven for thinking that there is little left to uncover of this complex period. But what lies amongst the hidden depths and empty spaces of the Irish landscape? What can the discovery of previously unknown monuments add to our current understanding of early medieval society in Ireland? Through the application of non-invasive archaeological techniques and an in-depth study of two case study areas (Leitrim/Roscommon and Monaghan), this research project explores these topics and considers the implications of such an approach as regards our perception of hierarchy, social status, and community from the fifth century through to the twelfth century AD.

Early medieval Ireland is a relatively well studied subject, and the vast array of evidence presents considerable opportunities to scholars from a variety of disciplines. The topic can be approached from an almost infinite number of angles (and combinations thereof), but the most important—certainly as far as this body of research is concerned—is the archaeological record. The range of archaeological evidence has increased significantly over recent decades following the substantial increase in development-led excavation during the 'Celtic Tiger' boom. This period saw more than 2,600 commercial excavations during the 1990s and 2000s, compared to less than 100 over the preceding seven decades combined (O'Sullivan et al. 2014, 25-27). Indeed, Ireland is again experiencing a period of increased economic growth which is having a positive impact on archaeological investigations. These excavations have led to significant growth in our knowledge and understanding of specific sites and particular monument types, albeit many questions still remain unanswered.

In order to address some of these questions, this thesis adopts a landscape-based approach, moving away from in-depth analysis of individual monuments towards exploring the early medieval communities that inhabited the landscape. Following the precedent set by the Early Medieval Archaeology Project (EMAP), this research deals with the period from the introduction of Christianity up to the beginnings of more permanent Viking settlement, i.e. approximately AD 400-1100. Focusing on the two case study areas, and in conjunction with evidence from excavations as well as documentary and other sources, this multidisciplinary research project adopts remote sensing techniques (primarily lidar<sup>1</sup> and geophysical survey) to investigate the early medieval landscape. These techniques provide additional layers of archaeological evidence—filling in the hidden depths and empty spaces within the modern landscape—and facilitate a more localised landscape-based approach that is more appropriate in terms of building upon our current understanding of early medieval society.

## 1.2 Early Medieval Ireland

Politically, early medieval Ireland was divided into petty kingdoms (*túatha*),<sup>2</sup> each of which was ruled by its own king (Binchy 1970, 109; Warner 1988, 48; Edwards 1996, 8; Kelly 2011, 3-4). However, due to the relatively fluid nature of early Irish kingship, it is difficult to stipulate the exact number of *túatha* in existence at any one time (Jaski 2000, 37). Estimates vary from a minimum of 150 (Warner 1988, 48; Mytum 1992, 141; Byrne 2001, 7; Downham 2018, 82) up to approximately 185 (MacCotter 2008, 41; Gleeson 2012, 1). Beyond this were regional and sub-regional kingdoms, followed by provincial kingdoms, and ultimately the kingship of Ireland, although this was a somewhat later concept (Ó Corráin 1972, 28; Warner 1988, 49).

Early medieval Irish society was complex and highly stratified with people's lives and daily interactions governed by a somewhat rigid set of social structures. Secular settlement was dispersed and rural in nature, and consisted primarily of enclosed subcircular habitations in the form of raths and cashels, around which the farmsteads were located (O'Sullivan et al. 2014, 48). The enclosing features differentiated between the two settlement types: raths comprised an earthen bank and ditch, whereas cashels were enclosed by a stone wall. The lacustrine equivalent, the crannóg, consisted of an artificial island within a lake upon which a dwelling was erected. Approximately 47,000 raths and cashels are recorded across the whole island of Ireland, although—and as this project demonstrates—the original total is likely to be considerably higher, possibly closer to 60,000 (O'Sullivan et al. 2014, 49; O'Sullivan 2016, 14).

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<sup>1</sup> Lidar: Light Detection and Ranging, also known as ALS: Airborne Laser Scanning.

<sup>2</sup> Singular: *túath*, plural: *túatha*.



Within the Republic of Ireland, the number of raths far exceeds that of the other early medieval settlement monument types, although trying to ascertain the exact number and their ratio to their counterparts is problematic as the classification of monuments by the National Monuments Service (NMS) has some ambiguity (Table 1.1). The monuments listed under ‘Ringfort - unclassified’ could be raths or cashels, as could those classified as ‘enclosure’. However, the latter classification also includes monuments from other periods (both earlier and later) which could not be defined and therefore could not be assigned a chronology with any certainty. Evidently the NMS periodically revisit and re-examine the monuments, as the classifications have been revised slightly since 2015, even accounting for the addition of newly discovered monuments during that time. The challenges associated with these classifications will be discussed in more detail in Chapter 3.

**Table 1.1      Classification of Early Medieval Secular Monuments<sup>3</sup>**

<b>Classification</b>	<b>ROI 2019 Figures</b>	<b>ROI 2015 Figures</b>	<b>NI Figures</b>
<b>Ringfort - rath</b>	25,090	23,949	2,053
<b>Ringfort - cashel</b>	3,431	3,193	196
<b>Ringfort - unclassified</b>	1,936	2,529	N/A
<b>Enclosure</b>	16,333	16,921	2,702
<b>Crannóg</b>	1,419	1,267	196
<b>Total</b>	<b>48,209</b>	<b>47,859</b>	<b>5,147</b>

Christianity was introduced to the island in the early fifth century and the new religion brought with it substantial change on societal, ideological, and practical levels; the implications of which are still palpable today. The introduction of literacy and the subsequent developments in writing and scholarship saw the appearance of the first written records for the country, some of which survive in various forms (and will be discussed further below). On a societal level, new layers of hierarchy were established in the form of the various roles associated with the newly established churches and in particular, the newly formed religious élite (Charles-Edwards 2000, 126-127). On a practical level, the unfamiliar Christian lifestyle had to be integrated into the everyday lives of the secular population; this meant negotiating new structures within the landscape, new social rituals, and new customs. The conversion of the population was a relatively slow process and was achieved over several decades, even centuries, with many pre-Christian customs continuing during this time, particularly in relation to burial practices (Charles-Edwards 2000, 117-118; O’Sullivan et al. 2014, 283; O’Sullivan & McCormick 2017,

<sup>3</sup> ROI figures were downloaded from the National Monuments Service Database ([www.archaeology.ie](http://www.archaeology.ie)) and are correct as of 22/02/2019; NI figures were calculated using the NI SMR Database (<https://apps.communities-ni.gov.uk/NISMR-PUBLIC/Default.aspx>) and are correct as of 11/08/2019.

109; Downham 2018, 19). Although Ireland saw many changes and considerable upheaval, the Irish population navigated this complex and dynamic period until the early eleventh century when the Vikings made good on their earlier incursions into the country and began to settle more permanently, ultimately enforcing wholesale changes on the organisation of Irish society and settlement. Change was not only implemented on a personal level; with the introduction of Christianity, the Irish landscape also underwent substantive changes as churches and ecclesiastical sites were established across the island. Burial grounds and areas for farming were associated with these new establishments, some of which developed into powerful monastic centres such as Glendalough, Co. Wicklow and Clonmacnoise, Co. Offaly.

These elements, among others, were part of the communities in which the early medieval population lived. But what is meant by 'community' in terms of early medieval Ireland, and moreover, in terms of this project? A community can be defined in a number of ways ([www.collinsdictionary.com](http://www.collinsdictionary.com)):

- i. "all the people who live in a particular area or place";
- ii. "a group of people who are similar in some way";
- iii. "a sense of having something in common".

Communities in early medieval Ireland essentially fulfilled all of these briefs as people were bound together through geography, common ancestry (kinship), and the economics of daily life (Bhreathnach 2018, 20). Politically, Ireland was not composed of a homogenous group under a single ruler; instead the island was divided into provincial kingdoms which were then further subdivided into multiple smaller territories or kingdoms (Ó Corráin 1972, 28; Kelly 2011, 3-4; Stout 2017, 54). These territories were defined spatially, i.e. with the population of each living within the bounds of that territory and therefore in relatively close proximity to one another. The people within these areas were linked by mutual subjugation to a king or kings, bound together within their kin-groups (the main social unit) formed through the male descendants of a common great-grandfather (Ó Corráin 1972, 37; Bolger 2011, 4; Kelly 2011, 12; Bhreathnach 2018, 21).

The spatial aspect physically connected the settlements and directly influenced the daily lives of those within the communities. It is clear from the contemporary law tracts (and increasingly from the archaeological evidence), that farming was not a solo pursuit and the community were expected to work together, with severe penalties for those who impeded others. For example, when crops were ready to be harvested, a lord's clients would come together to fulfil their duty of reaping his crop; this could involve a large group, often comprising more than twenty people (Kelly 1997, 238). *Críth Gablach* stated that certain grades of farmer were expected to own a

quarter-share in a plough, as well as a share in a kiln, mill, and barn (MacNeill 1923, 287). This required the establishment of a co-ploughing agreement (Kelly 1997, 245), thus implying cooperation and teamwork with other members of the community. Archaeological evidence emerging from excavated sites such as Raystown, Co. Meath (Seaver 2016) or Kilbegly, Co. Roscommon (Jackman et al. 2013) (see Chapter 2), certainly points to the existence of large-scale production, most likely undertaken by a combined workforce from the surrounding area.

The element of community can also be seen through the use of large cemeteries, such as that which was combined with the milling complex at Raystown (Seaver 2016), which again demonstrates the coming together of people within a territory or locale to undertake an activity in which they were all involved. Community not only has a physical spatial component, but is also a sphere for the dynamic negotiation of personal interactions, alliances, and everyday activities (O’Gorman 2010, 571). Within this project, the early medieval communities are deemed to be those living within the spatially defined territories, bound together through their common ancestry, and on a more practical level, living and working together on a daily basis.

### **1.3 Aims and Objectives**

First and foremost, this research aims to explore the organisation of early medieval settlement in social and ideological terms within the two case study areas, namely Leitrim/Roscommon and Monaghan, with a view to extrapolating the findings into an improved understanding of early medieval communities across Ireland. The visibility of many early medieval monuments has meant that the period has long been a focus of research endeavours, but the opportunity to apply remote sensing techniques to this field of study opens up new possibilities for shedding fresh light on the period and has highlighted several gaps in our knowledge.

Lidar and geophysical survey form the basis of this landscape focused approach, with the project utilising existing geophysical surveys as well as generating new datasets specifically for the purposes of this research project. Geophysical survey can help to identify sub-surface archaeological features of which no visible surface evidence remains. Similarly, Lidar can aid the identification of archaeological features which may have minimal topographic expression on the ground surface but may no longer be visible to the naked eye. Combined, the techniques seek to uncover the hidden depths and empty spaces between the known archaeological monuments within the case study areas, with possible implications for the island as a whole. The project also incorporates other resources, including evidence from excavations, contemporary documentary sources, and toponymics. Ultimately, by maximising the evidence

base for early medieval settlement within the case study areas, this research aims to present a more comprehensive picture of the early medieval landscape.

The two case study areas were selected primarily based on the availability and archaeological potential of existing lidar datasets: the first in an area straddling the River Shannon and encompassing parts of counties Leitrim and Roscommon; and the second in north-east Monaghan (Figure 1.1). Both study areas are located along the drumlin belt, the band of low-lying hills which were formed during the retreat and re-advance of glaciers during the late glacial maximum (Meehan 2012, 7; MacCarthy 2013, 34-36). These low, often rounded hills, provided prime agricultural land and strategic locations for early medieval farmsteads (Stout 1997, 93). Moreover, the small inter-drumlin lakes associated with this topography were ideal locations for the construction of crannógs and undoubtedly served as sources of water, food, and raw materials.

However, the availability of existing lidar datasets was not the only criterion on which to select the case study areas. Were this the case, a single area could have sufficed. Instead, two case studies were selected in order to explore the potential similarities and differences that might exist across the early medieval Irish landscape. With a single regional case study, there is a risk of identifying a pattern and making the assumption that it extends beyond the bounds of the research area and across the island. How can one begin to identify and understand potential regional differences without comparing regions? The advantage of having more than one case study is the ability to explore and demonstrate the parallels and disparities that can exist across multiple regions within a particular period.

From a physical landscape perspective, both case study areas are arguably comparable, not least in relation to their shared drumlin topography. Both are situated inland and have associations with major rivers: the River Shannon in the case of Leitrim/Roscommon and the River Blackwater in Monaghan. There are similarities, too, as regards the dearth of commercial excavation and previous research undertaken in these areas; both are ripe for archaeological investigation. However, there are significant disparities in terms of their recorded archaeological heritage. Early medieval Leitrim/Roscommon was identified by Stout (1997, 93) as a zone of high density, whereas Monaghan was within an area of median density (*ibid.*, 68). With 603 recorded archaeological monuments (across all periods) in Leitrim/Roscommon compared with just 260 in Monaghan, the density of past settlement and land-use—as represented by archaeological remains—is on a vastly different scale. The sparsity of settlement in Monaghan, combined with the often diminutive townland size (see Section 5.1.2)

means that the same approach cannot always be adopted in both areas. Even prior to embarking on a thorough analysis of the early medieval landscapes of both case study areas, it is clear that there is no single catch-all model that can be applied to 'fit' both areas. Doing so would be to try and impose a preconceived framework upon the study areas which risks influencing and/or undermining the evidence of the archaeological remains. Instead, this study employs key variables (e.g. physical attributes, typology, distribution etc.) with which to ask questions of the early medieval monuments (see Section 3.5.4) and analyse them within their landscape setting. This research then moves beyond these common variables to explore each case study area within its own setting. A single uniform approach is not possible because the landscapes and archaeological remains are not uniform. For example, the evidence in Leitrim/Roscommon permits the attempted reconstruction of a particular townland within the early medieval period (see Section 4.8), whereas this is simply not an option in Monaghan as there is no townland of sufficient size or containing a sufficient number and range of monuments with which to attempt this. It is important for the archaeological evidence to lead the analysis and given the divergence in the evidence across the two study areas, so too must the type of analysis diverge.

The Leitrim/Roscommon study area formed the basis of a pilot study previously undertaken by the author which saw an exploration of the early medieval landscape using lidar analysis (Curran 2012). Through this, more than 100 previously undiscovered monuments were identified (ibid.), which clearly demonstrated the potential of lidar analysis for this field of study. This research project builds upon the pilot study by integrating a new case study area (Monaghan), investigating the early medieval period in more detail, expanding the scope of the project from monument-centric to the surrounding landscape, and by incorporating an additional remote sensing technique (geophysical survey).

By focusing on the oft-overlooked middle ground, i.e. that space which lies between intense investigation of a single monument and high-level national overviews, this project looks to achieve a greater understanding of early medieval communities and the lands they inhabited by addressing three key research questions.

*1) What can we learn about the two case study areas in the early medieval period through the intensive exploration of their archaeological remains?*

Until now, the archaeology of Leitrim/Roscommon and Monaghan has been vastly understudied, and as such, they both present excellent candidates for this research project. Moreover, the arbitrary nature of the study areas (based on the lidar datasets) offers an

opportunity to investigate the distribution of early medieval settlement without the limitations imposed by later, modern political boundaries. Indeed, this approach allows the archaeological remains to lead the way in terms of exploration and interpretation. While the lack of excavation in the study areas is admittedly challenging as regards scientific dating and the availability of potentially diagnostic material culture, in a sense it is beneficial to the application of remote sensing techniques as it means that the majority of the monuments are still in place and can be examined using the same criteria.

In the absence of direct excavation evidence, this project relies on the substantial corpus of material amassed through excavation in other parts of the country to inform the analysis of monuments in terms of status, role, and function. Fortunately there is an abundance of existing evidence from the huge number of 'Celtic Tiger' era excavations. These data have been comprehensively synthesised and examined by EMAP (e.g. O'Sullivan et al. 2008; O'Sullivan et al. 2014) which is the go-to resource for an up-to-date, comprehensive overview of early medieval Ireland. The artefactual and morphological evidence attained through these excavations has made a significant contribution to our current understanding of early medieval settlement and the relationship between settlement and status. By synthesising the data gained from individual monuments, it is possible to investigate patterns across multiple sites and site types, thereby expanding research into early medieval settlement from being focused on individual sites to a much broader level.

The range of archaeological evidence within the case study areas will be thoroughly examined to establish the extent and nature of the organisation of settlement. Early medieval Ireland was dynamic and extremely complex, with varying degrees of social status and hierarchy (Stout 1996; 1997). These are key criteria to consider when investigating early medieval settlement patterns. From an archaeological perspective, different strata of society have been identified in various ways in the past, most notably by Stout's (1991; 1996; 1997) studies of raths which statistically examined rath distribution and assigned social status based on criteria relating to settlement typology; namely morphology, location, and distribution.

Material culture is linked with morphology as an important indicator of social hierarchy and identity (O'Sullivan & Kenny 2008, 8). For example, the presence of imported pottery (predominantly E ware) at a number of raths has been a significant factor in their identification as high-status sites (O'Sullivan et al. 2014, 257). While it may be 'too simplistic' to infer status from the presence of material culture alone (Kinsella 2005, 26-27), when combined with morphological analysis, such artefactual evidence can be used to classify a rath in terms of

status. For example, the substantial trivallate rath at Garranes, Co. Cork produced evidence of ironworking in addition to several types of imported pottery (Ó Ríordáin 1942, 140-142). Other early medieval site types also showed evidence of high-status inhabitants, such as the crannóg of Ballinderry 2, Co. Offaly where several highly decorated zoomorphic penannular brooches were recovered (Hencken 1942, 34-44; O'Sullivan 2004a, 167) (Figure 1.2). Similar items were also recovered from the crannóg at Lagore, Co. Meath, the historically attested seat of the kings of Brega (Hencken 1950; 3; Warner 1994, 65; O'Sullivan 2004a, 182). In addition to imported pottery and substantial evidence for the working of glass and iron (Hencken 1950, 8-9; O'Sullivan 2004a, 180), large amounts of animal bone were also recovered, all of which would appear to support its superior status (Hencken 1950, 7; Comber 1997, 111).

Status may have played a significant part in early medieval society, but role and function are also key considerations when exploring an early medieval landscape. Places in which people worshipped, worked, assembled, and buried their dead were all fundamental components of an early medieval landscape. This research question investigates how these diverse elements are represented within the study areas, and addresses their implications for our understanding of early medieval society. Within the bounds of the study areas, this project examines the various types of secular settlement (e.g. raths, cashels, crannógs, etc.), exploring their morphological and locational characteristics, both individually and in relation to their neighbours. It also incorporates the agricultural lands, communal areas, burial grounds, and wildernesses that were interspersed between the ecclesiastical sites and secular enclosures. The siting of potential communal sites such as cemeteries and inauguration sites is also explored, as is the placement and nature of the contemporary ecclesiastical establishments. These investigations go towards informing an interpretation of the early medieval landscape within the case study areas, with implications for Ireland as a whole in terms of the organisation of society on a more local, community level.

## *2) How was early medieval settlement organised in practical, social, and ideological terms?*

This research question explores how the findings from the case studies can be extrapolated to the wider landscape, and to Ireland as a whole; exploring their implications for our overall understanding of early medieval settlement. Based on the coming together of multiple factors, the layout of settlements is a valuable source of evidence as regards the social and economic structure of a community (Hamerow 2002, 52-53). What were the key monument types within an early medieval landscape? Where were they located and how did they relate to other monuments? Through the study of the archaeological remains of settlement, can we begin to identify early medieval communities and territories?

Many of the (largely contemporary) law texts provided invaluable information about status and rank and how this was reflected in terms of settlement (Ó Cróinín 1995, 115-116; Kelly 1997, 7). For example, the law tracts set out the expected house size and land holding for each grade of freeman (MacNeill 1923, 286-306; Lynn 1994, 91; Stout 1996, 229, 246-266; Kelly 1997, 361-369). Prior to the extensive excavation of early medieval settlements in recent years, the early medieval law texts were the main source of information about the economic basis of early medieval society (Ó Cróinín 1995, 8-9; Kelly 2011, 3). Most importantly for this study, however, are not only the distinctions of rank specified in the law tracts, but also the relationship between status and the physical settlement structures and layout of the early medieval farmstead.

Large-scale studies such as that by Stout (1997) provided an excellent high-level overview of early medieval settlement at a national level; however, Stout's (1997) publication effectively failed to take into account topographical and other variations on a regional and chronological basis, nor did it adequately integrate monument types other than raths. Conversely, excavation provides in-depth and detailed information about an individual site, often without adequate reference to its wider landscape setting. This study aims to redress the balance and focus on smaller, more localised areas as these can hold the key to understanding how the inhabitants of early medieval Ireland interacted with one another and with the landscape. Settlements were not isolated in the landscape, their inhabitants had connections to one another as well as to people and places beyond their immediate locality. The ecclesiastical establishments in particular would have catered for the community living throughout the surrounding area.

Many recent studies have focused solely on the enclosing features and their contents (e.g. Nicholl 2005; O'Sullivan & Nicholl 2011; Jones 2012), and this study also incorporates the internal structures, the houses in which people lived and went about their daily lives. However, this research looks beyond the confines of individual enclosures, venturing further afield to explore boundaries and other landscape features which can give us an insight into how the landscape was used by the communities during this period. These aspects are fundamental to the social and ideological organisation of early medieval society, and moreover, the patterns of settlement can point to the possible location of communal areas, political hubs, territorial boundaries, and other aspects of community life.

### *3) How does the application of remote sensing techniques contribute to our understanding of early medieval settlement?*

Lidar and geophysical survey have a proven track record in archaeological exploration (see Chapter 3). The valuable contribution that lidar can make to the study of early medieval



settlement was evident from the pilot study (Curran 2012), and the scope has been expanded here to include Monaghan to examine how the technique performs in different areas. It was possible that the Leitrim/Roscommon study area was simply a fortuitous target, having previously been identified by Stout (1997, 93) as a zone of high-density settlement. While the topography in Monaghan is also drumlin-based, the drumlins are a very different shape, being narrower and more elongated than their Leitrim/Roscommon counterparts (Figure 1.3) which could have implications for settlement distribution.

The most obvious contribution that lidar can make to this study is the addition of monuments (and potential monuments) to the archaeological record, thereby filling in physical gaps in the landscape. This provides a more complete picture of early medieval settlement and gives an indication of just how populated the study areas were during this period. Lidar can certainly make a significant impact in terms of monument discovery, but prospection should be merely the first step in the investigation process. As this thesis demonstrates, the use of lidar within a GIS can contribute on many other levels including monument survey and distribution. Of course, there are limitations in that lidar cannot detect features or structures that do not have topographic expression; moreover, as with all remote sensing methods, it cannot provide scientific dating evidence, therefore somewhat of a leap is required in order to provide an interpretation of neighbouring settlements which may have been contemporaneous or built and inhabited several decades apart. For example, excavations at several Danish sites showed that settlements were abandoned and rebuilt several hundred metres apart (Hamerow 2002, 56-58), albeit these houses were in a village formation rather than the dispersed, enclosed rural settlements of the Irish landscape. In Ireland, we have evidence of individual houses being rebuilt and replaced within an enclosure, often multiple times (e.g. Deer Park Farms, Drumclay), but there is (as yet) no clear evidence of entire farmsteads being abandoned and re-established nearby. Of course, this chronological challenge is not restricted to remote sensing, and is a more fundamental issue within archaeology as a whole (Fyfe et al. 2010, 156). In addition, monuments and features from other periods may share a similar morphology with their early medieval counterparts, thus necessitating careful examination in advance of any classification. Even with these caveats in mind, this research project explores the many different ways in which lidar can contribute to our understanding of early medieval settlement.

The use of geophysical survey is intended to complement the lidar survey; firstly, by offering a different perspective (i.e. sub-surface) which has the potential to reveal further hidden features; and secondly, by helping to identify more subtle features which may not be visible on the lidar surface. For example, rath entrances, field boundaries, and internal structures may not be visible even at a microtopographic scale. Identification of these more subtle features is important so as to best classify any newly discovered monuments, in addition to providing

more detail about the monuments themselves. Given the volume of monuments within the study areas, the scope of this project does not permit geophysical survey to be undertaken at all sites—this component alone would take several years. As a result, geophysical survey was undertaken at a selection of monuments aimed at addressing the research questions and assessing avenues for future research.

#### **1.4 Outline of Methodology**

This research project makes use of the available archaeological evidence and appropriate historical evidence for the case study areas where possible. The extensive use of remote sensing to investigate the early medieval landscape and society constitutes a fresh approach both for early medieval studies, and for the techniques involved. The methodology will be discussed in great detail in Chapter 3, but a brief overview is provided here.

The methodology is designed to bring the research from the initial prospection and identification phase through to a point where a fuller interpretation of early medieval communities can be achieved. Lidar is the primary form of the remote sensing data used, and both case study areas are defined by the lidar datasets collected by TII and Monaghan County Council respectively. Within a GIS, lidar enables the user to view the landscape in 3D and at a level which facilitates the visualisation of subtle variations in the ground surface which may not be visible to the naked eye. This is particularly useful in the identification of early medieval structures such as raths, as their undulating bank and ditch morphology—even when substantially eroded—can leave microtopographic remains on the ground surface (Figure 1.4). Within the GIS, the location of recorded monuments can be overlain onto the lidar surface and viewed interactively with their newly discovered counterparts. Aerial imagery and early cartographic sources are a key part of this process as they allow potential discoveries to be ‘verified’ against the modern and historical landscape with the aim of improving classification and minimising inaccurate identification of archaeological monuments.

Geophysical survey adds an additional sub-surface layer to the study with the aim of identifying archaeological features which do not survive on the ground surface, but may leave buried traces. This project employs two such techniques—magnetic gradiometry and earth resistance—both of which penetrate to depths of approximately 1m (Gaffney & Gater 2010, 56). While existing geophysical survey reports have been consulted throughout the project, new surveys have been undertaken by the author at selected sites specifically for the purposes of this research project. New geophysical surveys were undertaken in the Leitrim/Roscommon case study area only. While there are undoubtedly questions to be asked through geophysical

exploration within the Monaghan area, the time taken to acquire the necessary skills in addition to the time and financing required to carry out the surveys and produce the final reports meant that difficult decisions had to be made in relation to the realistic scope of the project. As the Leitrim/Roscommon area was more familiar to the author following the pilot study, and taking into account the local relationships that had already been forged within the area, this area was selected as the focus for this portion of the project. Expansion of geophysical survey into the Monaghan region would be hugely beneficial and an important next step as regards future research in the area. The principal aims of these targeted surveys are to identify more subtle features at both secular and ecclesiastical monuments, such as internal structures, field or garden plots, and buried enclosing ditches and/or banks. In addition to providing additional information as to the extent of the sites, the findings also assist with the classification of monuments, for example, a series of banks and/or ditches around a potential ecclesiastical site would be a strong indicator of an early date for its establishment as such features are key characteristics of the early medieval Church (Swan 1983, 274).

The wealth of material from archaeological excavations has been mentioned above, and relevant excavations undertaken at early medieval sites within the two case study areas are incorporated into the investigations. However, given the relatively limited nature of excavation within these areas, the data collected from island-wide excavations are of particular significance as indirect evidence for early medieval settlement.

To study a landscape in a holistic way, it is imperative that we venture beyond the archaeological remains and utilise other resources that will further develop our understanding (e.g. Reynolds 2009, 429; Hamerow 2018, 35). As the early medieval period saw the introduction of writing to Irish society, historical documents are an important component of this—and arguably any—study of early medieval Ireland. The documentation comes in a range of formats, including law tracts, annals, and hagiographies. The law tracts are perhaps the most significant of the contemporary written sources as they provide an insight into the organisation and inner workings of the hierarchical early medieval society. Essentially a compilation of headlines, the annals come in multiple formats and from many different regions and can provide details which are chronologically significant such as the dates of battles, or the deaths of key figures such as abbots or kings. Finally, placenames are examined within the case study investigations to provide an additional layer of information with respect to the past use and archaeological potential of the townland units.

In summary, the project comprises a multidisciplinary exploration of early medieval Irish settlement, utilising available material across the fields of remote sensing, archaeological excavation, historical documentary sources, and the existing knowledge derived from numerous forays into the various aspects of life in early medieval Ireland.

## **1.5 Thesis Outline and Structure**

This thesis comprises two volumes, the first of which consists of seven chapters and the bibliography, while the second contains the figures and appendices relevant to the first volume. Chapter 1 sets out the project's aims and objectives against a high-level introduction to early medieval Ireland. Chapter 2 examines archaeological research to date into the Irish early medieval period, and explores how this project can add to our present state of knowledge. Chapter 3 presents a detailed methodology, incorporating the more technical and practical aspects of the research methods with a view to addressing the three key research questions. Chapters 4 and 5 provide an in-depth analysis of the archaeological remains of early medieval settlement in the Leitrim/Roscommon and Monaghan case study areas respectively. These chapters form the core of the research and consist of a thorough examination of early medieval settlement within the case study areas in light of the evidence unearthed by the various remote sensing techniques and in conjunction with supporting evidence from toponymic, and documentary sources. The results of the analysis lead on to a discussion and re-evaluation of early medieval settlement patterns in the respective regions. Chapter 6 moves the discussion beyond the case study areas, considering the results against the wider Irish landscape to better understand the structure and workings of the early medieval community on a broader level. Finally, Chapter 7 constitutes the conclusion of the thesis, providing a summary of the research findings, an assessment of the value and contribution of remote sensing analysis to early medieval archaeology, further discussion, and the identification of potential avenues for further research.

# CHAPTER 2

## *The Archaeology of Early Medieval Ireland*

### 2.1 Introduction

This chapter presents the extensive archaeological evidence for the early medieval period in Ireland, the foundations upon which this project is built. As outlined in Chapter 1, the early medieval landscape was made up of many different constituent parts, all of which combined to represent the people, communities, and society of the time. While the multitude of documentary sources and scholarly historical research are invaluable assets to the exploration and understanding of life in early medieval Ireland, the physical remains of the places in which people lived, worked, and went about their daily business have been studied in depth at least since the early nineteenth century when some of the first forays into the excavation of early medieval sites were undertaken by antiquarian researchers (O’Sullivan et al. 2014, 15). Since then, archaeological excavations have provided the greatest evidence for the composition and function of early medieval settlement types, yet the number of excavations varies significantly depending on the monument type and the figures are disconcerting when viewed against the total number of recorded monuments (Table 2.1).

**Table 2.1 Excavations per Monument Type 1930-2007 (*Republic of Ireland*)**

*(after O’Sullivan et al. 2014, 337-360)*

Monument Type	No. Excavations	% of Recorded Monument Total
<b>Rath</b>	202	0.5% <sup>4</sup>
<b>Cashel</b>	28	0.8%
<b>Crannóg</b>	22	1.6%
<b>Ecclesiastical Site</b>	18	2.2% <sup>5</sup>

Driven predominantly by legal requirements implemented by the EU and infrastructural funding which they subsequently made available, the number of early medieval excavations jumped to 120 in 1997, a figure which kept climbing before reaching a peak of more than 300 in 2002 (ibid., 21-22). While more excavations have obviously been undertaken in the intervening

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<sup>4</sup> Percentage calculated based on recorded monuments classified as ‘Ringfort - rath’, ‘Ringfort - unclassified’, and ‘Enclosure’ on the SMR.

<sup>5</sup> Percentage calculated based on recorded monuments classified as ‘Ecclesiastical Enclosure’ and ‘Ecclesiastical Site’ on the SMR.

years since 2007, in reality, still only a very small percentage of our archaeological record has been fully excavated and scientifically investigated. This must be taken into consideration when examining aspects of early medieval settlement, particularly those of chronology. Clearly though, the volume of archaeological excavation in recent years has had an immense impact on our knowledge and understanding of almost all aspects of early medieval society. Although based predominantly on evidence from the aforementioned excavations, outputs from EMAP—in particular the 2014 publication—present a thorough synthesis of the period, covering topics such as settlement, death and burial, craftworking, trade, and of course, the newly established Church. Indeed, it is difficult to discuss any element of early medieval Ireland without consulting either the wide-ranging final publication (O’Sullivan et al. 2014) or any of the interim reports and publications, including the gazetteer of excavated sites (Kerr et al. 2010), or the thematic publications focused on agriculture (McCormick et al. 2011) and industry (Kerr et al. 2012).

Several key excavations have made particularly significant contributions to early medieval Irish archaeological studies, e.g. Deer Park Farms, Co. Antrim (rath) (Lynn & McDowell 2011a), Drumclay, Co. Fermanagh (crannóg) (Bermingham et al. 2013), Kilbegly, Co. Roscommon (horizontal mill) (Jackman 2010; Jackman et al. 2013), Raystown, Co. Meath (settlement-cemetery and mill) (Seaver 2016), Clonfad, Co. Offaly (ecclesiastical) (Stevens 2012a), and Nendrum, Co. Down (ecclesiastical with tidal mill) (McErlean & Crothers 2007). These sites—and others—will be discussed below in order to present the most up-to-date synopsis of each component of early medieval settlement and society in light of previous archaeological research. Of course, not all archaeological research into the period has been driven by excavation and there have been many key publications over the last century which are also discussed below, evolving from the examination of specific monuments to the in-depth exploration of particular monument types and/or thematic areas.

## **2.2 Components of the Early Medieval Landscape: Secular Settlement**

The archaeological evidence for secular settlement comprises raths, cashels, and crannógs with some limited indications of unenclosed settlement. As this project is largely based on the identification of monument types, both in terms of classification and status, it is imperative that the various elements that make up each monument, and ultimately the monuments that form the early medieval landscape, are examined in detail. Each settlement type will be discussed below in light of the relevant archaeological evidence and research to date, with several key broader landscape studies discussed separately in Section 2.6.

### 2.2.1 *Raths*

Most plentiful of all early medieval settlement types are raths, the enclosed farmsteads in which the majority of the population lived, and they are found in great numbers throughout the country (Figure 2.1). The most recent dating evidence places rath construction and primary occupation from AD 600-1000 (O'Sullivan et al. 2014, 64). Raths are essentially subcircular enclosures defined by an earthen bank and outer ditch (Figure 2.2). Terminology has caused significant issues in relation to the classification of these monuments. Until relatively recently, the term 'ringfort' was happily used to describe these enclosures; however, excavations over several decades have raised questions about their uniformity, and indeed their circularity. The discovery of sites of different shapes, such as the 'plectrum-shaped' enclosure of Newtown, Co. Limerick (Coyne 2011, 107-112) (Figure 2.3) and the 'heart-shaped' enclosure at Killickaweeny, Co Kildare (Walsh & Harrison 2003, 34) led to considerable controversy over the use of the term 'ringfort' as a catch-all descriptor for these early medieval settlement sites. Fitzpatrick (2009, 303) suggested replacing the term with 'native enclosed settlement'. It is all too easy to get bogged down in the murky depths of terminology and there are many more noteworthy and fascinating aspects of early medieval settlement to be explored. As Kinsella (2010, 90) and Danaher (2011, 122) argue, many of these 'oddly-shaped' sites are not in fact new site types, but are merely a reflection of the agricultural and industrial diversity practised by the various households.

Variation in site shape could also be an indicator of social status, as Stout purports in his 1991 study in which he used a 'circularity index' based on an allusion to circularity as a key aspect of a king's residence in the *Críth Gablach* law text (Stout 1991, 207). By Stout's reckoning, a high circularity value could be indicative of a high-status site; this was supported by the composition of his 'cluster 4' sites which comprised large enclosures (approx. 47m internal diameter) with the highest circularity index of all sites investigated (ibid., 218, 232). Nevertheless, the term 'ringfort' is admittedly (very) slowly becoming obsolete, and the term 'rath' is perhaps more appropriate (and certainly less of a mouthful than Fitzgerald's suggestion). A single term is necessary as too many diverse shape-based definitions will ultimately lead to a lack of coherence and a multitude of classifications, thereby making the study of this complex period even more complex. 'Rath' covers the settlement type appropriately without confining the definition to strictly circular structures.

The overwhelming majority (approx. 80%) of raths are univallate in nature, i.e. composed of a single bank and ditch (Stout 1997, 17; O'Sullivan & Downey 2007a, 32; O'Sullivan et al. 2014, 50). These served as the farmsteads of the majority of the free population (Comber 2016, 5;

O'Sullivan & McCormick 2017, 116), and were surrounded by garden plots and fields in which their farming duties could be carried out. The rath interior contained the living area in addition to outhouses and possibly craft-working areas and animal pens. The higher status élites resided predominantly in multivallate raths, the majority of these in bivallate raths (Figure 2.4), but a smaller number occupied the rarer, and more complex, trivallate examples (e.g. O'Sullivan et al. 2014, 50; Comber 2016, 5; O'Sullivan 2016, 16) (Figure 2.5).

Raths, both univallate and multivallate, have an average internal diameter of approximately 30m, although they can range from 15m up to 75m (Stout 1997, 15; O'Sullivan et al. 2014, 50; O'Sullivan 2016, 16). Rathes are often depicted as having a wooden palisade encircling the top of the bank, possibly as an additional layer of security (Figure 2.6). There is evidence for this at some excavated raths such as Lowpark, Co. Mayo which had postholes lined with packing stones (Figure 2.7). This site comprised two enclosures in a figure-of-eight formation and charcoal samples from postholes at both produced calibrated radiocarbon dates of AD 540-1020 and AD 670-880 respectively (Gillespie 2011, 190-192). In rare examples, such as Drumree, Co. Fermanagh, the palisade was located at the base of the interior of the bank (Warhurst 1967, 44-46). An excavated rath at Glebe, Co. Dublin produced evidence for a partial palisade on the northern side of the enclosure (Seaver 2011, 267). There are other sites which also demonstrate the palisading of part of the enclosure such as Garryduff I, Co. Cork (O'Kelly 1963, 21). In this case, the section of palisading coincided with the substantial entranceway and the excavations produced evidence for a strong gateway with thick jambs to support a wooden gate and a short wooden palisade extending from each side of the entrance (ibid., 20-22). While the posthole arrangement at the entrance may have simply held a wooden gate, their placement could also be interpreted as the base of a gate tower (ibid., 115). Indeed, the reconstructed rath at the Irish National Heritage Park, Ferrycarrig, Co. Wexford features a strong oak palisade and lookout tower guarding the entrance (Figure 2.8). It is notable that in the case of Garryduff I—and its neighbour, Garryduff II—there was no evidence to suggest that the palisade extended beyond the entrance structure to surround the entire bank (ibid., 21, 123-124) (Figure 2.9). A small number of raths have been excavated where the palisade appears to have been the original, or sole, enclosing feature (O'Sullivan et al. 2010, 58-59). Conversely, there is a complete lack of evidence for palisades at other sites (Stout 1997, 19-20), and so it cannot be assumed that all raths would have had such a feature.

In some cases, the rath interior was heightened to create a platform or mound upon which the internal structures were built (Edwards 1996, 14). These raised or 'platform' raths have been classified as a distinct rath type (Mallory & McNeill 1991, 186; Kerr 2007; O'Sullivan & Downey 2007a, 32; O'Sullivan et al. 2014, 50-53), and there are several hypotheses as to their origins



and/or functions. While there are some suggestions that they may have been high-status sites (Mytum 1992, 152; Kerr 2007, 80), in many cases there may have been more practical considerations behind the raising of the interior, i.e. to avoid flooding (Lynn 1982, 149; Stout 1997, 16-17). The construction process could shed more light on the intentions of the builders, specifically whether the rath was raised in a single event, or whether it achieved its height through an accumulation of material over a protracted period (or multiple periods) of occupation (Lynn 1982, 149; Lynn 1994, 89; Edwards 1996, 14; Kerr 2009, 65; O'Sullivan et al. 2014, 52). This was certainly the case at Rathmullan, Co. Down where excavation revealed seven phases of activity, starting with the construction of (possibly unenclosed) wooden houses, before being built up over several centuries until its latter phases when it was eventually built up into a motte (Lynn 1982, 148). Although the raised rath at Deer Park Farms did not transition into a motte, it too was formed over several centuries with thirteen phases of occupation identified dating from the Bronze Age to the twelfth century (Lynn & McDowell 2011a, 11-12; Warner 2011, 234). Conversely, excavation showed that the lower 5m-6m of the raised rath at Big Glebe, Co. Derry was constructed in a single event (Bratt & Lynn 1976; Kerr et al. 2010, 444). The mound was heightened at a later date, and radiocarbon dates pointed to occupation at the site from the mid-seventh to the twelfth century (Kerr et al. 2010, 445).

The distinction between raised and 'normal' raths is problematic without excavation (O'Sullivan et al. 2014, 52), indeed Chapple's (1998, 66) field survey of the Loop Head peninsula failed to identify any definite examples. Moreover, given that some raised raths have been shown to have evolved from 'normal' univallate raths (Proudfoot 1961, 95; Edwards 1996, 14), it is possible that at least some of them do not warrant a separate classification as they are merely the result of a gradual build-up of material. Due to erosion and deterioration of monuments over time, it is, for the most part, impossible to visually identify with any real certainty, whether a rath originally had a raised interior, or whether the bank has simply eroded away over time.

### **2.2.2 Conjoined Rathes**

A conjoined rath occurs when two raths abut each other in a figure-of-eight formation, again this can be achieved in a number of ways. In some cases the conjoined monument is comprised of two distinct circular enclosures, each with its own complete bank (Figure 2.10). Others consist of two adjoining subcircular enclosures with a shared bank. A third possible morphological distinction is apparent where a standard rath has an adjoining annexe which is more subrectangular than subcircular in shape (Figure 2.11). In the case of Lusk, Co. Dublin, the subrectangular annexe was interpreted as being contemporary with the rath as an access point between the two structures was discovered during excavation (Giacometti 2011, 160).

Nevertheless, it is possible that in some cases at least, such annexes were later additions. It is particularly difficult to assess the numbers and distribution of this monument type, as a distinction is not made in the Sites and Monuments Record (SMR). Instead, with a few exceptions, each enclosure is listed separately with its own SMR number and only a visual examination of each of the 47,000 (plus) recorded raths in the country would facilitate an accurate understanding of their occurrence and distribution. Moreover, conjoined raths are rarely (if ever) discussed as a separate monument type in terms of early medieval archaeology, but this will have to change with the discovery through excavation of more and more examples of this rath type, e.g. Curraheen, Co. Cork, Lusk, Co. Dublin, Lowpark, Co. Mayo (Danaher 2011; Giacometti 2011; Gillespie 2011, respectively).

Apart from the challenges associated with assessing the numbers and distribution, very little is known about their function and role in society as the evidence and research to date is so limited. The excavations at Lowpark revealed a circular enclosure with a souterrain and substantial evidence for ironworking, and a second, slightly smaller enclosure which was archaeologically sterile (Gillespie 2011, 181-189). Both enclosures were found to be contemporary and the site was interpreted as the habitation of an *ócaire* grade farmer (ibid., 192, 208). The excavations at Curraheen and Lusk told a similar story as regards the dearth of artefacts or structures associated with the annexe, although the annexe was only partially excavated at Lowpark and Curraheen. In all three cases, the sites were interpreted as middle status farmsteads, while the annexe feature was interpreted as an animal compound mainly based on the lack of archaeological evidence (Danaher 2011, 113; Giacometti 2011, 160; Gillespie 2011, 203).

It may well be that conjoined raths were associated with a particular grade of society as there were different responsibilities assigned across the various ranks. One possibility is that they fulfilled the role of provisioning hospitality during the early medieval period. Hospitallers (*bríugu*) were required to keep adequate supplies of food and drink to ensure that any guests—generally unannounced—could be fed and entertained (O’Sullivan 2004, 120-121). This undoubtedly required more than the average garden and storage space, particularly as the *bríugu* were expected to host large groups as well as individual visitors. Given the lack of archaeological evidence from the annexe enclosures at all three sites mentioned above, they could correspond with garden areas which would not necessarily have had enduring physical structures. In addition, hospitallers’ dwellings would have needed to be distinctive so that any passing travellers would know that they could enter seeking board and lodgings (Ó Riain 1972, 19). Some law texts specify that the ideal location for such an establishment was at the intersection of well-travelled thoroughfares (Ó Riain 1972, 23; O’Sullivan 2004, 122).

However, the figure-of-eight morphology is also reminiscent of more enigmatic monuments from earlier periods which had different, even special, connotations in relation to kingship. These include iconic sites such as the enclosures of An Forrad and Tech Cormaic at the Hill of Tara (Newman 1997, 77-86; Curran 2012, 44). Many of the known 'royal' sites during this period include figure-of-eight shaped monuments which suggests that this particular morphology was reserved for special purposes (Herity 1993, 137; Newman 1998, 132). A mound or tumulus was an integral part of a king's inauguration during the later Iron Age and early medieval periods (e.g. Hogan 1932, 196; Bhreathnach 1995, 112; Newman 1997, 135; Byrne 2001, 27), possibly representing the mortal and immortal planes (Gleeson 2012, 23). This formation seems to be reflected in the makeup of these monuments across the royal sites. For example, the conjoined monuments of An Forrad and Tech Cormaic on the Hill of Tara appear to have been formed by the merging of a bivallate rath with an earlier burial mound (Newman 1997, 180; Newman 1998, 138) (Figure 2.12). However, radiocarbon dating of the partially excavated conjoined enclosure at the Hill of Ward, Co. Meath demonstrated that both components were constructed at or around the same time (Davis et al. 2017, 93). Figure-of-eight monuments are also known at Rathcroghan, Co. Roscommon (Herity 1993, 131; Waddell 2009, 3), while the 'rose phase' at Dún Ailinne also featured a figure-of-eight structure (Newman 1998, 132; Wailes 2007, 13-16). These royal sites may differ slightly from some of the aforementioned excavated raths in that one of the enclosures comprises a mound; however, if the figure-of-eight format was indeed reserved for 'special' occasions, it is likely that there is more to these conjoined raths than meets the eye (even those without a mound).

Until conjoined raths are recognised as a distinct monument type, research will remain focused on isolated excavated examples. There is a real need for the evidence to be collated, synthesised, and investigated holistically in order to, first of all, establish whether there is a typology; secondly, to investigate whether a pattern can be identified; and ultimately, to try and decipher their role in early medieval society. These issues will be discussed in light of the evidence from the two case studies (Chapters 4 & 5) and in broader terms in Chapter 6.

### **2.2.3 Cashels**

Amounting to just under 3,500<sup>6</sup> examples, cashels are the stone-built equivalent of raths where, instead of an earthen bank, the enclosing elements were constructed of drystone walling (Figure 2.13). The distribution is largely concentrated in the western half of the country (Figure 2.14), although Louth and Kildare are the only counties in the whole of Ireland with a

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<sup>6</sup> The total may be slightly higher as some cashels may be included under the 'Enclosure' or 'Ringfort - unclassified' classifications.

complete absence of recorded cashels.<sup>7</sup> Based on radiocarbon dating from a small number of excavated sites, cashels are generally considered to belong to a later, albeit overlapping, phase of construction than their earthen counterparts (O'Sullivan et al. 2014, 66-68). However, excavations such as that at Coolagh, Co. Galway produced radiocarbon dates of cal. AD 651-771 and cal. AD 688-882 (Hardy 2011, 217); similar to that of a cashel at Caherconnell, Co. Clare whose radiocarbon dates also point to occupation between the seventh and ninth centuries (Comber 2016, 9). Two Sligo examples—Ballybeg and Carrowmore—also fall into this date range, with the latter potentially even earlier (Stout 1997, 24).

Cashels were usually univallate and the stone wall was often their only enclosing feature. They were, on average, smaller than earthen raths, with internal diameters of approx. 18m-25m (O'Sullivan & Downey 2007a, 32; Comber 2016, 5). Even in univallate examples, the enclosing elements can often be quite substantial and very, very impressive, such as those at Staigue Fort and Leacanabuaile, Co. Kerry (Figure 2.15). In the case of the latter, excavations exposed the foundations for several internal structures including circular and rectangular houses, a souterrain, and a wall chamber, all of which have since been conserved and restored (Figure 2.16). A small number of multivallate examples are known and several of these have been excavated. Cahercommaun cashel in Tullycommon, Co. Clare is described as trivallate, with three concentric stone-walled enclosures covering an area of approx. 116m x 69m (Cotter 1999, 48). The substantial inner wall (up to 8.5m wide) enclosed an area of approx. 32.5m x 28.6m in which hearths and house structures were identified through excavation (Hencken 1938, 1-3; Cotter 1999, 48-51). The areas between the inner and middle, and middle and outer enclosing elements were subdivided (Figure 2.17) and appear to have been used as small field plots, possibly for corralling livestock (Hencken 1938, 1; Cotter 1999, 63). If this were indeed the case, there is an argument for considering Cahercommaun a univallate cashel, with adjoining field and/or garden plots. In the strictest characterisation of multivallate enclosures, the additional closely set vallations are associated with defining the limits of the habitation itself, rather than enclosing the associated agricultural areas, i.e. they are not functional in the same way as field boundaries and other farm divisions.

Cashels, and to a lesser extent, raths, can sometimes be constructed within earlier monuments which may have been used as a means to claim ancestral connections (O'Sullivan et al. 2014, 71). Many of these sites are very impressive, for example that of Mooghaun South, Co. Clare (CL042-074) where two cashels were inserted into the middle and outer enclosures of a

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<sup>7</sup> ROI figures based on the dataset downloaded from the NMS Database on 22/02/2019; NI figures based on the NI SMR Database (<https://apps.communities-ni.gov.uk/NISMR-PUBLIC/Default.aspx>) as of 23/02/2019.

trivallate hillfort (Figure 2.18). A sample from beneath the outer rampart produced a radiocarbon date of 1255-917 cal. BC (Grogan & Condit 1994, 7), while further scientific dating placed the construction and occupation of the hillfort element firmly within the late Bronze Age (Grogan 2005, 128-129). Although it has not been excavated, the impressive cashel built within the trivallate hillfort of the 'Grianán of Aileach' has many similarities. In this case, the cashel has been identified as having close links with the Cenél nEógain, possibly their seat of kingship from between the eighth and tenth centuries (Lacey 2001, 148-149; Moore et al. 2010, 5).

#### **2.2.4 Crannógs**

Crannógs are essentially the water-based equivalent of early medieval raths and cashels (Kelly 1991, 84-85). These artificial islands are usually subcircular in shape and were built up using layers of stone, brushwood, peat, timbers, and soil (O'Sullivan 2000, 5). They are often found close to the shore in smaller lakes, generally in the shallows, although there are examples in deeper water (e.g. O'Sullivan 1998, 133; Fredengren 2002, 91; Fredengren et al. 2004, 173; O'Sullivan et al. 2014, 58), and to a lesser extent in rivers (O'Sullivan 2004b, 5). The crannóg perimeters were usually defined by a wooden palisade and often featured an outer ring of wooden piles (Figure 2.19). A submerged, often snaking, causeway connected the crannóg to the mainland, some of which are still visible. Crannógs range in size from approx. 8m up to 25m (Moore 2003, 40; O'Sullivan 2004b, 5; O'Sullivan et al. 2014, 58), although considerably larger examples are known, such as that at Lough Derravaragh which has a diameter of approx. 45m (O'Sullivan et al. 2007, 7). The discrepancy in size can be found among crannógs on the same lake, for example, at Whitewood Lough, Co. Meath where the more isolated crannóg to the south-east measures approx. 33m in diameter, compared to the two along the northern shoreline which both have diameters of approx. 7m.

Although predominantly early medieval in date, activity on crannógs can be found up to the seventeenth century (SMR: Crannóg). Of course, lake settlement was not an early medieval innovation and there are many examples of prehistoric lacustrine structures which can date from the Mesolithic period (e.g. Lough Boora, Co. Offaly) up to the Bronze Age (e.g. Cullyhanna Lough, Co. Armagh) (O'Sullivan 1998, 45-48 & 73-75). Although these structures are usually different in design to crannógs, excavations in the Outer Hebrides have produced radiocarbon dates which indicate that some of the islets previously considered to be crannógs were, in fact, constructed during the Neolithic (Garrow & Sturt 2019, 678-680). Neolithic material has also been found at several Irish lake settlements including that of Rathjordan, Co. Limerick where a huge quantity of stone axes was recovered in addition to a sherd of pottery (O'Sullivan 1998, 64-66). Notwithstanding this, the SMR classification of 'crannóg' only

comprises those dating to the early medieval period onwards. More appropriate classification is not possible without thorough investigation and scientific dating of each monument.

The vast majority of crannógs are found within the drumlin belt (Figure 2.20), with County Roscommon accounting for more than 25% (381) of all known crannógs. Counties in the southern part of the country contain less than 2% of all recorded crannógs, although only three counties—Carlow, Dublin, and Wexford—have no recorded monuments of this type. Crannógs can be relatively rare on larger lakes but there are some exceptions (O’Sullivan 2004b, 5). Measuring more than 7km from south-west to north-east, Lough Sheelin, Co. Cavan, has nine crannógs, seven of which are clustered together in the north-east of the lake with the remaining two less than 200m apart on the south-western shores (Figure 2.21). Smaller lakes are often home to a single crannóg, but some have multiple monuments. For example, Whitewood Lough, Co. Meath is only a fraction of the size of Lough Sheelin but is home to three crannógs.

As with raths and cashels, housing and other structures were contained within the interior of the crannóg. Due to the waterlogged conditions, preservation of organic remains is often exceptional, and excavations at many crannógs have provided incomparable evidence of wooden tools and other artefacts which generally perish on their dryland counterparts. This was perhaps most evident at one of the most recent crannóg excavations at Drumclay, Co. Fermanagh where the remains of over 30 wooden houses and more than 1,000 wooden artefacts were found, including cups, bowls, buckets, and a host of other items (Bermingham et al. 2013, 38-40). The survival of such evidence can provide significant insights into the types of utensils that were in everyday use by the households, thereby giving an insight into some of the more mundane activities or processes that may have otherwise been hidden.

Unsurprisingly, given their watery locations, travel by boat was an important activity for the crannóg dwellers, and this is evidenced by the discovery of wooden boats at several sites (O’Sullivan 2004b, 65). The remains of three dug-out canoes were found in association with the larger crannóg at Whitewood Lough (Ó Ríordáin 1955, 289; Eogan 1957, 53), all of varying sizes which could infer the use of different boats for different purposes, e.g. for fishing, raiding, or simply shorter versus longer journeys (Curran 2010, 55). This crannóg also had evidence for a boat slip and two more canoes were located within the lake itself (Eogan 1957, 53; Curran 2010, 54), which suggests that boat travel was a regular and significant pursuit.

Despite the potential for superb preservation, with only 29<sup>8</sup> crannógs excavated to date, there is no definitive, singular hypothesis as to their function and role within society. O'Sullivan (1998, 136-143) put forward several interpretations which include: royal settlements, defended settlements, high-status metal-working centres, and craft-production centres. It is entirely likely that crannógs fulfilled all, some, or none of these functions at various phases in their lifespan. Several of the excavated monuments have been designated 'royal sites' due to the high-status nature of the associated artefacts and in conjunction with historical references. This is also supported by the discovery of large 'king-sized' houses at several sites, such as Moynagh Lough where a roundhouse with a diameter of 10m was identified and dated to the mid-eighth century (Bradley 1991, 15-16, 24). The crannógs at Cró-Inis and Coolure Demesne (both Co. Westmeath) were reputed to have been the seats of the Clann Cholmáin and the Uí Fiachrach Cúile Fobhair of the Southern Uí Néill respectively (O'Sullivan 1998, 130; O'Sullivan et al. 2007, 80). Gleeson (2012, 6-7; Carty & Gleeson 2013, 55) goes so far as to suggest that the large quantities of human bone—many with signs of sacrificial killing—found at Lagore crannóg were part of a kingship ritual or the judicial processes of kingship. Other potentially high-status sites such as Ballinderry 1, Co. Westmeath, appear to have evidence for later activity (tenth and/or eleventh century) including Viking artefacts which indicate—at the very least—interaction with the Hiberno-Norse, if not habitation by them (Hencken 1936, 226).

However, the reality of the living conditions on crannógs did not necessarily meet the expectations of high status, and environmental evidence from excavations at the crannóg of Buiston in Scotland, revealed particularly squalid conditions, despite its interpretation as the home of a wealthy farming community (Crone 2000, 166). Examination of the fly puparia indicated that the volume of houseflies frequently reached 'plague-populations' (Skidmore 2000, 101), whereas evidence from insect remains such as Coleoptera pointed to periods of flooding during the lifetime of the habitation (Mills 2000, 163). As Bradley (1991, 24) postulated in his discussion of Moynagh Lough, why choose to build in a damp location, exposed to prevailing winds on multiple sides when there were clearly options to build on land as evidenced by the density of raths in the surrounding area? He answered his own question by coming to the conclusion that a lake dwelling offered greater protection. The submerged weaving stone causeways, wooden piles, and surrounding water all provided additional defensive elements that were not afforded to land-based sites (O'Sullivan 1998, 138). But in a time where much of the travel was undertaken across the network of rivers and lakes, would building in water really have been of such benefit?

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<sup>8</sup> According to EMAP, 28 crannóg excavations were recorded from 1930 to 2007 (ROI and NI), which makes a total of 29 including the excavations at Drumclay, Co. Fermanagh which took place in 2011/2012.

Many sites, including Lagore (Co. Meath), Bofeenaun (Co. Mayo), and Sroove (Co. Sligo) have produced substantial evidence for metalworking (e.g. Hencken 1950, 8; O'Sullivan 1998, 122; Fredengren 2001, 24, respectively). Moynagh Lough produced a large collection of metalworking paraphernalia, including five complete crucibles, crucible sherds, clay mould fragments, heating trays, and baked clay (Bradley 1991, 13-18). There was also evidence for glassworking, coopering, and the working of bone and antler (*ibid.*, 24), indicating the wide range of skills possessed by the inhabitants. The presence of (often large) quantities of animal bone at many excavated sites, including Lagore (Hencken 1950, 7), Moynagh Lough (Bradley 1991, 7), and Sroove (Fredengren 1998, 32) certainly indicate that the inhabitants had access to the proceeds of farming. However, many crannógs also have evidence which demonstrates that they were involved in the agricultural process, rather than being just end users, and thereby suggesting that they were not simply craft-production sites. Quernstones (or quernstone fragments) have been recovered, often as stray finds, at a host of sites, including Lough Donogher, Co. Leitrim (Lucas et al. 1958, 132), Knockroe, Co. Clare (Lucas 1967, 17), and Rahan's Lough, Co. Monaghan (Prendergast & Lucas 1962, 156). Moreover, ploughing equipment and reaping tools have also been found at several excavated sites (O'Sullivan 1998, 144-145) which further support this, although more research is needed in order to ascertain where the associated field systems may have been located (*ibid.*). This does pose somewhat of a dichotomy as farming suggests a connection to the land and community, while the liminal placement of crannógs suggests detachment (Fredengren 2010, 165).

In addition to the structural and artefactual remains, there are other criteria to consider, perhaps most importantly the positioning of the crannógs within the lake or river. O'Sullivan (2000, 16) suggested that crannógs may have served as boundary markers, and indeed, this is reflected in the location of several crannógs which were positioned at the meeting point of two or more townland boundaries. The crannóg at Lisnacrogher, Co. Antrim occupies a position at the meeting point of three townlands, and on the borders of a parish boundary (Fredengren 2007, 39). Many crannógs show a similar preference, such as Ervey Lough, Co. Meath which is located on both a townland boundary and the county boundary between Meath and Cavan (Figure 2.22). Lough Derravaragh, Co. Westmeath also constitutes the boundary between three modern baronies, and potentially formed the border between the three early medieval *túatha*, as well as a regional boundary between over-kingdoms (O'Sullivan 2004b, 185). Although, and as Fredengren (2007, 39) acknowledges, further investigation is required here as it is unclear whether the boundary led to the building of the crannóg or vice versa. Another point to consider is the positioning of the crannóg within the lake itself, particularly in relation to the associated rivers. This is particularly striking at Whitewood Lough where the three crannógs are positioned at the points where three rivers meet the lake (Curran 2010, 55)



(Figure 2.23). The choice of location appears to be very deliberate, and strategic in nature, especially as the two to the north are quite close together. At Breakey Lough, Co. Meath, the crannóg is positioned at the narrowest point of the lake, where it bends to the north-east; this also coincides with the townland boundary (*ibid.*, 22) (Figure 2.24). Several of the Co. Westmeath crannógs investigated by O’Sullivan (2004b, 262) are also positioned adjacent to the outlets of major rivers, such as the River Inny in relation to Lough Derravaragh or the River Brosna in relation to Lough Ennell. The strategic positioning of the crannógs could be manifold, especially considering the use of rivers as routeways in the early medieval period. Firstly, the positioning of the crannógs could constitute a means of controlling access to the lakes and subsequent passage through the landscape (*ibid.*). In this way, the crannógs could be defensive constructions, possibly defending the land and territories around them rather than merely the contents of the crannógs themselves (O’Sullivan 2004b, 263; Curran 2010, 66-67). Secondly, the crannóg locations could have been chosen for their benefits as part of the local trade and communications network. This could complement the high levels of craftworking and industry that is evident from many of the excavations, as a location on the water would have made it more straightforward to transport both raw materials and finished products to and from the site. Similarly, the location on the water could facilitate easier movement of fleets—for defence or attack—along the river networks (O’Sullivan 2004b, 263).

Ultimately, the range of archaeological evidence from crannógs demonstrates that they may have fulfilled a number of different roles within early medieval society including royal residences, industrial centres, refuges from attack, or simply defended homesteads (e.g. O’Sullivan 2000, 5; O’Sullivan 2009, 79). This is reinforced by the presence of multiple crannógs on certain lakes such as Lough Gara, Co. Sligo where there are several hundred (Fredengren 2002, 72, 77). With multiple crannógs on a single body of water, it is possible that they fulfilled different functions and/or were in use at different times.

Irish crannógs have long been seen as somewhat enigmatic and mysterious, the vegetation and trees emerging from the lakes giving a hint of what might lie beneath the water. Perhaps for this reason, they have been of interest to antiquarians and archaeologists alike, with Wood-Martin’s investigation and subsequent published inventory of lake settlement in Ireland (Wood-Martin 1886), Wakeman’s explorations in the north-west of Ireland (e.g. Wakeman 1871a; 1871b), and Shirley’s exploration of the crannógs around Lough Fea (McDermott 2010a, 33) all taking place in the late nineteenth century. Three crannógs were excavated by the Harvard Expedition in the 1930s, including Lagore, Co. Meath, Ballinderry 1, Co. Westmeath, and Ballinderry 2, Co. Offaly (Hencken 1941, 4-6; O’Sullivan 1998, 20-21). The first modern investigations of crannógs using survey and fieldwork took place in the 1980s under the remit

of the 'Crannóg Archaeology Project' (Farrell 1991, 100). The team surveyed several lakes in the Irish midlands, and recovered a large number of artefacts and identified structural remains (Farrell et al. 1989; Kelly 1991, 89; Fredengren 2002, 57). The underwater surveys in particular provided a new insight; however, the recording strategy fell short in places and the context and exact findspots of some artefacts were not recorded (Farrell et al. 1989, 126).

Since then, two scholars—Christina Fredengren and Aidan O'Sullivan—have made particularly significant contributions to the study of lake settlement in Ireland. Fredengren undertook a large-scale study of the crannógs at Lough Gara as part of the 'Crannóg Research Programme', surveying and recording almost 200 sites around the lake's edge and recovering samples for radiocarbon dating (Fredengren 2002, 78-79, 92-93). This process made significant contributions to crannóg typology based on cairn construction and demonstrated morphological changes in artificial island construction from the late Bronze Age through to the medieval period (ibid., 292). The dates showed that early medieval activity was not restricted to a distinct part of the lake, but instead was evident all around the lakeshore (ibid., 95-99). Fredengren made a real effort to incorporate the surrounding landscape and contemporary settlements, which constituted a crucial step in our understanding of these monuments. In addition to its physical, scientific contribution, the major benefits of Fredengren's work were the improved understanding of how the lake evolved over time and within its local landscape. However, given the scale of the investigations involving such a large body of water and so many crannógs, it was not possible to obtain scientific dates for all sites, and in a sense there is still much more to be learned from Lough Gara. O'Sullivan's doctoral thesis brought this a step further when he examined the historical and archaeological evidence for Irish crannógs with a view to exploring their social and ideological role within early medieval society and within the context of their surrounding landscape (O'Sullivan 2004b, 8). Drawing on a range of multidisciplinary resources, O'Sullivan focused on the crannógs in and around Co. Westmeath to understand how such monuments might have been perceived in the early medieval period (ibid., 1). By introducing themes such as social identity and the ideological role of settlement, O'Sullivan succeeded in bringing crannógs in from the cold (and wet), and empowering future scholars to consider them more holistically as an integral part of the early medieval landscape, rather than enigmatic stand-alone monuments. For the early medieval population, crannógs were as much a part of their settlement landscape as other monument types (O'Sullivan 2009, 83), and so too must they be an integral part of early medieval landscape studies.

### **2.2.5 *Unenclosed Settlement***

Evidence for unenclosed settlement within the early medieval period is relatively sparse, although this may be due to a number of factors. For example, it may simply be the case that

there was very little unenclosed settlement at the time, it may be the result of poor survival of the evidence, or we may be looking in the wrong places. Or are we looking for the wrong evidence? Hamerow (2002, 86) suggests that unenclosed settlements in the Netherlands were simply enclosed by different means such as hedging. The Irish contemporary documentary sources certainly suggest that there were individuals living outside of the secular and ecclesiastical communities, typically those who were cast out of settlements and forced to live outside of the realm of civilised society (Bitel 1990, 35). Outlawry was a legal process through which an offender could be deprived of their rights—sometimes merely temporarily—by way of punishment for a range of offences (Kelly 2011, 222-223). In some cases, the outlaws were able to re-establish themselves in another territory (*ibid.*); however, in the interim, they would have been left to find their own means of survival outside of the recognised settlement areas, perhaps building huts or finding shelter in caves (Bitel 1990, 35; O'Sullivan et al. 2014, 113). Poverty and slavery were also part of early medieval society (Boyle 2004, 86), and while many servants and slaves undoubtedly lived within the confines of their master's enclosure, it is probable that at least some of them lived outside of the 'normal' structures. In some instances, the poorer classes may have lived within enclosed dwellings in the more peripheral parts of the landscape such as poorer quality uplands or peatland (Kinsella 2005, 26). However, there is also limited evidence for free-standing early medieval housing such as the huts and associated fields of 'The Spectacles' at Lough Gur, Co. Limerick (Ó Ríordáin 1949; Boyle 2004, 93). These were initially interpreted by Ó Ríordáin (1949, 109) as undefended homesteads, probably built during peaceful times when there was no need for fortification. In his later revisiting of the evidence, Boyle (2004, 95-96) put forward two hypotheses as to their use as seasonal booley huts or as a low status settlement, mainly due to the poor quality of the land for farming. However, as Boyle (*ibid.*, 96) himself pointed out, the artefactual evidence from the site would seem to contradict this as the occurrence of glass beads, fragments of jet-like bracelets, and a large quantity of animal bone (Ó Ríordáin 1949, 106-107) do not conform to our understanding of particularly low status settlement.

Early medieval activity and/or habitation has also been found at several caves, predominantly represented by artefactual evidence; for example, Midleton, Co. Cork (Coleman 1947, 72-73), or Kilgreany, Co. Waterford at which 'abundant' early medieval material was unearthed (*ibid.*, 67-70). Although not strictly an unenclosed settlement as it was associated with a D-shaped enclosure, excavations at Cloghermore Cave, Co. Kerry revealed a wealth of early medieval activity, including human burial. An assemblage of more than 3,500 bones was recovered, and although only a small sample of thirteen were radiocarbon dated, they indicated two phases of burial, the first in the eighth century, and the second in the ninth or early tenth century (Connolly & Coyne 2005, 163). A range of artefacts were also discovered which indicated the presence

of a Scandinavian or Hiberno-Scandinavian group, certainly over the course of the later burial phase (ibid., 168). One of the key factors in this interpretation was the recovery of a silver hoard comprising two ingots and four pieces of hack silver (Sheehan 2005, 135) (Figure 2.25). Although not definitively dated, the contents of this hoard are synonymous with Viking Age Silver hoards found in other parts of Ireland, particularly those associated with Hiberno-Scandinavian Dublin (ibid., 154).

So, while there is still very little known about the purpose and societal role of unenclosed settlement, e.g. whether it is a reflection of status or function (O'Sullivan et al. 2014, 113; O'Sullivan & McCormick 2017, 121), the findings to date indicate that there was at least some level of unenclosed settlement in operation. However, given the overwhelming evidence for settlement enclosures throughout the island, it must be accepted that the vast majority of the population resided in enclosed settlements such as raths, cashels, and crannógs; and that any deviation from this was very much exceptional and a rarity.

#### **2.2.6 Early Medieval Houses**

Within the monuments discussed above lived the early medieval household which comprised people related by blood and by marriage (e.g. grandparents, parents, children), in addition to those brought in through fosterage, and also slaves and servants (Charles-Edwards 2000, 108; O'Sullivan 2008, 226). The houses and outhouses within the enclosures would have been busy, vibrant places with human and animal inhabitants going about their daily business (O'Sullivan & Nicholl 2011, 65), and experiencing all the vagaries of life between birth and death (O'Sullivan 2008, 230). The style and structure of houses did not differ across settlement types; raths, cashels, and crannógs all produced similar evidence for housing (O'Sullivan et al. 2014, 91). Through his examination of the remains of more than 255 house structures, the data compiled by Lynn (1994, 89) as part of his in-depth study of early medieval housing demonstrates the occurrence of both round and rectangular houses constructed of both wood and stone across all types of secular and ecclesiastical settlements.

Although the survival of house remains on the surface is relatively rare, they can be sometimes found as low grass-covered platforms, albeit it is only through excavation that the structure and typology can be properly established (ibid., 81). Obviously the record is somewhat biased based on the location of the excavations (mainly the north-east and south-west of the country), the preservation of the remains, and whether the full site was excavated (ibid., 81-82). Indeed, given the nature of some house structures, it is not unusual for an early medieval settlement

to fail to produce reliable evidence of housing (Edwards 1996, 22; O'Sullivan et al. 2014, 89). Houses in the earlier part of the period were generally circular, sometimes forming a figure-of-eight with the backhouse (Lynn 1994, 83; O'Sullivan 2008, 231; O'Sullivan et al. 2014, 89) (Figure 2.26). Rectangular houses appear to have largely replaced circular houses from the ninth or tenth century onwards, although some more recent excavations such as that of the crannóg at Drumclay, Co. Fermanagh have evidence to the contrary with rectangular, circular, and figure-of-eight houses overlapping chronologically (Bermingham et al. 2013, 38).

Excavations at sites such as Drumclay and Deer Park Farms have demonstrated the scale of continuous settlement that could take place over the lifetime of a crannóg or rath. At Drumclay, the remains of more than 30 houses showed that they were built and rebuilt in the same locations, with features such as hearths and thresholds being repeatedly renewed (*ibid.*). The rath at Deer Park Farms was excavated by Chris Lynn and Jacqueline McDowell in the 1980s and is probably the most 'famous' Irish early medieval settlement site to have undergone scientific investigation. The rath produced evidence for several phases of activity from prehistoric through to modern times, including multiple phases of early medieval activity (Lynn & McDowell 2011a, 10-11). Most significant, however, were the unprecedented levels of survival of the organic remains which resulted from the waterlogging of the site (McDowell & Lynn 2011a, 91). The incredible preservation produced a total of 3,827 artefacts in addition to at least 43 structures—including intact post-and-wattle walling—dating to the rath and raised rath phases, amounting to evidence of a continuous sequence of early medieval construction (Lynn & McDowell 2011a, 7-11). As such, Deer Park Farms offers the best evidence to date for early medieval secular settlement, in terms of the enclosing elements, internal structures, and the evolution of a rath over time.

While structural evidence has been uncovered in other rath excavations, it generally tends to be in the form of postholes, pits, gullies, etc. where the now completely decayed wooden walling would have stood. A possible roundhouse at Lowpark, Co. Mayo was identified by the remains of eight postholes and pits and a charcoal-rich spread that was interpreted as a possible hearth (Gillespie 2011, 197). Several structures were identified at Killickaweeny, Co. Kildare, including a probable roundhouse which was defined by a series of postholes (some with stone packing) in a semi-circular formation within which lay a central hearth (Walsh 2006a, 34-34; Walsh 2011, 314-315). A second subrectangular structure at the site was defined by a gully or slot trench with three stone-packed postholes in the interior, possibly to support a roof (Walsh 2006a, 64-69; Walsh 2011, 314-317). As detailed by Lynn (1994, 87), other types of structural evidence found in place of actual wall remains comprise stone revetment, burnt ashly spreads, and an upstanding ridge of clay. This evidence is still crucial, particularly as it is this

type of evidence that is most frequently available to the archaeologist excavating early medieval remains; and indeed, some of it can be identified through geophysical survey. Even without walls, one can sometimes make out circular and rectangular house structures and other features, but the value of the remains at Deer Park Farms was that they gave so much more detail about what the posts were actually holding in place. Quite often, clusters of postholes and other features revealed through excavation are simply identified as ‘structures’ rather than specifically as houses due to the lack of definite evidence, which can hamper research into the topic (Jones 2012, 3).

The law tracts give some indication of the type of structure and appropriate house size which varied according to the inhabitants’ status (Table 2.2). The average house size was approx. 6m, but could range from 4m up to 10m in diameter (Lynn 1994, 91). To some extent, excavations have supported the evidence from the law tracts, in particular the excavations at the aforementioned Deer Park Farms which identified the remains of multiple houses and structures (Lynn & McDowell 2011a, 8). Ultimately, the main houses at Deer Park Farms correspond with the expected house size allotted to the *bóaire* or *mruigfer* grades in the *Críth Gablach* (Lynn 1994, 91; Kelly 2011, 110; Lynn & McDowell 2011b, 604; Stout 2017, 104).

**Table 2.2 House Size and Social Status** (after Lynn 1994, 91)

Social Grade	Translation	House (m) <sup>9</sup>	Backhouse (m)
<b>Ócaire</b>	Young / Small Farmer	4.75	3.25
<b>Bóaire</b>	Prosperous / Strong Farmer	6.75	3.75
<b>Mruigfer</b>	Prosperous Farmer	6.75	4.25
<b>Aire déso</b>	Lord of Vassalry	6.75	‘proper’
<b>Aire túise</b>	Lord of Leadership / Precedence	7.25	4.75
<b>Aire forgill</b>	Lord of Superior Testimony	7.50	5
<b>Pilgrim King</b>	N/A	9.25	-

Likewise, the *Críth Gablach* sets out the tools and utensils that such a house should possess, and indeed many of them were present at Deer Park Farms (Lynn & McDowell 2011b, 605). Of course, these parallels cannot be counted as irrefutable evidence as preservation at Deer Park Farms was unique and is but one example of a rath whose remains are comparable to those described in the law texts. As Lynn & McDowell point out (*ibid.*, 606), it is entirely

<sup>9</sup> Lynn (1994, 91) gives the measurements in Old Irish feet, but they have been converted to metres here; 1ft = approx. 0.25m.

probable that many tools and utensils were common across many grades of society. Even with these caveats, Deer Park Farms is still the most significant example in existence of the potential correlation between textual and archaeological evidence, and as such, paves the way for further exploration in this regard. However, the lack of preservation of actual structures at most sites does present a challenge for further investigations. A study by Iestyn Jones sought to overcome this issue by interrogating excavation reports of early medieval house sites in Ulster, with a view to identifying other common features (e.g. hearths, entrances, roof supports, etc.) which could help to improve the classification and interpretation of these 'structures' (Jones 2012, 3). Jones also examined the positioning of the houses within their enclosures in addition to the house dimensions. The results showed considerable correlation with Lynn's findings, particularly in relation to the central positioning of the main or dominant house, the majority of which were found to be located within the central area of the enclosure (*ibid.*, 176). Despite some complications with regards to the interpretation of an early medieval foot measurement, there was a clear distinction in relation to house dimensions which largely correlated with the law texts (*ibid.*, 177-178).

Jones' study also went beyond this to explore how the houses might have been laid out internally and used by those who lived in them (*ibid.*, 180). Indeed, in recent years, the research trend has moved from the analysis and morphology of structures towards interpreting the use of space and the role of houses within the social dynamic. Studies by Nicholl (2011) and Boyd (2012) investigated the use of space within native Irish and Viking houses respectively. Nicholl's research comprised an experimental approach which examined the impact of light, fire, heat, and smoke within an early medieval house, and the role of the architecture in this regard (Nicholl 2005, 27). The role of experimental archaeology has developed further since then and culminated in the construction of a replica Deer Park Farms roundhouse at the Centre for Experimental Archaeology on the UCD campus (O'Sullivan et al. 2017, 81). The reconstruction utilised evidence from a range of archaeological sources, including structural remains and plant and insect analysis; ultimately meaning that it is now possible to 'experience' an early medieval house rather than merely envisage one based on plans and postholes.

Despite the high volume of excavation since the early 1990s, Lynn's 1994 publication in which he examined the remains of 255 early medieval houses from approx. 165 sites (Lynn 1994, 81) is still the most influential work on early medieval housing; bolstered by Jones' more recent work on the Ulster examples. With current estimates for evidence of up to 550 early medieval houses (O'Sullivan et al. 2014, 89), there is a real need to revisit and update this research in light of the interceding 25 years of excavation, and while this is outside of the scope of this

project, the 'new' evidence will be considered in an attempt to understand status and hierarchy within early medieval settlement (see Chapter 6).

### **2.2.7 Souterrains**

Souterrains are artificial underground passages and/or chambers which are predominantly stone-lined and stone-capped; they are often associated with rath and cashel enclosures (O'Sullivan et al. 2010, 32; O'Sullivan et al. 2014, 106) (Figure 2.27). There are 5,429<sup>10</sup> souterrains recorded across the whole island of Ireland, with examples in every county (Figure 2.28). Counties Carlow and Fermanagh are the least well represented with only two and three examples respectively. Cork and Kerry are by far the dominant counties, accounting for 37% of all recorded souterrains, with over 1,100 in Cork alone. 247 souterrains were excavated across 186 different sites between 1930 and 2004 (O'Sullivan et al. 2008, 86), amounting to approx. 4.5% of the total. Counties Louth and Meath account for 38% of the excavations with Antrim the third highest, featuring 35 excavations (ibid., 87).

Swan (1983, 274) identified souterrains as one of the key diagnostic features of ecclesiastical sites (see Section 2.3). However, figures from the excavations do not support this, as only 10% were found to be associated with ecclesiastical sites, while 40% were found within or associated with secular enclosures (O'Sullivan et al. 2010, 88). This is also reflected in the Monaghan study area (see Chapter 5). The remaining 50% of sites were not associated with any early medieval enclosures (ibid.), which would appear to correlate with their interpretation as evidence of unenclosed settlement (e.g. Lynn 1994, 92; Clinton 2000, 283; Clinton 2001, 45). Indeed, 70% of souterrains in Co. Louth (including unexcavated examples) were found to be unenclosed (Clinton 2000, 283-284), quite a substantial figure given that there are 343 recorded within that county. It is possible, however, that many souterrains that appear to be unenclosed are actually related to early medieval settlement and/or settlement enclosures. For example, a geophysical survey undertaken in relation to two newly discovered souterrains in Crewbane, Co. Meath revealed a network of features of potentially early medieval date (Fenwick et al. 2012, 15-18). Unfortunately, the survey did not include the area directly around the souterrains (just the neighbouring fields), so although they appear to be located outside of the enclosing features, this is not absolutely certain (Figure 2.29).

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<sup>10</sup> ROI figures (4,771) based on the dataset downloaded from the NMS Database on 24/03/2019; NI figures (658) based on the NI SMR Database (<https://apps.communities-ni.gov.uk/NISMR-PUBLIC/Default.aspx>) as of 24/03/2019.



In an article intended to generate discussion on the topic, Buckley (1986, 109) put forward a hypothesis in favour of souterrain distribution as a reflection of tribal divisions based on his study of the monuments in Ulster. This was immediately discounted by Warner (1986, 111-112) in the same publication, and subsequently by Clinton (2001, 36-39); yet still no alternative hypothesis has been agreed upon (O'Sullivan et al. 2014, 107). As Clinton (2001, 39) also pointed out, the adoption of souterrains did not always permeate the entirety of the political unit. The chronology of souterrain construction may help to better understand their distribution; however, very few have been scientifically dated (*ibid.*, 89). While material from prehistoric to medieval periods has been found at various souterrain sites, the vast majority of the evidence dates to the early medieval period, and Clinton (*ibid.*, 95) proposes the period from the late eighth to the early thirteenth century as their peak phase of construction and use. Both the eastern and western souterrains at the Raystown complex produced relatively early dates, AD 530-650 and AD 640-770 respectively (Seaver 2016, 25, 36), which suggests that further excavations with scientific dating could prove informative in this regard.

Some souterrains are quite straightforward in their design with a relatively straight passage and single chamber while others are much more elaborate with twists and turns, sometimes leading to multiple chambers (Figure 2.30). There is also evidence of more intricate designs incorporating trapdoors and air vents among other features (O'Sullivan et al. 2010, 31). This has led to some disagreement over their function as the narrow passages and hidden chambers have been interpreted as defensive features to enable inhabitants to hide from attackers (Clinton 2001, 201). Cahercommaun is an excellent example of this as a souterrain led from the main dwelling of the cashel, through the wall and out to the edge of the cliff; a potential escape route in times of crisis (Hencken 1938, 2). The modifications to the eastern souterrain at Raystown which saw the addition of a new passage which extended to the north were also interpreted as a possible escape route (Seaver 2016, 28); as were the lintelled opening and short passage at the western souterrain (*ibid.*, 34). The discovery of high-status objects in souterrain contexts also lends itself to this theory (Edwards 1996, 30; O'Sullivan et al. 2010, 31). However, it is also possible that the ambient temperature would have been suitable for the storage of perishables such as dairy products and meat (Lucas 1975, 181; Edwards 1996, 30; O'Sullivan et al. 2010, 32).

If the majority of souterrains were indeed located away from ecclesiastical and secular enclosures, this poses additional questions in relation to their function. If they were constructed for purposes of refuge, how would people locate them and make their way to them while under attack? In this case, it makes more sense for the souterrains to be constructed within, or at least very close to, the settlement—potentially leading from the enclosure interior out to safety

as seen at Cahercommaun. Warner (1979, 129-133; 1980, 90-94) argues strongly in favour of souterrains as places of refuge rather than storage; but in arguing against their being a place of safe-keeping for high-status goods, he makes the point that wealth in the early medieval period was predominantly in the form of livestock (Warner 1980, 93). Surely taking refuge within an underground chamber would leave a farmer's livestock unattended and free for the taking? No single explanation for souterrain use seems to add up, and as O'Sullivan et al. (2014, 111) suggest, the evidence should probably be examined on a case by case basis in order to determine the function of the monuments at each site.

### **2.3 Components of the Early Medieval Landscape: Ecclesiastical Settlement**

The nature of early medieval Christianity and its physical expression is complex, and there is undoubtedly considerable diversity. Churches may have shared the basic principles of layout and organisation but they could vary greatly in scale, status, and character (Ó Carragáin 2014, viii); from remote island monasteries like Skellig Michael, Co. Kerry to sprawling monastic complexes such as Glendalough, Co. Wicklow, to smaller operations such as Illaunloughan, Co. Kerry. The establishment of the early churches had a significant impact on the physical landscape as the early clerics ventured out into the various territories with the aim of converting the local populations. Of course, in order to set up their churches, they had to first negotiate land on which to build from the local territorial élite. Choosing the right location for a new ecclesiastical establishment was an important consideration, although the founders were not always given the freedom of selecting the location themselves and were often at the mercy of the local leadership to grant them land (Bitel 1990, 40-42). Sites close to rivers or lakes were particularly favoured as they provided the inhabitants with access to water for consumption as well as safer travel routes (ibid., 36). A sense of the movement of the various saints throughout the landscape can be understood by tracing the historical references and the various dedications to them which survive in the names of many ecclesiastical sites and holy wells.

In most cases, traces of the early churches themselves do not survive in the archaeological record. There are a number of reasons for this, first and foremost is the fact that the earliest churches were constructed of wood which has simply not survived (Ó Carragáin 2010a, 19; O'Sullivan et al. 2014, 149; Manning 2015, 325). However, traces of postholes have been tentatively identified at a small number of sites including Caherlehillan, Co. Kerry which dates to the late fifth or early sixth century (Ó Carragáin 2010a, 19; O'Sullivan et al. 2014, 149; Sheehan 2014, 248). Stone churches became more common from around the ninth century, although a small number of earlier dates (mainly seventh century) have been recorded (O'Keeffe 1998, 116). In many cases, the stone churches replaced the wooden churches and

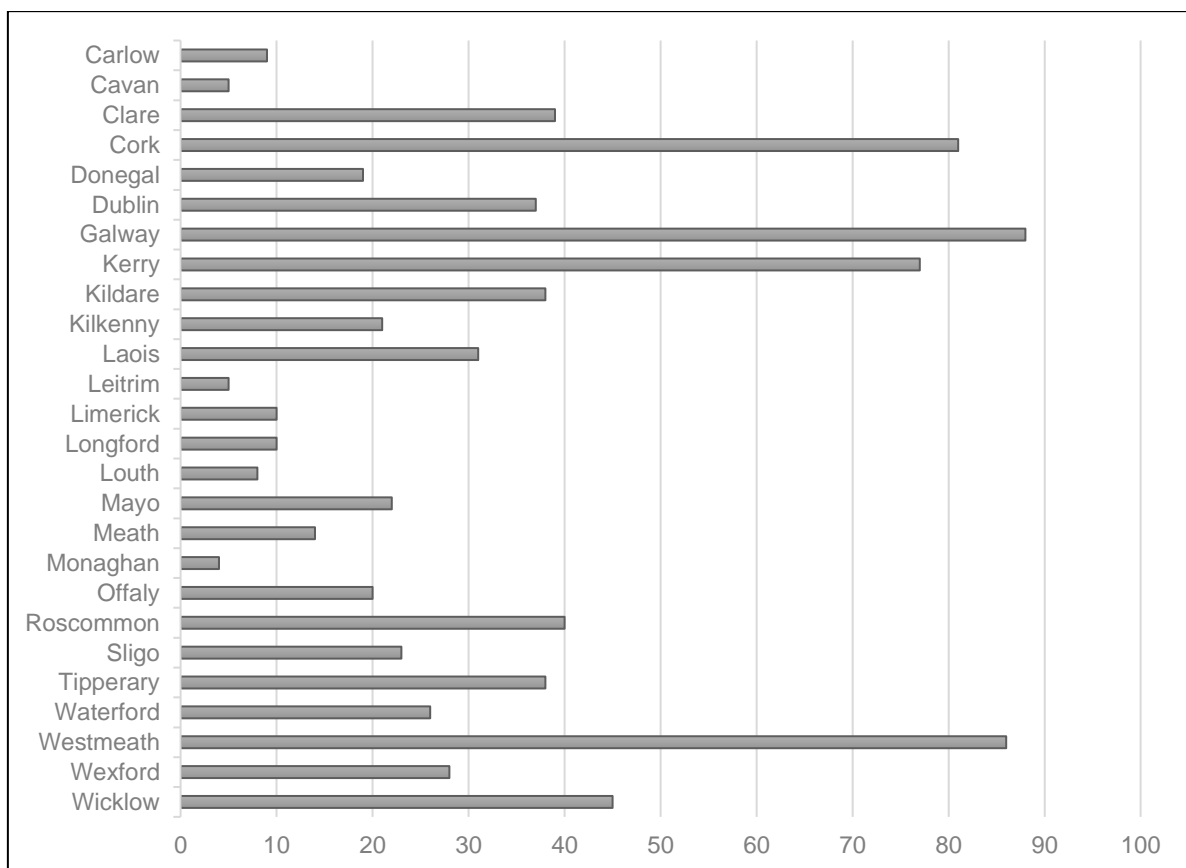
were built on top of them (ibid., 112). More than 5,500 pre-Norman churches have been recorded in Ireland (Stout & Stout 2011, 49), although only circa 140 typically early medieval structures (i.e. small, rectangular, single-cell) have been identified, dating predominantly from the tenth to twelfth centuries (O’Sullivan et al. 2014, 153). In many cases, the early medieval establishment continued and developed into the medieval period, thus the later medieval church building and/or burials often overlay the original, earlier foundation (Ó Carragáin 2010a, 19). Clearly, this can pose challenges for investigations using remote sensing techniques.

Crucially, in the absence of church survival, Leo Swan (1983, 274) identified twelve key characteristics of early medieval ecclesiastical establishments which aid their identification in the landscape (Table 2.3). Of the twelve, most sites should have a combination of four or five distinct features, with a minimum of three (ibid.). Some indicators are stronger than others, for example the ‘evidence of enclosure’ is crucial (Swan 1988, 5), as is the ‘placename with ecclesiastical element’ (Hamlin 1992, 139). Although, as this project demonstrates, even if an enclosing feature is not immediately visible it does not mean that it is absent. As discussed previously (Section 2.2.7), current evidence suggests that souterrains are not exclusively linked to ecclesiastical sites, and so their presence can no longer be taken as proof of a religious establishment. Additionally, given that many surviving stone churches are medieval or post-medieval in date, their presence alone is not an indicator of an earlier foundation.

**Table 2.3      Key Elements of Early Ecclesiastical Sites**      *(after Swan 1983, 274)*

Item	Characteristic
1	Evidence of enclosure
2	Burial area
3	Placename with ecclesiastical element
4	Structure or structural remains
5	Holy well
6	Bullaun stone
7	Carved, shaped, inscribed, or decorated stone cross or slab
8	Line of townland boundary forming part of the enclosure
9	Souterrain
10	Pillar Stone
11	Founder's Tomb
12	Associated traditional ritual or folk custom

The enclosing features at ecclesiastical establishments were employed for different purposes than those constructed around secular settlements, in this case to demarcate sacred space (Doherty 1985, 59-61; Mytum 1992, 83-84; Bradley 1998, 45; Swift 1998, 109; O’Sullivan et al. 2014, 145-146). 824 ecclesiastical enclosures are recorded within the Republic of Ireland, with examples in all 26 counties (Figure 2.31).<sup>11</sup> Some counties are considerably better represented than others, from Monaghan with only four, up to Galway with 88, although this may be more representative of recording patterns and monument survival. In fact, this project demonstrates that there are indeed unrecorded ecclesiastical enclosures awaiting discovery and/or identification. However, it is perhaps noteworthy that the three neighbouring counties of Monaghan, Cavan, and Leitrim all have the lowest number of recorded ecclesiastical enclosures (Chart 2.1). This is in stark contrast to Westmeath which borders Cavan to the south and has 86 examples. The Westmeath figures may be somewhat biased following Swan’s work in the county where he used his criteria in conjunction with aerial photography to identify its early ecclesiastical sites (Swan 1988, 6).



**Chart 2.1** Recorded Ecclesiastical Enclosures per County (*ROI only*)

<sup>11</sup> The figures were downloaded from the NMS Database ([www.archaeology.ie](http://www.archaeology.ie)) and are correct as of 22/02/2019.

The enclosures could be composed of stone or earth, sometimes with an accompanying outer ditch, and ranging in size from 30m up to more than 400m in diameter (Swan 1983, 270). Ecclesiastical sites were bounded by one, two, or three concentric subcircular or oval enclosures which demarcated the varying levels of sanctity within the site, with the inner sanctum—the sacred core—reserved for the holiest patrons and activities (O’Sullivan et al. 2014, 145-146; O’Sullivan & McCormick 2017, 113). The enclosing features usually constitute the best surviving evidence for an early establishment (Swan 1983, 269, 273; O’Sullivan et al. 2014, 145), and were often incorporated into the development of later villages and towns which preserve them in their street patterns, as in the case of Armagh (Figure 2.32). Often, only the inner sacred core survives, containing the (possibly later) church foundations (Stout & Stout 2011, 54). One such example is that of Tully, Co. Dublin where the church, high crosses, and cross slabs are contained within an oval enclosure measuring 45m x 30m (Corlett 2014, 102) (Figure 2.33). Few ecclesiastical establishments with three surviving enclosures are known, one of which is the (partially) excavated example at Clonfad, Co. Westmeath (Stevens 2014, 259). Located on a peninsula in Strangford Lough, Nendrum, Co. Down provides the best surviving example of a triple enclosure (Figure 2.34). The ‘holiest’ innermost enclosure housed the church, burial area, shrine, cross slabs, and later round tower (McErlean 2007a, 337). This inner enclosure was separated by a stone revetment from the middle enclosure which contained the remains of nine possible buildings or house platforms (*ibid.*, 371), ranging in size from approx. 5m to 8m in diameter, i.e. the standard size for domestic houses (*ibid.*, 374). The outer enclosure surrounds an area of approx. 1.32ha and terminates near the shore, close to where the tidal mill was constructed (*ibid.*, 379). This area contained a midden, a large corn-drying kiln, and a possible second kiln, and has been interpreted as having a more agricultural role (*ibid.*, 386). The monastery was excavated in the 1920s, and the mill component between 1999 and 2001 (McErlean 2007b, 4-8), uncovering the remains of two substantial horizontal tidal mills associated with the ecclesiastical site. Oak timbers from the earlier mill produced a dendrochronological date of AD 619 while timbers from a second mill which overlay the first, produced a dendrochronological date of AD 789 (McErlean & Crothers 2007, 80). When viewed in conjunction with annalistic references which mention the deaths of the various clerics between the seventh and tenth centuries (McErlean 2007c, 307-312), it would appear that Nendrum was a thriving ecclesiastical foundation which endured for more than 400 years.

In addition to the church and enclosing elements, there were other significant features associated with the early foundations. The most common are high crosses, bullaun stones, holy wells, saints’ shrines, and sacred trees. At many sites, only remnants of some of the elements survive, but they can be important indicators of the presence of an early establishment and are often incorporated into modern life with ‘patterns’ held on the local

saint's feast day. The site of Seir Kieran, Co. Offaly is an excellent example of this and St. Kieran's feast is celebrated by the local community annually on 5<sup>th</sup> March, incorporating several of the surviving ecclesiastical features (O'Sullivan 1997, 9). The celebrations consist of a mass followed by a clockwise procession around the site, first visiting the holy well and then St. Kieran's holy bush (*ibid.*). Both are located outside of the enclosure, approximately 310m and 190m to the south respectively.

Christian burial was clearly a significant part of the early Church and many early ecclesiastical sites have dedicated burial areas. It would seem that there was sometimes competition between church founders who attempted to 'entice' the local Christian community to their burial grounds. One such rivalry arose between St. Fraoch and St. Caillín whose foundations were just 8.5km apart in Co. Leitrim. The competition escalated to the point that St. Caillín allegedly threatened hell upon anyone who chose to be buried outside of Fenagh, and more specifically, upon anyone who chose to be buried with St. Fraoch (Hennessy & Kelly 1875, 191-193; Kenney 1966, 302; Ó Riain 2011, 353; Curran 2019, 52). However, many of these new 'holy' burial areas may not have catered for the whole community, instead being reserved for the clergy or societal élite (O'Sullivan *et al.* 2014, 306). Documentary sources indicate that burial at an ecclesiastical site incurred a fee payable by the estate of the deceased, and there are also accounts of royal burials at Clonmacnoise, Co. Offaly (Swift 2003, 106-107), suggesting that there may have been a hierarchy in place which restricted access to burial at least at some sites. Indeed the archaeological evidence suggests that the adoption of ecclesiastical burial grounds may have evolved some centuries after the initial conversion (O'Sullivan *et al.* 2014, 317). Thus there was clearly a need for locations in which to bury the remainder of the community who constituted the majority of the population. However, there are surprisingly few documentary references to the existence of mass cemeteries or even burial rituals during this period. In one of the only contemporary sources, Tírechán's account of St. Patrick's work in Ireland mentions the construction of "a round ditch after the manner of a ferta" (Bieler 1979, 144-145; De Paor 1993, 165; O'Brien 1996, 122; Doherty 2005, 8) to bury the two daughters of King Lóegaire who died upon receiving the Eucharist from Patrick.

The law tracts refer to 'Christian cemeteries' in reference to the swearing of oaths but no further descriptive detail is provided (Kelly 2011, 199). However, the claim that oaths relating to injury must be sworn at three cemeteries (*ibid.*) would seem to imply the presence of more than one cemetery within a territory, albeit it is unclear what level of territorial division is inferred here. Archaeological evidence for cemeteries has emerged over the past number of years in the form of so-called 'settlement-cemeteries', suggesting that communal secular burial grounds were in use throughout the country which catered for the majority of the non-religious

population. These sites are generally found within the SMR classifications of 'enclosure' or even 'ringfort' as their current appearance often belies their true nature. The identification of such sites has been very much dependant on the location of the road schemes and infrastructural developments which facilitated their discovery, mostly located to the east of the country in counties Dublin, Kildare, Louth, and Meath. However, excavations along the N61 just north of Roscommon town uncovered almost 800 burials within a settlement-cemetery enclosure (Delaney & Ní Cheallacháin 2017, 2; Murray 2017). The cemetery comprised 551 burials with an additional 242 disarticulated human bone deposits while the artefacts indicate a period of use spanning the sixth to eleventh centuries (Delaney & Ní Cheallacháin 2017, 2). Evidence from excavations at other settlement-cemeteries has also shown that their use often spanned several centuries, contemporary with the periods of use of the nearby ecclesiastical sites. Again an indication that burial on church grounds may not have been an option for all of the population (most of whom were Christian by this stage). Activity at many of these sites was shown to have commenced in the Iron Age, or at least at the period of transition between the Iron Age and early medieval period. For example, excavated internal and external features at Johnstown, Co. Meath produced radiocarbon dates from approx. AD 430 up to AD 950 and beyond (Kinsella 2010, 110; Seaver 2016, 163). As these sites continue to emerge through archaeological investigation, the hypothesis for their being a key component of a *túath's* assembly landscape is growing (Gleeson 2015, 40; Gleeson & Ó Carragáin 2016, 93).

Early medieval ecclesiastical foundations were more than just holy places in the landscape, many of them exhibit considerable evidence for industrial activity and farming (the latter will be discussed in Section 2.4 in conjunction with that of secular settlement). Excavations at a number of ecclesiastical sites have revealed evidence for a range of craft production of both sacred and profane items (Stevens 2018, 129). At some sites, evidence for craftworking was limited to a small number of techniques, such as the evidence for ironworking and textile production at Caherlehillan, Co. Kerry (Sheehan 2014, 253-254). Many of the larger sites such as Armagh and Clonmacnoise have produced considerable evidence for multiple types of craftworking, potentially on a large scale. Excavations at Cathedral Hill, Armagh produced evidence for non-ferrous metalworking, in addition to the working of glass, lignite, and antler (Gaskell Brown et al. 1984, 119, 123, 159). More recent excavations at Clonfad, Co. Westmeath have produced substantial evidence for large-scale metalworking—specifically handbells—with the huge quantity of metallurgical residues suggestive of a centre of mass production (Stevens 2012a, 129).<sup>12</sup> The evidence from the range of excavated ecclesiastical sites suggests that they were at a minimum concerned with the manufacture of objects for their

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<sup>12</sup> 1.5 tonnes of metal-working residues were dumped into the stream to the south of the site over a period of several years or decades (Stevens 2012a, 118).

own use, and that certain sites were also responsible for the mass production of specific items for the wider religious—and possibly secular—community (Stevens 2018, 211).

## **2.4 Components of the Early Medieval Landscape: Farming and Agriculture**

The early medieval economy was based on agriculture with primary focus on cattle, particularly dairying (Lucas 1989, 4; McCormick 1995, 33; Richter 1999, 21; O'Sullivan & Downey 2007a, 32-33; Murphy & Stout 2015, xx; Downham 2018, 31). However, the evidence increasingly points to a mixed economy where arable farming also played a strong role (McCormick et al. 2014, 1; O'Sullivan et al. 2014, 180; McClatchie et al. 2015, 179). While pastoral farming certainly dominated the earlier centuries of the period, the explosion of mill construction in the ninth century points to a distinct increase in arable farming in the latter centuries (e.g. Feehan 2003, 54; McCormick et al. 2011, 4; O'Sullivan et al. 2014, 180; Cunningham 2015, 11; McClatchie et al. 2015, 179; O'Sullivan & McCormick 2017, 112 & 128), although Monk (2015, 321; 2018, 54) contends that tillage was always a significant part of the early medieval economy. A palynological study covering three sites in Co. Louth indicated an intensive level of arable farming from the late Iron Age which continued into the early medieval period (Weir 1995, 116). However, this was followed by a lull from the mid-sixth to seventh centuries, possibly caused by climatic deterioration (ibid.). The subsequent increase in arable farming in the eighth and ninth centuries could coincide with the expansion of water mill construction, especially when viewed in conjunction with a gap in oak chronologies, but the dating control from the sites studied was not sufficient to determine with any certainty whether the events were indeed contemporary and potentially linked (ibid., 108-109).

The law texts contain a wealth of information about farming, with an emphasis on cattle which were effectively a unit of currency and upon which a person's wealth and status was calculated (Lucas 1989, 223; McCormick 1995, 33; Kelly 1997, 27-28; Kerr 2009, 65; McCormick et al. 2011, 42; McClatchie et al. 2015, 179; Downham 2018, 31). Fines for damage to persons or property were regularly calculated in terms of animals, for example, the honour-price of a freeman was gauged at 42 milch cows in the case of a provincial king, or a yearling heifer in the case of a lower grade of young farmer (Kelly 1997, 8). Despite the fact that cereals and vegetables feature in the law tracts, albeit not as prominently (ibid., 219), this bovine-centric view may also have been influenced by earlier research strategies which saw cattle as the focal point of early medieval society, both on an economic and ideological level (Monk 2015, 309). Early studies such as A.T. Lucas' 1989 publication certainly propagated this interpretation as the only mention of any kind of crop was in terms of fodder for cattle (Lucas 1989, 33-38). McClatchie's 2011 study within the EMAP project was the first large-scale



detailed analysis of early medieval non-wood plant remains (McClatchie 2014, 39). The combination of the high volume of excavations and increased sampling for charred plant remains (Monk 2015, 311) has meant that the balance between pastoral and arable farming is now starting to be somewhat redressed.

Archaeologically, there is ample evidence for pastoral farming across a wide range of sites. Animal bone is a common find on early medieval settlements and more than 250,000 animal bones have been found through excavation across both secular and ecclesiastical sites, although limited recording strategies, particularly at some earlier excavations, mean that the picture is somewhat incomplete (McCormick et al. 2011, 70-71). Up to the end of the eighth century, cattle were the dominant animal, followed by pig and then sheep; however, livestock diversity increased from the ninth century onwards, possibly coinciding with the onset of mill construction (*ibid.*). At Lagore crannóg, almost 50,000 pounds of animal bone were recovered over the course of the excavation consisting of cattle, pigs, sheep, and a small quantity of horse (Hencken 1950, 225, 241). A large number of animal skulls were also uncovered, mostly from around the edges of the site where they were interpreted as part of the palisade foundations (*ibid.*, 38). While this may be a somewhat unusual use of animal skulls, it again demonstrated the variety and comparative numbers of livestock available to the crannóg-builders. Faunal remains from the milling complex at Raystown, Co. Meath also demonstrated the dominance of cattle; in this case, sheep were more abundant than pigs, possibly a reflection of their value as a source of fertiliser for the large-scale arable farming system at the site (Murray 2016, 106, 120-121).

Similar ratios were also evident at ecclesiastical sites, such as Clonfad, Co. Westmeath which produced a high volume of cattle bone, followed by sheep and then pig (Stevens 2012b, 138-141). As one might expect, many raths have also produced comparable results; for example, 75% of the faunal assemblage at Ballynakelly, Co. Dublin were cattle, with sheep and pig also present (McCarthy 2011, 245). The assemblage at Mackney, Co. Galway was more diverse with cattle and sheep dominant, but pigs, horses, dogs, cats, and wild birds were also accounted for (Delaney 2011, 141). Of course, there are some exceptions, for example at Killeany, Co. Laois where, although cattle and sheep were again dominant, horses were the third most frequent species (Wiggins 2009, 224). The high percentage of horse remains was interpreted as evidence for the possible breeding of the animals at the rath, suggesting that they were used primarily as working animals, although their ultimate consumption (possibly following their death from natural causes) could not be ruled out (*ibid.*, 224-225).

Until the boom in excavations during the late 1990s to the early 2000s, arable farming was mostly represented by the tools associated with it such as ploughs, quern stones, and to a greater extent, kilns and water mills (e.g. Proudfoot 1961, 107; Kyle et al. 2009, 76; McClatchie et al. 2015, 179). The archaeological evidence is supported by the law texts which went into substantial detail about the tools that each grade of farmer was expected to possess (Kelly 1997, 463). The law texts also indicate that ploughing was a co-operative activity for certain grades, e.g. each *ócaire* owned a share (one ox) in a plough team (Kelly 1997, 474; McCormick et al. 2011, 7). Corn-drying kilns have been found at several hundred early medieval settlements, sometimes with multiple examples at a single site which could indicate use over time (O'Sullivan et al. 2014, 201; Monk 2018, 54). Their presence is a key indicator of the processing of corn at early medieval farmsteads. For larger scale processing of grains, horizontal and vertical water mills were introduced in the period between AD 750 and 850 (O'Sullivan et al. 2014, 207). Some of the earliest mills were associated with ecclesiastical sites, such as the aforementioned Nendrum, Co. Down with its horizontal tidal mill. The horizontal mill remains at Kilbegly, Co. Roscommon are also thought to be associated with a nearby ecclesiastical site which was located less than 600m east north-east of the mill site (Jackman 2009, 16). The spectacularly preserved wooden remains of the mill (Figure 2.35) produced radiocarbon and dendrochronological dates between AD 412 and 893, although, based on hazel samples, the shorter period of 205 years from AD 677 to 882 is considered a more accurate lifespan (Jackman 2010, 105). Excavations at Raystown, Co. Meath revealed a multi-phase agricultural complex comprising settlement, burial, and an extensive system of mills which was in use for over 800 years (Seaver 2016, 161) (Figure 2.36). Livestock management and meat-processing were also evident at these sites through the presence of the remains of cattle, sheep, pig, and horse which coincided with the milling activity (Murray 2016, 105), thereby indicating that both arable and pastoral farming were part of a large-scale agricultural establishment which potentially acted as a provider of services and/or produce to the wider community (Seaver 2016, 168).

More recently, key studies such as that by McClatchie et al. (2015) which focus on synthesising archaeobotanical remains across multiple excavations have been able to shed more light on the range of arable crops available during the period. This study, which assessed the remains from 60 sites across the country, demonstrated that barley was dominant, closely followed by oat, with wheat and rye also present but generally as secondary or minor crops (McClatchie et al. 2015, 185). Although oats were considered a lower status grain (Kelly 1997, 219), their abundance on excavated sites suggests that they were somewhat of a staple (Monk 2011, 37-39). Legumes such as peas and broad beans have also been identified (McClatchie et al. 2015, 185), and more rarely, lentils and cabbage/mustard seeds (Stevens 2012b, 142; O'Sullivan et

al. 2014, 197), a sign of some variety in the early medieval diet, and perhaps an indicator of some of the produce that may have been grown in garden plots rather than large fields.

Apart from the wealth of information about diet and economy that comes from agricultural remains, the physical manifestation of farming and agriculture in the landscape is crucial for the archaeologist. Fields were a necessity for proper livestock and crop management in preventing crop damage etc. Furthermore, they were also an important part of the landscape, dictating the extent of private and public spaces (McCormick et al. 2011, 6). Many of the law texts, in particular *Críth Gablach*, give accounts of farm and field layouts, detailing the various designated areas within and surrounding the space demarcated by the rath enclosure (Kelly 1997, 361). They identify the requirement for a sheep-pen, calf-pen, and pig-sty which Kelly interprets as being located within the rath enclosure (ibid., 364). This may be supported by archaeological evidence from excavated raths which produced evidence for structures suggested by posthole scatters, such as the rath at Lisanisk, Co. Monaghan (Coughlan 2011, 99), or that at Lowpark, Co. Mayo (Gillespie 2011, 197-198) (Figure 2.37). The latter had two 'flimsy' structures in addition to the roundhouse, at least one of which could have been used as an animal pen. However, overall there is a general deficiency in the evidence (or confident interpretation) for such structures in the archaeological record (Lynn 1994, 87).

Outside of the enclosing elements was the '*airlise*' which may have contained areas for grazing and crop cultivation in addition to a garden, kiln, and barn for cereal storage (Kelly 1997, 368-369). For higher grades such as kings or poets, the *airlise* included an area for assembly, and some royal residences may have had a '*faithche*' or green beyond the *airlise* which could be used for community events such as horse racing (ibid., 369-370). Different interpretations could reflect changes in meaning over time or regional interpretations of farm and field layout. Farm divisions are reflected in the archaeological record by the presence of irregularly shaped field systems which tend to radiate out and around the enclosing features of both raths and cashels (Bolger 2011, 2; Stout & Stout 2011, 45). These field systems are still visible in some cases, e.g. Cahercommaun (see Figure 2.17), but many are only identifiable through geophysical survey and/or excavation. For example, the site of Baronstown 1, Co Meath which was discovered by geophysical survey in 2000 and subsequently excavated in 2006, confirming its interpretation as an early medieval rath and associated field enclosures (Linnane & Kinsella 2009a, iii, 60) (Figure 2.38). Due to the small scale of the ditches, the enclosures were interpreted as being for crops rather than animals, although there was considerable evidence for both pastoral and arable farming in the form of large quantities of animal bone (cattle, pig, sheep/goat, horse, deer, dog) and cereal remains (oats, barley, wheat, flax) (Linnane & Kinsella 2009a, 60-61; Linnane & Kinsella 2009b, 116).

The *Bretha Comaithchesa* gives a detailed description of the accepted types of field boundary (Kelly 1997, 372). Four types of legally-accepted fencing were identified: the stone wall (*corae*), the trench-and-bank (*clas*), the bare fence (*nochtaille*), and the oak fence (*dairimbe*) (ibid., 372-378). These boundaries were used to demarcate animal pens, vegetable gardens, and fields used for various purposes. Unfortunately, their survival in the archaeological record is poor, and indeed O’Sullivan et al. (2014, 193) argue that the excavated evidence does not point to the existence of “a permanent and organised pattern of fields.” This suggests that the fencing was temporary in nature, and as structures like the *nochtaille* fence would only make small stakeholes in the ground, traces are unlikely to survive over several centuries (Figure 2.39). The advantage of temporary fencing would be the ability to move it to re-size ‘fields’ as circumstances dictated, and/or to rest areas to allow grass regrowth for feeding animals etc.

The law tracts also provide information as to the amount of land associated with each grade (Table 2.4), within which all of the aforementioned elements were contained. This is vital when investigating the early medieval landscape and attempting to understand the pattern of farms, fields, and other areas in between the enclosures, especially in view of the general lack of survival of such features in the archaeological record. Based on an experiment undertaken by John Byrne as to the viability of the 13.9ha *ócaire* farm, Stout (2015, 23-24) presented a schematic model which set out the potential layout of a landholding for this grade (Figure 2.40). Based on his own statistical cluster analysis, Stout has also produced a hypothetical model of how the wider landscape might have been organised between the various grades (Figure 2.41). This model will be examined further in Chapter 3 and in conjunction with the real landscapes of the two case study areas. While the hypothetical models may be oversimplified, they give a basic idea of the elements now missing from the physical landscape.

**Table 2.4 Landholding per Grade**

(after Stout 2015, 16)

Grade	Translation	Landholding (Ha)
<b>Rí túaithe</b>	King of Territory	97.3
<b>Aire forgill</b>	Lord of Superior Testimony	83.4
<b>Aire túise</b>	Lord of Leadership / Precedence	55.6
<b>Aire ard</b>	High Lord	69.5
<b>Aire déso</b>	Lord of Vassalry	41.7
<b>Bóaire</b>	Prosperous / Strong Farmer	27.8
<b>Ócaire</b>	Young / Small Farmer	13.9

Although we now have a considerable amount of information in relation to the types of crops and animals that were associated with early medieval farming, we still have more to learn. This is especially true for crops, particularly those of the non-cereal variety such as the aforementioned legumes (e.g. peas and broad beans), or other vegetables such as onions and cabbages. The onion (or possibly garlic) is one of the most prominent vegetables to feature in the law tracts, and is specified as a food which must be provided by a client for the annual visit of his lord (Kelly 1997, 251). Despite the fact that these items were very much a part of the daily early medieval diet, surprisingly little time or space has been allotted to their role within the early medieval farm and they are repeatedly overlooked in (often very detailed) discussions about agriculture in this period. For example, in his recent chapter entitled 'The early medieval farm', Stout devoted all but one short paragraph to cattle farming, and even this only mentions the cereal crops, including their use as meal for cattle (Stout 2015, 24). So, although recent research may have brought early medieval tillage a bit closer to the fore, it is clear that in some areas, cattle still very much dominate the agenda.

He may have been discussing prehistoric fields but O'Brien's (2009, 4) comments about the study of early field patterns being in its infancy are arguably also true for the early medieval period. Despite knowing so much about types of fencing, the connection between the palaeoenvironmental evidence for crop variety and the structural evidence for fields and farm layout has yet to be made. This is in part due to the fact that much of the palaeoenvironmental evidence recovered from archaeological sites is charred, thereby preventing its decay in the same way as other organic remains (Dillon et al. 2007, 27; McClatchie & OCarroll 2015, 7-8). However, this means that the remains are more often found associated with structures involved in the processing, rather than the growing, of crops (Kyle et al. 2009, 77). This in turn has an impact on the type of plant remains found, as cereals and wood are more likely to be processed using fire (Dillon et al. 2007, 27). There are a host of practical questions around how different crops are grown and managed which need to be addressed in order to better comprehend the layout and use of space within early medieval farms.

## **2.5 Components of the Early Medieval Landscape: Communal Areas**

As alluded to above, not every part of a territory was specifically owned by particular individuals, and parts of the landscape were essentially communal. This included 'wilderness' areas and places for gatherings. Due to the substantial areas of mountain and bog, parts of Ireland's landscape were of limited use for early medieval farming, but could instead be deployed for other purposes such as rough grazing, hunting, growing berries, supplying wood, etc. (Kelly 1997, 406). The law tracts designate this type of land as commonage belonging to

the *túath*, with some legal texts applying different sets of laws to certain offences on communal land compared to private land (ibid.). In many cases the topography is retained in the placename, a potential indicator of past use, for example, '*coill*' (anglicised 'kil') denotes a wooded area, while '*tulach*' (anglicised 'tully') could signify a mound (MacShamhráin 1991, 20). Of course, in many cases (except perhaps for wooded areas), the modern topography is almost unchanged from the early medieval period as mountainous and watery areas are relatively permanent features. The communal nature of early medieval society is also demonstrated in the sharing of farming equipment such as ploughs and mills (see Section 2.4) which suggests that the farmers interacted and worked together, at least for some of the year. Burial also required communal areas and community participation, and as substantial evidence for large-scale secular cemeteries continues to grow (Section 2.3), so too does the premise for their position at the heart of the *túath* (Gleeson 2014, 186; Gleeson & Ó Carragáin 2016, 93). In Gleeson's fourfold model for assembly hierarchy, he proposed that secular cemeteries were representative of the local or supra-local community, namely the two lowest tiers of the hierarchy (Gleeson 2014, 180-187). This infers that there could be multiple community burial grounds within each *túath*, and following on from this, that the identification of such locations could provide an insight into the organisation of the smaller, sub-*túath* political entities.

Perhaps more significant than the commonage, however, are the society's assembly areas which facilitated gatherings for activities such as inaugurations, celebrations, and other *túath* business. Each *túath*, over-kingdom, and provincial kingdom had an open-air assembly place to which a king could compel his subjects for an assembly in various circumstances such as a military hosting or a treaty (Bhreathnach 2014, 69; Fitzpatrick 2015, 54). Notably, Warner (2000, 48) makes a distinction between a royal site and a king's residence which may not be one and the same. The king could have resided in one location and undertaken royal duties and official business at the designated 'royal centre' of the *túath*, albeit both would have been contained within the king's personally controlled royal landscape (Gleeson 2014, 68). Assemblies could be convened on a local or national level predominantly for judicial purposes, although many also comprised 'social' events such as horse racing, trading, drinking, and other entertainment (Charles-Edwards 2000, 14-15; Byrne 2001, 30; Bhreathnach 2014, 70; Gleeson 2018, 104). The '*óenach*' was one of the most important forms of early medieval assembly (Gleeson 2015, 34). Hogan (1910) identified 78 potential *óenach* sites and the multidisciplinary 'Óenach Project' identified approx. 120 assembly sites, albeit some tentatively; but Gleeson (2018, 101-103) estimates that there were actually at least 600 assembly sites (of various types) in existence at any one time.

While there are historic accounts of some of the more significant national assemblies such as Óenach Tailten (Co. Meath) or Óenach Cruachan (Co. Roscommon), they generally lack detailed information and their exact location can be difficult to identify (Hicks 2009, 36; Bhreathnach 2014, 72). Hicks (2009, 37-38) highlights the physical similarities between prehistoric henge enclosures and the descriptions of *óenach* sites, suggesting that some may have been re-used within early medieval society, particularly as many of them coincide with the purported locations of documented *óenach* sites. Likewise, Johnston (2007, 196) identified the large enclosures with internal ditch and external bank which are found at Dún Ailinne, Tara, and Navan Fort, as a key feature of royal sites.

It is surprisingly challenging to establish a list of the physical, archaeological remains that could define a royal place of assembly and/or inauguration (also noted by Hicks 2009, 35). While there has been immense research undertaken over the last century both on an Irish and a European scale (e.g. Westropp 1919; Warner 1988; Herity 1993; Hicks 2009; Sanmark 2010; Sanmark & Semple 2010; Gleeson 2014; Ehlers 2015; Fitzpatrick 2015; Gleeson 2015), the physical attributes or archaeological footprint are not always presented explicitly and it is necessary to comb through the relevant literature in search of clues. This is not necessarily the fault of the authors, as it is a complex topic and one that is in its relative infancy in archaeological terms, having more traditionally been the remit of the historian (Gleeson 2015, 34). Several studies put forward a number of ‘clues’ as to the physical properties of these royal assembly sites which might enable them to be identified archaeologically (Table 2.5), despite the temporary nature of the events (e.g. Edwards 1996, 97; MacCotter 2008, 49-50; Hicks 2009, 36-37; Gleeson 2012; Bhreathnach 2014, 72-73). However, Gleeson (2018, 102)—who has undertaken considerable work on the subject in recent years—claims that no single monumental characteristic defines an *óenach*. Broadly contemporary European assembly sites, such as those in Scandinavia or Britain share a range of key characteristics with those from Ireland, but each site does not necessarily have to exhibit every characteristic (Sanmark & Semple 2008, 256; Sanmark 2010, 179). Indeed, many of the Irish sources of assembly evidence are also found in Anglo-Saxon England; for example, placenames and documentary sources that refer to their links with both natural and man-made features (Baker & Brookes 2015, 4-9; Hamerow 2018, 37). Nevertheless, Gleeson (2017, 73; 2018, 102) does identify a correlation between assembly places and burial locations, particularly settlement-cemeteries, which he identified as gathering places on a local level. Recognised *óenach* locations such as Óenach Maonmaighe, Co. Galway and Óenach Muirtheimne, Co. Louth have associations with cemeteries in addition to a mound or hill (Byrne 2001, 27; Gleeson 2018, 105-106, 108-109). Ultimately, as with Swan’s criteria for ecclesiastical establishments, it is likely that due to

scale, regional differences, and/or survival, a minimum combination of physical features could suffice to infer the presence of an assembly site.

**Table 2.5      Physical Characteristics of Óenach Sites<sup>13</sup>**

Item	Characteristic
1	On or close to boundaries
2	Site of 'ferta' (ancestral grave)
3	Overlooking river or on a ravine
4	Within royal demesne
5	Associated with hill or mound *
6	Associated with prehistoric site *
7	Associate with a traditionally revered tree
8	Provision of racing circuit
9	Possibly circular
10	Natural amphitheatre *
11	Associated with local burial ground
12	Placename evidence
13	Ceremonial avenue (NE-SE alignment) *
14	Figure-of-eight structure *

*\* Denotes element directly associated with inauguration*

Inauguration was a key part of early medieval society, the physical and metaphysical process of crowning a king was an event laden with ceremony, iconography, and myth, possibly even crossing between the mortal realm and that of the Otherworld (Gleeson 2012, 9). The *óenach* was a primary assembly area for each kingdom and an area in which kingship took on a performative value through patterns of ceremony (ibid., 21). As such, many *óenach* sites have connections with places of inauguration (ibid.), although there are exceptions such as Tara and Cashel where the *óenach* location was distinctly separate to the dedicated inauguration site (Gleeson 2015, 34). Ceremonial spaces took on a somewhat theatrical value, effectively becoming an arena which utilised the natural location and monumental architecture to create a symbolically meaningful space in which ceremonies could be performed (Newman 2007, 417). O'Sullivan (2012, 21) reiterates this as he suggests that the lake upon which royal

<sup>13</sup> The table of fourteen elements was compiled using the range of sources listed in the in-text references and is not definitive.



crannógs are located could represent a 'theatre of performance' within the early medieval landscape. Using known royal sites such as Tara, Clogher (Figure 2.42), and Rathcroghan, Gleeson examined the archaeological remains in light of the mythological and ritual principles of the inauguration process and identified several key features which occur on each site. The three sites all comprise prehistoric enclosures which are associated with a figure-of-eight structure consisting of a mound and embanked enclosure, and an avenue or routeway oriented north-east to south-west which terminates at the mound (Gleeson 2012, 10-14). These routeways are generally classified as 'linear earthworks' in the archaeological record, although this classification encompasses several types of linear monument across multiple periods. The ceremonial approach at both Tara (Tech Midchúarta) and Rathcroghan (the Mucklaghs) share a similar design in that both comprise two parallel banks with irregularly spaced gaps (Newman 2007, 422). However, the sites are by no means identical, possibly a reflection of the local topography and design; the mounds at Tara and Rathcroghan are man-made, while that at Clogher is a natural knoll which has been adapted for the purpose (Warner 2000, 48; Gleeson 2012, 10).

Gleeson is undoubtedly leading the charge in respect of assembly in early medieval Ireland and succeeded in identifying 115 assembly landscapes as a result of his doctoral thesis (Gleeson 2014, ix). However, his research was predominantly based on documentary and toponymic evidence, with archaeological evidence of secondary concern as, in spite of several commonalities between the locations, e.g. close to a boundary, close to a source of water, on elevated ground, none of the criteria were deemed sufficient in and of themselves to identify an assembly site (*ibid.*, 82). Moreover, these locations are extremely complex with 'flexible' criteria, e.g. around the use of natural and man-made features, and they undoubtedly varied according to the scale and/or nature of the gathering. The identification of such assembly places, particularly those associated with local polities would be a significant step in attempting to define local territories, and ultimately a step towards understanding the layout of local communities within the wider early medieval landscape.

## **2.6 Key Early Medieval Landscape Studies**

Many of the earlier forays into early medieval archaeological research tended to focus on particular monument types, starting perhaps with Wood-Martin's (1886) study of Irish lake dwellings (crannógs), and followed closely by Westropp's (1901) publication on the ancient forts of Ireland (raths, cashels, promontory forts, mottes). Both publications were extremely detailed and provided significant information about specific monuments, including useful descriptions about features that have since disappeared. As early medieval monuments began

to be excavated—with somewhat of a preference for well-known or prominent sites such as Lagore or Cahercommaun—the research focus shifted from large-scale typological studies to monument-centric investigations. Until the early 1990s, the excavation of early medieval sites was sporadic and dominated by research and rescue excavations (O’Sullivan et al. 2008, 27). However, since then, when testing and monitoring became more prevalent, and in conjunction with the economic upturn (*ibid.*), the upsurge in excavations led to a significant increase in our knowledge about individual sites which were excavated to modern standards. Thematic publications such as Corlett & Potterton’s series (2010; 2011; 2014) presented the results of many of these individual early medieval excavations within the company of similar sites, albeit, each chapter was a discrete paper and there was no overall synthesis. The virtues of EMAP have already been extolled and are evident throughout this chapter, if not the entire thesis, and it is the most comprehensive synthesis, and a national overview, of the early medieval period from an archaeological perspective. But EMAP and its associated publications would not have been possible without the sheer volume and high standard of excavations in recent years, in addition to the many thematic studies and intensive research into various aspects of the physical remains of the period.

Thematic research has also often focused on specific monument types, such as Fredengren’s study of crannógs, in particular those around Lough Gara (Fredengren 2002). As her research demonstrated, as did other crannóg studies such as that at Coolure Demesne (O’Sullivan et al. 2007), extending the research beyond the scope of the specific monument or monument type is imperative, and is a crucial progression towards understanding the early medieval landscape and ultimately, society. Many studies which originated from the in-depth study of a single monument, made significant efforts to also explore the wider contemporary landscape and the subject’s relationship with neighbouring monuments. Such was the case with the investigations at Clonfad, Co. Westmeath which commenced with the partial excavation of three early medieval sites situated along the M6 and N52 in Co. Westmeath and culminated with a study of the territory of the Fir Tulach of which the three sites were a part (Stevens & Channing 2012, 1). This multidisciplinary project integrated archaeological, historical, and environmental evidence into an understanding of the three sites and how they evolved throughout the early medieval period and into the medieval period. For this particular area, it constituted a move away from the region’s well-studied lake dwellings into the wider early medieval landscape (Channing & Stevens 2012, 158).

Settlement distribution patterns are often incorporated into studies of particular monuments, often as a background to the main site, e.g. a brief summary of the secular and ecclesiastical sites in the immediate vicinity of the Raystown complex (Seaver 2016, 6-7), or the

contemporary archaeological remains in the environs of Deer Park Farms (Neill 2011, 26-34). In many cases, the potential relationship between the main site and its neighbours is not discussed in any great detail. Clinton (2000) undertook an exploration of settlement patterns in the early medieval kingdom of Leinster against a backdrop of historical accounts which detailed the various shifts in political power between the seventh and twelfth centuries. This study was largely based on the distribution of multivallate sites which he used to identify potential royal seats; for example, he surmised that a cluster of three multivallate raths in the area close to the Glen of Imaal may have been the location of the royal site of Uí Máil (Clinton 2000, 281). As with the Raystown and Clonfad studies, the scale and scope of Clinton's research was to identify key sites within a set landscape, rather than to exhaustively interrogate the archaeological record for an in-depth view of the whole community.

Although it was published in 1997, Matthew Stout's 'The Irish Ringfort' still remains the formative work as regards the distribution of early medieval settlement in Ireland. The publication was based on several years of study from his BA thesis in 1989 to his PhD in 1996, and was formulated on the principle that "the hierarchy of ringforts noted throughout Ireland reflects the hierarchy in Irish society as detailed in the law tracts" (Stout 1996, ii). The research focused predominantly on raths, but also made reference to cashels, crannógs, and ecclesiastical sites, albeit to a much lesser extent. Stout examined "the incontrovertible facts about ringforts: shape, size, date and function" (Stout 1997, 12), incorporated their distribution patterns (based on recorded sites), and then performed statistical 'cluster analysis' to establish their typology and examine the evidence. The result was the identification of six clusters<sup>14</sup> (based on similarity of attributes rather than geographical location) and their allocation to different levels of early medieval society. Importantly, Stout's study also incorporated the documentary evidence regarding the land allocations for each grade which he translated into hypothetical models of landscape organisation. This step essentially brought the concept of the land between the settlements to the fore. In addition to establishing a national overview of rath distribution by identifying zones of high and low density, the study also spawned a number of subsequent studies which incorporated statistical models of settlement. For example, Comber's investigations of the early medieval settlement landscape at Ross Island closely followed Stout's criteria although it stopped short of the final assignment to clusters and associations with rank (Comber 2004, 431-436). Thomas Kerr (2007) also used statistical analysis—this time with the criteria of altitude and soil association—to examine rath distribution in the north-west of Ulster. Unfortunately he was hampered by a lack of measurements for the monuments within his study area, thereby rendering an attempt at cluster analysis impossible (Kerr 2007, 50). Robert Chapple's 1998 study of rath distribution explicitly set out to test Stout's

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<sup>14</sup> In his 1991 paper, Stout identified five clusters; however, in his 1996 PhD, he identified six clusters.

hypothesis (Chapple 1998, xx). While this study revealed patterns in settlement type and distribution, it also highlighted a number of issues, particularly a lack of correlation between the clusters generated by Stout and those of the Loop Head specimens (*ibid.*, 130). Chapple (*ibid.*, 158) suggested that these differences may be attributable to regional differences between the south-west midlands (Stout 1991) and the south-west coastal siting of his research. Likewise, they may also be a result of the way in which the laws were applied in the different areas in addition to restrictions imposed by topography and wealth in both regions (Chapple 1998, 158).

The author's pilot study also investigated Stout's criteria in relation to a portion of the Leitrim/Roscommon study area and concluded that Stout's variables were by no means a complete set, particularly in light of the fact that they did not take into account the huge variety in site morphology that is now apparent (Curran 2012, 48-51). In fairness to Stout, many of the excavations which provided this incredible amount of new information had not yet taken place at the time of his publication. Monuments such as cemeteries, inauguration sites, and milling complexes were key parts of the early medieval landscape, and therefore must be included in distribution analysis, particularly now that we know more about them. Furthermore, crannógs must be integrated appropriately. While the gathering of data relating to the characteristics of raths may well serve to "underpin a solid descriptive foundation" (Stout 1997, 12), statistical approaches are arguably too simplistic as they fail to allow for the vagaries of the Irish landscape and the nuances in society and in individuals. Moreover, as Monk (1998, 35) pointed out, they also are unable to cater for changes over time. There is undoubtedly a place for the data that feed into the statistics, but there is a real need to update the research strategy in light of the new evidence from the past 20 years of excavations; this will be discussed in more detail in the coming chapters.

## **2.7 Conclusion**

Times have certainly changed since Ó Cróinín, in extolling the virtues of the documentary sources, made the somewhat outrageous claim that "there is nothing in Irish archaeology remotely comparable to the work of our English, French, and German neighbours" (Ó Cróinín 1995, 9-10). He bemoaned the fact that Irish archaeologists were more interested in prehistoric monuments than the somewhat prolific early medieval evidence (*ibid.*, 9). Indeed he may have had a point, given the very low numbers of early medieval excavations prior to 1997 (see Section 2.1). Kelly (1997, 5) proffered perhaps a more archaeologically palatable (and accurate) viewpoint that the textual evidence simply served to "supplement the findings of archaeology." Regardless of one's preference for text or trowel, these two strands of evidence

undeniably complement each other, although most studies—even multidisciplinary studies which attempt to deal with both—will usually naturally favour one strand over the other.

Despite the vast amount of knowledge, particularly that acquired over the course of the past 20 years, there are still many avenues to be explored and further research questions to be asked (and answered). Indeed, in many cases the excavations have raised more questions, for example, in relation to site morphology and chronology. The range and variety of evidence now available demonstrates the complexity and sophistication of early medieval society, and demands a multidisciplinary approach which takes into account all of the various elements. However, despite the relatively small size of Ireland, there are regional (and chronological) variations, and what may be the norm for one landscape or early medieval community is not necessarily the case for another. While national overviews and large-scale syntheses are incredibly valuable and informative, key information and local variables can be overlooked when viewed from such a height in an attempt to summarise the evidence. Therefore, it is imperative that early medieval society is also examined at a range of scales where regional, political, and/or territorial variances can be acknowledged and understood. This middle ground often falls through the crack between site-specific studies and national overviews, thus it is the aim of this research project to redress the balance and target early medieval Ireland on a community level.

# Chapter 3

## *Methodology*

### 3.1 Introduction

As outlined in Chapter 1, this research project constitutes a progression from the pilot study as it expands both the study area and the methodology. Remote sensing is at the heart of the project, and lidar is the primary investigative tool, with geophysical survey (both existing survey reports and the new surveys undertaken as part of this research), adding a complementary sub-surface layer to the exploration of early medieval settlement in the study areas. The pilot study demonstrated that our understanding of the distribution patterns of the various monument types can be greatly enhanced by lidar survey through the discovery of new monuments, and by enabling recorded monuments to be seen in a new light. Moreover, the 3D visualisation of the landscape afforded by lidar can provide an insight into the relationship between archaeological monuments and local topography, potentially revealing new information about settlement patterns, social interaction, and land use.

The study also engages with a range of primary documentary and mapping resources in conjunction with existing excavation evidence in order to gain a more comprehensive understanding of the study areas, and ultimately, the early medieval landscape beyond their bounds. Focused on the two case study areas—Leitrim/Roscommon and Monaghan—the methodology has been designed in order to interrogate the remains of the early medieval landscape with the aid of the three research questions below (detailed in Chapter 1: Section 1.3), and furthermore, to progress to a fuller interpretation of early medieval communities. The research questions are aimed at examining the extent to which remote sensing can benefit the study of early medieval archaeology, and to comprehensively explore the organisation of early medieval settlement in social and ideological terms within the study areas.

- 1) *What can we learn about the two case study areas in the early medieval period through the intensive exploration of their archaeological remains?*
- 2) *How was early medieval settlement organised in practical, social, and ideological terms?*
- 3) *How does the application of remote sensing techniques contribute to our understanding of early medieval settlement?*

This multi-faceted project applies remote sensing techniques to the Irish early medieval landscape, with the implementation of both methods seeking to uncover and replenish its hidden depths and empty spaces. The technical aspects of the methodology and their application to the archaeology of early medieval Ireland (outlined in Chapter 2) are presented below. An evaluation of their contribution to this study and to our understanding of early medieval settlement will be discussed in Chapter 7.

### **3.2 The Principles of Remote Sensing**

Remote sensing is “the science and technology of obtaining information about objects from a distance and without physical contact” ([www.arcland.eu](http://www.arcland.eu)). Typically this includes aerial photography, lidar, and multispectral analysis; however, in its wider sense, this also includes geophysical survey techniques, essentially any investigation that stops short of excavation. These techniques enable the archaeologist to investigate a feature, site, or landscape non-invasively, therefore without impacting upon the integrity of the monument. Geophysical survey techniques can attract controversy by some remote sensing purists who argue that as many of the techniques involve coming into contact with the ground, either in person or with the equipment itself that they are not ‘remote’ enough. Historic England have surmounted this issue by separating the methods into ‘airborne’ and ‘terrestrial’ remote sensing ([www.historicengland.org.uk](http://www.historicengland.org.uk)). In its broadest interpretation which incorporates aerial and geophysical survey, remote sensing is “a set of scientific methods that is concerned with the measurement and interpretation of electromagnetic radiation reflected or emitted by a target from a receiver at a distance from the target” (Kamermans et al. 2014, 1). This research project adopts the wider definition and seeks to incorporate a range of remote sensing techniques to undertake a multidisciplinary and in-depth examination of early medieval settlement patterns in Ireland. The integration of techniques is essential to bring about a true understanding of a complex site (Corsi 2013, 5), and even more so, of a complex landscape.

#### **3.2.1 The Principles of Lidar Survey**

Lidar measures the height of the ground surface by systematically scanning a pulsed laser beam from an aircraft over the survey area (Bewley et al. 2005, 637; Crutchley & Crow 2009, 4). When the pulse is emitted, it sends back a ‘return’ (i.e. part of the beam is reflected) to the sensor when it hits something along its trajectory towards the ground surface. The remainder of the beam continues downwards, continuing to send back ‘returns’ whenever it comes into contact with something. The final reflection upon reaching the ground surface (or any feature that prevents further penetration) is known as the ‘last return’ (Crutchley & Crow 2009, 5). If the point density is sufficient, it is possible to effectively see beneath vegetation and forestry by filtering out non-ground returns, leaving only the last return as a reflection of the true ground

surface (e.g. Megarry 2011, 35; Mlekuž 2013, 113). The returns are a record of height data which essentially capture the elevation and topography of the scanned landscape (Megarry 2011, 35); which allows us to identify subtle variations in the ground surface created by archaeological earthworks and other features (Chapman 2006, 58). A GPS (Global Positioning System) is used to calculate the aircraft's exact position throughout the survey (latitude / longitude / altitude). In addition, an Inertial Measurement Unit (IMU) is used to determine the natural vertical and horizontal movements of the aircraft as the sensors are taking measurements (Verhoeven & Sevara 2016, 926). Both instruments ensure a very high level of accuracy in data collection, thus enabling the creation of high resolution topographic maps. Perhaps the most significant benefit of lidar is that it is indiscriminate in its recording of the landscape, treating every feature and every square metre with equal consideration and resolution (Mlekuž 2013, 119).

### **3.2.2 *The Principles of Geophysical Survey***

Geophysical survey comprises a range of non-invasive techniques which utilise the Earth's physical properties to reveal buried archaeological features (Gaffney & Gater 2010, 12). Geological geophysics is generally carried out at a large scale to substantial depths, often for commercial purposes such as oil and mineral exploration (Oswin 2009, 6). The techniques adapted for archaeological research investigate sub-surface features at shallow depths, usually down to a few metres. The benefits for archaeological research are that they can reveal features which are no longer extant on the ground surface, e.g. buried ditches, walls, cists, hearths, etc. Moreover, depending on the technique, large areas of ground can be covered quite quickly, with the results available almost immediately. Techniques commonly used for archaeological geophysics include magnetometry (magnetic gradiometry), earth resistance (electrical resistivity), ground penetrating radar (GPR), electrical resistivity tomography (ERT), magnetic susceptibility, and electromagnetic survey. This project employs two of the most commonly used techniques in Ireland, namely magnetometry and earth resistance.

Magnetometry works on the principle of the presence of weakly magnetised iron oxides in the soil caused by thermoremanence and/or magnetic susceptibility. Thermoremanence occurs when a magnetic material has been heated to a temperature beyond its Curie Point<sup>15</sup> and allowed to cool. As it cools, it is re-magnetised and gains a permanent magnetic property relative to its position in the Earth's magnetic field (Gaffney & Gater 2010, 37). Archaeological features which have been subjected to burning have gone through this process, e.g. hearths, kilns, fired brick. Magnetic susceptibility relates to the magnetism induced in a material when

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<sup>15</sup> The Curie Point varies depending on the particular minerals present in the material (Gaffney & Gater 2010, 37).



it is placed in a magnetic field, the more magnetised it becomes, the higher the susceptibility (ibid., 38). Human habitation and activity have a significant impact on the soil's natural iron oxides whether through thermoremanence or susceptibility, and it is a complex process to assess this impact, no single measurement is sufficient (Aspinall et al. 2008, 27). Instead, magnetometry uses the contrast of the magnetic properties between natural soils and buried archaeological features to reveal anomalies which can be then interpreted as archaeological features (ibid.). For example, ditches can be revealed as anomalies produced by the contrast between the subsoil and the magnetically enhanced soil that fills them (Gaffney & Gater 2010, 39). The readings are measured in nanoTesla (nT) and anomalies as small as 0.1nT in the overall Earth's magnetic field of approx. 48,000nT can be detected using the appropriate instrument (ibid.). Magnetometry is a passive survey method in that it simply reads the Earth's magnetic field as influenced by the buried archaeological features, unlike earth resistance which emits an electrical current.

Earth Resistance operates on the principle of soil's ability to allow electric current to pass through it, this current being in proportion to the potential difference (voltage) that is being used (ibid., 27). In practice, electric currents are fed into the ground using metal probes and the resistance to these currents is measured in ohms (ibid., 26). High resistance anomalies are produced by walls, stone coffins or cists, rubble, etc., while low resistance anomalies result from ditches, pits, graves, etc. (ibid.). Challenges arise as a result of seasonality and the variation in moisture content of the soil. For example, in prolonged dry weather, a ditch can lose its moisture and therefore its contrast with the surrounding soil, making the ditch undetectable (Schmidt 2013, 24). Likewise, prolonged rain can have a similar effect (Bonsall et al. 2013, 9; Schmidt 2013, 25).

### **3.3 The Development of Archaeological Remote Sensing**

Very few, if any, of the array of remote sensing techniques were originally designed specifically for archaeological purposes, although they have effectively revolutionised non-invasive survey methods. From aerial photography to geophysical survey, the evolution of archaeological remote sensing has been rapid, and continues to evolve in ways that can only be of benefit to archaeological research.

#### **3.3.1 Aerial Photography**

With its origins in military operations, aerial photography has been in use archaeologically for more than a century. Indeed, it was the first remote sensing method employed for

archaeological purposes, with the earliest image considered to be that of Stonehenge which was published in 1906 (Capper 1907, 571; Deuel 1969, 10; Bowden 1999, 105; Bewley 2005, 16). The field grew over the course of the First World War, and continued to develop over the intervening years and into World War Two (Bowden 1999, 105). The developments were a combination of the by-product of military aerial reconnaissance which happened to record archaeological sites, but also the emergence of aerial investigations with the deliberate purpose of photographing archaeology from the air (Deuel 1969, 11-12). Described as “a technique of discovery, a method of record, a means of study, and an approach towards understanding” (Fowler 1983, 145), aerial photography essentially revolutionised the means by which archaeologists approach the archaeological landscape.

The first incursions into aerial survey in Ireland were in the 1920s when the Northern Ireland Ancient Monuments Board launched an initiative which targeted known archaeological sites (Norman & St Joseph 1969, 1; Lambrick 2008, 22); an era which also saw some of the earliest aerial photographs of the Hill of Tara (Condit 2013, S44). However, the first major campaign did not take place until the 1950s when the Air Corps were commissioned to undertake archaeological surveys (Lambrick 2008, 13). This period also saw the establishment of the NMS Photographic Unit with responsibility for the undertaking of both terrestrial and aerial photography of national monuments (Brogan 2013, S43), thereby adding substantially to the visual archives of the NMS. Since then, there have been a number of aerial projects with several collections amassed, perhaps most notably those of J.K. St Joseph, Leo Swan, and Gillian Barrett. St Joseph's aerial expeditions were indiscriminate as far as chronological periods were concerned, and he photographed monuments from all periods, including barrows, field systems, ecclesiastical sites, and raths during his annual aerial forays between 1963 and 1968 (Norman & St Joseph 1969, 6-15). Barrett's interest grew from a desire to fill in the empty spaces on monument distribution maps (Barrett 2013, S47) and she undertook an annual programme of survey in the 1990s, systematically flying over specific areas in order to generate a “cumulative pattern of archaeological discovery” (ibid.). Barrett produced approximately 9,000 aerial photographs which were subsequently integrated with the archaeological database of recorded monuments with the aim of confirming the identification of any previously unrecorded monuments. In total, 892 new monuments were discovered by way of aerial survey, with more than half located in the counties of Kildare, Carlow, and Kilkenny (ibid., S48).

More recently, aerial survey has also been used as part of commercial archaeological projects as a means of rapid and cost-effective examination of the archaeological landscape at the early stages of planning. For example, an aerial survey was undertaken during the route selection phase and Environmental Impact Assessment stage of the M7 Portlaoise-

Castletown/M8 Portlaoise-Cullahill Motorway scheme, which enabled the avoidance of known and previously unknown archaeological monuments (Courtney 2006, 107-108). Aerial survey has also been employed at the latter stages of the excavation process, to record sites under excavation in their wider landscape settings (O'Sullivan 2007, 23). Although aerial survey at this late stage is often not explicitly discussed or even referenced within the text of a publication, the practice is evident from the number of aerial images of mid- and post-excavation that often accompany it.

From an archaeological perspective, the benefits are far-reaching on a number of levels. At its most fundamental level, aerial photography enables the site or monument to be viewed in its entirety and within its landscape setting (Norman & St Joseph 1969, 2). This encourages a holistic approach into exploration of that monument and our understanding of it. More crucially perhaps, aerial photography has also been invaluable in terms of monument discovery and has added substantially to the archaeological record. This has been achieved as a result of the appearance of monuments on aerial photographs due to shadow, soil marks, and the identification of cropmarks which appear at different times of the year (Raftery 1944, 121; Norman & St Joseph 1969, 2; Monk 1989, 65). The latter is based on the premise that due to drainage and soil depth, crop growth is enhanced over ditched features and stunted over stone features such as buried walls etc. (Monk 1989, 66; Bowden 1999, 107; Barrett 2011, 66) (Figure 3.1). This was particularly evident during the summer of 2018 when drought conditions exposed a multitude of cropmarks indicating the presence of previously unknown monuments and features within the Neolithic landscape of Newgrange, Co. Meath (Figure 3.2). Despite this being one of the most studied and well-known archaeological complexes in Ireland, the cropmarks picked up by aerial photography demonstrated that there is still much to discover. Now, with the advent of sophisticated satellite imagery, access to aerial views of the landscape—archaeological or otherwise—are just a button-push away. In addition to Google Earth, Bing Maps, and other global mapping solutions, the fantastic online mapping resources of the NMS and Ordnance Survey Ireland (OSI) enable the user to integrate the aerial imagery (multiple datasets taken in different years) with various historic maps in order to undertake a comprehensive study of particular monuments and areas.

Aerial survey by drone has become increasingly popular due to technological advances in digital photography and the increasing availability of more user-friendly, low-cost drones or UAVs (Unmanned Aerial Vehicles). This is yet another example of an archaeological tool borne out of military operations (Verhoeven 2009, 236; Gutiérrez & Searcy 2016, 7). By incorporating GPS to give an exact location for the images captured, drone-based surveys can help to create accurate 3D topographic maps of particular areas (Campana 2017, 288-289). This is achieved

by taking multiple overlapping images which can then be combined to create a digital terrain model, thus presenting a 3D model of the landscape rather than the flat view usually presented by aerial images. In this way, an enhanced aerial view—in conjunction with topographic maps—can be created of particular monuments and/or landscapes which can help to reveal new features, or indeed, new monuments. Drone technology is still in its infancy, although many projects have been undertaken across the world with incredibly successful results. For example, in 2016 a drone-based survey of multiple sites on the Orkney Islands had several advantages over previous survey attempts (Hanus 2018, 94). Firstly, the UAV allowed access into inhospitable areas in which survey had not previously been possible, as the surveyor could position themselves in a safe location (i.e. away from cliff edges) and fly the UAV over inaccessible areas without any safety issues. Secondly, although the UAV survey did not produce substantial new data, it proved to be considerably more efficient than previous terrestrial surveys. Finally, the surveys enabled the creation of accurate digital elevation models which provided a visual overview of archaeological and more modern structures in the landscape (ibid., 90-94). In an urban setting, survey by UAV facilitated the creation of a detailed topographic model of the deserted medieval port of Monnikerede (De Reu et al. 2016). In this case, the aerial survey results generated an accurate 3D model of the terrain which added more insights to the archaeological remains than previously achieved using lidar analysis (ibid., 339-342). In 2018, a fixed-wing drone survey of two islands in the Inner Hebrides produced highly detailed mapping (3cm resolution) of the topography and vegetation, in addition to revealing previously unknown archaeological remains (National Trust for Scotland).

In Ireland, drone survey has not yet been undertaken on a meaningful scale for archaeological purposes, although a number of commercial archaeological companies are now starting to record their excavations by drone in order to create a photogrammetric model or plan of the site as it is being excavated (Brendan O'Neill pers. comm. 05/02/19). On the whole, however, drone surveys to date have been largely undertaken by individuals, and have been relatively indiscriminate, usually targeted at known sites or monuments. Indeed, a small-scale drone survey was undertaken at two sites as part of this research project (Killukin and Tumna, Co. Roscommon). A 2016 drone survey at an early medieval ecclesiastical site in Co. Down was undertaken as part of a community project (Welsh et al. 2016, 19). The aerial survey proved quite successful as it revealed a previously unknown structure within the ecclesiastical enclosure. Perhaps the most significant large-scale Irish project that incorporates aerial survey is 'CHERISH', a European-funded multidisciplinary cross-cultural project between Ireland and Wales which is aimed at raising awareness and understanding of climate change on coastal cultural heritage sites ([www.cherishproject.eu](http://www.cherishproject.eu)). The project comprises an integrated approach on both land and sea (Figure 3.3) which includes drone survey, with Dunbeg Fort, Co. Kerry

one of the project's first targets. The survey produced a highly accurate 3D model of the site (Figure 3.4) which will be used as part of the regular monitoring of coastal erosion at the monument (Anon 2018a, 9). There are clear benefits to using drone survey in many aspects of archaeological research and this field of expertise will undoubtedly grow over the coming years as the technology becomes even more readily available.

### **3.3.2 Lidar Analysis**

In a sense, lidar is a natural progression from aerial photography as the data are recorded using a small aircraft and provide a bird's-eye view of the landscape. However, lidar goes a step further and enables the investigator to access a 3D model of the landscape by means of a digital terrain model (DTM) so that even from a desk, one can better experience and gain an enhanced comprehension of the topography than from looking solely at a flat image.

The technology was developed in the 1970s and 1980s before becoming more widely available in the 1990s (Ackermann 1999, 64). Its foremost application was to produce high quality ground surface models, with the ability to penetrate forestry or access otherwise inaccessible areas among its first objectives (ibid., 65). Indeed forestry mapping was one of the earliest uses of the technology by NASA in the late 1970s (Krabill et al. 1984), and this continued in the early stages as some of the first large-scale lidar-based projects included tree height determination (Naesset 1997, 49). Archaeology did not feature among the many potential applications initially identified for lidar, which included flood-mapping, building survey for urban planning, damage assessment following natural disasters, glacier monitoring, and many more (e.g. Ackermann 1999, 66-67; Baltsavias 1999, 92-93; Wehr & Lohr 1999, 81).

It was not until the early 2000s that one of the first archaeology-related lidar surveys was undertaken, again with military influence and in the environs of Stonehenge. A trial survey of the British Army's training area on the Salisbury Plains was flown in 2001 with the aim of identifying and managing archaeological earthworks in addition to evaluating the ground surface in light of grazing and other disturbances (Barnes 2003, 83-84). Soon after this, however, the Stonehenge complex itself was the subject of the first lidar-based project with an overarching archaeological purpose (Crutchley & Crowe 2009, 28). As a much-studied landscape—particularly from an aerial perspective—it was deemed an ideal test subject for evaluation of the use of lidar in archaeological research (ibid.). The results far exceeded expectations as the survey not only provided more accurate coordinates for previously recorded sites, but it also revealed new monuments and new features of existing monuments;

many of which were thought to have been levelled by ploughing but showed up on the lidar surface as slight earthworks (Bewley et al. 2005, 639-641). Even at this early stage in its development, the success of this project, particularly against a backdrop of such an intensively researched site, demonstrated the value of lidar analysis and the immense contribution it could make to archaeology both in terms of archaeological discovery and the decision-making process surrounding landscape use (ibid., 645).

Lidar usage is constantly evolving and being improved, from the types of sensor to helicopter/plane-mounted lasers to the software and visualisation tools we use to visualise and interpret the collected data. While plane-mounted lasers are still the most common way to collect the data, particularly at a larger scale, helicopter mounted laser mapping has been employed, in particular for smaller areas such as the Hill of Tara (Corns et al. 2008; Corns & Shaw 2009) or in Northern Ireland (McNeary 2014, 69). All of the data utilised in this project were gathered using plane mounted lasers.

Since these initial forays into archaeological research, lidar analysis has undergone exponential growth in the field of archaeological reconnaissance (Opitz & Cowley 2013, 1), and has rapidly become a worldwide archaeological phenomenon. It has been a key part of projects around the world, demonstrating its value as an essential tool for landscape archaeologists, and one not limited to prospection. There are far too many lidar-based projects to list here, but some notable and diverse examples are: the re-discovery of a Roman road in Chichester (Small 2016); prehistoric landscape reconstruction in Mexico (Rosenswig & Mendelsohn 2016); and combined with fieldwalking to reassess land-use in France (Poirier et al. 2013). Much of the earlier work and related publications were preoccupied with the technical aspects of both the lidar survey and data-processing stages as they became more streamlined. For example, Ralf Hesse and Žiga Kokalj have revolutionised the visualisation of lidar data by developing open-source toolboxes which allow the generation of multiple lidar visualisations at the click of a button (e.g. Hesse 2010; Kokalj et al. 2010; Kokalj et al. 2011; Hesse 2012; Kokalj & Hesse 2017). More recently, others have been working on developing automated recognition of archaeological monuments in order to make the automated identification of sites across large-scale datasets more efficient (e.g. Trier et al. 2009; Trier & Pilø 2012; Cowley 2013; Cowley et al. 2013; Bennett et al. 2014; Trier et al. 2015; Sevara et al. 2016).

In Ireland, lidar has been used increasingly in advance of road schemes, forestry, agriculture, flood mapping, and mineral prospection (Megarry 2011, 35). One of the main clients, TII, regularly employs archaeologists to investigate lidar datasets along potential road corridors.

For example, the dataset which forms the basis of the Leitrim/Roscommon study area was flown as part of the N4 Carrick-on-Shannon to Dromod road scheme and initial archaeological analysis which comprised prospection and identification of unrecorded sites was undertaken by Dr Will Megarry (Megarry 2010; 2011). Rather than incorporating the full lidar dataset, the analysis focused on the proposed route and a buffer zone of 50m-100m around it (Megarry 2010, 5); in total, 64km<sup>2</sup> of the total 140km<sup>2</sup> was surveyed (*ibid.*). More recently, similar projects have been undertaken, again with a focus on prospection; for example the Strokestown to Ballaghderreen road corridor (Davis 2015), or the Foynes-Limerick road improvement scheme which saw an increase of approx. 90% in the number of recorded sites (Davis 2017, 3). The main holders of lidar data in Ireland are OSI, OPW, TII, and more recently Bluesky, a commercial company specialising in aerial survey. Essentially, the datasets are there, ready for the undertaking of further in-depth research projects, albeit sometimes at a financial cost.

While archaeological research may not be—and is unlikely to be—the original purpose or focus of the lidar survey, archaeological research can certainly benefit from it second-hand. On the rare occasions where lidar has been commissioned specifically for archaeological research purposes, it has been focused on already well-known archaeological landscapes such as the Hill of Tara (Corns & Shaw 2009; 2013) or Brú na Bóinne (Davis et al. 2013). In 2003, the Neolithic burial complex at Loughcrew, Co. Meath was one of the first such sites to undergo lidar survey, and it was incredibly successful, uncovering more than 160km of previously unrecorded linear features associated with the megalithic tombs (Shell & Roughley 2004, 24; Lambrick 2008, 56; Corns & Shaw 2013, 146). The Heritage Council followed up the success of the Loughcrew project by supporting a number of other lidar projects which sought to further explore lidar as a prospection and heritage management technique (Corns & Shaw 2013, 147). Four key archaeological sites were selected for lidar analysis in 2007—Brú na Bóinne, Skellig Michael (both of which are UNESCO World Heritage Sites), the Hill of Tara, and Dún Ailinne (both on the tentative World Heritage List)—with objectives ranging from testing lidar specifications to producing a resource for heritage management and conservation (*ibid.*, 147-150). More recently, the NIEA have commissioned high-resolution lidar surveys of select archaeological landscapes in Northern Ireland which have been used for both archaeological prospection and cultural heritage management purposes (McNeary 2014).

In 2018, TII<sup>16</sup> launched their ‘Open Topographic Data Viewer’, a free online resource providing access to the TII lidar datasets, which not surprisingly generally follow the road networks. Although clearly a fantastic resource and one which will undoubtedly raise the profile of such research, particularly among the public, it may result in an onslaught of further archaeological prospection without follow-up. Because finding ‘new’ monuments generates great excitement,

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<sup>16</sup> In conjunction with GSI, the NMS, the National Parks and Wildlife Service, and The Discovery Programme.

many of the initial findings were posted on social media ahead of reporting to the NMS. And while prospection is indeed an important pursuit, with better availability of good quality, large-scale datasets, there needs to be a move away from simply reporting monuments and walking away—particularly as lidar can only reveal part of the story. This is especially important as the advent of commercial lidar surveys for infrastructural development has meant that archaeologists can now move on from the previous focus on ‘special landscapes’ and adopt a more holistic approach to lidar-based research. This project seeks to extol the advantages of using lidar to re-interpret the archaeological landscape and build upon our knowledge of past societies. Indeed, the author’s initial pilot study (Curran 2012) was one of the first comprehensive investigations to use lidar survey data as the basis of a targeted landscape study, bringing research of early medieval settlement to a new level.

### **3.3.3 Geophysical Survey**

As with the other remote sensing techniques, geophysical survey was developed as a scientific technique for disciplines and uses outside of archaeology. The first use of a geophysical technique within the realm of archaeological research was by Pitt-Rivers in the 1890s in an attempt to locate ditches; he used a technique known as ‘bosing’ which involved banging the flat side of a pick axe against the ground and listening for changes in tone (Clark 1996, 11; Gaffney & Gater 2010, 13). However, it was not until 1938 that the first real archaeological use of geophysics was employed when an early version of earth resistance was used to search for the buried stone remains of a church (Bevan 2000; Gaffney & Gater 2010, 13). The first use of this technique in an archaeological context followed in 1946 when it was employed to do a test pre-excavation survey of site in Dorchester-on-Thames (Clark 1996, 12). The method was initially found to be quite slow (*ibid.*), and is still relatively slow compared to magnetometry as it is more labour intensive (Monfort 2013, 153). Indeed, this technique accounts for just 31% of all geophysical survey undertaken in Ireland between 1997 and 2011 (Bonsall et al. 2014, 4). In addition to its capacity to locate buried ditches and pits, the real strength of earth resistance comes in its ability to locate buried stone features such as masonry, paving, cists, etc. (Jones 2008, 14; Schmidt et al. 2015, 68). This, combined with its relative lack of speed, means that earth resistance is often used to complement magnetometry survey, usually on a targeted part of the site which has first undergone magnetic survey.

Outside of a research framework, geophysical survey is not necessarily a mandatory step in the Irish planning process, but it does come under the umbrella of appropriate archaeological assessment which should be undertaken as part of the general principles of the protection of archaeological heritage (Dept. of Arts, Heritage, Gaeltacht and the Islands 1999, 25-26).



Geophysical survey is also specifically listed as one of the elements of 'preparatory archaeological work' set out in various codes of practice agreed between the Department of Culture, Heritage and the Gaeltacht<sup>17</sup> and key stakeholders such as TII and the Railway Procurement Agency (NMS 2007, 8; NMS 2017, 7). As such, geophysical survey is usually undertaken in advance of infrastructural projects to inform the Environmental Impact Statement which is itself a requirement under the National Monuments (Amendment) Act 2004.

Magnetometer survey is widely considered the most the most effective and efficient technique for mapping sub-surface archaeology, offering rapid ground coverage and responding to a range of sub-surface archaeological anomalies (e.g. Bonsall & Gimson 2004, 23; Jones 2008, 20; Schmidt et al. 2015, 59). This technique is by far the most popular geophysical survey method in Ireland, with a staggering 1,139 (53%) of a total 2,137 detection licences issued between 1997 and 2011 being for magnetometry survey (Bonsall et al. 2014, 4). Magnetometry accounted for 63% of geophysical survey undertaken on TII road schemes between 2001 and 2010; compared to just 3% earth resistance (Bonsall et al. 2013, 3). However, magnetometry can encounter challenges depending on the geological conditions of the survey area, e.g. on peats and alluvial soils which can lead to low- or even non-contrasting anomalies (Bonsall et al. 2014, 8). Bonsall's (2014, i) doctoral research project examined 170 legacy geophysical survey reports produced over a ten year period from 2001 to 2010 and confirmed that 88% of the anomalies identified through detailed magnetometer survey on sedimentary rock were indeed archaeological features (ibid., 470). However, overall results of extensive geophysical survey can also appear somewhat underwhelming on first look, as demonstrated by the low number (eight) of archaeological sites confirmed through excavation compared to the number of anomalies identified (202) as part of several road schemes in Co. Galway (O'Sullivan 2009, 32-33). Although, as O'Sullivan concedes, this may be largely the result of the choice of survey technique and the strategy of only surveying the 'most promising' parts of the scheme (ibid.). Of course, just because an anomaly is not confirmed through excavation does not mean that the geophysical survey was in some way incorrect, but rather could represent 'ghost' features that are only identifiable through geophysical survey (ibid.). This phenomenon must be considered when resolving geophysical survey results with the outcome of site excavation. In fact, Bonsall & Gimson (2004, 23) recommend combining the survey and excavation plans in order to gain a more complete picture of a site's extent and activities. Ultimately, despite some false positives and negatives, particularly on challenging geologies, magnetometry survey has considerably high success rates (Bonsall et al. 2014, 14) and therefore deserves its place at the forefront of archaeological geophysics in Ireland, and indeed, this project.

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<sup>17</sup> This is the current name of the Department but the various codes of practice were agreed by previous Ministers under various earlier iterations.

Geophysical survey has a proven track record in investigations into the archaeological remains of early medieval monuments. For example, twelve previously unknown early medieval enclosures were discovered by geophysical survey as part of investigations into the archaeology along the N7 road scheme (O’Keeffe 2007, 46). These comprised a range of sites including univallate raths of varying dimensions and a bivallate rath (*ibid.*). A magnetometry survey was undertaken at the ecclesiastical site of Clonfad, Co. Westmeath several years after the partial excavation of the site in order to confirm the extent of the enclosing features (Stevens 2012a, 116) and revealed an extensive network of enclosure remains in addition to other anomalies consistent with the industrial activities at the site (Anon 2009, 5) (Figure 3.5). A research programme of geophysical survey (magnetometry and earth resistance) undertaken over several seasons at the monastic site of Glendalough, Co. Wicklow revealed multiple features associated with the early medieval ecclesiastical establishment (Figure 3.6) including a possible rectangular stone structure identified by the earth resistance survey (Seaver et al. 2018, 21). In addition to evidence for possible metalworking, the magnetometry survey also revealed traces of a possible enclosing ditch which was subsequently partially excavated and produced radiocarbon dates from the mid-seventh to mid-ninth century (*ibid.*, 23). Similarly, a combined magnetometry and (targeted) earth resistance survey at the ecclesiastical site of Lullymore, Co. Kildare revealed the enclosure bank, ditch, and several other features of potential archaeological origin (Leigh 2016, 5-9). The value of using multiple techniques is evident here as the earth resistance survey revealed a subrectangular stone structure—possibly the remains of the earlier church—in a location which was inaccessible by magnetometry (*ibid.*, 9). Moreover, the enclosing ditch is very clearly defined on the magnetometry results whereas the bank is more prominent on the earth resistance survey (*ibid.*, 23). A digital terrain model was also produced using aerial photography which showed the surviving upstanding remains of the enclosing bank (Ó Drisceoil & Leigh 2017, 39) (Figure 3.7).

Similarly, the enclosing features are often the most prominent and easily identifiable geophysical anomalies in relation to secular sites, with internal structures sometimes not represented coherently, or indeed at all. This is evident in the magnetometry survey at Ranelagh, Co. Roscommon where the ditches of the multivallate enclosure are very prominent with strong, positive magnetic results, but the interior appears to be free of any identifiable anomalies which could point to the remains of internal structures and/or features (Hogan & Gimson 2015, 6-8) (Figure 3.8). While the underlying geology, nature, and/or survival of the remains can directly impact this, in some cases the investigation strategy can also be a contributory factor, particularly as the limits of the road schemes, rather than the archaeology, dictate the survey extent. This often means that only small segments are surveyed, which can

mean truncating an archaeological monument; for example, geophysical surveys along the M11 comprised multiple small areas of survey along the road corridor (Figure 3.9). Conversely, geophysical survey can be employed to map the remaining unexcavated extent of partially excavated monuments; for example at Camlin, Co. Tipperary, a settlement-cemetery which was partially excavated in 2007-2008 (Flynn 2009, 133). In this case, the south-eastern portion of the enclosure which contained the burials was excavated, while the north-western portion was surveyed by magnetometry and revealed a potential circular structure represented by a number of pit features in addition to some potential field systems radiating from the enclosure (Leigh 2007, 8). Moreover, commercial geophysics is generally aimed at covering a large area as quickly as possible in order to ascertain whether there are archaeological remains present prior to excavation and/or construction. As such, simply identifying an outer enclosing feature often fulfils the brief and the identification and interpretation of any internal features is somewhat superfluous (at this stage). However, in some cases, the internal structures can be revealed with the same strength and definition as the enclosing features, giving a pre-excavation insight into the internal structures and activities. One such example is the rath at Roestown, Co. Meath which exposed a number of internal features which were later excavated to reveal a range of early medieval structures and activity spanning several centuries from the sixth century onwards (O'Hara 2009, 85-87) (Figure 3.10). A substantial three-chambered souterrain was also found under excavation (*ibid.*, 24-29), and although this is suggested by a series of positive magnetic anomalies, it was not clear enough to be interpreted as such from the geophysical results alone (Anon 2001, 11-12).

### **3.3.4 Key Remote Sensing Projects**

Geophysical survey is often combined with other remote sensing methods, particularly lidar, as part of large-scale research projects. The effectiveness of the combination of methods is evident in the range of results and new information that can be gleaned about the sites. Four such projects demonstrate the effectiveness of applying multiple techniques, albeit on different scales to this research project.

The Hill of Ward Project, Co. Meath focused on a single site and incorporated lidar, multiple geophysical survey techniques (magnetometry, earth resistance, GPR), and ultimately excavation in an attempt to better understand the prominent quadrivallate monument and its wider landscape setting (Davis 2011, 37; Davis et al. 2017, 86). The initial lidar survey added a number of 'new' features to the landscape, including a short section of a pair of concentric outer banks to the north of the monument (Figure 3.11) and a possible medieval settlement to the east (Davis 2011, 38-39; Davis et al. 2017, 89). Although the monument is still largely

extant, the geophysical survey confirmed the complete outer vallations of the quadrivallate enclosure, and perhaps more significantly, also revealed a larger trivallate enclosure which pre-dates the present monument (Davis 2013, 5; Davis et al. 2017, 90) (Figure 3.12). The lidar and geophysical survey discoveries not only added to the archaeological features of the monument and surrounding landscape, but also enabled the provision of a proposed phasing of activity at the site which informed the subsequent excavations (Davis 2013, 6). The excavations revealed an impressive timeline of activity at the Hill of Ward, from the middle-Neolithic through to the medieval period (Davis et al. 2017, 93). When combined with the incredible volume of data gathered from the remote sensing investigations, the monumental evolution of the site and its significance within the landscape began to reveal itself.

Situated in the Vale of Pickering, Yorkshire, one of the largest, and longest running projects in Europe focuses on a substantial landscape, and has utilised an array of remote sensing data over the course of almost 40 years of research (Powlesland et al. 2006, 291). The project began with a decade-long programme of oblique and near vertical aerial photography, repeating flights in various conditions with the aim of enhancing the archaeological record for the area (Powlesland et al. 1997, 4.1-4.1.1). Since then, the project has incorporated multi-spectral imaging covering approx. 48.33km<sup>2</sup> (ibid., 4.2.2), lidar survey, and magnetometry covering approx. 1,000ha (Powlesland et al. 2006, 291). The scale and scope of the project enabled non-invasive techniques to be tested and developed in order to maximise their effectiveness, ultimately informing a landscape management strategy which includes the rescue excavation of sites under threat (ibid., 296-298).

The Stonehenge Hidden Landscapes Project commenced in 2010 with the aim of interrogating the wider landscape around Stonehenge using a range of remote sensing and geophysical survey techniques (Gaffney et al. 2012, 147-148). Within the first two years, more than 633ha had been surveyed using a variety of techniques which included terrestrial laser scanning and five different primary geophysical survey methods: earth resistance, electrical imaging, magnetometry, GPR, and electromagnetics (ibid., 148). The geophysical techniques were further broken down into various instruments and configurations, including single-operator, multi-sensor, and motorised (ibid.) (Figure 3.13). By 2016, 1,508.4ha had been surveyed by geophysics alone, and a further 964ha by terrestrial laser scanning (Gaffney et al. 2018, 256). Combined, the investigations revealed hundreds of previously unknown features, including seventeen 'new' monuments which are believed to be contemporary with Stonehenge (LBI Archpro 2014). Covering more than 1,000ha, magnetometry was the most used technique, with the other techniques used to target particular areas and monuments (Gaffney et al. 2018, 256). At the Durrington Walls henge monument alone, terrestrial laser scanning, (motorised)

magnetometry, GPR, ERT, and electromagnetic surveys were all undertaken with the resultant identification of approximately 130 bank features which pre-date the henge (ibid., 259-262). The investigations have exposed a more complex sequence of construction phases than was previously known, beginning with the creation of a natural amphitheatre and ending with the construction of a more conventional henge enclosure (ibid., 264-265). In addition to showcasing the strengths (and limitations) of each individual technique, ultimately the project demonstrates the value of applying multiple techniques to a wider landscape, even one as well-studied as Stonehenge.

While all of these projects focused on a specific landscape across multiple periods, the LIARI Project focused on multiple locations within a single period, namely, the late Iron Age. However, the Discovery Programme's research was not solely remote sensing-based as it also consisted of extensive documentary research, artefactual assessment, palaeoenvironmental research, and isotope analysis (Cahill Wilson et al. 2014, 3-7; Dowling & Cahill Wilson 2014, 20). Magnetometry was undertaken at several suspected late Iron Age sites in counties Dublin and Meath, aimed at uncovering hidden archaeological features which could confirm their origins. There were a number of significant results, including at Faughan Hill, Co. Meath where no archaeological remains were previously visible (Figure 3.14). The survey uncovered a substantial array of archaeological features, including three potential ditched enclosures and a range of other features which point to the existence of a complex multi-phase site, possibly consistent with that of an Iron Age ceremonial or assembly site (ibid., 22). Perhaps the most notable results were at the promontory fort of Drumanagh, Co. Dublin. Lidar analysis had highlighted a number of potential 'new' archaeological features which suggested the existence of subrectangular enclosures (Dowling 2014, 63-65) (Figure 3.15). These and other areas (totalling approx. 4.7ha) were subsequently targeted with geophysical survey (magnetometry and earth resistance) and revealed a multitude of new archaeological features. Interestingly, some of the subrectangular features visible on the lidar surface were not identifiable on either of the geophysical survey results, which Dowling (2014, 69) attributed to their being relatively superficial with no distinction between their makeup and those of the ground around them, or indeed that they were an artefact of data-processing. Given the nature and extent of the features on the lidar surface, it is unlikely that they are a result of the latter. In addition, they are (just barely) visible on the aerial image, and the outer enclosing feature is represented on early cartographic sources (Figure 3.16). However, it is notable that the lidar and geophysical surveys are complementary rather than overlapping and it emphasises the value in applying both techniques. Ultimately the geophysical surveys contributed a range of new archaeological evidence to the study which is indicative of complex, multi-period occupation at the site, ranging from settlement and ritual activities to post-medieval farming (ibid., 87) (Figure 3.17).

These projects are just a small selection from a range of multidisciplinary projects that incorporate remote sensing as part of the primary research toolkit. Despite differing scales, periods, and aims, they clearly demonstrate the benefits of applying multiple non-invasive techniques to archaeological investigations. The success of these, and other similar projects, are an indicator of how a combination of remote sensing and other archaeological methods can be applied to early medieval Ireland with a view to expanding our knowledge and understanding of the period.

### **3.4 Remotely Sensing Early Medieval Ireland**

This current research project is significant in that it utilises the data to investigate a relatively large arbitrary area, not defined by archaeological monuments or modern political boundaries. Until now, research-based lidar analysis has largely been reserved for in-depth investigations into already well-known ‘special’ landscapes (see Section 3.3.2). This project provides an excellent opportunity to put lidar analysis to the test on relatively unknown landscapes, for the most part without the shadow of preconceived expectations. The techniques have a proven track record in archaeological research, but the benefits of their application to the early medieval period specifically are significant.

Lidar contributes to the study on a number of levels. Firstly, the bank-and-ditch morphology of raths, cashels, and ecclesiastical enclosures, makes them ideal candidates for this type of technology. The variations in the ground surface caused by the banks and ditches mean that they are particularly visible on a 2-dimensional (or pseudo 3D) lidar surface, even if they are not visible to the naked eye (the extant remains can be mere centimetres higher or lower than surrounding ground level). The viability of lidar as a prospection tool for early medieval remains was proven in the pilot study which revealed 150 potential ‘new’ early medieval monuments, constituting an increase of approximately 35% in the number of recorded monuments within a 140km<sup>2</sup> study area (Curran 2012, 51; Curran 2013, 98).<sup>18</sup> Secondly, it facilitates a 2D/3D view of the landscape, complete with topography. This is something that aerial imagery cannot provide and it is of immense value to the landscape archaeologist. Providing a bird’s-eye view of the landscape, aerial imagery is an extremely valuable resource; however, it presents as a flat surface meaning that the investigator must have an intimate knowledge of the area’s topography in order to make sense of the archaeology. Lidar inherently provides this visual detail, while the actual statistics (elevation measurements etc.) are available at the click of a button. Viewed together, the combination of aerial imagery and lidar data gives a 3D topographical landscape view, effectively extending “our power to detect, record, and imagine

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<sup>18</sup> This figure was revised following re-analysis over the course of the current project (Section 4.4.2).

landscapes” (Mlekuž 2013, 114). This is not to discount actually gaining hands-on experience of a region’s topography; while computer-based analysis is an incredible resource, nothing can replace actually going (literally) into the field to experience the land in person.

Geophysical survey contributes to the project by providing a sub-surface layer that lidar simply cannot reach. Magnetometry and earth resistance are used in tandem in order to maximise the return of buried archaeological remains. Again, the bank-and-ditch morphology of early medieval enclosures are key features which can be readily identified using both techniques. In addition, archaeological excavation has shown that houses and other structures generally found within early medieval enclosures leave sub-surface traces such as postholes, gullies, pits, etc. (see Chapter 2: Section 2.2.6) which may be identifiable through geophysical survey. Both magnetometry and earth resistance have a proven track record in locating such features. Earth resistance can be of additional benefit if the features have been constructed using stone, for example, in the case of stone-packed postholes or stone-lined ditches and gullies. Likewise, hearths and areas of burning can be identified using both methods as magnetometry will pick up the burnt remains and earth resistance can pick up the hearth if it is stone-lined.

### **3.5 The Lidar Analysis**

This research project is not concerned with testing and developing lidar technology; rather, it is about the application of this already well-established technology to the investigation of early medieval archaeology. The Leitrim/Roscommon dataset was flown and processed by OSI in advance of the N4 Carrick-on-Shannon to Dromod road scheme (see Chapter 4). The Monaghan dataset was flown and processed by the OPW and OSI for various purposes, including the N2 road scheme (see Chapter 5). Both datasets were at 2m resolution;<sup>19</sup> an additional higher resolution dataset<sup>20</sup> was purchased for a 30km<sup>2</sup> section of the Leitrim/Roscommon study area. In both cases, the processing undertaken by OSI filtered and removed the non-ground points, thereby leaving datasets containing surface points only for manipulation by the author.

#### **3.5.1 Phase 1: Processing and Visualisation**

A separate database was created in the GIS for each case study area to facilitate ease of data manipulation. The data were received as XYZ files (easting, northing, elevation) (Table 3.1) which were converted to MS Excel format and added individually to the GIS (ArcGIS 10.1 and

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<sup>19</sup> Recorded at 2 to 3 points per metre but gridded to 1 point per 2m<sup>2</sup>.

<sup>20</sup> Gridded to 1 point per 0.5m<sup>2</sup>.

10.4) to create point shapefiles. The shapefiles were then interpolated in batches using the 'Topo to Raster' tool to create Digital Elevation Models (DEMs). The individual DEMs were then joined together using the 'mosaic' function to create a single DEM. The 2m resolution of the lidar data resulted in a surface which quickly pixelated when zooming in to examine features more closely, resulting in blurry images which often made it difficult to see sufficient detail. In an effort to improve the appearance of the features at close range, the original DEM was exported as a grid with a cell size of 1m x 1m and this was then used to produce the surface models. This resulted in a sharper raster surface without any loss of detail in the process (Figure 3.18). The higher resolution dataset obtained for the 30km<sup>2</sup> area of Leitrim/Roscommon proved to be more effective in relation to image quality, but did not necessarily constitute a similar increase in feature identification (see Chapter 4).

**Table 3.1 Lidar Point Files**

Case Study	Point	Total File Size
<b>Leitrim/Roscommon (2m)</b>	<b>49</b>	<b>937 MB</b>
<b>Leitrim/Roscommon (0.5m)</b>	<b>180</b>	<b>4.55 GB</b>
<b>Monaghan</b>	<b>339</b>	<b>2.95 GB</b>

There are a range of techniques available for the viewing and analysis of lidar datasets, many of which are very recent developments. Analytical hillshading is perhaps the best-known and most-used visualisation technique, as it provides a good view of the general topography and is relatively intuitive to read (Kokalj & Hesse 2017, 16; Kokalj & Somrak 2019, 15). The technique is relatively straightforward to use and has become a standard feature within GIS software (Crutchley & Crow 2009, 24; Kokalj et al. 2013, 100; Kokalj & Hesse 2017, 16; Kokalj & Somrak 2019, 9). This technique artificially lights the surface from a chosen direction and elevation (azimuth and altitude) in order to highlight low-lying topographic remains. However, due to its overwhelming popularity, hillshading often comes under particular fire as there can be a tendency to rely on this technique solely from a single azimuth which can actually significantly reduce the amount of archaeological features visible to the user (Devereux et al. 2008, 471; Challis et al. 2011, 290; Kokalj et al. 2013, 100; Kokalj & Hesse 2017, 34). This occurs because direct illumination of an area can result in parts of the visualisation being saturated with shadow or light which can obscure archaeological features, particularly linear features which lie along the direction of the light source (Kokalj & Somrak 2019, 9). This is a challenge within the drumlin topography of the Leitrim/Roscommon and Monaghan case study areas, as the 'sun' is always shining on one side of the hill thereby casting the other side into shadow or even complete darkness, thus potentially concealing archaeological features



(Figure 3.19). To combat the challenges posed by standard analytical (i.e. single azimuth) hillshade modelling, multiple hillshades were created with varying azimuths and altitudes to capture effects of light and shadow at different angles which highlighted archaeological features in different ways. During the prospection phase, these layers were turned on and off in order to best visualise the landscape and identify potential archaeological monuments.

Many of the newer visualisation techniques are conveniently housed in visualisation toolboxes which are freely available online; for example, Ralf Hesse's 'Lidar Visualisation Toolbox' (LiVT) and Žiga Kokalj's 'Relief Visualisation Toolbox' (RVT). While there are some overlapping functions, they are not identical and some visualisation techniques differ. However, both toolboxes enable the production of multiple raster types at the click of a button and are extremely useful in rapidly producing multiple visualisations of a required area (Figure 3.20). Multi-directional hillshading calculates analytical hillshading in multiple directions and combines the results into a single visualisation (Kokalj et al. 2019, 4). The 'sky-view factor' simulates diffuse light by calculating how much of the sky is visible from each point (Kokalj et al. 2011, 263; Zakšek et al. 2011, 399). With this method, upstanding remains (e.g. ridges, walls, mounds) are illuminated and appear in light while depressions (e.g. pits, furrows) are dark as they receive less light (Kokalj & Somrak 2019, 10). Similar to sky-view factor, 'openness' also uses diffuse illumination and is independent of direction and shading (Doneus 2013, 6439; Kokalj & Hesse 2017, 24). Openness can be positive or negative, enhancing both concave and convex features respectively (Doneus 2013, 6428; Kokalj et al. 2019, 6). Local relief models aim to enhance the visualisation of more subtle features by effectively removing the general, large-scale topography to expose the micro-topographic remains (Hesse 2010, 67-71; Challis et al. 2011, 281; Doneus 2013, 6436).

As with most archaeological investigation, the techniques and tools must be adapted to the task(s) and question(s) at hand. There is no one 'perfect' technique, each has its strengths and weaknesses and should be used appropriately and intelligently in order to maximise the return and produce the best characterisation of the dataset (Kokalj et al. 2013, 102-103; Kokalj & Hesse 2017, 34). In some cases, one monument may respond better to a particular method, while another's features may be better enhanced using a different technique. Overall, hillshading proved the most effective method for the case study areas involved as it was relatively quick and straightforward to use, in addition proving very successful in terms of monument discovery and visualisation. Targeted examples were examined using some of the other visualisation techniques, particularly monuments of which little trace remained, or in cases where a technique other than hillshading enhanced the visualisation.

### 3.5.2 Phase 2: Prospection

In this project, prospection for monuments is merely the first step in the process of better understanding the early medieval landscape. Far too often, lidar is used to find new archaeological monuments and features, and that is where the investigation ends. But “knowledge is very different from data collection” (Corsi 2013, 4) and the fundamental aim of this study is to use lidar as one of several means of interpreting the early medieval landscape.

The first step in prospecting for ‘new’ monuments was to identify those already recorded so that they could be distinguished from any newly discovered monuments. The official online listing of recorded monuments for each of the three counties was downloaded from the SMR as a shapefile. The shapefile was then added to the GIS and monuments lying within the bounds of the study areas were identified and outliers removed (Appendix 1 & 2). The updated shapefiles were exported to MS Excel and saved as the core metadata file to which newly discovered monuments and all site-specific metadata were added (Section 3.8.2).

Each monument was assigned a unique project identifier (P\_ID) to be used over the course of the project. It was essential to design an appropriate nomenclature, as although the SMR number is a unique identifier for recorded monuments, it could not be replicated and used for any newly discovered monuments (particularly prior to reporting to the NMS). As per the author’s MA thesis, the devised nomenclature had two main aims: firstly, to enable all sites to be uniquely identifiable; and secondly, to establish a single system of identification that could be used to refer to both new and existing sites (Curran 2012, 14). The Project ID was created using the county name, barony name, sequential site number, and whether the site was known or new. For example:

LMO-001K = **L**eitrim, barony of **M**ohill, Site # **1**, **K**nown

RBN-256N = **R**oscommon, barony of **B**allintober **N**orth, site # **256**, **N**ew

In addition to the developments in visualisation techniques, progress is being made in relation to ‘automated feature extraction’ (e.g. Trier & Pilø 2012; Trier et al. 2015; Sevara et al. 2016). However, while this technique can indeed be used to aid archaeological prospection, it is unlikely to ever fully replace the role of the archaeologist in interpreting the findings (Mlekuž 2013, 122). Regardless of the automation of the prospection phase for archaeological remains, at some stage an actual person must decide if they are indeed archaeological and subsequently interpret them within the wider landscape (Palmer 2013, 7). The validity of the interpretation (which we may never know for sure) is largely determined by the skill, knowledge, and experience of the interpreter (Cowley 2013, 24; Halliday 2013, 63; Palmer 2013, 78-79). Interpretative challenges are not a new archaeological issue brought about by developments

in lidar technology, they are, and always have been, a fundamental part of archaeological analysis (Hodder 1999, 67), from the study of material culture to archaeological landscapes. Automation or semi-automation of lidar prospection has proven relatively successful in diminishing the time taken for large-scale projects. For example, Hesse's (2013, 171-183) survey of Baden-Württemberg which encompasses almost 36,000km<sup>2</sup> with an estimated 600,000 sites, has been made eminently more efficient with the application of automated feature extraction (developed by Hesse himself). It is estimated that the project will take just 6 years to complete (ibid.) whereas a survey of a 52,000km<sup>2</sup> area of Britain based on manual exploration of aerial imagery has taken almost 20 years to complete (Bennett et al. 2014, 901). For prospection of this project's size, however, manual prospection is more than sufficient.

The study areas were systematically explored using a grid system, working from north-west to south-east across the study areas (Figure 3.21). As discussed previously, multiple hillshades were created for each study area, thus lighting the surface from various angles. As the survey area was explored, the different hillshades were switched on and off in order to maximise the visibility of potential 'new' sites. Each potential new monument was logged onto a spreadsheet with its coordinates and given a unique Project ID as per the nomenclature. A brief description was also added where appropriate. More complete details were added later when the monuments were re-evaluated, measured, and rated prior to reporting to the NMS. Analysis of the lidar surface was undertaken in tandem with online aerial mapping available from the NMS and Google Earth to ensure that features being identified on the lidar surface were not modern or merely vegetation-based. In some cases, outlines of the 'new' monuments could also be confirmed on the aerial imagery (Figure 3.22). The online historic maps provided by the NMS were also consulted to investigate whether the monuments had been identified previously.

All potential new monuments identified over the course of the pilot study in the Leitrim/Roscommon area were revisited as part of the current project. As a result, 56 monuments which had initially been identified as possible enclosures during the MA thesis were revised and subsequently downgraded by the author. Knowledge and experience are key factors when analysing and interpreting any archaeological dataset (Palmer 2013, 76-77), and this was certainly evident when revisiting the dataset with fresh, more experienced, eyes.

### **3.5.3 Phase 3: Classification**

One of this study's major challenges is to accurately identify and classify monuments; both those newly discovered using lidar analysis, and those already recorded on the SMR.

Classification is critical to the project as this determines the volume and nature of the early medieval monuments which constitute its focus. This step was completed in two parts, firstly in relation to each monument's likely time period, and secondly to their typology. Challenges come in various forms, e.g. morphological similarities between monuments from different periods and/or morphological differences between monuments from the early medieval period.

Scientific dating is in short supply for the study areas,<sup>21</sup> therefore classification of monuments in terms of period must be based on alternative methods. It is here that the SMR was particularly helpful in relation to at least classifying the existing recorded monuments, which was the first step in the process. Of the 464 individual classifications provided on the SMR, only 13 can be identified as being solely related to the early medieval period; while 160 can be classified as potentially early medieval as they cover a range of periods from prehistory up to the seventeenth century. For example, a 'Field Boundary' dates "to any period from the Neolithic (c. 4000-2400BC) onwards" (SMR: Field Boundary). In all, five classes of monument period were identified and adopted for the purposes of this research (Table 3.2). It was imperative to separate out the non-early medieval periods so as to identify monuments that may have existed prior to the early medieval settlements, and those that post-dated them.

**Table 3.2 Monument Period Groupings**

Period	Description
<b>Prehistoric</b>	<i>sites dating to pre-early medieval periods</i>
<b>Early Medieval</b>	<i>sites relating to the early medieval period only</i>
<b>Early Medieval (Possible)</b>	<i>sites spanning multiple periods, including the early medieval period</i>
<b>Medieval/Late Medieval</b>	<i>post-early medieval sites (i.e. after AD 1000)</i>
<b>Post-Medieval/Modern</b>	<i>all other sites</i>

Formal classification at a national scale brings forth its own set of challenges with multiple definitions for similar sites (see Chapter 1: Table 1.1). Rathes and cashels are contained within four separate classifications on the SMR:

- 1) Ringfort - rath
- 2) Ringfort - cashel
- 3) Ringfort - unclassified
- 4) Enclosure

<sup>21</sup> Robert Chapple's 'Geolocated Radiocarbon Dates from Ireland' mapviewer lists 4 dates for Co. Monaghan, 7 for Co. Leitrim, and 22 for Co. Roscommon (of which 18 are from the excavated rath at Cloongownagh).

The term 'Ringfort - unclassified' relates to monuments that can be identified as early medieval enclosures, but a determination cannot be made as to whether their enclosing elements were made of stone or earth. As the definition states:

"A roughly circular or oval area surrounded by an earthen bank with an external fosse (see Ringfort - rath) or a stone wall (see Ringfort - cashel). The term Ringfort - unclassified is used in instances where the surviving remains are insufficient to determine whether the monument was originally a rath or cashel"

(SMR: Ringfort - unclassified).

The term 'Enclosure' is particularly problematic as its definition covers a multitude of periods and morphological features:

"An area defined by an enclosing element (e.g. bank, wall, fosse, scarp), or indicated as such cartographically, and occurring in a variety of shapes and sizes, possessing no diagnostic features which would allow classification within another monument category. These may date to any period from prehistory onwards"

(SMR: Enclosure).

This makes the analysis more challenging as each potentially early medieval category of monument type has to be examined, and each monument within it must be appropriately classified to the correct period. Therefore, in addition to visually examining the monuments using the lidar, aerial imagery, and historic mapping, the paper files available in the NMS Archives were consulted for each monument falling within the two study areas.<sup>22</sup> The detailed files relating to the site visits and/or inspections undertaken by or on behalf of the NMS provided information regarding the morphology, condition, and description of the sites. This information was invaluable in helping to determine the most appropriate period and in focusing the potential classification for the monuments in the two case study areas. Based on the monument descriptions and computer-based visual inspections, many monuments could be classified as early medieval (or possibly early medieval) while others were assigned to earlier or later periods. This step helped to streamline the analysis of early medieval settlement and activity within the study areas, as appropriate classification of monuments enabled the building of a more realistic impression of the early medieval landscape.

Ecclesiastical sites in the form of enclosures, churches, and graveyards required more in-depth investigation in order to determine whether or not they had early medieval origins. To a large extent, they were more straightforward to 'date' than secular sites, although one can never rule out the possibility of the existence of an earlier church beneath later extant remains. As detailed in Chapter 2, Swan outlined twelve features, a combination of which are consistently representative of early medieval ecclesiastical sites (Swan 1983, 274; see also Table 2.3).

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<sup>22</sup> From a total of almost 800 monuments, only 10 files were unavailable for consultation.

According to the SMR, there are 34 separate classifications<sup>23</sup> which may indicate the presence of an early medieval ecclesiastical site. Many of these classifications correspond directly to those criteria put forward by Swan, while others are distinctly rarer. For example, the classification 'steps' returns only five results countrywide, four of which are on Skellig Michael, Co. Kerry, and the other elsewhere in the same county. With the exception of souterrains, those presented by Swan are certainly the most common identifiers; however, all potential early medieval ecclesiastical sites exhibiting the characteristics put forward by Swan and the SMR were examined in order to determine their potential early medieval origins.

The SMR Database and NMS Archives provided further details which enabled sites to be confirmed as (potentially) early medieval in origin or discounted from the period altogether. Furthermore, with the advent of Christianity came the introduction of written records, many of which were connected to the various monasteries, thus several ecclesiastical sites were mentioned directly in many of the contemporary written sources such as the Annals of the Four Masters. In many cases, the deaths of the abbots or bishops associated with various (generally significant) churches were recorded, and they provided a good starting point for assigning possible chronologies to ecclesiastical sites. The database of the Monasticon Hibernicum Project (<https://monasticon.celt.dias.ie/index.php>) contains more than 5,500 entries for ecclesiastical sites dating prior to the twelfth century, compiled from a combination of the various written sources and archaeological evidence (MacShamhráin 2008). This database was of immense value, not only confirming a probable early date for many of the ecclesiastical sites within the study areas, but also in providing references for primary sources. This process enabled the ecclesiastical sites to be streamlined and a more accurate picture of their distribution produced. Finally, ecclesiastical sites which were only identifiable by a single relatively tenuous feature (e.g. standing stone only) were discounted. These sites were retained on the general distribution layer for inclusion in wider analysis of the study areas.

Additional analysis was essential in order to further classify the raths and cashels as univallate, bivallate, trivallate, or conjoined. These features were formerly contained as sub-classes under the 'ringfort' classification, but were decommissioned over a series of revisions and subsequent re-classifications by the Archaeological Survey of Ireland (Farrelly 2013, S36-S37). As a result, these sub-categories are no longer listed on the SMR database and the online records often fail to explicitly state whether the raths are univallate or bivallate etc. Over-classification can bring its own issues, and while vallations differentiate between types of rath,

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<sup>23</sup> 47 including those monuments which have been moved and are identified with 'present location', e.g. 'cross-slab' and 'cross-slab (present location)' are classified separately on the SMR.

they do not really constitute a separate monument. For research such as this, however, a distinction would be beneficial. As it stands, it is only by reading through the descriptions and examining the sketches in the NMS Archives, looking at historic mapping, analysing the lidar, and consulting aerial images that these vital details can be deciphered. In the case of conjoined raths, the two enclosures that make up the monument are usually given separate SMR numbers. It makes the study of this phenomenon particularly difficult and extremely challenging as it involves a scoping, visual search of the landscape in order to identify them.

Finally, one of the SMR classifications corresponds to monuments which have been declassified, they are listed as 'Redundant Records' and are defined as follows (SMR: Redundant record):

- 1) a record identifying a location where, according to documentary sources (e.g. published reference, cartographic sources) or personal communication, a monument might have existed, but which, on inspection, was found not to be an archaeological monument (e.g. a natural feature);
- 2) a record created in error, a duplicate record or one which has no supporting evidence recorded on file or in the database;
- 3) a record classified using a term which is now obsolete (e.g. ecclesiastical remains);
- 4) an archaeological object (i.e. an artefact), e.g. a quernstone;
- 5) a record entered as a 'Shipwreck'. Shipwrecks are recorded in a separate database.

There were 39 redundant records listed within the two case study areas (Leitrim/Roscommon: 32; Monaghan: 7) and in each case, the location was examined using the lidar surface, aerial imagery, and historic mapping to check whether any archaeological traces could be identified.

#### **3.5.4 Phase 4: Analysis**

When all of the early medieval monuments within the study areas had been identified and mapped in the GIS, analysis of the datasets could commence. Interrogation of the study areas was carried out by examining the monuments under a range of criteria:

- 1) physical attributes;
- 2) typology;
- 3) distribution;
- 4) position within the landscape and relationship to other monuments.

These criteria were developed from the pilot study and incorporate some of variables employed by Stout in his statistical cluster analysis of Irish raths, albeit in a different way.<sup>24</sup> The pilot study

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<sup>24</sup> Stout (1996, 175-177) used a statistical software package to generate his rath classification and produce clusters of raths for analysis.

deliberately followed Stout's criteria (Table 3.3) with the purpose of revisiting his principles using modern remote sensing methodologies and to explore his hypothesis in light of newly discovered early medieval monuments (Curran 2012, 48). Ultimately this pilot study found that while Stout's variables were applicable for the most part, they did not offer a coherent and appropriate method of understanding early medieval settlement as a whole (ibid., 51). Stout himself (1997, 12) saw his statistical analysis of raths as a first step in examining this one particular aspect of early medieval settlement, and a means of gathering data which could form a solid basis for future research with a broader scope; but the reliance on multivariate statistical analysis resulted in a generalised, high-level overview. While this is important for examination and summary at a national level, it effectively obscures the nuances that occur at a local level, particularly in relation to topography and natural geology, not to mention monuments from earlier periods which may have influenced the early medieval location choice. Stout's work explicitly focused on raths, with the result that monuments such as crannógs, cemeteries, and ecclesiastical sites were not dealt with adequately, nor were important parts of the community landscape such as royal demesnes (as opposed to high-status enclosures). So although some of the criteria overlap with those used by Stout, none of them were viewed in isolation; everything is interconnected. This study made a concerted effort to interrogate all of the archaeological remains within their locality and their landscape context in order to let the archaeology dictate the agenda, rather than a computer programme.

**Table 3.3 Settlement Variables Identified by Stout (1996, 173-174)**

Morphological Variables	Locational Variables	Distributional Variables
Number of Banks	Altitude	Density (0.7km)
Number of Fosses	Slope	Density (3.5km)
Internal Diameter		Density (7.3km)
Overall Diameter		Distance to nearest Ecclesiastical Site

*a) Physical Attributes*

This criterion is perhaps the most fundamental of all early medieval settlement studies, as it corresponds to the basic characteristics of the monuments. Internal diameter was identified by Stout as being the most important morphological variable as it is an indicator of the amount of living space within the rath (Stout 1996, 169). Overall diameter is defined as a measure of a rath's interior and the strength of its defences (Stout 1997, 19), i.e. its surrounding bank(s) and fosse(s). Both statistics are vital, and indeed, Michelle Comber's 2008 study of the early medieval economy focused predominantly on these two variables (Comber 2008). The first



step in this process was to 'survey' all monuments, both those previously recorded and those newly discovered, using the lidar surface. Although dimensions are usually provided within the descriptions on the SMR, it is rarely specified whether they correspond to internal or overall measurements; this is also a common issue in relation to excavated sites. According to the Archaeological Inventory of County Leitrim, dimensions of all raths, cashels, enclosures, and earthworks recorded as part of the SMR were generally taken from crest to crest of the banks (Moore 2003, xii). However, taking measurements is relatively subjective and with different field surveyors operating in different areas, there was a risk of inherent variations in the manner and method of survey; one man's crest is another man's slope. Recording all monuments in the same manner using the GIS ensured consistency across the study, albeit it entailed re-recording the known monuments. In some cases, it was not possible to obtain a complete measurement due to the partial or complete destruction of the monument or the lack of surface expression of the features on the lidar surface. This was particularly problematic in Monaghan due to monument survival issues. In such cases, the measurements (if any) provided by the SMR were utilised. As they are not visible on the lidar surface, dimensions for crannógs were taken from the NMS Archives and the SMR online database.

The raths were grouped based on their internal diameter measurements which facilitated exploration of their distribution patterns within the landscape in addition to their relationship with other monuments. Crannóg and cashel dimensions were also incorporated into the analysis, although this criterion was not as relevant in relation to the ecclesiastical establishments. As the case studies demonstrate, the insights gained by this analysis (in conjunction with the other criteria) can open up possibilities as to the interpretation of the role and function of the monuments.

#### *b) Typology*

The typology criterion relates directly to the raths and cashels; the definition of a crannóg, souterrain, and ecclesiastical site etc. is in itself a typology. With raths and cashels, the number of banks and ditches are directly linked to status (Stout 1996, 173; Dowling 2011, 213), thus identification of the number of vallations is key. In addition, conjoined monuments warrant a distinct category as they are typologically unique (see Chapter 2: Section 2.2.2). The form and number of vallations were identified and recorded for each rath and cashel in order to determine their typology, although in some cases, the number of vallations was unclear, even after a thorough examination of the lidar, SMR archives, historic mapping, and aerial imagery. In these cases, the typology was classified as 'possible'. The metadata were updated and each rath or cashel was defined as univallate, bivallate, trivallate, or conjoined. This facilitated

efficient analysis and exploration of the monument types within the GIS, particularly in relation to their distribution and relationship to one another.

As the case studies demonstrate, typological analysis (in conjunction with other criteria) raises many questions in relation to our understanding of status versus role and function. For example, are univallate raths always lower status? Are they always farmsteads? The substantial developments in evidence for early medieval settlement in the twenty year period that followed Stout's research, saw the emergence of 'new' types of site which have challenged our understanding of how settlement and society functioned. Perhaps the most significant of these are the settlement-cemeteries which added a new dimension to our perception of early medieval society. The analysis undertaken by this study seeks to incorporate these sites more effectively into our interpretations of the early medieval landscape and its people.

### *c) Distribution*

Distribution analysis was undertaken in light of the physical attributes and typology of the monuments within the study areas. Letting the archaeology lead the way, this analysis did not follow any rigid parameters or boundaries; instead, areas of possible archaeological significance were identified and investigated further. According to Stout's (1996, 145, 174) hypothesis, three measurements represented the approximate size of a townland (0.7km), parish (3.5km), and barony (7.3km). The pilot study found that "the variables of 3.5km and 7.3km are not particularly useful, and are an indicator of regional density rather than the territory ruled from a particular monument" (Curran 2012, 50). Settlement density is a key part of this study as it is fundamental to the understanding of early medieval settlement patterns. More important than exploring densities at specific scales, is to examine the distribution of the non-standard sites such as multivallate raths, conjoined raths, possible cemeteries, etc. as these will hold the key to unlocking further understanding of the territorial divisions and makeup within the case study areas. Instead of recording the distributional data as a statistic for each monument, key locales were explored in terms of proximity to other monuments, significant locations, and occasionally in light of known later medieval boundaries.

Ecclesiastical sites also play a key role as regards distribution, both in relation to one another and to the contemporary secular sites from where they drew their flock. The pilot study demonstrated that Stout's (1996, 224) hypothesis regarding the existence of a 3km 'buffer zone' around each ecclesiastical site was invalid (Curran 2012, 50). Many secular settlements were, in fact, found to be less than 200m from their closest ecclesiastical site (ibid.). Distance

from secular settlement might be an important factor in our examination of early Christian Ireland, however, it is by no means the defining criterion. Proximity does not equal accessibility, and as with secular settlement, we must look at the early churches within their wider landscape setting. The relationship is much more complex than that and a simple measurement from A to B cannot describe it appropriately. A more important consideration is the distance between ecclesiastical sites, as this could be an indicator of political or regional boundaries.

*d) Position with the landscape and relationship to other monuments*

The siting of early medieval monuments, both in terms of their physical location in the landscape and their location in relation to their neighbours, plays a vital role in approaching an understanding of early medieval communities and society. The inter-relationships between settlements and their surrounding landscape are key to understanding the early medieval landscape (Hamerow 2018, 37). Why was a particular settlement constructed in a particular location? There are so many criteria that could inform such a decision, many of them undoubtedly intangible and personal to those that constructed them. We are left with only the archaeological remains and the enduring topography of the landscape and must do our best to interpret their decisions based on the criteria we can access.

Slope and altitude are key indicators of a number of factors affecting site location; in terms of raths this primarily meant inter-visibility, drainage, and soil quality (Stout 1991, 210), in addition to the need for a strategic position (Edwards 1996, 19). The founders of ecclesiastical sites had other considerations (see Chapter 2: Section 2.3), whereas crannóg locations were pre-determined by the location of suitable bodies of water. Clearly these are key elements to be considered when investigating the siting of early medieval settlement (Curran 2012, 49). While the degree of slope was recorded in the pilot project (ibid., 22), this was not repeated within this body of research. Stout used the degree of slope as a representation of drainage and therefore quality of soil (Stout 1996, 173). However, presenting slope as a numeric value is somewhat meaningless: it is really only constructive when used in conjunction with another sample for comparison. For example, the pilot study showed that the mean degree of slope was 3.96° (Curran 2012, 32). What does that actually mean? Topography is physical and visual, a number does not do it justice, nor does it actually tell us anything about the siting of the monument. A more interesting, and valuable approach would be to record the actual description. Is it on the crest of the drumlin or mid-slope? What can be seen from this location? This information is considerably more informative than a mere number as it adds to the description and visualisation of the settlement and the implications of its location. Altitude is another important factor, but because of regional topography, elevation is all relative and varies

greatly from case study to case study. This was particularly evident in the Monaghan area where the ecclesiastical sites were located on high ground due to the local topography which meant that the lower ground was largely marshy and unsuitable (see Chapter 5). In Leitrim/Roscommon, sites located above 90m OD were a minority (ibid., 31), but this elevation could be the norm in a more mountainous region.

All of the factors combined, especially when explored using the 3D view provided by the lidar datasets, can provide an insight into the possible functions and roles of various sites. Combined with the weight of archaeological evidence for early medieval Ireland (as discussed in Chapter 2), our interpretation of monuments and the wider landscape must be based on more than just number-crunching. The sheer volume of data manipulation made possible by a GIS means that it can be very easy to find oneself some distance along the route of statistical analysis. By focusing too much on the statistics, there is a real risk of losing track of the very people who are at the heart of the study. The landscape is intricately linked with the people that inhabit it, and as such, is not a static entity but is instead a medium for the events and social interactions that occur within it (Tilley 1994, 10-11). Statistical analysis clearly has a place in archaeological research, but as Gillings (2012, 608) advocates, it is more productive to examine the relational situation rather than simply work through a checklist of variables. A GIS and the analyses it affords, make it very tempting to stick to a statistical approach; however, in doing so, one risks overlooking the intangible elements (ibid., 605). There is no formula for early medieval settlement, and although it is necessary to record different statistical elements, when it comes to interpretation, we must look beyond the figures.

### **3.5.5 Phase 5: Reporting New Discoveries**

All newly discovered monuments with archaeological potential were reported to the NMS for inclusion on the SMR. In order to make this process as accurate as possible, both for reporting purposes and settlement pattern analysis, each newly discovered monument was assessed and rated according to its probability as an early medieval archaeological monument. Six ratings were identified, numbers 1 to 3 being probable raths, and 4 to 6 less likely.

1. Full circular/subcircular enclosure visible; bank and ditch visible on profile; appropriate size and location;
2. Full circular/subcircular enclosure visible; bank or ditch visible on profile; appropriate size and location;
3. Full circular/subcircular enclosure visible; bank or ditch visible at some point on profile; appropriate size and location;
4. Full or partial circular/subcircular enclosure visible; no bank or ditch visible on profile; appropriate size and location;
5. Indeterminate feature; possibly archaeological but not likely to be early medieval in date;
6. Most likely a modern feature, non-archaeological.

The hillshade which best showed the monument was selected and an image of each newly discovered potential monument was produced. Each image contained a scale bar and north arrow. It had originally been intended that each monument would be shown at the same scale; however, given variations in the quality of the lidar datasets and the surviving remains of the monuments themselves, this ultimately proved impractical. Where applicable, a profile taken across the most appropriate location on the monument was also included. This could not be undertaken uniformly from the same position, e.g. all north-south, as due to the drumlin terrain and topography, many of the monuments were located on sloped ground which can affect the outcome of the profile by obscuring banks and ditches in favour of the more conspicuous slope. An abridged core metadata file was provided in MS Excel format to the NMS to accompany the submitted images. This file contained the Irish Grid coordinates for each of the newly discovered monuments which was invaluable when the monuments were being ground truthed as they could be input into a GPS for easy locating. Bearing in mind that many of the newly discovered monuments have very limited surface remains, the images comprised the landscape setting around the monuments, e.g. field boundaries etc. which also made them easier to track on the ground.

Of the 65 sites assigned for ground truthing by Alison McQueen and the NMS, four were not visited, while just seven were declared as non-archaeological and 54 were identified as valid archaeological monuments. This constitutes an 83% success rate, possibly rising to 89% should the remaining unvisited sites also return a positive status. These statistics demonstrate the value of lidar analysis in archaeological research, and validate the recording and rating system used in the process. Lidar analysis by no means replaces the value of actually visiting the monuments, even with all of the techniques and tools one can employ in visualising routes or viewsheds, one cannot overestimate the value of becoming familiar with a landscape in person (Corns & Shaw 2009, 76). The most advanced 3D model of a monument or landscape is greatly reduced in worth when we understand very little about the landscape in which it sits (*ibid.*). Lidar analysis can provide a wealth of key statistical information and facilitates a relatively detailed desk-based study of a monument or area; however, much of this is meaningless without understanding how the statistics physically manifest themselves in the landscape. The ground conditions, e.g. is the site very wet, the view from the monument, access to the monument, etc. are all key parts of the puzzle which are best answered by physically visiting the monument. In an ideal world, all potential 'new' sites would have been ground truthed by the author; however, given the volume of monuments discovered, it was simply outside of the bounds of the project to visit and record all of the monuments on the ground. The majority of the Leitrim/Roscommon sites were ground truthed by the NMS, and two new discoveries were explored using geophysical survey.

The Leitrim/Roscommon sites that were accepted onto the SMR were allocated an SMR number and had a paper file opened within the archive. The records now appear on the online mapviewer with a short description (Figure 3.23). The project's core database was then updated with the corresponding SMR numbers. At the time of writing, despite a verbal acceptance, the 'new' Monaghan sites have not yet appeared on the SMR.

### **3.6 The Geophysical Survey Analysis**

Geophysical survey technology is constantly developing and changing (Bonsall et al. 2013, 11) and as the Stonehenge Hidden Landscapes Project demonstrated, geophysical surveys are now being carried out using multiple sensors affixed to carts and pulled by quad bikes or jeeps, thus enabling a large surface area to be surveyed in a much faster time and with less effort than an individual survey (Section 3.3.4). Whilst every effort has been made to keep abreast of new developments, large-scale survey such as this was not practical or feasible on the monuments relating to this study, nor was it within the scope of this study. Upstanding monuments risk being seriously damaged by vehicles driving over them and so these new methods are only really an option in areas with very low-lying or non-extant monuments. Irish fields can also be quite small in size and these cart-mounted surveys are unable to get into the corners, meaning that there can be gaps in the survey datasets (Schmidt et al. 2015, 62). Although point collections are higher with cart surveys as they are not restricted by inconsistencies which can occur with foot-based surveys, the standard recommendations for manual operators as set out by Historic England and EAC guidelines (Jones 2008; Schmidt et al. 2015, respectively), are more than sufficient to recover traces of buried archaeological remains. So by undertaking foot-based surveys, this project is not losing out on data quality, although it is certainly more demanding in terms of time and effort. Perhaps more importantly, spending a week or more at a site while surveying it is an excellent way in which to experience and become familiar with a landscape.

This research project utilised geophysical survey in two ways: firstly, existing geophysical survey reports were consulted both directly for sites within the study areas and as indirect evidence for the wider early medieval landscape. Secondly, the author undertook new geophysical surveys at seven selected sites within the Leitrim/Roscommon study area in order to ask specific questions of those sites, for example:

- 1) To confirm 'new' monuments identified by the lidar analysis;
- 2) To identify more subtle features, or those which are no longer extant on or above ground, such as internal structures, entrances etc.;
- 3) To attempt to identify field or garden systems associated with the monuments.

Whereas the consultation of existing geophysical survey reports covered multiple techniques used in Irish archaeological geophysical survey, the new surveys consisted of magnetometer survey and targeted earth resistance survey. The magnetic surveys enabled a large amount of ground to be covered relatively rapidly to give an overall picture of buried archaeological features, and was therefore targeted at the site/monument itself as well as the wider surrounding area. The earth resistance surveys focused on a smaller area, centred on the monuments themselves in order to target internal features and potential archaeology in their immediate vicinity. Earth resistance can be time consuming and weighing up the time and effort required for a large-scale survey against the possible archaeological return, meant that this technique was confined to smaller areas. This practice is commonplace and is the recommended approach by Historic England (Jones 2008, 25; Schmidt et al. 2015, 68). It is advisable to employ more than one technique, as each “is capable of mapping a different contrast in the properties of a soil” (Bonsall et al. 2013, 2). Magnetometry and earth resistance are often used in tandem as some archaeological features may produce significant magnetic contrasts but little or no electrical contrast, or vice versa (ibid.). For example, a rath at Magheraboy, Co. Sligo was visible in an earth resistance survey but not in a magnetometer survey due to weak magnetic contrasts between the ditch fills and limestone geology (ibid.). Other methods such as GPR, electro-magnetic survey, and ERT have not been considered due to the associated cost and lack of required expertise. Magnetometry and earth resistance are tried and tested methods with well-established records in Ireland and beyond. Additionally, the author has been trained in both methods and had access to the appropriate equipment thanks to UCD School of Archaeology and the Discovery Programme.

As per Section 2 of the National Monuments Act 1987, a ‘Detection Device Licence’ is required for all archaeological geophysical survey; licences were obtained prior to the commencement of all fieldwork. The reports were submitted to the Archaeological Licensing Unit of the NMS as per the licencing conditions.

All surveys were undertaken by the author with help from a pool of volunteers, some of whom had prior archaeological experience. It was vital to maintain a safe working environment at all times (e.g. avoid working alone) and so it was sometimes necessary to recruit inexperienced volunteers who were then trained on site and able to assist with the less technical aspects of the survey. A risk assessment was completed for each survey.

Both survey techniques used the same 20m x 20m grid system which was plotted in ArcGIS using Irish National Grid coordinates (Figure 3.24). The coordinates were then input into a

Trimble RTK Rover 5800 survey grade GPS and laid out on site using Trimble VRS Now GPS which delivers centimetre-level accuracy ([www.trimble.com](http://www.trimble.com)) (Figure 3.25).

The magnetometry surveys were carried out using a Bartington 601-2 magnetic gradiometer which is a “single axis, vertical component fluxgate gradiometer comprising a data logger...and two Grad-01-1000L cylindrical gradiometer sensors mounted on a rigid carrying bar. Each sensor contains two fluxgate magnetometers with one metre vertical separation” ([www.bartington.com](http://www.bartington.com)) (Figure 3.26). The difference in the output of the two sensors represents the magnetic gradient (*ibid.*). Variations in the background field which are common to both sensors (i.e. the Earth’s magnetic field) are subtracted to produce the archaeological anomalies (*ibid.*). This instrument can survey to a potential depth of approx. 3m and has a resolution of 0.1nT. The data were recorded at a traverse interval of 0.5m and a sample interval of 0.25m (4 points per metre along each traverse), as defined by Historic England (Jones 2008, 8) and EAC guidelines (Schmidt et al. 2015, 64) as the recommended sampling density for site characterisation. An increased sampling density (traverse interval 0.25m x sample interval 0.125m) was trialled at the Kiltoghert site to see if greater resolution could succeed in obtaining more detailed information of smaller or weaker anomalies. However, this did not prove to be of any benefit as the increased sample interval resulted in increased stepping errors which meant that the results were actually of poorer quality to the less densely sampled datasets.

A Geoscan RM85 Resistance Meter was used to undertake the earth resistance surveys (Figure 3.27). The twin probe array was used, which consists of a set of remote probes and a set of mobile probes which are mounted on a frame. With clear advantages for archaeological research, the twin probe array has become the most commonly used array for such purposes (Schmidt 2013, 116). The mobile probes were spaced 0.5m apart which achieves readings up to a depth of approximately 1m. Data were collected at a traverse interval of 0.5m and a sample interval of 0.5m, as recommended by Historic England (Jones 2008, 8) and EAC guidelines (Schmidt et al. 2015, 64) as the appropriate sampling density for site characterisation. Both sets of data were processed using Geoscan Research Geoplot versions 3 and 4 software as per the Geoscan Research guidelines (<http://www.geoscan-research.co.uk/>).

### **3.7 Geographic Information Systems (GIS)**

Geographic Information Systems are a fundamental component of any digital archaeology project and have had a considerable impact on archaeology since the 1980s (Chapman 2006, 9; 17). Its critical contribution to archaeology is that it provides a spatial component to digital



research, and facilitates the integration of multiple strands of data, thus enabling research to be undertaken with multiple datasets, often from different disciplines (ibid., 21). The core strength of a GIS lies in its ability to manipulate these multiple layers of data, thereby offering flexible interrogation (Conolly & Lake 2006, 34) and a more comprehensive journey to interpretation. However, while GIS may be “one of the more flexible and comprehensible analytical tools available to the archaeologist” (Gaffney et al. 1995, 211), it is not all-singing and all-dancing. As always, the role of the user is key to the success of the analysis as it is this user who determines the questions the GIS must tackle (Conolly & Lake 2006, 1; Bhatta 2008, 429). As with all archaeological tools, from the mattock to the microscope, a GIS is only as good as the person wielding it.

ArcGIS 10.1 and 10.4 were the main GIS used for this body of research. ArcGIS is a commercial software from ESRI and is deemed the most popular commercial software for archaeological purposes (Cattari & Clutterbuck 2011, 21). It proved to be a valuable tool and was more than suitable for the tasks at hand. Global Mapper 7.04 was used for one task—to produce the profile of the monuments. In this one area, it performed better than ArcGIS and was used accordingly. There are a host of free open-source GIS available (ibid.); however, given the success of ArcGIS in the pilot study it was not considered necessary to re-explore these options.<sup>25</sup> Indeed, this project does not constitute a rigorous testing and trialling of GIS, or indeed of GIS analytical techniques. On the contrary, it utilises the appropriate tools which have been made available by the experts (e.g. Žiga Kokalj, Ralf Hesse) in order to analyse the digital datasets and use them in conjunction with non-digital data in order to form a more comprehensive interpretation of the archaeological remains of early medieval Irish settlement.

A GIS is the principal (and indeed essential) tool for undertaking analysis of any lidar dataset. Lidar survey data must be manipulated within a GIS in order for the ground surface to be first visualised, and then surveyed and analysed. As detailed in Section 3.5.1, the GIS was used to transform the XYZ files into raster images of the ground surface for the two case studies. In addition, it facilitated the overlaying of the SMR dataset in order to identify previously recorded monuments, and analyse the distribution patterns of early medieval settlement. Within the GIS, the lidar and SMR datasets could be easily integrated with mapping datasets such as orthoimagery, historic mapping, and discovery maps.<sup>26</sup> By being able to have all of these layers available simultaneously within the GIS, they could be turned on and off as required, thus greatly improving the efficiency of the survey work, in addition to the straightforward production

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<sup>25</sup> Some open-source software was ‘trialled’ in the pilot study including GRASS and SAGA.

<sup>26</sup> Mapping datasets provided by OSI MapGenie via UCD Library.

of images using the exact same scale and positioning. Geophysical survey data were also manipulated and analysed within the GIS. Once the initial processing was completed in Geoplot, the datasets were exported as point data and added as a layer to ArcGIS. Here, the survey data were georeferenced to the correct location according to the grid points created in the GIS at the gridding-out stage prior to the survey. Potential archaeological features were then digitised and saved as a shapefile with metadata containing a referencing system so that related features could be identified and represented accordingly.

### **3.8 Data Management Framework**

While the datasets involved may not be quite the size of Hesse's lidar survey of Baden-Württemberg, which comprised approximately 160,000 separate lidar files (Hesse 2013, 176), this project both interacted with and generated a sizeable amount of digital data. This necessitated the implementation of a data management protocol from the outset. This involved creating an organised filing system stored on an external hard drive, which was backed up regularly to prevent and/or minimise any potential data loss. The file-naming system for each component was designed to avoid confusion or duplication of files, and to enable straightforward tracking of datasets through each stage of the various processes involved. The availability of the data in such a format makes it compliant and ready for ingestion into a larger or wider-reaching repository in the future should it be necessary.<sup>27</sup>

#### **3.8.1 Datasets**

The lidar datasets were received as separate point files (see Table 3.1 above) from which were generated Excel elevation files, shapefiles, DEMs, and ultimately hillshade and other raster visualisations. A separate folder was created for each step of this process and the different file types saved accordingly (Figure 3.28). A checklist was also created in MS Excel in order to keep track of the files at their various stages. When provided in their original format, each XYZ file was named using the grid coordinates relevant to that particular section, which were retained within the filenames at each stage until the data were combined into a single DEM.

Geophysical surveys undertaken over the course of the project generated multiple file types, and separate folders were created for each step of the process, this time based on the organisation of Geoplot (Figure 3.29). This method dramatically reduced the requirement for re-naming and re-organising datasets between the initial downloading through processing and

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<sup>27</sup> For example, Ariadne, an EC-funded project aimed at collating and integrating European archaeological datasets for use by researchers (<http://www.ariadne-infrastructure.eu/>).

saving to the project's core and cloud storage facilities. All files were saved using the site name and survey technique, e.g. tumna\_mag, tumna\_res. A paper copy of all geophysical survey licences awarded were kept on file with the original application form, while all documents were also scanned and saved in the project's core storage locations.

### 3.8.2 Building the Monuments Database

The 'Monuments Database' is the core metadataset of the project as it contains the details relating to all of the monuments relevant to the study areas. A detailed and structured database was essential in order to track existing archaeological monuments in addition to those discovered over the course of the project. The relevant dataset for each study area was downloaded from the website of the NMS ([www.archaeology.ie](http://www.archaeology.ie)) and was expanded and maintained as an Excel file throughout the project. The main advantage of basing the case study databases on the SMR dataset, was that it incorporated many of the fields that are relevant to the project (Table 3.4).

**Table 3.4 Database Fields Available on Sites and Monuments Record**

*(after [www.archaeology.ie](http://www.archaeology.ie))*

Field Name	Field Description
<b>CO_ID</b>	County ID number used in the database
<b>ENTITY_ID</b>	Unique record ID used in the database
<b>SMRS</b>	ASI record number <i>(formerly Sites and Monuments Record number)</i>
<b>ITM_E</b>	Easting <i>(Irish Transverse Mercator)</i>
<b>ITM_N</b>	Northing <i>(Irish Transverse Mercator)</i>
<b>NAT_GRID_E</b>	Easting <i>(Irish National Grid)</i>
<b>NAT_GRID_N</b>	Northing <i>(Irish National Grid)</i>
<b>CLASSCODE</b>	Class code used in the database
<b>CLASSDESC</b>	Expanded classification
<b>RMP_PROP</b>	Where RMP_PROP = 1, the record is scheduled for inclusion in the next revision of the RMP
<b>TLAND_NAME</b>	Townland(s) names

The MS Excel format facilitated easy manipulation of the database, including the addition of new fields and unrestricted text entry etc. Required fields were identified, e.g. relating to monument dimensions and morphology, and the appropriate fields were added to the database (Table 3.5). This format maintained the metadata associated with each individual monument,

allowing straightforward and repeated interrogation of the dataset for analysis purposes, either through filtering or pivot tables. This also facilitated the straightforward addition of the database (or portions of the database) to ArcGIS to be exported as a shapefile which could then be manipulated within the GIS to examine different elements of settlement based on the fields specified in the MS Excel file.

**Table 3.5 Database Fields Added for Each Case Study Area**

Field Name	Field Description
<b>P_ID REF</b>	Unique Project Identifier Reference
<b>STATUS</b>	'Known' or 'New' to distinguish between previously recorded monuments and those discovered through the project
<b>BARONY</b>	Barony Name
<b>COUNTY</b>	County Name
<b>PERIOD</b>	Assigned archaeological period
<b>COMMENTS</b>	Comments relating to the monument, e.g. shape, location, etc.
<b>RATING</b>	Rated 1-6 as to likelihood of being early medieval in date
<b>SMR_INTERNAL</b>	Internal diameter measurement as per the SMR
<b>SMR_INTERNAL_1</b>	Second internal diameter measurement as per the SMR (if applicable)
<b>SMR N_S</b>	North-South measurement as per the SMR (if applicable)
<b>SMR E_W</b>	East-West measurement as per the SMR (if applicable)
<b>HS_MEASUREMENT</b>	Direction of measurement taken from lidar hillshade surface
<b>HS_MAX_INT</b>	Maximum internal diameter taken from lidar hillshade surface
<b>HS INTERNAL RANGE</b>	Range of maximum internal diameter for analysis purposes
<b>HS_MAX_OVER</b>	Maximum overall diameter taken from lidar hillshade surface
<b>NO. BANKS</b>	Number of banks
<b>NO. FOSSE</b>	Number of fosses
<b>TYPE</b>	Univallate / Bivallate / Trivallate / Conjoined Rath

### 3.9 Excavation Evidence

More than 3,600 early medieval or potentially early medieval sites were excavated between the 1920s and 2009, albeit almost 50% of them were deemed to be of 'no archaeological significance' (O'Sullivan et al. 2014, 29). As discussed in Chapter 2, EMAP have accomplished a remarkable feat in synthesising the material from these thousands of early medieval excavations, and present an as yet unrivalled overview of early medieval life in Ireland (e.g.

Kerr et al. 2012; Kerr et al. 2013; O'Sullivan et al. 2014). The information gleaned through this plethora of excavation evidence has been examined in detail in Chapter 2, and has demonstrated the significant impact of the evidence on our understanding of the period. However, as development-led excavations, the focus was understandably on the individual monuments, rather than the wider landscape setting. As a result, there is a lot of information and detail about discrete settlements which contribute to the overall picture of early medieval life, but at the same time, there is also a lack of understanding of how it all integrated and worked together at a local, neighbourhood level. Indeed, Hamerow (2002, 2) saw the locating of individual settlements within their local and regional contexts as a means of better understanding them. One of this project's key aims is to utilise this wealth of information to better understand settlement at a local, community level rather than presenting a national overview.

As the case study areas saw some of the lowest numbers of excavations as per EMAP's calculations (Table 3.6), there was very little direct evidence pertaining to the monuments falling within their borders. Of the 32 counties on the island, Monaghan was in 31<sup>st</sup> place just ahead of Carlow (O'Sullivan et al. 2008, 14). Roscommon fared reasonably well and in fact was the only one of the case study areas to feature in the top half of the table; however, this high score is somewhat counteracted by the fact that almost 80% of those excavations were deemed to be of 'no significance' (ibid., 21). Naturally, any direct excavation evidence from the case study areas was utilised within the analysis (see Chapters 4 & 5).

**Table 3.6      Number of Early Medieval Excavations 1930-2004**

*(after O'Sullivan et al. 2008, 14)*

County	No. Excavations	Ranking out of 32
<b>Leitrim</b>	<b>30</b>	<b>25<sup>th</sup></b>
<b>Roscommon</b>	<b>82</b>	<b>14<sup>th</sup></b>
<b>Monaghan</b>	<b>16</b>	<b>31<sup>st</sup></b>

Clearly there are limitations in relation to the type and extent of information that can be collected using remote sensing techniques; for example the monuments cannot be scientifically dated, nor any artefactual evidence gathered. Even the more detailed morphological evidence, such as internal structures and surrounding field boundaries, can be limited. Therefore, the indirect evidence from excavated sites is vital in order to even attempt to understand and interpret the early medieval landscape in the case study areas. We will

surely never be in a position where every single monument in a sizeable area has been excavated so we will always have to make certain 'leaps of faith' based on the evidence that is available. In archaeological research we are constantly using indirect evidence to support hypotheses and develop interpretations. Even with full excavation, we are often interpreting the evidence without knowing for definite where each piece of the puzzle slots into place.

### 3.10 Artefactual Evidence

Artefactual evidence, as a representation of the material culture of early medieval society, is vital to any archaeological landscape project. As discussed in Chapter 2, artefacts have shed light on the activities undertaken at various sites. Material culture was a means of expressing one's social identity in terms of gender, kinship, and status (O'Sullivan & Kenny 2008, 8). When viewed in conjunction with structural and morphological features, artefacts can also provide valuable insights into the function and status of a site or monument. The law texts describe the tools and household items that each grade of society should be in possession of. For example, the *Críth Gablach* states that a *mruigfer* grade person should possess: "a cauldron with a spit, a vat for brewing beer, mugs, kneading trough, a tub, washing vessels, and various tools and pieces of farming equipment" (Kelly 1997, 361). However, one could also argue that these items should be common across most grades of society (Lynn & McDowell 2011b, 605-606). Nevertheless, the presence of fine metalworking and imported goods are usually an accepted indicator of high status. Many crannógs have been considered royal sites, such as Lagore, Co. Meath which was classed as high status due in no small part to the high quality metalworking recovered there (Hencken 1950, 3). The excavated trivallate rath at Garranes, Co. Cork produced imported objects, slave chains, and evidence of copper-alloy working, which, when viewed in conjunction with its large size, substantial vallations, large houses, and prominent position, was considered to be a royal site (Ó Ríordáin 1942, 140-142; O'Sullivan et al. 2014, 325-326). Somewhat in contrast to this, the partially excavated rath at Ballycatteen, Co. Cork is very similar morphologically to Garranes (Ó Ríordáin & Hartnett 1943, 39) but produced markedly different artefactual evidence. For example, although there are some similarities between the pottery sherds found at both sites, Ballycatteen does not exhibit the same level of imported ware (ibid., 40). Additionally while both sites produced evidence of metalworking, the volume of crucibles at Garranes was much higher than that of Ballycatteen (ibid., 35). Thus the material culture alone is not an indicator of status, it must be viewed in conjunction with the other evidence available to inform a valid interpretation.

Artefactual evidence was used in two ways within this project. Direct evidence from the study areas was researched using excavation reports and the archives of the National Museum of

Ireland. Indirect artefactual evidence was incorporated and examined in conjunction with morphological and other features to explore the themes of status, role, and function.

### **3.11 Documentary Evidence**

The 'bewildering array' (Ó Cróinín 1995, 8) of documentary evidence for the period comes in a range of contemporary (or near contemporary) documents, e.g. annals, law tracts, hagiographies, genealogies, and canon law. This was one of the only purely non-spatial elements of the project, as the various texts were used to provide additional background about specific areas of the period itself in addition to references to specific locations relevant to the study areas.

Although often criticised for presenting a highly schematised description of the period (e.g. Hughes 1977, 33; Bhreathnach 2014, 64; Alonzi et al. 2019, 2), and despite being "frozen in the legal amber of the time and the stylised idiom in which it was written" (Feehan 2003, 53), the law texts provide the best insight into the various ranks of society and how they related to and interacted with one another. Parallels can sometimes be drawn between the written sources and the archaeological evidence, for example, the findings from the rath at the heart of the Deer Park Farms excavations demonstrated strong similarities between the physical and written evidence (Lynn & McDowell 2011b, 604-610). Prior to the excavation boom, much of our knowledge about early medieval Irish society was derived from these law tracts. Approximately fifty such texts survive, many of which are fragmentary or in poor condition (Kelly 1997, 7). The study of these contemporary texts is not without its challenges, and their accuracy is often debated (e.g. Hughes 1977; Ní Mhaonaigh 1996; McCarthy 2008). For example, it is unknown whether they were the work of professional law makers or simply general guidelines to live by (Ó Cróinín 1995, 113). Additionally, the details about law and society are often generalised which can lead to the oversimplification of some aspects (Kelly 1997, 8; Hamerow 2002, 4). Indeed, there are often contradictions between different texts which could be a result of variations in date, author, or even local customs (MacNeill 1923, 265-266; Richter 1999, 27; Kelly 2011, 1-2). There are inherent problems with their chronology as many of the documents are now only available in later manuscripts which have been modified with various glosses and additions over the centuries (Hughes 1977, 99-107; Richter 2005, 81). In addition, many of the annals are derived from the same original source document and have had entries added, removed, or changed (ibid.).

As regards annalistic sources, the Annals of Ulster constitute perhaps the most complete version (Hughes 1977, 99), with others such as the Annals of Tigernach existing in various

chronological fragments (ibid., 100). Depending on their origins, the annalistic entries can demonstrate some bias towards their patrons, documenting real events but in a more flattering light. For example, the Annals of Inisfallen are described as the 'Uí Briain House Chronicle' (Ní Mhaonaigh 2007, 37) and recount an event where Brian Boru heroically avenged his brother's killers, while the same episode is portrayed in the potentially less-biased *Chronicum Scottorum* and the Annals of Tigernach as Brian killing the men and subsequently desecrating Scatterry Island (ibid., 38). Hagiographies, too, often fell foul of political motives as clerics sought to assert their status and dominance over other establishments and lay claim to land (Connolly & Picard 1987, 5-6; Johnston 2013, 95; Stout 2017, 70-75; Alonzi et al. 2019, 2)

That accounts from the written sources should generally be taken with at least a pinch of salt is undeniable, as the authors undoubtedly based their accounts on a combination of fact and imagination, or at least exaggeration (Richter 1999, 20). Although largely contemporary, the range of sources were penned by different authors from a variety of backgrounds, and with a variety of objectives—and biases—in mind. As such, they are of varying degrees of reliability, but despite this, they are all invaluable in their own right. Archaeology, however, takes precedence, and these historical documentary sources were largely the focus of background research rather than the driving force of the project.

### **3.12 Toponymics**

Despite the fact that many townlands developed after the seventeenth century, many of the townland names have their roots in earlier periods (MacShamhráin 1991, 19) and are therefore invaluable indicators of their topography, past land-use, and archaeological potential. Indeed, as Ó Cróinín (1995, 22) comments, they are often more reliable sources of this information as they are rarely subject to the same level of interference as many of the earlier written sources. Relevant placenames within the case study areas are examined with a view to better understanding past agricultural practices and land quality, and primarily to identify potential early church sites which are often signified by the prefix '*Cill*' (anglicised as 'kil', e.g. 'Killukin', 'Kildare' etc.) which is the Irish for church (Swan 1983, 274; Flanagan 1984, 31-34). As set out in Chapter 1 (Section 1.3), the study areas are different and this necessitates some differences in approach across both regions. One such divergence occurs in relation to placename evidence. This is employed on a larger scale within the Monaghan case study area in an attempt to provide additional insight into the physical landscape and its potential effects on the particularly sparse early medieval archaeological remains in this case study (Section 5.7). In Leitrim/Roscommon, however, this approach is focused on the less-populated south-eastern corner of the study area in addition to an exploration of possible ecclesiastical sites (Section 4.7).



### **3.13 Pollen**

Pollen analysis is used to reconstruct vegetation change over time and can provide a wealth of information in relation to vegetation change, climate change, and the impact of human activity in the landscape (Mitchell et al. 2013, 103). The Irish Pollen Site database (IPOL) has collated 475 pollen records for the Irish Quaternary and has made them freely available online, complete with coordinates to locate exactly where the samples were taken (<http://www.ipol.ie/>). Two pollen cores were taken from within the Leitrim/Roscommon study area, while the closest sample to Monaghan was 15km south-west of the study area (ibid.). The evidence was relatively limited (Jessen 1950) and as such has played a relatively minor role in the research. However, it did give some degree of insight into the types of vegetation in existence in the study areas. It was not within the scope of the project to take new pollen cores for analysis.

### **3.14 Conclusion**

As important archaeological tools, lidar and geophysical survey form the basis of the methodology employed here to investigate the two case study areas. However, appropriate interpretation of results from either method is only made possible by a thorough examination of the supporting evidence which has been derived from archaeological excavation and key multidisciplinary archaeological research. This approach, and the range of techniques and resources used within this project have been carefully selected to respond to the research questions and provide a more complete understanding of early medieval settlement patterns within the study areas, as will be demonstrated in the following chapters.

# CHAPTER 4

## ***Case Study 1: Leitrim/Roscommon***

### **4.1 Introduction**

The Leitrim/Roscommon case study area (Figure 4.1) measures approximately 140km<sup>2</sup> and is defined by a lidar survey dataset which was flown in 2010 in advance of the N4 Carrick-on-Shannon to Dromod road scheme.<sup>28</sup> The resultant dataset was kindly released to the author for use with the assistance of Orlaith Egan of TII and Dr Will Megarry. As such, the study area is arbitrary from an archaeological perspective and the location was influenced purely by the proposed location of the road upgrade. Thus the study area has not been restricted by modern borders (e.g. barony or county boundaries), which allowed the landscape to be considered as it might have been in earlier periods, and for the archaeological remains to inform the interpretation of potential early medieval settlement hubs. The full dataset is at 2m resolution, but a smaller 30km<sup>2</sup> subsection of the dataset was purchased at a higher resolution of 0.5m (Figure 4.2).<sup>29</sup> The higher resolution dataset revealed four further potential 'new' archaeological monuments (not clearly visible on the 2m resolution dataset), three of which appear to be raths, while the fourth is a subrectangular feature and possibly later in date.

Although it did not significantly add to the number of monuments discovered, the real value of the higher resolution data is to be found in the improved quality and sharpness of images, and the resultant enhanced visibility of the monuments when reproduced. This proved particularly significant when submitting the new discoveries to the NMS for inclusion on the SMR.

#### **4.1.1 Physical Geography**

The geology in the study area was shaped by glaciation and it is estimated that ice covered the entire area of County Roscommon approximately 20,000 years ago following the late glacial maximum (Meehan 2012, 7; MacCarthy 2013, 34-36). There were several different ice flow sets moving over the area during this period which are visible through the orientation of ribbed moraines and glacial lineations including drumlins (Meehan 2012, 7). The drumlins were

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<sup>28</sup> Commissioned by the National Roads Authority (now TII) and Leitrim County Council; flown and processed by OSI.

<sup>29</sup> The original data (2m resolution) were recorded at 2-3 points per metre but were provided gridded to 1 point per 2m<sup>2</sup> by OSI as specified by Leitrim County Council and the TII; the higher resolution data were gridded to 1 point per 0.5m<sup>2</sup>.

created by the passage of ice sheets across the landscape, the long axes of which are orientated in the direction of the ice flow (MacCarthy 2013, 38). Indeed, there are two different flow sets identifiable on the lidar surface within the study area; one running south-west to north-east and the other approximately south-east to north-west (Figure 4.3).

The study area is effectively bisected by the River Shannon which forms a natural border between the two counties. As the longest river in Ireland, it undoubtedly held a significant place in the lives of those dwelling in its vicinity, particularly as a routeway and for exploitation of its consumable resources. There are numerous rivers and streams, perhaps the most substantial being the Killukin River and the Boyle River. In addition, the eighteenth-century Jamestown Canal cuts across a natural peninsula defined by a loop of the Shannon which protrudes from Roscommon towards Leitrim (Delaney 1987, 40). Somewhat characteristic of a drumlinised landscape, the area is home to numerous lakes with seventeen in total ranging from large (e.g. Lough Eidin/Drumharlow Lough) to much smaller bodies of water such as Costre Lough.

Limestone is the dominant rock type and several different varieties are present within the study area. However, there are also small outcrops of other rock types including volcanic breccia and greywacke (Figure 4.4). Soils in the area range from gleys to grey-brown podzolics with some areas of peats and peaty gleys (Mitchell & Ryan 2007, 308). In addition to some smaller patches, there is a substantial stretch of raised bog measuring approximately 1.1km x 0.4km which lies across the townlands of Drumerr, Ballinvilla, Derraun, Canbo, and Drumercool in Co. Roscommon (Figure 4.5).

#### **4.1.2 Administrative Divisions**

The study area is located within the province of Connacht and incorporates OS Maps 27, 31, 28, 32, 35 (Co. Leitrim) and 6, 7, 10, 11, 12, 18 (Co. Roscommon). Overall, the landscape is still relatively rural and agricultural. Lying almost in the centre of the study area and with a foot in each county, Carrick-on-Shannon constitutes the largest town within the study area. Other smaller centres include Drumsna and Jamestown. Both Carrick-on-Shannon and Jamestown are historic towns, established by King James I who granted them a Royal Charter in AD 1613 and AD 1621 respectively (Gilligan 1998, 4; Guckian 1998, 17).

Five baronies are partially represented within the study area: Roscommon, Boyle, and Ballintober North in Co. Roscommon; Mohill and Leitrim in Co. Leitrim (Figure 4.6). The barony

of Leitrim is the best represented in terms of size, while Roscommon barony only encroaches very slightly on the southern portion of the study area. From a civil parish perspective, nine are partially represented within the study area (Figure 4.7). There has been considerable discussion regarding the true form of early medieval boundaries—the *túath* divisions—and whether or not they can be intimated from modern barony or civil parish boundaries (e.g. Binchy 1970, 109; Ó Riain 1972, 28; Stout 2005, 141; Duffy 2007, 58-59), but to date there has been no conclusive outcome. Indeed, it is probable that there is no single island-wide solution, particularly as boundaries may have shifted as power was gained and lost, and centres of kingship moved (Warner 1988, 53).

The barony of Mohill, Co. Leitrim—a small part of which is featured in the study area—is noted by Stout (2005, 141) as one of two examples of locations where diocesan or provincial boundaries appear to have had a significant influence on settlement patterns. It is in proximity to the meeting point of three provinces and includes a clustering of large bivallate raths (ibid.). Unfortunately, this particular part of the barony is not contained within the study area, nor are there any bivallate raths currently recorded there. However, if this barony did indeed have early medieval origins, then one can begin to postulate about the origins of its neighbouring baronies (in this case, Leitrim). The bordering eastern townlands of Leitrim barony would undoubtedly have been impacted by the Mohill territory if this was the case.

The study area comprises 269 townlands, although only very small portions of those on the periphery are contained within its limits. The largest townlands are Corry, Co. Roscommon (3.3km<sup>2</sup>) and Kiltoghert, Co. Leitrim (3.29km<sup>2</sup>), both of which were well represented in the early medieval period. Corry contains ten early medieval monuments, while Kiltoghert has the highest volume of early medieval settlement in the study area with fourteen raths and a crannóg. Grove, Co. Leitrim (0.038km<sup>2</sup>) and Paddock, Co. Roscommon (0.04km<sup>2</sup>) are the smallest townlands within the study area, neither of which contains any recorded monuments.

## **4.2 Archaeological Evidence**

There are currently 603 recorded archaeological monuments within the study area, encompassing the Neolithic to post-medieval periods (Figure 4.8), 72 of which were discovered and added to the SMR as a result of the author's MA thesis in 2012 (Curran 2012) (Appendix 3A).<sup>30</sup> A further 44 potential monuments were also identified (of which 22 are potentially early medieval in date), but these have not (as yet) been added to the SMR, and indeed may never

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<sup>30</sup> 78 were originally added to the SMR but 6 have since been re-classified as 'Redundant Record'.

be added to the SMR as they may not be accepted by the NMS (Appendix 3B). Monuments were rejected for variety of reasons, including the lidar evidence being deemed insubstantial (e.g. only a faint trace in the hillshade model), the monument not being confirmed on the ground, or not being considered archaeological in origin (e.g. the result of quarrying etc.).

The total includes 41 monuments which are listed as redundant records, nine of which were discovered by the author's MA thesis and assigned an SMR number, but were later removed as they could not be confirmed at ground level in pasture (Moore 2014a). Clear enclosure features are visible on the lidar surface at three of these (RO007-105, RO011-186, RO012-025), so they are being retained as potential monuments for the purposes of this research (Figure 4.9). With an adjusted final total of 565 recorded monuments, the early medieval period is by far the best represented with 492 recorded (possible) monuments, constituting 87% of all recorded monuments within the study area; only 5% are prehistoric in date and 8% are medieval or later.<sup>31</sup>

#### **4.2.1 Prehistoric**

Traces of prehistoric activity in the study area are relatively sparse, with much of the evidence coming from recent excavations. There are 27 recorded sites in total (Figure 4.10) which range in date from the Neolithic to the Iron Age. There is currently no recorded evidence of Mesolithic activity within the study area, but this is more likely to be related to the nature and survival of evidence and the fact that so little excavation has been undertaken in the area to date.

##### *Neolithic*

There are three megalithic tombs within the study area. In the south-east, a portal tomb is located in Cloonfinnan townland (LE032-086). It is located close to the summit of a small hill and is in relative isolation as the closest known monuments are two crannógs which are located almost half a kilometre away on Cloonfinnan Lough (LE032-087 & LE032-095). A second megalithic tomb (RO007-024) lies in the north-east of the study area in Cootehall townland. Although the monument is unclassified due to its poor condition, it most likely represents the remains of a court or wedge tomb (de Valera & Ó Nualláin 1972, 34-35). The tomb is on relatively low ground and is just 150-230m north of a cluster of five early medieval enclosures. In Usna townland, the third megalithic tomb (RO006-171) has been classified as a wedge tomb

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<sup>31</sup> Calculations made excluding the 'Redundant' records and the 44 newly discovered monuments not yet assigned SMR numbers.

and is also located in the north-east, again on low-lying ground. The closest recorded monument is early medieval in date and lies approximately 100m south-west of the tomb.

Two stone axeheads (dates unconfirmed) were found in Mullagh townland and are part of a small group of possible Neolithic artefacts found within the study area to date (National Museum of Ireland Archives: NMI ID P1949:47 & P1949:46).

### *Bronze Age and/or Iron Age*

Four barrows (two ring-barrows and two unclassified) are located on the eastern side of the study area and lie in a linear formation, almost exactly north-south. All four are situated on the higher ground of drumlin summits. LE027-097 (Finisklin) is the northernmost monument; LE031-034 (Lismannagh) is approximately 2.4km further south; LE032-053 (Annaduff Glebe) is 3.2km south south-east; and RO018-005 (Skeagh) lies a further 3.5km south. None of these barrows have been excavated and so no scientific dates have been produced, but these funerary monuments are classified on the SMR as part of the Bronze Age/Iron Age burial tradition. Their presence, albeit not in close proximity to the Neolithic monuments above, certainly suggests continuity of activity and/or settlement within the study area.

Excavations at Cloongownagh, Co. Roscommon have provided much of the scientific dating evidence for Iron Age occupation in the study area. Remains of an Iron Age settlement were uncovered beneath an early medieval enclosure (RO011-160001 which will be discussed in more detail below). The settlement consisted of eight structures and a number of burnt areas including pits and fulachta fia. The house (RO011-160008) and hut sites (RO011-160003) also related to this period of activity. Radiocarbon dates taken from an isolated pit and a fulacht fia produced dates of 791-400 cal. BC and cal. AD 134-432 respectively (Lennon & Henry 1999, Licence: 99E0193). Artefactual evidence included lithics and a Neolithic/Early Bronze Age Beaker pottery vessel (ibid.), thus indicating even earlier occupation at the site. A rectangular annexe adjoining the rath (RO011-160002) produced a radiocarbon date of twelfth to thirteenth century, although there is a possibility that this sample was contaminated (Moore 2010a). The scientific dating evidence certainly points to long-term, multi-phase activity at the site.

A concentric enclosure (RO010-118) of probable Iron Age date is located in the townland of Lisdaly, close to the western limits of the study area. The remaining recorded prehistoric

monuments correspond to burnt features which were excavated along the route of the N4.<sup>32</sup> Dates have not been provided for all of these sites, but in line with their classification on the SMR, they are being considered as prehistoric in origin.

Radiocarbon dating of samples taken from the base of one of the Doon of Drumsna (RO011-058) ramparts in 1990 produced an Iron Age date (Lanting et al. 1991, 66). This substantial linear earthwork effectively separates the townlands of Charlestown, Cloonavery, and Drumcleavry from the rest of the barony of Ballintober North (Figure 4.11). It is thought to be an Iron Age defensive earthwork designed to "prevent incursions into Roscommon from Leitrim at a point where the River Shannon was more or less fordable" (Kane 1915, 324), and potentially part of the more extensive Black Pig's Dyke earthwork (Moore 2010b). Its function was examined in 1989 (Condit & Buckley 1989, 12-14) and further work was carried out a year later in the form of an earth resistance survey (Buckley et al. 1990, 51-53). Several excavations on or close to the site failed to produce anything of archaeological significance (Buckley & Condit 1990; Higgins 1999; Timoney 1999; Read 2004). An ongoing research project exploring the Black Pig's Dyke on a national scale (Ó Drisceoil & Condit 2015; Ó Drisceoil 2017)<sup>33</sup> includes the Doon of Drumsna, and a magnetic gradiometry survey was undertaken by the author in November 2014 in conjunction with this project (Section 4.5.2).

Several Bronze Age artefacts have been recovered in the study area; however, many of them are stray finds from the 1930s and 1940s meaning that their exact findspots are unknown. While some refer to being found in a river, lake, or bog, only the townland name and approximate location (e.g. river bed) is provided in most cases (National Museum of Ireland Archives). The artefacts include two bronze swords (Carrick-on-Shannon), a bronze leaf-shaped sword and hilt (Canbo), a bronze axe head (Drumsna), and a bronze spearbutt and decorated flat bronze axehead from Jamestown. An iron spearhead with socket (Carrick-on-Shannon) and two iron leaf-shaped spearheads (Mullaghmore) were also recovered. The late Bronze Age gold balls from Tumna, Co. Roscommon are arguably the most significant artefacts found within the study area. Thought to be part of a necklace (Cahill 2004, 102), the nine gold balls were found within the townland of Tumna in 1834 by men digging potatoes (*ibid.*, 99) and are currently on display in the National Museum of Ireland (Figure 4.12). It is unclear where exactly within the townland they were found, simply that they were "near the ruins of an old chapel and a fort, on the west banks of the Shannon" (Anon 1834, 144). This

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<sup>32</sup> Excavation Licences: 94E0041, 94E0097, 94E0100, 94E0123, 94E0158, 99E0401, 03E1769, 03E1841.

<sup>33</sup> A joint County Heritage Plan between Monaghan, Cavan, Longford, and Roscommon Heritage Offices, supported by the Heritage Council.

description would seem to place their discovery close to the extant church remains at Tumna (RO007-087) which will be discussed in more detail below.

#### **4.2.2 Early Medieval**

Early medieval settlement constitutes the most abundant category of archaeological monument within the study area with 492 recorded (probable) early medieval monuments. A further 22 unrecorded potential monuments following the 2012 lidar survey raises the total to 514. With a total of 340 (66%), the number of recorded raths and cashels significantly outnumbers any of the other class descriptions.<sup>34</sup> A further 83 are classified as ‘enclosure’ which desktop investigations revealed are potentially early medieval in date and likely correspond to the remains of raths or cashels (Curran 2012, 7-8). The high volume of early medieval settlement is consistent with Stout’s identification of Leitrim and Roscommon as zones of very high density (Stout 1997, 93). Early medieval settlement will be discussed in detail in Section 4.6.

#### **4.2.3 Medieval and Later**

There are 46 medieval to modern recorded monuments within the study area (Figure 4.13). They are distributed throughout the area, although many are clustered around the historic towns of Jamestown and Carrick-on-Shannon. Several of the monuments have religious connotations with three mass rocks, two churches, a penal mass station, and a religious house associated with Franciscan nuns.

There are four castles within the study area, all of which are categorised as ‘castle-unclassified’ on the SMR. Marked on the historic 25inch map as ‘Castle (in ruins)’, Cortober castle (RO011-150001) was built in the seventeenth century by Maurice Griffith (Bradley & Dunne 1988, 16). The castle at Port (LE027-065) was located on the banks of the River Shannon and is marked as ‘Port Shan Castle’ on the 25inch map. The Headford example (LE032-031) is known as ‘Ballycloran Castle’, again there are no visible upstanding remains (Moore 2003, 204). Finally, Aghancarra Castle (LE031-009) was completely demolished in the 1960s (Casey 1991a).

A large collection of Henry III coins which were minted in Dublin between AD 1248-1251, and some long cross pennies which were minted in England after AD 1250 are the only artefacts

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<sup>34</sup> Ringfort - rath: 312; Ringfort - cashel: 15; Ringfort - unclassified: 13 (after [www.archaeology.ie](http://www.archaeology.ie)).



listed within the study area for this period (National Museum of Ireland Archives: NMI ID 1941:733-969). The collection was found in Drumercool townland, Co. Roscommon in the south-west of the study area, but the exact location is not specified. There are no contemporary recorded monuments within the townland or the surrounding area, but there is a high density of early medieval settlement here.

### 4.3 Historical and Documentary Evidence

As discussed previously, there are a host of contemporary and near-contemporary documentary sources which provide an overview of events at a national level during the early medieval period. However, there are also a number of sources which were either produced within the environs of the study area or provide substantial accounts of the region. While certainly Connacht-centric, the Annals of Connacht commence in AD 1224 and so are just outside of the scope of this project.<sup>35</sup> However, they do give an insight into the area in the centuries immediately following the early medieval period; for example, they open with a scene of devastation—the death of the King of Connacht and accounts of disease and sickness among the animal and human populations (Freeman 1944, 3). Likewise, the Annals of Loch Cé, which were composed a mere 8km north-west of the study area, deal with the medieval period, this time from AD 1014 (McCarthy 2008, 12). The Annals of Loch Cé were compiled in the sixteenth century (Cunningham 2009, 93) and so their accuracy and consistency for earlier periods cannot be taken for granted. The Annals of Boyle are part of the Cuana Group of early manuscripts (McCarthy 2008, 11) and were also produced in close proximity to the Leitrim/Roscommon study area. However, as with many of the early documentary sources, the date of their production cannot be fully established, and many are copies or compilations with entries taken from a range of different sources. Compiled a mere 10km from the outskirts of the study area, the sixteenth-century Book of Fenagh is another important source for the area and contains accounts relating to St. Caillín who founded an ecclesiastical establishment at Fenagh in the sixth century (Hynes 1931, 39; Condit & Gibbons 1989, 9; Read & Markley 2008, 163). However, as with the other documentary sources, it was produced much later than the period to which it refers and is a revision of the original manuscript which is reputed to have been written by St. Caillín himself (Scott 2017, 18).

Many of the locations feature in the various documentary sources, thus providing some historical background and an indication of at least some of the events which may have taken place there. For example, the deaths of two of the abbots at Annaduff are recorded: Mac an

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<sup>35</sup> It is possible that an earlier section which dealt with the early medieval period has been lost (Gwynn 1956/57, 2).

tSair in AD 762 (O'Donovan 1851, 365; Hennessy 1887, 233); and Saermugh in AD 787 (O'Donovan 1851, 395). Several centuries later, Brian Boru and Maelsechlainn are reported to have camped at Annaduff in AD 1011, indeed, the entry states that they were “again in camp at Enach-duibh” (Hennessy 1887, 525) which suggests that this may have been a frequent—or at the very least not an isolated—occurrence.

#### **4.4 Previous Research**

The Leitrim/Roscommon area may be a zone of very high settlement density (Stout 1997, 93), but it certainly has not been a zone of intense research. County Roscommon is home to Cruachain (Rathcroghan), the proposed inauguration site of the kings of Connacht (Fanning 1979, 4), and much of the research within the county has been focused on this monument complex (e.g. Ferguson 1864; Knox 1918; Herity 1987; Waddell & Barton 1995; Barton & Fenwick 2005). Focusing predominantly on Rathcroghan Mound, a major programme of archaeological and geophysical survey was undertaken at the complex in the 1990s which succeeded in revealing a wealth of previously unrecorded monuments at the complex (Barton & Fenwick 2005, 3). The present study area terminates approximately 20km north of Cruachain (Figure 4.14).

The Discovery Programme's Medieval Rural Settlement Project narrowly missed the case study area both chronologically and geographically. It looked at the period from AD 1100-1650, while the northernmost limits of their study area aligned with the southernmost limits of this research project (McNeary & Shanahan 2005, 3). The study aimed to reconstruct the later medieval landscape and settlement fabric of the medieval O'Connor lordship, roughly synonymous with the baronies of Roscommon, Ballintober North, Ballintober South, and Castlereagh (*ibid.*), the first two of which are partially represented within this project's remit.

##### **4.4.1 Excavation**

From 1970-2015, approximately 826 excavations (including licence extensions) were undertaken in counties Leitrim and Roscommon.<sup>36</sup> However, only 95 (12%) lie within the study area with the majority centred around Carrick-on-Shannon town or along the N4 (Figure 4.15). Testing and monitoring account for 88% of all excavations, with just ten full excavations undertaken. The vast majority (71%) of these had no archaeological significance and only one site—the rath at Cloongownagh (Licence: 99E0193)—produced reliable early medieval

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<sup>36</sup> Figures compiled following an interrogation of [www.excavations.ie](http://www.excavations.ie).

evidence. Although the excavation at Portaneoght, Co. Leitrim (Kyle 2011, Licence: 11E0034) consisted of a bank and ditch and may therefore have early medieval origins.

From an early medieval perspective, the most significant excavation, or series of excavations, were in the townland of Cloongownagh, Co. Roscommon where three distinct phases of occupation were identified at the site of RO011-160001 (Lennon & Henry 2001, 9). The early medieval enclosure was identified during a field survey undertaken as a precursor to the road scheme (Moore 2010c). Cloongownagh townland measures approximately 1km<sup>2</sup>; it is not particularly notable and were it not for the excavations, it may not have stood out. However, the fact that it has been excavated means that it is the only monument which can provide definitive scientific dates for occupation. Moreover, the site shows considerable activity from the Iron Age through to the medieval period.

#### **4.4.2 Lidar Survey**

Dr Will Megarry undertook analysis of the lidar dataset within sections of the study area as part of the road scheme for which it was flown. Concentrated mainly on the N4 route itself and buffer zones of 50m and 100m around it, 41 townlands were surveyed and twelve new potential monuments discovered, nine of which were potential raths (Megarry 2011, 34). Identification of new sites in advance of infrastructural works was the primary objective of Megarry's project, rather than an in-depth study and interpretation of the archaeological remains in the area.

As the precursor to the current research project, the lidar survey conducted by the author and completed in August 2012 (Curran 2012; 2013) constituted the first major foray into exploring early medieval settlement within Leitrim and Roscommon. The MA project was a pilot study exploring the use and value of lidar survey analysis in early medieval Irish research. The study identified 180 potential 'new' monuments including 149 potential raths and one 're-discovered' ecclesiastical enclosure at Tumna, Co. Roscommon. As outlined in Chapter 3 (Section 3.5.2) the monuments were rated from 1 to 6 according to their probability as being early medieval in date; 1 being highly probable and 6 being almost certainly non-archaeological. In revisiting the dataset for the purposes of this research, 64 monuments which had initially been identified as possible enclosures were downgraded or re-classified to different periods by the author or the NMS (see below) which brings the final total of new discoveries to 116.

The majority of the newly discovered monuments were reported to Michael Moore at the NMS in three batches in 2012 and 2013.<sup>37</sup> Mr Moore assessed each proposed feature and assigned SMR numbers to those he deemed archaeological (a total of 77 monuments). As part of this process, Alison McQueen & Associates were commissioned to carry out ground truthing at a number of the monuments in the winter of 2014. A 'level 2' survey was undertaken, which comprised taking photographs and ground measurements of each monument. Approximately 83% of the monuments discovered on the lidar survey were confirmed on the ground (Alison McQueen pers. comm. 18/11/2014). At least two of the proposed monuments were found to be modern features, both in Efrinagh townland. LE028-074 (LLE-272N) is in fact a septic tank installation and LE028-075 (LLE-271N) proved to be a modern house. This reinforced the necessity for reviewing lidar data in conjunction with aerial mapping, and highlights the benefits of ground truthing desk-based archaeological discoveries. Some of the monuments were clearly visible on the ground, for example, LE032-106 (LLE-282N) at Carrick, Co. Leitrim which sits on a west-facing ridge overlooking the northern extent of Lough Bofin and Gortinty Lough. This rath is visible as a cropmark on aerial imagery (Figure 4.16). However, the ability of lidar to pick up microtopographic remains means that some monuments are simply not visible to ground truthing; just because features cannot be identified in the field does not mean that the lidar was incorrect.

Overall this lidar study resulted in a 21% increase in the number of potential early medieval monuments within the study area, and provided morphological, locational, and distributional data for them (Curran 2012, 51). This demonstrated the value that lidar analysis can bring not only to this particular study area and period, but to archaeological research as a whole. The newly discovered monuments contributed to a more complete picture of early medieval activity in the area, and were incorporated into the subsequent analysis and interpretation of early medieval settlement.

#### **4.4.3 Geophysical Survey**

Very few geophysical surveys have been undertaken in the study area; only ten of the 129 listed for Co. Roscommon lie within the study area, five of which were undertaken by the author as part of this research project. Only twenty geophysical surveys are recorded within the whole of Co. Leitrim, four of which lie within the study area; and three of these were undertaken by the author.<sup>38</sup> A geophysical survey was undertaken in 2006 as part of the N4 Carrick-on-

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<sup>37</sup> Those less likely to be archaeological monuments were not reported at this time.

<sup>38</sup> Figures provided by the NMS Archive Unit on 10/11/2017 and consist mainly of records from 2006 to 2017; records prior to 2006 are incomplete (Rachel Barrett pers. comm. 10/11/2017).

Shannon Bypass Scheme under Licence 06R175. A 6.3km stretch of the proposed route was subject to gradiometer scanning and a total of 9.6ha of the route underwent targeted detailed gradiometer survey (Harrison 2007, 1). The survey largely avoided the archaeological monuments themselves, but land adjacent to the rath at Cloonmaan (RO011-019) revealed a series of linear responses which were interpreted as possible evidence of agricultural activity contemporary with the rath (ibid., 20).

#### 4.5 New Geophysical Survey

Despite the clear benefits and advantages of lidar analysis, it is somewhat limited in that it can only identify features that have some topographic expression, thereby missing features that no longer have—or indeed never had—topographic expression. Geophysical survey is an excellent complement to lidar as it adds a further dimension to the project, namely the detection of sub-surface remains. As part of this project, eight geophysical surveys were undertaken (Table 4.1) at seven different sites within the Leitrim/Roscommon study area (Figure 4.17). The surveys were targeted at locating more subtle and sub-surface features associated with early medieval monuments within the study area, e.g. entrance features, internal structures such as housing, kilns etc., and external features such as gardens, structures, field boundaries, or the presence of an enclosure at the ecclesiastical sites.

**Table 4.1 Geophysical Surveys Undertaken as Part of this Project**

Licence Number	Site	Site Type	SMR Number
<b>14R0116</b>	Drumcleavry ( <i>Doon of Drumsna</i> )	Enclosure	RO011-187 RO011-058
<b>15R0080</b>	Port	Rath (x2)	LE027-066 LE027-067
<b>15R0081</b>	Tumna	Ecclesiastical	RO007-087
<b>15R0136</b>	Kiltoghert	Rath	LE027-121
<b>16R0099</b>	Annaduff	Ecclesiastical	LE032-054
<b>16R0121</b>	Killukin	Ecclesiastical	RO011-047
<b>16R0122</b>	Mullaghmore	Enclosure	RO011-179
<b>17R0159</b>	Killukin	Ecclesiastical	RO011-047

Key findings from the geophysical surveys are reported below, but the geophysical survey licences and complete survey reports are contained within Appendix 4. The geophysical

surveys targeted three ecclesiastical sites: Annaduff, Killukin, and Tumna; and four secular sites: Drumcleavry, Kiltoghert, Mullaghmore, and Port. With the exception of Drumcleavry, two geophysical survey techniques—magnetometry and earth resistance—were employed at each site. Magnetometry was undertaken as the sole technique at Drumcleavry as this was the first site surveyed and it was undertaken as part of the ‘Black Pig’s Dyke Regional Project’ which required the application of one survey method only.

Clearly, without excavation and scientific dating, the nature of the potential archaeological features and possible structures identified through geophysical survey cannot be determined with absolute certainty. Similarly, absence of a geophysical response does not equate to the non-existence of archaeological remains. However, through examination of the key features and comparison with other similar sites (detailed in Chapter 2), many of which have also undergone excavation, it has been possible to produce a credible interpretation of the findings in relation to early medieval activity at the selected survey sites.

#### **4.5.1 Surveys at Ecclesiastical Sites**

The ecclesiastical sites were targeted primarily to ascertain their early medieval origins, but also to identify any external features such as fields or gardens. Three sites were selected which had evidence for several of Swan’s (1983, 274) criteria for early medieval origins: Annaduff, Killukin, and Tumna. However, the key identifier—an ecclesiastical enclosure(s)—was absent in Annaduff and Killukin, and only identified through lidar analysis at Tumna. In all three cases, the geophysical surveys have produced evidence for these enclosures, in addition to other probable archaeological features, some of which may not be early medieval in origin.

##### *Annaduff, Co. Leitrim*

The ecclesiastical site of Annaduff lies at the base of a drumlin on the banks of the River Shannon. Although it exhibits two of the key features one would expect from an early medieval ecclesiastical foundation—a church and graveyard—both monuments are dated to much later than this period. The church remains are fifteenth century and the graveyard possibly later, although one cannot discount the possibility of earlier burials which are not visible or known about. The ecclesiastical foundation at Annaduff is believed to have been established by St. Comin Ea, although there are differing theories as to his origins. Gwynn & Hadcock (1988, 28) suggest that he may be St. Cuimmin Fionn of Iona. However, the association is also listed as Cuimmíne Cadan (*Monasticon Hibernicum*) or Cuimín Cadhan meaning ‘pious’, who was linked to the Dál gCais of Thomond (Ó Riain 2011, 243). The eighth-century annalistic

references relating to the deaths of two of Annaduff's abbots (Section 4.3 above) are perhaps the best indicator of the presence of an early monastic foundation here. Moreover, the location is a prime setting for an early establishment, e.g. low lying and close to the River Shannon which is less than 200m to the south and west.

The geophysical survey identified three possible concentric enclosures which strengthen the archaeological significance of this site and place its likely foundation in the early medieval period (Figure 4.18). Unfortunately, the survey area was truncated by the modern church and road which meant that only a relatively short portion (approx. 30m-40m) of the potential enclosures was traceable. It is probable that at least one of the possible ditches continues north-east through the present graveyard, although its trajectory does not suggest that it is linked to the ditch that is visible to the north of St. Ann's Church (Figure 4.19). Should this feature prove to be an ecclesiastical enclosure linked to the early monastic foundation, its southern limits are likely to extend across the road and into the field closer to the River Shannon. In addition, the lidar and geophysical surveys revealed potential garden plots located to the north of the extant church and graveyard, potentially providing evidence for small-scale agricultural activity, perhaps the growing of vegetables etc., although it is not possible to ascertain which phase of activity they may relate to. A community project has now been established by Des Guckian with a view to further investigating the remains at Annaduff with potential for further research and/or geophysical survey in the future.

#### *Killukin, Co. Roscommon*

The ecclesiastical site at Killukin is bounded by the Killukin River on one side and is situated within an area of considerable early medieval activity. Like Annaduff, it contains a church and graveyard, both significantly post-dating the early medieval period. The church (RO011-047001) is rectangular in shape and is believed to be seventeenth century in date (Moore 2018a), possibly replacing an earlier structure which was recorded as being in ruins in AD 1615 (D'Alton 1845, 91-92). The rectangular graveyard (RO011-047002) is still in use and contains late eighteenth-, nineteenth-, and twentieth-century headstones in addition to two mausoleums (O'Connor 1995) and several more recent burials. O'Connor (ibid.) also noted the foundations of a rectangular structure—possibly an earlier church—“on the northern side of the graveyard.” It is unclear whether he is referring to the church remains within the graveyard or the rectangular feature which is visible on the lidar surface to the north-east (Figure 4.20). This structure has a similar orientation to the present ruins, although it is slightly larger measuring approx. 20.5m x 8m internally. The third element, a holy well (RO011-045), is located approx. 500m south south-west of the site in the neighbouring townland of Glebe.

O'Donovan lists it as 'Tobar Chonaolánaigh' or 'Connellan's Well' (O'Flanagan 1931, 120). While it may have been designated a holy well in the past, in more recent times it has acted as a pump house for Killukin House (Moore 2010d).

The geophysical survey revealed two possible ditched enclosures at Killukin (Figure 4.21 & 4.22). The inner oval-shaped enclosure is oriented north-east/south-west and measures approx. 25m x 40m. There is a gap of approx. 4.5m in the south-eastern corner of the enclosure which may represent an entrance, although it is quite large and may be a later modification. A number of magnetic anomalies contained within this enclosure may point to the remains of a church or other structure, although it is not possible to determine this without excavation. Both the magnetometry and earth resistance results suggest the presence of an outer enclosure, evident as a curvilinear anomaly on both survey results. It is not possible to estimate the full extent of this outer enclosure as only this small southern portion (approx. 30m) is visible; however, the curved nature of the original road to the west of the site appears to align with this feature and it is possible that this road may represent the line of the original outer boundary of the ecclesiastical site. The site was once contained in a larger area before the R368 was brought through the centre of it, effectively bisecting it (Figure 4.23).

A further geophysical survey was undertaken in the fields to the north of this site, aimed at investigating the possible location of the northern limits of this outer enclosure (Licence: 17R0159). Assuming that the inner enclosure was in the approximate centre of the outer enclosure, the northern limits of the outer enclosure should be located approx. 100m to the north of the inner enclosure, i.e. roughly within the environs of the tree-lined division which separates the survey area. This is consistent with the siting of the curvilinear magnetic feature identified on the survey (Figure 4.24); however, it was not reflected in the earth resistance survey. Although there is a hint of a curvilinear ditch in approximately the 'right' location, these fields have been significantly disturbed in recent decades and the results here are therefore inconclusive. Should the enclosure indeed extend to here, it would measure approx. 243m in overall diameter north-east/south-west.

#### *Tumna, Co. Roscommon*

The remains at Tumna are located at the base of a drumlin, on the banks of Lough Eidin. It corresponds to five of Swan's criteria; however, as at Annaduff and Killukin, the upstanding churches (of which there are two) and the graveyard remains are later in date. The graveyard contains a saint's tomb or shrine, dedicated to the patron saint of the site—Saint Eidin (also



known as Etain or Éadaoin)—after whom the lake is also named (Keenehan et al. 2006, 117). St. Eidin is reputed to be buried within the shrine (RO007-087004) (Wakeman 1887, 108; Herity 2010, 77) and her feast day continues to be celebrated on 5<sup>th</sup> July each year (Ó Riain 2011, 279). The enclosure was identified in the late nineteenth century as a “circular wall composed of earth and stones, and now only just traceable” (Wakeman 1887, 107). More than a century later, the enclosure is no longer visible on the ground, however, sections of it were identified on the lidar surface as part of this body of research. It appears to be oval in shape, oriented approximately east/west and encompassing the graveyard and other recorded monuments at the site (Figure 4.25). A possible sixth characteristic takes the form of a potential holy well: a spring is located approx. 70m to the west of the graveyard and is marked on early cartographic sources. It is currently surrounded by a fence, trees, and overgrown vegetation. This is not known as a holy well today, but its proximity to the ecclesiastical site means that it may have, at the very least, served as an important fresh water source for the ecclesiastical community.

Documentary evidence points to an ongoing religious presence at Tumna up to at least the late sixteenth century. Tumna is referenced in the Annals of Loch Cé in the year AD 1249 as the priest Mulkieran O’Lenaghan died there on his way to Ardcarn which lies approx. 5km to the west (Hennessy 1871, 391-393). The ecclesiastical taxation of Elphin makes a further reference to the parish church at Tumna in AD 1306 where it is listed as ‘Thuanna’ (Sweetman & Handcock 1974, 224). Additionally, there are references to a Dominican foundation at the site from the thirteenth century, although this may actually be Franciscan (Gwynn & Hadcock 1988, 275). Friars of the Third Order are listed as holding land here in AD 1586, comprising a church, small cemetery, and agricultural land (Archdall 1786, 623). A 21-year lease of the ‘abbey’ was granted to Richard Kendlemarch (Kyndelinshe) in AD 1588 (ibid.). It is likely that many of the features identified on the geophysical survey date to this later period, and indeed, many of them may have destroyed, or at the very least obscured, earlier remains.

The geophysical survey identified the potential western extent of the ecclesiastical enclosure, with a possible access way to the spring, and a separate similar access way to the north, leading to Lough Eidin (Figure 4.26). Extrapolating from the western and southern portions of the enclosure, its probable dimensions were approx. 140m (north-east/south-west) x 120m (north-west/south-east). Given its size, it is likely that these features constitute the outer enclosure, and therefore possible that the inner enclosure was replaced by the subrectangular structure (identified as ‘C’ in the geophysical survey report) and extant graveyard as the site evolved, as was common with many monastic establishments which evolved over multiple periods (O’Sullivan et al. 2014, 148).

#### **4.5.2 Surveys at Secular Sites**

The secular sites were targeted in order to investigate the enclosing features and their interiors, in addition to their immediate surroundings with a view to identifying any sub-surface remains (e.g. house foundations, hearths, field boundaries, etc.) that may help to advance our understanding of their potential date and function. Of particular interest was the identification of internal structures, ideally house structures, the size of which could potentially point to the status of the former inhabitants. While early medieval houses ranged in size from approx. 4m to 10m, the average diameter was approx. 6m, with the higher status population purported to live in the larger examples (Lynn 1994, 91; Kelly 1997, 361-362). The geophysical surveys produced mixed results, internal structures were clearly evident at two of the sites, and while the remaining monuments showed some traces of internal structures, the results were less clear cut. The search for associated field systems did not prove fruitful at any of the monuments. Despite the detection of multiple anomalies outside of the enclosures, there were no coherent patterns or features which could be identified with any confidence as pertaining to field systems.

##### *Mullaghmore, Co. Roscommon*

The enclosure at Mullaghmore (RO011-179) was identified during the lidar investigation (Curran 2012) and added to the SMR in 2014, classified as 'Ringfort - rath' (Figure 4.27). This site was selected for geophysical survey as a means of 'ground truthing' the lidar discovery and identifying any additional diagnostic features. The survey also incorporated a second, unrecorded, embanked feature which is located approx. 150m further downslope to the east; this was identified on the lidar surface yet the geophysical survey did not produce any results which might lead to its classification as an archaeological monument.

The rath is situated in pasture on a gentle south-west-facing slope, close to the summit of a low drumlin. The position affords spectacular views over the surrounding landscape, although these are now somewhat obscured by dense vegetation in places. The enclosure is circular in shape and measures approx. 23m x 22m. It is defined by a low bank or scarp with an outer fosse. The lidar profile shows minimal survival of the internal bank, although there is drop-off of approx. 0.5m on the northern boundary from the enclosure interior to the fosse. No internal structures, entrance, or associated field boundaries are visible on the ground or on the lidar surface.

The earth resistance survey produced evidence of a subcircular high resistance feature in the approximate centre of the enclosure (Figure 4.28). This structure also contains a high resistance anomaly at its centre, which could be equated with the positioning of a stone-lined hearth. Measuring approx. 8.5m in diameter, it corresponds to the expected size and shape of an above average early medieval house. A series of medium to high resistance anomalies running from the possible house structure towards the edge of the enclosure may be representative of a pathway, while additional magnetic disturbance and high resistance responses to the west of the structure are suggestive of further activity within the enclosure. However, there is no evidence for any associated field or garden plots and modern disturbance (mainly ploughing) may have affected the magnetic responses in places.

#### *Kiltoghert, Co. Leitrim*

The largely extant monument at Kiltoghert (LE027-121001) is a standard univallate rath of average dimensions (approx. 31m in internal diameter), with an adjoining structure which is classified as 'House - indeterminate date' (LE027-121002). This rath is situated within an area that was well populated in the early medieval period, and presented an opportunity to further investigate one of this large townland's settlements.

The site is positioned on the summit of a drumlin with extensive views in all directions. Mong Hill is less than 500m to the north, while Sheemore is just under 2km to the north north-east (Figure 4.29). Kilmaddaroe Lough lies approx. 600m to the south-west. Only a small portion of what initially appears to be the enclosing bank of LE027-121001 is still visible on the south-east and the remainder of the rath is defined by a ditch which encircles the raised centre. Viewed in light of the geophysical survey results, this 'bank' actually appears to be located along the course of the enclosing ditch, and so it is possible that this is not actually part of the bank, but is instead merely a result of later tree growth. The remains of LE027-121002 measure approx. 4m x 4m, and adjoin the remaining portion of the 'bank'; this is visible on the ground as a subrectangular area defined by a bank, although Markus Casey's 1991 field report mentions the presence of a ditch (Casey 1991b).

The earth resistance survey confirmed the presence of an internal bank in the form of a concentric high resistance anomaly located approx. 5m inside of the enclosure ditch, enclosing an area of approx. 25m in internal diameter (east/west). This high resistance feature is consistent with the presence of a stone wall or stone-revetted bank. There appears to be a very definite truncation in the high resistance feature in the north-eastern quadrant; this gap

measures approx. 1.5m and is likely to mark the location of the original entrance (Figure 4.30). The central area of the enclosure contains a series of anomalies which appear to form a subcircular feature measuring approx. 6m in diameter. The high resistance features may correspond to the location of a walled structure, or a structure with stone foundations, potentially a house. Certainly, the shape, size, and location of this structure are broadly consistent with the houses associated with early medieval raths. These high resistance anomalies are complemented by a number of positive magnetic anomalies which may represent stone-filled postholes, also linked with the structure. A strong positive magnetic anomaly is located within the potential house structure, possibly an indication of burning, which could point to the location of a hearth (Figure 4.31).

#### *Drumcleavry, Co. Roscommon*

Like Mullaghmore, the Drumcleavry survey sought to investigate an enclosure which was identified over the course of the lidar analysis (Figure 4.32). The enclosure (RO011-187) was classified as 'Ringfort - rath' and added to the SMR in 2014. The rath is located approx. 90m north-west of the more westerly entrance gap of the Doon of Drumsna. This linear earthwork (RO011-058) consists of two parallel sets of banks and ditches, running approximately east-west across the base of the peninsula, effectively cutting off a loop of the River Shannon. Two entrance features are visible along the ramparts—one to the east and the other just west of the centre (Figure 4.33). The rath measures approx. 35m in diameter and is defined by a low scarp and external fosse. It is situated on low-lying pasture between two drumlins, just north of a 'water feature' which is surrounded by trees. This is marked as a subrectangular feature on early cartographic sources, and is perhaps a result of quarrying, although its exact purpose or relationship with the rath (if any) is unclear.

The magnetometry results show a negative magnetic anomaly of circular plan which corresponds with the location of the enclosure ditch visible on the lidar surface, there was no indication of a bank (Figure 4.34). A number of positive magnetic anomalies were found within and along the ditch feature, which may be related to the period of use of the ditch. They may represent the existence of pits, some of which may contain burnt material. There was no indication of a central structure as seen at Mullaghmore and Kiltoghert, although in these two surveys, it was the earth resistance technique that best picked up the possible house structures. Instead, the interior of the enclosure is dominated by a large spread of magnetic disturbance. Measuring approx. 17m x 10m, it covers an area from the approximate centre of the enclosure to the east. It consists of a mix of positive and negative anomalies, but does not

form a coherent feature or structure. It could point to the existence of destroyed house remains, although there is insufficient evidence to determine this with any real confidence.

#### *Port, Co. Leitrim*

The geophysical survey at Port, Co. Leitrim comprised the area within and surrounding the remains of two enclosures, both classified as 'Ringfort - rath' (LE027-066 & LE027-067), which are located just 25m apart. Both raths are described as bivallate and given their proximity, this site was selected to further investigate any possible relationship or distinction between the monuments. It is quite unusual to have two possible high-status raths so close together. The larger of the two monuments (LE027-066) is situated on the crest of the drumlin and its more prominent banks and ditches are still largely extant (Figure 4.35). The interior is overgrown with mature trees and brambles which impeded the survey in places, although without survey equipment it is possible to move relatively freely within. The enclosure measures approx. 36m in maximum internal diameter and up to 65m in overall diameter. Causeways were recorded across two entrances on the east and south-east which may correspond to original entrances (Casey 1991c). The smaller rath (LE027-067) lies a little further downslope and does not enjoy the same high level of preservation as its neighbour. The bank is most intact on the southern, western, and northern sides, but the eastern portion appears to have been levelled or ploughed out which has also affected the interior (Figure 4.36). It measures approx. 25m in maximum internal diameter and just over 50m in overall diameter.

The geophysical survey revealed a number of potential archaeological features, in addition to confirming the extent of the enclosing bank and ditch of LE027-067 which has experienced considerable disturbance on its south-eastern and eastern sides (Figure 4.37). While the official description suggests that this is a bivallate rath (Moore 2003, 118), there is no evidence from either the geophysical or lidar surveys to support this. Both analyses point to the presence of a single bank and ditch enclosure, although clearly the modern disturbance to the monument may have impacted upon the survival of a second enclosing feature. This infers that, rather than comprising two high-status bivallate raths, the site consists of a bivallate and univallate rath. Should they prove to be contemporary, it could represent the remains of a high-status dwelling and that of a lower grade of lord.

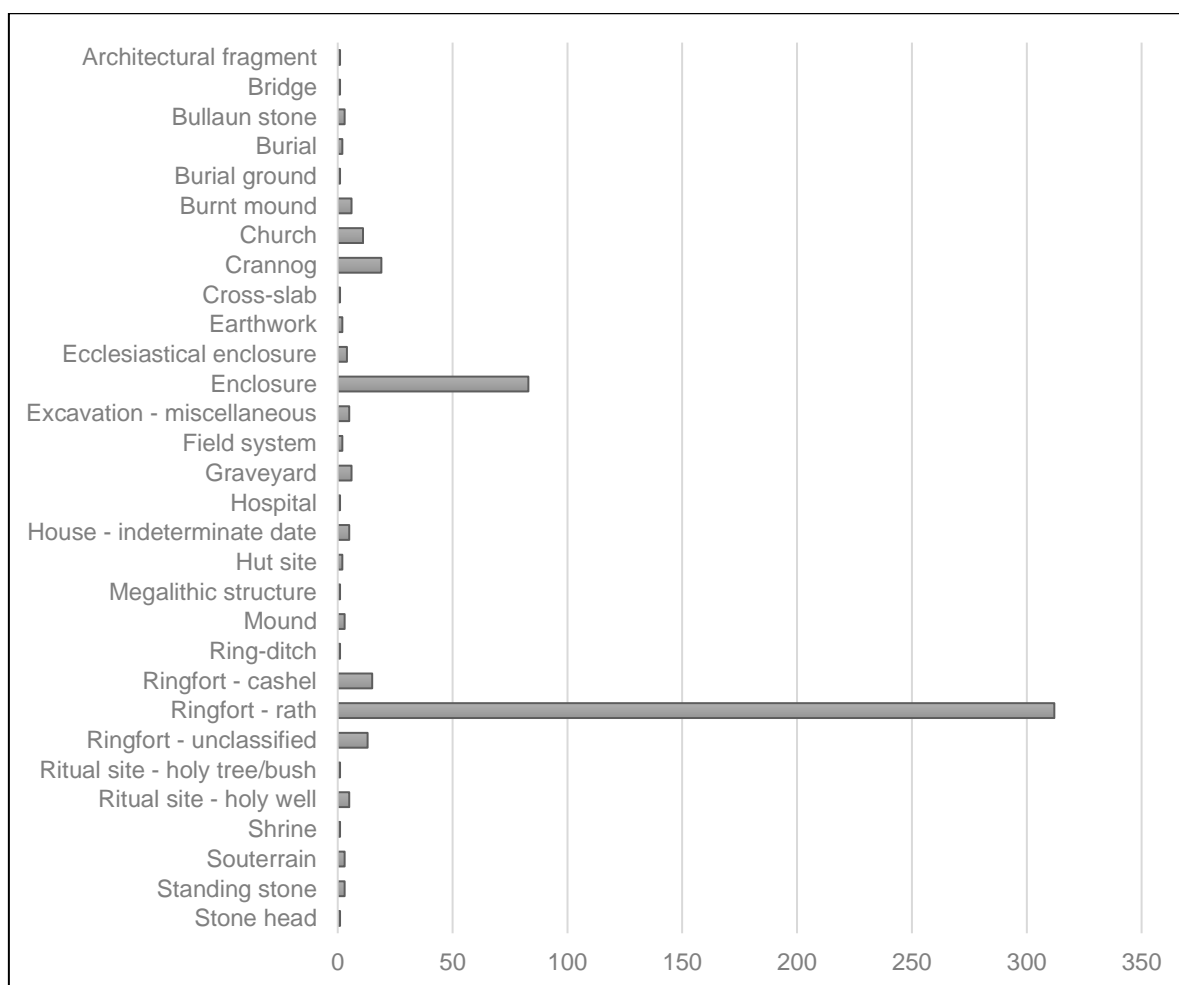
The geophysical survey results point to the presence of structures and/or buildings within the interiors of both raths, although they lack sufficient clarity to identify the exact nature of these features. If one is to follow the constraints set out in the law texts, with a diameter of approx.

4.5m, the semi-circular feature within LE027-066 is possibly too small to represent the remains of an early medieval house structure, particularly one within a high-status bivallate rath. However, as excavations at Deer Park Farms, Co. Antrim demonstrated (McDowell & Lynn 2011a, 85-118; McDowell & Lynn 2011b, 119-152), many houses had a circular annexe attached to them, forming a figure-of-eight; hence the semi-circular structure here could potentially represent an annexe to a larger structure. It is also possible that the abundance of high resistance responses point to the existence of a souterrain within one or both of the raths; particularly as a souterrain (LE027-131), was discovered close to the site in the 1930s although the exact location is no longer known (Moore 2003, 118). A small number of discrete high resistance anomalies which are visible crossing the bank and ditch features to the south, may point to the location of an original entrance. This would place the entrance in a similar location to that of LE027-066 (i.e. south-east quadrant). Unfortunately this portion of the rath has been significantly altered in modern times and there is no further evidence that might support the presence of an entrance at this location.

#### **4.6 The Early Medieval Landscape**

Evidence for early medieval settlement within the study area is both plentiful and varied with the number of potential sites now totalling 514 with those classified as 'Ringfort - rath' accounting for 61% of all monuments from this period (Chart 4.1). Evidently, each monument has not been scientifically dated and so the categorisation of the sites is largely based on the classifications listed in the online database of the SMR, in addition to further investigation into the more complete original records held in the NMS Archives (as outlined in Chapter 3). The early medieval sites are scattered throughout the study area, although the south-eastern corner is very sparsely populated which could be the result of preservation issues rather than proof of a lack of activity (Figure 4.38).

While the evidence for other periods could arguably be classed as meagre, the evidence for early medieval settlement points to a thriving and well-populated area of Ireland. However, with only one fully excavated early medieval site within the study area (Cloongownagh), it is currently impossible to ascertain which settlements might have been in use contemporaneously, or which might have been abandoned only for a new structure to be built close by. Nevertheless, one can be certain that the area was a flourishing hub of early medieval activity.



**Chart 4.1 Probable Early Medieval Monuments** (after [www.archaeology.ie](http://www.archaeology.ie))

#### 4.6.1 Ecclesiastical Settlement

The coming of Christianity to Ireland in the fifth century significantly altered the physical landscape as churches, monasteries, and ecclesiastical centres were established throughout the country. There are no major monastic sites recorded within this study area, although there are a number of significant sites in close proximity (Figure 4.39). Ardcar, Co. Roscommon (RO006-103002) lies approx. 1.5km to the west of the study area and is reputed to have been founded in the sixth century; it was still significant in the twelfth century when it was made a diocesan centre (Moore 2014b). The site today is impressive and includes a graveyard and modern church and is surrounded by numerous recorded monuments including a rath (RO006-103009) and two cashels (RO006-106016 & RO006-106017). The Abbey of Fenagh (LE025-096001) is located approximately 10km to the north-east of the study area in the townland of Commons, Co. Leitrim. The early ecclesiastical site of Mohill (LE032-068002) which was founded in the sixth or seventh century and continued into the seventeenth century (Moore 2003, 183) is 3.2km to the east of the study area. The ecclesiastical remains at Kilmore, Co. Roscommon (RO018-002004), lie just outside of the study area and were reputedly built on

the site of the Abbey of Kilmore which was founded by St. Patrick (Moore 2010e). The holy well at Clooncommon More (RO018-003)—marked ‘Tobernacleggan’ on the 25inch map—is situated approx. 125m south-east of Kilmore and is likely associated with this foundation.<sup>39</sup>

Using Swan’s (1983, 274) criteria for identifying early ecclesiastical sites, a total of twelve probable sites were identified within the study area which fulfill a variety of the required characteristics (Table 4.2). Three of the sites are somewhat tenuous, as they only exhibit one or two of the ‘lesser’ characteristics (Figure 4.40). In the case of Aghintober, a holy well is the only featured element, along with a holy tree/bush, both dedicated to St. Bridget. At Jamestown, the church is the only element featured. This seventeenth-century church is reputed to have been founded by St. Srianan (or St. Trenan) and was first mentioned in the early fourteenth century (Moore 2003, 181). However, given that the town was built upon and around the church and therefore possibly obscuring any other features, it is possible that an earlier foundation did exist at this site. Featuring just two characteristics (bullaun stone and pillar stone), Fearnaght has relatively weak evidence for an early ecclesiastical foundation. There are no additional features visible on the lidar or aerial images, nor is its siting typical for early ecclesiastical sites in this area. There is a well adjacent to the bullaun stone, but it is not designated as a holy well (*ibid.*, 192).

Seven of the sites contain ecclesiastical enclosures—arguably the best evidence of an early medieval establishment—although only four of them are recorded on the SMR (Attirory, Church Hill, Kilbride, Tumna). Those at Killukin and Annaduff were discovered during the geophysical surveys undertaken as part of this research, while that at Kiltoghert is now classified as a redundant record (LE027-079004) as it was considered too far (180m) from the church remains (Moore 2017a). Leo Swan (1983, 274) puts the average diameter of an ecclesiastical enclosure at 90m-120m, with a significant proportion measuring from 140m to 400m. Tumna (approx. 140m), Church Hill (104m), and Attirory (137m) all fit approximately within this range. These dimensions would also place the Kiltoghert enclosure within the acceptable range. Portions of an inner and outer enclosure are now identifiable at Killukin as a result of the geophysical survey. The inner enclosure measures approx. 40m, and the estimated extent of the possible outer enclosure is approx. 240m. The enclosure at Kilbride is not visible on lidar or aerial imagery.

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<sup>39</sup> The holy well at Clooncommon More lies within the study area but is not considered here as a stand-alone ecclesiastical site as it is most likely associated with Kilmore.



**Table 4.2 Ecclesiastical Monument Type per Townland**

	Evidence of Enclosure	Burial Area	Placename with ecclesiastical element	Structure or structural remains	Holy Well	Bullaun Stone	Pillar Stone	Founder's Tomb	Associated traditional ritual or folk custom
<b>Aghintober</b>					✓				
<b>Annaduff</b>	✓	✓		✓					
<b>Attirory</b>	✓	✓		✓		✓			
<b>Church Hill</b>	✓	✓	✓	✓		✓			
<b>Fearnaght</b>						✓	✓ <sup>40</sup>		
<b>Jamestown</b>				✓					
<b>Kilbride</b>	✓	✓	✓	✓					
<b>Kilcock</b>			✓	✓	✓				
<b>Killukin</b>	✓	✓	✓	✓	✓ <sup>41</sup>				
<b>Killummod</b>		✓	✓	✓					
<b>Kiltoghert</b>	✓ <sup>42</sup>	✓	✓	✓	✓				
<b>Tumna</b>	✓	✓		✓	✓ <sup>43</sup>			✓	✓

<sup>40</sup> This is classified as a 'standing stone' on the SMR, but is marked as a pillar stone on the historic mapping.

<sup>41</sup> The holy well associated with the ecclesiastical remains at Killukin (Tober Connellan) is located in the adjacent townland of Glebe, Co. Roscommon.

<sup>42</sup> The enclosure at Kiltoghert is now classified as a 'redundant record'.

<sup>43</sup> The well at Tumna is not known as a holy well and is therefore not classified on the SMR, but it is likely to be linked with the ecclesiastical site.

Rivers, lakes and streams were often more accessible and afforded safer passage between settlements than routes reliant on travel through the interior (Bitel 1990, 30). Proximity to water does appear to have been an important factor for those establishing ecclesiastical sites in the study area, and the outliers—Killummod, Kilcock, and Fearnaght (although this is tenuous)—are noticeable. The site at Killukin is adjacent to Killukin River, but there appears to be a clear preference for locations along the River Shannon: Jamestown, Annaduff, and Attirory are all positioned along it, while Tumna and Church Hill are both located on the shores of Lough Eidin past which the River Shannon flows.

The ecclesiastical site at Tumna occupies a prime position in the landscape with its location at a narrow fording point on the banks of the Boyle River as it enters Lough Eidin (Delaney 1987, 17). Indeed, it is located less than 300m from the opposite banks of Cleaheen townland, Co. Leitrim. This raises questions about the scope of an ecclesiastical settlement; e.g. did Tumna serve the community on both sides of the lake or did the water serve as a boundary? There is sometimes a temptation to see water as a barrier and an impediment to access, but if waterways were the preferred travel and transport routes in early medieval times, it is likely that the river or lake would have been a unifying rather than a divisive feature. There are fourteen settlement sites that fall approximately equidistant between the ecclesiastical sites of Tumna and Church Hill, Co. Roscommon (Figure 4.41). Both are likely to have early medieval origins and may have been in existence at or around the same time; arguably either one (or both?) could have served the local population.

The absence of a major or even substantial monastic site within this 140km<sup>2</sup> study area is curious, albeit there are two (Ardcarn and Mohill mentioned above) within close proximity to the west and east respectively; and Elphin lies less than 15km to the south-west. The evidence does suggest that at least some of the sites prospered and continued to exist until the later medieval period at least (e.g. Annaduff, Killukin, Tumna); although none of them reached the lofty heights of national sites such as Clonmacnoise which is located further south along the Shannon. It is likely that their proximity to Ardcarn and Elphin—which ultimately became the diocesan centres—may have affected their notoriety and their survival.

Annaduff appears to have retained its importance for many centuries with accounts of some notable persons having visited or stayed there, perhaps taking advantage of its strategic location along the banks of the River Shannon. For example, Brian Boru and Maelsechlainn are reported to have camped at Annaduff in AD 1011 (Hennessy 1887, 525). The monastery may have disappeared in the twelfth century, coinciding with the introduction of church reforms

across the country (Gwynn & Hadcock 1988, 28). But there are two thirteenth-century references to events at Annaduff, although it is unclear whether they are specifically related to the ecclesiastical site or another location within the townland or parish (both of the same name). An O'Reilly contingent are reported to have camped at Annaduff in AD 1253 over the course of an invasion of Muintir Eolais territory (O'Donovan 1851, 349; Freeman 1944, 109). The annals also noted the 'treacherous' killing of Magus O hAinlige at Annaduff in AD 1297 (Freeman 1944, 197). A sixteenth-century reference mentions a 'hospital, Termon-Irrenagh, or Corbeship' and land of approx. 60 acres at the site in AD 1595 (Gwynn & Hadcock 1988, 346).

There are hints of an ecclesiastical site at Drumheckil, Co. Leitrim, although there is insufficient evidence to include it here as an early medieval foundation. The townland contains the remains of a church (LE027-105001) known as 'Shawn clogh na Ghranseagh' or 'old stones of the grange' which are reputed to be the site of a grange of Augustinian Canons, possibly linked to the Cistercian Abbey in Boyle (Moore 2003, 179). The church is located close to Drumheckil's border with Grange, a placename which is synonymous with an area belonging to a monastery or abbey (Logainm.ie: gráinseach). Indeed this particular Grange townland is listed as the 'Grange of Muintirolis' in a number of sixteenth- and seventeenth-century sources (Logainm.ie 29298), including the Calendar of Patent Rolls of James I. A second 'Grange' townland is adjacent to the townland of Killummod, possibly linked with the later church at this location.

In an attempt to identify any other potentially early medieval church sites which have not been identified archaeologically, examination of the townland names brought forth several possible locations. There are eight townlands which contain the prefix 'Kil' which do not currently have any recorded ecclesiastical remains. However, a further review of the origins of these townland names showed that at least seven of them are derived from '*coill*' (wood) as opposed to '*cill*' (church) which usually indicates the presence of an early ecclesiastical site. The remaining seven townlands translate as follows (Logainm.ie):

Kilboderry - *Coill Bhó Deirge* - wood of the red cow;

Kildorragh - *An Choill Dorcha* - the dark wood;

Killamaun - *Coill-lomáin* - wood of the hurling;

Killasanowl - *Coill Lios na nAbhall* - wood of the fort of the apple trees;

Killyfad - *An Choillidh Fhada* - the long wood;

Kilmaddaroe - *Coill an Mhadra Rua* - the wood of the fox;

Kiltycarney - *Coillte Ceithearnaigh* - Kearney's Wood.

The origins of the eighth—Kilmacarril—are unclear and may relate to either derivation. There are no recorded monuments in the townland and no evidence of any possible ecclesiastical site is visible on the lidar, aerial photographs, or historic mapping. Despite the fact that the townland is positioned on the shores of Lough Eidin, it essentially comprises a drumlin and low-lying floodlands, and so is not a likely location for an ecclesiastical site within this study area. The likely derivation is '*Coill mac Cairill*' which translates as MacCarrill's Wood (Logainm.ie 43227).

The ecclesiastical sites are relatively well spaced out within the study area. The shortest distance (as the crow flies) between any two sites is between Church Hill and Tumna, and this 2.3km includes a river crossing. The majority of the sites are separated by distances of 3km-5km. With the exception of Fearnaght, Jamestown, and Aghintoher which exhibit minimal archaeological evidence, the various elements of the ecclesiastical sites are clustered together, i.e. the holy wells, bullaun stones, and enclosures are all within close proximity of one another. These distances are maintained when incorporating the ecclesiastical sites which lie close to the border of the study area. The spatial distribution of the ecclesiastical sites may point to the location of various territories within the study area, particularly when viewed in conjunction with the secular evidence below.

#### **4.6.2 Secular Settlement**

Early medieval secular settlement is distributed throughout the study area, represented predominantly by the remains of raths, cashels, and crannógs. As the only excavated rath within the study area, Cloongownagh returned an earliest date of cal. AD 641-757 and a latest date (for the backfill of the ditch) of cal. AD 896-1029 (Lennon & Henry 1999, Licence: 99E0193) which correlates with the dates of primary rath occupation, i.e. between AD 600 and AD 1000 (O'Sullivan et al. 2014, 64).

##### *Raths*

The study area comprises raths which are recorded under three potential class descriptions on the SMR (Table 4.3). A total of 90 potential early medieval settlement enclosures were identified through the lidar analysis, 68 of which have been added to the SMR. Three of these 68 monuments have since been de-classified and listed as redundant records as they could not be identified on the ground (Moore 2014a; Moore 2015a; Moore 2015b).<sup>44</sup> However, in all

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<sup>44</sup> RO012-025 - Cartron; RO007-105 - Clooneigh; RO011-186 - Corgullion.

three cases, the monuments are clearly visible on the lidar surface and are therefore retained as potential early medieval monuments and included in this analysis of early medieval settlement. The remaining 22 that have not (yet) been accepted onto the SMR are included under the 'enclosure' classification below. Each of them has been rated according to their probability of being early medieval in date (Table 4.4). The 'Ringfort - unclassified' monuments have been visually examined and have been confirmed as probable raths rather than cashels.

**Table 4.3 Breakdown of Rath Types**

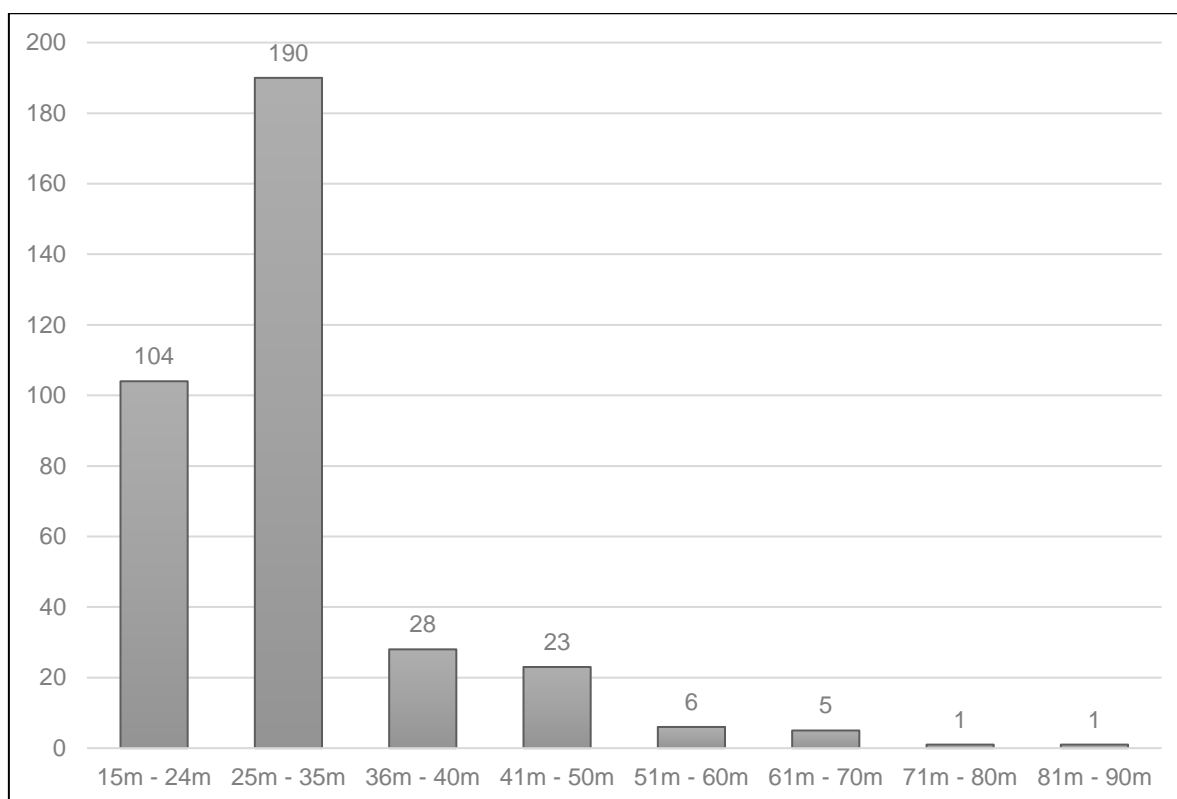
Monument Type	Total
Ringfort - rath	312
Ringfort - unclassified	13
Enclosure	80 <sup>45</sup>
<b>Total</b>	<b>405</b>

**Table 4.4 Project Rating of Newly Discovered Monuments (*not on SMR*)**

Rating	Number of Monuments
<b>1</b>	1
<b>2</b>	2
<b>3</b>	10
<b>4</b>	9
<b>Total</b>	<b>22</b>

Univallate raths account for 88% (358) of the total (405), representing the settlements of the majority of the secular population. 53% of these conform to the average 30m diameter with 190 measuring between 25m and 35m in internal diameter (Chart 4.2). A substantial number (104) of raths have internal diameters less than 25m, although only 18 of these measure less than 20m in diameter. 90% of the raths have internal diameters of less than 40m, with only 4% exceeding 50m in diameter.

<sup>45</sup> This excludes three enclosures which were identified as annexes to other enclosures.



**Chart 4.2 Internal Diameter Range of Univallate Rathes**

As with their multivallate counterparts, this suggests that larger enclosures are connected with more specific functions, and/or reserved for particular members of society. Of the thirteen univallate raths with internal diameters greater than 50m, six were discovered during the 2012 lidar analysis. The monument at Jamestown (LE031-109) may represent the remains of a tree-ring rather than an early medieval enclosure (Moore 2014c). Usually circular or oval in plan, tree-rings date to between the seventeenth and nineteenth centuries and comprised a cluster of ornamental trees (SMR: Designed landscape-tree-ring). Given their morphology and tree-cover, they can sometimes resemble the remains of raths. The Jamestown example forms an almost perfect circle and is located approx. 450m from a recorded tree-ring (LE031-093) in the neighbouring townland of Rue; both monuments are found at a similar elevation on the south-east facing slope. As the exact nature of the enclosure cannot be determined, and because it shares multiple features consistent with early medieval enclosures, it is included in the analysis here. Another of the lidar discoveries (LLE-263N) constitutes the largest potential univallate enclosure within the study area. It is located on a drumlin slope in the townland of Gortconnellan, Co. Leitrim. The monument consists of a circular embanked enclosure with an internal diameter of approx. 85m, and an overall diameter of approx. 106m. There is no trace of an external ditch and it is possible that this could be a prehistoric monument, potentially a henge or ceremonial enclosure; however, in the absence of more convincing evidence, it is

included here as a potentially early medieval monument and is located within 200m of two univallate raths.

The majority of the larger raths (i.e. greater than 50m) are located on low-lying ground at the base of drumlins, or on lower drumlin slopes. Only three could be considered to be on the upper drumlin slopes, while the Annaghbeg example (61m-70m) is the only one to occupy an elevated position on the summit of a drumlin. Strategically, it is probably the best located of the large raths, with visibility over Lough Naseer to the west and the River Shannon to the east and south. The large enclosures are all found within approx. 500m of at least one other early medieval monument although the proximity of their nearest neighbour ranges from 70m up to 550m. The Annaghmona enclosure is the most isolated of this group, as it is, to all intents and purposes, on an island; it occupies a small rise which forms a peninsula on the shores of Lough Eidin. Its closest neighbour is a crannóg on Lough Eidin (RO007-094), approx. 550m to the north-east; however, the enclosure has no visibility of this crannóg, nor does it have visibility of any other early medieval monuments. Actually located on an island is the Inishatirra example (RO007-104)—also discovered by lidar—measuring approx. 54m in internal diameter. The enclosure is positioned on low ground on the south-east of the island, overlooking Lough Eidin and the townlands of Clooneigh and Drumharlow.

It is possible that the larger raths were associated with 'military, judicial, or administrative' functions, rather than domestic or secular dwellings (Stout 1991, 240). Stout suggested that such enclosures should be located in "peripheral areas within townlands, near barony boundaries, and at strategic points" (ibid.). A number of the monuments fulfil these criteria, although the proximity to baronial boundaries is somewhat skewed due to the presence of the River Shannon which demarcates the barony (and civil parish) boundaries in most cases. The majority of these larger enclosures lie within 900m of the River Shannon or a major body of water (i.e. Lough Eidin); however, the inland barony boundaries are generally more than 2km away. The Deerpark example (RO011-163) is the only one which is situated in very close proximity to its townland, civil parish, and barony boundaries: 20m, 45m, and 750m respectively (Figure 4.42). Moreover, it is located in a low-lying position at the base of a drumlin. There are significant similarities between this enclosure and that of Kiltoghert (LE027-141), i.e. both enclosures have internal diameters of approx. 66m and overall diameters of approx. 78m. Like Deerpark, Kiltoghert is also in a low-lying position at the base of a drumlin, and lies just 17m from its townland boundary (Figure 4.43). However, it is more than 2km from its closest barony or civil parish boundary. Both monuments appear to have internal divisions which are consistent with those displayed in a number of settlement-cemeteries such as Parknahown, Co. Laois (Figure 4.44). Both are located within a hub of other contemporary

sites such as univallate and bivallate raths and ecclesiastical sites. It is possible that these enclosures are indeed settlement-cemeteries, and as such, would have occupied a key position within their territories, and may therefore potentially serve as indicators of the presence of the central strongholds of said territories.

With 32 examples, fifteen in Co. Leitrim and seventeen in Co. Roscommon, bivallate raths account for just 8% of the raths within the study area (Figure 4.45), considerably lower than Stout's (1997, 18) national estimate of 19%. This may be due to the location of this particular catchment area, and one must also consider that a number of potential bivallate raths could not be identified due to interference with and/or destruction of the outer embankments. Seven of the bivallate raths have been designated as 'bivallate - possible' as the 25inch maps appear to show a double bank and ditch, although the lidar and aerial photography are somewhat inconclusive. Twenty-five of the bivallate monuments have internal diameters ranging between 25m-40m while just two have internal diameters greater than 40m. The largest is that at Danesfort (RO011-048) with a maximum internal diameter of 54m (Figure 4.46). Legvoy or Gardenstown is home to the next largest, measuring approx. 46m in internal diameter.

The lidar investigation uncovered two potential bivallate raths in the townlands of Aghamore (LMO-020N) and Coraughrim (LE031-108), Co. Leitrim. The latter is a substantial monument and is visible on aerial imagery, although it was never noted on the historic maps; however, the 'kinked' or curved field boundaries which must have respected and/or incorporated the monument are clearly visible (Figure 4.47). It has a maximum internal diameter of approx. 39.3m and an overall diameter of approx. 72.2m. It is situated on a gentle south-facing slope on a drumlin summit, overlooking the River Shannon and with excellent views of the surrounding area. A second rath was discovered to the north of it, also in Coraughrim townland. This univallate rath (LE031-112) is located just off the north-facing crest of the same drumlin, approximately 130m from its bivallate counterpart. Again, the curved field boundaries appear to follow the monument although this monument was not marked on the historic maps either. It measures approx. 25.6m internally and approx. 38.1m in overall diameter. Combined, the location of both monuments gives them an almost 360° view of the surrounding landscape, and access to the closest major communication route, the River Shannon. Their proximity is reminiscent of the two raths which were surveyed at Port and it is likely that they were indeed contemporary and an example of a high-status site and its associated noble. The closest known early medieval monuments are the univallate raths in the neighbouring Gort and Adereen townlands, the nearest of which is more than 500m from the bivallate rath.



In general, there is just one bivallate example in any one townland; however, the townland of Foxhill, Co. Roscommon contains two examples which are situated less than 250m apart. A conjoined rath lies less than 600m to the west, while a crannóg is located less than 700m to the south-east in an inlet of Lough Eidin (Figure 4.48). Three of Headford's nine raths are bivallate (albeit two are possible), all located to the east of Headford Lough which contains a crannóg in the north-west quadrant. Of the nine civil parishes represented (albeit partially) within the study area, seven of them contain bivallate raths, but the remaining two—Ardcarn and Mohill—only very minimally encroach on the study area (Figure 4.49). Annaduff has an impressive total of eight (and also lays claim to the trivallate rath), Kiltoghert is close behind with seven, and Aughrim only contains a single example. Many of the bivallate raths are located on or close to the margins of each civil parish—nineteen of them are within 500m of the boundary. In the cases of Aghamore, Carroward, and Sroankeeragh, the limits of the enclosing features are within 30m of their respective civil parish boundaries. Indeed, in the two latter examples, which are located less than 900m apart, the line of the civil parish boundaries incorporates the enclosures. However, there are a number of more centrally-positioned bivallates, and six examples—four of which are found in Annaduff parish—are located between 1.1km and 2.2km from their closest civil parish border. By far, the greatest concentration of bivallate raths is within the environs of the trivallate rath at Foxborough. There are eight bivallate raths within 2.5km of the monument, six of which are positioned in a somewhat linear formation to the north of it, running approx. north-west to south-east (Figure 4.50). A ninth monument—a conjoined rath—also lies within this zone, approx. 1.8km to the west of the trivallate. The concentration of high-status raths within this area may be indicative of a political centre or hub; this will be discussed in more detail in section 4.8.

As far as the siting of the bivallate raths is concerned, they do not appear to follow any particular pattern and are relatively evenly distributed between low-lying and more elevated positions. Thus, while the siting of bivallate raths may indeed be strategic, elevation is apparently not an essential requirement. Almost one third of the bivallate raths could be considered to be in low-lying positions, some at the base of drumlins (e.g. Clooncommon More), and others in relatively open low-lying spaces (e.g. Drishoge). Another third of the bivallates are sited on mid-level ground, i.e. on the crest or slope of their respective drumlins (e.g. Doorra, Kiltycarney). The remaining bivallate raths are located in various positions on drumlin summits, with eight of the eleven occupying a central position on the drumlins. There does not appear to be any correlation between the size of the internal diameter and the siting as bivallate raths of all sizes are found in the various locations. For example, the two largest bivallate raths are found in different positions, and on drumlins of different shapes. Danesfort is centrally positioned on the summit of a more rounded drumlin; Legvoy or Gardenstown

occupies the crest of a more elongated drumlin (Figure 4.51). The smaller examples also follow a similar 'pattern', and are found across low-lying, mid-level, and drumlin summit locations.

Half of the bivallate raths overlook bodies of water, mostly lakes, although four look out over the River Shannon, two from the Co. Leitrim side and the other two from the Co. Roscommon side. These four occur in what could be described as opposing pairs (Lisnagat / Cleaheen and Coraughrim / Cloonfad Beg) on either side of the river (Figure 4.52). Of the former pair, both measure approx. 22m in internal diameter and are among the smallest of the bivallate raths. Cleaheen is situated towards the front of the drumlin summit, with views of the River and surrounding landscape. However, Lisnagat is located on lower ground, hidden behind the drumlin summit; it would not have had visibility of its opposite number. Indeed, views from Lisnagat are quite restricted due to the surrounding high ground and it has only a limited view of the Shannon to the west north-west. There are no recorded monuments on the adjacent drumlin summit which comprises Portaneoght townland. Were the bivallate raths intended to keep watch on each other, the summit would have been a more obvious choice. Of course it is possible that there was indeed a monument in place there—an unusual D-shaped field boundary on the north-eastern edge of the rise would have been an ideal location for a rath 'facing off' against that of Cleaheen (Figure 4.53). Or perhaps, it was the view of the River Shannon that was significant, rather than keeping a watchful eye on each other. The view from Cleaheen is of the River Shannon as it moves southwards towards the Boyle River and Lough Eidin off to the west. Lisnagat has a view of the Shannon as it rounds the drumlin to the south-east leaving the Boyle River to the west before continuing southwards. Combined, the raths would have forewarning of anyone approaching from the north or south/south-east. The second pairing of Coraughrim / Cloonfad Beg also offer complementary views of the River Shannon. Although there is approx. 6m in difference between the internal diameters of the two raths, both fall into the 30m-40m range. Cloonfad Beg has a vantage point over the Shannon as it flows south-east, prior to rounding the Coraughrim drumlin, which takes on the view as the river moves north-eastwards. As with the previous pairing, the more obvious location for the bivallate rath was overlooked, assuming of course, that the purpose was to build in opposition to the Coraughrim monument. The north-facing drumlin which falls between Tawnagh More and Corgullion townlands would have been an ideal position from which to 'face off' against Coraughrim. Of the remaining bivallates which overlook bodies of water, the majority are linked with isolated lakes (i.e. not fed by a major river), e.g. Headford Lough (three bivallates), Carrickevy Lough, and Gortinty Lough. Loughs Boderg, Corry, and Tap are arguably part of the River Shannon and may be part of strategic outposts along its network.

Trivallate raths are very rare (O'Sullivan et al. 2014, 50) and Foxborough, Co. Leitrim is home to the only example (LE031-066) within the study area (Figure 4.54). It is the sole recorded monument within the townland and no other archaeological features were discovered over the course of the lidar analysis. The rath occupies a commanding view on a drumlin summit, with a waterfall and river just over 100m to the east/north-east. The interior measures approx. 34m, but the enclosing elements bring the monument's overall diameter to approx. 82m. Evidence for a potential entrance can be seen on the middle bank on the eastern side of the monument (Moore 2008). This is clearly a substantial monument and of probable high status. The closest known monument is the univallate rath at Lavagh (LE031-067) which lies at the base of the same drumlin approx. 130m to the east south-east of the trivallate monument. A second rath lies to the north of the drumlin, just over the border in the townland of Mullaun (LE031-063).

There are a total of four trivallate raths in Co. Leitrim (Figure 4.55), but the aforementioned Foxborough example is the best preserved (Moore 2003, 54). In direct contrast, there are 31 trivallate raths in Co. Roscommon (Figure 4.56), two of which are less than 1km outside of the study area. The partially excavated Sheepwalk example (RO015-003) lies approximately 17km west south-west of the study area. It is of similar size to Foxborough, measuring approx. 34.5m internally and 65m in overall diameter (Moore 2010f). The monument underwent a soil survey and test excavation in 1989 (Killeen 1989a, Licence: E000490). This was a preliminary study in advance of an anticipated larger project analysing the socio-political structure of Iron Age and early medieval Connacht (ibid.). The excavated area was very small and a trench of just 1m<sup>2</sup> was excavated to a depth of 24cm (Killeen 1989b, 5-6). This was placed inside the probable entrance and revealed a stone-paved surface at a depth of 14cm. Several artefacts were found, including pottery sherds, bead fragments (possibly early medieval), and a probable bead mould which appeared to fit the beads (ibid., 7-8). Some lithics were also present, comprising four projectile points and two awl-like tools (ibid.). Fragments of animal bone and teeth were also found (ibid.). The scale of the excavation was too small for the excavator to draw any meaningful conclusions, but the few artefacts recovered point to craftworking on site with some indication of possible feasting (or simply eating) as evidenced by the animal bone. There is nothing to suggest that this was or was not a 'royal' site; the evidence is too limited to reach any real understanding of the monument's status or role.

### *Conjoined Rath*s

Conjoined raths consist of two enclosures which join to form a figure-of-eight. Seven sets are found within the study area, five of which are in Co. Roscommon (Figure 4.57). This includes the pairing at Cloonfad Beg (RO011-118001) whose second enclosure was identified during

the MA investigations and subsequently added to the SMR (Curran 2012, 43). There are a further three raths which have an annexe type enclosure attached; however, these have not been classified as conjoined raths as the morphology of the annexe structure is substantially different, and they are most likely later additions. The annexes attached to the structures at Cloonmulligan (LE031-007001) and Cloongownagh (RO011-160002) are rectangular in shape, and that at Cloonteen (RO012-006002) is crescent shaped.

The conjoined raths take two forms: Aghamore and Corralara consist of two separate enclosures which have been constructed side by side, i.e. each with its own complete bank. With the possible exception of Tawlaght, the remaining five sets are comprised of two enclosures with one shared bank, i.e. one complete enclosure with an adjoining annexe. A modern field fence bisects the Tawlaght enclosures, so it is possible that this has obliterated the northern portion of bank of the annexed enclosure. They are all univallate with the exception of Corralara (RO011-090001) which consists of a bivallate enclosure with an adjoining univallate enclosure (RO011-090002) (Figure 4.58). In each case one enclosure is slightly smaller than the other; the average difference in internal diameter is approx. 6.5m, although it ranges from 1.2m (Corralara) to over 10m (Minkill and Aghamore). Tawlaght is the largest example which consists of two conjoined enclosures with internal diameters of 37.8m and 42m respectively, covering an overall area of approx. 100m.

Four of the conjoined raths (Minkill, Aghamore, Tawlaght, Cloonfad Beg) are in prominent locations on drumlin summits, while Corralara and Lisfarrellboy are sited on their respective drumlin slopes (close to the summit in the case of the latter). Aghamore holds a commanding position to the north of a long, narrow drumlin approx. 1.2km east of Lough Tap. Its position on the drumlin means that it has excellent visibility to the north, west, and east. Tawlaght also commands a drumlin summit, although in this case the drumlin is more circular and rises to form a small platform at the centre. The larger of the enclosures is on the flatter summit, while the smaller annexe extends over the east-facing slope. The Canbo pairing is the only one on low-lying ground, it is located in a valley between two drumlins, close to Canbo Lough.

All of the conjoined pairs are within a 500m radius of an early medieval monument, although this is stretched to the limits in the case of Cloonfad Beg, Minkill, and Aghamore. In all cases except Canbo, the closest monument is a univallate rath with an internal diameter of approx. 20m-30m. Indeed, Minkill shares a drumlin with a univallate rath (20m-30m diameter) and Lisfarrellboy shares a drumlin with two univallate raths. Although the Tawlaght pairing are the sole occupants of their drumlin, they are surrounded by five monuments—three univallate

raths, one bivallate rath, and one cashel, all of which are positioned around the base of the drumlin. The conjoined rath is effectively raised above them (Figure 4.59). Canbo is relatively isolated, with its closest neighbours being three crannógs on Canbo Lough to the south (two crannógs within 500m) and Lisdaly Lough to the west (approx. 570m).

### Cashels

There are fifteen cashels within the study area; no new discoveries were made as a result of the lidar survey. All but one are located in the Boyle barony in the western half of the study area; the fifteenth is in Leitrim barony (Figure 4.60). This distribution is reflected in the landscape beyond the study area; the vast majority of cashels prefer a more westerly location, and there are very few in south county Leitrim. All were constructed on limestone bedrock,<sup>46</sup> although this is not particularly noteworthy considering that limestone is the dominant geology throughout the study area. Five of the cashels are located on low-lying ground, while six are situated at the edge of a terrace or shelf overlooking lower ground. The location is not usually the highest point in the area, the exception being the sole Leitrim example which is situated in a prominent location on the southern tip of Mong Hill, from where it has commanding views over the surrounding landscape. Only three cashels are located on drumlins, each of which is positioned towards the ‘tail’ of the drumlin. Two of them are only 530m apart in Ardconra townland. With an internal diameter of approx. 55m, the more southerly of the two (RO006-175) is one of the two largest cashels in the study area, along with the example at Carroward/Toorymartin (RO011-007) which also measures approx. 55m in internal diameter. Both examples constitute the most isolated of the cashels, with almost 500m between them and the closest early medieval monument. The majority of the cashels measure between 30m-40m in diameter (Table 4.5), the smallest being approximately 20m in diameter (RO007-067). There does not appear to be any correlation between the size of the cashel and its location—both larger and smaller cashels are found on both high and low ground.

**Table 4.5 Internal Diameter of Cashels**

Internal Diameter Range	Total	%
20m-30m	4	26.7%
30m-40m	7	46.7%
40m-50m	2	13.3%
50m-60m	2	13.3%
<b>Total</b>	<b>15</b>	

<sup>46</sup> Bricklieve, Croghan, and Oakport Limestone Foundations (GSI).

With the exception of Mong and Finnor—which are geographic outliers—the remaining cashels appear to form clusters. Moreover, their positioning is closely related to the civil parish boundaries (Figure 4.61). Six of the cashels are located in the civil parish of Killukin, three of which are within 400m of the northern parish boundary—in fact the Tawlaght example is a mere 35m from the border, on a terrace overlooking the neighbouring parish of Tumna. Along the south-eastern border with Killummod parish, the Killukin townland cashel is set back from the edge of a shelf, just 500m from the boundary which is formed by the Killukin River. The second cluster is found further north in the parishes of Tumna and Ardcarne where the remaining seven cashels are located within a 1.5km radius. In Ardcarne, the Lismulkeare and Ardconra monuments are in a linear formation almost exactly north/south, all within 500m of the Tumna parish boundary. In Tumna parish, Cloonacarrow townland is home to two cashels (RO007-066 and RO007-067) which are located just 68m apart. They are located on low ground, just at the north north-east base of a drumlin, towards the centre of a neck of land which leads to Davis's Island. Both are sited within 300m of the civil parish boundaries. There are two raths positioned in line with the cashels, just over the summit on the south-western end of a drumlin, at a distance of approx. 300m (Figure 4.62).

The majority of the cashels are located in proximity to an average-sized univallate rath. In three of the fifteen cases, a univallate rath measuring 15m-24m in internal diameter is the closest contemporary monument. With only one exception (Carroward/Toormartin) all other cashels are within 500m of a univallate rath with an internal diameter of 25m-35m. In this case, a bivallate rath is the closest early medieval monument, lying approx. 495m to the north-east, overlooked by the cashel. Indeed, this cashel is surrounded by bivallate raths with another four examples located within a 1.1km radius, to the north, east, south, and west.

Usna (RO006-115001) is the only cashel which has evidence for any internal structures; it features a rectangular house which measures approx. 10m x 5.2m in internal diameter (RO006-115002). A possible house site was initially recorded at the Killukin site (Gannon 1972), but this has since been re-classified as a redundant record.

Perhaps because there are so few of them, the siting of the cashels raises several questions, particularly as regards their relationship to their neighbouring monuments. Unlike raths, the selection of sites for cashel construction appears to be more deliberate, as if more consideration was given to the decision. Given the uneven distribution west of the Shannon, are we perhaps seeing the results of decision-making within discrete territories? Were they constructed to delineate a particular boundary? Or, as some of the (limited) dating evidence

(O'Sullivan et al. 2014, 66-68) suggests, are they a later regional development, possibly replacing earlier strategic dwellings? The cashels raise a host of questions in relation to the organisation of settlement within the study area, many of which are not answerable through remote sensing. Some of these ideas will be discussed further below (Section 4.8).

### *Crannógs*

There are nineteen crannógs within the study area, only four of which are located on the County Roscommon side, albeit that is more than likely due to the availability of suitable bodies of water (Figure 4.63). Obviously the siting of the crannógs is dictated by the presence of water, i.e. predominantly lakes, although there is one example (LE031-056) located on the River Shannon between Tully and Charlestown townlands. As the river widens at this point, its shape and size resemble a lake rather than a river. Nine of the lakes contain a single crannóg, but two lakes contain two crannógs (Cloonfinnan Lough, Lough Eidin), Drumgilra/Gortinty Lough contains three, and Mucklaghan Lough contains four (one of which lies just outside the study area). There are also a small number of relatively substantial lakes which do not contain any crannógs: Bran Lough, Efrinagh Lough, Bog Lough, and Cartron Lough. Of course, it may simply be the case that the crannóg remains have not been discovered in these locations, as on the surface, the lakes do not appear to differ significantly from their counterparts.

The crannógs range in diameter from 9m (Drumgilra) to 33m (Cloonfinnan) and stakes and timber piles have been recorded at a number of the sites. A quernstone was found on the larger of the Cloonfinnan Lough examples (LE032-087). Moore (1991) suggests that the most northerly of the Mucklaghan Lough crannógs (LE032-096) is unfinished, although it was not possible to clarify this any further from the remote sensing analysis.

The majority of the crannógs are situated 500m or less from their nearest rath, the closest being Lough Errill where the rath is a mere 130m away on a slope overlooking the crannóg and the lake. This positioning is reminiscent of the example at Lough Derravaragh (O'Sullivan et al. 2007), although in this case the neighbouring rath is less than 30m in diameter whereas the Lough Derravaragh example was a more impressive 60m in internal diameter (WM007-003). The Cloonfinnan Lough crannógs are somewhat of an exception; while there is a gap of approx. 500m between them (the length of the lake), the closest early medieval monuments—the crannógs of Bunkilleen to the north and Finnalaghta to the south-west, and the raths on the shores of Lough Erril—are more than a kilometre away. However, the slope of the drumlin immediately adjacent to the crannógs is quite overgrown with vegetation and so the lidar and

aerial imagery here is unclear; it is always possible that there was a rath in this location, despite the lack of current physical evidence to confirm this. The four crannógs at Mucklaghan Lough are all located to the north and north-east of the lake, all overlooked by a substantial univallate rath which is located on a south-facing drumlin slope just 300m to the north (LE032-055). This lake is positioned at the boundary between the civil parishes of Annaduff (in which the crannógs are found) and Mohill—which also corresponds with the barony boundary between Leitrim and Mohill—this may account for the abundance of crannógs at the side closest to the border (Figure 4.64), if this was a territorial division at the time.

Eight of the crannógs are located in the vicinity (approx. 1km) of what could be considered high-status bivallate raths, but in none of these cases are the high-status monuments the closest monument to the crannóg. With the exception of the Lisdaly Lough example which is approx. 575m from a conjoined rath, in the cases where a rath is the closest settlement to the crannóg, the raths are of the average 20m-40m internal diameters. The crannóg at Headford Lough is the least isolated and is surrounded by ten raths, two of which are bivallate, although the remaining nine are univallate raths of average size; only one measures more than 30m in internal diameter. Headford Lough and Gortconnellan Lough are less than 1km apart and given the volume of settlement in this particular area, especially taking into account the crannógs and the variety of rath type (the trivallate rath at Foxborough is also in this area), it is quite possible that there is a territorial stronghold here (see Figure 4.50). At approx. 15m in diameter, the Headford Lough crannóg is relatively small and half the size of the Gortconnellan example, possibly indicative of a difference in role or function, or even chronology.

### **4.6.3 *Field Systems***

With an economy largely based on agriculture, the settlements did not exist in isolation, farms and fields covered much of the landscape between the settlements. However, there are just two field systems listed on the SMR, neither of which is associated with any known early medieval settlement. The example on Inishmucker Island (LE031-120) was discovered during the lidar analysis and consists of two small enclosures with traces of other field boundaries extending from them (Moore 2015c). The field system at Deerpark (RO011-162002) is more extensive, consisting of various sized rectangular fields covering an area of more than ten hectares (Moore 2010g). A mill and mill-race (RO011-162001) are located just to the south of the field system, although it is possible that they are not linked. Michael Moore (2002) suggests that the mill remains are likely to be medieval or post-medieval in date, and they are indeed later than the nearby enclosure. This large enclosure (RO011-163), Deerpark's potential settlement-cemetery, is less than 130m to the south-east of the mill and mill-race (Figure 4.65),



a siting somewhat reminiscent of the Raystown complex. Of course, without scientific dating, the nature of the relationship (if any) between the potential settlement-cemetery, the mill, and the field systems cannot be determined. However, while the recorded mill remains may indeed be medieval or post-medieval in date, given that the right conditions were present (fast-flowing water etc.), this does not rule out the presence of an earlier mill complex beneath the surface. As the excavations at Raystown demonstrated, the milling complex was in existence for over 400 years, from the early medieval period until activity ceased in the twelfth century (Seaver 2016, 1). The enclosure and field systems are at a key location along the Killukin River (which separates the sites), both within approx. 100m of the cascade waterfall, and potentially an ideal location for an early medieval mill.

With the exception of three ‘annexe’ enclosures, there are no other potential early medieval field systems recorded—or identifiable—within the study area. Moreover, with the possible exception of Annaduff, the geophysical surveys undertaken at both the ecclesiastical and secular sites failed to reveal any traces of field boundaries in the areas surrounding the monuments. All three annexes are attached to univallate raths, with the Cloonmulligan example discovered over the course of the previous lidar analysis and subsequently added to the SMR. Both Cloonmulligan and Cloongowna are subrectangular in shape, adjoining raths with internal diameters of 25m-35m and 51m-60m respectively. The Cloonteem annexe is subcircular in shape and attached to a 36m-40m rath. These annexes may represent the remains of garden plots or infield enclosures for the growing of vegetables or the keeping of animals close to the settlement. As O’Sullivan et al. (2014, 193) state, these are more likely to be extended farmyard enclosures than actual fields. Indeed, the morphology of the annexed enclosures is very similar to the excavated examples at Curraheen, Co. Cork and Lusk, Co. Dublin, both of which were interpreted as animal enclosures (Danaher 2011, 113; Giacometti 2011, 160 respectively).

Although no definitive early medieval fields or field systems can be identified with any certainty within the study area, they were undoubtedly present. The lack of evidence may be due to the fact that temporary or moveable fencing was used to demarcate areas at different times, e.g. to protect crops from marauding livestock, wild animals, etc. (O’Sullivan et al. 2014, 182). This is probably exacerbated by subsequent farming practices and infrastructural developments which saw the destruction and/or modification of any existing enclosing features. But fields and areas for farming did exist and therefore they must be factored into studies of the early medieval landscape, even if they are now invisible. This will be discussed in more detail in section 4.8 below.

#### 4.7 Overall Distribution of Settlement

Overall, early medieval monuments are distributed throughout the study area. However, there is one part of the study area which is conspicuously lacking in monuments: the south-eastern portion, incorporating the townlands of Fearnaght, Drumlom, Moher, Finnalaghta, Gortinee, Faulties, Derrywillow, and Moherrevan, Co. Leitrim (Figure 4.66). Fearnaght has three monuments listed, but only one is a settlement enclosure (LMO-028N) which was discovered over the course of the author's MA thesis. The remaining two are a pillar stone (LE035-017) and a bullaun stone (LE035-018) which may point to the existence of an early medieval ecclesiastical site, although there is no suggestion of this from the lidar dataset and indeed none is listed on the extensive (albeit not definitive) Monasticon Hibernicum database (<https://monasticon.celt.dias.ie/index.php>). Even if there was a substantial ecclesiastical presence in the area, it would not explain why there is no evidence of secular settlement here; many of the townlands contain no monuments at all.

The present topography is not particularly striking and there is no obvious reason for the absence of settlement evidence in this south-eastern portion of the study area, although one could argue that the drumlins in this section are somewhat 'flatter' than in the rest of the area. The geology, however, tells a different story. This area is home to the only portion of blue-grey greywacke & black argillite in the study area (Figure 4.67). Greywacke is a sandstone and the pocket of greywacke is surrounded by a 'halo' of red sandstone. This may be significant as the majority of the rest of the study area—on which there are plentiful archaeological remains—has a limestone base. Of course, lidar data is not 100% conclusive and there could be sub-surface archaeological remains. The geology could have impacted the survival rather than the construction of archaeological monuments. This particular area would benefit hugely from a programme of exploratory geophysical survey.

It is also possible (although there is no suggestion of it on the OSI's orthophotography or historic maps) that the area may have been inhospitable or relatively inaccessible to the early medieval population. Perhaps this is where the bandits who were cast out of society and the wild animals lurked (Bitel 1990, 34-35)? Indeed, the placename evidence hints at this and paints a relatively inhospitable picture. 'Moherrevan' is the Anglicisation of '*Mohtar Riabháin*' (Logainm.ie 30250) and the Irish '*Mohtar*' can be translated as 'thicket; jungle; wilderness' (eDil 32610). Corrascoffy is translated as '*Chorr an Scafaigh*' which has been taken to mean 'the round hill of the bare patch of rocks' (Logainm.ie 30194). Woodland, which must account for some gaps in settlement distribution (Stout 1997, 39), is also alluded to in placenames: Fearnaght is an Anglicisation of '*Fíodh Fhearnacht*' with '*Fíodh*' having connotations of forestry

(eDil 21330) and is translated as 'wood of (the) bare hill' (Logainm.ie 30244); Killyfad translates as 'long wood' (Logainm.ie 30248); Derrywillow (*Doire Bhuille*) translates as '(oak) wood of the stroke, blow' (Logainm.ie 30235). However, there are some possible references to past activity and/or settlement in the area: '*Mothar*' (Moher) can also be translated as 'a cluster or ruins of a house or habitation' (Logainm.ie 30249); Finnalaghta translates as 'the white land (?) of the grave (-mound), monument' (Logainm.ie 30246), but the only recorded monument in the townland is a crannóg on the small lake at which Finnalaghta converges with three other townlands. The townland boundary is suspiciously curved in two places where Finnalaghta meets Antfield (Figure 4.68), although no archaeological features are evident on the lidar, historic maps, or aerial imagery. The curved boundary could be an indication of the presence of earlier monuments which have since disappeared (MacShamhráin 1991, 21). Alternatively, the 'grave mound' of the placename could refer to the seventeenth-century cairn (LE035-005) thought to have been erected over the bodies of slain soldiers (Moore 2003, 14) which lies just outside Finnalaghta on the boundary between the neighbouring townlands of Aghintass and Antfield. Interestingly, the Irish for 'Faulties' is '*Na Fáлта*' which translates as 'the enclosures' (Logainm.ie 30243), perhaps indicative of the presence of some levelled archaeological features. Gortinee is the Anglicised version of '*Ghoirtín Aodha*', meaning 'little field of Aodh' (Logainm.ie 30247), possibly a reference to an early medieval or medieval figure who was active in the area as linguistic and historic evidence has shown that many personal names are preserved in townland names (Stout 2005, 145).

Despite the absence of recorded—and even unrecorded—monuments, there are numerous field patterns visible on both the aerial imagery and lidar surfaces (Figure 4.69). Some of those visible on the lidar surface are not visible on the aerial imagery which suggests that they may not be modern. At the very least, the current landscape shows that the land is now suitable for agriculture, although of course it may have been inhospitable in the early medieval period and cleared for farming in the intervening years.

With the exception of the above sparsely settled south-eastern corner, univallate raths of all sizes can be found throughout the study area, on both high and low ground. In general, they occur in clusters, sometimes grouped on drumlins, sometimes on lower ground. Some drumlins are home to multiple raths which appear to have been somewhat deliberately positioned in order to respect one another's space and to ensure maximum visibility of the surrounding area. One such example is the drumlin which makes up the townland of Cloonskeeven (Figure 4.70). Encompassing an area of approx. 23ha, this drumlin measures approx. 570m x 440m and contains five raths, all positioned around its outer edges. The drumlin edge is approx. 300m from the banks of the River Shannon and overlooks lower

ground to the west, north, and east; the present N4 runs along the drumlin's southern tail where it forms its boundary with the townlands of Drishoge and Tullyleague. The five raths are all univallate and all fall within the average range with internal diameters ranging from 24.2m to a maximum of 31.5m. Assuming that enclosure size equates to status, this would seem to indicate that the raths' inhabitants were of a similar status. While it is possible that the five raths are not all contemporaneous, it is more conceivable that they were inhabited at or around the same time. Their positioning around the edge of the drumlin means that they are not encroaching upon one another and are effectively respecting each other's space. Although the difference in internal diameter is quite small, the largest of the raths (RO011-026), and the only one to exceed 30m, is set back from the edge of the drumlin, towards the tail, and occupies a more sloped position at a lower altitude than its four neighbours. With a total area of 23ha including the raths themselves, there is insufficient land available to achieve the land allocations for even the lowest *ócaire* grade.<sup>47</sup> It is therefore possible that the raths were immediately surrounded by their *airlise* which contained the vegetable gardens etc. (Kelly 1997, 368-369), and that the area on the summit of the drumlin constituted a shared area for cooperative farming. This suggests that the farm holdings of the rath tenants extended onto the lower ground surrounding the drumlin (Figure 4.71).

In addition to its riverside location, the rounded sides and wide, flat summit of the Cloonskeeveen drumlin undoubtedly made it a highly suitable location for the erection of multiple farmsteads. Many of the flat, rounded drumlins are home to multiple raths—univallate and usually with similar diameters—and in almost all cases, the farmsteads are spread out across the available space, e.g. Ardanafrin (2), Cortober (3), and Mullaghmore (3) (Figure 4.72). The trivallate rath at Foxborough occupies its own drumlin, centrally positioned on its summit, yet six of the bivallate raths share their drumlins with univallate neighbours. In three of the cases, the bivallate is on the drumlin summit with the univallate on the lower slopes; however, the opposite is true for the remaining three. The Drumerr bivallate (RO011-031) is positioned on the southern side of the drumlin summit, approx. 125m south of a 25m-35m univallate rath (also on the summit) and approx. 250m north-east of a 15m-24m rath which is located on the lower slopes. As with Cloonskeeveen, the area encompassed by the drumlin (approx. 25.7ha) is too small to provide sufficient land for farming. Again, it is likely that farming activities spread to the lower ground surrounding the base of the drumlin. In all but one case, the bivallate rath is in closest proximity to a slightly smaller than average univallate rath (less than 30m), the exception being in the townland of Kiltoghert, Co. Leitrim. In this instance, four raths—one bivallate and three univallate of varying diameters—are located in a small cluster

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<sup>47</sup> The law tracts suggest that the *ócaire* grade farmers were allocated approx. 13.9ha, and the *bóaire* farmers 27.6ha (Stout 2015, 16); also See Chapter 2, Section 2.4.

to the centre of the summit of a long, narrow drumlin (Figure 4.73). The four monuments are positioned in a diamond formation, with approx. 60m between each one. The bivallate rath is to the south, a 25m-35m univallate rath to the east, a 15m-24m univallate rath to the north, and a large 41m-50m rath to the west.<sup>48</sup> This ridge of high ground is more than 1.2km long (north-south) and approx. 400m in width so the placement of the four settlements in such close proximity appears very deliberate, and is in opposition to the distribution of settlements throughout the study area. The potential significance of this will be discussed in more detail below.

#### 4.8 Discussion: Key Site Types and Key Areas

While it is generally accepted that the “hierarchy of ringforts noted throughout Ireland reflects the hierarchy in Irish society as detailed in the law tracts” (Stout 1996, ii), multivallation alone cannot be taken as incontrovertible evidence of high or even royal status. Indeed, the presence of multiple banks and ditches could be an indication of a monument’s changes over time, and even the presence of high-status objects may be the result of unknown one-off events or activities (O’Sullivan et al. 2014, 326). Nonetheless, the scarcity and relative numbers of multivallate raths makes them extremely important to our understanding of early medieval social hierarchy. For the most part, the early medieval landscape consists of univallate raths of varying sizes—albeit mostly around the 30m mark—which are distributed across the study area. They represent the farmsteads of the majority of the general population—the freemen, whether that be the various grades of noble or the *ócaire* leasing their lands from those of higher status. Of course, multivallation is not the sole indicator of a farmstead’s role or function in society: there were many variations in site type whose morphology and location gave an insight into their role within the community. Some of the key sites and/or areas will be discussed below as a means to better understanding the organisation of early medieval settlement within the landscape of the study area.

##### *Settlement-cemeteries*

As outlined in Chapter 2, the settlement-cemetery is a key component of the early medieval landscape, they were used as communal burial grounds for those who were not interred within ecclesiastical cemeteries. As such, these enclosures were significant places within a community and potentially indicative of core areas within a territory. There are three potential settlement-cemeteries within the study area, albeit the lack of excavation means that their status cannot be confirmed here. Settlement-cemeteries can vary quite substantially in

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<sup>48</sup> This potential monument (LLE-240N) was identified during the 2012 lidar analysis but has not yet been added to the SMR.

diameter, measuring on average 50m-70m but can reach up to 100m (O'Sullivan et al. 2014, 309). The large enclosures at Deerpark and Kiltoghert have already been identified and discussed as potential cemeteries (Section 4.6.2). Both have internal diameters of approx. 66m and approx. 78m in overall diameter, and both have evidence of internal divisions within the enclosures which are consistent with those at other excavated settlement-cemetery sites such as Parknahown or Knowth Site M. Indeed, there are similar (possible) divisional features at Rignaree within the royal complex of Rathcroghan (RO022-57035) (Figure 4.74). Moreover, many settlement-cemeteries occupy low-lying positions, often in proximity to water or waterlogged areas (Stout & Stout 2008, 72-74). This is true for both Kiltoghert and Deerpark which are located at the base of drumlins and less than 80m from a stream or river.

A third possible cemetery is located in Annaghmona, where a large enclosure is positioned on a small peninsula in Lough Eidin (RO007-102). This enclosure measures 66m in internal diameter and was discovered by the author's lidar analysis. It is situated on the lower south-facing slopes of the promontory, less than 20m from the banks of Lough Eidin (Figure 4.75). In comparison to Kiltoghert and Deerpark, this enclosure is relatively isolated from other early medieval settlement, its closest neighbour being a crannóg approx. 550m to the north-east. However, similar to Deerpark and Kiltoghert, it does occur within a broader cluster of early medieval sites.

At approx. 76m in internal diameter and therefore slightly larger than the above examples, a fourth possible settlement-cemetery is located in the townland of Caldragh, Co. Leitrim (LE027-070). This potential burial site shares a number of similar morphological and locational characteristics with the sites discussed above, namely, it is positioned in a low-lying area close to a water source (220m from the River Shannon), and it has some faint traces of internal divisions (Figure 4.76). Furthermore, the townland name derives from '*An Chealdrach*' meaning 'the burial ground' (Logainm.ie 29139), and as there are no other suitable candidates within the townland,<sup>49</sup> it is highly likely that the name refers to this monument. There are undoubtedly other monuments within the study area which may correspond to settlement-cemeteries; however, these four examples constitute the most likely candidates to date. Their distribution will be discussed further in relation to the key clusters below.

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<sup>49</sup> There is just one average-sized rath (LE027-069) which is located approx. 95m north-west of the potential settlement-cemetery.

### *Conjoined Raths*

As discussed in section 4.6.2, conjoined raths are quite a distinctive site type, and are not found in great numbers across the study area. Indeed, there is only one per civil parish unit within the confines of the case study. While this initially appeared noteworthy, the distribution is not reflected when the investigations are expanded beyond this arbitrary boundary into the wider counties of Leitrim and Roscommon. Of the 68 sets of possible conjoined raths across the two counties, only five are located within Co. Leitrim (Figure 4.77). The two within the study area are within 6km of one another to the west/south-west of the county, while the remaining three are all located across a 22km distance to the north-west of the county. All of the Leitrim examples are very close to the River Shannon and therefore the boundary with Roscommon. As with the potential settlement-cemeteries, it is likely that the conjoined raths performed a specific role in society and were allocated to a particular rank and/or role. As discussed in Chapter 2, figure-of-eight monuments were often used at 'special' sites and used for particular functions such as inauguration. However, the morphology of the conjoined raths within the study area is varied and this may represent a disparity in structure and function. If they were not part of the royal landscape, another possibility is that they fulfilled the role of provisioning hospitality during the early medieval period. Considerable research is required in order to refine our understanding of such sites, but the identification of potential locations at least means that the right questions can be asked.

A number of key settlement 'clusters' have been identified which may pertain to key areas within the early medieval settlement landscape, possibly *túath* centres or areas which required close monitoring and/or protection. These areas all contain a range of early medieval settlement types; however, they stand out mainly because of a concentration of a particular monument type, or because they exhibit a potentially significant pattern of distribution.

### *Trivallate Rath: Foxborough*

As the only trivallate rath within the study area, Foxborough is undoubtedly a key site, potentially constituting the highest status residence. The settlement patterns surrounding this enclosure are significant and may shed some light on the organisation of a high-status settlement landscape (Figure 4.78). The trivallate rath is situated on the summit of a flat-topped drumlin and has an overall diameter of 75m-80m. It was undoubtedly a prominent monument in the landscape, especially when considering the wooden palisade(s) that would have most likely topped the bank(s). The location is in close proximity to multiple bodies of water: the River Shannon is less than 500m to the south; Headford Lough is approx. 800m to the east; Gortconnellan or Spa Lough is approx. 670m to the south-east; and a waterfall is located just

120m west of the rath. Each of the lakes contains a single crannóg, and a range of raths are found in the immediate vicinity.

Although the trivallate rath is alone on the drumlin summit in addition to being the sole monument within the townland, a 25m-35m univallate rath is situated approx. 150m to the south-east on the lower slopes of the drumlin. There are two more raths of similar size located to the north-west, within 500m of Foxborough. In addition to univallate raths of varying sizes, there is a particularly high concentration of bivallate raths in the vicinity. A quarter of the 32 bivallate raths within the study area are found within a 2.5km radius of Foxborough, six of which are arranged in a linear formation running roughly north-west to south-east (see Figure 4.50). Only 500m separates the bivallates which are closest to the trivallate rath, but the distance increases up to approx. 1km between the more easterly of these and the next closest one on the shores of Headford Lough. Four univallate raths are clustered within this 1km gap, and the Headford Lough crannóg also bridges the distance between them to the north. The bivallate raths are all positioned on north-facing slopes, and some are on relatively low ground meaning that they would not have had sight of Foxborough or its inhabitants. Instead, they appear to be looking outwards. The spatial distribution, positioning within the landscape, and linear formation—all so close to the Foxborough rath—are an indicator of deliberate placement, and the layout is certainly suggestive of a defensive arrangement; the River Shannon effectively forms a 'boundary' to the south. This is compounded by the absence of settlement in some places. For example, the 300m wide, flat-topped drumlin which dominates the townlands of Drumnacot and Lavagh is apparently largely devoid of early medieval settlement. The four raths which are associated with it are all located to its rear, huddled together in a 150m<sup>2</sup> area. The northern part, or 'front' of this drumlin would appear to be an ideal location for a rath, particularly considering the visibility it would have afforded. Instead, this area appears to have been deliberately kept clear of settlement.

In the wider landscape, the Minkill conjoined rath is situated approx. 1.7km to the west, and the closest ecclesiastical site—Annaduff—is located approx. 2km to the south-east, although a bullaun stone is approx. 1.2km directly north of Foxborough. Of the 19 univallate raths within a 1km radius of the site, almost 70% of them have internal diameters within the average 25m-35m range. Four are smaller than average, i.e. 15m-24m, and only one is slightly larger, coming in under the 36m-40m range. The latter (LE031-122) is located within the townland of Mountcampbell and was first identified over the course of the lidar analysis. The largest enclosure within this area measures approx. 85m in internal diameter and is located on a slope overlooking Gortconnellan Lough. This monument was identified by both the author (LLE-263N) and Dr Will Megarry (ref: L-Gor-1) using lidar analysis (Megarry 2010, 10); however, it



has not yet been added to the SMR. This is the largest enclosure within the study area, and there are two 25m-35m raths within approx. 40m of it, to the north-east and north-west. The ground is quite sloped here, and of course, the enclosure may not be early medieval in date. If it is indeed contemporary, it may correspond with an enclosure which fulfilled a role within the royal demesne, linked with the trivallate rath approx. 850m to the north. The positioning of the trivallate rath on the south-facing slope meant that it would have good visibility of the large enclosure. The trivallate rath is undoubtedly a significant monument within the study area, and one of only four such raths in the whole of County Leitrim—the other three are all found in the north of the county. However, there are 34 probable trivallate raths distributed throughout County Roscommon, the closest of which is approx. 8.3km to the south-west in the townland of Grange (RO011-111001).

### *Cashel Distribution*

The cashel at Carroward/Toormartin (RO011-007) is the largest cashel within the study area with an internal diameter of almost 55m and an overall diameter of approx. 65m. Its size alone makes it a significant monument; however, when viewed in conjunction with its location, landscape and surrounding monuments, its potential significance increases further (Figure 4.79). This enclosure forms part of the boundary between the townlands of Carroward and Toormartin, and lies approx. 390m from Killukin's civil parish boundary with Tumna. Two other cashels in the vicinity are also incorporated into their townland boundaries. The cashel holds a prominent position on the edge of a flat shelf with a drop of approx. 15m to the lower ground which it overlooks. This ensures that the cashel commands excellent, almost panoramic views, over the surrounding landscape to the north and north-east.

The cashel enjoyed relative isolation as the closest monument is a bivallate rath approx. 495m to the north, albeit this is on the lower ground which essentially further separated it from the cashel inhabitants. On the higher ground (shelf), there is a gap of approx. 760m between the cashel and its nearest neighbours. A possible moated site (RO011-029) lies approx. 760m to the south-east and constitutes the closest monument to the cashel. The closest contemporary monuments are two raths which are positioned within 800m of the cashel; one of average diameter (25m-35m), and the other slightly larger (41m-50m), to the north-west and south respectively. A total of twelve probable early medieval monuments lie within a 1km radius of the cashel, incorporating a range of enclosure types and sizes (Table 4.6).

**Table 4.6 Early Medieval Settlement within 1km of Carroward/Toormartin Cashel**

Enclosure Type	Enclosure Size	Number
<b>Univallate</b>	15m-24m	<b>2</b>
<b>Univallate</b>	25m-35m	<b>3</b>
<b>Univallate</b>	36m-40m	<b>1</b>
<b>Univallate</b>	41m-50m	<b>2</b>
<b>Bivallate</b>	25m-35m	<b>1</b>
<b>Bivallate</b>	36m-40m	<b>1</b>
<b>Bivallate</b>	41m-50m	<b>1</b>
<b>Conjoined</b>	36m-40m / 41m-50m	<b>1</b>

Similar to Foxborough, the cashel is effectively surrounded by bivallate raths, two of which are located to the south-west and south-east, although neither has visibility of the cashel due to their positioning upon their respective drumlins. The three bivallates situated on the lower ground are arranged in a linear formation running from the north-west to the north and north-east. The conjoined rath is the largest within the study area, situated on the summit of a prominent drumlin. Additionally, the location of this cashel is complemented by the siting of five further cashels, three of which are also positioned along the edge of the terrace as it extends to the south-west and east/south-east. Three of the five are of average dimensions (25m-35m), but two are larger (41m-50m). Given the cashel's prominent location and the spatial distribution of its neighbours, which seem to respect it, could this infer that this cashel was the first monument to occupy the site? Could it be replacing an earlier earthen monument? The similarities to the trivallate rath at Foxborough are striking both in terms of location and distribution of surrounding monuments. Indeed, they are just 10km apart with the Carroward/Toormartin cashel across the Shannon, almost exactly due west of Foxborough (Figure 4.80). If we accept a high status interpretation for Foxborough, then it appears that the large cashel at Carroward/Toormartin may fulfil a similar function within a neighbouring territory. This is further supported by the fact that the closest trivallate raths to the cashel are approx. 5km to the north-west, south, and south-east; sufficient distance to equate to a new territorial divisions.

Furthermore, a standing stone known as the 'Lia Fada' (RO010-049) is located in the townland of Knockacorha, approx. 1km south-west of the cashel (Figure 4.81). This large limestone slab stands 3m high and leans to the north-west (Moore 2010h). The stone is reputed to have landed in this spot having been thrown by Fionn MacCumhail from County Leitrim and contains

the impression of his fingerprints (Connellan 1963, 197). Later sources provide accounts of a fourteenth-century attack by the King of Connacht (Turlagh OConor) at Legvoy (approx. 1km east) in AD 1330 during which his target was forced to retreat to Knockacorha (ibid.). While the exact nature of its probable prehistoric origins may be somewhat questionable, it is possible that this stone fulfilled a ceremonial (e.g. inauguration) or territorial (e.g. boundary marker) (Kelly 1997, 409) function within the early medieval period, especially given its proximity to the cluster of cashels and bivallate raths which may be indicators of a high-status presence in the vicinity.

The distribution pattern of the cashels in relation to their neighbouring earthen enclosures appears to be quite deliberate as they fan out across the terrace of higher ground. It is particularly significant when viewed in conjunction with the bivallate and larger raths. Settlement is rather sparse in this area and there are two drumlins—in addition to several swathes of flat ground—which do not have any evidence for early medieval settlement. It is possible that these ‘empty’ areas were used for agriculture and farming, certainly the townland names do not suggest that the area was inhospitable and/or covered in woodland.

*Community Reconstruction: Kiltoghert*

The townland of Kiltoghert, Co. Leitrim is one of the largest townlands within the study area and comprises fourteen early medieval settlements in addition to a probable early ecclesiastical site (Figure 4.82). The settlements include a crannóg, a bivallate rath, and a range of variously-sized univallate raths (Table 4.7) including a possible settlement-cemetery (discussed above in Section 4.6.2). The crannóg is positioned in the southern portion of Costre Lough to the north-east of the townland, while the majority of the average-sized raths are spread out across the lower drumlin slopes to the east of the townland.

**Table 4.7      Rath Diameters in Kiltoghert Townland**

Rath Size ( <i>Internal Dimensions</i> )	Number
<b>15m-24m</b>	4
<b>25m-35m</b>	6
<b>41m-50m</b>	1

The western half of the townland is, however, where all of the ‘significant’ monuments are clustered. The ecclesiastical site—which comprises a holy well and possible enclosure in

addition to the remains of the medieval church (see Table 4.2)—is located on low-lying ground in the north-western section of Kiltoghert. Less than 400m south of this, on the summit of a long, narrow drumlin, lie four raths—one bivallate and three univallate of varying diameters. As discussed above (Section 4.7), the settlements are positioned very close together at the approximate centre of the drumlin. Given the dimensions of the drumlin (approx. 1.2km x 400m), it would have been possible to distribute the raths right along its length, thus the placement seems very deliberate and suggestive of a planned layout. This clustering and the fact that one of the raths is bivallate (LE027-118), one is greater than the average size (LLE-240N: 41m-50m), one falls within the average (LE027-117: 25m-35m), and the fourth is below average (LE027-116: 15m-24m), suggests that the enclosures served different functions, or at least that they housed inhabitants of disparate social rank. The siting of the bivallate rath and the two larger raths are arguably strategic, as combined, they offer views to the west, south, and east. It is likely that the bivallate and larger rath housed higher ranked grades, one of which may have been an *aire forgill*, *aire ard*, or even an *aire déso* given their defensive responsibilities (Stout 1997, 111-112). It is possible that the inhabitants of the smaller rath(s) leased and farmed the land of their higher status neighbours as clients. On low ground, approx. 200m to the north-east of the drumlin cluster, lies an average-sized rath and a larger enclosure which has previously been identified as a potential settlement-cemetery. Notwithstanding the absence of a conjoined rath and a cashel—although there is one just over the northern townland border on Mong Hill (LE027-089)—it appears that Kiltoghert townland exhibits the key elements of a contained early medieval territory or potential *túath*.

Based on the societal grades and using the land allocations for each rank as provided by the law tracts (Stout 1991, 231; Kelly 1997, 421-423; Stout 2015, 16), it is possible to produce a suggested model to support this hypothesis (Figure 4.83). This model assumes contemporaneity and incorporates the amount of farmland and possible communal land which may have been available to the rath inhabitants. Although Kiltoghert cannot be confirmed as a self-contained early medieval territory, its size and the fact that it gave its name to the civil parish are significant; it may be a power hub within a territory. Moreover, the division of the townland into the appropriate land allocations is an indication that the oft-criticised law tracts may have some foundation in the practical execution of the legal guidelines in this regard.

#### 4.9 Conclusion

This study area undeniably represents a thriving hub of early medieval activity, with a full range of early medieval settlement types which reflect a variety of different social strata and functions. Although it is difficult to identify territorial boundaries—not least because they shifted over

time—analysis of the archaeological remains and their spatial distribution has succeeded in identifying several key areas which are likely to reflect territorial strongholds, even if their outer limits cannot be determined. Given the diversity of high-status monument types (e.g. the trivallate at Foxborough, the cashel at Carroward/Toormartin), it appears that power may have been expressed in different ways in different territories. Alternatively, they could represent the manifestation of power at different times within the early medieval period; scientific dating could certainly shed some light on the chronology of these significant settlements.

There has been considerable discussion regarding the true form of early medieval boundaries—the *túath* divisions—and whether or not they can be intimated from modern barony or civil parish boundaries (e.g. Stout 2005, 141; Duffy 2007, 58-59), but to date there has not been a conclusive outcome. The archaeological evidence from the study area suggests that the civil parish units may be more appropriate; for example, in relation to the distribution of the early ecclesiastical establishments. Moreover, the use of different monuments types, e.g. the predilection for cashels on the Roscommon side, suggests that different processes were in place, thereby intimating that they were perhaps being governed by different people with different rules and/or ideologies. The only boundary that one can be relatively sure of is the River Shannon which has long served as a division between the counties of Leitrim and Roscommon, and prior to that, as the boundary marker between the provinces of Connacht and Mide. The Roscommon side (Connacht) of the study area lay within the territory of the Uí Briúin while the Leitrim side (Mide) was within the control of the Southern Uí Néill (Stout 2017, 56). The Uí Briúin may have had their provincial power base at Rathcroghan (ibid., 115), but the defence of their territory began on the banks of the River Shannon. Of course, identifying territorial strongholds was not the sole purpose or end goal of this analysis, the layout of the settlement landscape can tell us so much more about how the community was organised and how they may have interacted spatially.

Overall, by increasing the number of known monuments, improving the classification of monuments, and adding to our knowledge of specific sites through geophysical survey, our understanding of early medieval settlement within the Leitrim/Roscommon study area has been increased. By exploring the relationship between the different monuments, the investigations have raised a number of important questions in relation to status and role within early medieval society. Although not all of them have been answered here, they will be carried through to the Monaghan study area in the next chapter and will be discussed in a broader context in Chapter 6.

# CHAPTER 5

## *Case Study 2: Monaghan*

### **5.1 Introduction**

The Monaghan case study area comprises the north-east of the county, bordering Northern Ireland to the north and east (Figure 5.1). The study area measures approx. 246km<sup>2</sup> and is defined by a 2m resolution lidar dataset which was flown by the OPW in 2011 for the purposes of flood relief mapping. The resultant dataset was generously released to the author for use in this research project by Monaghan County Council with the assistance of Shirley Clerkin, the Heritage Officer for County Monaghan. As with the Leitrim/Roscommon dataset, the study area is arbitrary from an archaeological perspective.

#### **5.1.1 Physical Geography**

Like the Leitrim/Roscommon study area, Monaghan is also part of the drumlin belt and in fact contains one of the largest concentrations of drumlins in Ireland (Meehan 2013, 51). The ice sheets flowed north-west to south-east across Monaghan which is reflected in the orientation of the drumlins (Meehan et al. 2013, 19). South of the study area, the Rockcorry-Cootehill ribbed moraines are part of the largest field of ribbed moraines anywhere in the world (ibid., 18). Ribbed moraines are similar in composition to drumlins but while drumlins run in the direction of the ice flow, ribbed moraines are perpendicular to the ice flow (MacCarthy 2013, 38; Meehan et al. 2013, 18).

The northern part of the study area is dominated by limestone, whereas greywacke and shale are dominant in the south (Figure 5.2). A number of sandstone and mudstone bands cross the study area, running approximately north-east to south-west. There is just one occurrence of igneous rock in the south of the study area where a pocket of gabbro (approx. 3m x 0.7km) crosses through 11 townlands, encompassing almost all of Mullyknock and Tanderageebrack.

There are patches of peat and river alluvium throughout the study area, although they are more abundant in the eastern half. As with the bedrock, there is a marked difference between the north and south of the study area: the north is dominated by surface water gleys; and the south is predominantly made up of brown earths (calcareous, stagnic, and typical), although a band

of gleys does intercept the southern portion (Figure 5.3). The geology has led to the availability of several natural resources, some of which are quite rare in Ireland. For example, the environs of Tullybuck townland saw the exploitation of antimony, gold, and lead which were mined in the nineteenth and twentieth centuries (Hegarty 2017, 70-74).

In addition to the nineteenth-century Ulster Canal which flows from the Armagh border, through Monaghan and south-westwards towards Clones, there are three major rivers within the study area. The River Blackwater demarcates the north and north-east of the study area, forming the boundary between the Republic and Northern Ireland. The Cor River completes the eastern and south-eastern study area boundary, also constituting a section of the border between Monaghan and Armagh. Finally, the Mountain Water River runs approximately east-west across the middle of the study area. As with much of the drumlin belt, multiple lakes of varying proportions are found throughout the study area, although the north-west is largely devoid of significant bodies of water. Emy Lough which lies approx. 1km east of Emyvale is the largest with Glaslough in second place; among the others are Knockaturly Lough and Ballagh Lough in the southern portion, and Drumcaw Lough in the centre. No turloughs have been recorded within the study area, all of the known Monaghan examples are located to the south of the county (e.g. Sheehy Skeffington et al. 2006; Mayes 2008; Foss et al. 2011).

### **5.1.2 Administrative Divisions**

The study area is located within the province of Ulster and incorporates OS maps 1, 3, 4, 6, 7, 9, 10, 13, and 14. In addition to the county town of Monaghan which lies within the southern half of the study area, there are also several smaller towns and villages such as Emyvale, Glaslough, and Killybrone. Monaghan town (MO009-060) is classified as a 'historic town' (Moore 2011), with a fifteenth-century friary and MacMahon stronghold probably contributing to its development as the county town; a garrison was established here in the late sixteenth century (ibid.). A charter was granted in AD 1613 which established it as a municipal corporation in which much of the county administration was centred (Duffy 2017, 286).

Monaghan was established as a county in AD 1585 complete with five baronies (Shirley 1879, 1), three of which are represented within the study area: Trough to the north; Monaghan to the south; and Cremorne to the east (Figure 5.4). A tiny portion of a fourth barony, Dartree, is found within the south-western corner of the boundary.<sup>50</sup> Of the twenty three civil parishes within the county, nine are contained within the study area (Figure 5.5); with a minuscule

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<sup>50</sup> Approx. 320m (E-W) x 78m (N-S), approx. 1.7ha in total area.

portion of a tenth—Aghabog (in Dartree barony)—featured in the south-west corner. Tehallen is the only civil parish to be completely contained within the research boundary, while Donagh and Monaghan are almost completely represented.

The study area comprises 511 townlands (27% of the total number in County Monaghan), although several of them along the western and southern boundaries of the study area are only very partially represented. The county of Monaghan is known for its diminutive townlands with the average size being a mere 172 acres, circa 0.7km<sup>2</sup> (Shirley 1879, 2). Covering an area of approx. 1.9km<sup>2</sup>, Aghnasedagh is the largest townland within the study area, closely followed by Toniscoffy (1.8km<sup>2</sup>) and Castleshane Demesne (1.7km<sup>2</sup>). The smallest townlands are the two segments of Mullanarockan (0.005km<sup>2</sup> and 0.03km<sup>2</sup> respectively) which are separated from the main body of Mullanarockan townland by the townland of Tedavnet. The smallest ‘stand-alone’ townland is Latgee which covers an area of approx. 0.04km<sup>2</sup>.

The sparsity of recorded archaeology is clear when viewed on a townland basis. 362 of the townlands (approx. 71%) do not contain any early medieval monuments; in fact, 328 of these do not contain recorded archaeological monuments from any period (Figure 5.6). Approximately 21% of townlands contain a single early medieval monument, while less than 8% contain two or more. Technically, the townland with the highest number of recorded early medieval ‘monuments’ (seven) is that of Mullanacross (Trough Barony) which is home to one rath, and a church and graveyard with multiple architectural fragments which may have early medieval origins. More appropriate candidates for the highest concentration of early medieval settlement are the townlands of Crumlin and Drumreask, both of which have four monuments.<sup>51</sup> Four raths in the case of Crumlin, and four crannógs in Drumreask, although the latter also contains a fifth monument, a rath, which lies outside of the study area.

## **5.2 Archaeological Evidence**

There are a total of 260 recorded monuments within the study area, although seven of them are classified as redundant records.<sup>52</sup> A further 22 potential monuments were identified by the lidar analysis and were reported to the NMS, although they have not yet been added to the SMR (Appendix 5). Nine further monuments were initially identified but were subsequently rejected as they were not deemed to be archaeological in origin. The number of recorded monuments is in sharp contrast to the Leitrim/Roscommon study area, despite being one and

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<sup>51</sup> Both townlands are slightly larger than the average townland size of approx. 0.53km<sup>2</sup>.

<sup>52</sup> The figures were downloaded from the NMS Database ([www.archaeology.ie](http://www.archaeology.ie)) and are correct as of 14/08/2018.



a half times its size. However, as with Leitrim/Roscommon, Monaghan is dominated by early medieval monuments, which account for 72% of the total number of recorded monuments; only 6% are prehistoric in date, 5% are medieval in date, and the remaining 18% are post-medieval or later (Figure 5.7).<sup>53</sup>

### **5.2.1 Prehistoric**

A mere fourteen monuments within the study area can be classified with any certainty as prehistoric in date, some of which were uncovered in advance of the construction of the N2 Monaghan Bypass.<sup>54</sup> The Neolithic and Bronze Age are the best represented, although some of the remains may extend into the Iron Age. The dating of four of the monuments—a cairn, standing stone, and two instances of rock art—is ambiguous, but given the general dating of the majority of these monuments types, they have been classified as prehistoric for the purposes of this research.<sup>55</sup> With the exception of the cluster of megaliths and the cluster of fulachta fia, evidence for prehistoric activity is sparsely distributed, often separated by several kilometres from their contemporaries (Figure 5.8).

#### *Neolithic*

There are four megalithic tombs within the study area, all found in the south-west corner. The court tomb and both unclassified tombs are clustered together in neighbouring townlands within a 1km radius of one another. The wedge tomb is located approx. 5km to the south. Although both Gortakeeghan and Skeagarvey are recorded as 'megalithic tomb-unclassified' both are consistent with wedge tombs: a description of the former suggests that it is of this morphology, while Brindley's (1986, 4) analysis for the archaeological inventory indicates that Skeagarvey is also likely to be a wedge tomb. Court tombs are among the earliest type of megalithic tomb and date to the early Neolithic period; however, although construction of wedge tombs may have commenced in the late Neolithic, their construction and usage continued into the Early Bronze Age (Moore 2003, 2).

#### *Bronze Age and/or Iron Age*

The only scientific dating evidence for prehistoric activity came from three fulachta fia which were excavated as part of the N2 Monaghan Bypass. Charcoal from the burnt spreads

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<sup>53</sup> Calculations made excluding the 'Redundant' records.

<sup>54</sup> This includes a possible barrow identified over the course of the lidar analysis.

<sup>55</sup> Cairns may date to any period from prehistory onwards (SMR: Cairn) but the majority are Neolithic or Bronze Age in date (Mulligan 2016, 11); Standing Stones may be early medieval in date when associated with ecclesiastical and burial contexts (SMR: Standing Stone), but the majority are Bronze Age in date (Mulligan 2016, 63).

produced radiocarbon dates of 2340-2020 cal. BC, 2140-1740 cal. BC, and 1690-1490 cal. BC (04E1160, 04E1159, 04E1161 respectively). In addition to a potential barrow discovered during the lidar survey (MMO-131N), a bowl barrow (MO010-015001) is located within a large ceremonial enclosure (MO010-015) in the townland of Greenmount.

Located in the north of the study area in the townland of Scarnageeragh or Emyvale is the site of a cist (MO006-030) which was uncovered over the course of building work in the 1950s (Moore 2017b). The burial contained a small pot which was subsequently thrown away (Brindley 1986, 8). Unfortunately no further information is available, but this monument type is generally dated to the Bronze Age or Iron Age (SMR: Cist).

A standing stone is recorded in the townland of Corfad which may date to the Bronze Age or Iron Age, or it may be potentially early medieval in date. Unfortunately there are no descriptive details available, nor are there any visible traces of the stone (Brindley 1986, 9), and there are no monuments within the immediate vicinity of its reputed location. The two instances of rock art are now located within graveyards so their origins are uncertain; however, given the general classification of this monument type, they are most likely to be Neolithic or Bronze Age in date (SMR: Rock Art).

One of Ireland's most spectacular Early Bronze Age finds came from Tedavnet, Co. Monaghan, although the exact find spot is not known (Kelly 2002, 59). The Tedavnet gold discs were found in the late nineteenth century and are currently on display in the National Museum (Figure 5.9). They are the largest and most sophisticated gold discs ever found in Ireland, and are thought to have been a high-status or ceremonial/ritual item associated with a sun cult (O'Toole 2017). These impressive artefacts clearly demonstrate the presence of a population group within the area who had access to the necessary natural resources as well as the high level of craftsmanship necessary to produce such items. The fact that Tedavnet was also the location of one of the earliest ecclesiastical foundations within the study area (to be discussed further below), may point to the continued presence of a ruling élite in this location, right up to the early medieval period. Also in the late nineteenth century, further evidence of Bronze Age gold was found in the form of the Scotstown hoard which contained gold sleeve-fasteners, bronze rings, and fragments of amber beads (Eogan 1983, 114-115; Ireland 2003, 111). Again, the exact find spot is unknown, but the general area in the environs of Scotstown is situated less than 4km south-west of the townland of Tedavnet, and still within Tedavnet parish.

### **5.2.2 Early Medieval**

The study area falls into Stout's 'Erne Basin' region, which he identified as a zone of median density (Stout 1997, 68). This period accounts for 72% (181) of all recorded monuments within the study area, of which 127 (61% of all recorded monuments) are classified as 'Ringfort - rath'. A further six classified as either 'Ringfort - unclassified' or 'enclosure' are also likely to fall into this category. Remarkably, there are only six cashels recorded within the whole of County Monaghan, none of which are located within the study area; indeed, the closest examples are more than 4km from its limits. Hilltop enclosures are also included in the analysis of the early medieval period as they can span multiple periods (SMR: Hilltop Enclosure) and therefore cannot be excluded as potential features of the early medieval settlement landscape. Early medieval settlement will be discussed further in Section 5.6.

### **5.2.3 Medieval and Later**

There are 58 recorded monuments within the study area which date to the medieval period or later (Figure 5.10), accounting for 23% of the total. Fifteen of the monuments are located around the historic town of Monaghan (MO009-060); the remainder are mostly distributed across the central part of the study area.

The north of the study area is home to four monuments classified as 'designed landscape features' which are believed to form part of the 'Thistle' landscape design (Moore 2017c). This landscape feature originates in Tyrone (TYR 060:042) and was designed by Acheson Moore in the early eighteenth century as a symbol of his Jacobite sympathies (ibid.). All four are perfectly circular and measure just over 100m in diameter. The Raflacony example surrounds a rath (MO001-006), although both are now under forestry. A second cluster of monuments in this area consists of features and structures associated with the medieval parish church of Errigal Trough (Moore 2016a), which includes a late seventeenth-century graveslab (MO003-018007) found within the graveyard.

The town of Monaghan was granted its charter in AD 1613, however, some of the monuments pre-date this event. The Franciscan Friary (MO009-060002) was founded in AD 1462 (Brindley 1986, 86) and the castle (MO009-060003; now classified as a 'fortified house') was reported as being under construction in AD 1611 (Brindley 1986, 91). Several sources report a massacre at the friary in the mid-sixteenth century, although the exact date varies (Gwynn & Hadcock 1988, 255). No trace of either monument survives today as the friary was used as building material for the castle (Moore 2017d). A bastioned fort (MO009-060007) consisted of

a six- or eight-pointed star-shaped earthwork (Brindley 1986, 91); however, its existence is only indicated on historic maps, and there are no longer any surface remains visible. Indeed it is Monaghan town itself that is depicted within a star-shaped fortification on Bartlett's seventeenth-century map (Figure 5.11). The seventeenth-century town defences (MO009-060004) comprised water-filled ditches with bridges and gates, part of which was found during excavations in 2003 (David 2003, Licence 03E0027). Human remains uncovered in the 1940s (MO009-060005), are believed to correspond to those of famine victims (McCarthy 2003), while a second burial ground (MO009-060001) is purported to correspond to monks murdered by the English (IFC 957, 157). Archaeological testing in 2003 (Licence 03E1672) uncovered a graveyard (MO009-060009) at the site of the present Church of St. Patrick. The burials are thought to relate to the old gaol or to one of the two eighteenth/nineteenth-century churches on the site (McCarthy 2003). Also located on this site are a church (MO009-060012) and a seventeenth-century graveslab (MO009-060011). Moved from its original location, a market cross (MO009-060006) of possible seventeenth-century date is now located to the east of the town (Cahill 1965, 375).

There are two possible castles within the study area, neither of which has survived. Both monuments are now classed as seventeenth-century houses, one in Ballyleck townland (MO009-049) and the other in Faulkland (MO009-059). The Ballyleck example is known only due to its inclusion on McCrea's 1793 map of County Monaghan (Brindley 1986, 93) and was possibly located on the site of Ballyleck House (*ibid.*). Faulkland Castle is situated just 230m to the north-east of a substantial bivallate rath (MO009-011) and was demolished sometime after 1947, at which point it was already in ruins (Anon 1947). The stone head (MO009-077) which is now attached to the wall of a nearby farmhouse in Latlorcan is believed to have come from this castle (Shirley Clerkin pers. comm. 23/06/2011).

With the exception of a mass rock in Lisglassan (MO014-046), a seventeenth-century house in Derrynashallog (MO006-002), and an armorial plaque in Corraghdown (MO007-015), the majority of the remaining monuments from the medieval to modern periods are related to the medieval church sites of Tedavnet (Mullanarockan townland), Donagh, and Glaslough. While these churches are listed as medieval parish churches, for the purposes of this research, where it is likely that they have early Christian origins, the churches themselves are included in the 'early medieval-possible' category. In order to avoid discussing them multiple times, the six recorded church and graveyard sites (Table 5.1) are dealt with under the umbrella of early medieval ecclesiastical establishments (Section 5.6.1). The five graveslabs contained within the three sites all have seventeenth-century inscriptions ranging from AD 1666 to 1693. The two crosses and headstone recorded at Donagh are all seventeenth century in date (Figure

5.12), while the wall monument, inscribed stone, and headstone at Glaslough are all of eighteenth-century date. The font at Glaslough is undated but given the English inscription, it is likely to be at least post-medieval in date.

**Table 5.1 Recorded Medieval Parish Church & Graveyard Sites**

<b>Townland</b>	<b>SMR (Church)</b>	<b>SMR (Graveyard)</b>
<b>Donagh</b>	MO007-007001	MO007-007004
<b>Gallagh</b>	MO014-019001	MO014-019002
<b>Mullanacross</b>	MO003-018002	MO003-018003
<b>Mullanarockan</b>	MO006-022001	MO006-022002
<b>Rackwallace</b>	MO014-014001	MO014-014002
<b>Templetate</b>	MO010-003001	MO010-003002

### **5.3 Historical and Documentary Evidence**

The late eighteenth-century Grand Jury maps of County Monaghan created by William McCrea are important sources for understanding the county's later organisation and baronial divisions. In addition, they have provided a vital source for the location of many potential archaeological monuments as many since-disappeared raths and crannógs were recorded on the maps.

As with the previous case study, it has not been feasible to examine the early written sources for references to every placename within the Monaghan study area; however, where possible, the documentary sources provided some historical background and an indication of at least some of the events which may have taken place at certain locations. The study area formed part of the kingdom which was under the control of the Airgialla, although the extent of the territory varied greatly over the course of the early medieval period (Simms 2017, 131). The Airgialla appear to have had a mutually beneficial relationship with the Uí Néill, although whether it was a strategic military alliance (Bhreathnach 2014, 67) or subjugation of the Airgialla by the Uí Néill is somewhat unclear (Simms 2017, 131). The annals contain multiple references to the activities of the Airgialla rulers and their offspring; for example, in AD 606 “Aedh, son of Colgan, chief of Oirghialla and of all the Airtheara, died on his pilgrimage, at Cluain Mic Nois” (Ryan 2002, M606.4), and in AD 835 “Gofraidh, son of Fearghus, chief of Oirghialla, went to Alba, to strengthen the Dal Riada, at the request of Cinaeth, son of Ailpin” (ibid., M835.15). Although there are no known royal sites within the study area, its siting is noteworthy as it lies almost equidistant between two significant strongholds, that of the Airgialla

in Clogher, Co. Tyrone (TYR058:033), and Navan Fort, Co. Armagh (ARM012:015) (Figure 5.13). The former was excavated in the late 1960s / early 1970s by Richard Warner and was found to have evidence for activity—including a rath constructed within the earlier hillfort—dating to the early medieval period (Warner 1973, 10), with its ‘heyday’ attributed to the period between the fifth and ninth centuries AD (Warner 1996). In addition to the physical structural remains, some of the artefactual evidence, including a bronze penannular brooch and a fragment of an imported amphora point to the site being of high status, which would correspond well with the period of its role as capital of the Airgialla (Warner 1973, 10; Mallory & McNeill 1991, 124).

There are a number of saints associated with Monaghan, perhaps the most well-known being Saint Tigernach, founder of the monastery of Clones (approx. 13.5km west of the study area). Although many of them were composed long after the saints’ deaths, accounts of their lives are nonetheless important sources of information relating to the early medieval period and the introduction of Christianity to the area. The Tripartite Life records St. Patrick’s movements through the region in the early fifth century as he travelled from Clogher across to what is now County Louth (Shirley 1879, 7). It contains several informative accounts of his incursions through the county of Monaghan as he converted the people of Mugdorna and Uí Meith (O’Hanlon 1875a, 673). Tehallen is mentioned (Stokes 1887, 180-181) in addition to a number of places outside of the study area such as Donaghmoyne and Magheross (O’Hanlon 1875a, 674-676).

Lying just west of the study area in the townland of Mullanacross, the monastic remains of Drumsnat are connected with the ‘Book of Drumsnat’. Its origins and authorship are unclear (Ó Dubhthaigh 1966, 81-85) but it is considered to be the oldest known secular manuscript, possibly written in the in the early eighth century (Kenney 1966, 14-15; Ó Dubhthaigh 1966, 82). Although it has long since been lost, its contents were largely reconstructed by Rudolf Thurneysen in the early twentieth century and were found to consist of saga texts, some of which may have pre-dated the establishment of the monastic site (Ó Dubhthaigh 1966, 82). Even if not composed within the monastery itself, the book, or at the very least a copy of it, were in its possession (ibid., 83).

## **5.4 Previous Research**

Archaeological research in Co. Monaghan has been sporadic at best; in fact, the county has received even less attention than Leitrim or Roscommon in terms of early medieval excavation

(see Section 3.9: Table 3.6). Although various research projects have been undertaken within the wider county, the majority of them did not impinge upon the present case study area.

#### **5.4.1 Excavation**

According to the Excavations.ie database, 179 excavations were undertaken within Co. Monaghan from 1970 to 2015.<sup>56</sup> Just under half of these (42%) took place within the study area. In addition to a number of excavations which were associated with work along the N2, the vast majority (53 out of 75 excavations) were centred in or around Monaghan Town (Figure 5.14). Only eleven excavations are found outside of this area, with only one located in the northern section. Similar to the Leitrim/Roscommon study area, testing and monitoring account for 88% of all excavations, with just eight full excavations undertaken. Unfortunately 63% of the total number of sites excavated within the study area had no archaeological significance, while only three sites produced any potentially early medieval archaeology.<sup>57</sup> At Tirnaneill, a pit containing burnt material was dated to the early medieval period, with a radiocarbon date of cal. AD 902-1147 (O'Hara 2012, Licence 12E0068). A rath at Tiravera (MO010-001001) was 'excavated' in 1927, but it did not produce any scientifically dateable material. However, it appears to have been excavated by the farmer who subsequently showed the finds to R.A.S Macalister (Macalister 1928, 54). Two possible hut sites were uncovered in the south-east of the enclosure and there was evidence of ironworking in addition to artefactual evidence which included quernstone fragments, scrap iron, and animal bone (ibid., 55-56).

Outside of the study area, in the wider county of Monaghan, six further excavations produced evidence for early medieval activity, including a metal-working area in Drummond Otra (Licence 00E0108) and burials at Clones (Licence C146, E2335). Although some have not been scientifically dated, the more definite (date-wise) excavations relate to the investigations into two raths (Lisanisk & Lismagunshin) and a number of inhumations (Cloghvalley Upper). The Lisanisk monument (MO031-130) was not recorded prior to the road construction and was identified by test trenching in 2003 (Licence 03E0388). It was subsequently excavated and removed in its entirety (Coughlan 2003, Licence 03E0388). The monument was found to be a bivallate rath with substantial evidence for metalworking (Coughlan 2010, cxx-cxxi). Two charcoal samples from the upper ditch fills produced radiocarbon dates of cal. AD 660-870 and cal. AD 680-890 (ibid., cxxxiii), placing the construction of the rath firmly within the early medieval period. The rath at Lismagunshin (MO019-006) was excavated in 2005 under Licence 05E0785. A fragment of charcoal from a hearth within the enclosure produced a

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<sup>56</sup> Including licence extensions.

<sup>57</sup> Excavation licences: 10E0434, 11E0224, 12E0068.

radiocarbon date of cal. AD 690-970 (Sutton 2010, 9), thus making it roughly contemporary with the Lisanisk example. Finally, an early medieval cemetery was excavated at Cloghally Upper in 2003 (Licence 03E1255). This previously unrecorded burial ground (MO031-135) contained fourteen inhumations in addition to a large quantity of bone fragments relating to two further skeletons (Walsh 2009, i). Three of the skeletons produced radiocarbon dates from the early medieval period: cal. AD 585-675, cal. AD 530-650, and cal. AD 650-780. Although the burials were arranged in rows, there was no enclosing feature (ibid., 41), nor were they associated with a known early ecclesiastical site, although a holy well lies approx. 200m to the north-west (ibid.).

#### **5.4.2 Geophysical Survey**

Figures provided by the NMS show that twelve licenced geophysical surveys took place within the county of Monaghan between 2001 and 2017, although records pre-2006 are unfortunately incomplete.<sup>58</sup> Five of the surveys took place within the study area, although a final report of the findings has only been submitted for one of them (17R0001). This GPR survey was targeted at locating the remains of a WW2 spitfire which crashed into a field in Figullar in 1942 (Daly 2017); this has since been excavated. The surveys at Derrynashallog and Drumbanagher both related to seventeenth-century remains—of a house and a skirmish respectively—and were undertaken as part of a PhD thesis (McDermott 2010a). Outside of the study area, a bivallate rath (MO031-013) was surveyed as part of the N2 Carrickmacross to Aclint road realignment. The survey (01R0058) consisted of magnetic gradiometry and earth resistance and revealed two possible entrances to the north and south (Walsh 2004).

#### **5.4.3 Other**

The barony of Farney in the southern tip of the county appears to have attracted the most attention from antiquarians and modern archaeologists alike. In the nineteenth century, E.P. Shirley conducted several investigations around the crannógs of Lough Fea and discovered a multitude of artefacts, many of which are now housed in the National Museum (McDermott 2010b, 33). 91 artefacts in the NMI's database have their find place listed solely as 'probably from the barony of Farney', which may be from Shirley's investigations.<sup>59</sup> Unfortunately, many of the objects are unprovenanced so their exact origins and/or connections with the crannógs or other archaeological monuments cannot be determined (ibid.). More recently, prehistoric Farney has garnered much attention, with the excavation of Neolithic houses at Monanny following their discovery over the course of the N2 Carrickmacross-Aclint road re-alignment

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<sup>58</sup> Figures provided by Rachel Barrett of NMS Archive Unit on 10/11/2017.

<sup>59</sup> NMI database information as of 31/10/2018.



(Licence: 03E0888; Walsh 2003; Smyth 2006; Walsh 2006b). In addition, investigations (and excavation) into the large collection of prehistoric rock art in the townland of Drumirril (O'Connor 2006)—which constitutes the densest collection in the whole of Ireland—produced evidence for both Neolithic and Bronze Age activity (O'Connor 2003, 15).

The Black Pig's Dyke—of which portions are found within County Monaghan—has also garnered a great deal of interest from the early twentieth century (e.g. Kane 1909) up to the present day (e.g. Ó Drisceoil 2017). The 'Black Pig's Dyke Regional Project' was established in 2014 in order to investigate various stretches of the linear earthwork across some of the nine counties it crosses, including Monaghan.<sup>60</sup> Parts of the linear embankment run on an approximate east-west axis across the southern portion of the county, circa 10km south of the study area boundary. The two main areas are to the east—close to the Armagh border (at Drumgristin and Maghernakill)—and to the west crossing thirteen townlands, albeit not in a single intact feature. Recent geophysical survey at one of these townlands (Corrinary), revealed a double-ditched linear monument with an associated possible burnt palisade trench (Ó Drisceoil 2017, 33). Excavations were undertaken at three further sections (Aghareagh West, Aghnaskew, and Lattacrossan) and produced radiocarbon dates which firmly place the construction of the monument to the early Iron Age, coinciding with dates from other sections in Longford and Armagh (*ibid.*, 37-38). This important monument is considered to form at the very least territorial boundaries, if not a major defensive earthwork (*ibid.*, 39).

Research into later periods, including the early medieval period, did encroach on the study area, sometimes as part of a broader study, and sometimes as a targeted area-based project. For example, Siobhan McDermott (2010a) targeted the archaeology of the barony of Truagh (Trough) from the late sixteenth to nineteenth century. As Monaghan largely escaped Ulster Plantation, it remained one of the last Gaelic regions in Ireland, thereby presenting an opportunity to examine the structure of landownership and its development (Duffy 1988, 85). Many of the nineteenth-century estates evolved from seventeenth-century land ownership (*ibid.*, 91) and provided a valuable insight into the division of the county. Many of these estates were the subject of projects over a number of years; for example, the Essex Estate in Farney (Duffy 1983) and the Dawson Estate in Dartree (Brown 2004). Also, a number of estates within the study area, including the Rose Estate (McMahon 2004) and the Kane Estate (McMahon & O'Neill 1990) in the baronies of Monaghan and Trough respectively. A number of historical-based studies focused on the later medieval period, in particular the MacMahons who ruled over what is now the barony of Monaghan (e.g. Moore 1955; Fitzpatrick 2004). Patrick Duffy

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<sup>60</sup> This also incorporates parts of the Leitrim/Roscommon area (see Sections 4.2 & 4.5).

(e.g. 1981; 1988) also investigated Gaelic landholding and territorial organisation in the county as a whole.

Perhaps the most significant piece of research undertaken in Monaghan to date—as far as the early medieval period is concerned—is Thomas Kerr's (2007) study which included the county of Monaghan in a study of early Christian settlement in north-west Ulster. In his study, Kerr adopted a statistical approach to investigate the environmental and political factors which contributed to the distribution of settlement across the counties of Armagh, Donegal, Fermanagh, Derry, Monaghan, and Tyrone (Kerr 2007, 1, 14). Kerr used statistical modelling to examine early medieval secular and ecclesiastical settlement within each of his counties under two headings: altitude and soil associations (*ibid.*, 53). Somewhat unsurprisingly, he concluded that ecclesiastical sites and crannógs showed a preference for lower altitudes while univallate raths preferred higher ground (*ibid.*, 66). Kerr clearly undertook a great deal of data-gathering and analysis, particularly in relation to settlement and soil quality; however, as with most statistical studies, his research maintained a high-level overview, rather than a more in-depth investigation into individual sites or settlement clusters. McDermott (2010b, 36) considers the archaeology of the prehistoric and early medieval periods to be better served than the later historical period; however, this does not mean that our understanding of early medieval Monaghan can be considered in any way comprehensive.

## **5.5 Lidar Survey Findings**

Analysis of the lidar dataset was conducted as part of the current research project. Although lidar was also flown for several smaller pockets of County Monaghan, the analysis focused on the large area in the north-east of the county as this provided the best opportunity to investigate the wider landscape. A total of thirty-two potential monuments were identified, which included possible palaeochannels and a number of features which were subsequently identified as being of historic rather than archaeological interest. For example, the walled garden at Castleshane Demesne is very clear on the lidar (Figure 5.15) and consultation of the National Inventory of Architectural Heritage confirmed its origins (NIAH: 41401021). The new findings were reported to Michael Moore of the NMS and assessed for inclusion on the SMR. In total, twenty-two monuments were identified as potentially archaeological in origin, with the remainder disregarded as modern and/or natural features. Of the twenty two, one was classified as a possible barrow (MMO-131N), and another as a potentially post-medieval/modern landscape feature (MMO-129N); the remaining twenty monuments were confirmed as potentially early medieval in date (Figure 5.16). These circular enclosures are all

consistent with the expected morphology and siting of raths and have been included in the project under the 'enclosure' classification; this will be discussed further in Section 5.6.2.

Analysis of the Monaghan lidar dataset resulted in an overall 11% increase in the number of potential early medieval raths within the study area. Additionally, it also recovered some 'missing' monuments which had been previously recorded but were no longer visible on the ground. This has provided a more complete picture of early medieval settlement and has facilitated a more thorough investigation into the distribution of—and interaction between—the known and 'new' early medieval monuments in the area.

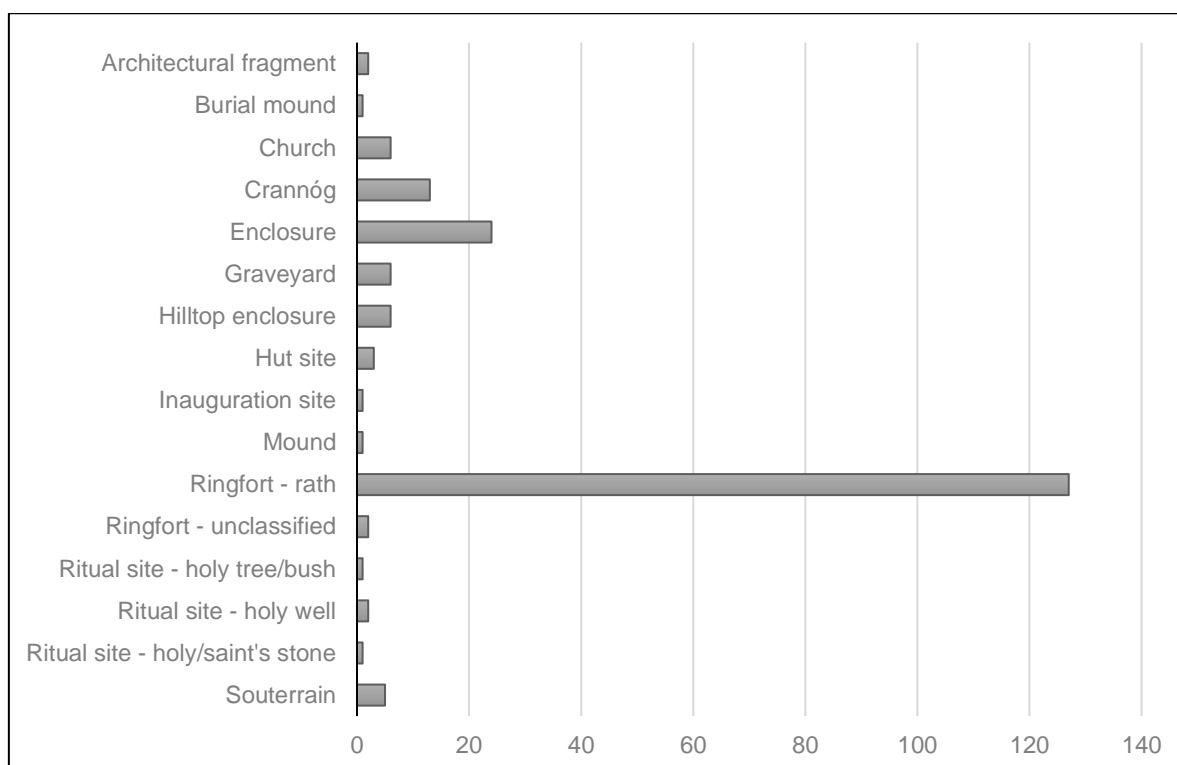
## **5.6 The Early Medieval Landscape**

While the combined evidence for prehistoric and later medieval periods accounts for only a quarter of all archaeological monuments within the study area, the early medieval period is certainly the best represented, albeit it is not the thriving hub of activity that constitutes early medieval Leitrim/Roscommon. Evidence for early medieval settlement is relatively sparse in comparison to the Leitrim/Roscommon study area, although it does dominate the record, with the number of potential sites now totalling 201,<sup>61</sup> and the number of raths significantly outnumbering any of the other class descriptions (Chart 5.1). As with Chapter 4, each monument has not been scientifically dated and so the identification of the sites is based largely on the classifications contained in the online database of the SMR in addition to further investigation into the more complete records held in the NMS Archives.

Overall, the early medieval sites are well distributed throughout the study area, although there are two areas—substantial parts of Donagh and Monaghan civil parishes—which are effectively empty of early medieval activity (Figure 5.17). There does not appear to be any particular topographical or geological reason for this; however, both areas are also devoid of evidence of activity from earlier and later periods. The impact of poor preservation or the historical destruction of archaeological monuments is clearly a possible cause for the lack of archaeological remains in both areas.

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<sup>61</sup> This figure comprises the 181 recorded early medieval monuments discussed in section 5.2 above, plus the 20 potential new sites which were discovered during the lidar survey but have not yet been added to the SMR.



**Chart 5.1 Probable Early Medieval Monuments** (after [www.archaeology.ie](http://www.archaeology.ie))

### 5.6.1 Ecclesiastical Settlement

There are no major early monastic sites within the study area, although that of Clones is less than 13.5km from its south-western corner. This significant ecclesiastical foundation was established by St. Tigernach in the early sixth century (O'Hanlon 1875b, 28-29; Gwynn & Hadcock 1988, 164). Such was the status of Clones in the early medieval period that it may once have been in direct competition with Armagh for ecclesiastical jurisdiction (McCone 1984, 309). The foundation of Armagh—one of the leading early ecclesiastical powers—lies just 40km from Clones, and a mere 15km from the eastern boundary of the study area.

Only sixteen of the recorded monuments with early medieval potential are ecclesiastical rather than secular. Of these, six are churches with associated graveyards and account for twelve of the sixteen monuments. Two further potential sites at Glaslough and Roosky (Monaghan Town) were disregarded as potential early medieval foundations as they originated in the seventeenth century (Moore 2016b; Moore 2016c). The burial grounds at Tirkeenan and Urlish were also discounted as there is no evidence to suggest that they had any connection to the early medieval period. Instead, the ecclesiastical remains which demonstrated more definite or multiple characteristics related to early medieval foundations—including links to a founding saint—were classified as potentially early medieval for the purposes of this research. Using

Swan's (1983, 274) twelve criteria for identifying early ecclesiastical sites, a total of ten probable sites were identified within the study area which fulfil a variety of the required components (Table 5.2).

Three of the sites exhibit only one characteristic and may therefore not represent full ecclesiastical establishments: Clonisboyle (holy / saint's stone), Drumrutagh (holy tree / bush), and Sheetrim (holy well). The Clonisboyle example is thought to contain the imprints of St. Patrick's knees, although the NMS Archive records suggest that the 'imprint' is natural (Anon 1968a). In the case of Drumrutagh, a tree is still visible in this location on aerial mapping and it is recorded as a 'Confession Bush' on the historic 25inch map (Figure 5.18). Two raths are located within a 1km radius of the monument, but there are no other indications as to the existence of an ecclesiastical site within the area. While it would be impossible for the tree itself to date back to the early medieval period, the possibility that the site itself has been sacred since that period cannot be disregarded. Approximately 4km to the south-west lies the 'ritual site - holy well' in Sheetrim townland (MO013-043). It is known as 'Tobar Domhnaig' and has associations with providing a cure for illness (IFC 958, 43-44). As with the tree mentioned above, there are no indications on the landscape (including on the lidar surface) as to an ecclesiastical foundation within the vicinity, the closest recorded monument lies approx. 1km to the north-west in Cornamunady.

**Table 5.2 Ecclesiastical Monument Type per Townland (after *www.archaeology.ie*)**

	Evidence of Enclosure	Burial Area	Placename with ecclesiastical element	Structure or structural remains	Holy Well	Bullaun Stone	Pillar Stone	Founder's Tomb	Associated traditional ritual or folk custom
<b>Clonisboyle</b>									✓
<b>Donagh</b>		✓	✓	✓					✓
<b>Drumrutagh</b>									✓
<b>Gallagh</b> <sup>62</sup>		✓		✓	?		?		
<b>Mullanacross</b>		✓	✓	✓	✓ <sup>63</sup>				✓
<b>Mullanarockan</b>	✓ <sup>64</sup>	✓		✓					
<b>Rackwallace</b>		✓		✓					
<b>Sheetrim</b>					✓				✓
<b>Templetate</b>	✓ <sup>65</sup>	✓	✓	✓					

<sup>62</sup> There are no recorded pillar stones at Gallagh, but Shirley (1879, 339) stated that Gallagh was “a place abounding with standing stones”. There may also have been a holy well originally, as he also claimed that there was an “ancient well” 100yards south of the church which was closed at the time of his visit (ibid.).

<sup>63</sup> The holy well associated with the ecclesiastical remains at Mullanacross (St. Muadain’s Well) is located on the border with—and listed under—the adjacent townland of Mullanderg.

<sup>64</sup> Tentative identification of an ecclesiastical enclosure visible on the lidar surface which is located in the neighbouring townland of Tedavnet.

<sup>65</sup> Tentative identification of an ecclesiastical enclosure.

Incorporating the somewhat limited archaeological evidence with that from the available historical sources, six potential early medieval foundations have been identified (Table 5.3).<sup>66</sup> In all cases the actual upstanding structural remains and graveyards relate to the medieval or later periods (Section 5.2.3). Many of the key identifiers of early ecclesiastical establishments are not apparent in the Monaghan study area which makes the identification of potential early medieval foundations all the more difficult. For example, there are no ecclesiastical enclosures recorded within the study area, indeed there are only four recorded within the whole of the county—in the townlands of Annahean, Clonfad, Coolderry, and Selloo. Kilnahaltar (MO009-035001), which lies just outside of the study area, has traces of a possible enclosure along its western side (Brindley 1988, 50) although it is not listed as a recorded monument. Brindley (ibid.) estimates the scale of the enclosed area at approximately 200m x 150m which is within the range for early ecclesiastical sites; the site also contains a bullaun stone (MO009-035003). Similar to the site at Killukin, Co. Roscommon, curving road layouts at Templetate and Mullanarockan are suggestive of the presence of an earlier enclosure (Figure 5.19), although further investigations would be required to establish this with greater certainty.

**Table 5.3 Probable Early Ecclesiastical Foundations**

Townland Name	Medieval Parish Name	Barony	Associated Saint
<b>Donagh</b>	Donagh	Trough	St. Gearóid
<b>Gallagh</b>	Clontibret	Cremorne	St. Colmán
<b>Mullanacross</b>	Errigal Trough	Trough	St. Meallán
<b>Mullanarockan</b>	Tedavnet	Monaghan	St. Damhnat
<b>Rackwallace</b>	Monaghan	Monaghan	Unknown
<b>Templetate</b>	Tehallen	Monaghan	St. Cillin

Mullanacross—the medieval church of Errigal Trough—constitutes the best example of an early medieval ecclesiastical site within the study area. It contains most of the expected elements, including a holy well; a feature missing from most of the sites. St. Meallán, the founder of this church, came from Meenan, Co. Down and reached as far as Lough Corrib, Co. Galway and possibly even as far as Co. Cork (Ó Riain 2011, 451-452). St. Meallán is reputed to have been an associate of St. Fursa (ibid., 451) who was active in the mid-seventh century (Kenney 1966, 502), thus tentatively placing the Mullanacross foundation within this period. The extant remains consist of the ruins of a medieval church (MO003-018002) and a graveyard

<sup>66</sup> Full foundations as opposed to single monuments such as holy wells etc.

(MO003-018003) containing seventeenth-, eighteenth-, and nineteenth-century headstones (Mulligan et al. 1987, 372-387) (Figure 5.20). A holy well dedicated to St. Meallán is located approx. 50m to the north of the church (Figure 5.21), marked as 'St. Muadain's Well' on the historic mapping. A ford and stepping stones lie a further 240m to the north. In addition to its location at the intersection of possible routeways, it is also located within a hub of early medieval secular settlement, with ten univallate and bivallate raths lying within a 1.5km radius (Figure 5.22).<sup>67</sup>

Templetate—the medieval church of Tehallan—also contains a number of archaeological features which most likely date it to the early medieval period, including the potential enclosure visible on the lidar surface. If the curving road layout is indeed indicative of the existence of an ecclesiastical enclosure, the site would most likely have extended into the townland of Tullylish which is now separated from Templetate by the Ulster Canal. The remains are situated high up on a spur with good views in all directions (Figure 5.23). Unfortunately, the medieval church is no longer extant; the present remains consist of a late eighteenth-century church with a nineteenth-century tower addition (Moore 2016d). However, O'Hanlon (1875a, 672) claimed that the remains of the earlier church were still extant beneath the ground surface, and that cross fragments had reportedly been found. The D-shaped graveyard, also a possible relic from the early medieval foundation, contains graves dating from the eighteenth century to more recent burials and a subterranean mausoleum (NIAH: 41401010). The early medieval foundation is attributed to St. Cillín whom the Tripartite Life reports to have been put in place by St. Patrick (O'Hanlon 1875a, 672; Stokes 1887, 180-181; Ó Riain 2011, 175), thereby dating its likely foundation to the fifth century. St. Patrick himself is reputed to have visited and afforded the church with the great honour of a donation of relics (Ó Dufaigh 2017, 190). Given the apparent significance of the ecclesiastical centre at Templetate as the major church of the local kingdom (*ibid.*), its isolation is somewhat unexpected. There are only two raths—one univallate, one bivallate—within a 1.5km radius. In fact, the three monuments are almost exactly on the same axis, from the bivallate to the north-west to the univallate in the south-east with the ecclesiastical site in the approximate centre (Figure 5.24).

The ecclesiastical site of Donagh is situated on top of a hill and consists of the remains of a graveyard with burials dating from the seventeenth to nineteenth century, in addition to several cross fragments which include bases and heads. The seventeenth-century Donagh cross was unearthed from within the graveyard in 1911 and restored to its cross base (Bigger 1916/17, 6). The medieval church did not survive but is thought to have occupied the site beneath the

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<sup>67</sup> A 'hub' relative to the otherwise sparsely populated early medieval period in County Monaghan.



extant mortuary structures, which may have been constructed using stone from the earlier church (O'Brien 2016). The derivation of the '*Domhnach*' placename is a key indicator of its early medieval origins (Flanagan 1984, 31; Stout 2017, 28), potentially evidence of a particularly early foundation as the term was in use until the fifth century before being replaced by '*cell*' (Bhreathnach 2014, 168-169). The church is traditionally seen as a Patrician foundation (e.g. O'Hanlon 1875a, 673; Paterson et al. 1939, 26; Flanagan 1984, 27; *Monasticon Hibernicum*: 1493), although there is no mention in the Tripartite Life of Patrick having founded a church here (Shirley 1879, 2). Furthermore, there are conflicting hypotheses as to the alternative founder of the ecclesiastical centre at Donagh. A Saint Gearóid—who may be one and the same as Saint Garait of Mayo—is named by Ó Riain (2011, 362) as the patron saint of Donagh parish. However, based on an interpretation of the parish's full name as '*Domhnach Muadháin*', Ó Dufaigh (2017, 173) suggests that St. Meallán (of Mullanacross fame) was actually the founder. While this may never be confirmed with any certainty, both propositions place the original foundation at Donagh firmly within the early medieval period. Similar to Templeate, Donagh was also relatively isolated within the early medieval period, with only four potential early medieval enclosures within a 1.5km radius of the site, one of which is a large 91m-95m hilltop enclosure (MO007-006) situated to the north-east (Figure 5.25).

Mullanarockan—the medieval church of Tedavnet—is located along the western boundary of the study area. Like the other ecclesiastical sites, it is positioned on high ground with good views of the surrounding countryside. The extant features consist of the possible partial remains of the medieval church (MO006-022001) and a graveyard (MO006-022002) with headstones from the seventeenth to nineteenth centuries (Figure 5.26). A more modern graveyard abuts it to the west. The extant Robinson monument (Figure 5.27) is considered to mark the original location of the early church (O'Daly 1954, 43). The foundation is attributed to St. Damhnat (Ó Riain 2011 256), the female saint from whom the parish derives its name; '*Tigh Damhnata*' translating as 'the house of Damhnat' (Logainm.ie 41054). St. Damhnat is believed to have been active in the fifth or sixth century (O'Hanlon 1875c, 660-661) and is reputed to have been the granddaughter of St. Patrick's master during his time of enslavement (O'Hanlon 1875c, 660; Shirley 1879, 301; Ó Riain 2011, 256), albeit there are some doubts as to this genealogy (O'Daly 1948, 248). A portion of a crozier (pilgrim staff)—'*Bachall Damhnat*'—associated with St. Damhnat is the only surviving relic, although its decoration suggests an eleventh-century date (ibid., 249). An ecclesiastical enclosure is not listed at the site, but the lidar analysis conducted as part of this research has revealed a possible embankment within the neighbouring townland of Mullyera (Figure 5.28). This feature is approx. 50cm high and appears to have an entrance; however, it coincides with a change in the vegetation pattern as

seen on the aerial imagery and with the location of a moraine, so it may be a more modern or even a natural feature, possibly the result of man-made modifications to the natural geology. The curving roadway leading from the eastern edge of the site and forming part of the Tedaunet townland boundary is suggestive of a curvilinear enclosure; this feature is also visible on the historic maps (Figure 5.29). However, given the 'starting point' of this curvilinear feature, were it indeed part of an early medieval ecclesiastical enclosure, it would potentially put the placement of the early church further south as it would be unlikely for the church—the focal point of the ecclesiastical inner sanctum—to be positioned against the outer enclosure wall. The ecclesiastical site lies within a relatively well populated area (in comparison to other parts of the study area), with seven potential raths lying within a 1.5km radius, including three newly discovered potential enclosures, one of which may be conjoined.

As with Leitrim/Roscommon, proximity to water appears to have been a factor in the siting of the Monaghan ecclesiastical sites. In contrast, however, the Monaghan examples are located close to relatively minor streams rather than major rivers. In most cases—Donagh, Gallagher, Mullanacross, Rackwallace—the ecclesiastical remains are situated in the loop of the stream, whereas Mullanarockan and Templetate are positioned approximately equidistant from small streams to the east and west. Unlike their midlands counterparts, the Monaghan examples tend to be located on upper slopes rather than on low-lying ground. Despite translating as '*Mullach na Croise*' or 'hilltop of the cross' (Logainm.ie 40583), Mullanacross is the only foundation to have been erected on low-lying ground and is located in a valley at the meeting of four drumlins (Figure 5.30). An alternative translation is 'hilltop of the cross roads' (ibid.), which may instead reference the four routeways which currently intersect at the foot of the Mullanacross and Mullanderg drumlins. The ecclesiastical site is positioned at the apex of the intersection, potentially indicative of the course of earlier routeways. Of the remaining sites, Donagh holds the most prominent position on the summit of a drumlin; Gallagher, Mullanarockan, and Templetate are all on the summit or crest of lesser hills, and the remains at Rackwallace are on the lower slopes of a drumlin.

The ecclesiastical sites are well spaced out within the study area and exhibit varying degrees of isolation from their secular counterparts. All are relatively centrally located within their respective baronies; two in Trough, three in Monaghan, and one in Cremorne. Although not reflected throughout the whole county of Monaghan, there is just one ecclesiastical centre per civil parish within the study area, perhaps unsurprising given that all six of the early foundations later developed into their respective parish churches after which the civil parishes were named (see Table 5.3 above). The medieval parish centres of Donagh and Rackwallace were subsequently moved to Glaslough and Monaghan Town respectively. The shortest distance

(as the crow flies) between any two sites is between Gallagher and Rackwallace which are approx. 3.7km apart. The majority are separated by minimum distances of 4.9km (Donagh to Templetate) up to 10.3km (Mullanacross to Mullanarockan). The ecclesiastical sites are also relatively isolated when viewed against the contemporary secular settlement. Sited just 450m from its nearest rath (and 630m from a second one), Mullanacross is the least isolated of the six ecclesiastical centres. Mullanarockan and Rackwallace are within approx. 800m of their closest neighbours, while the remaining three sites range from 1km to 1.4km away. Although clearly more isolated from the secular population than their Leitrim/Roscommon counterparts, they are still significantly closer than the 3km 'buffer zone' proposed by Matthew Stout (1996, 224). As seen in Chapter 4, the spatial distribution of the ecclesiastical sites may point to the location of various territories within the study area, although the congregations in Monaghan would have had much farther to travel to reach their local church. Perhaps this could in some way account for the relatively prominent siting of the ecclesiastical sites within this area? By positioning them on hills and drumlins, they would have been more visible to those travelling towards them from farther afield. Interestingly, the higher status sites, i.e. multivallate raths, are all at least 1km away from the ecclesiastical sites, up to 5.4km away in the case of Mullanarockan. It would appear that the selection of suitable locations in this study area was subject to very different criteria and/or restrictions by the local leaders.

Examination of the townland names within the study area provides an opportunity to identify the possible former locations of any early medieval church sites which have not been identified archaeologically. Of the 511 townlands within the study area, 52 contain the prefix 'kil' but do not have any recorded ecclesiastical remains. However, further investigation demonstrated that in 51 of the cases, 'kil' was an Anglicisation of '*coill*' (wood) rather than '*cill*' (church). Only 'Kilcran' had a potential church-related derivation, as it was translated as either '*Coill Chrann*' (wood of the trees) or '*Cill Crann*' (church of the trees) (Logainm.ie 40774). There are no traces of any archaeological features here, and this, combined with the fact that the neighbouring townlands to the north and west are also wood-related (Killyboley and Doaghey's), it would seem more likely that the Kilcran translation is also non-ecclesiastical. Many townland names show links with known ecclesiastical foundations and/or early saints, despite being in neighbouring townlands. The townland of 'Desert' which is derived from '*dísert*' and translates as 'hermitage' (Logainm.ie 40660) is located approx. 1.4km north of the ecclesiastical remains of Donagh, and 'Dundonagh' townland—translating as 'fort of the church' (Logainm.ie 40692)—is situated 1km to the west. The proximity of both townlands to the ecclesiastical remains at Donagh may be an indicator of the extent of the ecclesiastical lands, and in fact, Ó Dufaigh (2017, 173-174) associates them with the later medieval lands of Donagh as a hermitage and grange respectively. Similar evidence is available at Mullanarockan and

Templetate. In the case of the former, the adjoining townland—Tedavnet—is linked with Saint Damhnat who was the patron of the foundation at Mullanarockan (Ó Riain 2011, 256-257), and given that the ecclesiastical remains lie on the townland boundary between the two townlands, it is highly probable that the ecclesiastical lands extended into the townland of Tedavnet. This would appear to be consolidated by the fact that Mullanarockan townland is essentially divided into three parts by the modern townland of Tedavnet. At Templetate, the neighbouring townland of Tullygony translates as either ‘hillock of the church’ or ‘hillock of the calf’ (Logainm.ie 41095), again a possible indicator as to the scale of the church lands.

By incorporating the available evidence uncovered over the course of this research and discussed above—recorded archaeological monuments, historical mapping, aerial imagery, lidar analysis, toponymy, historical accounts, and hagiographies—it is clear that there are six significant ecclesiastical sites within the study area, with a seventh, Kilnahaltar (Kilmore parish) lying just outside the study area limits (Figure 5.31).<sup>68</sup> Each of the foundations was associated with a different early medieval saint, demonstrating the impact and reach of the process of Christianisation which saw multiple holy people moving throughout the landscape at the same time, targeting different communities in their efforts to convert the population.

### **5.6.2 Secular Settlement**

As expected, secular settlement within the study area is dispersed and rural in nature, comprising crannógs and various types of rath. The only scientifically dated evidence for the early medieval period is the excavated pit at Tirnaneill which produced radiocarbon dates between the tenth and twelfth century (O’Hara 2012, Licence 12E0068). There are two raths within 350m of the pit location, but there are no known monuments directly associated with it.

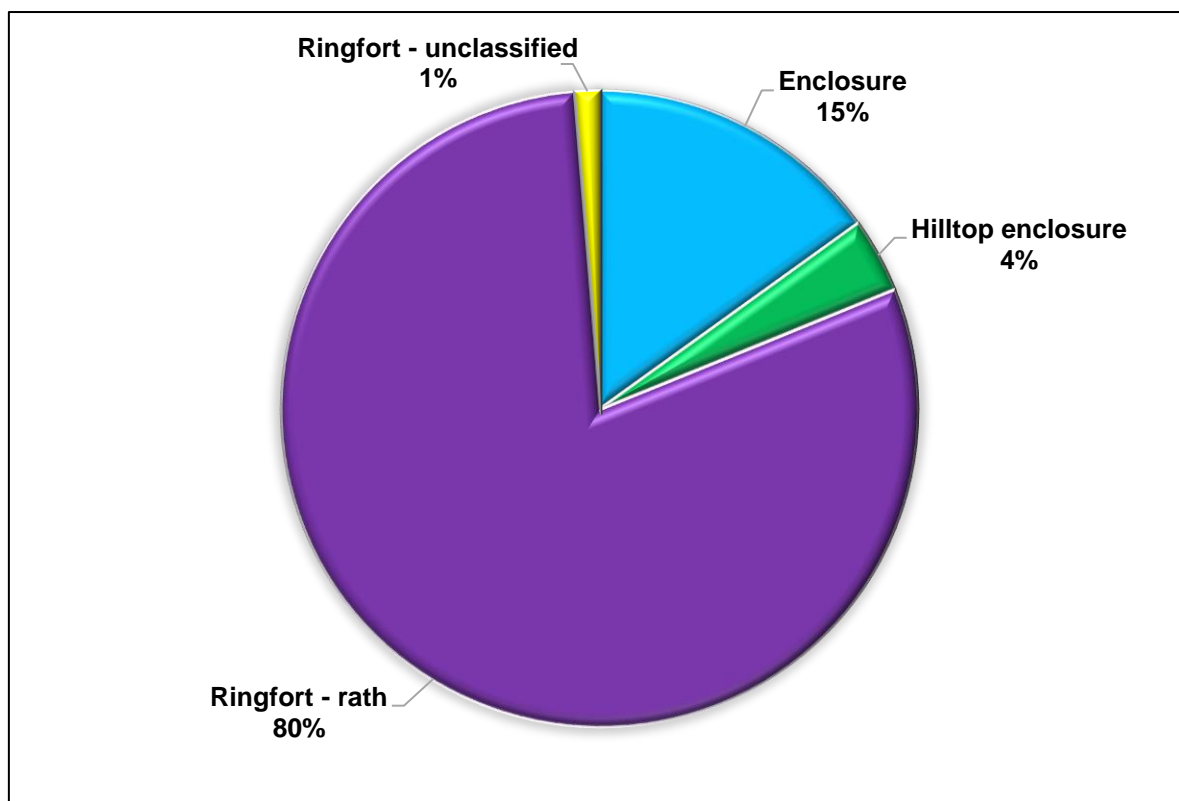
#### *Raths*

The study area comprises raths which are recorded under four potential class descriptions on the SMR (Chart 5.2). The ‘Ringfort - unclassified’ monuments have been visually examined using the lidar dataset and aerial imagery and have been confirmed as probable raths rather than cashels. Monuments classified as ‘Hilltop enclosure’ have also been included under the banner of possible early medieval settlement as they can be dated to any period from prehistory onwards. Therefore, they cannot be discounted as potential early medieval enclosures. Additionally, there is no evidence to suggest that these large enclosures

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<sup>68</sup> The easternmost tip of Kilnahaltar townland lies within the study area, but the ecclesiastical remains are located 500m from the western limits of the lidar survey.

underwent any attempted demolition or modification during the early medieval period. Even if the construction of these enclosures occurred prior to the fifth century, the fact that they occupy such prime positions in the landscape suggests that they could well have been commandeered during the early medieval period, whether as settlements or for other purposes.



**Chart 5.2 Breakdown of Rath Types per SMR Classification**

A total of twenty potential early medieval raths were identified through the lidar analysis, all are included under the 'enclosure' classification. In accordance with this project's methodology, these newly discovered monuments have each been rated according to their probability of being early medieval in date (Table 5.4).

**Table 5.4 Rating of Newly Discovered Monuments (*not on SMR*)**

Rating	Number of Monuments
1	13
2	5
3	2
<b>Total</b>	<b>20</b>

In line with the findings from the Leitrim/Roscommon area, 89% of the raths in the Monaghan catchment are univallate, clearly representing the homesteads of the majority of the population. 52% of these conform to the average 30m diameter: 74 of the 142 univallate raths measure between 25m and 35m in internal diameter (Table 5.5).

**Table 5.5 Internal Diameter Range of Univallate Rathes**

Internal Diameter	Count	Percentage
15m-24m	22	15.5%
25m-35m	74	52.1%
36m-40m	16	11.3%
41m-50m	9	6.3%
51m-60m	3	2.1%
61m-70m	1	0.7%
71m-80m	2	1.4%
81m-90m	1	0.7%
91m-95m	3	2.1%
<i>No Measurement Possible</i>	11	7.7%
<b>Total</b>	<b>142</b>	

While 22 enclosures are smaller than the average diameter (i.e. less than 25m), only seven of these measure less than 20m in internal diameter. Overall, only ten (7%) of the raths have diameters greater than 50m, more than half of which are classified as hilltop enclosures.<sup>69</sup> As discussed in Chapter 4, this 'pyramid' distribution scale suggests that the larger enclosures are reserved for specific purposes and/or select members of society. Three of the larger raths (greater than 50m) were discovered over the course of the lidar analysis: the Clonkeady example (MTR-124N) measures approx. 50.6m x 46.3m in internal diameter; the Annareagh South monument (MTR-132N) measures approx. 74m x 68.8m (Figure 5.32); and the Feebane example (MMO133N) has an internal diameter of approx. 81.6m x 75.4m. In contrast to the Leitrim/Roscommon area, all of the larger enclosures are located on higher ground. With the exception of the Clonkeady example which is positioned on the crest of a drumlin, the remaining nine large enclosures are all situated on drumlin summits.

<sup>69</sup> Ranging from 56m to 94m in internal diameter, the hilltop enclosures are generally larger than the standard raths; however, as there are only six such monuments within the study area, their inclusion has a negligible impact on the overall statistics.

Clearly, the density of (surviving) settlement is significantly different to that of the Leitrim/Roscommon area, and therefore the proximity of other early medieval settlement is affected. On average, the large raths lie within approx. 620m of their closest early medieval neighbour, although this ranges from 300m up to 990m. Two of the largest enclosures are located in close proximity to one another on neighbouring drumlins, perhaps indicative of a pairing or direct connection between them. The 81m Feebane enclosure (MMO-133N) is a mere 360m north of the 92m Lisdrumdoagh (MO010-007) enclosure, and there are several early medieval settlements within the surrounding area, particularly to the east and south-east towards the baronial and civil parish boundaries with Cremorne and Clontibret respectively (Figure 5.33).

The majority of the large enclosures overlook the surrounding land, with only three examples overlooking bodies of water: Annareagh South overlooks the Cor River; Cornaglare has views of Priestfield and Cornaglare Loughs to the north-east and south respectively; and Drumbanagher looks out over Glaslough Lake. The placename evidence may point to a communal role in the case of Clonkeady which is derived from '*Cluain Céide*' and translates as 'meadow of the flat-topped hill or place of assembly' (Logainm.ie: 41029). It certainly is a flat-topped hill; however, this does not rule out the possibility that it was also once a place of assembly. Similarly, Lisavargy is derived from '*Lios Bhearga*', a possible corruption of '*Lios a mhargaidh*' which translates as 'fort of the market' (Logainm.ie: 40333). Both monuments fall into the 51m-60m internal diameter range and both monuments are located within relatively densely populated areas (Figure 5.34); their possible roles will be discussed in further detail in Section 5.8 below.

In relation to the location of such sites in peripheral areas, this is certainly not the case on a baronial level, as eight of the enclosures are found between 1.6km and 4.1km from their respective baronial boundaries. The two closest monuments (under 1km) coincide with the eastern boundary of County Monaghan with counties Tyrone and Armagh. Situated on a small promontory, the newly discovered monument at Annareagh South is just 130m from the Cor River which forms the natural boundary between Monaghan and Armagh. In Trough barony, the enclosure at Cavan (Cope), is considerably further back from the River Blackwater at a distance of almost 1km. There is very little consistency from a civil parish perspective, particularly in relation to the somewhat unequal distribution (Table 5.6). Admittedly only small portions of Kilmore and Tedavnet are represented within the study area; however, in both cases the monuments within the confines of the study area constitute the only early medieval settlements with internal diameters greater than 50m within the whole of the civil parish.

**Table 5.6      Distribution of Large Enclosures per Civil Parish**

Civil Parish	Count
<b>Donagh</b>	2
<b>Errigal Trough</b>	4
<b>Kilmore</b>	1
<b>Monaghan</b>	2
<b>Tedavnet</b>	1

None of Monaghan's large enclosures exhibit the low-lying distribution preference associated with settlement-cemeteries that was seen in Leitrim/Roscommon, possibly due to the local topography. Of course, not all settlement-cemeteries fit this locational criterion, and a small proportion can be found in more exposed positions on hilltops or upper slopes (Stout & Stout 2008, 74). Given the landscape of the study area and its high density of drumlins, it is highly probable that settlement-cemeteries found here would indeed form part of that elevated minority. Many secular cemeteries are not strictly circular in shape, which could point to the possible functions of the large enclosures of Cornaglare (plectrum) and Lenagh (oval) (Figure 5.35). Certainly, the former also fulfils the 'requirement' of being close to water as it is within 300m of the substantial lakes of Priestfield and Cornaglare in addition to three smaller bodies of water to the north-west (Drumaclan Lough), west (Crumlin Lough), and south (unnamed). The possible identification of settlement-cemeteries will be discussed in more detail as part of the wider early medieval settlement discussion below (Section 5.8).

Despite the vast difference in settlement density, at 8%, the ratio of bivallate to univallate raths in the Monaghan study area is the same as that from Leitrim/Roscommon. This figure is made up of eleven bivallate raths and two which have been designated 'bivallate - possible' (Castleshane Demesne and Killyreask) (Figure 5.36). In the case of the former (MO010-013), a note in the field report suggests the outer bank may be a result of tree planting rather than being an original enclosing feature (Anon 1967a). As the area is quite disturbed and under dense tree cover, the lidar data cannot shed any further light on the matter, but the possibility that the outer bank is original cannot be ignored. Similarly, at Killyreask (MO003-011), the field notes refer to a low outer bank, but it cannot be determined whether or not it is an original feature (Anon 1967b); again, the lidar is inconclusive. Analysis of the morphology of the bivallate raths also demonstrates significant correlation with those from Leitrim/Roscommon. Twelve of the thirteen have internal diameters ranging from 25m-40m, with the majority (nine) measuring less than 35m. Just one bivallate rath exceeds 40m in internal diameter, that of Faulkland (MO009-011) which measures approx. 49.7m x 46.5m.



The bivallate raths are distributed across the study area, featuring in all three baronies and in five of the nine civil parishes (Table 5.7); the parishes of Drumsnat, Kilmore, and Tullycorbet all contain bivallate raths, although they lie outside of the study area limits. However, given its size, Tedavnet is a somewhat unique case in that there are no multivallate raths within the civil parish boundaries. Of course, survival of features and/or monuments may be a factor here, potentially preventing identification of multivallation. With nine examples (two of which lie outside of the study area), the parish of Errigal Trough is by far the best represented and also constitutes the highest density of bivallates; four are located within a 2.7km radius of one another in the north of the county, one to the east, and the remaining two towards the south of the parish. Only four of the bivallate raths are located within 500m of their respective civil parish or baronial boundaries, one of which—Figullar—is within 500m of the border with Tyrone. Two further bivallates are within 1km of the northern border with Tyrone. However, the remaining seven bivallate raths are more centrally located, ranging from approx. 670m up to 2.5km from their closest administrative boundary. Taking into the account the high density of bivallate raths within the barony of Trough, and their distribution along the Tyrone border, the evidence may be indicative of the location of a political centre or hub; this will be discussed in Section 5.8.

**Table 5.7 Bivallate Rathes per Townland / Barony / Civil Parish**

Townland	Barony	Civil Parish
<b>Annahuby</b>	Cremorne	Clontibret
<b>Castleshane Demesne</b>	Monaghan	Monaghan
<b>Clonisboyle</b>	Trough	Errigal Trough
<b>Corlattallan/Knockakirwan</b>	Trough	Errigal Trough
<b>Dernagola</b>	Trough	Errigal Trough
<b>Faulkland</b>	Trough	Donagh
<b>Figullar</b>	Trough	Errigal Trough
<b>Ivy Hill</b>	Trough	Errigal Trough
<b>Killydrutan</b>	Monaghan	Monaghan
<b>Killyreask</b>	Trough	Errigal Trough
<b>Lisgrew</b>	Trough	Errigal Trough
<b>Tiravera</b>	Monaghan	Tehallen
<b>Tully</b>	Trough	Donagh

Monaghan's bivallates show a clear preference for drumlin summits; nine are positioned (mostly centrally) directly on the summit, while just one (Castleshane Demesne) is on the

slope. Annahuby and Tiravera are on low rises between drumlins, but only the Dernagola example could be considered truly low lying. It is positioned in the loop of a small stream which leads onto a sluice and millrace less than 70m to the east (Figure 5.37). While the flax and corn mills noted here are more recent in date, the fact that the infrastructure for such practices was available in this stretch of the stream could point to even earlier milling facilities, albeit further investigations would be required to ascertain that. The four largest bivallates (over 36m in internal diameter) are positioned on drumlin summits, with the largest (Faulkland), occupying a prominent position and essentially covering the entire summit of the drumlin (Figure 5.38).

The majority of the bivallates overlook the surrounding land, with only the Killydrutan example overtly associated with water. It is in effect, surrounded by lakes as its position on the north-facing slope gives it an excellent vista over the Twin Lakes; Castle Lough and Barn Hill Lake are located at the base of the drumlin to the south-west and south-east respectively (Figure 5.39). Castleshane Demesne overlooks the Cor River to the east; Clonisboyle and Ivy Hill are within 800m south of the River Blackwater. Further south, the bivallates of Faulkland and Tiravera are also connected to the River Blackwater. They are located approx. 1.5km apart with the river running north-south between them; there is a similar set-up between Dernagola and Killyreask, albeit it is a minor river or stream that bridges the 1km distance between them.

Apart from the cluster of bivallate raths to the north of the study area, the remainder are relatively isolated from their multivallate counterparts, nor is there any real correlation with the distribution of conjoined raths. With the exception of the Clonisboyle bivallate which is a mere 250m from a stone with an (alleged) impression of St. Patrick's foot, none of the bivallate raths are within close proximity to any of the ecclesiastical sites. Corlattan/Knockakirwan (MO003-044) and Lisgrew (MO003-036) are within a small pocket of activity (approx. 3km<sup>2</sup>), with two of the larger raths and six average-sized univallate raths (Figure 5.40). On average, the closest univallate rath is approx. 675m, although this ranges from 290m (Lisgrew) up to 1.4km (Tiravera). Expanding the radius out to 2km, nine of the bivallates are within relatively well populated areas with between ten (Killydrutan) and sixteen (Killyreask) univallate raths in addition to crannógs and other settlement types (Figure 5.41).

All of the bivallate raths were previously recorded, one of which was 'excavated' in the 1920s (Macalister 1928, 54-56). Tiravera, known as 'Doonduff' (the Black Fort) on the historic maps, was investigated by the landowner in 1927 (see Section 5.4.1). The raths at Lisgrew (MO003-036) and Tully (MO006-005) are arguably the best represented on the lidar surface where clear definition between the multiple banks and ditches can be seen (Figure 5.42).

As seen in the previous chapters, trivallate raths are relatively rare and considered to have housed the most highly ranked citizens. On a prominent drumlin overlooking Knockaturly Lough, Lissaraw (MO013-020) constitutes one of only two potential trivallate raths in the region. It consists of two substantial banks and ditches and an outer field boundary which is locally believed to be a third bank (Moore 2018b). The monument is certainly very impressive (Figure 5.43) and its prominent location affords it commanding views in all directions. As with most of the study area, the surrounding landscape is quite hilly, and the selection of the highest point for the siting of the Lissaraw rath is likely to have been strategic. The rath has an internal diameter of approx. 41m, making it the second largest multivallate monument within the study area. The causewayed entrance is to the north-east, the opposite side to the crannóg on Knockaturly Lough. Of course, this placement may not be related to the crannóg but rather to the more accessible side of the hill. The slope is gentler on the north-eastern and eastern sides of the drumlin, and indeed, this is where the roadway is now located, and has been located at since at least the early nineteenth century. Despite its extensive views, the rath is relatively isolated, and the crannóg—at a distance of approx. 660m—is the only early medieval monument within a 1.4km radius. It is not until the radius is extended to 2.5km that a range of early medieval ‘neighbours’ are revealed. In addition to a holy well (MO013-043), seven univallate raths of varying dimensions (Table 5.8) are distributed to the north, south, east, and west (Figure 5.44).

**Table 5.8 Early Medieval Settlement within 2.5km of Lissaraw**

Townland	SMR	Internal Diameter Range
<b>Cavanagarvan</b>	MO013-027	25m-35m
<b>Cornamunady</b>	MO013-008	Unknown
<b>Drummuck</b>	MMO-127N <sup>70</sup>	15m-24m
<b>Lisnalee</b>	MO013-042	Unknown
<b>Lisnashannagh</b>	MO013-026	25m-35m
<b>Rakeeragh</b>	MO013-009	36m-40m
<b>Ramanny</b>	MO013-010	15m-24m

The second potential trivallate rath is located at Drumgolat (MO010-014001), the closest multivallate rath to an administrative boundary (the county boundary with Armagh), and is the most isolated of all of the multivallate raths. The rath has an internal diameter of approx. 36m and consists of “two massive earthen banks” (McCabe 1968a) with segments of a possible

<sup>70</sup> This potential monument was discovered by the author but has not yet been added to the SMR by the NMS.

third bank visible to the north (Anon 1967c). Lidar analysis is unable to provide any further detail or even confirmation of the outer bank as the rath is covered in dense vegetation. Its closest neighbour is approx. 920m almost directly south, on low-lying ground. There are only two other raths found within a 2.5km radius. Positioned in the centre of a prominent drumlin, the Drumgolat inhabitants had commanding views in all directions, but perhaps most significantly over their Armagh neighbours to the east. Indeed, it may not be a coincidence that the entrance to the rath is also located on its eastern side (McCabe 1968a). Considering its morphology, strategic position, and relationship to its surrounding monuments, the trivallate rath at Drumgolat may have fulfilled a strategic role within its early medieval stronghold; this will be discussed in more detail in Section 5.8.

The ratio of trivallates to univallates and bivallates is certainly more in line with that of Co. Leitrim than Co. Roscommon. There are six possible trivallate raths outside of the study area, all in the southern half of the county; Drumgolat is the furthest north (Figure 5.45). There is one in the barony of Dartree, two in Farney, and three in Cremorne. Half of them fall within the 41m-50m internal diameter range, one in each of the three baronies. The remainder are between 15m-24m (Lisnadarragh) and 25m-35m (Lisirrill, Monintin). Three of the trivallates are located along the Monaghan county boundary: both Fastry or Racreeghan and Lisnadarragh are on the border with Cavan; Cornagarvoge is situated along the border with Louth. There is a concentration of trivallates and bivallates in the south-west of the county, corresponding with the south-west of the parish of Aghnamullen and the north-west of Magheross. When viewed in conjunction with MacCotter's (2008, 258-259) map of the thirteenth-century cantreds and *trícha céts*, this area appears to be at the meeting of three territories, those of Muderne (in the modern county of Monaghan), Muintir Mael Morda (in the modern county of Cavan), and that of the Gailenga, Luigne, and Saitni (straddling Cavan and Meath) (Figure 5.46). Should these territories have originated within the early medieval period, it is likely that the convergence of the territories at this triple border point necessitated an increased presence by those in power. This will be discussed in more detail in section 5.8.

### *Conjoined Rath*s

There are only two potential conjoined raths within the study area (Figure 5.47), both of which were discovered over the course of the lidar analysis and are quite tenuous. The first is located in the townland of Ballyleck (MMO-118N). It consists of a complete circular enclosure with an adjoining circular annexe, measuring approx. 35m and 22m in internal diameter respectively. The traces are quite faint, with hardly any variation in the ground surface to indicate a substantial bank and/or ditch (Figure 5.48). It is quite possible that this is a tree-ring as it lies

within the grounds of the seventeenth-century Ballyleck House (MO009-049). A semi-circle of trees is visible on the aerial imagery, and the location is also depicted on the historic mapping. However, it is also possible that an earlier rath was modified and adapted into a tree-ring feature as part of a designed landscape associated with the estate.

The second potential conjoined rath is in Sheetrim and comprises a complete circular enclosure with a subcircular annexe adjoining it to the south-west (MMO-119N). The monument is very clear on the lidar surface and on the aerial imagery, particularly those from 2000 and 2005, although the more recent 'Digital Globe' image shows that an attempt may have been made to remove it (Figure 5.49). There are no traces of either enclosure on any of the historic mapping, and this, combined with the water that appears to be within the interior could indicate that they are a more modern construction. The larger enclosure measures approx. 17m in diameter, the adjoining enclosure is approx. 14.5m in internal diameter.

The siting of the (potential) monuments is similar to those within the Leitrim/Roscommon study area as both are situated in prominent positions on drumlin summits. The Ballyleck site is well within the 500m radius seen in Leitrim/Roscommon, lying just 360m south of a univallate rath with an internal diameter of 25m-35m. The Sheetrim example exceeds this distance with the closest rath situated approx. 700m to the north-east—a univallate rath with an internal diameter of 36m-40m. The conjoined raths are both relatively close to early medieval ecclesiastical centres: Ballyleck is approx. 1.2km south-east of Kilnahaltar, and Sheetrim is approx. 1.4km due east of Mullanarockan (Tedavnet). Despite the sparse distribution of settlement in Monaghan, this is considerably closer than those within the Leitrim/Roscommon area which are on average 2km from the nearest ecclesiastical centre. Given the size of the study area, they are essentially located close to one another, separated by mere 6.5km, with Sheetrim lying north north-east of Ballyleck.

There are only three other possible conjoined rath pairings within the wider county, all clustered together in its southern tip (Figure 5.50). In fact, they are positioned in a linear arrangement, running approximately north-south, with only 8.5km separating the two at either end. No trace of the central pairing at Tonyellida survives; their exact location is not known as their entry on the SMR was based solely on their depiction on McCrea's map (Anon 2017). The potential conjoined raths are found in only two of the five baronies (Monaghan and Farney), but are distributed across four civil parishes, with two in Donaghmoynne (Table 5.9).

**Table 5.9 Conjoined Raths per Civil Parish and Barony**

Conjoined Pairing	Civil Parish	Barony
<b>Ballyleck</b>	Kilmore	Monaghan
<b>Corlygorm</b>	Donaghmoyne	Farney
<b>Sheetrim</b>	Tedavnet	Monaghan
<b>Tonyellida</b>	Donaghmoyne	Farney
<b>Tullynaskeagh East/West</b>	Killanny	Farney

The distribution here clearly does not mirror that of Leitrim/Roscommon, and with such scant, and arguably tenuous, evidence for this monument type within the study area, it is difficult to determine whether they are indeed indicative of a particular grade or function, or whether they are anomalies, or perhaps even later constructions within the Monaghan landscape.

#### *Cashels*

None of the six recorded cashels in County Monaghan are located within the study area (Figure 5.51). At a distance of approx. 4km from the study area's south-eastern corner, the two cashels in the parish of Clontibret are the closest to the study area. Five are located to the east of the county, while the Dunsrim example is the only one situated in the west, more than 30km from its nearest Monaghan counterpart. All six are of disparate dimensions (Table 5.10), the largest being the monument at Cargaghadoo which has a maximum internal diameter of approx. 51m.

**Table 5.10 Internal Diameter Range of Cashels**

Townland	SMR	Internal Diameter
<b>Annaglogh</b>	MO015-002	25m-35m
<b>Bocks Lower</b>	MO027-038	41m-50m
<b>Cargaghadoo</b>	MO025-014	51m-60m
<b>Dunsrim</b>	MO021-007	25m-35m
<b>Lackafin</b>	MO025-045	41m-50m
<b>Lemgare</b>	MO014-021001	36m-40m

## *Crannógs*

There are thirteen crannógs located within the study area (Figure 5.52), distributed across nine different lakes, in addition to one at Killyneill which is now on dry ground. While eight of the lakes are home to a single crannóg, Drumreask is home to four. The crannógs on this average-sized lake are positioned close to the banks along the north, north-west, north-east, and east (Figure 5.53). As with Leitrim/Roscommon, there are also a large number of lakes which do not contain any crannógs, for example, Sillis Lough, Grove Lough, Sheetrim Lough, and Lambs Lough. None of the crannógs are located on lakes which are fed by any of the major rivers within the catchment area.

The crannógs range in diameter from approx. 14m (Ballagh Lough) to 35m (Killyneill), however, the majority are approx. 15m in diameter. Indeed, the four Drumreask Lough examples are all approx. 15m in diameter. Wooden piles and/or stakes are visible at a number of the sites, including the fifteenth-century MacMahon stronghold at Spark's Lake (also known as Convent Lake). The bottom part of a quernstone was also found at this site (Buckley 1983a). Interestingly, the inauguration site of the MacMahons was located on Leck Hill, a mere 650m east of—and overlooking—the Ballagh Lough crannóg (Smyth 1954, 4). This, the smallest crannóg (MO013-016), was cited as another MacMahon stronghold in the Papal Bull of AD 1297 (*ibid.*), and the lowering of water levels in 1976 revealed a double ring of piles and the remains of a dugout canoe (Buckley 1983b). A possible causeway running to the eastern shore of the lake was identified in 1983 (Brindley 1983a), possibly heading towards the inauguration site (see Section 5.8).

The Monaghan crannógs are in more isolated positions than their Leitrim/Roscommon counterparts, no doubt due in part to the reduced settlement density in the county. Only three of the crannógs are located less than 500m from their nearest rath—Drumcaw, Cornacreeve, and Mullaghmonaghan. Drumcaw is the closest, overlooked by a univallate rath with an internal diameter of 25m-35m which is situated on a drumlin slope to the south-west of the lake. The majority of the crannógs lie within approx. 650m of their nearest rath, although two examples—Derrygassan Lower and Tonyhamigan—are more than 1km away. The crannógs at Drumreask are effectively surrounded by univallate raths, with four univallate examples located within 650m to the north-east, south-east, south, and west.<sup>71</sup> The two to the south are within the 25m-35m internal diameter range, while the one to the north-east—located on a drumlin summit—is the largest, with a maximum internal diameter of approx. 45.7m. Only two crannógs are situated within less than 1km of higher status sites. The Cornacreeve example

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<sup>71</sup> Measurement taken from the approximate centre of Drumreask Lough.

on Tully Lough, is approx. 450m to the south-west of the bivallate rath at Tully. This rath is positioned on the summit of a drumlin with good visibility of the crannóg. The crannóg at Emy Lough lies approx. 1.1km to the north-east of the rath, again within its line of sight. This appears to represent a small settlement hub, with four univallate raths also within a 1km radius (Figure 5.54). Conversely, the Knockaturly Lough example is relatively isolated from other raths, with the exception of its trivallate neighbour which lies approx. 660m to the north-east. This trivallate rath at Lissaraw is sited on a drumlin summit, with excellent views of the lake and its crannóg.

### **5.6.3 Field Systems**

The raths, crannógs, cashels, and ecclesiastical centres represent only part of the settlement landscape; the land extending from the settlement enclosures was largely used for agricultural purposes. However, as with the Leitrim/Roscommon area, evidence for this farmed landscape is sparse. Although, there are no recorded field systems within the study area, during her survey of the rath at Dernacoo (MO003-024), Brindley (1983b) noted that a field fence to the south of the enclosure could represent the remains of a contemporary field system. While there are some curvilinear striations visible on the lidar surface, the evidence is insufficient to interpret them as a credible field system. There is just one instance of field systems recorded within the whole county: the various enclosures making up the Drumirril field system (MO032-068) are located within the area of prehistoric rock art and are likely to be contemporary due to their apparent relationship with the rock art clusters (O'Connor 2006, 125).

The arguably low rate of survival of upstanding archaeological remains within the study area means that the likelihood of identifying subtle features such as field boundaries, even with lidar, is relatively low. Indeed, Barrett's study of rath distribution in the neighbouring county of Louth identified 87 new monuments which appeared as cropmarks on aerial photographs; almost half of which were located in low-lying areas which Barrett interpreted as the outcome of a high destruction rate (Barrett 1982, 88). While settlement enclosures were the most common find, there were some instances where adjoining field systems were also visible which could be associated with their respective enclosures (Barrett 1983, 233). Field boundaries associated with raths are often later additions and not necessarily contemporary with the habitation of the enclosures. Sometimes the field boundaries obliterate parts of the raths, for example, the northern section of the rath at Billis (MO006-016) has been straightened and incorporated into the boundary. However, they generally respect the rath enclosure, as seen at Cornaglure (MO013-005) and at Tiravray (MO010-012), where the enclosures have been adapted as the core of the modern field systems (Figure 5.55). Often, the field boundaries appear to radiate out from the rath bank, e.g. Clonkeady (MO009-007) and the trivallate rath at Lissaraw



(MO013-027). In some cases (parts of) these boundaries may indeed have their origins in earlier periods, but there is insufficient evidence available at these sites to determine this further. Examination of the lidar dataset revealed just one promising occurrence of a rath—the newly discovered enclosure at Clonkeady (MMO-124N)—with potentially contemporary field boundaries, albeit the divisions are very faint on the lidar surface (Figure 5.56). The two subrectangular enclosures emanate from the northern segment of the rath in a ladder formation, similar to that uncovered during the excavation at Dowdstown, Co. Meath (Figure 5.57).

There are a number of rath sites where a curvilinear bank circles the lower slopes of the drumlin/hill. At Killydonagh (MO003-020), a curvilinear ditched feature is visible approx. 60m from the rath, running from the north to the south-west (Figure 5.58). Similarly at Mullananalog (MO003-026), a curvilinear feature runs from the north-east to the south-east approximately 60m from the rath enclosure (Figure 5.59). In both cases, the curvilinear feature is depicted as a field boundary on the historic mapping, although this does not diminish their archaeological potential. More evidence is needed in order to reach a more definite conclusion, but it is possible that this outer, concentric feature represents the boundary of the *airlise* associated with early medieval settlements.

The fact that field systems often consisted of temporary, potentially mobile structures (O’Sullivan et al. 2014, 182), coupled with the poor levels of archaeological survival within the study area has led to a poor representation of contemporary field boundaries. As seen in Leitrim/Roscommon, although the field systems and farms of the early medieval period cannot be readily identified—or at least identified with any real certainty—they did exist, and so must be taken into account when attempting to interpret the early medieval landscape.

#### **5.6.4 Souterrains**

There are five recorded souterrains within the study area (Table 5.11), with distribution very much confined to the southern portion of the study area, particularly the south-eastern corner where four out of the five are located (Figure 5.60). Indeed, the Creighans example is the furthest north of all the County Monaghan souterrains, and the only one to be found within Monaghan barony. The remaining four are all located within a 3.5km radius of one another in the barony of Cremorne. Moore suggests that the distribution of souterrains is a reflection of their being “a fashion that spread rapidly in a limited geographical area” (2003, 133), and this would indeed seem to apply to the Monaghan distribution.

**Table 5.11 Recorded Souterrains within the Study Area** *(after www.archaeology.ie)*

Townland	SMR	Type
<b>Creighans</b>	MO007-019	Stand-alone
<b>Drumgolat</b>	MO010-014002	Trivallate Rath
<b>Ennis</b>	MO014-045	Stand-alone
<b>Lisaginny</b>	MO014-006002	Univallate Rath
<b>Moy Otra</b>	MO014-043	Stand-alone

Three of the souterrains are currently inaccessible, or at least not fully accessible, due to partial collapse. Fortunately, partial investigations were possible at two of the sites prior to their being closed up. Moy Otra was investigated by the landowner when it was discovered in the early 1990s; he reported that it was constructed of dry-stone walling and was approximately four feet high and six feet long (Moore 1995). Ennis was discovered in 2005 and consists of a lintelled passage running east-west for approx. 5.5m before being blocked by fallen rubble (Breen & Robinson 2005). One of the lintels may contain an ogham inscription (ibid.). Finbar McCormick (1978, 326-329) conducted full surveys of the souterrains at Drumgolat and Lisaginny and produced detailed plans of both structures (Figure 5.61).

Looking at the county as a whole, there are undeniably pockets of souterrain construction (Figure 5.62) which may be indicative of local practices specific to certain communities. It is noteworthy that almost 30% of the Monaghan souterrains are situated in the south-eastern tip of the county, i.e. in the zone which borders County Louth. Louth is home to more than 340 souterrains,<sup>72</sup> and the relatively high concentration in this part of Monaghan is reflected across the county boundary (Figure 5.63). Certainly, they are an extension of the cluster of souterrains which run from the east coast (just south of Dundalk) across the northern portion of Louth (Clinton 2001, 33).

In addition to the recorded souterrains are four potential unrecorded souterrains which were identified during the field inspections undertaken by the NMS (Table 5.12). All four are associated with raths, but their existence is quite tenuous. For example, the identification of a possible souterrain at Mullanacross is based on the presence of pile of stones close to the rath, one of which could have made a cover slab for a souterrain (Brindley 1983c). The nature of the degradation of the raths at Cavanagarvan, Lisglassan, and Tiravera pointed to the

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<sup>72</sup> The figures were downloaded from the NMS Database (www.archaeology.ie) and are correct as of 14/08/2018.

possible existence of souterrain structures, however, no physical remains were uncovered (McCabe 1968b; Anon 1968b; Anon 1968c, respectively). The accounts of a souterrain at Tiravera are particularly tenuous in view of the fact that the rath was excavated in the late 1920s, albeit by the landowner, and no souterrain was uncovered (Macalister 1928, 54). The Lisglassan example would certainly fit in with the south-eastern distribution pattern discussed above, and those at Tiravera and Cavanagarvan, although part of a sparser distribution pattern, are not outliers by any means. However, the Mullanacross example is in total isolation as far as distribution goes, in addition to being the only (possible) souterrain in the barony of Trough.

**Table 5.12 Possible Unrecorded Souterrains within the Study Area**

Townland	SMR (of Rath)	Type
<b>Cavanagarvan</b>	MO013-027	Univallate Rath
<b>Lisglassan</b>	MO014-007	Univallate Rath
<b>Mullanacross</b>	MO003-016	Univallate Rath
<b>Tiravera</b>	MO010-001	Bivallate Rath

Contrary to Swan's criteria (1983, 274), none of the souterrains (recorded or unrecorded) are associated with (known) ecclesiastical sites. In fact, of Monaghan's 55 recorded souterrains, only three are associated with potential early medieval ecclesiastical sites: two lie within 200m of the church remains at Killark, while another lies approx. 200m south of the ecclesiastical remains at Inishkeen Glebe. Within the study area, three of the souterrains are stand-alone monuments and do not appear to be associated with any other features or monuments. Examination of the lidar surface failed to find any indications of potential enclosures within the vicinity of these souterrains. However, the souterrains at Drumgolat and Lisaginny are both located within the interior of their respective rath enclosures. The rath at Drumgolat is trivallate and also contains a possible hut site, whereas Lisaginny is a relatively small univallate rath, measuring less than 17m in internal diameter. Taking into account the four possible additional souterrains, Tiravera is bivallate and the remaining three are all univallate with their internal diameters all falling within the 25m-35m range. Extrapolating out to investigate the whole county, two thirds of the recorded souterrains are associated with raths, spread across univallate (internal diameters from 25m to 60m), bivallate, and trivallate monuments.

Apart from effectively avoiding ecclesiastical establishments, the souterrains within the study area (and arguably the wider county) do not appear to favour any particular grade or section

of society. As such, they cannot be considered an indicator of status for the purposes of this research. While souterrains may reflect local practices, as Clinton (2001, 36-39) and Warner (1986, 111-112) argued, they are not necessarily indicators of political or tribal divisions. If Clinton's (2001, 95) proposed chronology for souterrain construction is indeed correct, and their peak phase of activity was between the late eighth and early thirteenth centuries, the distribution of souterrains within the study area may be indicative of settlements that adopted the practice and which were still active in the latter part of the early medieval period.

## **5.7 Overall Distribution of Settlement**

As discussed, the distribution of early medieval settlement (secular and ecclesiastical) is relatively sparse, with multiple areas seemingly devoid of archaeological monuments from any period. Even though the lidar analysis succeeded in filling in some of the gaps, there are still vast areas without settlement evidence. The survival of archaeological monuments has already been touched upon, and this is likely to have had a significant impact on our understanding of settlement distribution. Accounting for 17% of the recorded raths within the study area, twenty-three monuments are reported as no longer being visible, whether through deliberate removal such as bulldozing, or for reasons unknown somewhere between the time of recording on McCrea's maps and the visits of the archaeological survey teams in the 1940s and/or 1960s. However, traces of eleven of these are visible on the lidar surface which, in effectively halving the amount, demonstrates the value of lidar analysis in archaeological research. In contrast, eight previously recorded monuments are not visible on the current lidar surface which in some cases, such as Castleshane Demesne, is the result of substantial areas of forestry which prevented the lidar survey from reaching the ground surface. However, for other monuments, this means that they have disappeared in more recent times, i.e. in the circa 50 years between their recording by the archaeological survey team and the flying of the lidar survey. This brings the rate of non-survival to circa 14%, a not insignificant proportion of the early medieval settlement landscape.

The topography is relatively consistent throughout the study area, covered as it is by drumlins and the intermediary low-lying ground. According to Shirley (1879, 2), an 'ancient survey' suggested that the amount of marsh and bog that covered the county was once quite considerable but had greatly diminished by the late nineteenth century. Whether this was the case in times as 'ancient' as the early medieval period is uncertain; however, it is a distinct possibility that much of the low-lying ground was simply unsuitable for habitation. This could in some way account for the establishment of the early ecclesiastical sites on high ground, rather than on lower ground as was the preference in Leitrim/Roscommon (and in many other areas).

Admittedly, many of the drumlins are rather pointed in shape and may not have been suitable for settlement or habitation, although, there are numerous less cone-shaped drumlins which presumably would have been appropriate. Of the 511 townlands within the study area, the majority (31%) of their placenames refer to the drumlin topography, with many of them incorporating 'ridge', 'hill', or sometimes 'marsh' into the toponym. A further 21% allude to the presence of woodland, with references to alder, ash, oak, and yew, among other species (Figure 5.64).

Further investigation of the placename evidence indicated a number of possible locations with archaeological potential. Nineteen of the townland names without any recorded monuments refer to archaeological remains which may date to other periods, such as burial grounds, cairns, or monuments. From an early medieval perspective, sixteen townlands without any physical remains of an enclosure inferred the existence of a fort.<sup>73</sup> Lisnanore contains a recorded tree-ring (MO009-029) which is noted as 'Lisnanore Fort' on the 25inch map and may represent the remains of a modified rath.<sup>74</sup> Following close examination of the remaining townlands using lidar, aerial imagery, and historic mapping, eleven failed to produce any evidence of enclosures. Only the townland of Ralaghan exhibited extremely faint traces of a circular enclosure on the lidar surface.<sup>75</sup> The remaining three townlands contain suspiciously curved field boundaries which may represent the remains of raths or cashels, although further investigation such as geophysical survey would be required in order to provide a more informed interpretation.

Sixteen of the townland names reflect potential religious connections, some of them consistent with later church lands with references to 'tates' and 'glebes'. However, many have early ecclesiastical connotations, with the most intriguing being that of Telaydan which translates as '*Tigh Léadáin*' meaning 'the house of Léadán' (Logainm.ie 40788). There are two townlands with this name, one in the north-east, and one in the south-central area, potentially reflecting the saint's travels. Mullanacask, which translates as '*Mullach na Cásca*' or 'summit of Easter' (Logainm.ie 40582), is less than a kilometre from St. Meallán's foundation at Mullanacross and therefore may be related. The remaining townlands with ecclesiastical connections are not close to any of the known establishments and may be related to particular (later) events, or marks along the way to the various ecclesiastical foundations.

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<sup>73</sup> Translation of placename evidence incorporating 'rath', 'lios', and 'dun'.

<sup>74</sup> Lisnanore: *Lios na nDeoraí*: fort of the tears (Logainm.ie 41086).

<sup>75</sup> Ralaghan: *Ráth Lachan* (Logainm.ie 40747).

The relatively low volume of (identified) early medieval monuments across the study area means that the resultant distribution of secular settlement is quite sparse. However, despite the dearth of settlement, consistencies are apparent in the siting of the raths. The majority of the univallate raths occupy elevated positions on the upper slopes or summits of the multiple drumlins and hills in the study area. However, there are a small number of exceptions on low-lying ground, which may have implications for their function or role within their communities; these will be discussed further in Section 5.8 below. For the most part, the hills or drumlins are home to a single rath, with only ten examples of two raths—all univallate—on a single drumlin. This is in distinct contrast to Leitrim/Roscommon where there are several cases of three or more raths on individual drumlins (see Chapter 4: Section 4.7). In Monaghan, one rath is positioned on the lower slope and one on the upper slope or summit. Where the internal diameter of each rath is known, there is no apparent pattern as to the positioning of the larger rath. Four of the pairs fall within the same internal diameter range; in three cases, the larger rath is in the more elevated position; and in just one pairing, the larger rath is in the lower position, albeit still on a low rise. In this last instance, at Emy, the lower rath is considerably larger than the upper rath, with an internal diameter of approx. 43.3m compared to approx. 31.7m for its neighbour (Figure 5.65).

Furthermore, it is unusual to even have more than one rath per townland, only a handful of townlands contain three or more early medieval monuments. In the case of Mullanacross, all five of its potentially early medieval monuments are related to the ecclesiastical establishment. Drumreask contains five monuments in total, four of them crannógs, the fifth is a univallate rath which lies approx. 300m outside of the study area limits. Fully contained within the study area, with its four raths, Crumlin contains the highest number of secular settlements (Figure 5.66). The north of the townland contains a 25m-35m rath with a 15m-24m rath approx. 150m directly south of it; the remaining two raths are located approx. 230m apart in the south of the townland, the more easterly falling within the 41m-50m range, while the other is of the standard 25m-35m diameter range. Cornecassa Demesne and Legnacreeve each contain three raths, with the former arranged in an almost linear format, three 25m-35m univallate raths on the summits of three neighbouring drumlins (Figure 5.67). Located in the east of the townland, the Legnacreeve examples are within 1km of the possible ecclesiastical foundation at Rackwallace. The more northerly of the three has an internal diameter of 25m-35m, while the remaining two measure 25m-35m and 15m-24m and are found on the upper and lower slopes (respectively) of the same drumlin. Of the remaining townlands with early medieval settlement

evidence,<sup>76</sup> only 25 have two sites, with the majority of 108 home to just a single example of secular settlement.

With such limited settlement, it is more difficult to identify particular types of settlement and/or communities with any certainty. Using the evidence from the discussions above, the following section will target key sites and areas with a view to establishing a better understanding of the settlement patterns within the study area.

## 5.8 Discussion: Key Site Types and Key Areas

The early medieval settlement monuments within the Monaghan study area are very different to those in the Leitrim/Roscommon area, both in terms of range and distribution. In addition to the sparse distribution patterns, the study area also lacks key components such as cashels and conjoined raths. As such, it is not possible to make certain comparisons or to expand upon particular themes which were identified in the previous chapter. Instead, the Monaghan evidence serves to offer a different approach, with a diverse overview of early medieval settlement patterns.

As discussed previously, the identification of settlement-cemeteries is an important step in attempting to understand early medieval communities and territories. There are five potential settlement-cemetery sites located within the study area (Table 5.13), although, as seen in the previous chapter, further investigations would be required in order to provide more concrete evidence.

**Table 5.13 Possible Settlement-Cemeteries**

Townland	SMR	Distance to High-Status Site
<b>Cornaglare</b>	MO013-005	1.5km
<b>Desert</b>	MO006-034	1.4km
<b>Drumbeo</b>	MO010-021	885m (trivallate)
<b>Legnacreeve</b>	MO014-015	840m
<b>Lenagh</b>	MO003-038	600m / 1.1km (2 x Bivallate)

<sup>76</sup> Evidence of secular settlement: i.e. rath, cashel, enclosure, crannóg.

Two of the candidates—Cornaglare and Lenagh—were mentioned previously in section 5.6.2. Both are large enclosures, the plectrum-shaped Cornaglare has an internal diameter of approx. 63.5m while the oval-shaped Lenagh example measures approx. 94m x 54m internally. The existence of the third candidate (MO006-034) in the townland of Desert is relatively tenuous, as the recording is based solely on local accounts given that there are no physical remains of an enclosure (Brindley 1983d) (Figure 5.68). As such, there are no measurements or morphological details available; however, this potential site is in an ideal location for a settlement-cemetery, positioned as it is on low ground adjacent to the Mountain Water River. As seen in previous chapters, proximity to water is a key characteristic of cemetery sites (Stout & Stout 2008, 72-74) and both Cornaglare and Desert are strong in this regard. Although Lenagh is on higher ground, its unusual shape and exceptionally large dimensions suggest that it may fulfil such a function. Moreover, one possible translation for the townland name is ‘marshy’ (Logainm.ie 40332) which would certainly conform to the positioning of cemetery sites close to waterlogged areas (Stout & Stout 2008, 72-74). Similarly, a fourth possible candidate is found in the townland of Legnacreeve (MO014-015), although again no surface traces remain. This low-lying (possible) enclosure is located approx. 200m from a stream, on the edge of the old stream valley, with the land to the west south-west described as ‘swampy’ (Anon 1968d). The fifth candidate is in the townland of Drumbeo (MO010-021); again, no physical remains have survived, and the recorded monument is based on the depiction of a circular earthwork on the late eighteenth-century Ballybay Estate maps (Anon 2018b). The possible enclosure is located on low-lying ground between two rises, although the water bodies nearby are relatively minor. However, the townland name is of particular interest here; one potential derivation of ‘Drumbeo’ is ‘*Droim Beó*’, meaning ‘ridge of the living’ (Logainm.ie 40438). While the potential enclosure is in the low-lying portion of Drumbeo, the majority of the townland is composed of a sprawling drumlin with a long, narrow, ridge running approximately north-south and effectively overlooking the enclosure location (Figure 5.69). The naming of the townland after this ridge could be a significant distinction between it—used by the living population—and the area below allocated to the dead.

On a distributional level, all five of the potential settlement-cemetery sites share a common characteristic in that they are all located in relatively close proximity to a high-status settlement, ranging from just 600m up to 1.5km (Figure 5.70). Indeed, Lenagh is positioned between two bivallate raths while Drumbeo is close to the trivallate rath at Drumgolat. The potential settlement-cemeteries are distributed among five of the nine civil parishes within the study area, with just one example in each of the five, and as with Leitrim/Roscommon, may be indicative of territorial strongholds when viewed in conjunction with other settlement evidence.



Assembly places and inauguration sites were key locations within early medieval society, fulfilling multiple roles in relation to the governance and administration of the various territories. The location of such sites in relation to the high-status settlements—particularly the trivallate raths of Lissaraw and Drumgolat—may shed some light on the distribution patterns and subsequent identification of possible territorial strongholds. There is just one recorded inauguration site within the study area (MO013-017); located in the townland of Leck, it is reputed to be the inauguration site of the MacMahons who emerged as the dominant rulers of the Airgialla during the medieval period (Simms 2017, 131-132). The townland is thought to have been named after the flagstone on which the MacMahons were inaugurated, as per the traditions of the time (Hamilton 1912, 65). Unfortunately, the stone was destroyed in the nineteenth century but originally measured approx. 3.65m x 3m x 0.9m (Moore 2018c). The monument is on the summit of a high ridge, overlooking the crannóg on Ballagh Lough which was known as a MacMahon stronghold in the thirteenth century (Smyth 1954, 3-4). Although the discovery of a dugout canoe at the site in 1976 (Buckley 1983b) suggests earlier—probably early medieval—activity at the site. There are no visible archaeological remains in Leck itself, but this particular corner of the study area contains several significant monuments (Figure 5.71); within a 2.5km radius of the inauguration site are: a trivallate rath (Lissaraw), a possible settlement-cemetery (Cornaglare); a crannóg stronghold (Ballagh Lough); and five univallate raths with internal diameters ranging from approx. 20m-30m. In fact, the only prominent early medieval site type missing from the immediate environs is an ecclesiastical foundation. At a distance of approx. 1.6km (from Lissaraw), the holy well at Sheetrim is the closest early Christian monument, while the closest full ecclesiastical foundation (Rackwallace) is almost 5km to the north-east (although this is not a substantial distance in the context of the Monaghan study area).

Although there is no inauguration site recorded close to Drumgolat, there is a ‘ceremonial enclosure’ (MO010-015) approx. 2km to the west in the townland of Greenmount. This large enclosure measures approx. 55m in internal diameter with a mound—classified as a ‘bowl barrow’ (MO010-015001)—in the centre. This enclosure was originally classified as a ‘Ringfort - rath’ but the classification was revised in early 2018 (Moore 2018d). Ceremonial enclosures are described as being Bronze Age or Iron Age in date, often associated with royal sites (SMR: Ceremonial Enclosure). However, given its size and morphology, the enclosure does not appear to conform to the description of such monuments: the SMR description states that the internal diameter measures a minimum of 60m, but usually exceeds 100m in addition to normally having an internal ditch and outer bank (ibid.). Greenmount has a maximum internal diameter of 55m and has an internal bank and external ditch like its early medieval counterparts (Figure 5.72). It is likely that the classification is incorrect in this case; nevertheless, it is

probable that the enclosure did indeed have a ceremonial purpose, but in the early medieval period rather than in prehistory, albeit this could reflect continuation of use from prehistoric times. 'Greenmount' is a derivation of the Irish '*An Grianán*' (Logainm.ie 40443) which translates as 'sunny chamber' or 'balcony exposed to the sun' (eDil 26633). This has connotations of looking above, possibly exaltation. The layout of Greenmount, i.e. the mound within a larger enclosure is reminiscent of the features of the 60mx70m royal site at Clogher, Co. Tyrone (TYR 058:033) (Figure 5.73), and fits some of the criteria identified as part of royal sites in Chapter 2 (Section 2.4). Moreover, although there is no evidence of one now, there are local traditions of a crannóg in the neighbouring townland of Kinard to the north on lands that are liable to flooding. The possible settlement-cemetery of Drumbeo is also within this locality. Drumgolat was certainly of strategic importance in later centuries, overlooking the townland of Crossdall, Co. Armagh (Figure 5.74) which was the site of the opening skirmishes of the Battle of Clontibret in AD 1595 (ARM 019:023). A modern roadway (B0003/R214) runs from Armagh, between the drumlins containing Drumgolat and Drumbeo, perhaps overlying an earlier routeway through the territories. Moving in a 2.5km radius from the ceremonial enclosure, there are nine univallate raths within the 15m-24m and 25m-35m ranges, in addition to a possible bivallate rath at Castleshane Demesne. As with Lissaraw, the nearest ecclesiastical site is at a considerable distance from the core area, in this case, the foundation at Gallagher is approx. 4.3km south of Drumgolat.

Similar patterns are also visible in the northern part of the study area, albeit incorporating bivallate rather than trivallate raths. For example, the bivallate rath at Tully lies approx. 1.5km west of the possible settlement-cemetery of Desert, which in turn lies approx. 1.5km west of the extensive enclosure of Drumbanagher which has an internal diameter within the largest range of 91m-95m. Less than a kilometre north of these monuments is the monument-free townland of Knockaphubble (Figure 5.75). This is especially noteworthy as the townland name is derived from '*Cnoc an Phubail*' which translates as 'hill of the congregation' (Logainm.ie 40668), which may imply a former role as a place of assembly. Again, there is a crannóg in close proximity, and one would have to travel several kilometres to reach the nearest ecclesiastical site at Donagh. There are also similarities in the south of the study area, where there is a standing stone in Corfad townland (MO014-025). Unfortunately, the stone is no longer extant and no measurements were taken prior to its disappearance (Anon 1968e), but it is possible that it performed a similar function to that of Leck. It was located in a linear alignment with the bivallate rath of Annahuby and the possible settlement-cemetery of Legnacreeve (Figure 5.76). Furthermore, the hill rises up to form a small mound approximately 280m north-west of the purported location of the standing stone.

In the western section of the study area, the townland of Lisavargy translates as 'fort of the market' (Logainm.ie 40333) which again implies a gathering place. This is positioned close to the bivallate rath of Lisgrew with the possible settlement-cemetery of Lenagh approx. 920m to the east, and a number of raths of varying dimensions in the vicinity.

Gleeson (2014, 849) identified Enagh as a potential *óenach* site due to the translation of the townland name. There are two recorded raths within the townland, both situated on the same drumlin approximately 150m apart; the rath on the drumlin summit has a diameter of approx. 31m but the lower one has not survived and could not be measured. The townland lies 1.5km west of the bivallate rath at Faulkland and approx. 2.5km south-east of the possible conjoined rath of Sheetrim (Figure 5.77). The monuments are on elevated ground and close to a probable Airgialla boundary, but apart from the fact that they share a drumlin (although the lower one may not even be a monument as it was only identified from an estate map), there is nothing particularly striking about the morphology of the monuments that might suggest that they were part of a royal or special landscape.

There are some patterns visible across the civil parish boundaries, the most notable being the siting of the early ecclesiastical sites which was discussed in Section 5.6.1. Unlike Leitrim/Roscommon, there are no townlands large enough (i.e. similar to the Kiltoghert example), nor is the settlement per townland dense enough, to attempt a reconstruction as seen in Chapter 4. Instead, applying the later territorial divisions identified by Paul MacCotter (2008, 259), the settlement patterns discussed above begin to take shape. The trivallate rath at Drumgolat and its associated monuments belong to the northern tip of the territory of Muderne; the Lissaraw trivallate is within the territory of Clonoys; and Lisgrew is within Clogher. Although these territories are defined at a point in time, and the early medieval landscape was certainly dynamic and frequently changing, the archaeological evidence would seem to support the historical evidence in this case. Certainly, in the case of the trivallate raths as the power strongholds of their respective territories, with smaller subdivisions indicated by the bivallate rath distribution across the remaining areas. The territorial stronghold of the Airgialla was located in Clogher within the present county of Tyrone (Warner 1973; 1996), so it is possible that the Lisgrew bivallate—and others in the area—represent the locations of lower-level power centres, and potentially lower grades of lord. This may explain the high concentration of bivallate raths within this corner of the study area as they lie in the south-easterly tip of the territory, towards the point where it merges with the two neighbouring territories of Tulacoch and Erthry.

One final cluster of relatively innocuous yet potentially significant monuments lie along the western border of the study area, within the parishes of Monaghan and Tedavnet (Figure 5.78). Firstly, Drumreask Lake is home to four crannógs, an arguably excessive amount given the insignificant size of the lake. Secondly, just 1.6km to the south-east are three average-sized raths in the townland of Cornecassa Demesne, one of the most populated townlands within the study area. More importantly, the three raths are in a linear formation (roughly north-south) atop three neighbouring drumlins. While not particularly striking morphologically, the monuments stand out as regards their siting. Those who constructed the monuments in the early medieval period clearly made use of the landscape available, with the location of the lake and the drumlin trio dictating the placement of the settlements. Of course, the monuments may not necessarily have been inhabited simultaneously. Furthermore, there are no high-status or obviously significant sites within the immediate area. The neighbouring settlements are largely made up of univallate raths of average dimensions, with the closest bivallate rath being that of Killydrutan, approx. 1.5km to the south of the most southerly rath at Cornecassa Demesne. The possible conjoined rath at Ballyleck is approx. 1km south-west of Cornecassa Demesne, and it could be part of an extension of the territory associated with Lissaraw, or indeed the partial remains of another stronghold.

## **5.9 Conclusion**

Although not exact replicas of one another, similar patterns are identifiable at all of the areas discussed above. This would seem to imply that combinations of particular types of site and/or monument were essential within a stronghold, although not necessarily within an exact formation. This is perhaps unsurprising as the landscape itself is not uniform, and it is therefore impossible for exact patterns to be replicated across territories and communities. In the early medieval period, settlement and/or monument construction had to be adapted to the land available and the ground conditions at the time. Moreover, the rate of monument survival in Monaghan has potentially had a significant impact on our understanding, or even our capability of fully understanding the patterns of early medieval settlement in the region. Clearly, the Leitrim/Roscommon and Monaghan study areas are quite different as far as early medieval settlement is concerned, despite having relatively similar landscapes on the surface at least. The distribution and patterns of early medieval settlement in both study areas will be discussed in more detail and expanded upon in Chapter 6.

# CHAPTER 6

## *Beyond the Study Areas*

### 6.1 Introduction

The project's two case studies in Leitrim/Roscommon and Monaghan have demonstrated the wealth of early medieval settlement evidence—both secular and ecclesiastical—that is available in the archaeological record, and the variety and range of forms it takes within the landscape. Rathes are clearly plentiful and are the most iconic and recognisable monuments from the period, although they too have a complexity and layers of meaning beyond their familiarity. Previous archaeological research in the form of large-scale national and regional studies, monument typology studies, and monument-specific investigations (including excavation) have all contributed greatly to our understanding of early medieval Ireland in different ways, providing various strata of detail about settlement and society at the time. We now have a level of detail that enables us to venture into an early medieval home and think about how the inhabitants lived, worked, and communed together. But there are still many avenues to explore. It is particularly striking how few studies have examined early medieval Ireland at a local or community level (O'Sullivan et al. 2014, 81), which is perhaps where the most valuable insights can be gained.

In thinking about early medieval settlement at a national level, we tend to adopt ideas of rathes and other types of settlement as having a generic form. It is what we do as archaeologists, and indeed it is a necessary process in producing a comprehensive overview of the period. The intensive exploration of both case study areas has made it abundantly clear that there was no strict formula governing the organisation and layout of early medieval settlement. Although there has always been a healthy level of scepticism about the contemporary documentary sources, the level of detail provided in the various legal texts lulled us into a false sense of security in that regard, implying that settlement and land administration were always highly organised and minutely managed. Admittedly, the intent of the legal texts was rather more focused on social status, property, and their impact on crime and punishment rather than the intricacies of territorial settlement; and indeed this is also the case outside of Ireland where the law codes were more concerned with the rights of individual households rather than the broader topic of settlement (Hamerow 2002, 85). Outside of the guidelines regarding house size and the composition of farmsteads, much of the information about the wider landscape is implicit, given almost as a backdrop to the specific legal issues being discussed. Although

types of boundary markers were identified (Ó Riain 1972, 17; Kelly 1997, 409), there appears to be no explicit setting down of territorial requirements; a further indication that there were no rigid guidelines in this regard. This implies that the establishment of settlement units was adapted within each territory according to the landscape, available resources, and leadership.

The landscapes inhabited by early medieval communities were composed of a variety of different elements, comprising areas for living, farming, socialising, praying, and royal or public assembly activities such as inauguration ceremonies and community gatherings. While average-sized raths are abundant, the occurrence of non-standard settlement types such as trivallate raths, settlement-cemeteries, conjoined raths, non-circular enclosures, very large enclosures, etc. can point to the presence of a social unit or local community, as can the distribution of early ecclesiastical sites. These are the elements which may appear only once (or at least very infrequently) within each *túath*, places like the smith's forge, the chief church, or the home of the *túath*'s judge (Charles-Edwards 2000, 528). By identifying and investigating some of these less common monuments, we can gain an insight into the physical composition of that territory, and ultimately, the people that make up its community.

The settlement-cemeteries and royal landscapes where *túath* gatherings were held were the hub of the community, places with which (almost) all of the free population had a connection. For too long, investigations into early medieval settlement have focused on statistical analyses and/or in-depth analysis of individual excavated and/or 'important' sites. While these steps are clearly valuable, even necessary, they are effectively only the first steps in the process of exploring and understanding early medieval settlement and society. It is only by examining the mix of settlement types and their interaction with one another on a smaller scale that more light can be shed on spatial settlement patterns and the organisation of society. This has been demonstrated in the two case studies, although they have also shown that there is considerable disparity in terms of volume, siting, and monument typology between the two geographic areas. Due in part to problems of survival, Monaghan clearly appears to have been less populated than Leitrim/Roscommon; however, this cannot completely account for the lack of monument diversity. Despite both comprising similar drumlin topographies, the study areas paint very different pictures of the early medieval landscape which surely illustrates the need to undertake research on a sub-regional scale. One way in which to do this is to examine the aforementioned non-standard monuments; how many of them are present in the landscape? Where are they located in relation to landscape features? Where are they located in relation to other contemporary monuments? Where are they located in relation to each other?

Following up on some of the points raised by analysis of the case studies, this chapter will discuss these significant, yet distinctive, elements of early medieval settlement within a broader Irish context.

## 6.2 Settlement and Status

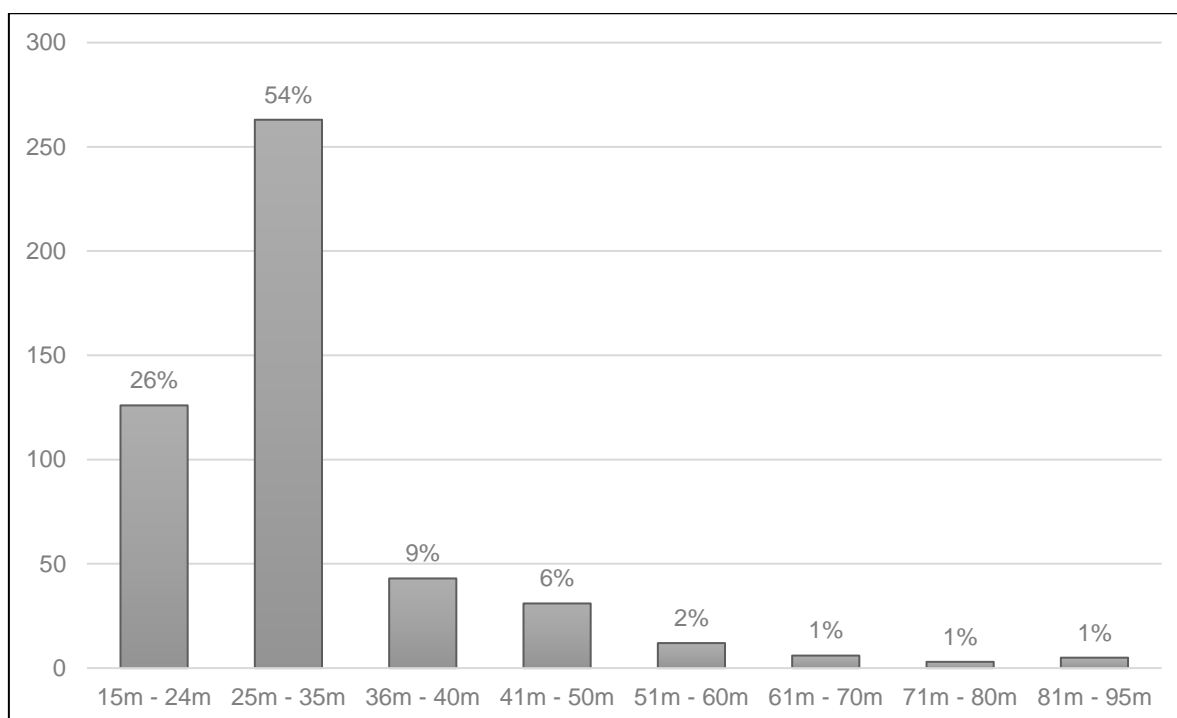
Early medieval communities comprised many different types of people who fulfilled many different roles. As discussed in previous chapters, status played an important part in medieval society and impacted on many aspects of life, including house size, land allocation, and the meting out of justice. One of the questions addressed by this body of research was the identification of status within settlement morphology, a critical component of a non-invasive archaeological investigation which does not have recourse to excavation to explore the more ephemeral features or material culture.

Multivallation has long been recognised as a reflection of social status (e.g. Westropp 1901, 582; Proudfoot 1970, 37; Warner 1988, 50; Mytum 1992, 145; Stout 1997, 18; Clinton 2000, 281; Dowling 2011, 213; O'Sullivan et al. 2014, 82) and the archaeological evidence certainly indicates that vallation is a valuable morphological device in terms of rath classification. The documentary sources identified a number of trivallate raths as the seats of local kingdoms. For example, Garranes, Co. Cork was identified as '*Ráth Raithleann*', seat of the rulers of the Uí Eachach branch of the Eoghanacht (Ó Ríordáin 1942, 77). Although other sites may not feature in the surviving contemporary sources, their archaeological remains certainly point to their position at the higher end of the social scale. Encompassing an area of approx. 120m in diameter, excavations at the trivallate rath of Ballycatteen, Co. Cork, produced evidence of an elaborate triple-gated entrance (Figure 6.1) and high-status metalworking, similar to that at Garranes (Ó Ríordáin 1942, 17-25, 35; O'Sullivan et al. 2014, 84). Within Leitrim/Roscommon, the impressive trivallate rath at Foxborough, Co. Leitrim (LE031-066) holds a commanding position on a drumlin summit, with multiple bivallate raths in close proximity. Its prominent setting within the surrounding landscape and the patterns of settlement around it certainly support its higher status (see Section 4.8). Kings were expected to have multiple residences in which they could reside as they performed circuits of their territories, as well as receiving hospitality from their subjects (Warner 1988, 61; Charles-Edwards 2000, 528). This suggests that the king may have had more than one residence within a *túath*, which could account for the presence of multiple multivallate or large enclosures within a small area, or the existence of a royal crannóg in addition to high-status land-based settlements.

As this project has demonstrated, there were several different monument types (e.g. cashels and conjoined raths) which may have also been a reflection of status and/or various societal roles. Of course, monuments such as these are readily visually identifiable as their distinctive morphology makes them stand out from the 'crowd', but what of the standard univallate raths whose range of diameters implies that there may be some differentiation between them and a reason (or reasons) behind the variety in size? Mallory and McNeill (1991, 219-224) suggest that enclosure size is directly linked to status, and Stout (1991, 212) included this as a key criterion in his statistical analysis of raths. Indeed, Stout's research demonstrated the substantial range in rath diameter and identified the average internal rath diameter as approx. 30m (Stout 1997, 14). With a reference in *Críth Gablach* to a king's residence being seven feet on every side (approx. 42.5m) (MacNeill 1923, 305; Warner 1988, 59; Stout 1997, 113; O'Sullivan et al. 2014, 83), it is logical to deduce that greater size equates to greater status. This reasoning would place all raths greater than 40m in diameter in the realms of potential high-status or king-related residences. But how does this tally with multivallation denoting higher status? A number of univallate raths, including those of Clogher, Co. Tyrone and Garryduff 1, Co. Cork, have been identified as royal sites (Warner 1988, 59; Mytum 1992, 146), which certainly suggests that multivallation alone cannot be relied upon as unique evidence of royal or high status. Likewise, it cannot be assumed that size alone was a major factor, especially given that Garryduff 1 had an internal diameter of just 20m.

As seen in both case studies, just under 55% of all univallate raths measured between 25m-35m in diameter (Chapters 4 & 5; Chart 6.1). In Leitrim/Roscommon, this was split almost 60/40 between those with diameters of 25m-30m and those of 30m-35m; a difference in size of up to 10m within the same range. Almost 80% of Monaghan's univallate raths measure from 15m up to 40m, split almost 50/50 between those with dimensions of 25m-30m and 30m-35m. Outside factors which may have influenced the variation in enclosure size are much more difficult to identify non-invasively, particularly as the legal texts largely concentrate on the specification of regulations in relation to house size rather than the size of the enclosing features. In a society that appears so regimented in some aspects regarding the entitlements of various grades of society, there is a surprising lack of guidelines surrounding the designation of the actual enclosure.





**Chart 6.1 Combined Average Univallate Rath Diameters across Both Case Study Areas**

With house size discussed in more detail and broken down by rank in the documentary sources, is this a more likely indicator of status as reflected in settlement? Studies such as those by Lynn (1994) and Jones (2012) undertook an in-depth look at house size in the early medieval period, but they did not relate their findings to the dimensions of the enclosures in which the houses were located. It would be logical to assume that a smaller enclosure would equate to a smaller house size, most likely corresponding to the lower levels of society as outlined by the legal texts, and indeed this was the approach taken by Stout (1991, 207) in his analysis of rath distribution. It should follow then, that a larger enclosure would be required in order to accommodate a larger house in addition to all of the other elements contained within (outhouses, workshops, etc.). But is this necessarily the case? The results from eighteen excavations of univallate raths from across the country demonstrate the apparent lack of correlation between enclosure size and house size (Table 6.1).

One of the three largest raths in the selection, that of Rathmorrissy, Co. Galway, contained one of the smallest house structures; whereas the two largest house structures are found in raths half its size (Barnageeragh, Co. Dublin and Oldcourt, Co. Cork). Even amongst the mid-sized enclosures, house size varies considerably from 4.5m up to 11m. An examination of the material culture does not shed any further light on the status or role of the inhabitants with enclosures of all sizes exhibiting evidence for craftworking (e.g. slag, furnaces, crucibles) and domestic activities (e.g. quernstones, animal bone, tools). Souterrains were found at eight of

the monuments and the date ranges are largely consistent (Appendix 6). The four largest enclosures all fall within the 42.5m range for kings, yet the largest house is only 8m in diameter, larger than that of an *Aire forgill* (7.5m), yet smaller than that of a Pilgrim king (9.25m) (Chapter 2: Table 2.2). Obviously, this is quite a small sample size, the use of a more substantial basis for analysis was somewhat hampered by the lack of surviving remains of internal structures and the number of partial excavations which only investigated sections of the enclosures. However, even this small sample pool is sufficient to exhibit the lack (or non-existence) of any correlation between the dimensions of the houses in relation to rath size.

**Table 6.1 Comparison of Rath Diameter with House Size<sup>77</sup>**

Site	Enclosure Diameter (Internal)	Max. House Diameter
Dromthacker, Co. Kerry	24m	7.5m
Big Glebe, Co. Derry	20m <sup>78</sup>	7m
Barnageeragh, Co. Dublin	22m	10m
Oldcourt, Co. Cork	23m	12m
Ballyfounder, Co. Down	23m <sup>79</sup>	5.4m
Raheenamadra, Co. Limerick	25m	6m-7m
Letterkeen, Co. Mayo	26m	5.2m
Raheens II, Co. Cork	28m	5.6m <sup>80</sup>
Ballyhenry 1, Co. Antrim	30m	7m
Newtown (A), Co. Limerick	30m	9m <sup>81</sup>
Ballymacash, Co. Antrim	33.5m	8m
Darray/Lisnagun, Co. Cork	35m	5.7m
Cahircalla More, Co. Clare	38m	6.3m
Lislackagh, Co. Mayo	39.5m	4.6m
Dunbell Big (5), Co. Kilkenny	42m	6m
Mackney, Co. Galway	45m	5.4m
Rathmorrissy, Co. Galway	45m	4.7m
Glebe (43), Co. Dublin	46m	8m

<sup>77</sup> The data was compiled using the EMAP 'Gazetteer of Site Descriptions' (Kerr et al. 2010).

<sup>78</sup> Raised rath, the diameter of the summit is 20m.

<sup>79</sup> Raised rath, the diameter of the summit is 23m.

<sup>80</sup> The remains of 11 structures were found, six of which were circular with diameters ranging from 4.5m to 6.5m.

<sup>81</sup> The house is possibly of figure-of-eight design, the largest portion has a diameter of 9m.

Does this mean that the population were given relatively free rein in constructing their farmstead enclosures, if not their houses? More importantly, is the objective of defining status even the correct way to approach this? In a sense, by putting so much emphasis on rank and social hierarchy, the legal texts have sent us down this road and pointed the focus towards trying to identify status from the archaeological remains. The success of the excavation and subsequent findings at Deer Park Farms, Co. Antrim have undoubtedly reinforced this. Indeed, several excavation reports make reference to the interpretation of early medieval monuments in terms of the status of the inhabitants (e.g. Lennon 2006, 51; Seaver 2007, 55; Giacometti 2011, 165; Stafford & McLoughlin 2011, 297). If the early medieval law-makers were obsessed with grading society in minute detail (O'Sullivan 2011, 346), then we risk being equally as obsessed. However, as O'Sullivan (*ibid.*) asks, were the general early medieval population as obsessed with the exact, rigid ranking of their neighbours? While one's standing within the community may have been known and widely understood locally, small differences between households may not necessarily have been tangible and may not, therefore, have been reflected in the archaeological record.

As Kinsella (2005, 126) argued, enclosures of a range of shapes and sizes reflect a variety of social grades, and a variety of functions. Crannóg excavations have also demonstrated that these monuments fulfilled a variety of roles within society—from royal sites to places of refuge to industrial centres (see Chapter 2, Section 2.2.4). If crannógs can exhibit a range of functions (of which a display of status is one), then surely raths could operate in the same manner? It seems that an over-reliance on defining status and hierarchy (as steered by the documentary sources) has dominated our efforts to understand early medieval settlement (Bhreathnach 2018, 16), which may ultimately have led to a 'superficial simplicity', and an arguably overly simplistic approach in terms of interpretation (O'Sullivan et al. 2014, 50). The diversity of settlement is evidenced by the range of site types represented within the two case study areas which reflect the variety in size, morphology, and location of contemporary monuments; to attribute this solely to variations in status is inadequate. Status was undoubtedly important, and played a significant role in the creation and organisation of communities and territories, but it was clearly not the sole driving force in the establishment of settlements (Hamerow 2002, 90; Bolger 2011, 1). By exploring early medieval monuments from a slightly different perspective—with the emphasis on function or role rather than status—and within a community setting in which the evidence provided by multiple sites and site types can be integrated, an improved, more holistic understanding of the period can be achieved. This means moving beyond the places in which people lived, out into the community in which they gathered to celebrate, mourn, and interact with their fellow kin.

### 6.3 A Matter of Life and Death

Death is a fundamental, even integral, part of life, and the dead are always linked to the lives of the living, whether by their enduring physical or spiritual presence. Changes in burial practices can be traced archaeologically across thousands of years from Mesolithic to modern times, comprising cremations, inhumations, individual interments, elaborate tombs, vast cemeteries, and many, many other forms. Evidence for burial during the early medieval period is quite varied with examples of individual inhumations, small cemeteries, and larger cemeteries, many of which demonstrate re-use of prehistoric monuments and/or continuity of use from the Iron Age through to the early medieval period (O’Sullivan et al. 2014, 285-294).<sup>82</sup>

The coming of Christianity to Ireland in the fifth century undoubtedly had a significant impact on mortuary practices in the early medieval period with burial in or around the newly established ecclesiastical sites (eventually) becoming the most sought-after resting place. However, these new ‘holy’ burial areas may not have catered for the whole community, instead, being reserved for the clergy or societal élite (e.g. Swift 2003, 107; Ó Carragáin 2009, 339; O’Brien 2013, 243; O’Sullivan et al. 2014, 306; O’Sullivan & McCormick 2017, 122). And indeed the evidence suggests that the adoption of ecclesiastical burial grounds may have evolved some centuries after the initial conversion, possibly not until the late seventh or early eighth centuries (O’Brien 1992, 130, 133-134; O’Brien 2009, 135; Bhreathnach 2014, 145; O’Sullivan et al. 2014, 317). Thus there was clearly a need for places in which to bury the majority of the population, especially those who did not belong to the secular élite or religious communities. However, there are surprisingly few documentary references to the existence of mass cemeteries or even burial rituals during this period. There are, however, some references to the interment of small numbers of individuals in some of the contemporary sources. For example, Tírechán’s account of St. Patrick’s work in Ireland mentions the construction of a circular ditch in the manner of a *ferta*<sup>83</sup> (Bieler 1979, 144-145; De Paor 1993, 165; O’Brien 1996, 122; Doherty 2005, 8) in which to bury the two daughters of King Lóegaire who died upon receiving the Eucharist from Patrick. This site is deemed to be located within the archaeological complex and royal landscape of Rathcroghan, Co. Roscommon (De Paor 1993, 163; Waddell et al. 2009, 29-30). A number of possible locations have been put forward as the site of the holy well where the women were baptised (ibid.); the most convincing of which is located in the townland of Ogulla (RO022-106003) (De Paor 1987, 139-140; Herity 1987, 139-140; De Paor 1993, 163). Although the exact burial place is not indicated on the SMR, a potential candidate exists in the form of a mound with a grass-covered cairn at its centre

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<sup>82</sup> The extensive range of early medieval burial practices for which there is now evidence is dealt with very comprehensively by the EMAP publication (O’Sullivan et al. 2014, 283-317).

<sup>83</sup> Plural: *fertae*.

(RO028-016002) which lies approximately 600m to the south-east in the townland of Ballybeg (Figure 6.2). Alternatively, Tírechán recounted that St. Patrick built his church on the site of the *ferta* (De Paor 1993, 165), which could place it beneath the remains of the church which lie approx. 45m to the east of the well (RO022-106001).

The use of the *ferta* was a burial tradition that continued from the late Iron Age into the early medieval period, and was used both as a means of staking a claim to a territory and by way of marking a boundary (O'Brien & Bhreathnach 2011, 53-64; O'Brien 2013, 241; Bhreathnach 2014, 143-144). As the ancestral burial place, *fertae* played a significant role in the legal process used to lay claim to land which involved the claimant crossing the grave mound on three occasions (O'Brien & Bhreathnach 2011, 53-54). The Christianisation of existing *fertae* was one way in which the early saints sought to help the population transition from their pagan beliefs to Christian practices (O'Brien 1992, 134-136). Often, the *fertae* became the foci for further burials which saw the expansion of these burial mounds into larger burial grounds.

Archaeological evidence for early medieval mass burial has emerged over the past number of years in the form of so-called settlement-cemeteries, suggesting that secular, communal, burial grounds were in use throughout the country which catered for the majority of the secular population (even after the arrival of Christianity). This evidence has essentially transformed the debate about mortuary practice during this period (Ó Carragáin 2009, 335). Prior to this, the majority of non-ecclesiastical burials occurred in small numbers and were usually associated with prehistoric monuments (O'Brien 2009, 142-143; Ó Carragáin 2009, 339). The identification of such sites has been very much dependant on the location of the road schemes and developments which facilitated their discovery, mostly located to the east of the country in counties Dublin, Kildare, Louth, and Meath (Figure 6.3).<sup>84</sup> However, excavations along the N61 just north of Roscommon town uncovered almost 800 burials within a settlement-cemetery spanning the sixth to eleventh centuries (Delaney & Ní Cheallacháin 2017, 2; see Chapter 2: Section 2.3). Evidence from excavations at other settlement-cemeteries has also shown that their use often spanned several centuries (Appendix 7), contemporary with the periods of use of the nearby ecclesiastical sites, again an indication that not all of the population (most of whom were Christian, particularly in later centuries) were entitled to burial on church grounds. Indeed, activity at many of these sites was shown to have commenced in the Iron Age, or at least during the period of transition between the Iron Age and the early medieval period. For example, excavated internal and external features at Johnstown, Co. Meath produced

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<sup>84</sup> Data as per the Mapping Death Project (<http://www.mappingdeathdb.ie/querysearch/search>); 'Larger' cemeteries featured here comprise those with thirty or more inhumations.

radiocarbon dates from approx. AD 430 up to AD 950 and beyond (Clarke 2004, 4; Kinsella 2010, 110). It is clear that we are still really only beginning to scratch the surface, yet this important monument type must be part of any early medieval landscape study.

At the risk of wading into a terminological debate, the term 'settlement-cemetery' is something of a misnomer, as despite exhibiting substantial evidence for industry and domestic activities, most have not produced convincing evidence for actual settlement. None of the four phases of activity at Faughart Lower, Co. Louth had any surviving evidence of structures, yet there was evidence of domestic and industrial activity (Buckley & McConway 2010, 49-52). The interpretation of settlement at Parknahown 5, Co. Laois was based largely on the recovery of domestic artefacts from within the enclosure as the remains of a circular structure dating to AD 660-870 was deemed to be too flimsy, nor did it have evidence for a hearth (O'Neill 2010, 257). At Raystown, there was substantial evidence for high levels of craftworking, agriculture, butchery, and milling, but the 'settlement' evidence was distinctly lacking and amounted to the presence of souterrains in addition to an 'irregular cluster of postholes' which may represent a building (Seaver 2016, 24). At Johnstown, Co. Meath where a cemetery with c. 344 early medieval burials was uncovered, there was also extensive evidence for domestic and industrial activities (Clarke 2010, 63-66). Approximately two tonnes of waste slag and furnace bottoms were recovered, in addition to refuse pits, smelting pits, and animal waste (Clarke 2004, 4). As with Raystown, no structures were discovered but the presence of settlement was inferred from the domestic waste and industrial activity (*ibid.*). Interestingly, although it was nothing in the region of the extent of the milling evidence from Raystown, a large timber structure was recovered from a ditch which was interpreted as the possible remains of a vertical watermill (*ibid.*, 274). Ó Carragáin (2009, 342) preliminarily defined settlement-cemeteries as containing more than twenty and less than 200 burials; however, excavations which have taken place since then have shown that the number of burials can be considerably higher.

The implication of the term 'settlement-cemetery' is that people were living there permanently in addition to being buried there. Given the number of burials and the length of time over which the cemeteries were used, Ó Carragáin (2009, 343; 2010b, 218) and Seaver (2016, 64) both intimate that such cemeteries were representative of kin- or extended family groups. But the existence of even larger cemeteries such as Mount Offaly, Co. Dublin (c. 1550 burials), Ranelagh, Co. Roscommon (c. 800 burials), and Faughart Lower, Co. Louth (c. 770 burials) suggests that there were also burial grounds which catered for the wider community (Kinsella 2010, 123; Ó Carragáin 2010b, 218). Notwithstanding the difficulties associated with the survival of structures in the archaeological record (O'Sullivan et al. 2008, 180), there is simply insufficient evidence to suggest with any real confidence that there was permanent settlement

within the burial grounds. Given the long periods, usually several centuries, over which the cemeteries were used, one would expect to find at least some structural remains. However, it is unclear whether those writing about the topic are suggesting that all of the individuals buried within the cemetery would have also lived there, rather than simply within the surrounding landscape. The extent of the milling activity at Raystown, for example, combined with the work that would have been required to run it, certainly suggest that people would have at least lived close by. The same could be said for Johnstown, although the full extent of the milling is unclear as the evidence did not survive to the same level. If the population did not live at the cemeteries, but instead congregated there, then it follows that their settlements must have been within close proximity to the site. Indeed, such was the case in Anglo-Saxon England where many ancestral cemeteries were located adjacent to—or occasionally several hundred metres from—contemporary settlements (Hamerow 2010, 72). Perhaps in that sense, the term ‘settlement-cemetery’ could be used to denote the cemetery belonging to a settlement (or community), rather than a cemetery that comprised a settlement element. Then again, maybe O’Sullivan et al. (2014, 312) said it best when they hinted at the relative futility of trying to develop archaeological site classifications based on the ‘disparate and variable evidence’ that results from the ‘messiness of life’. Indeed, it is possible that sites had multiple functions, which may have changed over time as the site evolved (O’Sullivan & McCormick 2017, 105).

If those interred were not residing within the settlement-cemeteries themselves, but rather were inhabiting the landscape around them, then other possible explanations for the wealth of archaeological evidence for domestic and industrial activities must be considered. The range of evidence across all of the sites represents high levels of craftworking of various types in addition to domestic activity in the form of animal butchery and cereal processing; however, Gleeson (2018, 114) identified the scale of craft production, feasting, and food processing as far exceeding that of a normal habitation or family unit. For example, almost two tonnes of slag and a number of furnace bottoms were recovered through the excavation at Johnstown, Co. Meath (Clarke 2002, 15). Of course, 1.5 tonnes of metal-working waste were found at the ecclesiastical site of Clonfad, Co. Westmeath (Stevens 2012a, 118; also Chapter 2, Section 2.3), so the high volume could also be an indication of sustained use over a longer period of time. Some interpretations of settlement-cemeteries centred around ritual or ceremonial feasting, possibly in connection with the burials (e.g. Stout & Stout 2008, 78; O’Sullivan et al. 2014, 308-309). Moreover, the presence of multiple kilns, souterrains, and milling structures at many of the sites demonstrate the effort involved, and suggest a more long-term presence and commitment to the sites (O’Sullivan et al. 2008, 180). The importance of burial sites in relation to assembly practices in early medieval Ireland has already been highlighted, but in what capacity? Within the scope of ‘The Óenach Project’ and based largely on toponymic and

documentary evidence, Gleeson (2018, 102-103) identified a correlation between the location of many early medieval burial sites and places for local assembly (Figure 6.4). Moreover, he pinpointed settlement-cemeteries as the foci for *túath* gatherings and assemblies, although with only a fifth of them identified, there is still a lot of work to do (ibid.). The archaeological record shows that people have always been drawn back to burial places, the prehistoric megalithic tombs found in large numbers across the country are a testament to that. Even today we still visit the final resting places of our families and friends, to remember them and maintain a connection with them; it should be no surprise that the early medieval community would behave any differently. There are parallels too, throughout Europe, where archaeological excavation has revealed similar correlations in Britain and Scandinavia (e.g. Williams 2006, 181-185; Sanmark & Semple 2008, 245; Semple 2011, 750-751; Comeau 2016, 212-213).

Semantics aside, the treatment of the dead offers an important insight into early medieval society, and can inform our understanding of the organisation of the landscape and the communities who inhabited it. Although there are as yet no confirmed settlement-cemeteries within the Leitrim/Roscommon and Monaghan study areas, the information gleaned from those excavated around the country enabled this project to tentatively identify the locations of several potential cemeteries within these areas (Chapters 4 & 5). Even without irrefutable evidence (e.g. that provided by excavation), it is of vital importance to follow the archaeological remains and ask the relevant questions. Exploration of the landscape setting of excavated (and therefore, confirmed) settlement-cemeteries can help to illustrate how they may have been integrated within their locality and within their communities; evidence which can then be applied to areas (such as the study areas) where such information is not yet available.

The existence of confirmed settlement-cemeteries provides an ideal scenario in which to examine how they connect with the surrounding landscape and other contemporary sites, using the approach employed in the study areas. Although only 50% of the cemetery at Raystown was excavated, the geophysical survey which extended beyond the road itself revealed the full extent of the enclosing features (Seaver 2016, 10-12). With 133 burials recovered within the excavated portion, Seaver (ibid., 64) estimated that there could be up to a total of 300 individuals buried within the cemetery (assuming similar density across the site). The site's sophisticated milling complex makes it an extremely important site within the archaeological record, and more importantly, within the early medieval period and locality. The community with which the settlement-cemetery was associated conceivably lies around it, albeit in a not particularly densely settled part of Brega (Figure 6.5). There are only seven recorded early medieval monuments within a 2km radius, two of which are church sites,



although the Cookstown example (ME045-001) does not exhibit any of the characteristics of an early medieval foundation and may therefore be later in date. On the other hand, the establishment at Killegland (ME045-004) which lies approx. 1km from the cemetery, is associated with St. Mogheanóg, who is purported to be a brother of St. Patrick; thereby giving it a relatively early date (Ó Riain 2011, 478; Moore 2015d). The closest secular settlement is a large rath (approx. 50m diameter) which lies between the cemetery and church, approx. 600m to the north-east (ME045-003). A trivallate enclosure (probably a rath) lies approx. 1km south of the cemetery (ME045-047). Another potential burial ground lies approx. 1.5km to the south-east (ME045-006); the remains of seven individuals were discovered here in 1963 within a field with a curving boundary, possibly indicative of an enclosure (Stout 2013). As this site was not completely excavated, it is not possible to ascertain or even estimate the potential total number of burials that might lie undisturbed. Looking at the distribution patterns around Raystown, the majority of settlement is actually located to the east and south-east. It is contained within an area between the cemetery and the county border which separates Meath and Dublin, and on the opposite side to the partially excavated settlement-cemetery of Ratoath which lies approx. 3.6km to the west (Figure 6.6). Could this suggest that the Raystown complex was located on the periphery of this particular territorial unit, and that of Ratoath on the periphery of its neighbour? With the exception of a single univallate rath, there are no other early medieval settlements within the expanse between the two cemeteries. The aerial imagery does not give any clues as to why this might be; the land here looks no different to the inhabited land in the area. Of course, there may be as yet undiscovered monuments, but it is quite a significant corridor without archaeological remains and suggests that there may have been another reason for the lack of construction. If all of this land to the east and south-east is considered as part of the community linked with Raystown, then it places the size of the community at fifteen raths, the furthest of which is 3.7km away from the cemetery. Given the number of raths and their spatial distribution, and considering that there may also have been a smaller burial ground within the area, it is plausible that it was the inhabitants of these raths, and this early medieval community, who constructed and worked the mills, and were finally laid to rest within the cemetery at Raystown.

The distribution of contemporary settlement around the cemetery at Johnstown is comparable to that of Raystown (Figure 6.7). This settlement-cemetery is located in the south of Co. Meath, within 500m of its border with Kildare, essentially the southern border of the kingdom of Brega. Like Raystown, it is also contained within a geographical 'pocket', with a band of apparently non-settled land measuring approx. 3km in width separating it from the nearest contemporary settlements to the north. Again, there does not appear to be any particular topography here which would prevent or hinder the construction of settlement in this location. There are fifteen

raths within the surrounding area, twelve of which are univallate. Unlike Raystown, however, the trivallate rath is not in close proximity to the cemetery; it is in a relatively isolated position approx. 2.7km to the north-east. Instead, the closest potentially contemporary monument is a rath which lies 800m to the north-east of the cemetery (ME048-019). Although classified as a rath, it is very unusual and does not conform to the standard rath morphology (Figure 6.8). It is a large (82m x 48m), raised, oval enclosure with suggestions of a second bank in places. While it may be a rath, it is certainly not of a standard typology and therefore, should it prove to be early medieval in origin, it may have fulfilled a high-status or specific societal function. It may be no coincidence that it is located close to the burial site. Indeed, it is possible that this is a prehistoric monument, which of course does not rule it out from re-use (or continued used) in the early medieval period. Along the northern limits of the area are a church and holy well, both of which are dedicated to St. Ultan who died in AD 657 (Ó Riain 2011, 580-581). Also along this northern periphery, and less than 70m north of the holy well is a bivallate rath (ME048-046), with a second possible bivallate rath approximately 1.8km to the north-east. Although neither site was excavated nor the remains dated, the discovery of human bone in Clonguiffin (ME047-019) and Jordanstown (ME048-038) suggests that there may be other—potentially early medieval—burial grounds in the vicinity, again not dissimilar from Raystown where the burials at Baltrasna were in relative proximity.

The distribution of settlement around the confirmed settlement-cemetery sites of Raystown and Johnstown is similar to that seen in relation to the potential burial grounds identified in Leitrim/Roscommon and Monaghan. For example, the potential cemetery at Kiltoghert is within 500m of a bivallate rath and an ecclesiastical site, with a host of other contemporary settlement in relatively close proximity. The identification of potential settlement-cemeteries within the two study areas is significant, even though they have not been confirmed through excavation. And herein lies the dichotomy; the study areas have had the benefit of remote sensing exploration but not excavation, whereas the Raystown and Johnstown areas have the advantages of excavation but not remote sensing, which means that a (greater) number of settlements may not be accounted for. The discovery and identification of early medieval cemeteries is by far the most important development in early medieval archaeology in recent years, as it means that we are now, finally, starting to locate the actual people who made up the communities that inhabited the landscape and populated the many enclosures. Furthermore, we are also starting to see increasing tangible evidence of the period of transition between the Iron Age to the early medieval period. These monuments were an integral part of the community and the landscape of settlement, and it is imperative that they are part of any future narratives regarding Irish early medieval settlement.

## 6.4 Gathering the Community

Even though they had left the living world, the incorporation of cemeteries into communal gatherings and assemblies meant that the dead were still very much part of the local community. The local *óenach* was an important event in the early medieval calendar and an opportunity for the majority of the community to come together and enjoy festivities, in addition of course, to the undertaking of community business by the political leaders (Charles-Edwards 2000, 559; Jaski 2000, 51; Bhreathnach 2014, 69; Bhreathnach 2018, 32-33). *Óenachs* have undergone significant investigations in recent years following Ó Carragáin & Gleeson's initial research. However, their research was largely documentary-based and they did not identify any potential sites within the two study areas under investigation here. Indeed, these projects sought to identify potential 'areas' rather than specific archaeological sites or monuments that might represent—or be associated with—*óenachs* (Patrick Gleeson pers. comm. 23/04/19). Given that approximately 20% of such places have been identified (Gleeson 2018, 103), it is clear that we must look to the archaeological evidence to locate the lesser-known examples which might not feature in documentary sources. As seen in Chapters 4 and 5, there are a number of potential sites which are distinguishable archaeologically within the study areas. Perhaps the most promising is that of Kiltoghert, Co. Leitrim where a number of the *óenach* elements (Chapter 2: Table 2.5) are present. As discussed in Chapter 4 (Section 4.6.2), the newly discovered large enclosure measuring approx. 66m in internal diameter may represent a settlement-cemetery (LE027-141). The monument lies along the townland boundary and within 2.2km of the parish and baronial boundaries (which are one and the same). Although it is not close to a major river, the small river which constitutes the townland boundary flows along its western side, before reaching the diminutive Lough Duff to the south; the considerably larger Bran Lough lies on the other side of a drumlin to the south-west. Furthermore, the large enclosure is located within a possible royal demesne given its proximity to a cluster of four raths—including one bivallate and one large example (44m internal diameter)—which lie 300m to the east on a drumlin summit. These raths would have had an excellent vista over the large enclosure and the low ground in which it is situated. Indeed, the enclosure is surrounded by drumlins on three sides, with low ground stretching out in front of it to the south, perhaps forming a potential natural amphitheatre? This large, flat area (max. dimensions 700m x 320m) could arguably have served as a natural racing circuit, although parts of it may be waterlogged. Although the surrounding area does not provide any toponymic evidence, the known archaeological remains are certainly promising, and with further investigation could lead to a more secure interpretation.

The inauguration of kings was a key part of early medieval life, reserved for the élite members of society and comprising a number of symbolic rituals which demonstrated the somewhat

otherworldly characteristics of the newly crowned kings. Conjoined, or figure-of-eight, monuments were an integral part of the process of inauguration and feature repeatedly at ceremonial sites in the early medieval period. Indeed, they are rarely found outside of designated royal areas (Herity 1993, 137), some of which—such as the Hill of Tara (An Forrad and Tech Cormaic) and Rathcroghan (Carns)—were discussed in Chapter 2. At the latter, the inauguration site (RO028-069003) is recorded as comprising a ceremonial enclosure, a cairn, and an inauguration stone, all of which are located on or adjacent to a natural rock outcrop. However, a figure-of-eight monument lies just 550m to the west in the townland of Lismurtagh (Figure 6.9). This structure is recorded as a bowl barrow (RO028-063001) and adjoining rath (RO028-063002) with a centrally-positioned hut site (RO028-063003). The rath appears to have been ‘attached’ to the barrow, cutting through its enclosing ditch in the process (Moore 2010i). With an overall diameter of 55.9m (*ibid.*), the rath portion is quite large and the hut site is also quite substantial, with the visible remains suggesting a diameter of c. 10m x 6m. The incorporation of barrows (often in addition to other prehistoric monuments) is a recurrent feature of royal landscapes, indicating that a connection with—or glorification of—the ancestors was a crucial aspect of kingship (Herity 1993, 136-137).

A study of the distribution of conjoined monuments within the Leitrim/Roscommon study area initially drew potentially significant results on a civil parish level as a conjoined monument was present in each of the seven civil parishes represented (Section 4.6.2; see Figure 4.57). However, when extended beyond the confines of the study area, this distribution pattern was not replicated, and indeed, with 63 pairs of conjoined raths within County Roscommon alone, this would seem to far exceed the expected or required number of inauguration sites. This is where the morphology of the monuments—and their potential relationship with their neighbours (particularly their prehistoric ones)—becomes an important factor. As discussed in Chapter 2 (Section 2.2.2), the morphology of conjoined monuments can vary, especially in relation to the intersection between the two enclosures. In the cases of both Tara and Rathcroghan, the barrow was incorporated into the adjoining enclosure, meaning that one enclosure had a raised interior, while the other resembled a standard rath. Both monuments comprised a full circular enclosure (the rath component) and a formerly circular component (the barrow enclosure) which had been modified to form the juncture between the two structures (Figure 6.10). O’Sullivan & Kinsella (2013, 367) suggest that it was an early medieval ‘monumental rath’ associated with a specific royal event. Indeed, the geophysical survey suggests that both monuments may have originally been enclosed by multiple banks and ditches (*ibid.*, 366). Perhaps a similarity to the bivallate conjoined rath of Corralara, Co. Roscommon (see Figure 4.58)?

A complex of monuments lying just outside of the Leitrim/Roscommon study area, exhibits many of the qualities expected from an inauguration site. A large embanked enclosure (RO006-118001) forms a figure-of-eight structure with a barrow (RO006-118002) in the townland of Knockadoobrusna (Figure 6.11). However, in this case the embanked enclosure has been classified as a henge rather than a rath, possibly as a result of its large size (80m x 73m). This site was identified by Knox (1914, 348-351) as 'Dumha Brosna' and by Fitzpatrick (2004, 82-85) as the location of 'Cruachan', the place of inauguration of the kings of Mhic Diarmata of Mag Luirg. However, in seeking to establish the location of Óenach Cruachain Mhic Diarmata, the latter theory was dismissed by Gleeson (2014, 862) due to the lack of political, historical, and toponymic evidence. Despite this, the archaeological evidence would seem to disagree. The area contains multiple barrow sites, including the bowl-barrow which is incorporated into the conjoined monument, and is also home to several early medieval settlements, including a bivallate rath which is located just over 200m to the north-east (Figure 6.12). It may be the case that this was the inauguration site, separated by some distance (c. 6km) from the site of the *óenach*.

It is clear that many of the island's conjoined monuments are part of ceremonial landscapes associated with kingship and inauguration practices, but it is also evident that many of these monuments do not conform to the morphology (i.e. incorporating a mound) of such sites. Given that the figure-of-eight formation was usually reserved for these 'special' monuments which were used for specific ceremonial occasions, does this mean that the conjoined raths were designed for special purposes, albeit for purposes other than kingship rituals? Conversely, this formation was also frequently utilised within the building of house structures with an adjoining backhouse (Lynn 1994, 87, 92); for example, as demonstrated at Deer Park Farms where the post-and-wattle walls of the houses survived. If the figure-of-eight shape was so commonplace in the construction of housing, perhaps this shows that it was not always or uniquely destined for 'special' monuments? These monuments are certainly distinctive, but they are by no means uniform; rather than being reserved for ceremonial occasions, could they be representative of particular societal roles? Outside of ceremonial functions, there are various reasons as to why two enclosures would be conjoined, and the chronology of their construction must be a key consideration. The enclosing ditches at Curraheen, Co. Cork produced radiocarbon dates of cal. AD 640-875 and cal. AD 660-790, leading the author to conclude that they were constructed within a single phase (Danaher 2011, 125-126). Similarly, at Lowpark, Co. Mayo, the two enclosing ditches also produced overlapping radiocarbon dates of cal. AD 690-900 and cal. AD 670-880 (Gillespie 2011, 189-192). This evidence indicates that the conjoined monuments were purpose built in this way, rather than being initially constructed as 'normal' raths with the annexe added later. However, as indicated in the case of the excavated rath at

Cloongownagh, Co. Roscommon which featured a later subrectangular annexe (Licence 99E0193; Moore 2010a), there are some examples of annexes being added to raths in the later medieval period. This factor must be taken into account when scientific dating is not available; but again, something which could be aided by more in-depth study of the morphology of conjoined monuments. Chapter 4 (Section 4.8) briefly explored the idea that these settlements may have been related to the provision of hospitality and this is indeed one possibility, although in the two instances mentioned above and also in the case of Lusk (Giacometti 2011), only one enclosure at each site had structural evidence that could be interpreted as housing. As outlined in Section 6.2 above, a shift in our approach from exploring early medieval settlement from a hierarchical to a functional standpoint could be of immense benefit. Conjoined raths are undoubtedly one of the more enigmatic monuments of the period, particularly as their morphology often mirrors and/or incorporates prehistoric monuments, thus providing a level of potential continuity from the Iron Age into the Christian era and all of the changes that brought with it.

## **6.5 Ecclesiastical Communities**

Ecclesiastical and secular lives were not separate entities, the two were very much intertwined, not least as demonstrated by ecclesiastics living amongst the secular population and providing pastoral care. Indeed, biogeochemical analysis of individuals buried at ecclesiastical sites suggests that the clerical community were composed mostly of local people (Alonzi et al. 2019, 20). Moreover, clerics were often involved in secular ceremonies, including the process of inauguration (e.g. Ó Corráin 1972, 34; Doherty 2005, 9; Bhreathnach 2014, 49-53), which symbolised the divine and sacred nature of kingship. However, the adoption of Christianity, and moreover the adaption of Christian practices into the daily lives of the population, were not always immediate or straightforward; the interplay between the newly adopted religion and the daily lives of the (converted) secular community is well illustrated by looking at the physical remains of secular and ecclesiastical sites within the landscape.

The politics and motives at play in the Christianisation of a community were probably most evident in relation to the establishment of new ecclesiastical foundations where the location was very much dependant on the persuasive powers of the saint and the willingness of the head of the *túath*. While the original clerics seeking to establish a monastery may have ventured into a territory with an ideal location in mind, a place with “ample natural resources” as well as good quality soil for farming and an “inherently holy quality” (Bitel 1990, 17), they were essentially at the mercy of the existing landholders. Obviously, they also needed to be located close to a population of willing converts, a population who had most likely already

snapped up the best land for their own agricultural needs. Early medieval hagiographies written centuries after the death of the founding saint portray them as quite cutthroat and devious in acquiring land, and there are various accounts of them cursing landowners who were unwilling to part with the land they had selected (ibid., 40-41). While the saints may have used every method at their disposal to secure a prime site, one cannot assume that they were always successful in doing so, and of course, their biographers may not have been inclined to report these instances. One must also consider that the hagiographies are, in essence, later propaganda texts compiled by churches to promote their founder as a means to claiming their rights to lands, property, and tithes on the basis that they were granted to their founding saint (Kenney 1966, 298; Hughes 1977, 219).

Although the majority of churches were in place by the beginning of the ninth century, they were not necessarily all in use at the same time (Stout 2012, 77; Ó Carragáin & Turner 2016, 13). The movements of the various saints through the landscape can be traced as many of their foundations include a reference to their name, for example in the case of Tedavnet, Co. Monaghan which is derived from '*Tigh Damhnata*' (the house of Damhnat) (Logainm.ie 41054), a reference to the female saint of that name. In addition, many of the holy wells were associated with, and dedicated to, particular saints. Despite the fact that St. Patrick and St. Bridget feature quite heavily given their notoriety, the designations of holy wells can also be a good indicator of saintly activity in a particular area, whether directly or as a later dedication by their followers. In some cases, it is possible to establish a rough estimation of the period in which the saint was active, thus giving an approximation of the chronology of the establishment of various foundations. Of course, this is in no way a scientific method of dating church foundations as records can occasionally be somewhat dubious, there can be multiple saints with the same name, and not all saints—or the periods in which they were active—are known. Notwithstanding this caveat, tracing saintly associations within the landscape certainly gives a sense of the various incursions made in the initial centuries of conversion and the impact and reach of the various saints (Figure 6.13).

There are some examples of the earliest foundations (evidenced by the '*Domhnach*' placename) being located in close proximity to royal sites which would appear to indicate that the élite were early converts in some areas such as the Mag Réta kingdom in the south-west of Co. Laois (Ó Carragáin 2018, 79). But there are also examples of churches in boundary locations within the same territorial region (ibid., 78-79). Does this mean that the élite in these areas were not quite as convinced, or merely that this was the only suitable and available space? Harney (2017, 120-121) also suggests that many of the early missionaries may have deliberately sought out significant Iron Age settlements and/or pagan ritual sites in order to re-

focus them as locations for Christian worship. Indeed, St. Patrick was reported to have awakened the dead in order to baptise them and convert them to Christianity as a means of converting the living population, particularly the hierarchy who had a sacred connection with their ancestors (Doherty 2005, 9).

As the only ecclesiastical foundation across the two study areas to bear the '*Domhnach*' placename, the site at Donagh, Co. Monaghan may demonstrate evidence of both practices. The large hilltop enclosure which lies approx. 1.4km to the north-east could pre-date the early medieval settlements, and a further prehistoric link is indicated by the presence of a cup-marked stone within the graveyard at Donagh. Apart from this, none of the ecclesiastical sites within the Leitrim/Roscommon or Monaghan study areas are located in proximity to known prehistoric monuments, although the graveyard at Mullanarockan also features a cup-marked stone. A prehistoric connection may also be inferred by the stunning gold objects dating to the Bronze Age which were found close to the ecclesiastical sites at Tumna (Co. Roscommon) and Tedavnet (Co. Monaghan); these finds certainly point to the possibility that these ecclesiastical sites may have been established on or close to existing pagan power centres. There is also documentary evidence of some saints being granted existing secular settlements within which they could establish their churches (e.g. O'Brien 1992, 134). Such was the case with St. Caillín at Fenagh, Co. Leitrim who was reportedly granted a cashel (Hynes 1931, 41, 50; Read & Markley 2008, 2-3); and while there are indeed the remains of a cashel at the site, it is by no means certain that it pre-dated St. Caillín's foundation (Read 2016, 10-12). Given that this site is also located in the midst of a multi-period prehistoric ritual landscape which features monuments from the Neolithic period up to the Iron Age (Read & Markley 2008, 163-164), the establishment at Fenagh may represent the traditions of both the re-focusing of a pagan ritual centre and the commandeering of an existing secular settlement. There is no evidence to suggest that any of the churches within the case study areas were established on or within existing secular settlements, the dimensions and form (predominantly oval) of the enclosing elements reflect the morphology of ecclesiastical rather than secular settlements.

The foundation at Donagh is also noteworthy in terms of its relatively isolated location. Its closest neighbours are almost 1.5km away, although given the low density of monuments in Monaghan, this is not necessarily significant. However, as discussed in Chapter 5, the closest contemporary monuments to the church are a rath with an internal diameter of approx. 38m and a substantial hilltop enclosure measuring just over 90m in diameter (Figure 6.14). The smaller enclosure is approx. 1.4km to the north-west and is located in the townland of Dundonagh, which translates as 'fort of the church' (Logainm.ie 40692) which could directly link it with the ecclesiastical foundation. However, perhaps more notably, the spatial



distribution of the church at Donagh and its neighbouring secular monuments bears some resemblance to an account in The Tripartite Life of St. Patrick which directly linked the foundation of his church at Donaghpatrick, Co. Meath to both the royal rath (Ráth Airthir) and the area of Óenach Tailten (Stokes 1887, 251; Swift 2000, 25). While the foundation at Donagh may not be on the same scale as that of Donaghpatrick, it certainly comprises similar elements and also bears similarities to the layout of a royal demesne as seen with some of the sites within the Mag Réta kingdom (Ó Carragáin 2018), or indeed at the site of Carns within the Rathcroghan complex (De Paor 1987, 141). Although the location of ecclesiastical sites alone is not enough to determine *túath* extents, their locations could certainly be an indicator of separate *túath* entities. A similar layout could be reasoned for Kiltoghert, Co. Leitrim (see Sections 4.8 & 6.4), where the early church remains are within 460m of the possible assembly site and within 560m of the cluster of monuments containing the bivallate rath.

With all of these variables at play, when examining distribution patterns and the relationship between ecclesiastical and secular sites, one cannot assume that any ecclesiastical site—particularly a very early one—is central to the territorial stronghold, nor that it is on the periphery. As the ‘Making Christian Landscapes’ project established, the siting of churches can vary quite significantly and they can be found both on high ground or on/near rivers, and not necessarily close to a boundary (e.g. Gleeson & Ó Carragáin 2016, 106; Ó Carragáin 2018, 71). Moreover, a boundary location was not necessarily representative of the importance of the ecclesiastical establishment (Ó Riain 1972, 18). Later evidence, which includes twelfth-century texts such as *Críchad an Chaoilli*, state that each *túath* had its own principal church (MacCotter 2008, 45-46; Ó Carragáin 2018, 80; Whelan 2018, 2), something that likely had its origins in earlier centuries. This is supported by MacCotter’s (2011) study of the territory of the Fir Maige in Co. Cork in which he identified one principal church within each *túath* (Figure 6.15). This study not only demonstrated the founding of a single major ecclesiastical site per *túath*, but also displayed the range of locations that ecclesiastical sites can occupy within each territory. Due to the excellent documentary evidence relating to the boundaries and ecclesiastical organisation of the Fir Maige territory, this landscape was an ideal candidate on which to base a reconstruction of *túath* boundaries, an exercise which could then ideally be extrapolated to other, less well-documented areas (Ó Carragáin 2018, 60). MacCotter’s map also demonstrates the disparity that can exist in terms of *túath* size and how this can impact ecclesiastical distribution as the sites range in distance from approx. 1km apart up to almost 8km apart. This corresponds largely with Stout’s study of the nationwide distribution of ecclesiastical sites, in which he claimed that on average, a person walking through the early medieval landscape would encounter a church approximately every hour, although obviously this could vary significantly between more and less densely populated areas (Stout 2012, 56).

In seeking to gain the best possible overview of ecclesiastical distribution within the study areas, it was essential to maximise the identification of early medieval ecclesiastical sites. In order to achieve this, the analysis undertaken in both study areas comprised a visual examination of the physical landscape using lidar, aerial imagery, and historic mapping, in addition to an interrogation of the SMR archives and the placename evidence. This approach sought to confirm the classification of suspected sites,<sup>85</sup> and to identify any previously unknown potential sites. The geophysical surveys which led to the discovery of multiple enclosing features at the three ecclesiastical sites in Leitrim/Roscommon also confirmed their early medieval origins (Section 4.5.1). As such, the distribution map of early medieval sites in both areas can be viewed with some confidence, and it reflects MacCotter's evidence, with both study areas exhibiting similar spacing between sites; on average 3km to 5km apart in Leitrim/Roscommon (Section 4.6.1) and up to 10km apart in Monaghan (Section 5.6.1) (Figures 6.16 & 6.17, respectively).

References to the existence of a 'principal' church in addition to multiple small churches within each *túath*, seem to infer that there many have been several priests working within each *túath* at any one time (e.g. Swift 2010, 25-26; Seaver 2016, 6; Whelan 2018, 3-4). Legal texts such as the eighth-century *Ríagal Phátraic* and other sources such as Tírechán's seventh-century account of St. Patrick's travels, allude to the presence of multiple clergy who were made up of ecclesiastical and lay grades (Swift 2010, 27-28). Swift (ibid., 30-31) interpreted this as an indication of the simultaneous existence of two very different ecclesiastical establishments which administered pastoral care on different levels: firstly, a large church run by a bishop which constituted the 'official' church of the *túath*; and secondly, multiple small, local churches which were ministered by (secular or religious) priests or deacons and which were dispersed throughout the community. The latter scenario implies that these clergy lived amongst the secular population, away from the main church and its bishop, and although they could construct a church in their own locality, they were not permitted to say Mass in it until the building was consecrated (ibid., 44). If this was indeed the case, what form would these churches have taken and where did these clergy reside? The documentary sources seem to identify a distinction in the size and scope of the two establishments, and it does not seem likely that a lone, (possibly lay) priest living amongst the community would have the power or resources to construct a fully-fledged ecclesiastical settlement complete with triple enclosing elements, nor is this supported by archaeological evidence.

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<sup>85</sup> Namely those that featured as recorded monuments on the SMR but with a chronologically ambiguous classification such as 'church' or 'graveyard'.

If we accept that the relatively substantial enclosed ecclesiastical foundations such as Killukin, Co. Roscommon or Donagh, Co. Monaghan were the 'official' *túath*-level establishments and that the lesser churches were found elsewhere in the territories, where were the lesser, small, local churches? The distribution of the known ecclesiastical sites within the study areas corresponds well with the patterns identified by MacCotter (2008), Stout (2012), and Ó Carragáin (2018). Moreover, the thorough examination of placenames within the case study areas in conjunction with an investigation of the physical landscape using lidar and aerial imagery did not reveal any traces of potentially previously unknown ecclesiastical foundations. This begs the question: were actual churches constructed or was it the case, as Swift (2011, 33) suggests, that the clergy would simply have resided within secular settlements amongst the secular population, possibly even within family groups? If so, can such settlements be identified in the archaeological record? Swift (*ibid.*, 39) claims that many of them would have lived on farms, similar to their secular neighbours, and potentially with servants and/or family members. However, she also purports that the priests would not have undertaken agricultural duties such as ploughing or livestock management themselves, instead this would be done by local people. Could this perhaps point to the possible role of smaller enclosures without associated field boundaries? If such priests were living among family groups, it is quite possible that they would not be readily identifiable in the archaeological record.

## **6.6 Conclusion**

Attempting to reconstruct the early medieval landscape is by no means a new concept, and as the evidence presented in Chapter 2 demonstrates, the task has been approached from many different angles over the last century. One of the fundamental issues in attempting landscape reconstruction is undoubtedly the survival of evidence; even from a purely spatial standpoint, we are presented with an incomplete pattern of relict distribution which may or may not accurately reflect the original landscape (Barrett 1982, 80). However, as demonstrated by this project, the application of remote sensing techniques in conjunction with a fresh, in-depth analysis of under-studied landscapes (i.e. Leitrim, Roscommon, Monaghan), can greatly improve this.

Trying to find repeatable patterns in the early medieval landscape is like trying to find two identical snowflakes. While it may sound like something of an excuse to state that there are no patterns, this is essentially what the archaeological remains are saying. The wealth of archaeological evidence available, and the work undertaken by this research project have demonstrated that while there are undoubtedly certain commonalities and criteria that must be met in certain circumstances, for example, ecclesiastical enclosures defining different degrees

of sanctity, it is clear that the exact form of the elements was very much open to interpretation. In a sense, this is no different to how things work today, all churches should have an altar, tabernacle, and seats, but the way in which this is physically manifested is completely different in each church. It is necessary to distinguish between the crucial elements and those that simply reflect personal taste and/or circumstantial, inflexible factors such as topography, pre-existing structures, etc.

Furthermore, another fundamental challenge lies in trying to assimilate all of the various strands of the early medieval landscape, rather than examining them individually. As discussed in Chapter 2, separate in-depth analyses of raths and crannógs, for example, provide a great insight into those monument types in isolation, but do not really advance our overall understanding of how they came together and functioned within an early medieval society. Looking at all of the evidence from the many excavations, it is becoming all the more apparent that not only was early medieval society dynamic and complex, and a dichotomy of continuity and change, it was also the epitome of diversity, variety, and irregularity. Is it any wonder that the law tracts are so detailed and that they offer occasionally inconsistent, even contradictory, information? For example, *Bretha Cróilige* states that a person illegally injured by another must be cared for by the perpetrator until they have recovered, whereas *Críth Gablach* states that sick-maintenance has been replaced by the payment of fines (Kelly 2011, 1-2). While some of these variations may be explained chronologically, they may also be a reflection of differences of opinion between individuals or variations in local customs (ibid., 2). As Hughes (1977, 49) affirmed, people did not live in a legal system, they lived in a real world of ‘closely-interlocking personal relationships’ and all of the diversity and ‘messiness’ that entails.

It is clear that different regions and different communities had different ways of implementing and enforcing the various ‘guidelines’. Yes, there was a general standard that everyone lived by, but there were an infinite number of ways that people interpreted and adopted those standards. At the risk of paraphrasing Monty Python’s *The Life of Brian*, “we are all individuals, we are all different”. There must be some sympathy, therefore, for the compilers of the law tracts, as they must have struggled quite considerably to identify, rationalise, and summarise all of the disparate rules by which the various communities lived. In a sense, the archaeological record is spilling the beans on what actually went on in reality, behind closed doors, and behind the façade of strict organisation and hierarchy. This is where the real value of targeted local-level studies starts to become apparent, and starts to come into its own. The more comprehensive the studies into these targeted geographical areas, the more we can start to identify the fundamental elements that defined society, the basic components of early medieval communities, and start to build up from there.

# CHAPTER 7

## *Discussion and Conclusions*

### **7.1 Introduction**

How did early medieval communities live, work, and worship together in the Irish landscape? Where did they choose to build their homes and bury their dead? How were communal and royal events integrated into the landscape, and how can we identify and understand the traces that they left behind? The layers of early medieval Irish society are manifold and complex, and insights into the everyday lives of the population can be found in the tens of thousands of their farmsteads preserved as archaeological monuments throughout the country. Not all of the remains are visible, however, and this PhD has addressed this by retrieving some of the missing pieces through the application of remote sensing techniques and the intensive exploration of two lesser-studied archaeological landscapes in Leitrim/Roscommon and Monaghan. This study has achieved a combined total increase of 18% (110 monuments) in the number of settlements within the study areas; this in-filling of some of the empty spaces and hidden depths in the early medieval landscape has demonstrated the value of this approach and the potential for further discovery and interpretation beyond this project. Were this approach to be expanded to national level, it could have a hugely positive impact on the number of early medieval settlements, with knock-on implications for population estimates. This would raise further questions about how society was organised in practical and ideological terms and give us the means by which to start addressing them.

Previous research into early medieval Ireland has often focused on specific monument types, and to a large extent has been dominated by evidence from historical sources against which archaeologists have often sought to validate their findings. Against the backdrop of an in-depth exploration of early medieval settlement within the two study areas, this thesis has successfully utilised remote sensing in conjunction with the incredibly rich corpus of existing material in order to further our understanding of early medieval communities. The application of remote sensing techniques to two lesser-known landscapes has meant that this project could effectively take a step back from the high level of detail we have already obtained about particular monuments or monument types. Instead, it takes a more holistic view of the community within the context of the physical landscape and its topography that fundamentally shaped the construction and layout of early medieval society. Not only has this approach shed more light on the two study areas, it has also highlighted the range and diversity of settlement,

and has emphasised the need to update our approach in order to achieve a more comprehensive, all-encompassing view of life in early medieval Ireland. This chapter discusses the outcome of the research project in relation to the three questions posed at the outset, before moving on to a broader discussion and the identification of areas for future research.

## **7.2 What can we learn about the two case study areas in the early medieval period through the intensive exploration of their archaeological remains?**

Duffy (2007, 18-19) referred to the landscape as the ultimate text, describing its built structures as “tangible expressions of society imposing its particular cultural order and organisation at different times in the past”. This is very much true for the early medieval landscape and as a means of ‘reading its text’, this project undertook a thorough, systematic examination of the early medieval settlement landscape within the two study areas. Just because the early medieval period was ‘messy’ does not mean that its exploration has to follow the same lines.

One of the most satisfying outcomes of this project was the bringing to the fore of these two oft-neglected areas. Leitrim and Roscommon were already known as zones of high settlement density (Stout 1997, 93), yet this project succeeded in increasing the number of known monuments, thereby cementing its position as a thriving, well-populated area during the early medieval period. Settlement density was considerably lower in Monaghan, but it too was shown to have evidence of a range of early medieval settlements and important ecclesiastical sites.

Within the GIS, using lidar and aerial mapping, this research project succeeded in systematically measuring more than 550 early medieval settlements within the study areas, both those previously recorded and those newly discovered. Acquiring this data for this volume of monuments was in itself an achievement. More importantly, however, recording measurements for all monuments in the same manner ensured consistency across the study, thus making discussions relating to monument size and distribution more consistent. This project also moved beyond these statistical criteria and incorporated other characteristics relating to their physical attributes, typology, distribution, and relationship to other monuments (Chapter 3: Section 3.5.4). By analysing the monument location, distribution, and inter-relationships within the GIS, it was possible to explore patterns and possible groupings within the landscape. Most importantly, however, this research made a positive step away from statistical analysis by visually exploring the remains of early medieval settlement within their local landscape context in order to let the archaeology dictate the agenda. While Stout’s project achieved its aims (Stout 1997, 12), it seems that little had changed in the intervening decades in terms of the way we approach large-scale settlement distribution. By integrating newly

discovered monuments and 'new' monument types (e.g. settlement-cemeteries, assembly places), this project approached the settlement landscape in a different way, and began to look at monuments in terms of role and function instead of continuing to be dominated by status.

The case study analysis showed that the investigation of potential distribution patterns is most valuable on a local scale. Otherwise, the temptation to impose patterns on the landscape is too great. The larger the scale of the distribution, the weaker its contribution and ultimate value. It is important to identify key elements, but it is clear from this, and the many other distribution-based studies, that there is considerable diversity and contrast in the way in which early medieval settlement manifested itself. This was especially evident in the range of locations in which multivallate raths were built, in addition to the formation of conjoined monuments. At first the lack of patterns was troublesome, but the systematic interrogation of the archaeological remains and the landscape within which they are found emphasised the need to stop looking at early medieval settlement in this way, and develop a more holistic approach. The intensive study of both locations, with the benefit of remote sensing techniques, has demonstrated the value of approaching lesser-known areas. It is imperative that we move away from focusing on the 'famous' sites, the ones with already high profiles. Instead, the exploration of under-studied early medieval landscapes can bring new insights to the study of early medieval Ireland, and can ultimately have a very positive impact on our approach towards better understanding everyday life in early medieval Ireland.

### **7.3 How was early medieval settlement organised in practical, social, and ideological terms?**

Free from the shackles of a preconceived model of early medieval society, it was possible to approach the study areas by letting the archaeology lead the discussion, which ultimately led to the identification of several gaps in our knowledge. It was important to avoid imposing an already devised model upon the case studies so as to explore the landscape without too many preconceptions. As Warner (1988, 47-48) advocated, the use of models can result in generalisation and an assumption of uniformity, particularly those that only rely on one set of evidence. It was important, therefore, to incorporate historical, toponymic, and other resources into the analysis, even though the archaeological evidence was clearly at the forefront. This approach was successful as it enabled the non-standard sites to come to the fore and drew attention to potentially significant areas, such as the cluster of cashels within the Leitrim/Roscommon area or the large enclosures found within the Monaghan study area.

Nowhere in Ireland is there a complete landscape or early medieval community that has been fully excavated and interpreted. But as archaeologists, we cannot hold out on making interpretations and asking questions until 100% excavation has been completed. As Mytum (1992, 3) asserted, even if only a minute percentage of the area has been excavated, it is not too early to start making suggestions and attempting to form interpretations. Of course, the hypotheses must still be based on knowledge rather than wild speculation (Leach 1979, 123; Warner 1988, 48). This is where indirect evidence from excavations and earlier studies were used as key parts of this research project. These data were used both to inform the research questions and formulate hypotheses in relation to the study areas, with implications for our approach to, and understanding of, early medieval society beyond their limits.

#### **7.4 How does the application of remote sensing techniques contribute to our understanding of early medieval settlement?**

Both lidar analysis and geophysical survey are tried and tested methods with proven track records in archaeological research on a global scale. This project's objective was to successfully integrate these remote sensing techniques into an intensive study of Ireland's early medieval landscape with a view to developing a more comprehensive understanding of community and society at this time. In addition to the case studies, this project sought to build upon the datasets produced through previous island-wide investigations which have provided invaluable insights into individual monuments, individual site types, and national overviews. From the perspective of investigating early medieval communities, the lidar datasets in particular, facilitated a systematic in-depth examination on both a monument-by-monument basis, and on a broader landscape level. The geophysical surveys, even on a smaller scale, demonstrated the additional level of detail that can be achieved with such techniques.

##### **7.4.1 Lidar Analysis**

This is the first Irish study to employ lidar analysis so rigorously within an early medieval framework. The lidar datasets formed the basis of the research, with an initial aim of filling in the 'empty spaces' in the early medieval landscape. Prospection for 'new' monuments is the most common application of lidar analysis in archaeological research, and it certainly delivered in this regard. Overall, a total of 94 archaeological monuments (from all periods) were added to the SMR, with a further 44 potential monuments identified with the Leitrim/Roscommon area but not yet added.<sup>86</sup> 110 of these discoveries are potentially early medieval in origin and constitute an increase in early medieval settlement of approx. 21% in Leitrim/Roscommon and 11% in Monaghan. One could be forgiven for thinking that in a period with more than 48,000

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<sup>86</sup> The 94 monuments comprise 72 from Leitrim/Roscommon which have been assigned SMR numbers, and 22 from Monaghan which were accepted verbally but which have not, as yet, been assigned SMR numbers.



settlements already recorded (Chapter 1: Table 1.1), the ability to add to this would be somewhat limited; surely more than a century of research and decades of aerial survey would have uncovered any hidden remains still to be found? All of that research has essentially led to the creation of our incredibly rich archaeological archive, yet the lidar analysis undertaken as part of this study has demonstrated that even this can be substantially built upon.

Clearly, an increase in the number of settlements has implications in terms of the estimation of population size at the time, but it also has significant implications for our perception of land-use. At a rudimentary level, more settlements within a landscape meant less land available for other activities, as almost all settlements would have had an associated farmstead which comprised gardens, small fields, and larger outfields for crop and livestock management. Ultimately, an increase in the number of known settlements meant that there was also less distance between neighbouring farmsteads, giving rise to communities which may have been larger (in terms of population) than previously estimated. This in turn could have a knock-on effect on the size and composition of early medieval territories.

The lidar analysis also facilitated the recovery of 78 monuments which had previously been listed on the SMR, but of which there were no longer visible surface traces due to destruction and/or removal of the monuments (Tables 7.1 & 7.2) (Appendix 8). Many of these, particularly in Monaghan, had only been identified from historic maps or as cropmarks by aerial photography. Site visits by the NMS archaeological survey teams indicated that many of these monuments had since been destroyed or could not be located on the ground (Figure 7.1). However, even lidar could not salvage some of the remains and 35 monuments which were described as damaged or removed in the SMR files were not visible on the lidar surfaces either; geophysical survey would perhaps be beneficial in these cases.

**Table 7.1      Leitrim/Roscommon: Lidar Recovery of Monuments with No Visible Surface Remains**

SMR Description	Lidar: Full Enclosure Visible	Lidar: Some Traces Visible	<i>Lidar: No Visible Trace</i>
<b>Non-Extant</b>	5	7	4
<b>No Surface Remains</b>	1	5	6
<b>Partial Destruction</b>	21	9	5
<b>Barely Visible</b>	10	3	-
	<b>37</b>	<b>24</b>	<b>15</b>

**Table 7.2 Monaghan: Lidar Recovery of Monuments with No Visible Surface Remains**

SMR Description	Lidar: Full Enclosure Visible	Lidar: Some Traces Visible	<i>Lidar: No Visible Trace</i>
<b>Non-Extant</b>	3	7	4
<b>No Surface Remains</b>	-	1	8
<b>Partial Destruction</b>	3	2	6
<b>Barely Visible</b>	1	-	2
	<b>7</b>	<b>10</b>	<b>20</b>

This highlights the potential to utilise lidar analysis in a heritage management capacity as a means of ‘reinstating’ monuments which have essentially disappeared or even for monitoring monument destruction. The particular benefit of lidar in terms of the latter would be the ability to undertake such a project without having to physically visit every site and gain access to every field. Obviously, to do this properly would be costly and would entail undertaking periodic, systematic lidar survey on an island-wide basis. However, even as a one-off process, this could still be a tremendous aid in gauging current monument survival across all periods. This may not be on the same technological scale as the collaborative Ireland/Wales Cherish Project which is aimed at mapping, assessing, and monitoring the effects of climate change and storminess on coastal heritage ([www.cherishproject.eu](http://www.cherishproject.eu)), but it could certainly improve our understanding and help to get a better grasp on monument conditions across the country.

There are a number of challenges associated with lidar survey, despite its proven track record in archaeological pursuits. Several of the monuments identified through this project’s research were not accepted onto the SMR as they could not be confirmed on the ground. This was quite disappointing as the distinct and established advantage of lidar is that it can pick up micro-topographic remains, features that the naked eye simply cannot see. Ground truthing the findings is of course important, but only to a point, and its success is also very much dependant on the method being used to ground truth. If the lidar survey has revealed a monument that has been lost for centuries and is now only visible as a 10cm-high bump in the ground (Figure 7.2), then it is unlikely that a visual inspection of the site will result in confirmation of the monument’s existence. For the NMS to err on the side of caution is understandable as there are legal implications associated with the addition of a monument to the SMR, mainly in the form of restrictions on the landowners in relation to land usage and development on or around the monument. Nevertheless, if archaeological monuments can be accepted on the basis of crop marks from aerial photographs, then so too, should monuments identified through lidar analysis. Surely the identification and classification of features and monuments using aerial

photography involves the same level of skill, logic, and leap of faith? Despite comments from Ireland's Chief Archaeologist as to the benefits of lidar imagery being "already well established" (McDonagh 2018), from conversations with other staff within the NMS, there still appears to be some level of hesitation in accepting monuments discovered using remote sensing techniques such as lidar.

Lack of certainty surrounding the correct classification of newly discovered monuments is another significant challenge associated with the application of archaeological remote sensing, particularly lidar analysis. Potential archaeological features can be identified and assigned a probable classification based on their visible characteristics, but their exact nature or date of construction and/or use cannot be confirmed at this level. Although some of the discoveries are easily identifiable and classifiable, others are more difficult to categorise and this is evident in the cases of several monuments which were initially identified as early medieval raths only to be later re-classified as barrows. Errors can also occur in relation to the mis-identification of modern features as potential archaeology; for example, a site visit to a newly discovered 'enclosure' at Efrinagh, Co. Leitrim showed it to be a septic tank installation. However, such mis-identifications constituted a tiny percentage of this project's lidar discoveries, and as the revision of the Leitrim/Roscommon dataset demonstrated, increased experience and thorough investigation of potential 'new' sites using aerial imagery and historic mapping can substantially reduce the number of errors (see Chapter 3: Section 3.5.2). This is indeed a concern in relation to open access datasets like the 'Open Topographic Data Viewer', as missing more subtle features, or repeated mis-identifications by inexperienced users could lead to unreliability, and ultimately prove detrimental to confidence in the techniques. However, with such applications making lidar analysis more widespread and therefore more familiar to those responsible for the management of our heritage, it should hopefully mean that monuments discovered in this way will become more commonplace and perhaps eventually more readily trusted.

All of the above points are related to the prospection phase, but equally one of the main failings of lidar analysis is that it frequently fails to progress beyond this phase. In the early 1990s, Mytum (1992, 3) warned against steadily gathering data without any attempts at interpretation; there can be a tendency to do so when using lidar given the volume of data that can be relatively quickly and easily amassed. The excitement of discovering 'new' archaeological monuments is often the main draw of lidar, particularly with resources for monument hunting being made freely available online. But this technique can offer so much more than isolated discoveries; the surface models and visualisations can greatly aid investigation and interpretation or re-interpretation of archaeological monuments within their wider landscape setting and indeed, of the archaeological landscape as a whole. In effect, the real contribution

of lidar is lost when the process begins and ends with prospection; it must be brought through to a stage where the findings are examined and incorporated into our understanding of the archaeological remains. Such interpretation is beyond the technicalities of mere lidar and GIS manipulation, it requires an expert in the particular subject area. Just as one would employ a pottery expert for specialist analysis, advancing lidar use to the necessary level requires an operator with an in-depth knowledge of the archaeological subject matter. Someone who can ask the key questions and seek out the key information using the tools available.

As this research project has shown, lidar is a fantastic tool for getting an overview of an area, effectively reproducing a 3D landscape where one can better experience the topography and begin to understand the relationship between different monuments. This component has been invaluable in a project such as this which aims to understand settlement patterns at a local level. Aerial imagery and historic mapping are also important in this regard, but as they present the earth as a flat surface, the significance of the topographical setting of the archaeological remains is often lost, or at best unclear. Most importantly, however, this project has succeeded in moving the use of lidar analysis forward to a stage where interpretation is possible, and data can be used interactively to answer specific research questions.

#### **7.4.2 *Geophysical Survey***

By targeting the ‘hidden depths’ of early medieval Ireland, geophysical survey has been crucial in providing additional layers which were not achievable using lidar alone. This was evident in relation to the surveys of both the secular and ecclesiastical monuments which were undertaken as part of this project. In all cases, geophysics revealed previously unrecorded features, including several which were not visible on the lidar surface. For example, the discovery of internal structures at the Mullaghmore enclosure corroborated classification of the monument. The surveys also aided clarification in terms of previously recorded monuments, as demonstrated by the survey of the two bivallate raths at Port, Co. Leitrim. In this case, the geophysical survey results indicated that the smaller of the raths (LE027-067) was in fact univallate, again contributing to our understanding of the possible status of the inhabitants and the role of the settlements. The geophysical surveys enabled site-specific research questions to be addressed, in addition to enabling the author to experience the sites on a personal level and to gain an insight into how they fit into the surrounding landscape.

The lack of scientific dating evidence in research projects which are solely based around remote sensing is one of the key challenges, particularly for a landscape study which

comprises an ever-changing backdrop of social and cultural change. It makes it particularly difficult to tease out the chronology of sites, especially where there are multiple layers of occupation in the one area, often over a considerable period of time. The prime example was Deer Park Farms where there were more than thirteen phases of occupation within the early medieval period alone (Lynn & McDowell 2011a, 11-12), in addition to circa 40 individual internal structures (Lynn & McDowell 2011c, 586-587). However, by revealing the presence of typically early medieval morphological features, the geophysical surveys have succeeded in contributing to a more confident chronology of the targeted sites. This was especially significant in relation to the ecclesiastical sites, as the discovery of previously unknown enclosing features placed them more securely within an early medieval context. The ability to establish ecclesiastical sites as (probable) early medieval foundations, even without precise dating, is a critical step in understanding the settlement landscape of the period. Ireland's conversion to Christianity was a significant phase in its development, and had a considerable impact on the physical landscape and society of the time. Thus, the identification of these early establishments has the potential to unlock some of the enigma surrounding the conversion process and its interaction with, and impact on, the organisation of settlement at the time.

As this research has demonstrated, the application of remote sensing techniques has made a significant contribution to our understanding of early medieval settlement patterns within the study areas. Yes, there are limitations in terms of scientific dating and chronology; however, these are far outweighed by the clear benefits and multiple layers of information that remote sensing can provide. As a prospection tool, lidar has proven its worth with the discovery of previously unknown monuments and the re-discovery of 'missing' monuments, while geophysical survey has complemented this with the uncovering of additional features within and around both existing and 'new' monuments. Most importantly, however, is the effort this project made to move on from simple prospection to more adequately apply the remote sensing techniques to the exploration of the early medieval landscape. In doing so within a framework of early medieval expertise, and by incorporating the geophysical survey techniques to provide evidence from beneath the ground surface, the application of remote sensing has succeeded in not only adding to the early medieval archaeological record, but also in further developing theories in relation to status, spatial organisation, and settlement patterns.

## **7.5 Discussion**

By opening up new avenues of exploration, the use of these technologies in this way has essentially facilitated a shift in our approach to the study of Ireland's early medieval archaeology. A shift in our approach is essential if our understanding of early medieval

societies is to be progressed. Significant studies such as those by Lynn (1994) and Stout (1997), and more recently EMAP (O'Sullivan et al. 2014), have had an indelible effect on Irish early medieval archaeology and their research has had a significant influence on many subsequent studies (see Sections 2.2.6 & 2.6). These studies were excellent in their own right and marked significant progress in our knowledge at that time. However, more than two decades have passed and we are still largely reliant on their output. Indeed, this thesis has referenced Stout's work extensively, albeit as a jumping-off point to evolving our approach. Even in light of the incredible amount of evidence which has emerged through excavation in the intervening years, early medieval excavations and research projects continue to return to these models. Ultimately we find ourselves in somewhat of a stalemate in terms of research and it would seem that we are struggling to free ourselves from what Oosthuizen (2016, 181) refers to as a 'paradigmatic straightjacket'. This is not to say that past studies were in anyway wrong, rather that they become less useful and/or appropriate the longer they are left unchallenged and as the gap between them and new evidence widens (ibid., 180). Substantial archaeological evidence for early medieval society is now available and must be used as a primary source by archaeologists who often succumb to the temptation to turn to documentary sources for validation (Monk 2018, 55). There are a number of areas which need to be re-examined, re-evaluated, and moved away from in order to bring Ireland's early medieval settlement landscape to a more advanced level of understanding. Crucially, the archaeological evidence must be at the forefront of this process.

### **7.5.1 *Changing our Approach***

The findings of this thesis have highlighted the need to re-think our approach to the study of early medieval settlement. Even though the idealised view of the world provided by the law texts is well known, it is still common, even subconsciously, to try to understand and interpret the archaeological results in terms of status and hierarchy. Of course, this is not entirely incorrect as social rank was clearly important and had an impact on most aspects of early medieval life. However, bearing the law texts in mind is one thing, but letting them dictate the research agenda is quite another, and a status-based approach has often omitted many other aspects of early medieval life. As seen with Stout's work as well as Stout-inspired studies, while raths feature so prominently within the documentary sources, so too can they dominate archaeological research. But as this PhD has highlighted, early medieval settlement and society were comprised of so much more than raths. Even if mass cemeteries, cashels, and crannógs were not explicitly mentioned within the surviving legal texts, archaeological evidence now shows that they formed a significant part of the landscape and were very much a part of early medieval society. Focusing so heavily on a single piece of the puzzle is detrimental to the other components; early medieval society comprised all of these elements,

and so too should studies of the topic. As Kerr (2018, 66) states, the emergence of so much evidence from the huge numbers of excavations over the last number of decades must inform a new, less standardised interpretation of early medieval Ireland that incorporates both regional and chronological variations.

This failure to incorporate the range and diversity of site types was one of the major shortcomings of many earlier studies. Indeed, many of them were dominated by raths with a focus on status and the idea that society remained relatively unchanged throughout the early medieval period (*ibid.*, 62-63). Of course, not all of the evidence was available when these studies were undertaken, another vital reason to re-address our concept of early medieval settlement in light of new archaeological information, and to do so holistically. Stout's 1997 publication was designed to provide a national overview of raths and their place in early medieval Irish society. Even though his project was only ever intended as a first step in gathering data as a basis for further research (Stout 1997, 12), somehow his findings have become the mainstay and the accepted interpretation for almost all subsequent research into the area. His study certainly opened our eyes to the possibility that raths were not merely one-dimensional households, but instead were multi-layered and had the potential to tell us more about those who lived within them. However, based on statistical analysis, the study was very closely linked to the legal guidelines regarding land allocation and land use. From this, he created hypothetical models of settlement based on hierarchy and rank which could potentially be applied across the country. This was in spite of the fact that the study did not fully incorporate the range of known evidence at that time, such as crannógs, ecclesiastical sites, souterrains, etc. Additionally, burial of the dead was not dealt with in any substantial way; and while evidence for mass burial has really only emerged in the last decade, it is surely a topic that must be considered within any archaeological investigation into settlement and society. When we start to consider how burials may be represented archaeologically, then we start to see meaning beyond social status and rank and recognise that not every early medieval enclosure is a farmstead. Furthermore, we can start to seek them out in the landscape as key components of a community. Settlement-cemeteries have been prominent within this research project, and efforts have been made to incorporate their possible locations within both the Leitrim/Roscommon and Monaghan study areas. These sites hold the physical remains of the early medieval population, and as such, they are integral to any study of early medieval communities; it is extraordinary that they are such a recent development in terms of archaeological research into the period.

In addition to taking a holistic approach, it is imperative that the archaeology leads the way in our interpretations and that we resist imposing pre-conceived models upon new datasets. The

wealth of material which is now available has been especially useful in relation to distinctive site types such as the aforementioned settlement-cemeteries as well as inauguration sites and ecclesiastical centres. However, it became clear that there were discrepancies between what was expected of the evidence and what it was actually saying. This was very apparent in relation to the correlation between house size and enclosure size. As discussed in Chapter 6, variances in house size were well-documented in the law texts as being strictly hierarchical. Additionally, as Stout suggested (1991, 240), larger enclosures were used for administrative and/or judicial purposes, thereby inferring that larger enclosures were related to higher status individuals, i.e. those who were involved in the running of the *túath*. However, the findings outlined in Chapter 6 do not support this assumption, as structures of various diameters are found within enclosures of multiple dimensions (see Section 6.2: Table 6.1). This does not necessarily mean that larger enclosures were not the residences of high-status individuals, rather it suggests that house size may not always be representative of status. It also raises the question of whether all of these structures were in fact dwellings. This is a significant finding, albeit based on a small sample, and one which certainly warrants further investigation. As O'Sullivan & McCormick pointed out (2017, 117), morphology could be a result of the development and evolution of a site over time, and is not always a reliable representation of status alone. Given the success of the geophysical surveys in identifying internal structures at the raths of Kiltoghert, Mullaghmore, and Port, this is certainly an area that could be broached non-invasively.

For over two decades, Stout's hypothetical models of early medieval settlement have been the basis for our understanding of how the landscape was laid out and how communities and territories were organised. It is time to move on. Not least because of the volume of new evidence acquired through excavation in the intervening years, nor even because of the new techniques that are now available to the investigating archaeologist, but most of all because early medieval society was diverse and complex, and we cannot even attempt to understand it by focusing on a single monument or monument type in isolation. We must adopt an integrated approach. Yes, there are a lot of things to consider when exploring early medieval society, and it is often challenging to assimilate them all; but we must at the very least attempt to do so, otherwise we will never succeed in achieving a more comprehensive overview. Remote sensing forces us to pull back and take in the wider view, a huge asset in the attempt to reconstruct the early medieval landscape, and ultimately, society. Of course it has its limitations, but it takes in the wider approach from the outset and prompts us to consider the wide range of elements that made up early medieval Ireland.



If we are to pull away from law-based and status-focused hypothetical models, can other potential archaeology-led models for early medieval settlement be put forward? In Chapter 4 (Section 4.8), a hypothetical reconstruction of a potential territory within the confines of Kiltoghert townland was proposed which incorporated a range of monument types. MacCotter (2011) undertook a reconstruction of *túatha* within the Fir Maige territory in Cork based largely on documentary evidence with some reference to archaeological remains in the form of royal and ecclesiastical sites (Section 6.5). In theory, this model could be extrapolated to other areas; however, there are several practical impediments to repeating this in other jurisdictions, including a lack of sufficient documentary evidence and appropriate administrative boundaries. Indeed, the townland-based reconstruction in County Leitrim was only feasible as Kiltoghert was of sufficient size to accommodate the required monuments and land allocations. This was an exercise in applying Stout's model to a real landscape, defined by a modern townland boundary, albeit one with possible early origins. It was a viable reconstruction and demonstrated that it was possible to apply the appropriate land allocations within that framework; albeit they are neither neat nor orderly (see Figure 4.83).

This highlights another area in which one must exercise caution when imposing preconceived models—the natural landscape. Natural topography dictates where field boundaries can or cannot be established; rivers, streams, forestry, hills, and valleys all have an impact on their placement and must be considered as part of any reconstruction. Hypothetical reconstructions tend not to take this into account and present a schematic, idealised model with nice straight lines which cannot be realistically applied to a natural landscape. Variances in topography and administrative boundaries mean that a reconstruction such as that seen at Kiltoghert could not be implemented in the Monaghan case study area. Despite a similar drumlin topography, in Monaghan no one townland was adequate in terms of size or the number and range of monuments. Not only was the density of settlement different to that of Leitrim/Roscommon, but there was also diversity in relation to the types of settlement that were present. With the exception of the ecclesiastical sites and the ratio of bivallate raths which were comparable across both areas (Section 5.6.2), several monument types only featured in one of the case study areas. Cashels held a dominant place in Leitrim/Roscommon but were completely absent from the Monaghan study area, and almost completely absent from the county as a whole. Conjoined raths were only very tentatively identified within the Monaghan area and souterrains did not feature in Leitrim/Roscommon. As discussed in Chapter 6, disparity in terms of monument types makes it extremely difficult to identify repeatable patterns in the landscape, which in turn makes it difficult (if not impossible) to formulate a single comprehensive model which can then be applied across the board. There is no single catch-all approach or solution to the question of models of early medieval settlement. The landscape of settlement was

relatively fluid and so models of that landscape must follow suit. The only response is that we must always look to the archaeological remains and the natural landscape to see what they are telling us about the particular area in question.

For this reason, it is more important to identify individual elements that were crucial to a community, the key monuments that were fundamental within a society. There is often a tendency to both idealise and generalise the past, but it is clear that the early medieval period was made up of diverse communities (and individuals) which not only resulted in different approaches to the adoption of Christianity, but also to the construction and design of their settlements, farmsteads, and the organisation of their territories. The legal texts of the period encouraged us to view the period as relatively homogenous, with people conforming to the rigid guidelines and rules which governed society, but the reality was very different, both across regional divides and within smaller communities. It is perhaps human nature which drives us to search for patterns, to seek out similarities and to attempt to put some order on the evidence we see before us. Doing this can of course be extremely useful, for example, in identifying the common characteristics of early ecclesiastical sites; however, we need to know where to draw the line. As Swan (1983, 274) pointed out in his ecclesiastical study, a combination of different 'key' characteristics were found at the sites; thereby illustrating that even in these most fundamental aspects of Christianity, there was disparity in their basic composition. In this way, while the identification of key elements is crucial, the acceptance that not all elements will be present—or presented in the same formation—at any given site, is equally as important.

Swan's approach to Irish ecclesiastical sites is comparable to that proposed at European assembly sites (Sanmark & Semple 2008, 256; Sanmark 2010, 179). That is, one would expect a combination of elements taken from a set of common characteristics, rather than all components to be present in all places. Similar beliefs could be expressed in different ways in different places, just as similar ceremonial rites could be undertaken in slightly different settings; for example, an inauguration ceremony could take place on a natural hill or a man-made rise as seen at Clogher and Rathcroghan respectively (Warner 2000, 48; Gleeson 2012, 10). As discussed in Chapter 6 (Section 6.1), elements which may appear only once within each *túath* can point to the presence of a distinct social unit or local community. By identifying and investigating some of these less common monument types, we can gain an insight into the physical composition of that territory, and ultimately, its inhabitants. While one should of course have in mind the elements to look out for in an early medieval landscape, it is vital to approach any study of the topic without pre-conceived models of how it may ultimately have been organised.

Taking this approach within the two case study areas, it is clear that similar settlement elements are present in their early medieval landscapes. In the environs of Rackwallace in the Monaghan case study, there is evidence of an ecclesiastical establishment, raths of various dimensions and vallations, and a possible cemetery (Figure 7.3). A similar pattern is evident in the vicinity of Killukin in the Leitrim/Roscommon area, where there is also evidence of an ecclesiastical establishment, raths of various dimensions and vallations, and a possible cemetery (Figure 7.4). These distribution maps demonstrate that key early medieval elements are present in both areas, albeit in different settings and at different scales of density and distribution. However, there are also elements which are unique to both areas; for example, cashels and conjoined raths feature only in Leitrim/Roscommon, while souterrains are exclusive to the Monaghan dataset. Raths of 25m-35m are best represented within both areas, and a comparable ratio of 15m-24m raths is also evident. At Killukin, a bivallate rath is the closest settlement to the ecclesiastical site; at Rackwallace, a slightly larger than average rath (41m-50m) is closest. Even this cursory exploration of distribution within the two areas demonstrates the range of possibilities that can be apparent across different regions of early medieval Ireland. There is both similarity and disparity in almost equal measure. This highlights the need to explore monuments within their local landscape setting. 'Context' is important in archaeological excavation and it is equally as important in terms of landscape. Identifying the key elements of early medieval society and examining them within their local landscapes, in conjunction with their potential relationships with their surroundings and neighbours is essential and a crucial step by which to progress our understanding of early medieval landscapes and societies.

### **7.5.2 A Question of Time**

Another major challenge in terms of settlement patterns is the question of chronology. In a sense, chronology is the 'elephant in the room' of any remote sensing project that cannot incorporate scientific dating on a meaningful scale. Indeed, were this to happen, it is likely that the project would have deviated quite considerably from non-invasive to invasive. Nevertheless, the question of chronology must be addressed, even if it cannot be fully answered in a project such as this. As set out in Chapter 1 (Section 1.1), although sometimes debated (e.g. O'Keeffe 2015, 22), AD400-1100 is the generally accepted timeframe for the early medieval period and has been adopted by EMAP (and by this thesis), i.e. from the introduction of Christianity to the arrival of the Anglo-Normans. The arrival of Christianity to Ireland's shores in the early fifth century certainly marked a significant ideological and practical shift from the pagan Iron Age. At the other end of the period, the arrival of the Anglo-Normans and the construction of castles and the introduction of their methods of farming and administration undoubtedly had an immeasurable effect of the Irish population and the

landscape (O'Sullivan & Downey 2007b, 32; Seaver 2016, 170; Stout 2017, 227). These events may bookend the archaeological period, but are they indicative of a relatively consistent society throughout?

Seven hundred years is a long period of time, and to use a single term to encapsulate it suggests a level of homogeneity that was far from the reality. As Lynn (1992, 31) asked, is it an appropriate term to cover such a range of archaeological material across so many centuries? Included in this is the Viking period, a time of great upheaval and change for Irish society, initially due to Viking raids and later as a result of Viking settlement. Indeed, many sources suggest that there was a period of considerable social change in terms of politics and kinship from the ninth century onwards (e.g. O'Sullivan 2014, 329; Stout 2017, 131-134). O'Keefe (2000, 26) suggests that raths were abandoned around this time and that the population moved increasingly towards nucleated settlements. As discussed in Chapter 2 (Section 2.4), there are indications of a shift to arable farming in the eighth and ninth centuries, possibly coinciding with an expansion in water mill construction (e.g. Feehan 2003, 54; McCormick et al. 2011, 4; O'Sullivan et al. 2014, 180; Cunningham 2015, 11; McClatchie et al. 2015, 179; O'Sullivan & McCormick 2017, 112 & 128). As mentioned previously within the thesis, AD 600-1000 is the generally accepted period of rath-building (O'Sullivan et al. 2014, 64), albeit based on a relatively small number of scientifically dated samples. However, excavations at Deer Park Farms demonstrated that raths could be inhabited for several centuries, undergoing multiple phases of construction and modification during that time (see Section 2.2.1). Likewise, excavations at crannógs such as Drumclay (Bermingham et al. 2013) and Coolure Demesne (O'Sullivan et al. 2007) have shown that these monuments were also in use over multiple phases, and that activity extended throughout the early medieval period and often across multiple archaeological periods. Within the study area, the rath at Cloongownagh, Co. Roscommon produced evidence for activity at the site from the Neolithic/Early Bronze Age through to the eleventh century (Lennon & Henry 1999, Licence: 99E0193). Dates from the ditch in-fill ranged from the eighth to twelfth centuries (Chapple 2019). While this by no means suggests that the rath structure itself was in existence from the Neolithic to the twelfth century, it certainly indicates that the location was in use and points to potentially continuous activity from prehistory into and right through the early medieval period. A small sample of 46 radiocarbon dates across eighteen raths from Chapple's (2019) catalogue of radiocarbon determinations indicated that activity ranged from the early fifth century up to the eleventh and sometimes twelfth centuries. With so much new scientific dating evidence now available, it is time to revisit the perception of rath-building predominantly taking place between the seventh and early eleventh centuries. A thorough examination of the available dating evidence may consolidate our current understanding, or take us into new

territory. Either way, it is a necessary step to take in order to progress our understanding of the evolution of the period, and could particularly shed much needed light on the transition from the Iron Age and into the later medieval period.

In addition to a deeper exploration of scientific dating evidence from settlements, another vital area that must be targeted in order to get a better understanding of the chronology of changes and developments within the period and how they may have impacted on the physical landscape is that of funerary practices. Death and the treatment of the dead are a vital part of every community, and the study of such topics can bring us closer to understanding changes in society in ideological terms. O'Sullivan et al. (2014, 334) identified the ideological shifts that occurred with the arrival of Christianity as one of the major research questions to be addressed. This can be done in part by examining the newly established ecclesiastical sites, and this PhD has certainly demonstrated the contribution that remote sensing can make in this regard, particularly in terms of identifying the enclosing features which point to their early origins. However, people did not immediately relinquish their pagan practices at the point of conversion, and this is most evident in terms of burial practices (*ibid.*). Conversion to Christianity was not instantaneous, it was a long process which took several decades, even centuries (Charles-Edwards 2000, 117-118; O'Sullivan et al. 2014, 283; Downham 2018, 19). The use of mass cemeteries which extended well into the period after the arrival of Christianity are proof that despite the widespread adoption of the new religion, it did not fully assimilate into the everyday lives of the population. Radiocarbon dating of nineteen of the Raystown skeletons showed that the burials ranged from approximately cal. AD 260-540 to cal. AD 780-990 ( $2\sigma$ ) (Fibiger 2009, 84-85; Seaver 2016, 172-175). Although only 20% of excavated burials were scientifically dated, it was possible to explore the development of the cemetery which ranged from the innermost, central part of the cemetery to the perimeter and south-east of the penannular enclosure (Seaver 2016, 63, 79). At Johnstown 1, twenty-three of the 461 burials were radiocarbon dated and produced evidence for burial from approximately cal. AD 370-640 to cal. AD 1500-1665. Again the phasing of interment was explored which demonstrated a preference for different areas of the enclosure at different times (Figure 7.5). However, with such small numbers of skeletons radiocarbon dated at both sites, further—if not complete—dating could further enhance our understanding of the development and evolution of these cemeteries, particularly in terms of the transition from the Iron Age to the early medieval period. There is a huge need for further research in this area, both in terms of better understanding their 'settlement' element, and in terms of the role that such cemeteries played in society, either as part of communal events, or as a means of remembering the dead. The application of the approach used in the two case studies to parts of Meath with confirmed settlement-cemeteries (Chapter 6) demonstrates the value in conducting landscape analysis in this way, and shows

that the archaeology-led methodology can be adopted in other areas. Indeed, by incorporating lidar analysis and geophysical survey to these areas, the interpretation could be further expanded.

### **7.5.3 *Ireland in an International Context***

If many of Ireland's early medieval practices extend back into prehistory, then so too does her relationship with her neighbours. Even a cursory review of links between Ireland and her closest neighbours—Scotland, Wales, England—reveals a network of communication and interaction with tangible effects on the physical landscape from prehistory onwards. Indeed, contact between Ireland and northern and central Europe is well attested and has been in operation since at least the Neolithic (Waddell 1992, 32; O'Brien 2017, 341). The megalithic tradition which is found across most of western Europe is certainly indicative of inter-regional contact in the Neolithic (Shee Twohig 1981, 11; Cooney 1988, 9; Scarre 2007, 12). Potential parallels can also be drawn between stone circles in Scotland and Ireland, despite the fact that the Scottish examples were built in the late Neolithic and Early Bronze Age and those in Ireland date from the late Bronze Age (Bradley 2009, 226-227). These are just two of numerous examples across time and place, but the appearance of similar monuments associated with similar activities—even at different times—certainly demonstrates the spread of ideas across different regions and peoples (*ibid.*, 221). To further our understanding of the evidence across nations, their archaeology must be investigated jointly rather than as separate entities (*ibid.*, 231). Indeed, this approach is vital, not only in an attempt to better understand Ireland's place within the wider early medieval world, but to open our minds beyond Ireland's physical borders and gain new perspectives from other regions in order to decode some of the enigmas of society in early medieval Ireland. In a sense, looking outwards can also help us to look within.

Outside of settlement, similarities can be seen across many other aspects of early medieval society. Ogham stones are perhaps one of the best examples of connections between Ireland and Britain. These stones bear inscriptions of names written in an alphabet unique to the Irish language and are found across Ireland in addition to Scotland, Wales, Cornwall, and the Isle of Man (Bhreathnach 2014, 42). Many ogham stones were used as memorial markers whereas others had a legal function and were used as an indicator of land ownership (*ibid.*). Those found in Wales, Scotland, and the Isle of Man are generally associated with areas of Irish settlement dating from the period of the decline of the Roman Empire (O'Sullivan & Downey 2014, 27). While the stones themselves cannot be scientifically dated, they have been dated on a linguistic basis to between the fourth and seventh centuries and may represent continuity of function or at least the re-use of a prominent fixture in the landscape (*ibid.*, 28-29). The

significance of their presence in Britain is twofold; they are indicative of an Irish presence in these regions at this time, and also the potential reflection of an Irish adoption of the practice of commemorative monuments found within the Roman world (Bhreathnach 2014, 42; Stout 2017, 23). Their existence and distribution shows the early medieval Irish both contributing to and being influenced by the wider world; it was certainly not one-way traffic.

Parallels in terms of the nature of settlement are particularly striking between Ireland and Scotland. Crannógs feature in both societies with comparisons already drawn between their potential high-status roles, particularly as new scientific dating evidence emerges (Stratigos & Noble 2014, 217-219). Furthermore, like the early medieval Irish, the Picts also used different forms of enclosure in different ways; hillforts, coastal promontory forts, and ringforts have all been identified in Pictland (Noble et al. 2013, 1140-1142; Noble 2016, 26). The latter, in particular, are comparable to Irish raths and cashels, although they can be smaller with several examples measuring between 15m-20m in internal diameter (Noble 2016, 29-31). Evidence for these enclosures is still emerging (*ibid.*), but there is certainly scope here for further investigation of any parallels with the Irish evidence. There are also some possible comparisons in relation to Pictish burial practices, principally the use of mass cemeteries in the fifth to seventh centuries which—as happened in Ireland—fell into decline as church burial became more dominant (Mitchell & Noble 2017, 23). However, there are differences too, in that the Pictish cemeteries took on a more monumental form, with a focus on individual burial, often in elaborate earthen or stone mounds (*ibid.*, 24). In contrast, the Irish cemeteries generally comprised groupings of individuals which may have been centred on a central individual or founder burial.

Boazman (2008, 113) conducted a comparative study of early medieval settlement patterns in Cork and Cornwall as a means of exploring regional diversity. Despite the fact that there are significant differences between the two areas, not least Cornwall's Roman influence, there were sufficient areas of similarity within which research could be undertaken and possible parallels explored. These included early ecclesiastical establishments, hierarchical settlement, and physical geographical comparisons (*ibid.*, 115). The findings demonstrated that both areas underwent considerable change in terms of settlement, albeit some years apart (*ibid.*, 130). In contrast with Cornwall, Cork exhibited greater settlement density and less physical separation between ecclesiastical and secular sites, leading the author to conclude that diverse power structures and administrative systems were in place which had a significant impact on the way in which Christianity was established and represented in each location (*ibid.*, 131). By examining two case study areas—Leitrim/Roscommon and Monaghan—this thesis has emphasised the need to move beyond the examination of a single region or indeed a single

strand of evidence. Boazman's research shows that such regional comparisons can be extended even beyond national boundaries, despite differences in the nature of the evidence. Even where the types of settlement are not strictly comparable, one can still explore patterns of settlement and land use in a meaningful way and progress can be made in relation to better understanding each area both on an individual and a combined basis, eventually facilitating an improved interpretation of regional settlement in a wider international context.

There are further early medieval comparisons, such as the evidence for the presence of curvilinear enclosures surrounding ecclesiastical sites in Wales (James 1992, 76) which are reminiscent of those in an Irish context; although they are not considered a reliable means of dating the establishments (Edwards 2016, 195). Perhaps most significant, however, are practices relating to assembly and ceremony. Here, the similarities appear to extend beyond Britain and follow through to Scandinavia, and possibly further into central Europe. Real advances have been made on a European scale in terms of burial practices and assembly landscapes, both of which are often intertwined. As detailed in Chapter 2 (Section 2.5), areas of assembly appear to have been common in many parts of northern Europe, and indeed, share many characteristics. For example, the incorporation of prehistoric monuments, the integration of the natural topography, and incorporation of man-made features (e.g. Pantos & Semple 2004, 18-19; Sanmark & Semple 2008, 246; Baker & Brookes 2015, 4-9; Hamerow 2018, 37). The incorporation of prehistoric burial monuments is particularly common, and in parts of northern and western Britain, prehistoric monuments were often used as commemorative foci (Williams 2007, 158; Semple 2011, 750-751). This has been seen at several of the 'royal' Irish sites; for example the Hill of Tara or Rathcroghan where the prehistoric monument was incorporated into early medieval assembly and inauguration ceremonies (see Chapter 2, Section 2.5). Two collaborative projects have addressed this important topic, 'The Assembly Project' (Sanmark et al. 2013, 1) and the 'Making Christian Landscapes Project' (Ó Carragáin & Turner 2016, 4-6). The success of both projects and the research that both led to and resulted from them have highlighted the potential heights that research on a European scale can reach. Although there are important differences between the various polities, sites and monuments do not need to be identical across the board (Sanmark & Semple 2008, 103). The identification of similar patterns and the ways in which they are approached and addressed in different areas can provide new insights. The value of this approach was exemplified in the identification of a potential assembly site at Bayvil in Cemais in Wales through the application of multidisciplinary methods in line with the patterns evident in other parts of Europe (Comeau 2014, 271). This region is also home to a number of ogham stones (ibid.) which suggests a particular link with Ireland. By examining the range of elements often found at Irish and Scottish sites in particular, similarities with this potential



Welsh assembly site were identified. These include the incorporation of barrows, a burial ground, fortified enclosure, and elevated position (ibid., 280).

By looking outwards, we can challenge the way we think about things, both ideologically and in terms of the physical landscape. The range of parallels across these regions is indicative of the potential for shared ideologies across Europe, and a testament to Ireland's integration within the wider early medieval world. The fact that there was contact and communication of ideas between different regions is interesting in itself, especially given Ireland's island state. However, more useful is the way in which studies of other regions with different ideologies (at least on the surface) and practices can shed light on early medieval Ireland.

## **7.6 Future Research**

This PhD has addressed the three research questions which formed the basis of the project, but it has undoubtedly given rise to many more. One of the most important things to come out of this thesis is the identification of several gaps in our knowledge of early medieval Ireland, even with all of the high quality research from the past decades. There are several practical and theoretical avenues that would benefit from further exploration, many of which have been discussed in terms of the findings of this project, and others which will be developed below.

### **7.6.1 *Classification and Recording***

On a practical level, there are a number of areas in which progress could be made in order to enhance archaeological analysis of the early medieval period, many of which fall under the scope of the NMS. One of the fundamental issues relating to the study of early medieval Ireland is the standardisation of classification, and to a lesser extent, the terminology associated with different aspects of the period. Whether we use the term 'rath' or 'ringfort' is inconsequential as either term essentially refers to the subcircular embanked earthen enclosures constructed during the early medieval period. More problematic, however, is the grouping of raths and cashels with other enclosures that may date from prehistoric to modern times. This is understandable in some cases when the monument is no longer extant or its presence was only ever identified by historic mapping, as seen with several of the Monaghan monuments. However, according to figures downloaded from the NMS in 2019, 16,333 monuments are currently classified as 'enclosure' which accounts for more than a third of all recorded potential early medieval enclosures (see Chapter 1: Table 1.1). This is a substantial number of monuments to be excluded from a rapid overview of early medieval settlement and it ultimately means that we are unable to produce a reliable figure for the total number of early medieval

settlements. Of the 62 classified 'enclosures' in the Leitrim/Roscommon study area, 58 were found to be potentially early medieval in origin, i.e. that they constituted probable raths or cashels. This was established through an examination of original field reports completed by the archaeological survey teams, in addition to a visual examination of the monuments using lidar, aerial photography, and historic mapping. It would be a significant improvement if they could be re-classified as raths or cashels, or even as 'Ringfort - unclassified' if their exact typology could not be determined with certainty. This would mean that they could be included as early medieval monuments from the outset, without intensive investigations on behalf of each individual researcher. Clearly, lidar analysis could be of enormous benefit in this regard as it would facilitate the large-scale study of monuments without supplementary field inspections; these monuments have already been visited and surveyed in the field, so in a sense the lidar analysis would essentially be ground truthing the original fieldwork.

Another area that needs work in terms of classification concerns monument typology, i.e. whether raths are univallate, bivallate, trivallate, etc. Again, determining this basic piece of information required a great deal of effort and research, often involving the archival material in addition to visual analysis. In most cases, the descriptions on the easily accessible SMR online database did not explicitly or clearly state the number of vallations, instead describing the banks and ditches independently of one another. Previously listed as sub-categories, their decommissioning (Farrelly 2013, S36-S37) has effectively been a step backwards for the researcher, each of whom must effectively re-invent the wheel when undertaking analysis. Of course, it is undoubtedly crucial for researchers to examine each monument in detail in order to make appropriate interpretations, but some guidance or simply just less ambiguous labelling of distinctive monument types would make this a much easier and more efficient process.

### **7.6.2 Targeting Key Monument Types**

Over the course of this project, it became clear that although the wealth of available evidence has given us a great deal of insight, this was largely at a summary level where it could be used to provide a high-level overview of early medieval Ireland. However, when drilling down into the evidence to the level which was required for this project, it became apparent that there was considerable diversity between monuments, and several 'non-standard' monument types came to the fore. There are significant gaps in our knowledge, particularly in relation to our understanding of the reality of communities and social interaction. The generalisations that are necessary in order to produce a high-level overview are not particularly helpful in terms of understanding the intricacies of early medieval life and the composition of early medieval communities. In order to address some of the shortfalls in our knowledge, two key monument

types, conjoined raths and cemeteries, are in need of targeted, intensive investigation on a scale beyond this project's case studies.

Conjoined raths warrant further in-depth study on both a practical and theoretical level. As this research has shown, these monuments have been formed in several different ways which could be significant in relation to their role or function. In some cases, the enclosing features of a rath have been incorporated into a prehistoric monument (usually a barrow), as at Lismurtagh, Co. Roscommon (RO028-063001/002). In other examples, it appears that two raths have been joined together to form a figure-of-eight; for example as seen at Aghamore, Co. Leitrim (LE035-002/003) and in a bivallate example at Corralara, Co. Roscommon (RO011-090001/002). A further morphological distinction is apparent in other examples which seem to comprise a 'normal' rath with an attached subrectangular annexe; in such cases the annexe may post-date the original enclosure (e.g. at Cloongownagh, Co. Roscommon). The morphology of the monuments could have implications as regards the role of such monuments, from raths with a simple (later) adjoining field to royal and/or inauguration sites. As discussed in the previous chapters, the high density seen in County Roscommon does not appear to be repeated in Leitrim or Monaghan, which suggests that it could be indicative of a regional pattern. However, substantial research is required on a much broader level, ideally country wide, if the true nature of these monuments is to be properly understood. The first step would be to examine their morphology in order to see if an appropriate typology can be established. The non-invasive techniques used in this PhD would be very appropriate for this, as both lidar and geophysical survey could ascertain the presence and form of the enclosing elements. Geophysical survey could also be deployed to investigate the presence of internal structures and/or additional features.

From here, other analyses could be undertaken in order to explore the potential of their relationships with other contemporary monuments. The possibility that conjoined monuments were central to rites of kingship and ceremonial activities places them at the very heart of early medieval settlements and communities. But can all conjoined monuments be explained in this way, or indeed, in the same way? As outlined above, the identification and categorisation of such monuments is an important first step, but understanding their relationship to the landscape and monuments around them is fundamental to developing our understanding. Such research could integrate very well with previous studies of assembly sites, in particular that of Gleeson which identified more than 100 assembly sites based primarily on documentary and toponymic evidence (Gleeson 2014, ix). An archaeological approach such as the one suggested above could build on Gleeson's work and potentially complement the work of the 'Comparative Kingship Project' which is currently undertaking a detailed study of the royal

landscapes of three major polities in Scotland, Northern Ireland, and Munster (Noble et al. 2017). This project focuses on well-known royal sites, but the findings should be extrapolated out to the wider region.

Also related to assembly, the discovery of early medieval cemeteries is by far the most significant recent development in early medieval archaeology, and it has put us in direct contact with the early medieval population (see Chapter 6: Section 6.3). Furthermore, these cemeteries can provide tangible evidence of the period of transition between the Iron Age and the early medieval period. The study of settlement-cemeteries must be at the forefront of any future research into early medieval Ireland. Obviously, the burials can tell us a lot about the people as regards their diet, health, age profile, etc., but as part of a landscape project, they can provide a valuable insight into the organisation of early medieval communities. These mass cemeteries were key sites within the landscape, and within early medieval society. They formed part of the legal process (e.g. swearing of oaths), and were part of communal events such as inaugurations and assembly festivities. As the number of excavated cemeteries increases, so too does our knowledge of their structure, form, and evolution. There is more work to do in terms of being able to identify them (even preliminarily) through the use of non-invasive techniques but they cannot be explored in isolation; we must look at them in terms of their surroundings, and in terms of their neighbouring settlements.

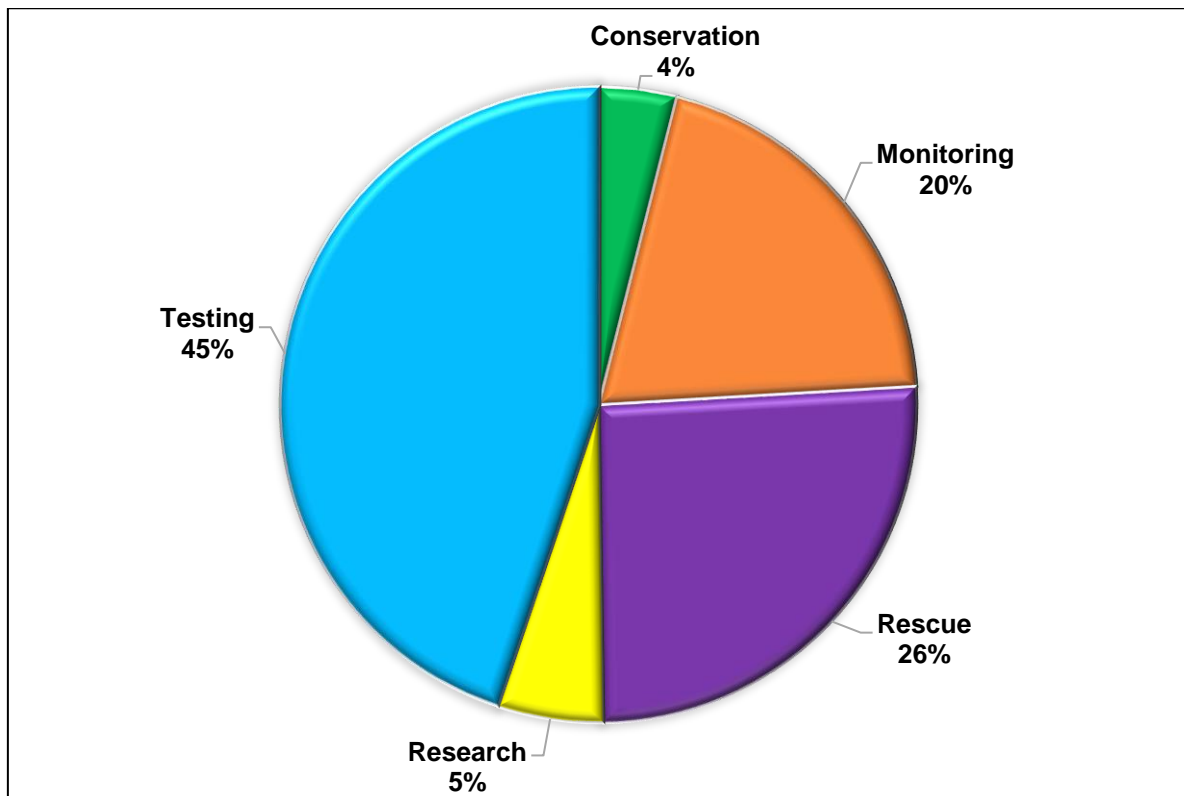
Several settlement-cemeteries have been fully (or almost fully) excavated, many of them in a pocket of activity around the Meath/Dublin border. Given that these particular sites have been identified, investigated, and scientifically dated, they would make excellent subjects from which to launch an investigation of the landscapes surrounding such sites. In Chapter 6 (Section 6.3), an initial desk-based exploration of the environs of Raystown and Johnstown was able to shed some light on the neighbouring contemporary settlement and point to avenues for further research in these areas. Furthermore, this project identified several potential cemeteries within both study areas including those at Deerpark, Co. Roscommon, Kiltoghert, Co. Leitrim, and Drumbeo, Co. Monaghan. Further investigation of these monuments, beginning with geophysical survey, would help to determine their composition and establish their place within their early medieval communities with greater certainty. Through targeted research of these sites and their locales, we could break through a little more into understanding the everyday lives of the early medieval community.

### **7.6.3 *Fields and Farming***

The places in which people lived are important, but, as this project has advocated, we must look at the early medieval landscape more holistically and make an attempt to incorporate the other elements that made up the communities, even if they are no longer visible. One crucial aspect of this is the integration of fields into our reconstruction of the landscape. The search for field patterns was not particularly fruitful within the scope of this study, but it does not mean that they were not there. As outlined in Chapter 2 (Section 2.4), we now know a great deal about the type of livestock and the crops that were grown. However, most of the historical documents and the existing archaeological studies focus on the type of crops that were grown, with little insight into how they were grown; even EMAP stopped short of venturing into this territory. More practical questions need to be asked in terms of the management of these fields and the range of crops that grew within them, i.e. how are the various crops grown and how would that translate into field systems? How do onions, peas, and broad beans grow? Did they grow all year round or are they seasonal? How many of each crop would different sized plots produce? Could the same plots be used for different vegetables at different times of the year? Would it have been enough to sustain a family or extended family with a varied diet all year round? Addressing these questions will not only help us to understand the possible layout of the farmsteads with their associated garden plots and field systems, but will also help us to better understand the daily activities required in order to sustain the crops.

### **7.6.4 *Research-driven Excavation***

As the figures compiled by EMAP showed, only 5% of excavations undertaken between 1930 and 2004 were research-led (Chart 7.1). A breakdown of these figures reveals that the number of research-led excavations has remained relatively constant (between 14 and 22 per annum on average) against a backdrop of increasing numbers of development-led excavations (O'Sullivan et al. 2008, 31). We have undeniably learned an incredible amount about early medieval Ireland from these commercial excavations, but this has ultimately meant that our research agenda has effectively been dictated by infrastructural and commercial development. This is particularly evident in both case study areas where very little excavation of early medieval archaeology has been undertaken. Through EMAP's comprehensive synthesis of these excavations, we have unquestionably achieved a much more advanced state of knowledge than we have ever had before, but as EMAP concluded, there is still much more to be done (O'Sullivan et al. 2014, 334).



**Chart 7.1 Early Medieval Excavation Types from 1930 to 2004**

*(after O'Sullivan et al. 2008, 26)*

This project's intensive exploration of the Leitrim/Roscommon and Monaghan study areas has identified several site types which warrant targeted investigation, in addition to several areas (clusters of sites) which would benefit from co-ordinated excavation. There are a host of research questions to be answered, including those identified throughout this PhD. Excavation would enable the procurement of further evidence which could help with a more definitive interpretation of the sites, including material culture, associated structures, and scientific dating evidence. This is not to devalue the approach of remote sensing investigations, indeed this project has demonstrated the value that such projects can add; however, this project has also highlighted a number of knowledge gaps and essentially refined some of the research questions which need to be addressed in order to make further progress. The case studies demonstrated the variety of settlement types that existed in the early medieval period, and analysis of their distribution and inter-relationships points to the existence of a social structure. However, in order to progress this, we need to acquire a better grasp of what the different types of settlement represent. We can see diversity across the board, but what do these differences mean and do they mean the same thing in every community? For example, in the case of the cluster of cashels in the Leitrim/Roscommon study area, the size and prominent position of the 'main' cashel suggest that it was the higher status monument, inferring that the

neighbouring cashels may have been deliberately built around it. Is it possible to identify a chronological sequence of construction between the cashels, and indeed between the other monuments in the immediate area? Is the material culture of the larger cashel indicative of higher status inhabitants? Is there evidence of the cashels fulfilling different roles or functions within the community? Remote sensing analysis may never be able to answer these questions definitively, but without this initial analysis, we would not know to ask them in the first place. The level of detail provided by this project's approach can help us identify further gaps in our knowledge and develop new, more informed strategies in order to address them.

Emerging research which investigated population trends based on radiocarbon dating evidence suggests that the population may have been in decline for several centuries from the early eighth century to the arrival of the Vikings (Hannah & McLaughlin 2019, 26). While there appears to be a decline in rath building from this period onwards (O'Sullivan & McCormick 2017, 124), this does not necessarily correlate with other archaeological evidence which demonstrates growth at this time; for example in the case of arable farming around the ninth century (e.g. Feehan 2003, 54; McCormick et al. 2011, 4; O'Sullivan et al. 2014, 180; Cunningham 2015, 11; McClatchie et al. 2015, 179). Indeed, the radiocarbon dates used may have had a bias as a result of the location of the sites sampled, and the location of the particular samples dated (e.g. ditch fills, selected individuals from a cemetery, etc.) (Aidan O'Sullivan pers. comm. 22/08/2019). However, the study raised interesting questions and, in conjunction with a number of the questions raised over the course of this research project, could inform a strategy for future research.

In an ideal world where there was an infinite research budget, it would be possible to research and excavate multiple neighbouring (diverse) sites in order to scientifically investigate the relationship between them. Within the study areas, the identification of certain settlement 'hubs' emphasises the need to ask direct questions of community distributions on various levels. For example, the five raths which share the drumlin summit of Cloonskeeven, Co. Roscommon (small, intimate community?) could be examined in order to ascertain whether the inhabitants shared a common role or status, or indeed, whether the raths were inhabited simultaneously. On a larger scale, the northern portion of the Monaghan study area where three bivallate raths are found in close proximity to one another in a densely-settled part of the county would provide an opportunity to examine the inter-relationships between settlements on a larger community scale. This may be a pipe dream, particularly in the two study areas where so few excavations have taken place. Thinking more strategically, somewhere like Raystown, Co. Meath where an extensive settlement-cemetery has already been excavated could be a good basis on which to expand and put in place an excavation strategy which

involved the investigation of neighbouring sites. Of course, this would be preceded by an in-depth remote sensing study involving lidar and geophysical survey which would inform any excavation decisions.

## **7.7 Final Thoughts**

Ireland's early medieval archaeology can stand on its own two feet, and indeed, it is refreshing to see a shift in recent years from an insular to a pan-European approach. Ireland may be an island, but it was undoubtedly part of a wider North Atlantic and European network. A lot can be learned by studying Ireland's archaeological remains within the bounds of the island, but when we start to look beyond this—particularly to Scotland, Wales, England, and Scandinavia—we can undoubtedly broaden our horizons. Looking outwardly can not only benefit the study of early medieval Ireland, but the integration of archaeological research from other areas can also make a significant contribution to the period on a European level. Inter-regional projects such as 'Cherish' (Ireland/Wales) and the 'Comparative Kingship Project' (Ireland/Scotland) are already making inroads in terms of monument recording and royal landscapes. However, there is considerable scope for further multidisciplinary exploration into the landscapes inhabited by early medieval societies in these and other locations; and of course moving beyond royal society and into the lives of the ordinary population.

However, for most people, life is lived locally, and the early medieval population were no different, albeit their world was significantly smaller than ours is today. The entire island, and indeed the wider European region in which they lived, were most likely largely remote geographical concepts that would have been less important to them than the local landscape with which they interacted on a daily basis; the everyday landscape in which they performed their daily tasks and interacted with their families, neighbours, clergy, and livestock. By investigating how early medieval communities lived and worked together, we are seeking to understand the society of which they were a part. This means thinking locally and exploring how early medieval communities inhabited particular landscapes. With the aid of remote sensing techniques, this PhD has sought to do this, and ultimately, to shift the focus to a more local level in order to start to put the community back into early medieval society in Ireland, and perhaps even beyond.

Interrogation of the study areas raised serious questions about the patterns of settlement and highlighted the need to move away from statistical or catch-all approaches. Indeed, Stout (1997, 12) saw his statistical rath-based approach as simply the first step in data-gathering



and the building of a solid foundation for broader study of early medieval society. Moreover, this study has raised questions about the many different monument types and how they fit together in early medieval society, e.g. in terms of their role and/or status. Ó Riain (1972, 19) made reference to the difficulty in identifying the residences of the 'professional classes', and despite all we have learned in the intervening decades, it seems that we still have a way to go in this regard. It is no longer enough to look at monument types in isolation. If we are to develop our already substantial knowledge base and understanding of the period, we must progress to looking at them in terms of their relationship both to one another and to the wider landscape, particularly in relation to the everyday lives of the population.

Ultimately, in seeking to define early medieval society, we must stop short of assuming that there was conformity and uniformity across the board. Likewise, the summarising of distribution patterns, although a useful and often essential practice, can lead to a lack of understanding about the diversity and intricacies of settlement, thus risking the presentation of a false impression of how society was constructed. Moreover, discovering diversity in the evidence in different locations and/or territories can give a valuable insight into how society behaved in different areas, and surely this is more interesting than a one-dimensional, oversimplified overview? The hidden depths and empty spaces of the Irish landscape hold the key to revealing even more about our early medieval communities.

Through the identification of significant numbers of previously unknown settlements, this study has achieved the most comprehensive landscape reconstruction to date of early medieval society within the two case study areas. The implications for the wider region are clear. By presenting a more detailed picture of the organisation of early medieval settlement, and by exploring the relationships between sites, one can better assess the diversity of places that were in existence and start to focus on more appropriate questions to ask of the archaeological remains, in addition to pinpointing areas for further research. Remote sensing leaves no imprint on the landscape, yet it delves into the hidden depths and empty spaces, leaving an indelible imprint on our understanding of the period and its people.

“The subject just refuses to come to an end”

A.T. Lucas, 17<sup>th</sup> April 1974

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# **Hidden Depths and Empty Spaces?**

**A remote sensing approach to the exploration of  
settlement patterns, identity and social hierarchy in  
early medieval Ireland (AD 400 - 1100)**

**Volume 2 of 2**

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This thesis is submitted to University College Dublin in fulfilment of the requirements for the degree of Doctor of Philosophy in the College of Social Sciences and Law.

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# Table of Contents

## **VOLUME 2**

Table of Contents	ii
List of Figures	ii
List of Appendices	xii
Statement of Original Authorship	xiii
Figures	1
Appendices	151

## **List of Figures**

<b>Figure 1.1</b>	The location of the study areas	2
<b>Figure 1.2</b>	The Ballinderry Brooch	3
<b>Figure 1.3</b>	Lidar hillshade of the drumlins in Leitrim/Roscommon and Monaghan	3
<b>Figure 1.4</b>	The remains of the rath at Ballyleck Townland, Co. Monaghan	4
-----		
<b>Figure 2.1</b>	Rath distribution within the Republic of Ireland	5
<b>Figure 2.2</b>	Univallate rath at Mountisland, Co. Tipperary	6
<b>Figure 2.3</b>	The 'plectrum-shaped' enclosure at Newtown	6
<b>Figure 2.4</b>	Bivallate rath at Corbaun, Co. Roscommon	7
<b>Figure 2.5</b>	Trivallate rath at Rathleg, Co. Roscommon	7
<b>Figure 2.6</b>	Reconstruction drawing of a univallate rath with palisade	8
<b>Figure 2.7</b>	Stone-packed postholes at Lowpark (post-excavation)	8
<b>Figure 2.8</b>	Reconstructed rath at the Irish National Heritage Park	9
<b>Figure 2.9</b>	Reconstruction drawing of the palisaded entrance at Garryduff II	9
<b>Figure 2.10</b>	Conjoined rath at Aghamore, Co. Leitrim	10
<b>Figure 2.11</b>	Reconstruction of the 'conjoined' rath at Lusk, Co. Dublin	10

<b>Figure 2.12</b>	Aerial photograph of Tech Cormaic and An Forrad, Hill of Tara	11
<b>Figure 2.13</b>	The enclosing wall at the cashel of Leacanabuaile, Co. Kerry	11
<b>Figure 2.14</b>	Cashel distribution within the Republic of Ireland	12
<b>Figure 2.15</b>	The cashel at Staigue Fort, Co. Kerry	13
<b>Figure 2.16</b>	Restored internal structures at Leacanabuaile Cashel	14
<b>Figure 2.17</b>	Enclosure divisions at the cashel of Cahercommaun, Co. Clare	14
<b>Figure 2.18</b>	Mooghaun South hillfort and associated cashels	15
<b>Figure 2.19</b>	Reconstruction drawing of a crannóg with palisade and piling	15
<b>Figure 2.20</b>	Crannóg distribution within the Republic of Ireland	16
<b>Figure 2.21</b>	Distribution of crannógs on Lough Sheelin, Co. Cavan	17
<b>Figure 2.22</b>	The Ervey Lough crannóg in relation to administrative boundaries	17
<b>Figure 2.23</b>	Positioning of the crannógs on Whitewood Lough, Co. Meath	18
<b>Figure 2.24</b>	The location of the crannóg on Breakey Lough, Co. Meath	18
<b>Figure 2.25</b>	The silver hoard from Cloghermore Cave, Co. Kerry	19
<b>Figure 2.26</b>	Figure-of-eight house from Deer Park Farms (structure Zeta)	19
<b>Figure 2.27</b>	The souterrain at Newtownbalregan, Co. Louth	20
<b>Figure 2.28</b>	Souterrain distribution within the Republic of Ireland	21
<b>Figure 2.29</b>	Geophysical survey at Crewbane, Co. Meath	22
<b>Figure 2.30</b>	The souterrain at Carn More, Co. Louth	22
<b>Figure 2.31</b>	Ecclesiastical enclosure distribution within the Republic of Ireland	23
<b>Figure 2.32</b>	Ecclesiastical layout preserved in the street patterns of Armagh	24
<b>Figure 2.33</b>	The remains at Tully Church, Laughanstown, Co. Dublin	24
<b>Figure 2.34</b>	The triple ecclesiastical enclosure at Nendrum, Co. Down	25
<b>Figure 2.35</b>	The mill at Kilbegly, Co. Roscommon	25
<b>Figure 2.36</b>	The remains of the Raystown complex	26
<b>Figure 2.37</b>	Post-excavation plan of the 'flimsy' oval structure at Lowpark	26
<b>Figure 2.38</b>	Enclosure and adjoining field systems at Baronstown 1	27

<b>Figure 2.39</b>	Drawing of a <i>Nochtaile</i> fence	28
<b>Figure 2.40</b>	Byrne's hypothetical model of an early medieval <i>ócaire</i> farmstead	28
<b>Figure 2.41</b>	Stout's hypothetical model of early medieval settlement	29
<b>Figure 2.42</b>	Plan of the royal site at Clogher, Co. Tyrone	30
<hr/>		
<b>Figure 3.1</b>	The formation of cropmarks	31
<b>Figure 3.2</b>	Cropmarks revealed at Newgrange during the summer of 2018	32
<b>Figure 3.3</b>	The range of techniques adopted by the CHERISH Project	32
<b>Figure 3.4</b>	3D Model of Dunbeg, Co. Kerry generated from UAV imagery	33
<b>Figure 3.5</b>	Interpretative plot of the geophysical survey at Clonfad	34
<b>Figure 3.6</b>	Interpretative plot of the 2011/2012 geophysical surveys at Glendalough	35
<b>Figure 3.7</b>	DTM of the ecclesiastical remains at Lullymore, Co. Kildare	35
<b>Figure 3.8</b>	Magnetometry results at Ranelagh, Co. Roscommon	36
<b>Figure 3.9</b>	Small survey blocks along the M11 road scheme	36
<b>Figure 3.10</b>	Geophysical survey at Roestown, Co. Meath	37
<b>Figure 3.11</b>	Lidar survey at the Hill of Ward, Co. Meath	37
<b>Figure 3.12</b>	Magnetometry results at the Hill of Ward, Co. Meath	38
<b>Figure 3.13</b>	Survey techniques used in the Stonehenge Hidden Landscapes Project	38
<b>Figure 3.14</b>	Results of the magnetometry survey at Faughan Hill, Co. Meath	39
<b>Figure 3.15</b>	Lidar analysis at Drumanagh, Co. Dublin	39
<b>Figure 3.16</b>	Archaeological features at Drumanagh, Co. Dublin	40
<b>Figure 3.17</b>	Interpretative plot of geophysical survey at Drumanagh, Co. Dublin	40
<b>Figure 3.18</b>	Comparison of lidar data at 2m x 2m and 1m x 1m output resolution	41
<b>Figure 3.19</b>	The effects of altering the azimuth and altitude on hillshade models	41
<b>Figure 3.20</b>	A range of lidar visualisation techniques using the RVT	42
<b>Figure 3.21</b>	Survey grid over the Monaghan lidar dataset	42
<b>Figure 3.22</b>	Newly discovered rath at Dristernan, Co. Leitrim	43

<b>Figure 3.23</b>	SMR entry for the newly discovered rath at Meera, Co. Roscommon	43
<b>Figure 3.24</b>	Geophysical survey grid set-out on ArcGIS	44
<b>Figure 3.25</b>	Setting out the geophysical survey grid points in the field	44
<b>Figure 3.26</b>	Undertaking the magnetometry survey at Killukin, Co. Roscommon	45
<b>Figure 3.27</b>	Undertaking the earth resistance survey at Tumna, Co. Roscommon	46
<b>Figure 3.28</b>	Lidar dataset management	47
<b>Figure 3.29</b>	Geophysical survey dataset management	47
<hr/>		
<b>Figure 4.1</b>	The Leitrim/Roscommon case study area	48
<b>Figure 4.2</b>	The higher resolution area ( <i>0.5m resolution lidar dataset</i> )	48
<b>Figure 4.3</b>	The drumlin landscape	49
<b>Figure 4.4</b>	Bedrock geology within the study area	49
<b>Figure 4.5</b>	The area of bogland in the south-west of the study area	50
<b>Figure 4.6</b>	The baronies within the study area	50
<b>Figure 4.7</b>	The civil parishes within the study area	51
<b>Figure 4.8</b>	Recorded monuments (by period) within the study area	51
<b>Figure 4.9</b>	Potential new monuments marked as 'redundant' by the NMS	52
<b>Figure 4.10</b>	Distribution of prehistoric monuments within the study area	52
<b>Figure 4.11</b>	The Doon of Drumsna	53
<b>Figure 4.12</b>	The Tumna Gold Balls	53
<b>Figure 4.13</b>	Distribution of medieval and later monuments within the study area	54
<b>Figure 4.14</b>	The study area in relation to Cruachain (Rathcroghan)	54
<b>Figure 4.15</b>	Excavations within the study area	55
<b>Figure 4.16</b>	The newly discovered rath at Carrick, Co. Leitrim	55
<b>Figure 4.17</b>	Geophysical surveys undertaken as part of this research project	56
<b>Figure 4.18</b>	Results of the magnetometry survey at Annaduff	56
<b>Figure 4.19</b>	The projected enclosure and extant ditch at Annaduff	57

<b>Figure 4.20</b>	The rectangular structure at Killukin	57
<b>Figure 4.21</b>	Results of the magnetometry survey at Killukin	58
<b>Figure 4.22</b>	Results of the earth resistance survey at Killukin	58
<b>Figure 4.23</b>	Killukin in 2005 before the R368 was inserted through the site	59
<b>Figure 4.24</b>	The enclosing features at Killukin, Co. Roscommon	60
<b>Figure 4.25</b>	Local Relief Model of Tumna, Co. Roscommon	61
<b>Figure 4.26</b>	Interpretative plot of the key features identified at Tumna	61
<b>Figure 4.27</b>	The newly discovered rath at Mullaghmore	62
<b>Figure 4.28</b>	Results of the earth resistance survey at Mullaghmore	62
<b>Figure 4.29</b>	View of Sheemore from the rath at Kiltoghert	63
<b>Figure 4.30</b>	Results of the earth resistance survey at Kiltoghert	63
<b>Figure 4.31</b>	Results of the magnetometry survey at Kiltoghert	64
<b>Figure 4.32</b>	The newly discovered enclosure at Drumcleavry	64
<b>Figure 4.33</b>	Early medieval settlement at the Doon of Drumsna	65
<b>Figure 4.34</b>	Results of the magnetometry survey at Drumcleavry	65
<b>Figure 4.35</b>	The impressive banks and ditches at the bivallate rath at Port	66
<b>Figure 4.36</b>	The remains of the interior of the univallate rath at Port, Co. Leitrim	66
<b>Figure 4.37</b>	Results of the earth resistance survey at the univallate rath at Port	67
<b>Figure 4.38</b>	Early medieval monuments within the study area	68
<b>Figure 4.39</b>	Significant ecclesiastical sites within the study area environs	69
<b>Figure 4.40</b>	Probable early medieval ecclesiastical sites within the study area	69
<b>Figure 4.41</b>	Secular settlements in the environs of Church Hill & Tumna	70
<b>Figure 4.42</b>	Deerpark in relation to the townland, civil parish, and barony boundaries	70
<b>Figure 4.43</b>	Kiltoghert in relation to the townland, civil parish, and barony boundaries	71
<b>Figure 4.44</b>	Reconstruction drawing of Parknahown, Co. Laois	71
<b>Figure 4.45</b>	Distribution of bivallate raths within the study area	72
<b>Figure 4.46</b>	Bivallate rath at Danesfort, Co. Roscommon	72

<b>Figure 4.47</b>	The newly discovered bivallate rath at Coraughrim	73
<b>Figure 4.48</b>	Two bivallate raths at Foxhill	73
<b>Figure 4.49</b>	Bivallate rath distribution per civil parish	74
<b>Figure 4.50</b>	Bivallate rath distribution around Foxborough trivallate rath	74
<b>Figure 4.51</b>	The bivallate raths at Danesfort and Legvoy or Gardenstown	75
<b>Figure 4.52</b>	The 'opposing bivallate pairs' overlooking the River Shannon	76
<b>Figure 4.53</b>	The D-shaped field boundary at Cleaheen	77
<b>Figure 4.54</b>	Lidar image of the trivallate rath at Foxborough, Co. Leitrim	77
<b>Figure 4.55</b>	Distribution of trivallate raths in Co. Leitrim	78
<b>Figure 4.56</b>	Distribution of trivallate raths in Co. Roscommon	79
<b>Figure 4.57</b>	Distribution of conjoined raths within the study area	80
<b>Figure 4.58</b>	The conjoined rath at Corralara	80
<b>Figure 4.59</b>	The conjoined rath at Tawlaght and surrounding settlement	81
<b>Figure 4.60</b>	Distribution of cashels within the study area	81
<b>Figure 4.61</b>	Distribution of cashels in relation to civil parish boundaries	82
<b>Figure 4.62</b>	Cashels and raths on Davis's Island	82
<b>Figure 4.63</b>	Distribution of crannógs within the study area	83
<b>Figure 4.64</b>	Crannógs on Mucklaghan Lough	83
<b>Figure 4.65</b>	The possible settlement-cemetery at Deerpark and its environs	84
<b>Figure 4.66</b>	The sparsely settled south-eastern portion of the study area	84
<b>Figure 4.67</b>	Geology of the sparsely settled south-eastern portion of the study area	85
<b>Figure 4.68</b>	The curving field boundary between Antfield and Finnalaghta	85
<b>Figure 4.69</b>	Field patterns in the south-eastern portion of the study area	86
<b>Figure 4.70</b>	The five raths on the drumlin of Cloonskeeveen townland	86
<b>Figure 4.71</b>	Land allocation around each rath on the drumlin at Cloonskeeveen	87
<b>Figure 4.72</b>	Two raths sharing a drumlin summit in Ardanafrin	87
<b>Figure 4.73</b>	Four raths of different morphology sharing a drumlin at Kiltoghert	88



<b>Figure 4.74</b>	The enclosure at Relignaree and its internal divisions	88
<b>Figure 4.75</b>	The newly discovered enclosure in Annaghmona townland	89
<b>Figure 4.76</b>	The possible settlement-cemetery at Caldragh	89
<b>Figure 4.77</b>	Distribution of conjoined raths in Counties Leitrim and Roscommon	90
<b>Figure 4.78</b>	The trivallate rath at Foxborough and its contemporary neighbours	91
<b>Figure 4.79</b>	The cashel at Carroward/Toormartin and its environs	91
<b>Figure 4.80</b>	The cashel at Carroward/Toormartin in relation to Foxborough	92
<b>Figure 4.81</b>	The standing stone at Knockacorha	92
<b>Figure 4.82</b>	Early medieval settlement within the townland of Kiltoghert	93
<b>Figure 4.83</b>	Suggested model of the settlement landscape at Kiltoghert	93
-----		
<b>Figure 5.1</b>	The Monaghan study area	94
<b>Figure 5.2</b>	Bedrock geology within the study area	94
<b>Figure 5.3</b>	Soils in the study area	95
<b>Figure 5.4</b>	The baronies within the study area	95
<b>Figure 5.5</b>	The civil parishes within the study area	96
<b>Figure 5.6</b>	Recorded archaeological monuments per townland in the study area	97
<b>Figure 5.7</b>	Recorded monuments (by period) within the study area	98
<b>Figure 5.8</b>	Distribution of recorded prehistoric monuments within the study area	98
<b>Figure 5.9</b>	The Tedavnet gold discs	99
<b>Figure 5.10</b>	Distribution of medieval and later monuments within the study area	99
<b>Figure 5.11</b>	Depiction of the bastioned fort on Bartlett's map c. 1602	100
<b>Figure 5.12</b>	The Donagh Cross	101
<b>Figure 5.13</b>	The study area in relation to Clogher Fort and Navan Fort	102
<b>Figure 5.14</b>	Excavations within the study area	102
<b>Figure 5.15</b>	The walled garden at Castleshane Demesne	103
<b>Figure 5.16</b>	Archaeological monuments discovered through the lidar analysis	103

<b>Figure 5.17</b>	Early medieval monuments within the study area	104
<b>Figure 5.18</b>	The 'confession bush' at Drumrutagh	104
<b>Figure 5.19</b>	The curving road (L5190) at Mullanarockan	105
<b>Figure 5.20</b>	The extant church and graveyard at Mullanacross	105
<b>Figure 5.21</b>	St. Muadain's Well, Mullanacross	106
<b>Figure 5.22</b>	Early medieval settlement in the environs of Mullanacross	106
<b>Figure 5.23</b>	The view from the graveyard at Templetate	107
<b>Figure 5.24</b>	Early medieval settlement in the environs of Templetate	107
<b>Figure 5.25</b>	Early medieval settlement in the environs of Donagh	108
<b>Figure 5.26</b>	The extant graveyard at Mullanarockan	108
<b>Figure 5.27</b>	The 'Robinson Monument' at Mullanarockan	109
<b>Figure 5.28</b>	The embankment in Mullyera	109
<b>Figure 5.29</b>	The curvilinear roadway at Mullanarockan	110
<b>Figure 5.30</b>	The siting of Mullanarockan	110
<b>Figure 5.31</b>	Early medieval ecclesiastical sites within the study area	111
<b>Figure 5.32</b>	Newly discovered enclosure at Annareagh South	111
<b>Figure 5.33</b>	Early medieval settlement in the environs of Feebane	112
<b>Figure 5.34</b>	The large enclosures at Clonkeady and Lisavargy	112
<b>Figure 5.35</b>	The large enclosures at Cornaglare and Lenagh	113
<b>Figure 5.36</b>	Distribution of bivallate raths within the study area	113
<b>Figure 5.37</b>	The bivallate rath at Dernagola as depicted on the 6inch historic map	114
<b>Figure 5.38</b>	The bivallate rath at Faulkland	114
<b>Figure 5.39</b>	The bivallate rath at Killydrutan	115
<b>Figure 5.40</b>	Early medieval settlement around Corlattan/Knockakirwan and Lisgrew	115
<b>Figure 5.41</b>	Early medieval settlement in the environs of Killyreask	116
<b>Figure 5.42</b>	The bivallate rath at Tully	116
<b>Figure 5.43</b>	The bivallate rath at Lissaraw	117

<b>Figure 5.44</b>	Early medieval settlement in the environs of Lissaraw	117
<b>Figure 5.45</b>	Distribution of trivallate raths in County Monaghan	118
<b>Figure 5.46</b>	Multivallate raths at the meeting of thirteenth-century territories	118
<b>Figure 5.47</b>	Distribution of (possible) conjoined raths in the study area	119
<b>Figure 5.48</b>	The possible conjoined monument at Ballyleck	119
<b>Figure 5.49</b>	The remains of the possible conjoined monument at Sheetrim	120
<b>Figure 5.50</b>	Distribution of conjoined monuments within County Monaghan	120
<b>Figure 5.51</b>	Distribution of cashels within County Monaghan	121
<b>Figure 5.52</b>	Distribution of crannógs within the study area	121
<b>Figure 5.53</b>	The crannógs on Drumreask Lake	122
<b>Figure 5.54</b>	The crannóg at Emy Lough and contemporary monuments	122
<b>Figure 5.55</b>	The enclosure at Cornaglare and modern fieldsystems	123
<b>Figure 5.56</b>	Possible contemporary fields at Clonkeady	123
<b>Figure 5.57</b>	Fieldsystems at Dowdstown, Co. Meath	124
<b>Figure 5.58</b>	The rath at Killydonagh and curvilinear ditched feature	125
<b>Figure 5.59</b>	The rath at Mullanalog and curvilinear ditched feature	125
<b>Figure 5.60</b>	Distribution of souterrains within the study area	126
<b>Figure 5.61</b>	Plan of the souterrains at Lisaginny and Drumgolat	126
<b>Figure 5.62</b>	Distribution of souterrains within County Monaghan	127
<b>Figure 5.63</b>	Distribution of souterrains in Monaghan and neighbouring counties	127
<b>Figure 5.64</b>	Distribution of townland names and their meaning	128
<b>Figure 5.65</b>	The raths overlooking Emy Lough	129
<b>Figure 5.66</b>	Four raths in Crumlin townland	129
<b>Figure 5.67</b>	The three neighbouring raths in Cornecassa Demesne	130
<b>Figure 5.68</b>	The location of the possible settlement-cemetery in Desert	130
<b>Figure 5.69</b>	The possible settlement-cemetery in Drumbeo	131
<b>Figure 5.70</b>	Settlement-cemeteries, high status settlements, and ecclesiastical sites	131

<b>Figure 5.71</b>	Early medieval monuments near the possible inauguration site of Leck	132
<b>Figure 5.72</b>	The large enclosure at Greenmount	132
<b>Figure 5.73</b>	The royal site of Clogher, Co. Tyrone	133
<b>Figure 5.74</b>	The possible strategic siting of Drumbeo and Drumgolat	133
<b>Figure 5.75</b>	Monument distribution in the northern part of the study area	134
<b>Figure 5.76</b>	The standing stone of Corfad and environs	134
<b>Figure 5.77</b>	The possible <i>óenach</i> site at Enagh in relation to Sheetrim and Faulkand	135
<b>Figure 5.78</b>	Cluster of early medieval monuments in the west of the study area	135
<hr/>		
<b>Figure 6.1</b>	The triple-gated entrance at Ballycatteen, Co. Cork	136
<b>Figure 6.2</b>	Suggested locations for the <i>ferta</i> of the daughters of King Lóegaire	137
<b>Figure 6.3</b>	Excavated settlement-cemeteries in Ireland	138
<b>Figure 6.4</b>	Correlation between places of burial and assembly	139
<b>Figure 6.5</b>	Distribution of early medieval monuments at Raystown, Co. Meath	140
<b>Figure 6.6</b>	The possible community associated with the Raystown cemetery	140
<b>Figure 6.7</b>	Distribution of early medieval monuments at Johnstown, Co. Meath	141
<b>Figure 6.8</b>	The large oval enclosure at Posseckstown, Co. Meath	141
<b>Figure 6.9</b>	The conjoined monument at Lismurtagh, Co. Roscommon	142
<b>Figure 6.10</b>	The point of engagement between An Forrad and Tech Cormaic	143
<b>Figure 6.11</b>	The conjoined monument at Knockadoobrusna, Co. Roscommon	144
<b>Figure 6.12</b>	Archaeological monuments in the environs of Knockadoobrusna	144
<b>Figure 6.13</b>	Saintly associations in Counties Leitrim and Roscommon	145
<b>Figure 6.14</b>	The ecclesiastical site at Donagh, Co. Monaghan and its neighbours	146
<b>Figure 6.15</b>	The <i>túath</i> churches of the Fir Maige territory, Co. Cork	146
<b>Figure 6.16</b>	Distribution of ecclesiastical sites in the Leitrim/Roscommon study area	147
<b>Figure 6.17</b>	Distribution of ecclesiastical sites in the Monaghan study area	147

<b>Figure 7.1</b>	Rath at Derryhallagh, Co. Monaghan	148
<b>Figure 7.2</b>	The rath at Scregg, Co. Roscommon	148
<b>Figure 7.3</b>	Distribution of early medieval settlement at Rackwallace, Co. Monaghan	149
<b>Figure 7.4</b>	Distribution of early medieval settlement at Killukin, Co. Roscommon	149
<b>Figure 7.5</b>	Evolution of the cemetery of Johnstown 1	150
<hr/>		
<b>Appendices</b>		<b>151</b>
<b>Appendix 1</b>	Recorded monuments: Leitrim/Roscommon study area	152
<b>Appendix 2</b>	Recorded monuments: Monaghan study area	165
<b>Appendix 3</b>	Newly discovered monuments: Leitrim/Roscommon study area	172
	<i>A. Monuments added to SMR</i>	173
	<i>B. Monuments not added to SMR</i>	175
<b>Appendix 4</b>	Geophysical survey reports	177
	<i>A. Annaduff</i> 16R0099	178
	<i>B. Killukin</i> 16R0121	207
	<i>C. Killukin</i> 17R0159	231
	<i>D. Tumna</i> 15R0081	252
	<i>E. Mullaghmore</i> 16R0122	283
	<i>F. Kiltoghert</i> 15R0136	308
	<i>G. Drumcleavry</i> 14R0116	327
	<i>H. Port</i> 15R0080	346
<b>Appendix 5</b>	Newly discovered monuments: Monaghan study area	369
<b>Appendix 6</b>	House size analysis	371
<b>Appendix 7</b>	Settlement-cemetery evidence	373
<b>Appendix 8</b>	Damaged or destroyed monuments 'recovered' by lidar analysis	375

## **Statement of Original Authorship**

I hereby certify that the submitted work is my own work, was completed while registered as a candidate for the degree stated on the Title Page, and I have not obtained a degree elsewhere on the basis of the research presented in this submitted work.

# FIGURES

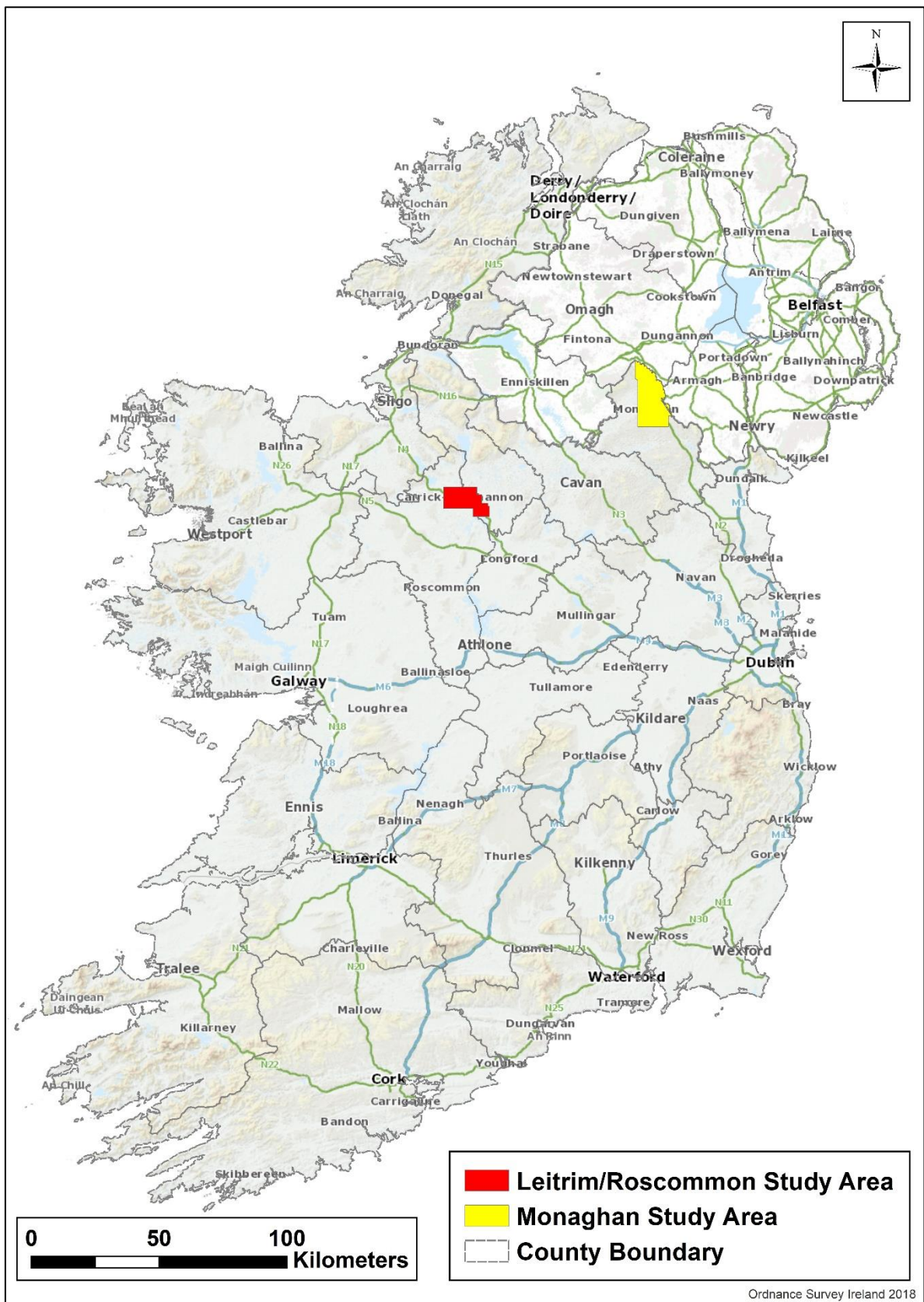


Figure 1.1 The location of the study areas

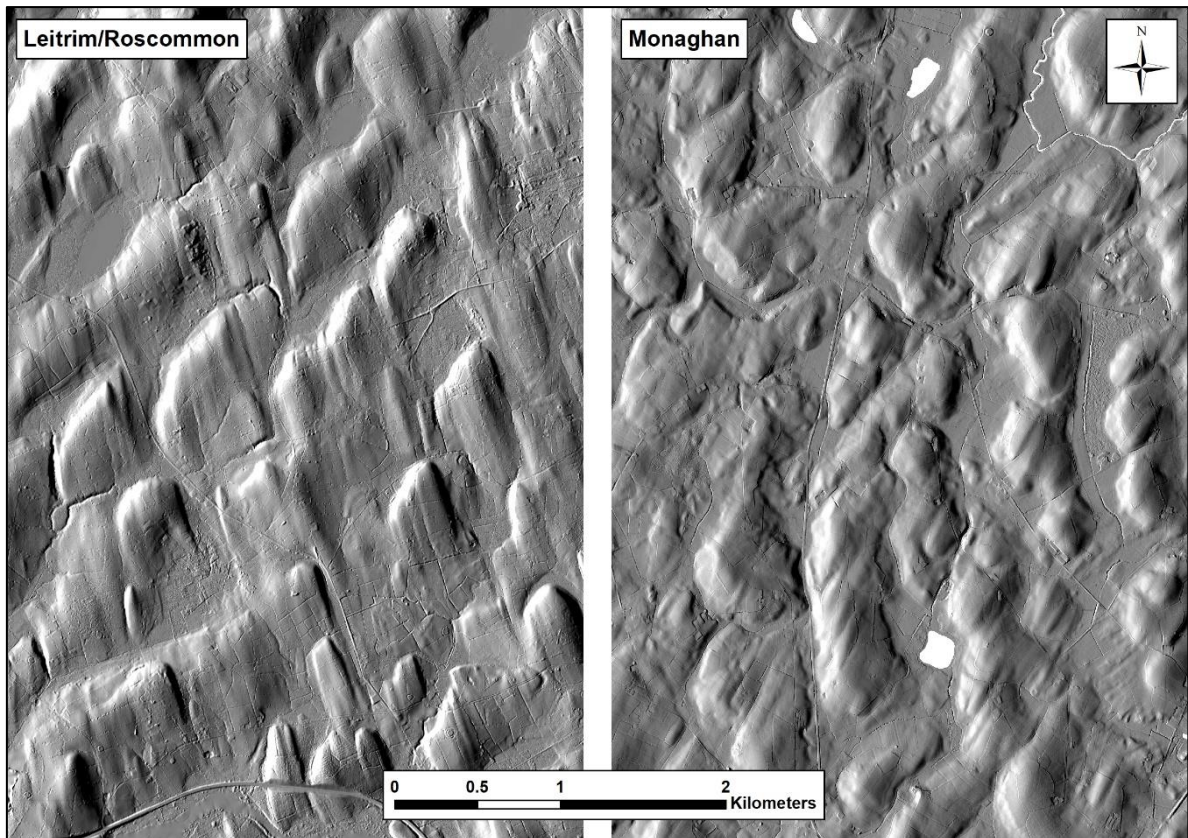
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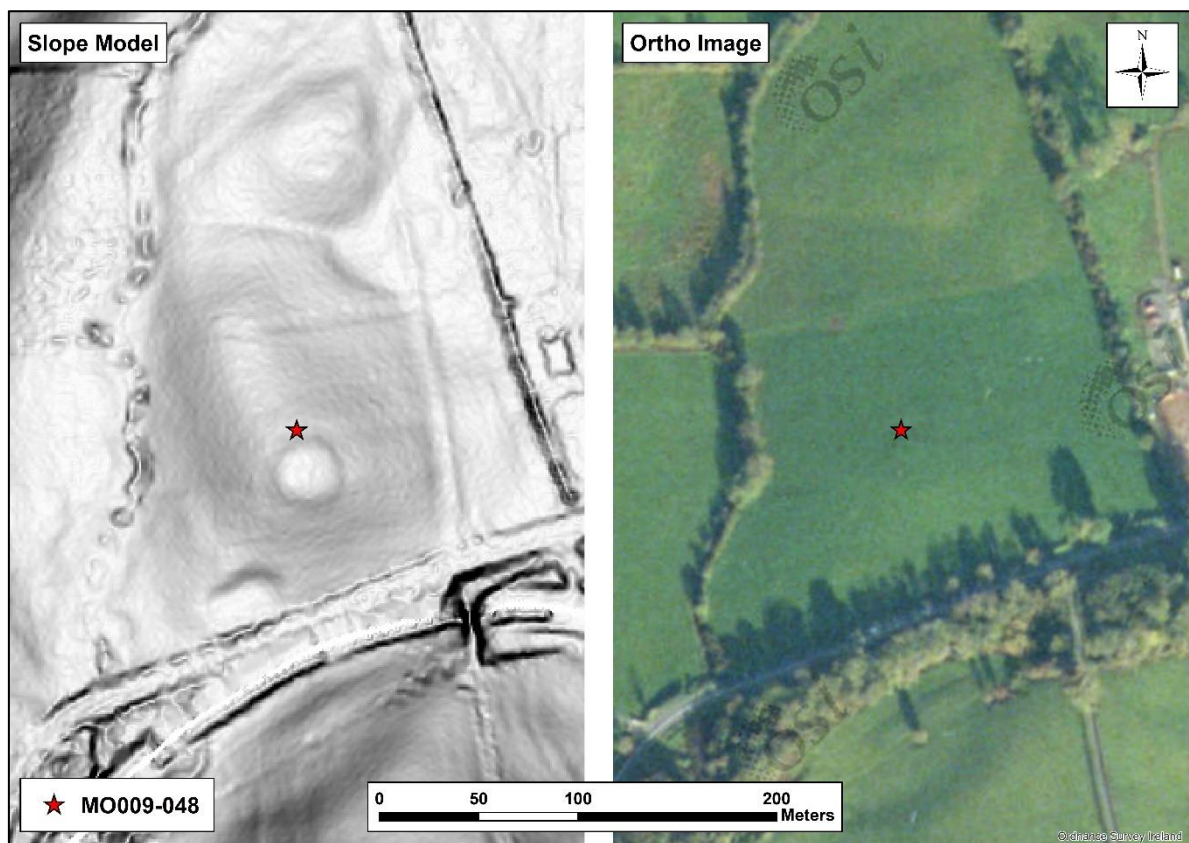


**Figure 1.2** The Ballinderry Brooch

(after <http://100objects.ie/ballinderry-brooch/>)

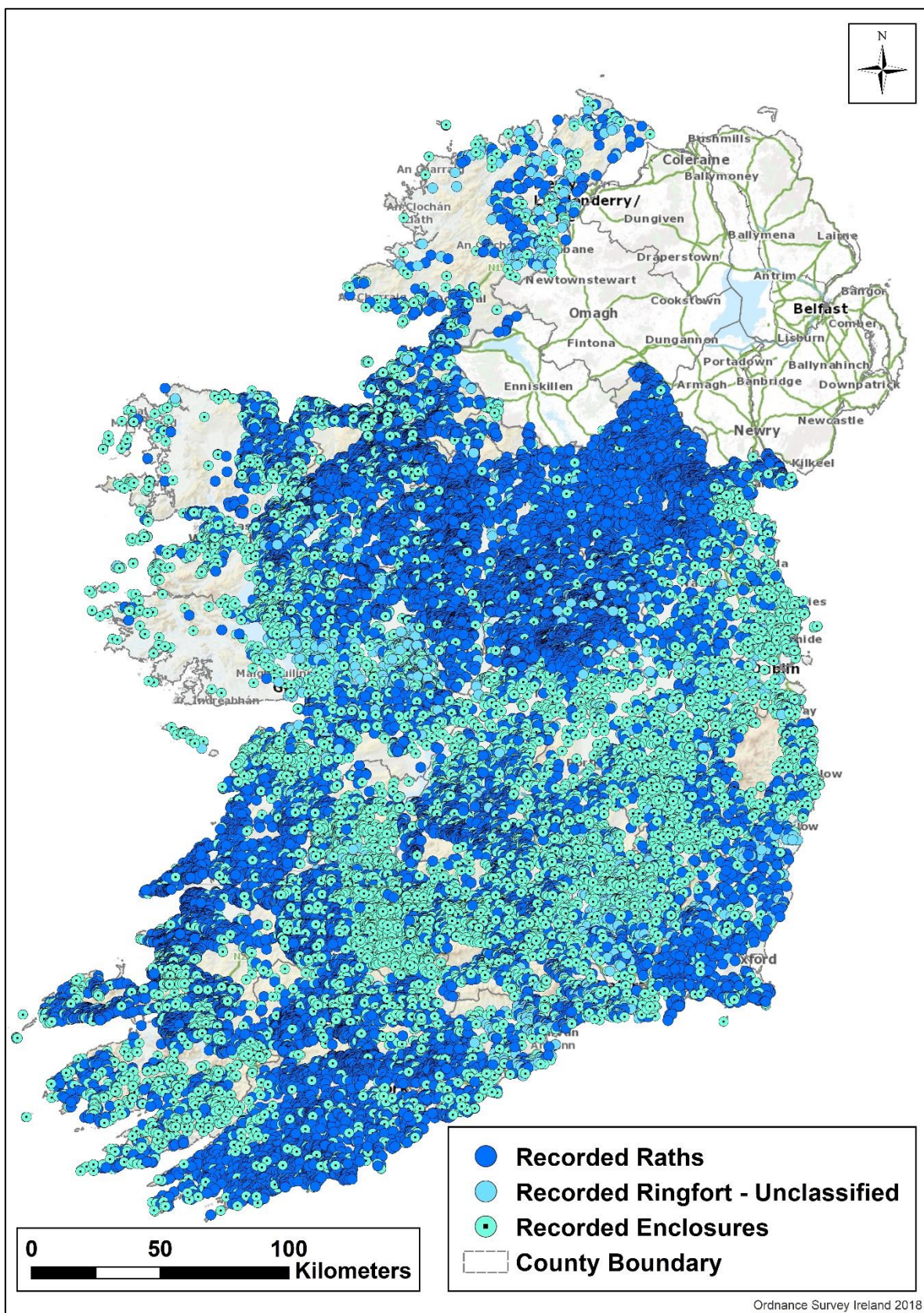


**Figure 1.3** Lidar hillshade of the drumlins in Leitrim/Roscommon (Azi. 280 / Alt. 20) and Monaghan (Azi. 285 / Alt. 45)



**Figure 1.4** The remains of the rath at Ballyleck Townland, Co. Monaghan (MO009-048) on the lidar surface (*slope*) and aerial image (*after OSi MapGenie, with additions*)





**Figure 2.1** Rath distribution within the Republic of Ireland; includes monuments classified under 'Ringfort-Rath', 'Ringfort-Unclassified', and 'Enclosure'  
*(after SMR; OSi MapGenie, with additions)*





**Figure 2.2** Univallate rath at Mountisland, Co. Tipperary (TN027-110)  
*(after <http://webgis.archaeology.ie/historicenvironment/>)*



**Figure 2.3** The 'plectrum-shaped' enclosure at Newtown, Co. Limerick (post-excavation)  
*(after Coyne 2006, 69)*



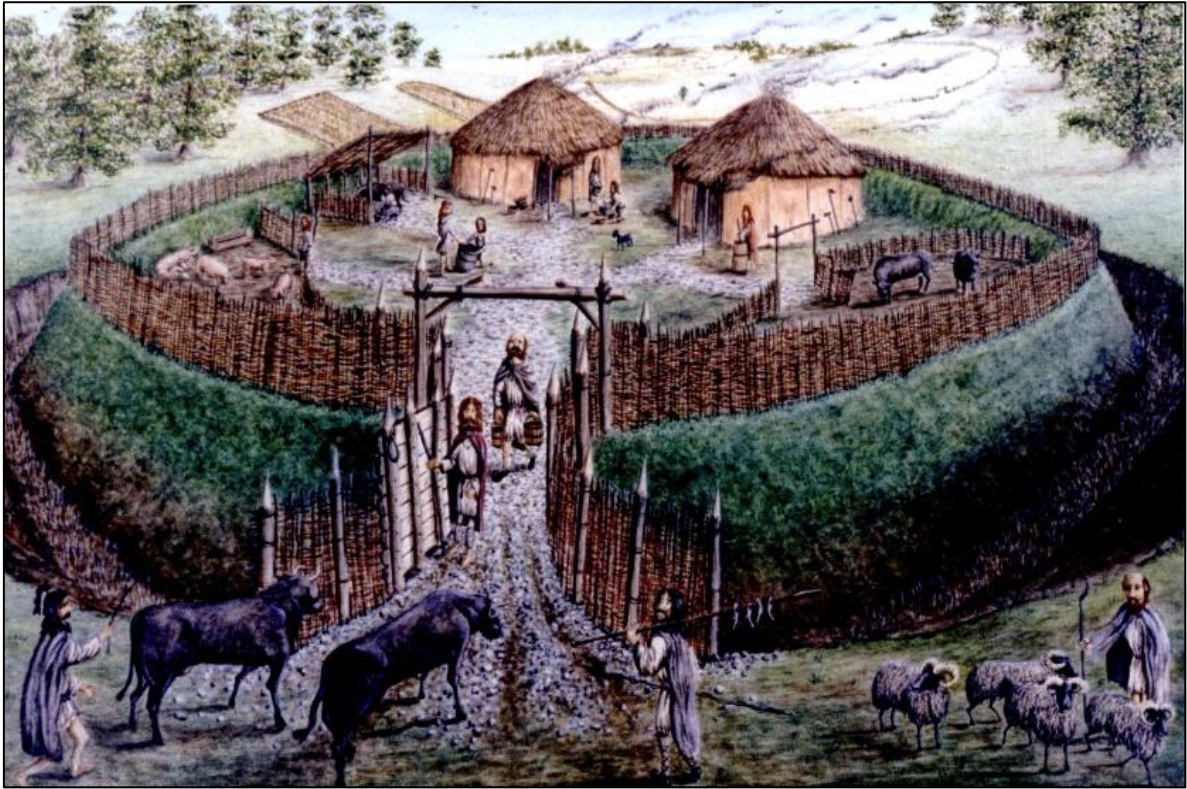


**Figure 2.4** Bivallate rath at Corbaun, Co. Roscommon (RO017-053)  
 (after <http://webgis.archaeology.ie/historicenvironment/>)

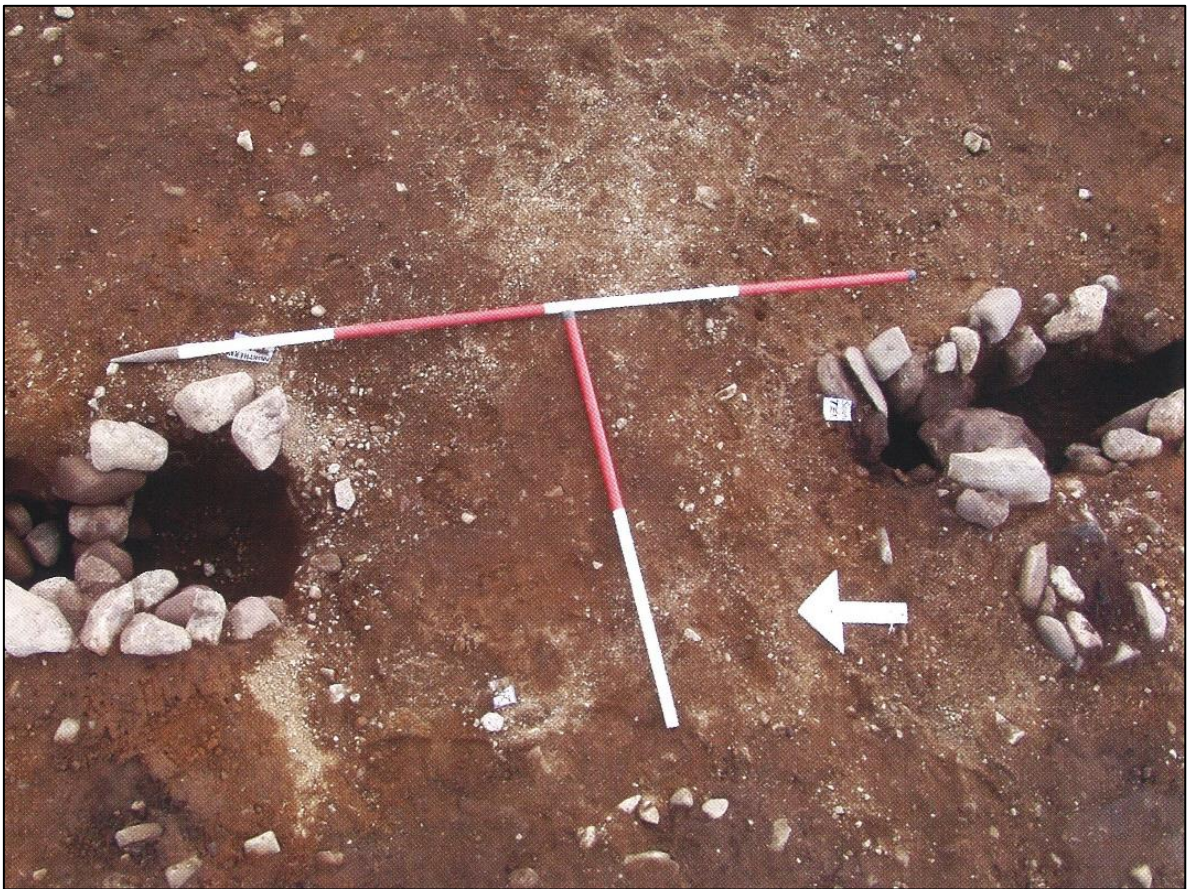


**Figure 2.5** Trivallate rath at Rathleg, Co. Roscommon (RO027-001)  
 (after <http://webgis.archaeology.ie/historicenvironment/>)





**Figure 2.6** Reconstruction drawing of a univallate rath with palisade  
*(Drawing by S. Shaw; after O'Sullivan & Nicholl 2011, 64)*

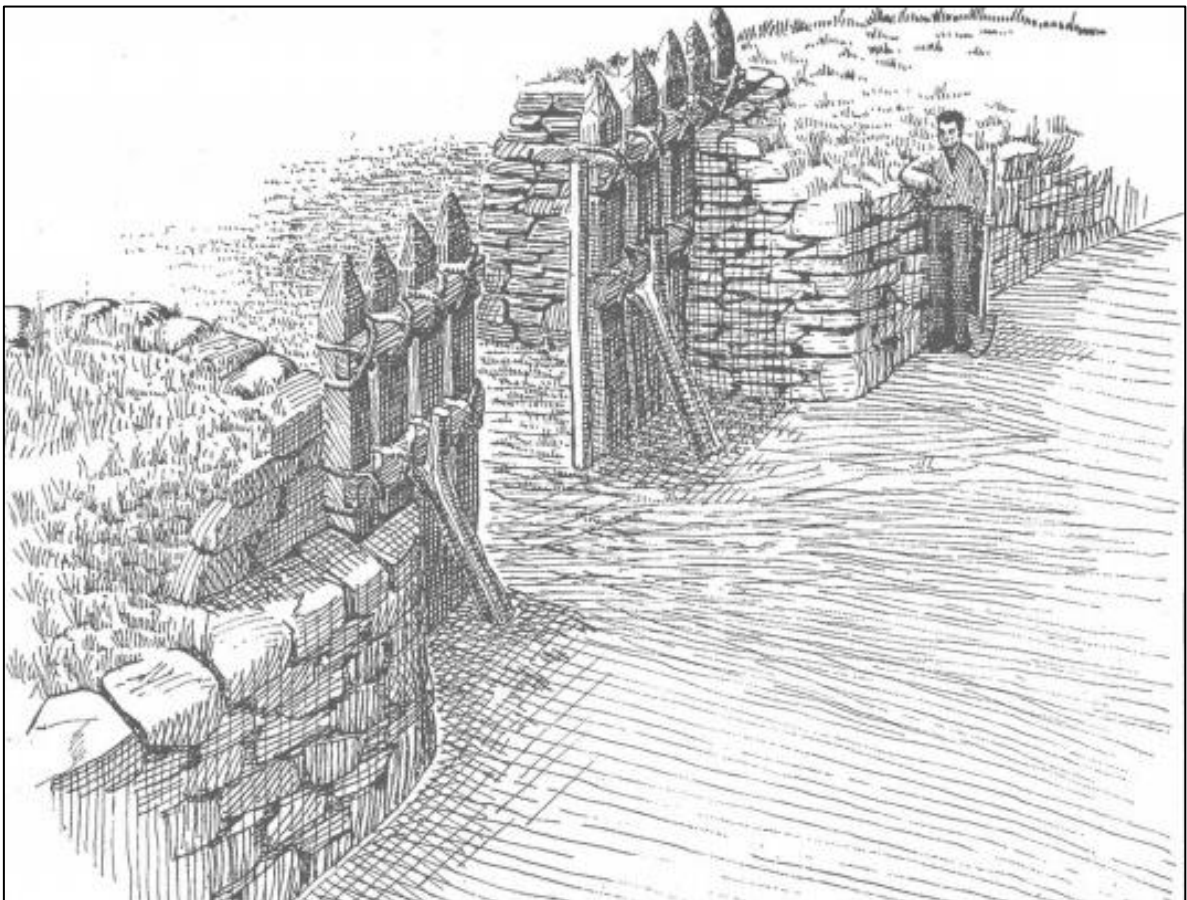


**Figure 2.7** Stone-packed postholes at Lowpark, Co. Mayo (post-excavation)  
*(after Gillespie 2011, 191)*



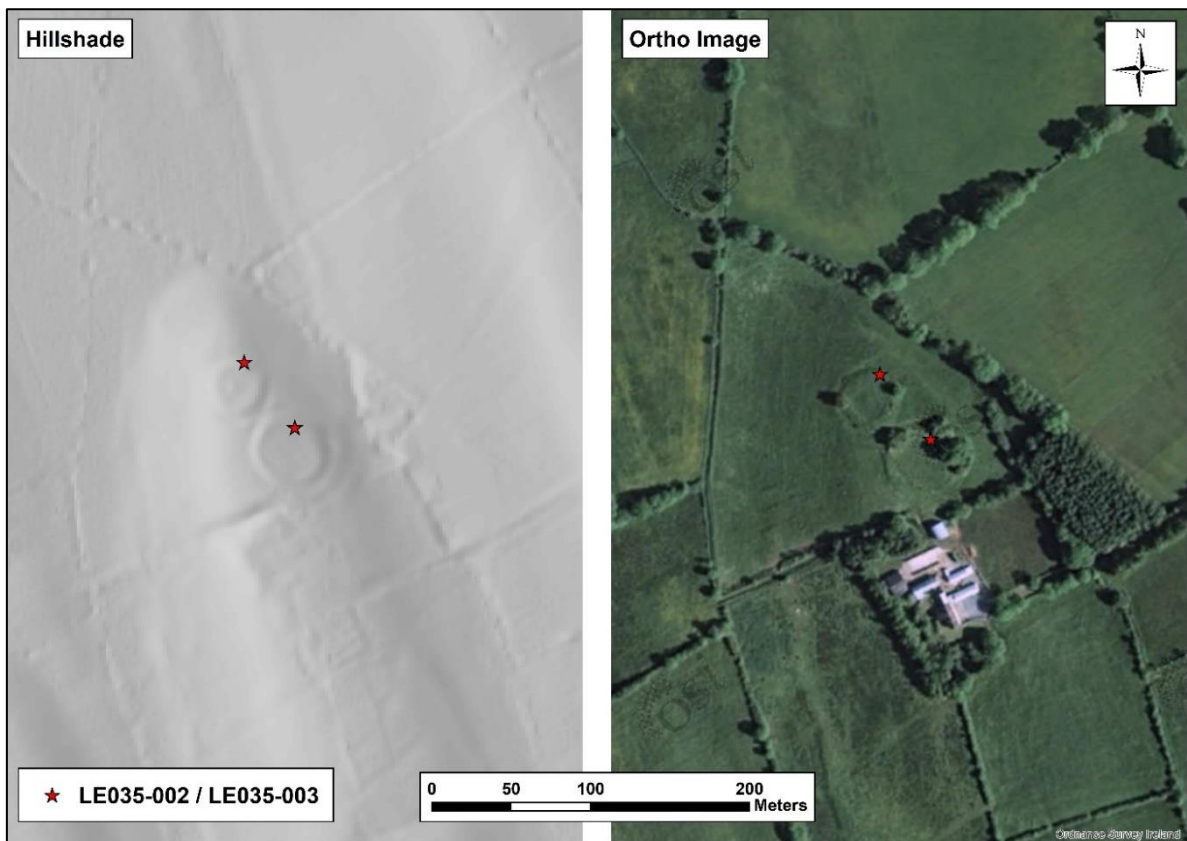


**Figure 2.8** Reconstructed rath with palisade and look-out tower at the Irish National Heritage Park, Ferrycarrig, Co. Wexford  
*(after [www.inhp.com/wp-content/uploads/2014/01/Ringfort.jpg](http://www.inhp.com/wp-content/uploads/2014/01/Ringfort.jpg))*

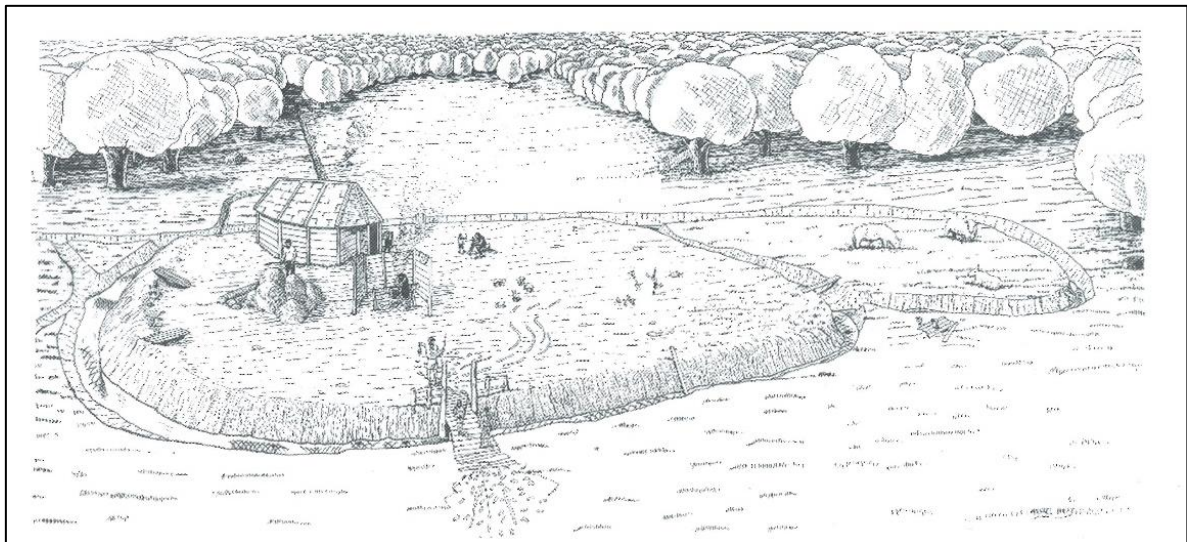


**Figure 2.9** Reconstruction drawing of the palisaded entrance at Garryduff II, Co. Cork  
*(after O'Kelly 1963, 123)*





**Figure 2.10** Conjoined rath at Aghamore, Co. Leitrim; composed of two complete embanked enclosures  
(after OSi MapGenie, with additions)



**Figure 2.11** Reconstruction of the 'conjoined' rath at Lusk, Co. Dublin  
(Drawing by M. Duffy; after Giacometti 2011, 158)





**Figure 2.12** Tech Cormaic and An Forrad, Hill of Tara, Co. Meath  
(ME031-033009 & ME031-033010)

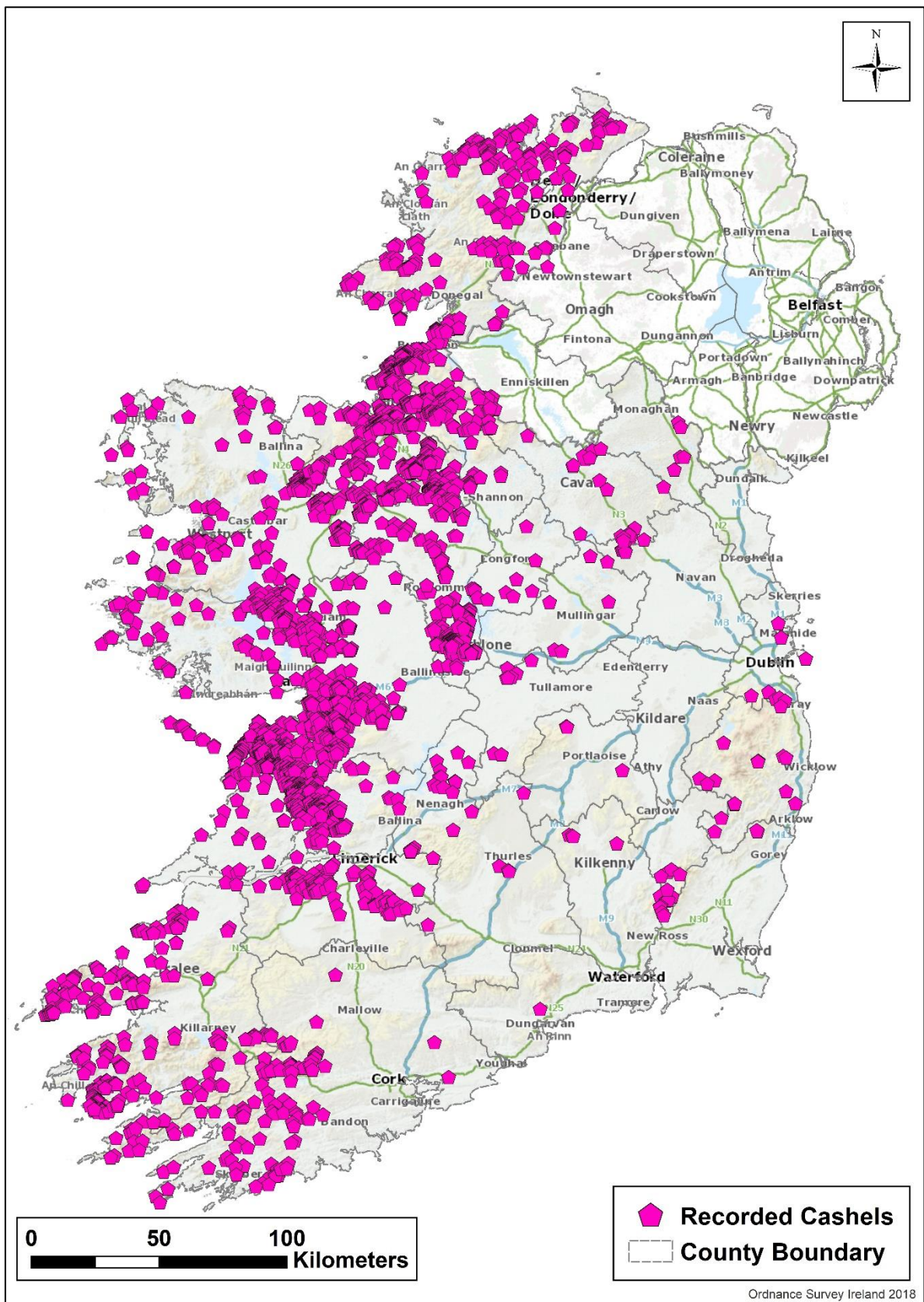
*(Photo: S. Curran)*



**Figure 2.13** The enclosing wall at the cashel of Leacanabuaile, Co. Kerry (KE079-016)

*(Photo: S. Curran)*





**Figure 2.14** Cashel distribution within the Republic of Ireland  
*(after SMR; OSi MapGenie, with additions)*





**Figure 2.15** The cashel at Staigue Fort, Co. Kerry (KE099-013001)

*(Photo: O. O'Rourke)*





**Figure 2.16** Restored internal structures at Leacanabuaile Cashel, Co. Kerry  
*(Photo: S. Curran)*

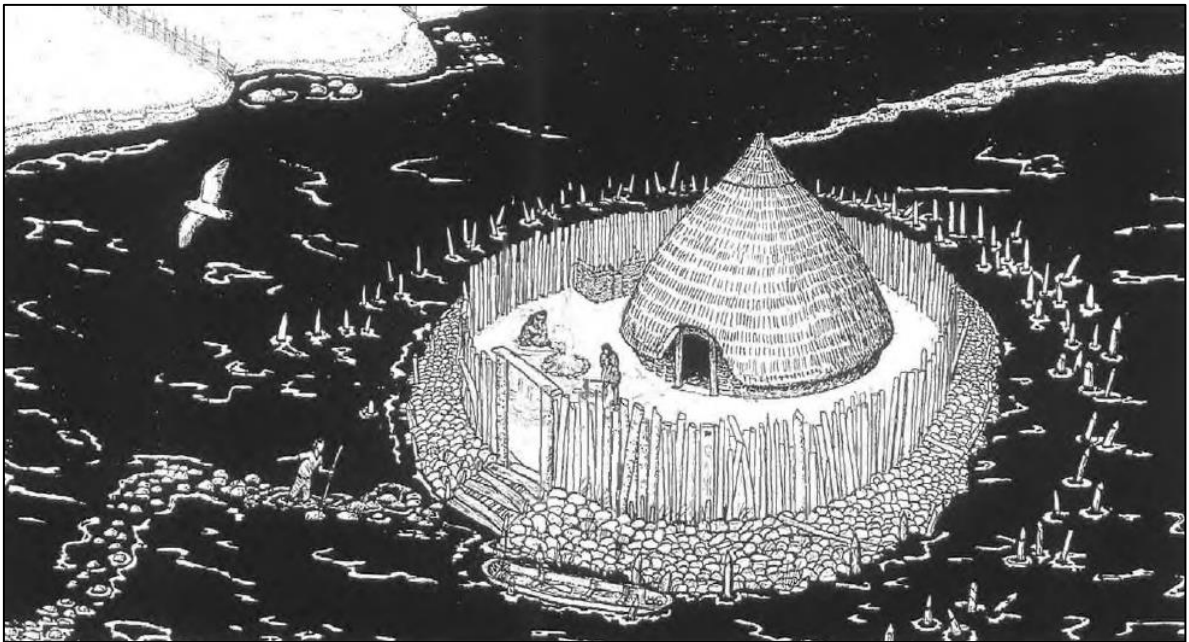


**Figure 2.17** Enclosure divisions at the cashel of Cahercommaun, Co. Clare (CL010-064003)  
*(after <http://webgis.archaeology.ie/historicenvironment/>)*



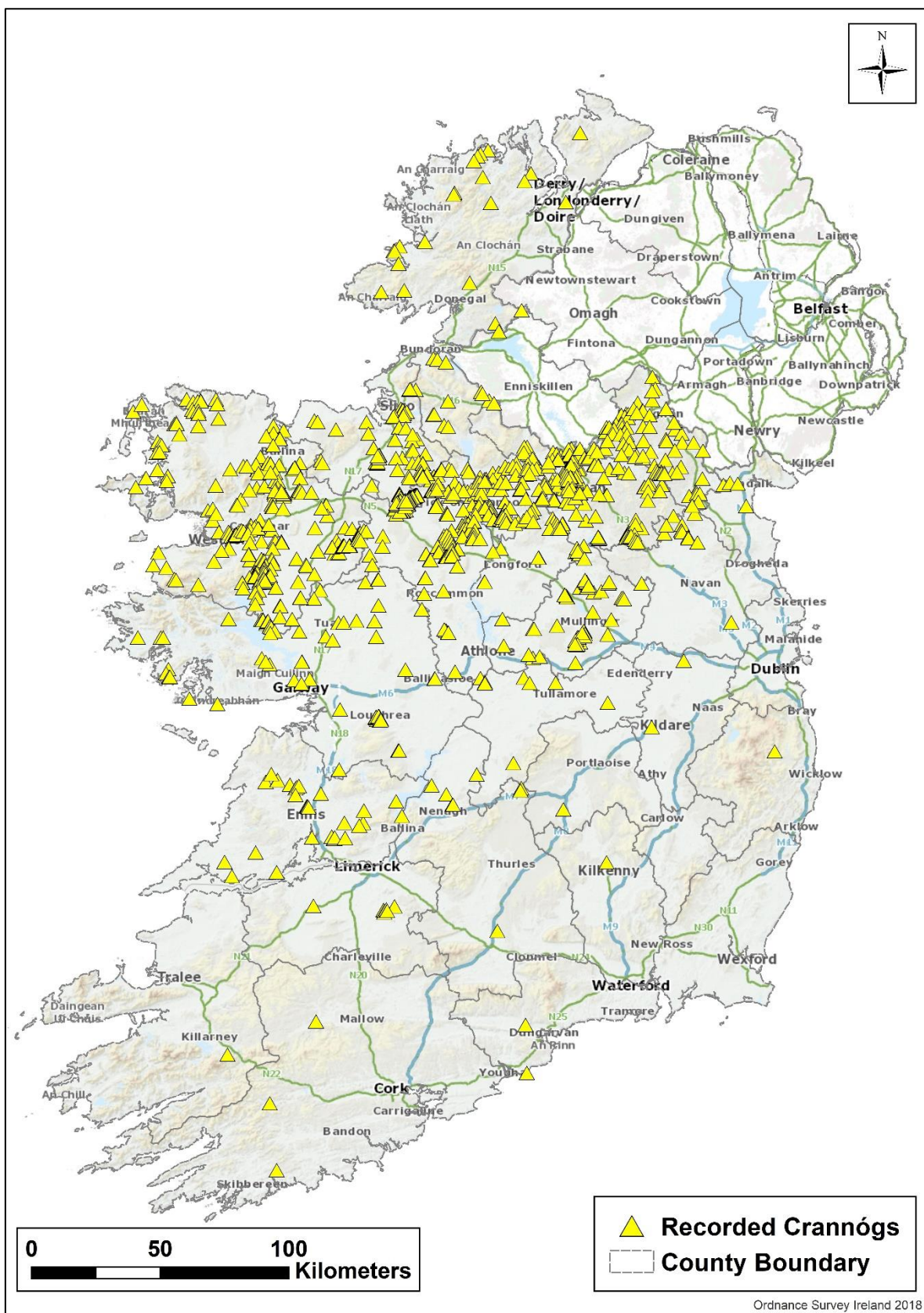


**Figure 2.18** Mooghaun South hillfort and associated cashels, Co. Clare (CL042-074)  
(after <http://webgis.archaeology.ie/historicenvironment/>)

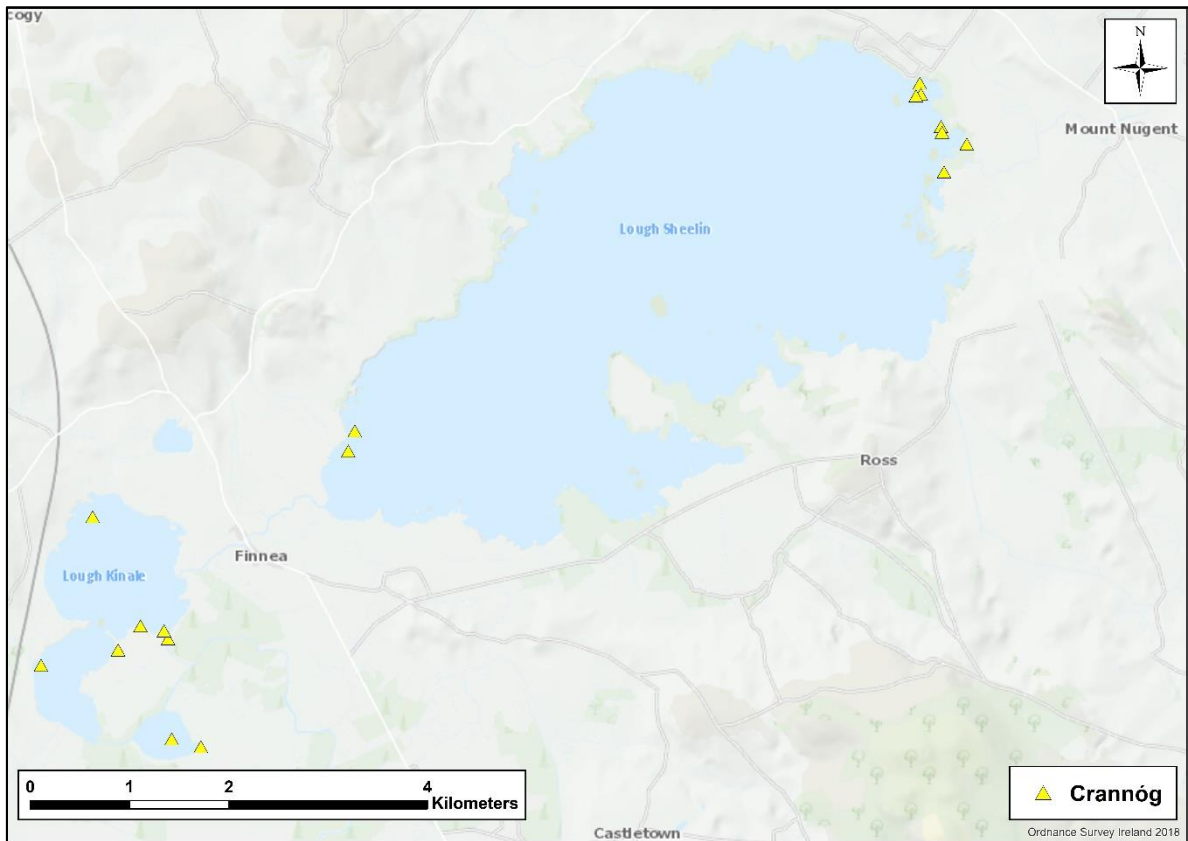


**Figure 2.19** Reconstruction drawing of a crannóg with palisade and piling  
(after O'Sullivan 2004b, i)

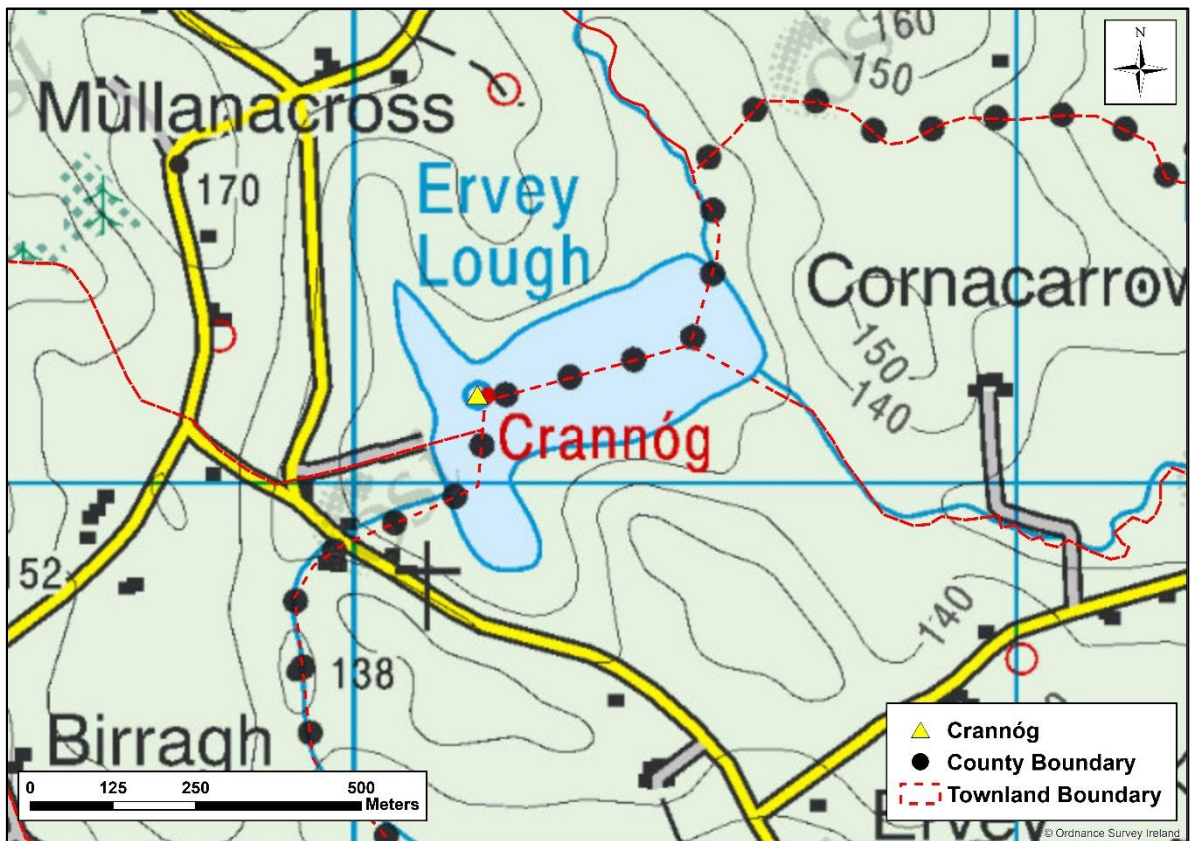




**Figure 2.20** Crannóg distribution within the Republic of Ireland  
*(after SMR; OSi MapGenie, with additions)*

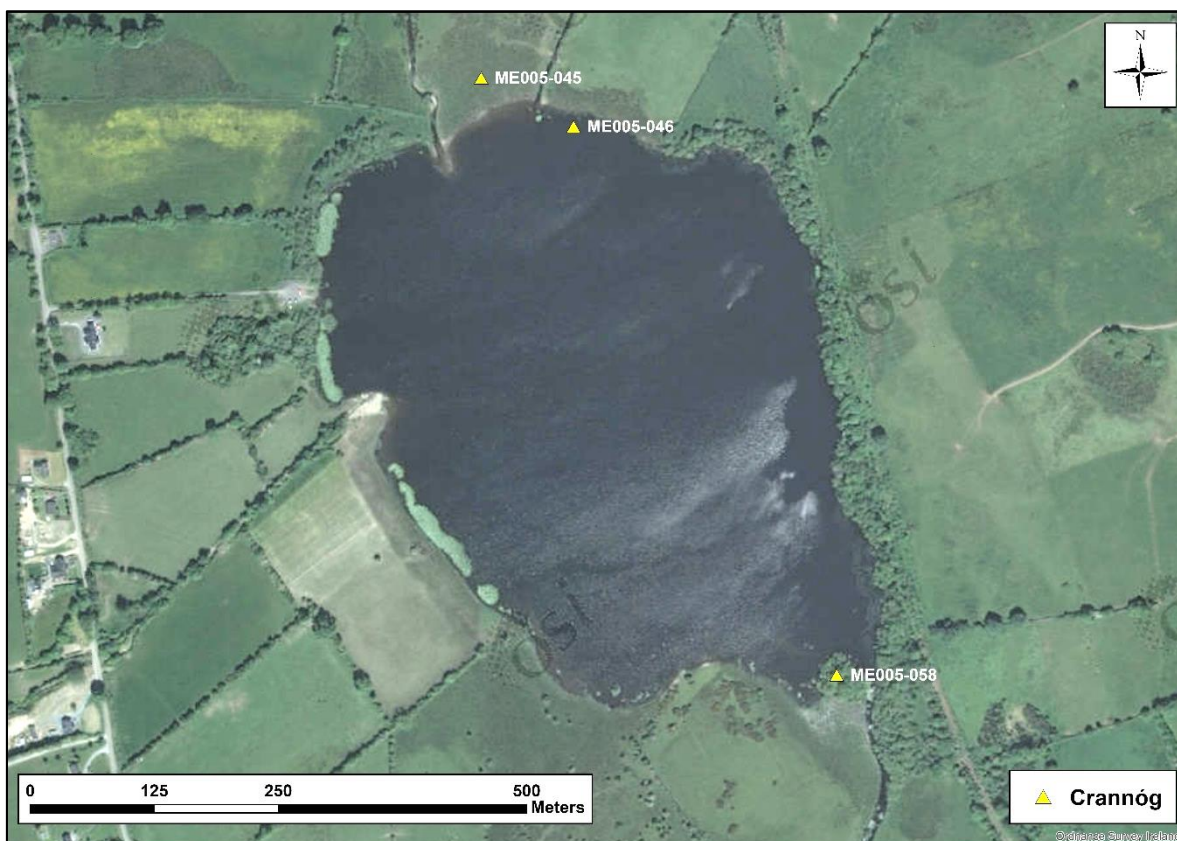


**Figure 2.21** Distribution of the nine crannógs on Lough Sheelin, Co. Cavan  
(after SMR; OSi MapGenie, with additions)

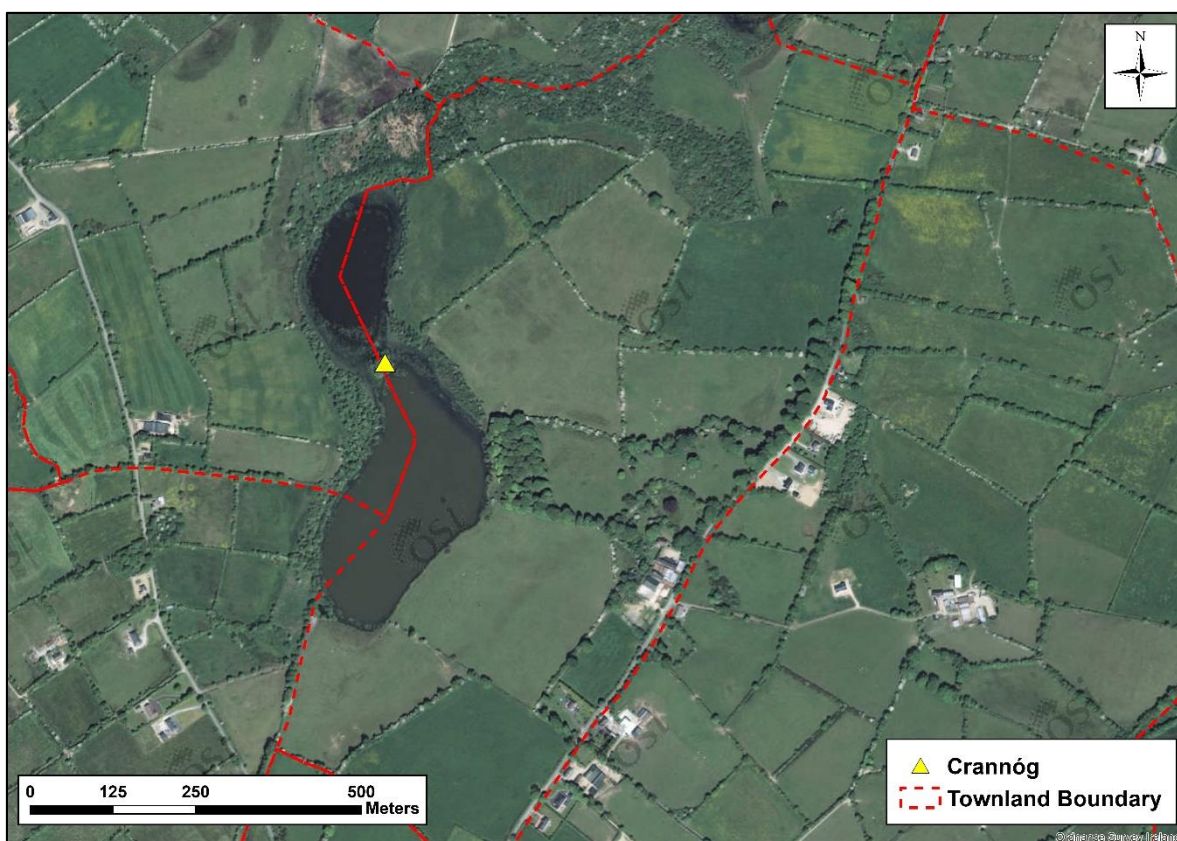


**Figure 2.22** Positioning of the crannóg on Ervey Lough, Co. Cavan (CV035-062) in relation  
to the townland and county boundaries  
(after OSi MapGenie, with additions)





**Figure 2.23** Positioning of the crannógs on Whitewood Lough, Co. Meath  
(after OSi MapGenie, with additions)

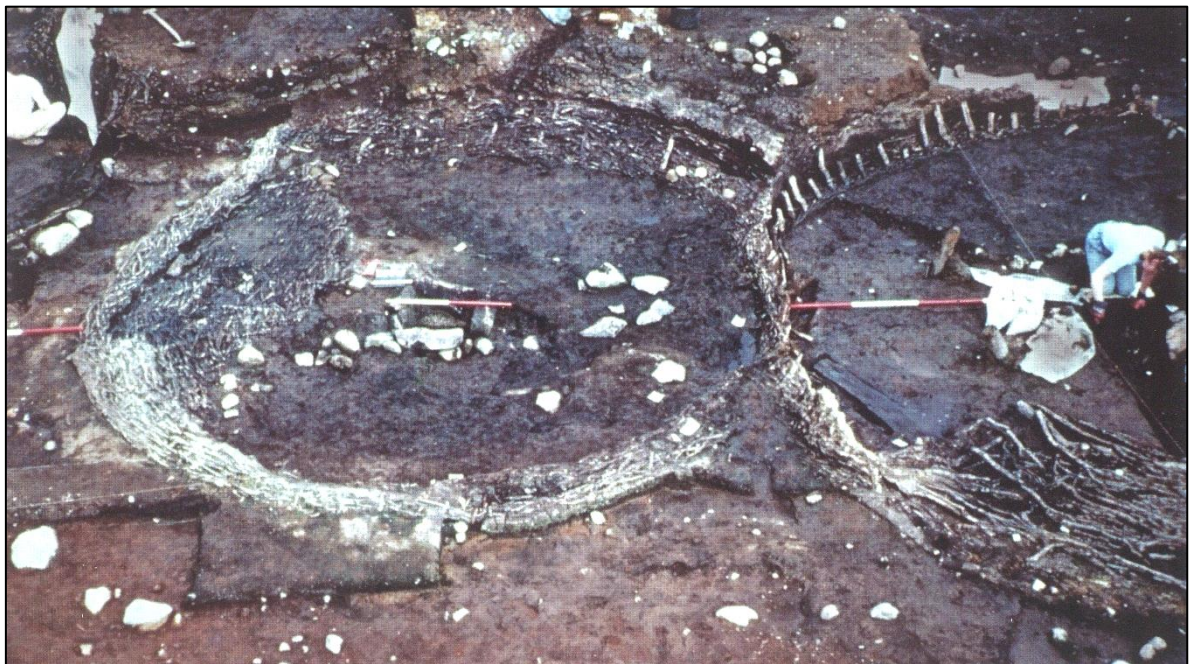


**Figure 2.24** The location of the crannóg on Breakey Lough, Co. Meath (ME005-003)  
(after OSi MapGenie, with additions)





**Figure 2.25** The silver hoard from Cloghermore Cave, Co. Kerry (*after Sheehan 2005, 135*)



**Figure 2.26** Figure-of-eight house from Deer Park Farms (structure Zeta)  
(*after McDowell & Lynn 2011b, 129*)

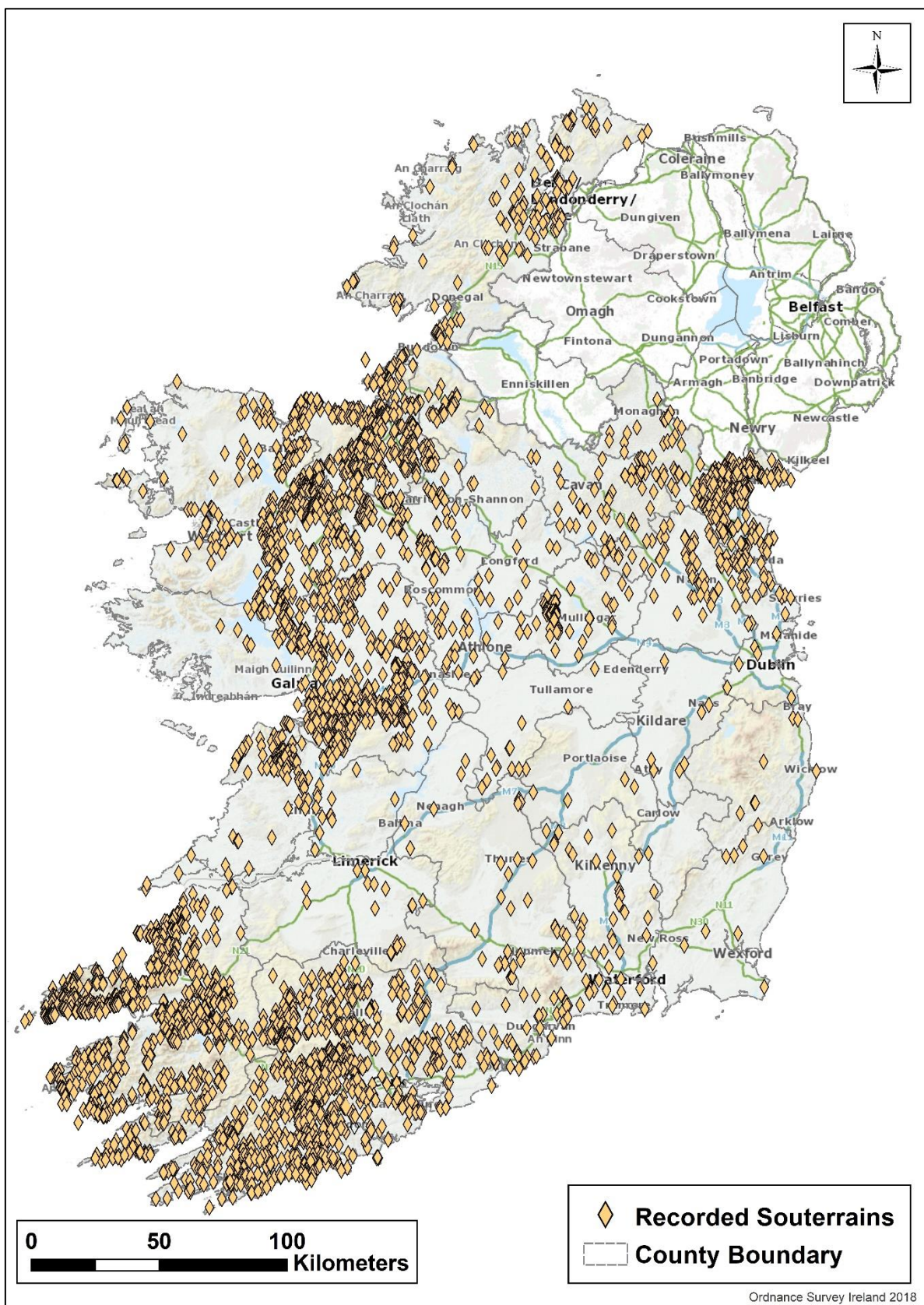




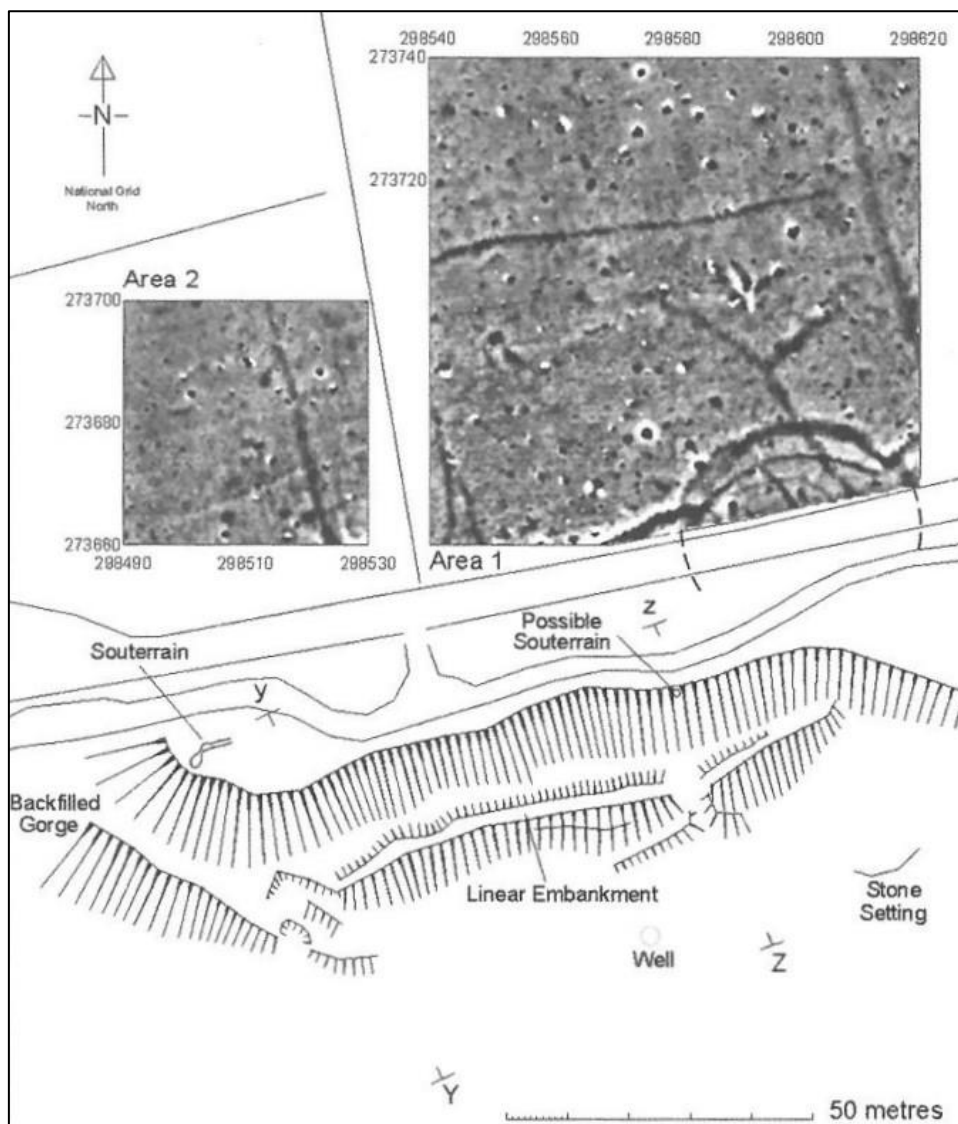
**Figure 2.27** The souterrain at Newtownbalregan, Co. Louth (post-excavation)

*(after Roycroft 2005, 73)*





**Figure 2.28** Souterrain distribution within the Republic of Ireland  
(after SMR; OSi MapGenie, with additions)

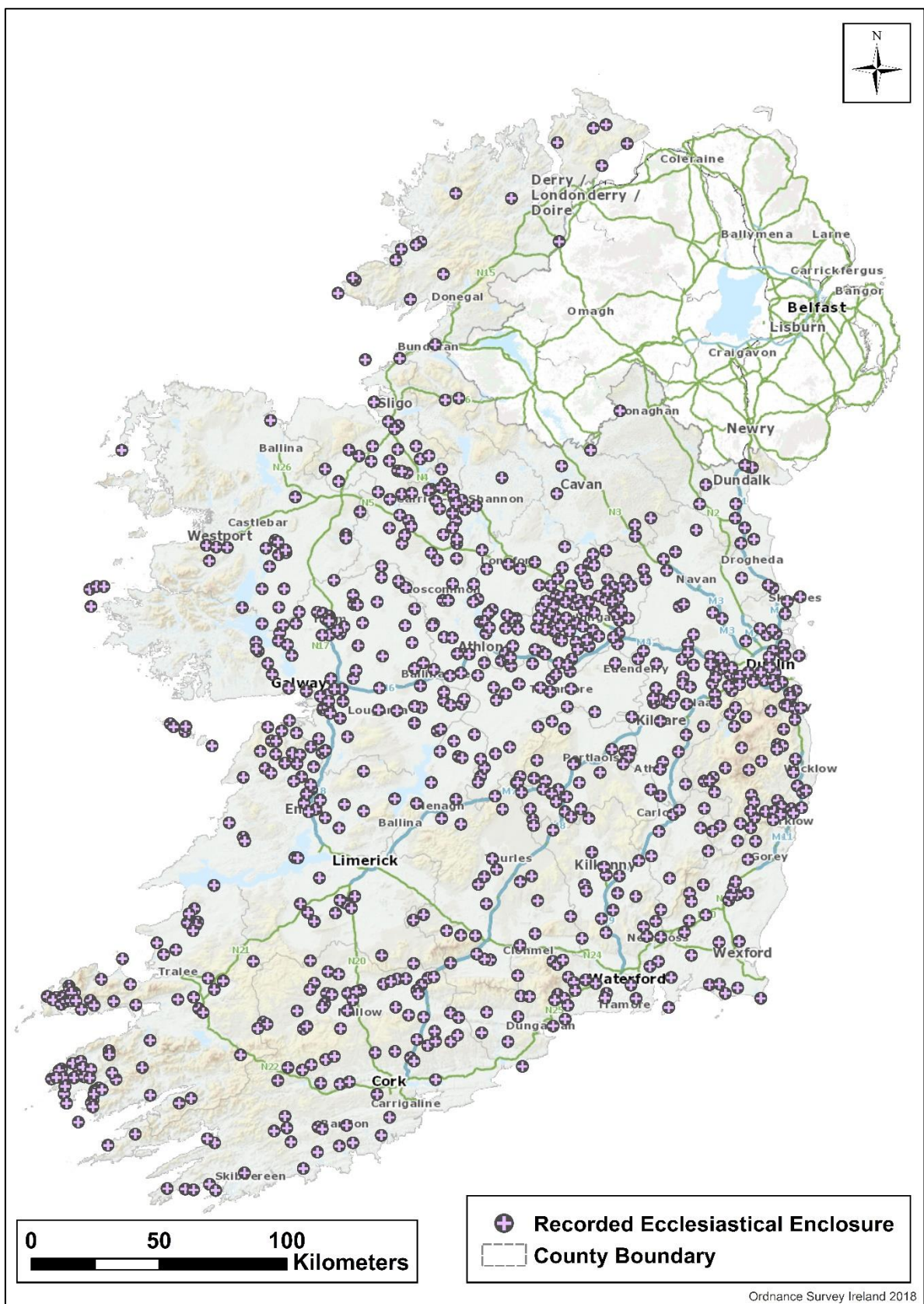


**Figure 2.29** Results of a geophysical survey at the site of two souterrains at Crewbane, Co. Meath  
(after Fenwick et al. 2012, 6)



**Figure 2.30** The souterrain at Carn More, Co. Louth (post-excavation)  
(after Roycroft 2005, 79)



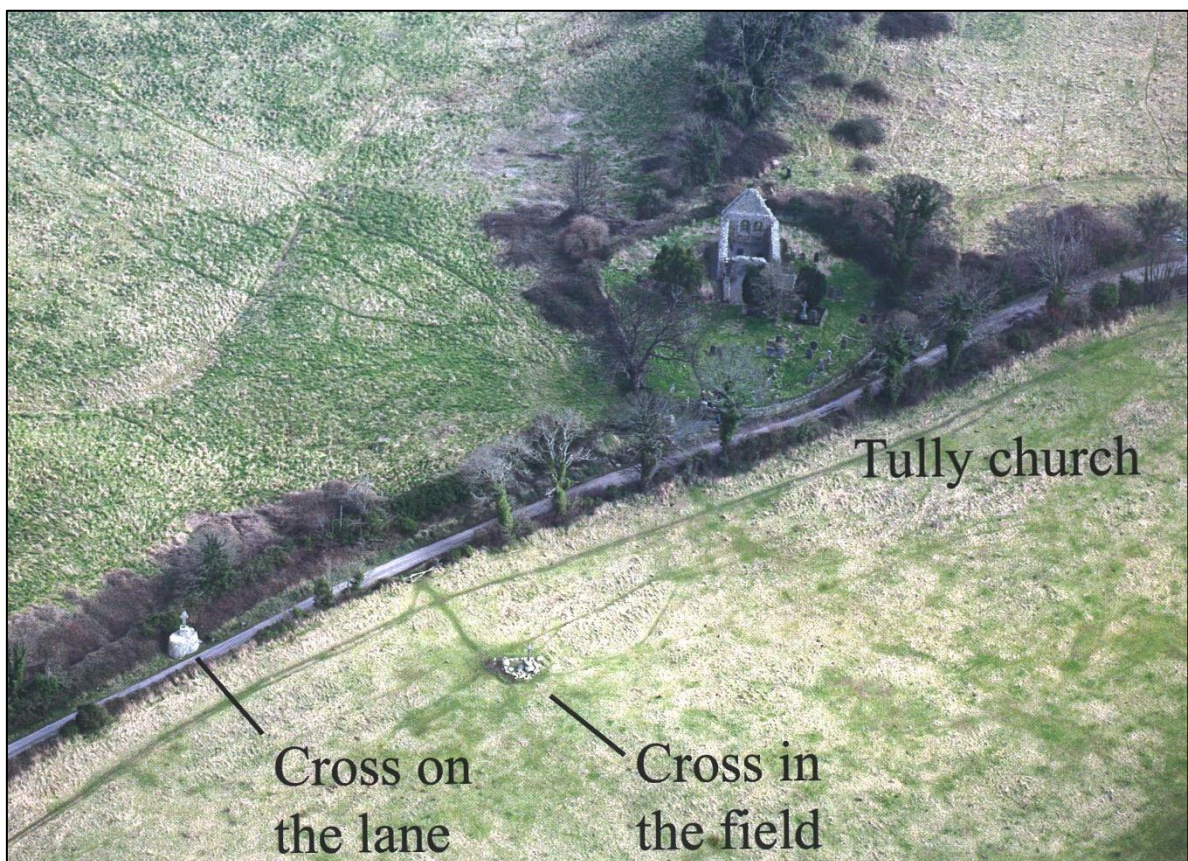


**Figure 2.31** Ecclesiastical enclosure distribution within the Republic of Ireland  
*(after SMR; OSi MapGenie, with additions)*





**Figure 2.32** Preservation of the early medieval ecclesiastical layout in the street patterns of Armagh  
*(after Google Earth, 15/06/2019)*



**Figure 2.33** The remains at Tully Church, Laughanstown, Co. Dublin (DU026-023001)  
*(after Corlett 2014, 94)*





**Figure 2.34** The remains of the triple ecclesiastical enclosure at Nendrum, Co. Down  
*(Photo by Gail Pollock 1999; after McErlean 2007b, 2)*

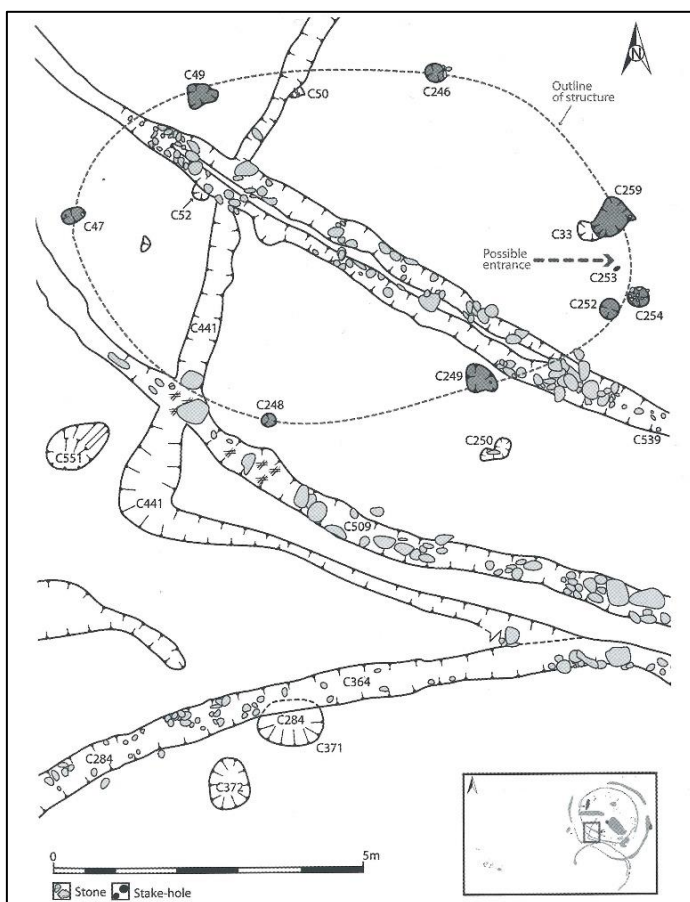


**Figure 2.35** The remains of the mill at Kilbegly, Co. Roscommon (post-excavation)  
*(after Jackman 2009, 11)*



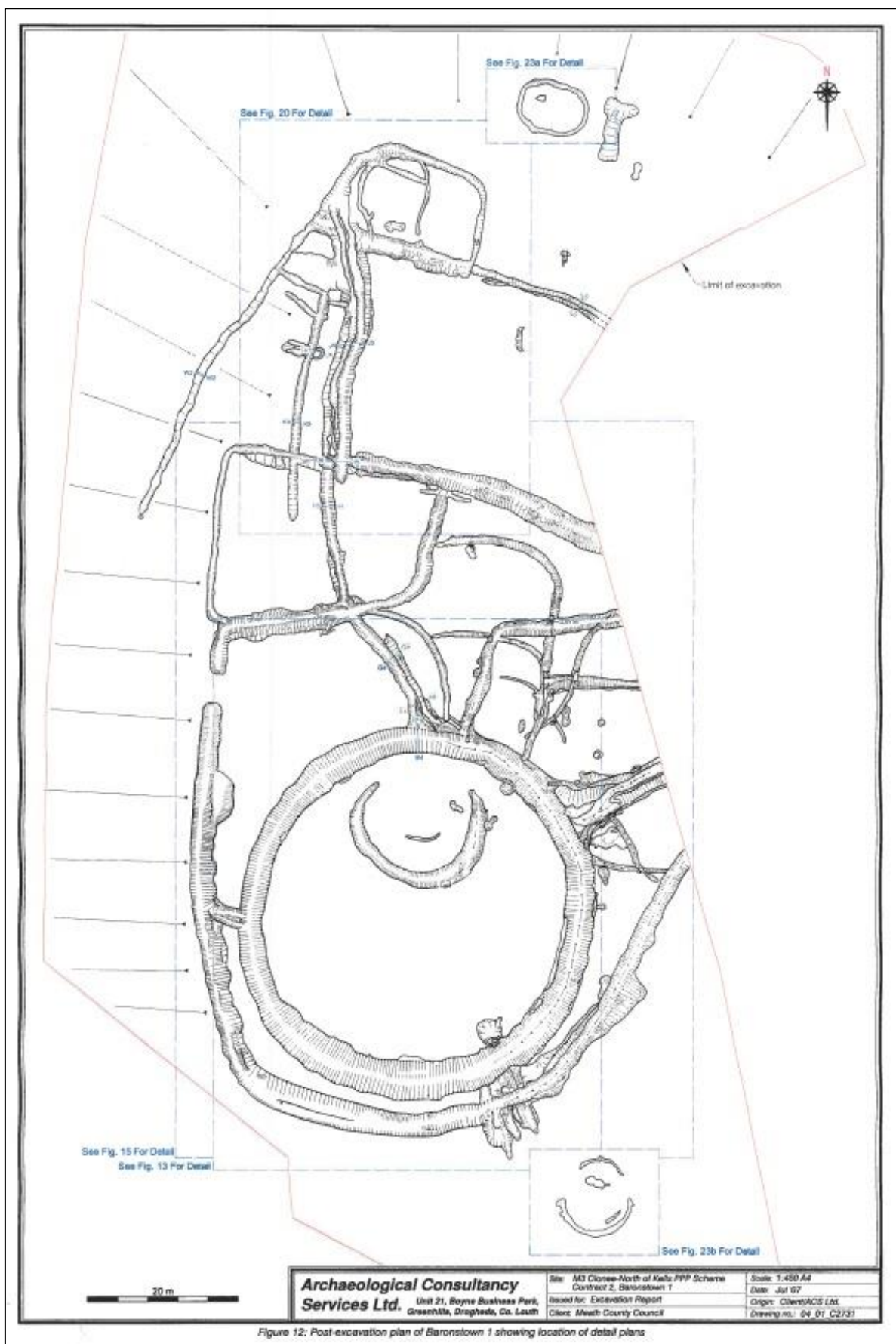


**Figure 2.36** The remains of the Raystown complex, Co. Meath (post-excitation)  
(after Seaver 2016, CD-ROM; photo by Studio Lab 2004)

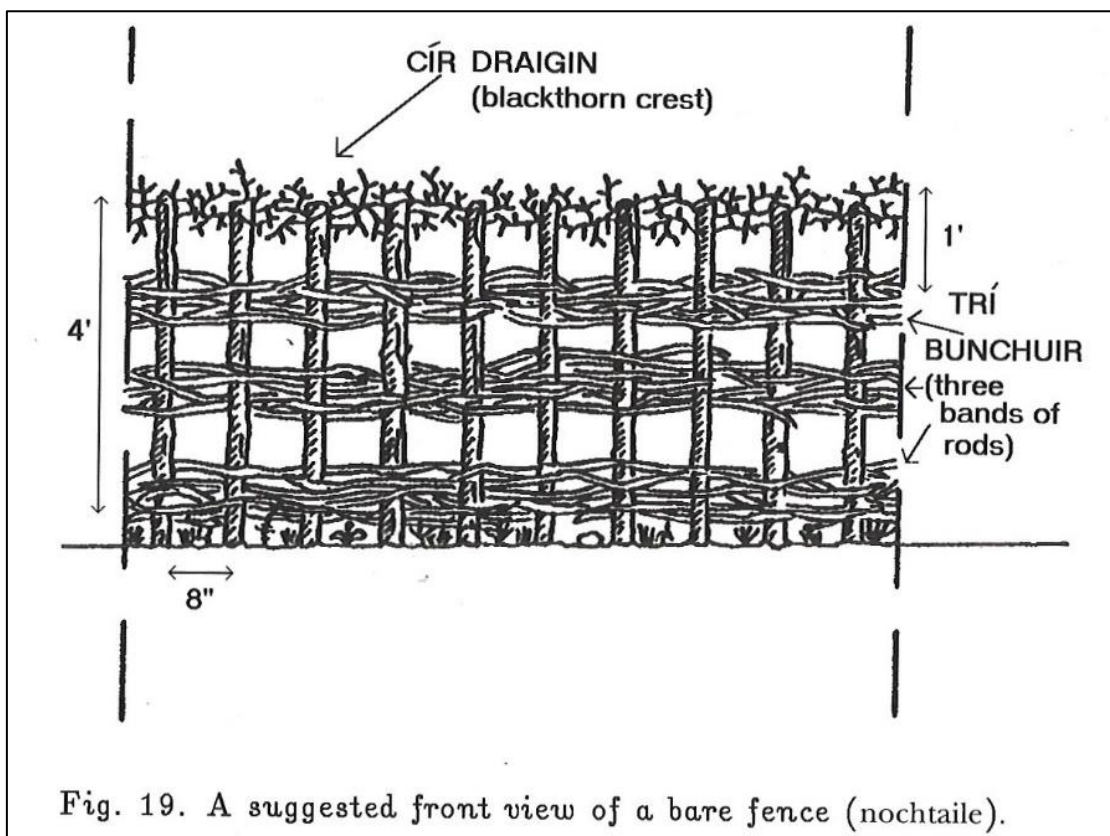


**Figure 2.37** Post-excitation plan of the 'flimsy' oval structure at Lowpark, Co. Mayo  
(after Gillespie 2011, 201)



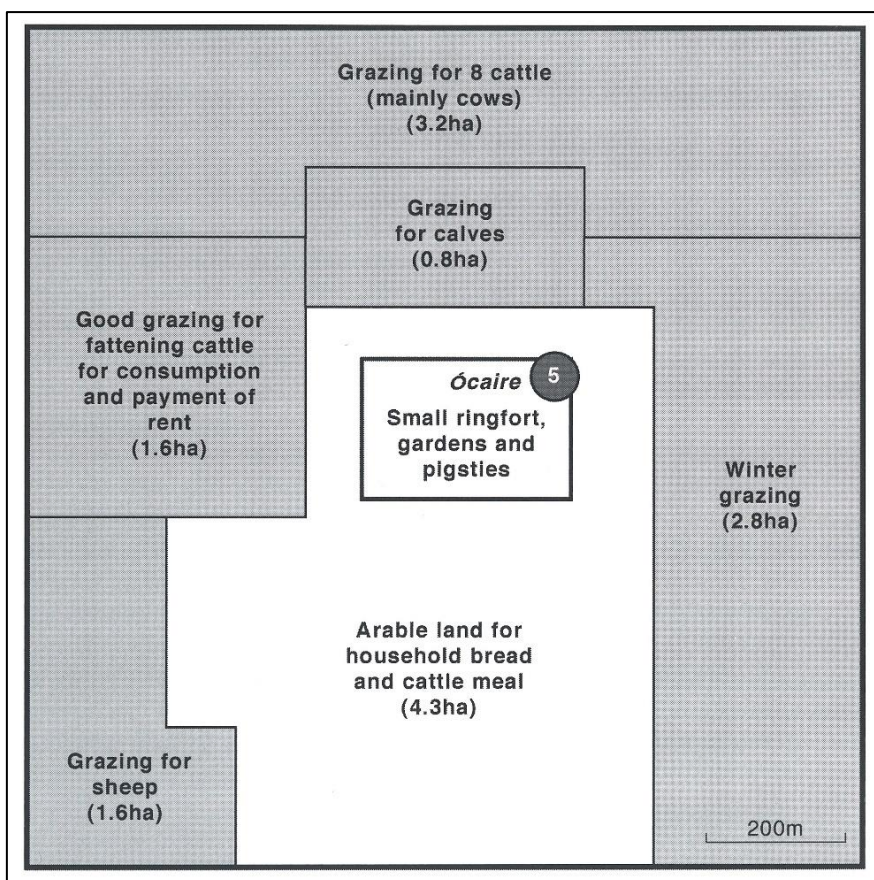


**Figure 2.38** Post-excavation plan of the enclosure and adjoining field systems at Baronstown 1, Co. Meath  
(after Linnane & Kinsella 2009a)



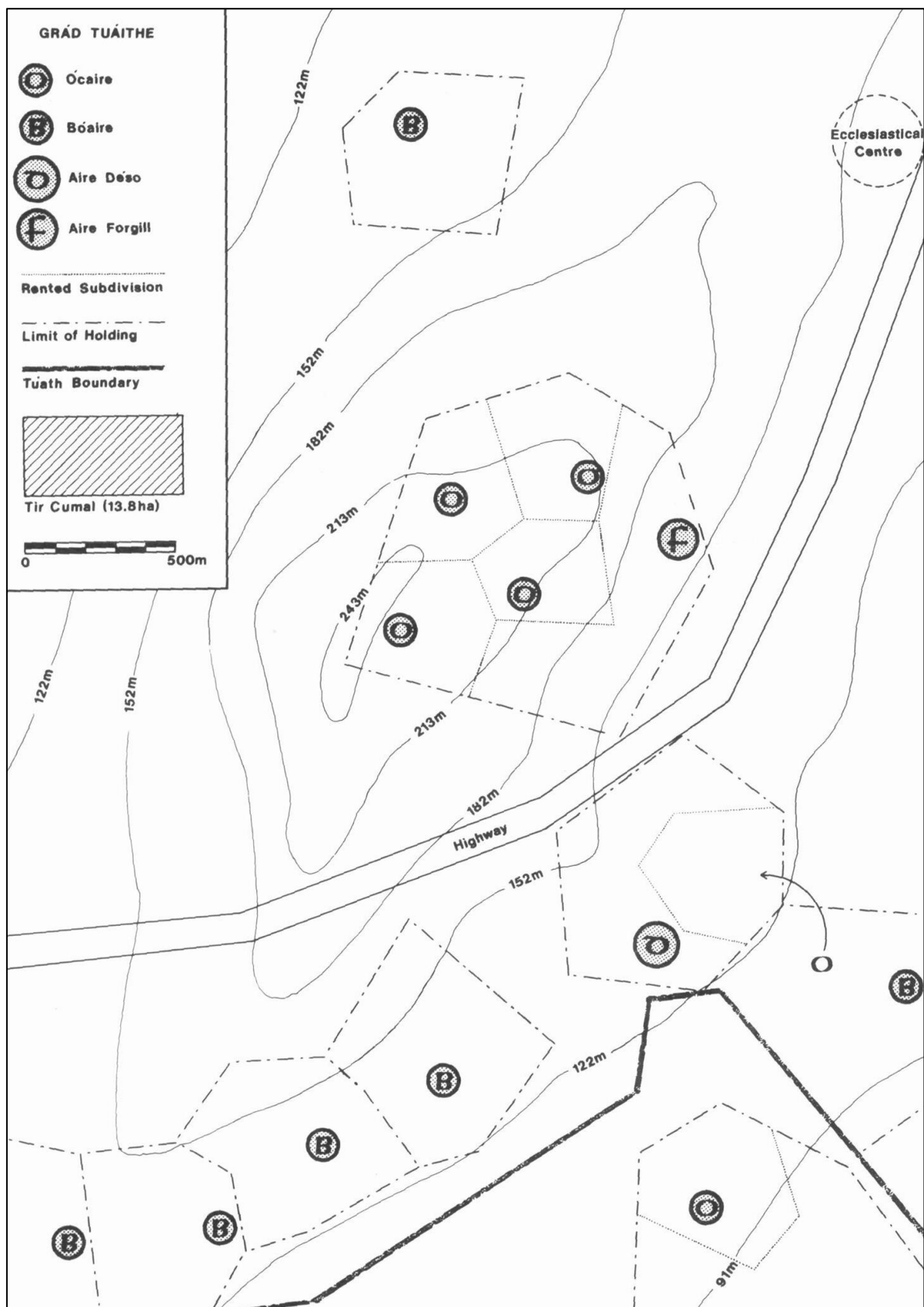
**Figure 2.39** Drawing of a *Nochtaile* fence

(after Kelly 1997, 375)

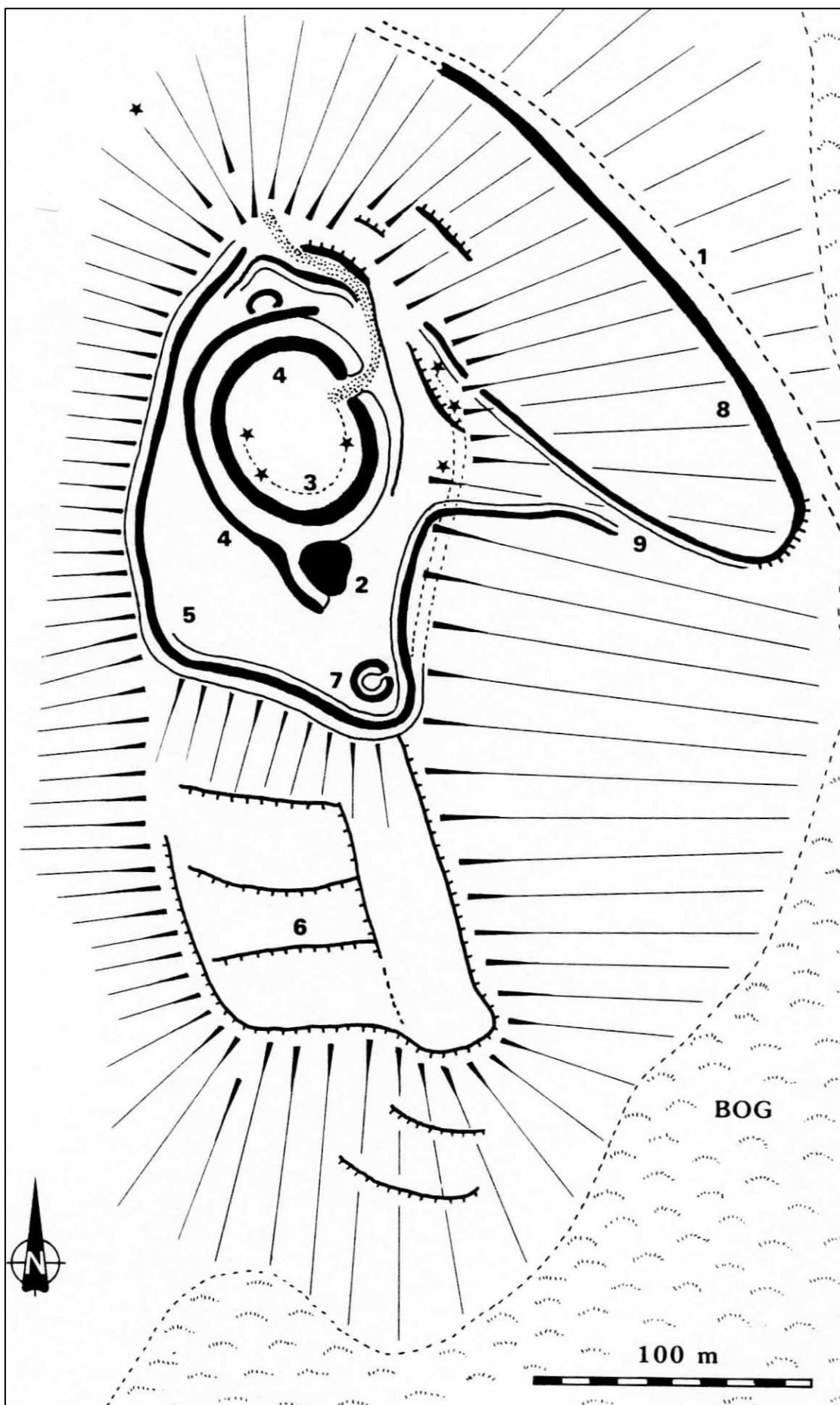


**Figure 2.40** Byrne's hypothetical model of an early medieval *ócaire* farmstead

(after Stout 2015, 23)



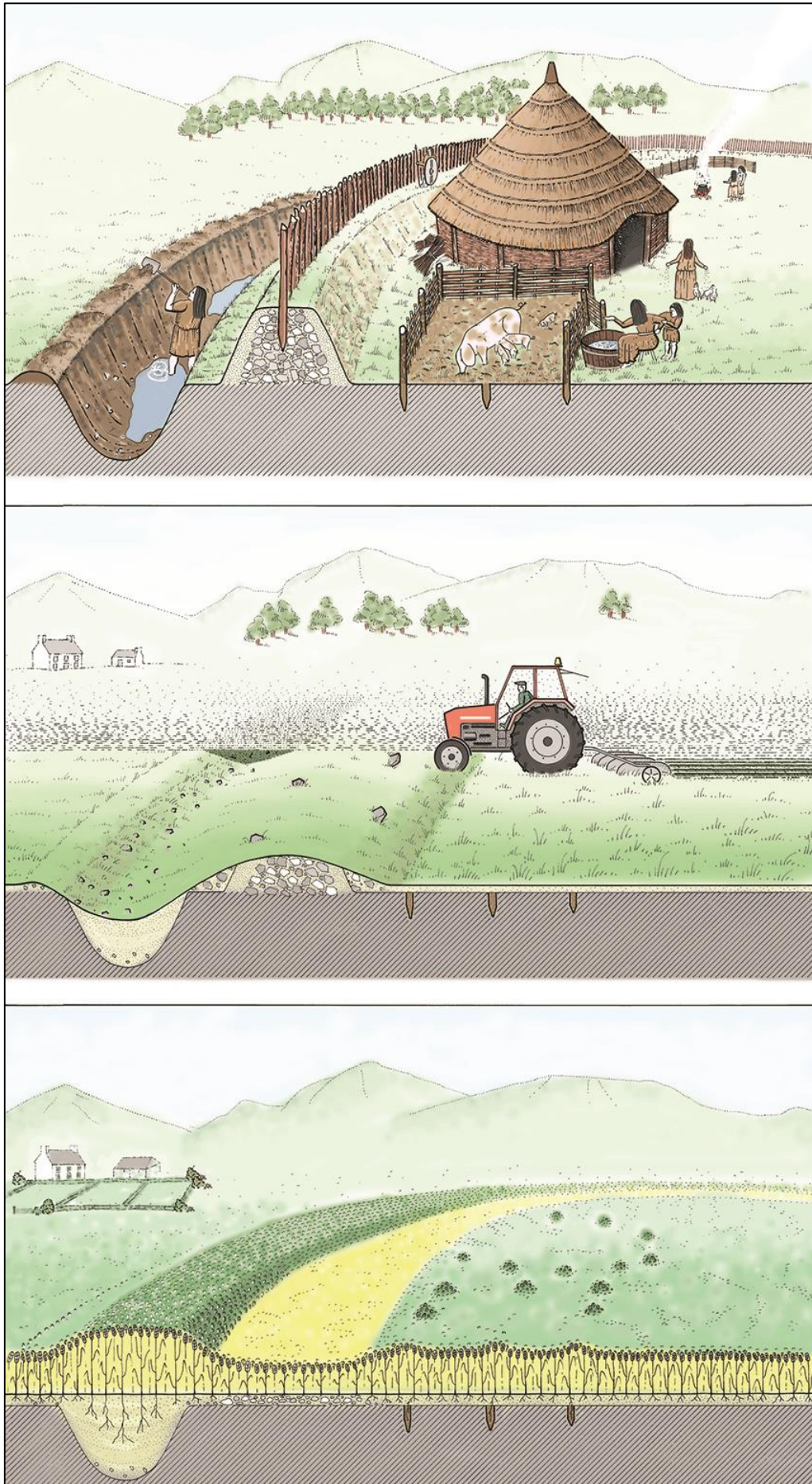
**Figure 2.41** Stout's hypothetical model of early medieval settlement  
(after Stout 1991, 239)



**Figure 2.42** Plan of the royal site at Clogher, Co. Tyrone (TYR058-033)

*(after Warner 1988, 56)*



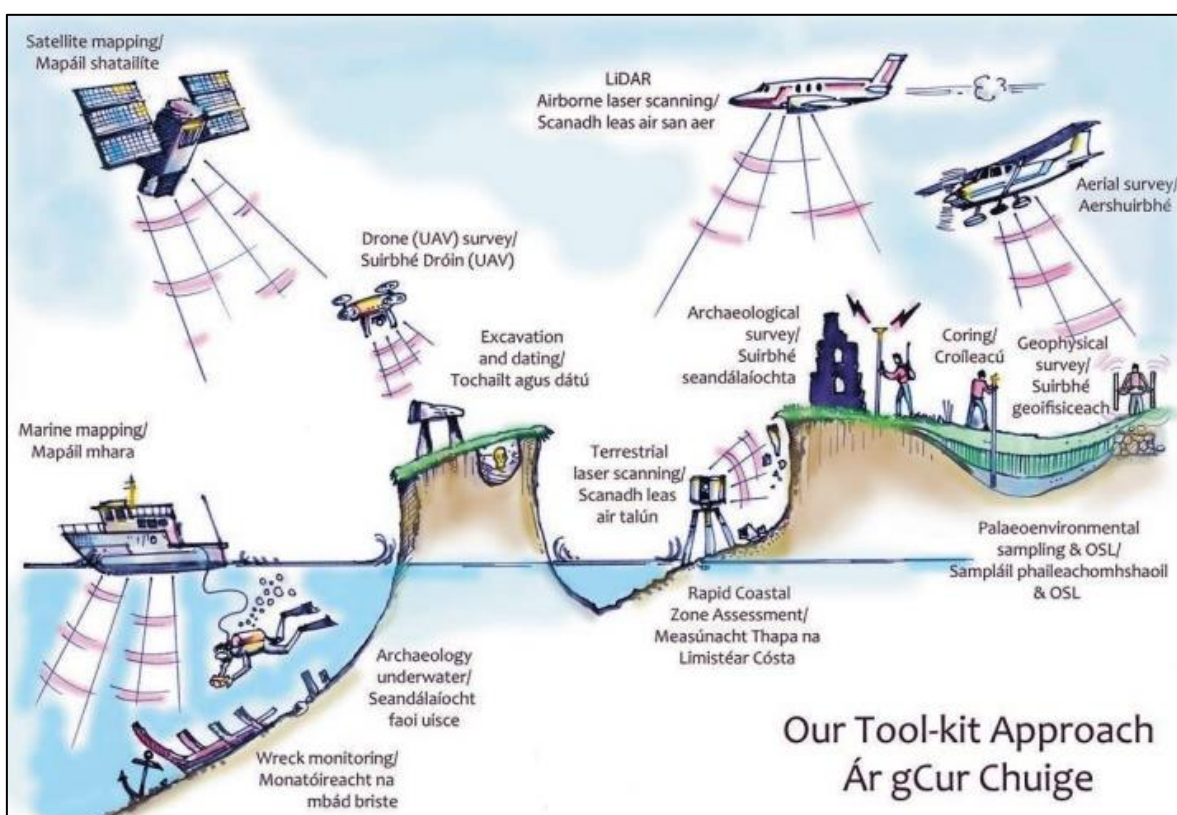


**Figure 3.1** The formation of cropmarks (after <https://rcahmw.gov.uk/cropmarks-2018/>)



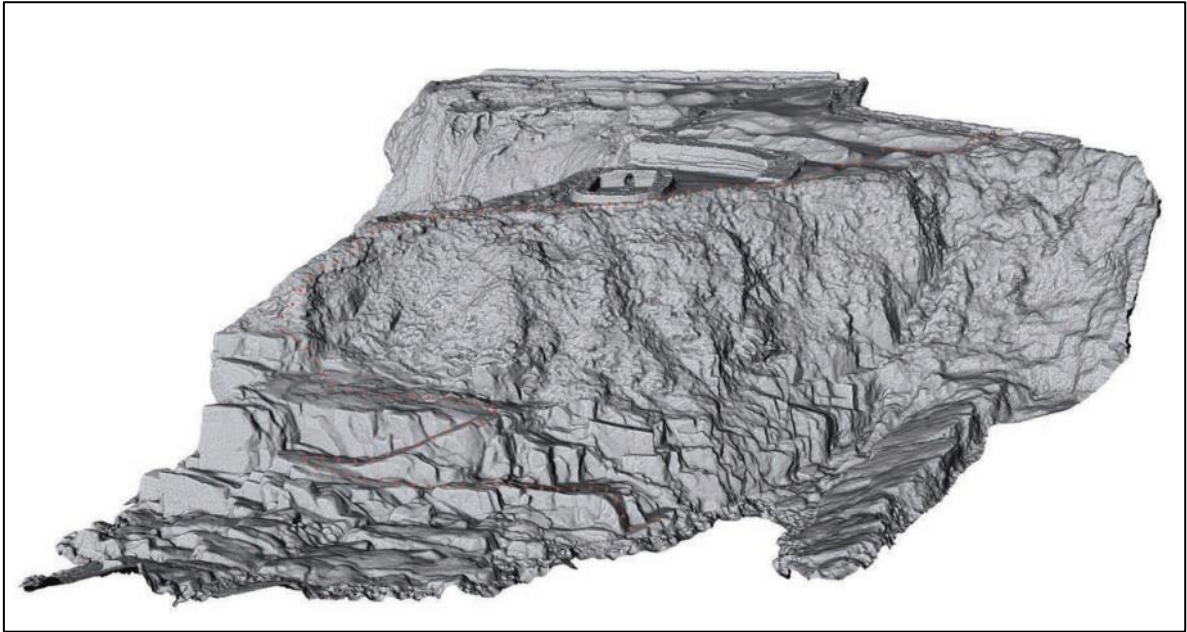


**Figure 3.2** Cropmarks revealed at Newgrange, Co. Meath during the summer of 2018 (ME026-033) *(after <http://webgis.archaeology.ie/historicenvironment/>)*



**Figure 3.3** The range of techniques adopted by the CHERISH Project

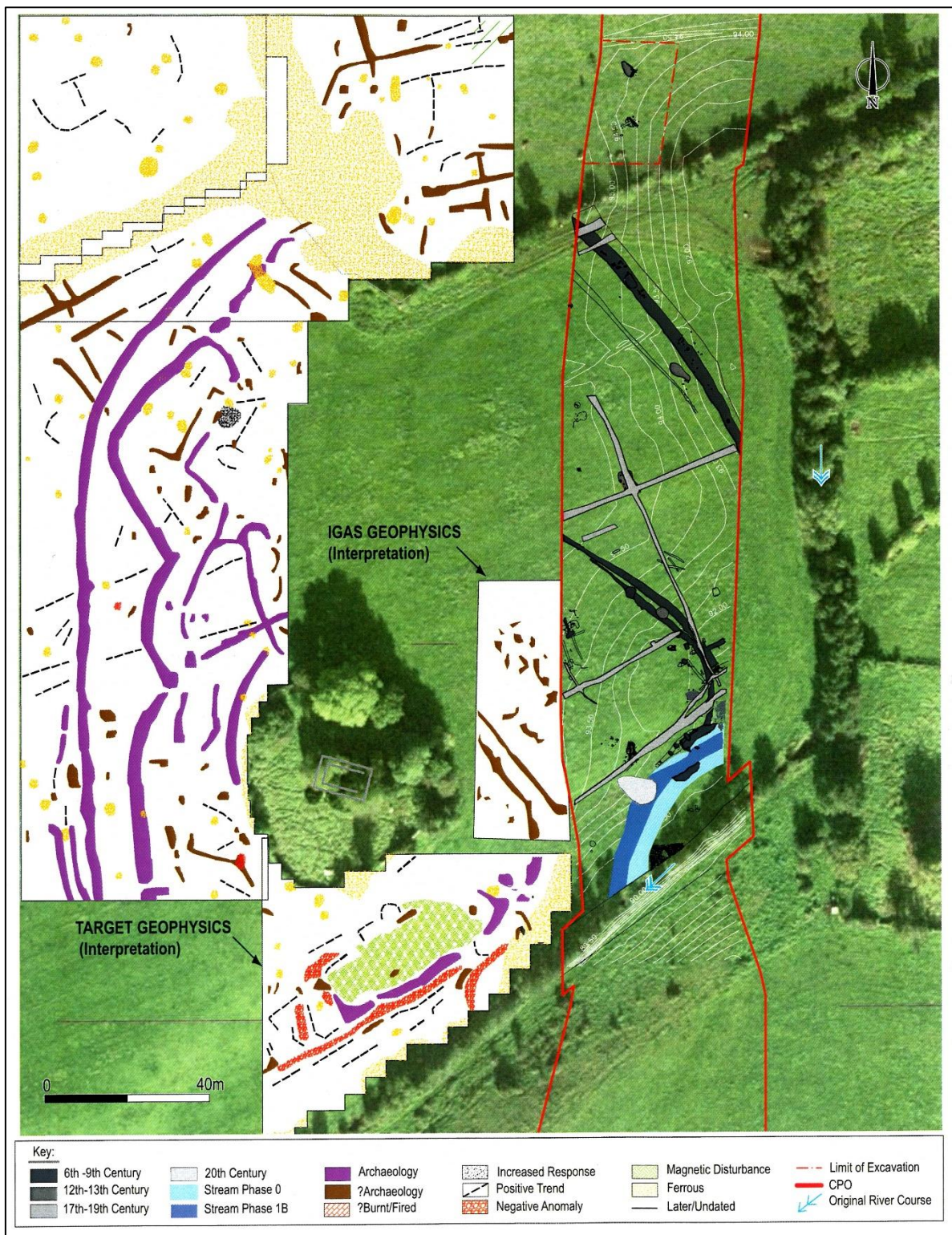
*(after [http://www.cherishproject.eu/documents/news\\_letter/2019\\_01/CHERISH\\_3\\_English-Irish\\_HIGH\\_a.pdf](http://www.cherishproject.eu/documents/news_letter/2019_01/CHERISH_3_English-Irish_HIGH_a.pdf), 5)*



**Figure 3.4** 3D Model of Dunbeg, Co. Kerry generated from UAV imagery

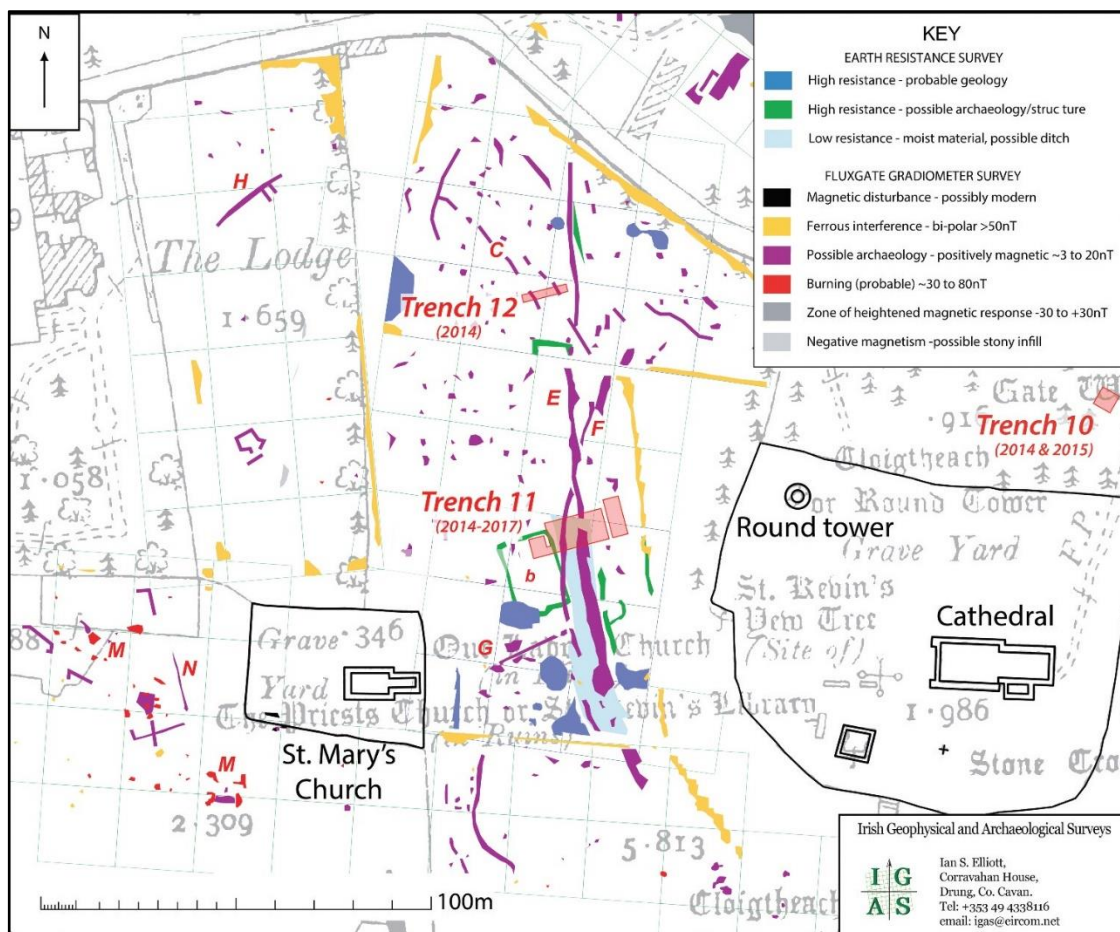
(after  
[http://www.cherishproject.eu/documents/news\\_letter/2018\\_02/CHERISH\\_NEWSLETTER\\_2\\_English-Irish\\_HIGH\\_accessible.pdf](http://www.cherishproject.eu/documents/news_letter/2018_02/CHERISH_NEWSLETTER_2_English-Irish_HIGH_accessible.pdf), 23)





**Figure 3.5** Interpretative plot of the geophysical survey at Clonfad, Co. Westmeath  
(after Stevens 2014, 261)





**Figure 3.6** Interpretative plot of the 2011/2012 geophysical surveys at Glendalough, Co. Wicklow  
(after Seaver et al. 2018, 21)



**Figure 3.7** Digital Terrain Model of the ecclesiastical remains at Lullymore, Co. Kildare  
(DTM by S. Dowling; after Ó Drisceoil & Leigh 2017, 39)

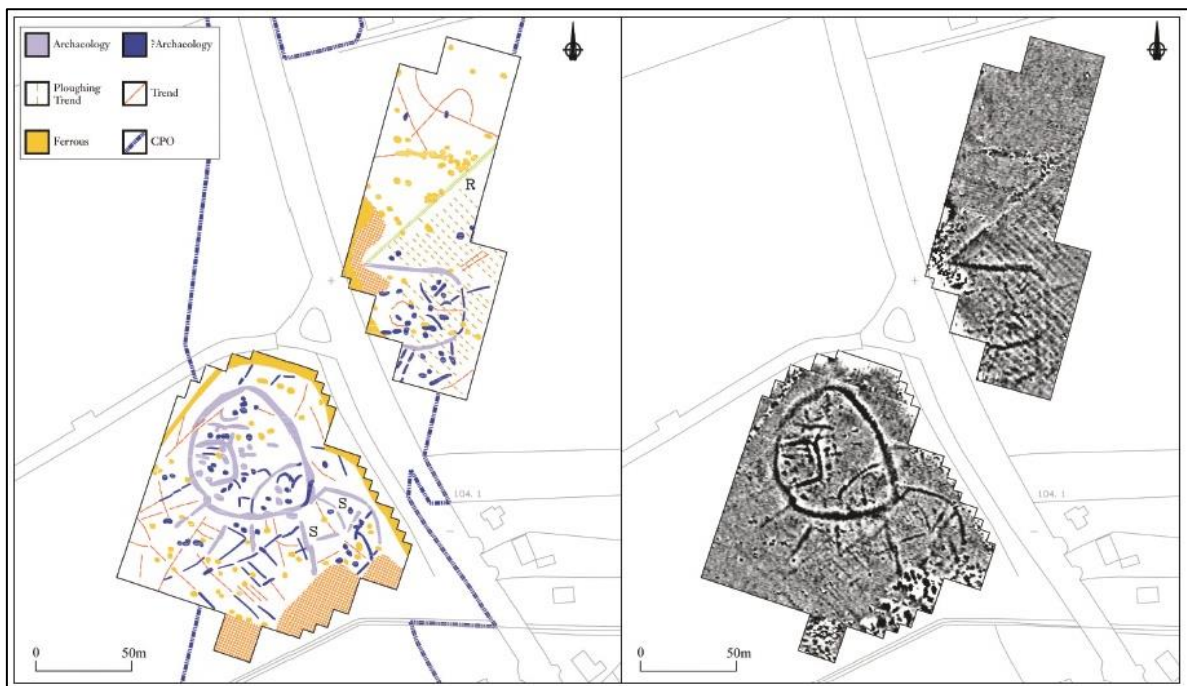


**Figure 3.8** Magnetometry results revealing a multivallate enclosure at Ranelagh, Co. Roscommon (after Hogan & Gimson 2015, 18)



**Figure 3.9** Small survey blocks along the M11 road scheme (after Leigh 2010, 55)

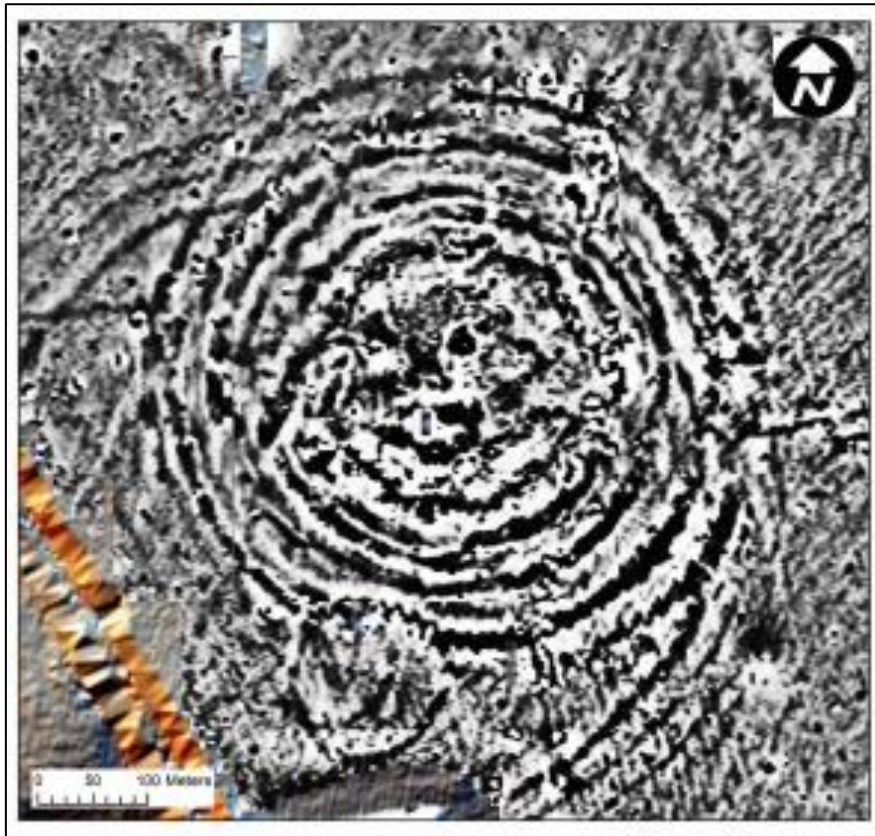




**Figure 3.10** Geophysical survey at Roestown, Co. Meath showing an enclosure and associated internal features (Survey by GSB Prospection; after Deevy 2005, 85)



**Figure 3.11** Lidar survey at the Hill of Ward, Co. Meath (after Davis 2011, 38)



**Figure 3.12** Magnetometry results at the Hill of Ward, Co. Meath (after Davis 2013, 5)

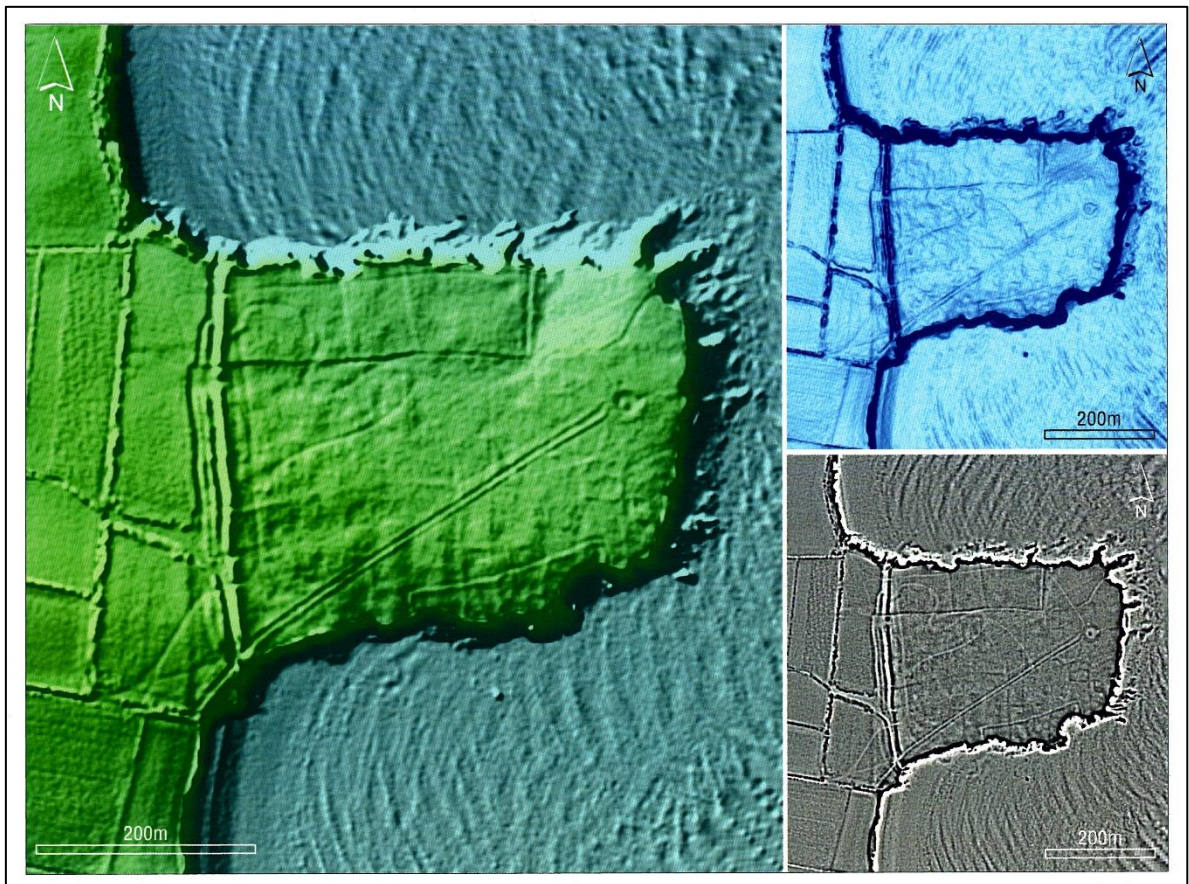
Technique	Option	Feature	Landscape	2010 area	2012 area	Total area
				(ha)	(ha)	(ha)
Earth resistance	Twin	X	–	–	0.04	0.04
	Square	X	–	0.32	–	0.32
Electrical imaging	Campus Tigre RM	X	X	0.0032	–	0.0032
	FlashRES64	X	X	–	0.34	0.34
Magnetometer	CV cart	X	–	–	3.8	3.8
	FF cart	X	–	15.1	–	15.1
	FF motorized	X	X	28.16	221.1	249.26
	Bartington HH	X	–	4.4	–	4.4
Ground-penetrating radar	Mala motorized	X	X	16.8	31.9	48.7
	S&S motorized	X	X	13.4	–	13.4
	Single	X	–	2.4	1	3.4
	EM31	X	X	0.54	–	0.54
Electromagnetics	CMD mini explorer	X	–	–	1.6	1.6
	Leica	X	–	2.3	3.3	5.6
Laserscan	Riegl		X	–	28.7	28.7
				83.4	550.1	633.5

**Figure 3.13** Range of survey techniques used in the Stonehenge Hidden Landscapes Project (after Gaffney et al. 2012, 148)





**Figure 3.14** Results of the magnetometry survey at Faughan Hill, Co. Meath  
(after Dowling 2015, 14)

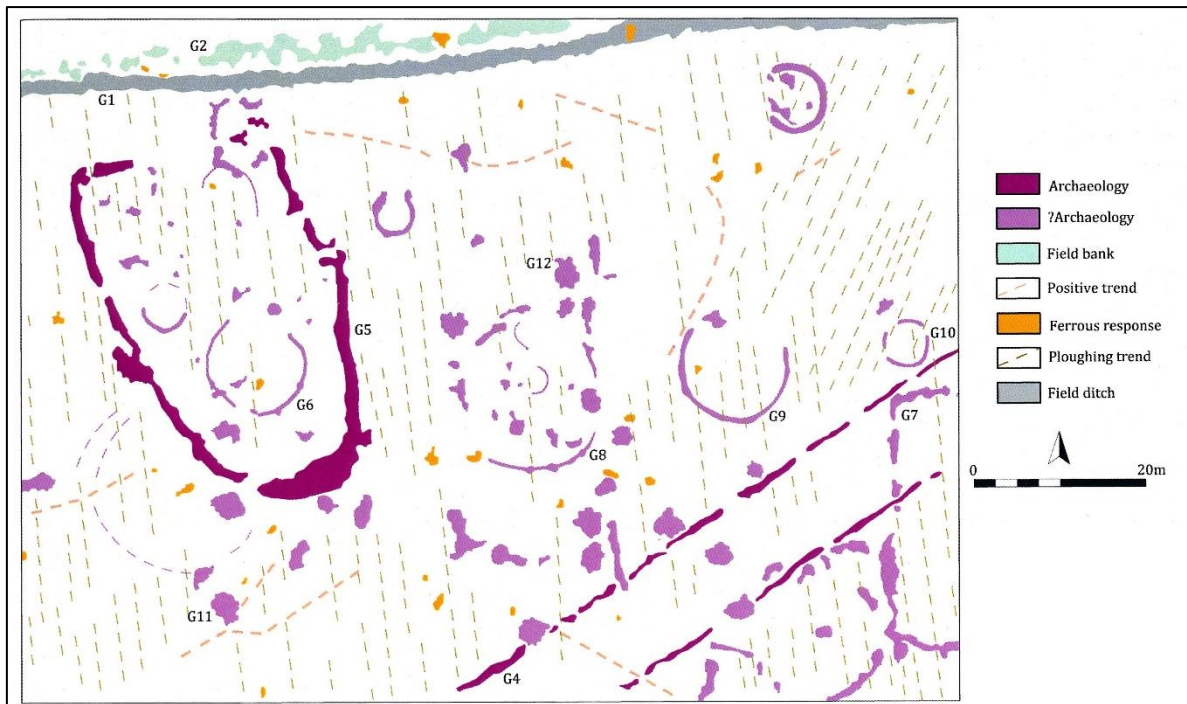


**Figure 3.15** Lidar analysis at Drumanagh, Co. Dublin  
(after Dowling 2014, 63)

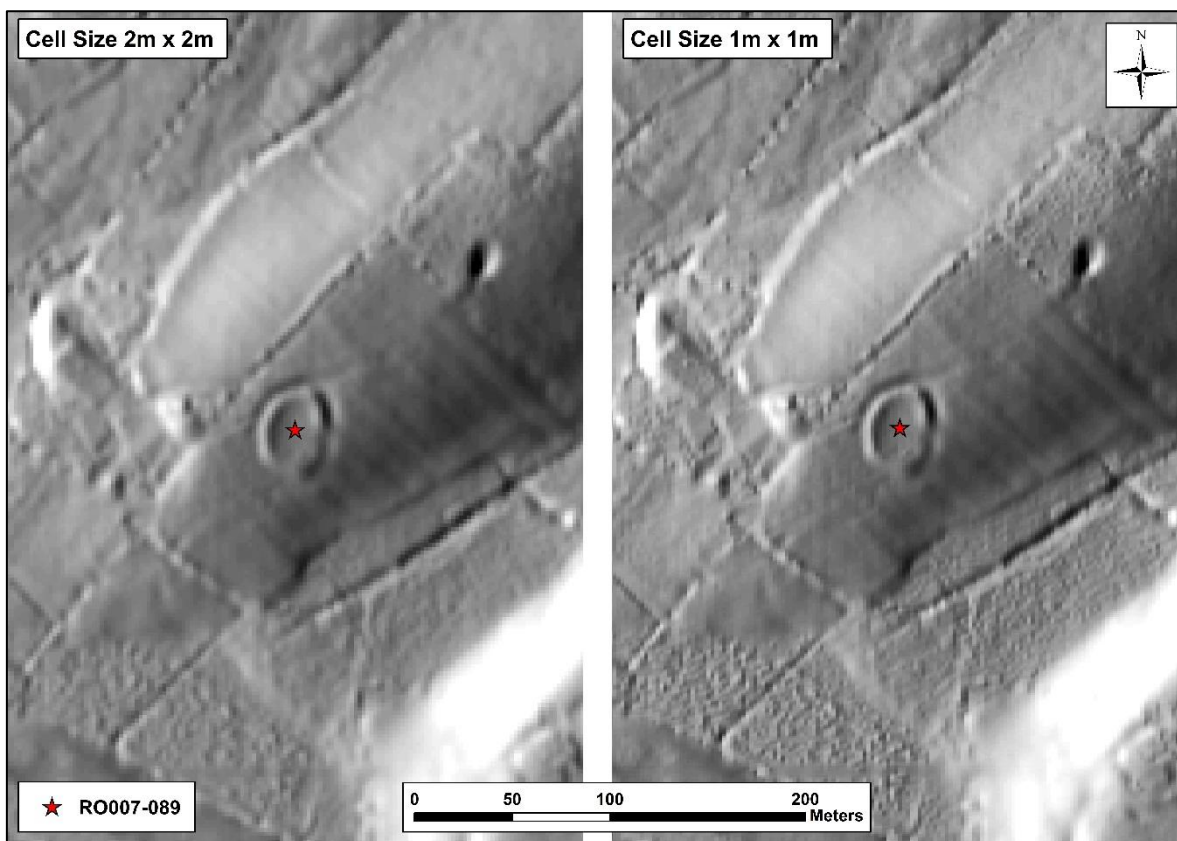




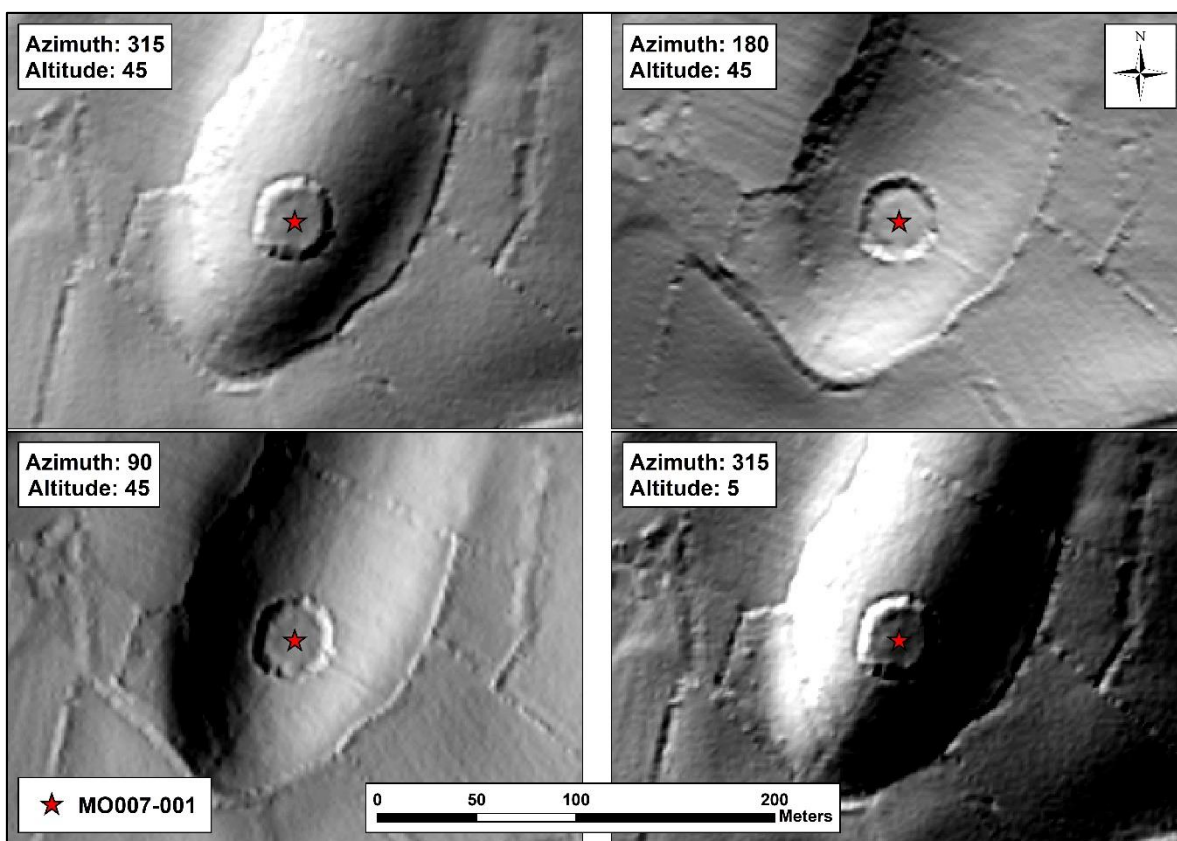
**Figure 3.16** Archaeological features at Drumanagh, Co. Dublin (after OSi MapGenie)



**Figure 3.17** Interpretative plot of the geophysical survey at Area 1A Drumanagh, Co. Dublin (after Dowling 2014, 67)

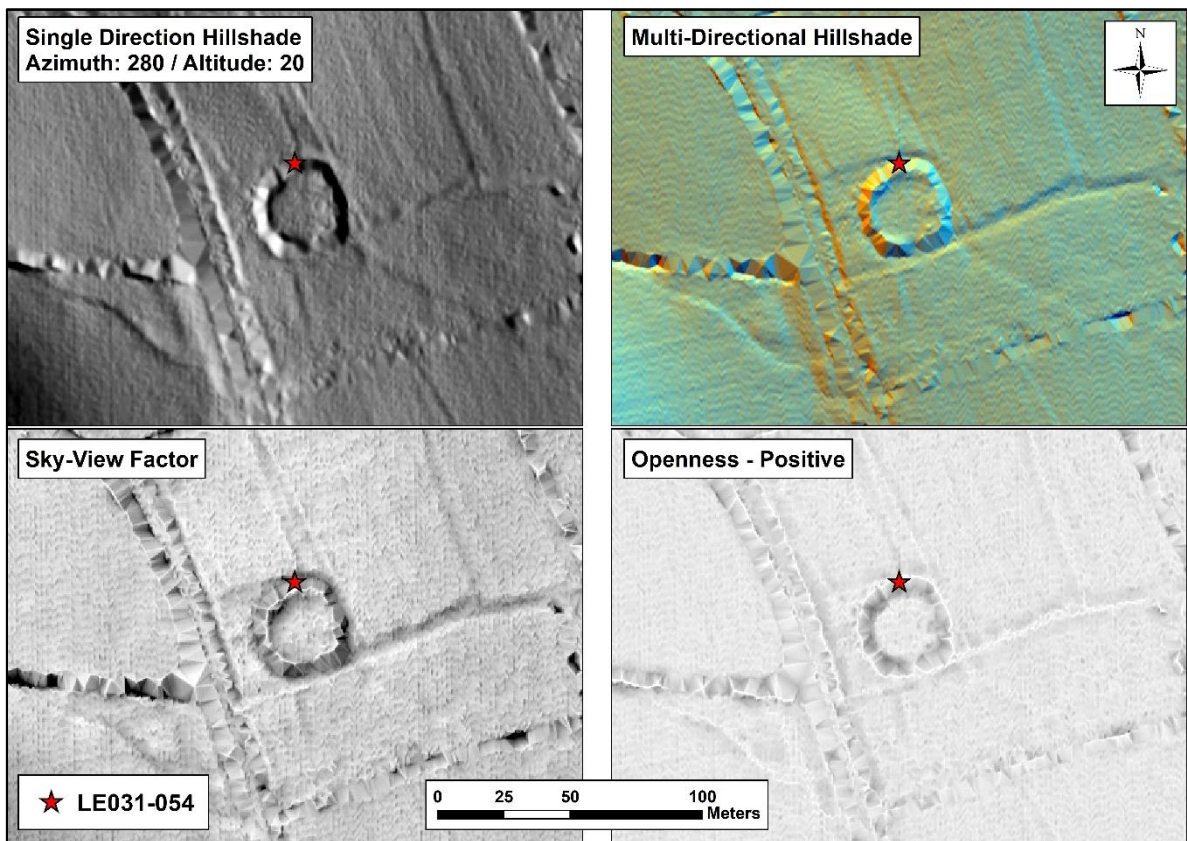


**Figure 3.18** Comparison of lidar data at 2m x 2m and 1m x 1m output resolution  
(Azi. 280 / Alt. 20)

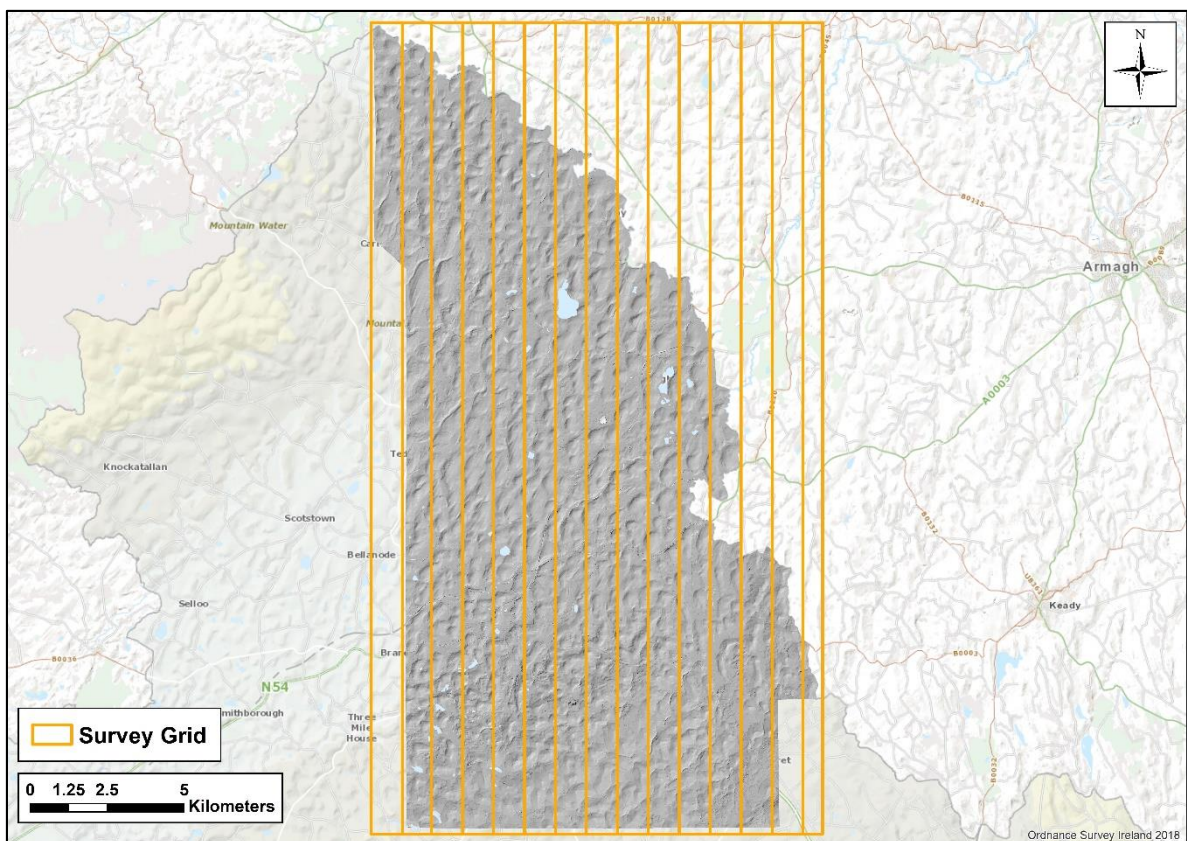


**Figure 3.19** The effects of altering the azimuth and altitude on hillshade models





**Figure 3.20** Univallate rath at Tully, Co. Leitrim depicted using a range of the lidar visualisation techniques available on the RVT  
(after <http://iaps.zrc-sazu.si/en/rvt>)

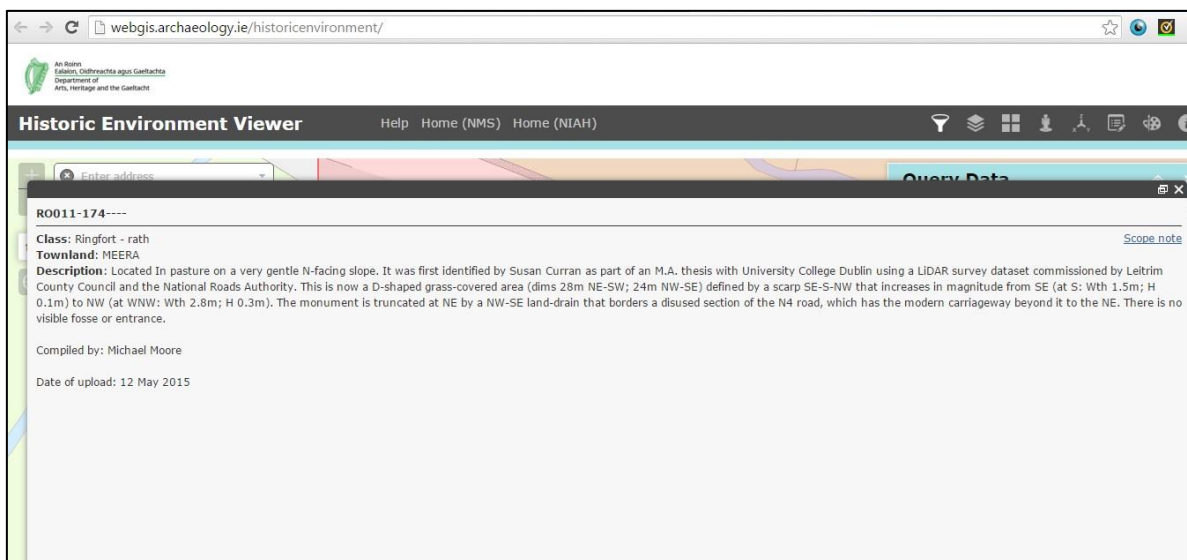


**Figure 3.21** Survey grid over the Monaghan lidar dataset  
(after OSi MapGenie, with additions)

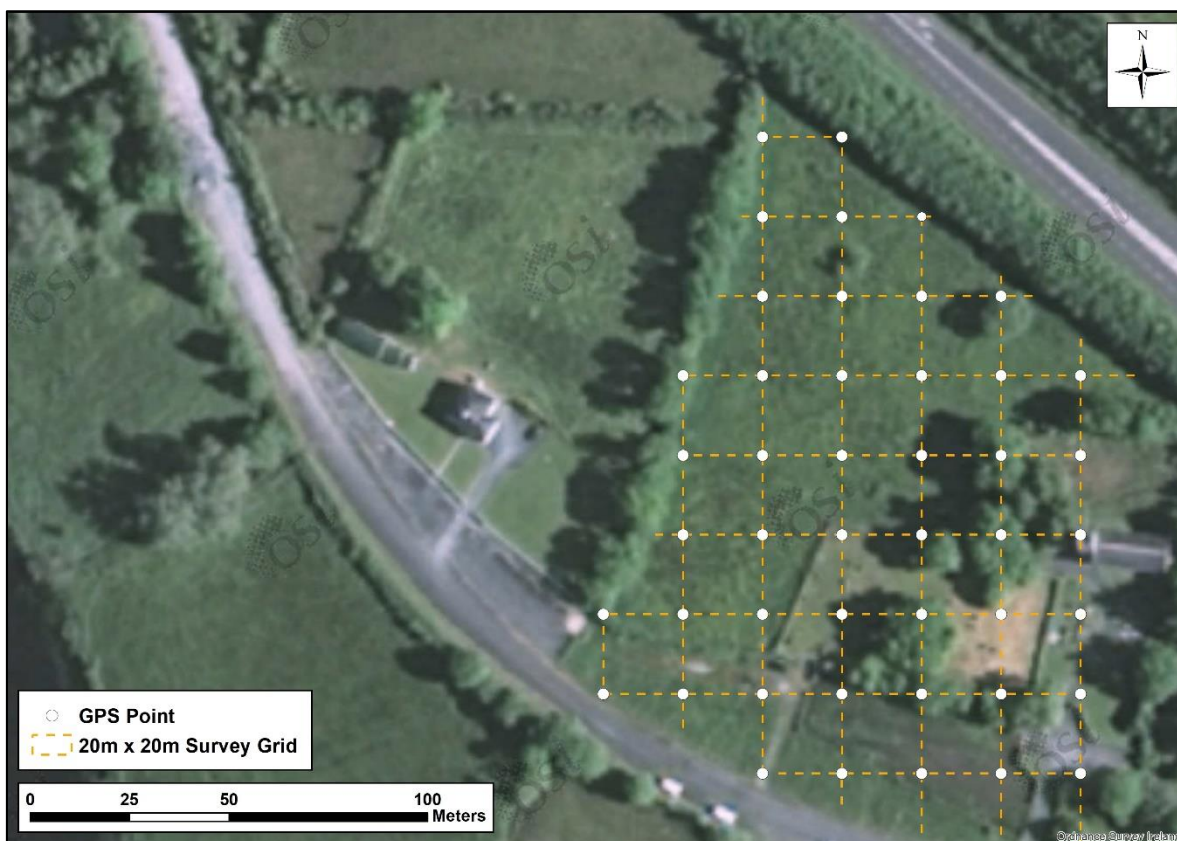




**Figure 3.22** Newly discovered rath at Dristernan, Co. Leitrim; also visible on the aerial imagery  
(after OSi MapGenie, with additions)



**Figure 3.23** The entry on the Sites and Monuments Record for the newly discovered rath at Meera, Co. Roscommon  
(after <http://webgis.archaeology.ie/historicenvironment/>)



**Figure 3.24** Geophysical survey grid set-out on ArcGIS at Annaduff, Co. Leitrim  
(after OSi MapGenie, with additions)



**Figure 3.25** Setting out the geophysical survey grid points in the field with Trimble VRS Now GPS  
(Photo: O. O'Rourke)





**Figure 3.26** Undertaking the magnetometry survey at Killukin, Co. Roscommon  
(Photo: O. O'Rourke)





**Figure 3.27** Undertaking the earth resistance survey at Tumna, Co. Roscommon  
(Photo: O. O'Rourke)

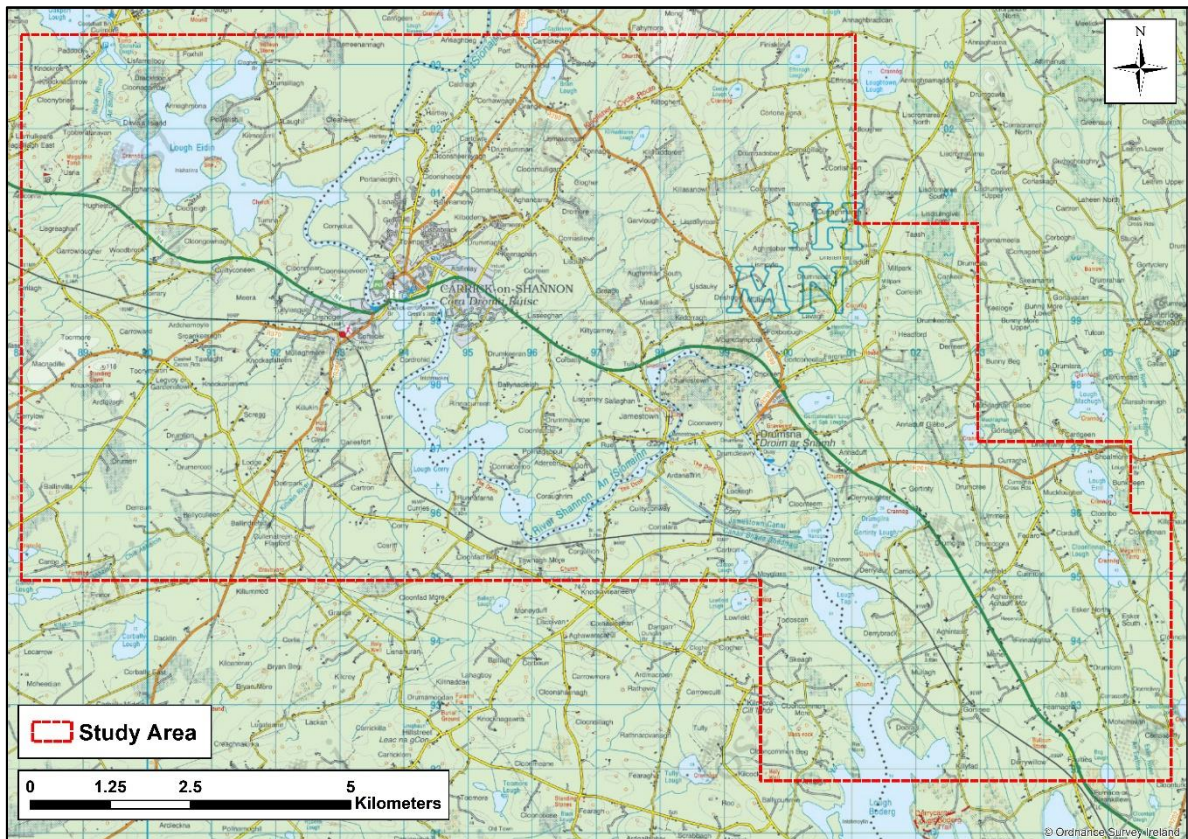
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MON_Excel_Files	01/08/2014 10:31	File folder	
MON_Hillshade	13/01/2016 19:01	File folder	
MON_Shapefiles	06/07/2015 13:10	File folder	
MON_XYZ Files	09/06/2014 16:53	File folder	
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log	30/07/2014 15:12	File	1 KB

**Figure 3.28** Lidar dataset management

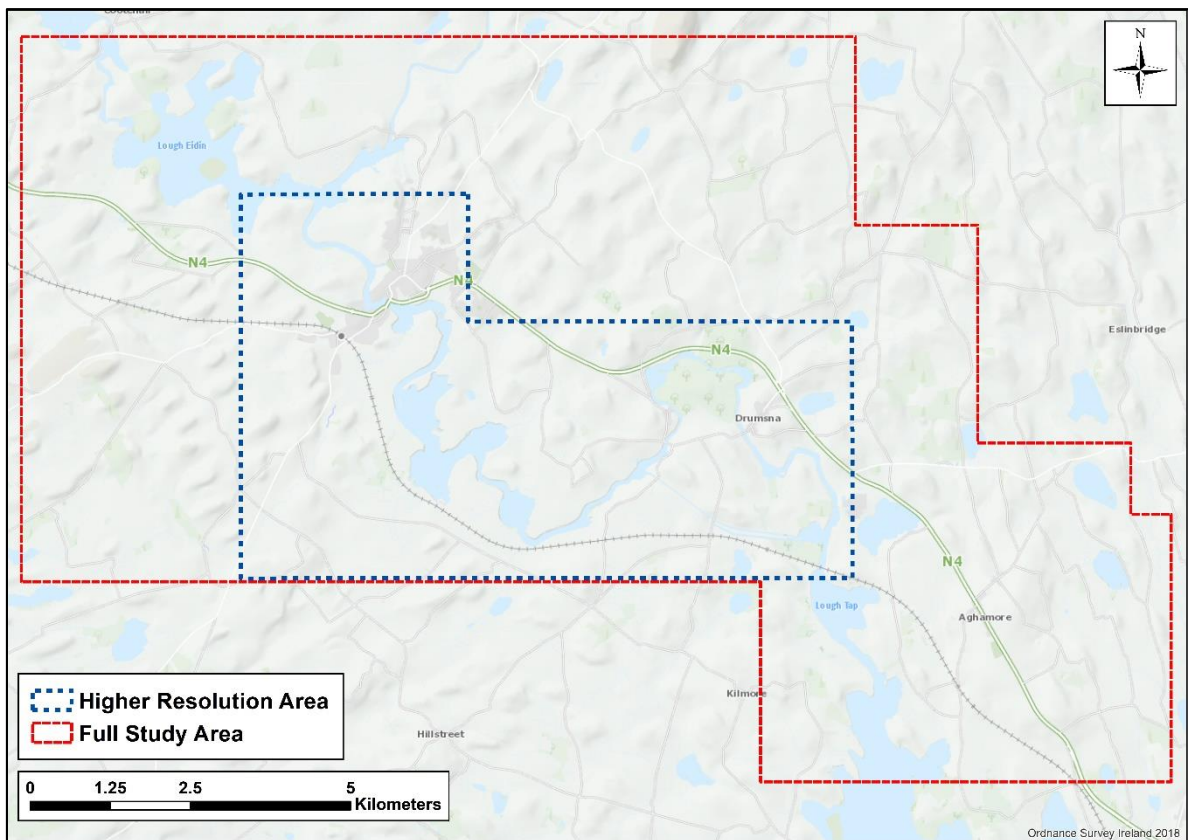
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IPTM	23/10/2015 12:49	File folder	
MESH	23/10/2015 12:49	File folder	
PALETTE	05/06/2015 11:43	File folder	
PUBDOC	09/06/2015 12:28	File folder	
PUBIMG	09/06/2015 11:59	File folder	
PUBTEM	09/06/2015 12:29	File folder	

**Figure 3.29** Geophysical survey dataset management



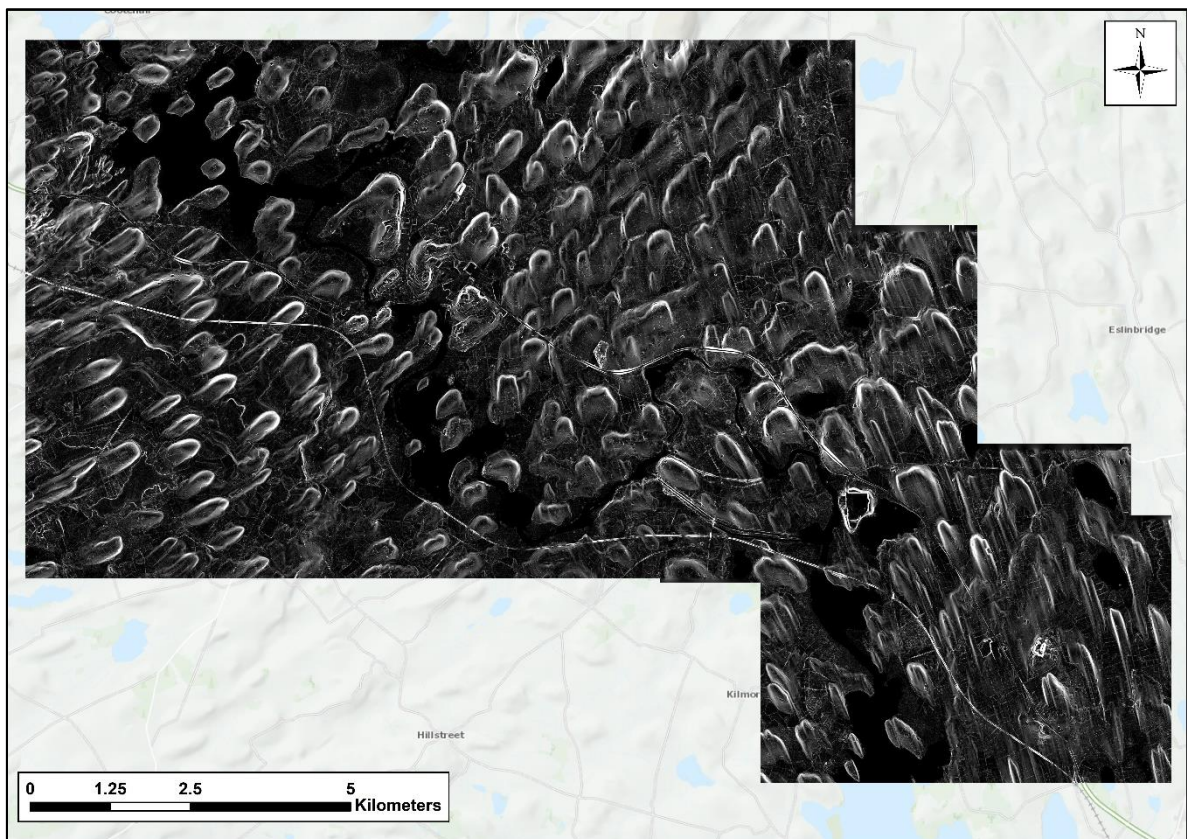


**Figure 4.1** The Leitrim/Roscommon case study area (after OSi MapGenie, with additions)

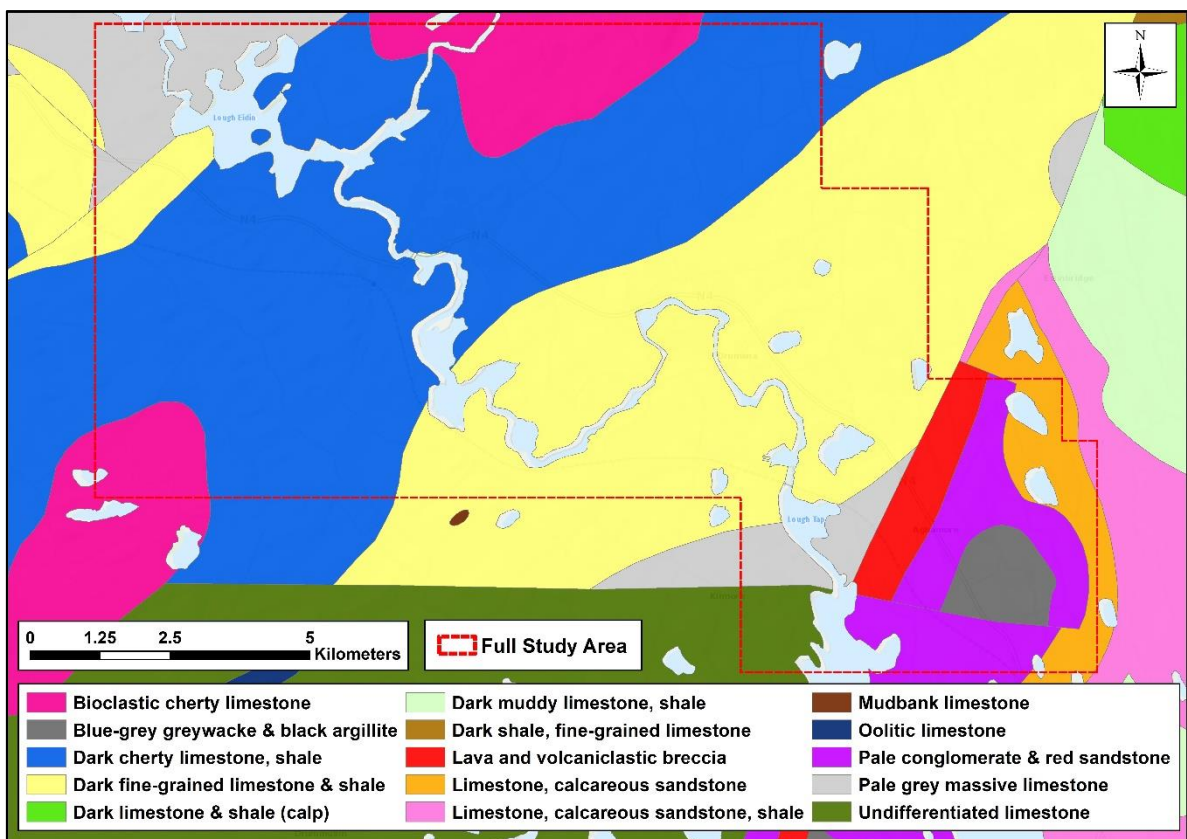


**Figure 4.2** The higher resolution area (0.5m resolution lidar dataset) (after OSi MapGenie, with additions)

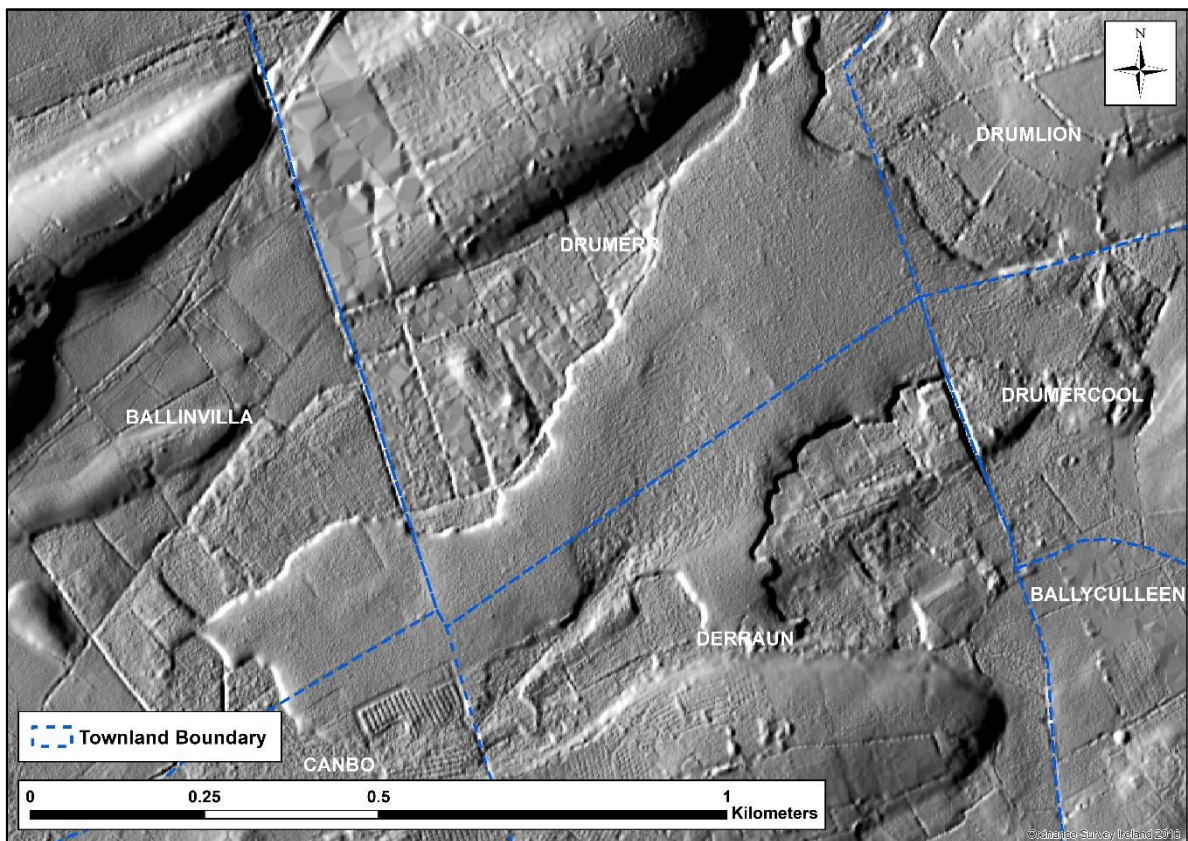




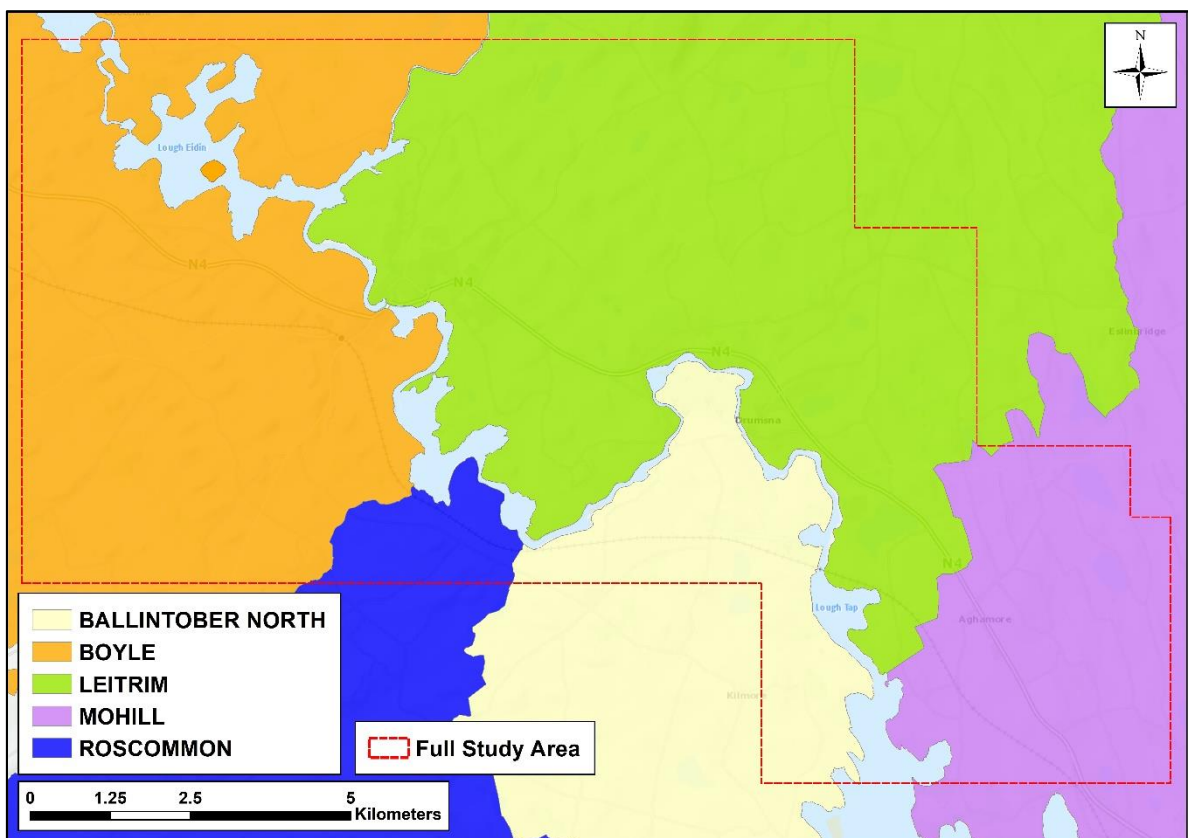
**Figure 4.3** The drumlin landscape (*slope model*) (after OSi MapGenie, with additions)



**Figure 4.4** Bedrock geology within the study area (after GSI; OSi MapGenie, with additions)

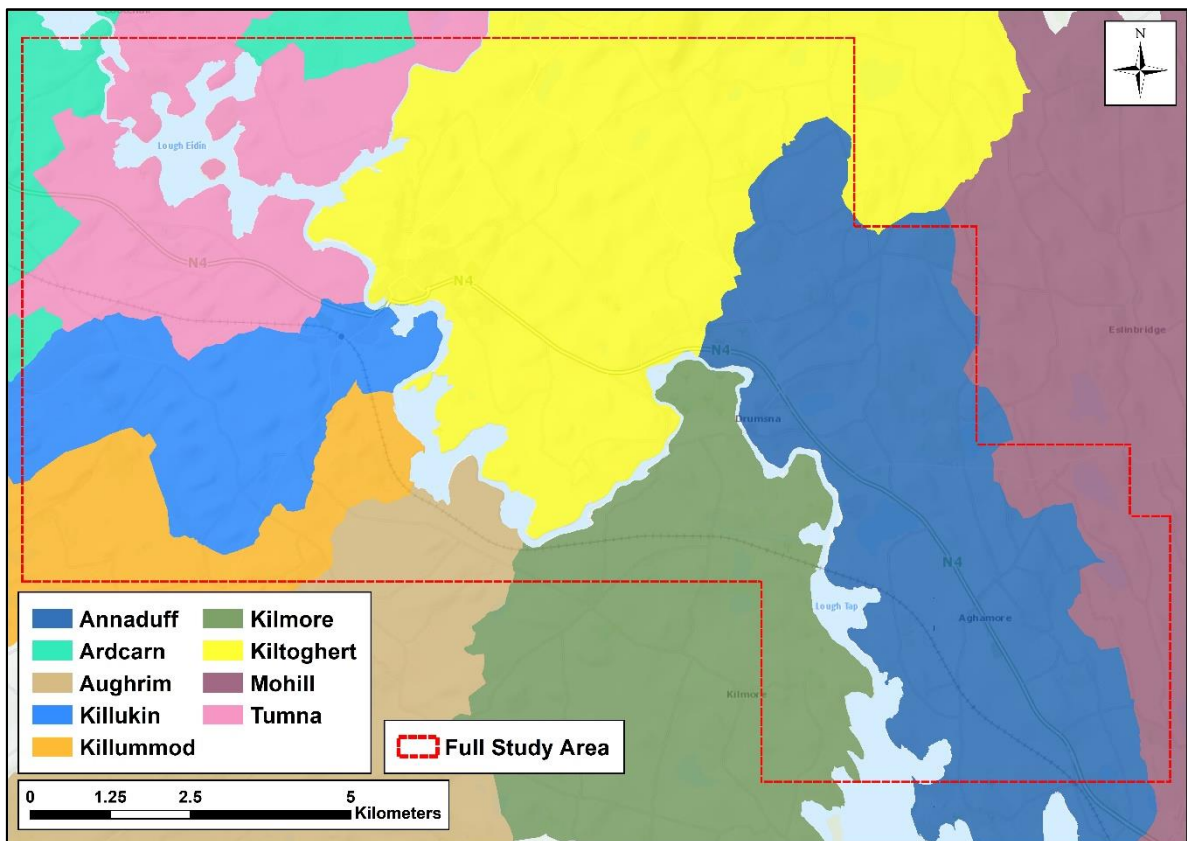


**Figure 4.5** Hillshade model showing the area of bogland in the south-west of the study area  
(Azi. 280 / Alt. 20)

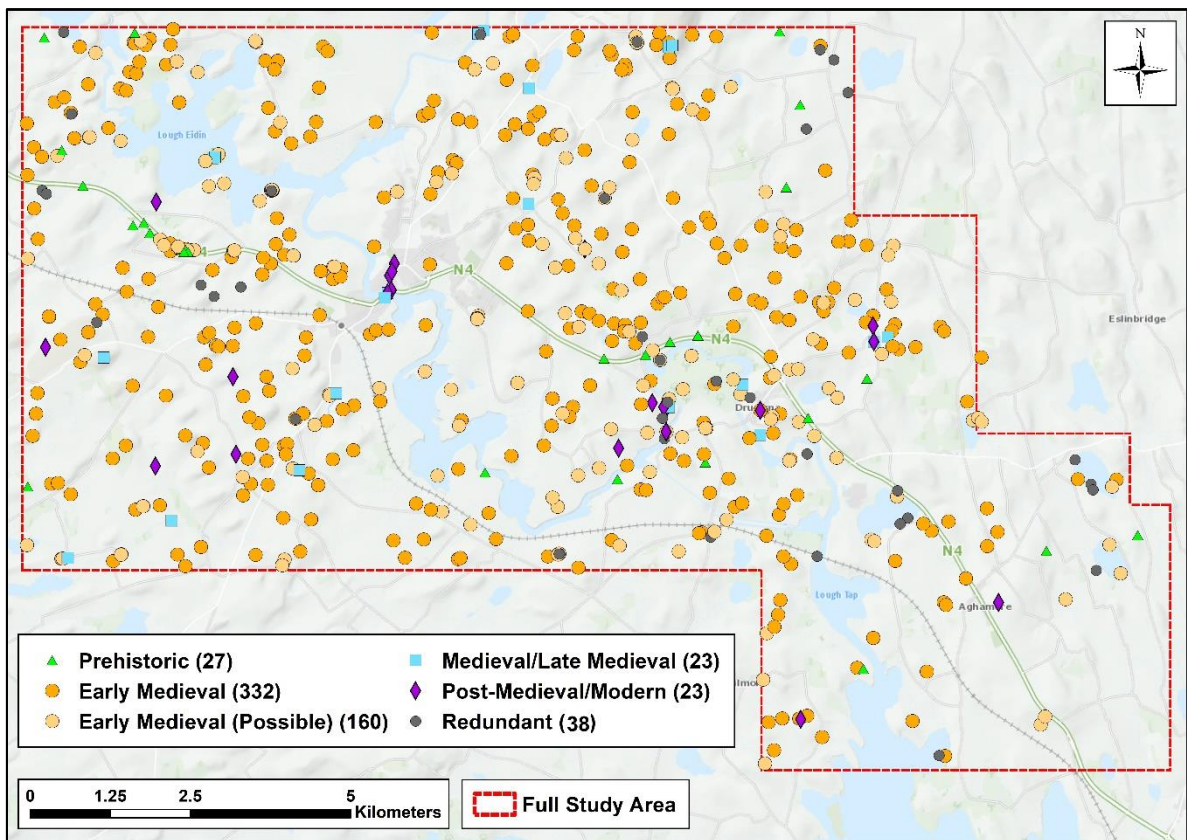


**Figure 4.6** The baronies within the study area (after OSi MapGenie, with additions)

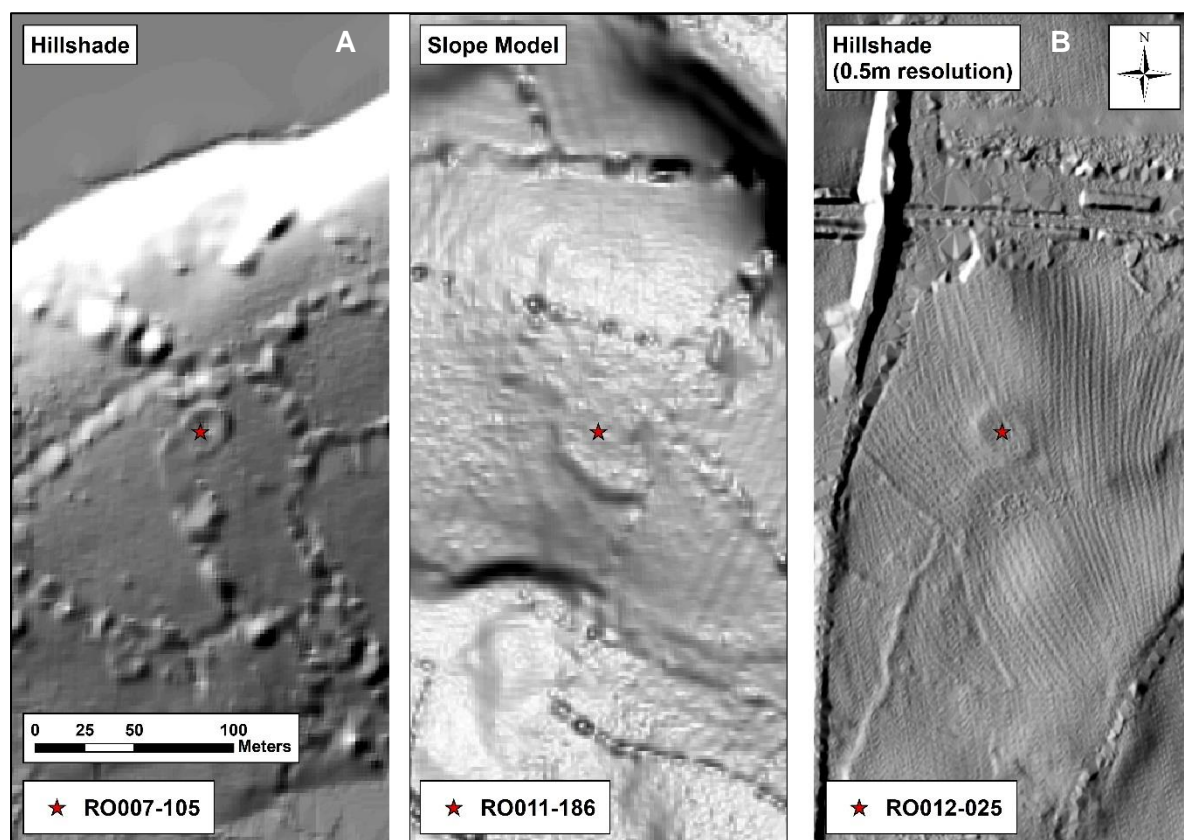




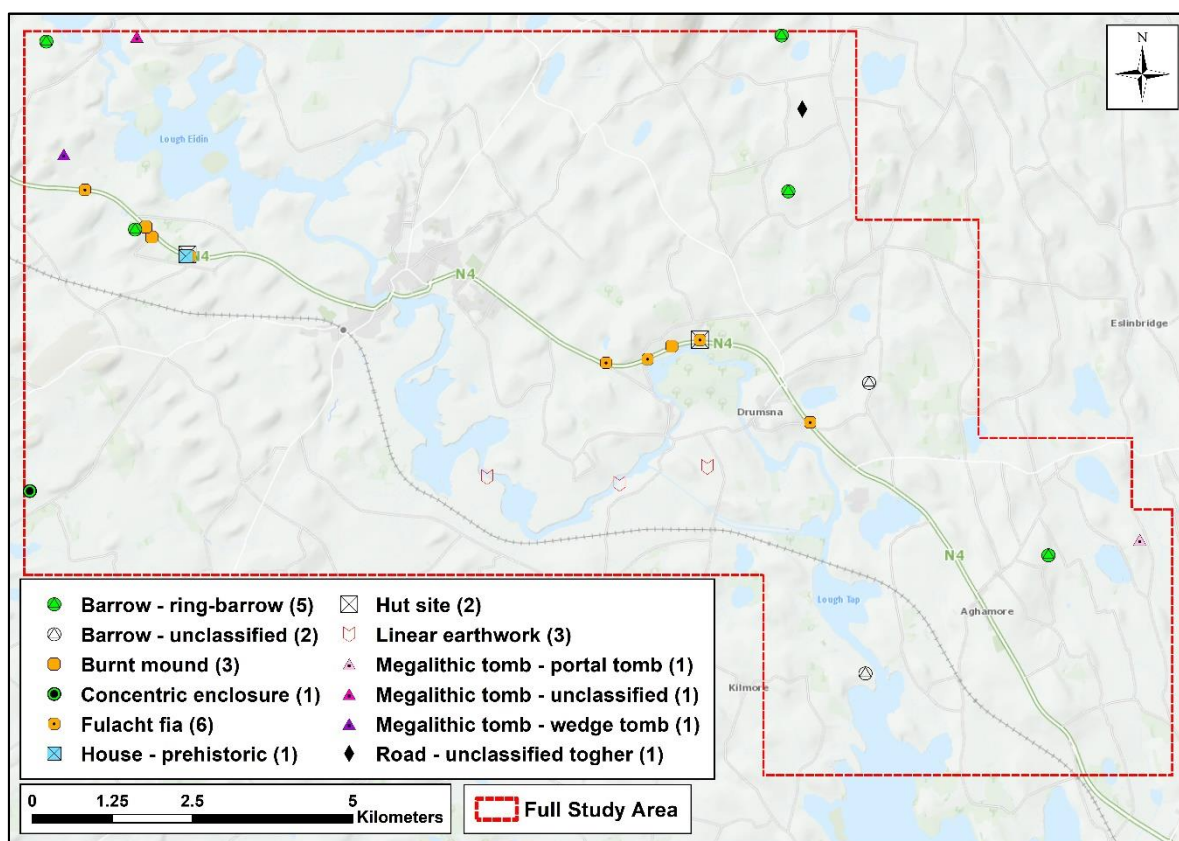
**Figure 4.7** The civil parishes within the study area (after OSi MapGenie, with additions)



**Figure 4.8** Recorded monuments (by period) within the study area (after SMR, OSi MapGenie, with additions)

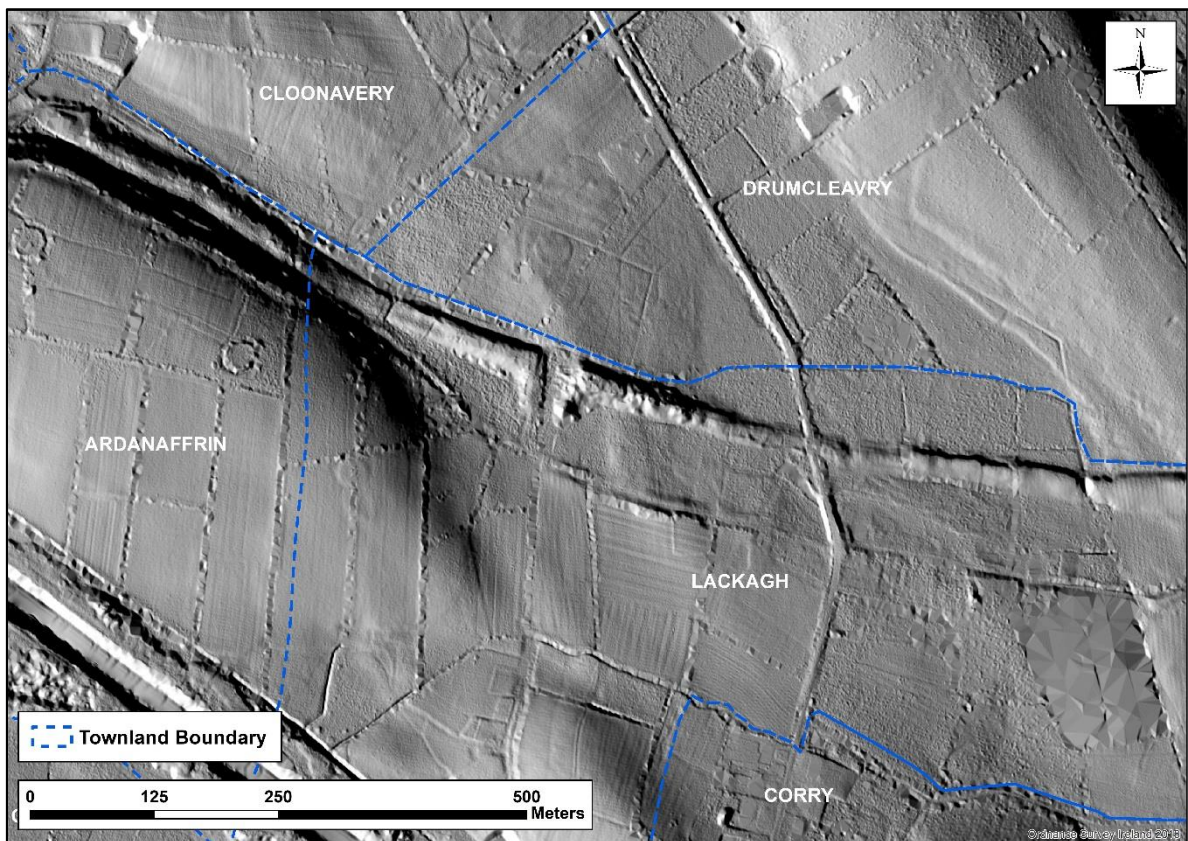


**Figure 4.9** Potential new monuments marked as 'redundant' by the NMS but retained as probable monuments as part of this project (A: Azi. 315 / Alt. 10; B: Azi. 315 / Alt. 60)



**Figure 4.10** Distribution of recorded prehistoric monuments within the study area (after SMR, OSi MapGenie, with additions)



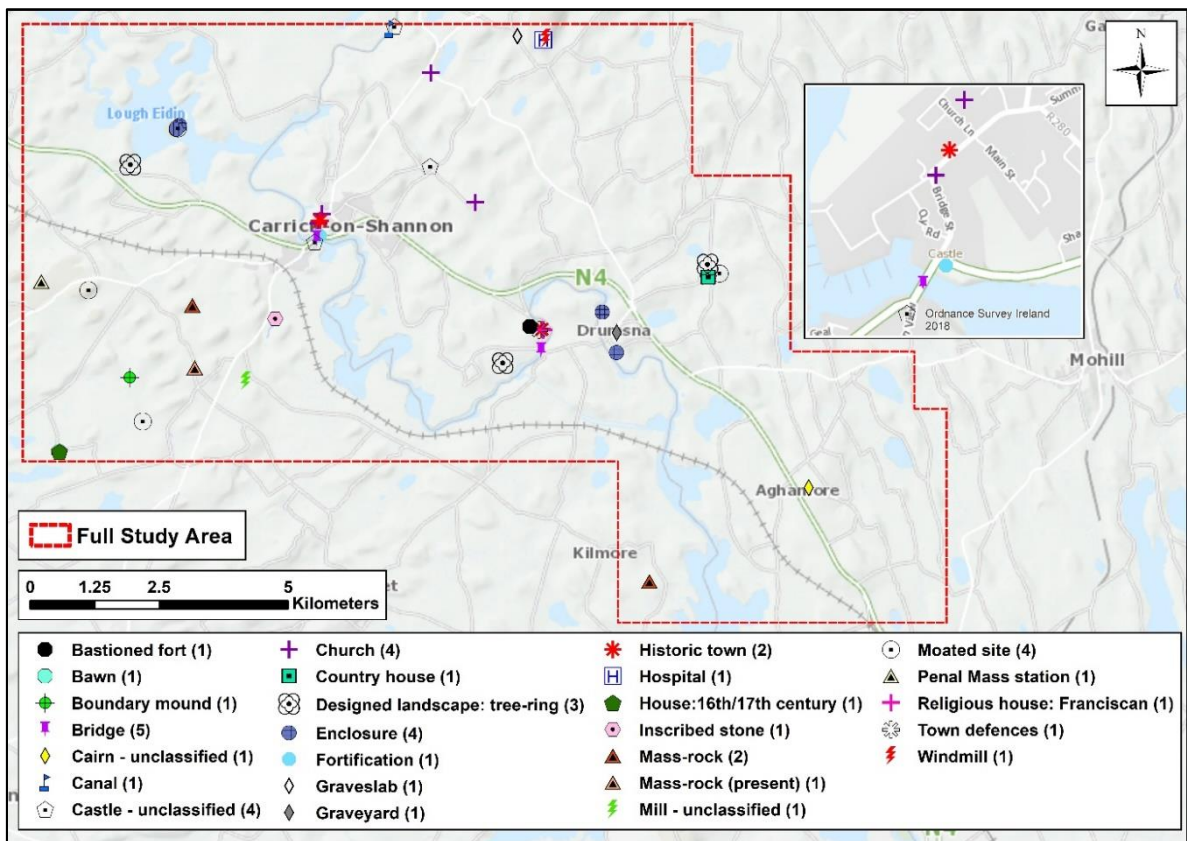


**Figure 4.11** The Doon of Drumsna (0.5m resolution hillshade model: Azi. 280 / Alt. 20)

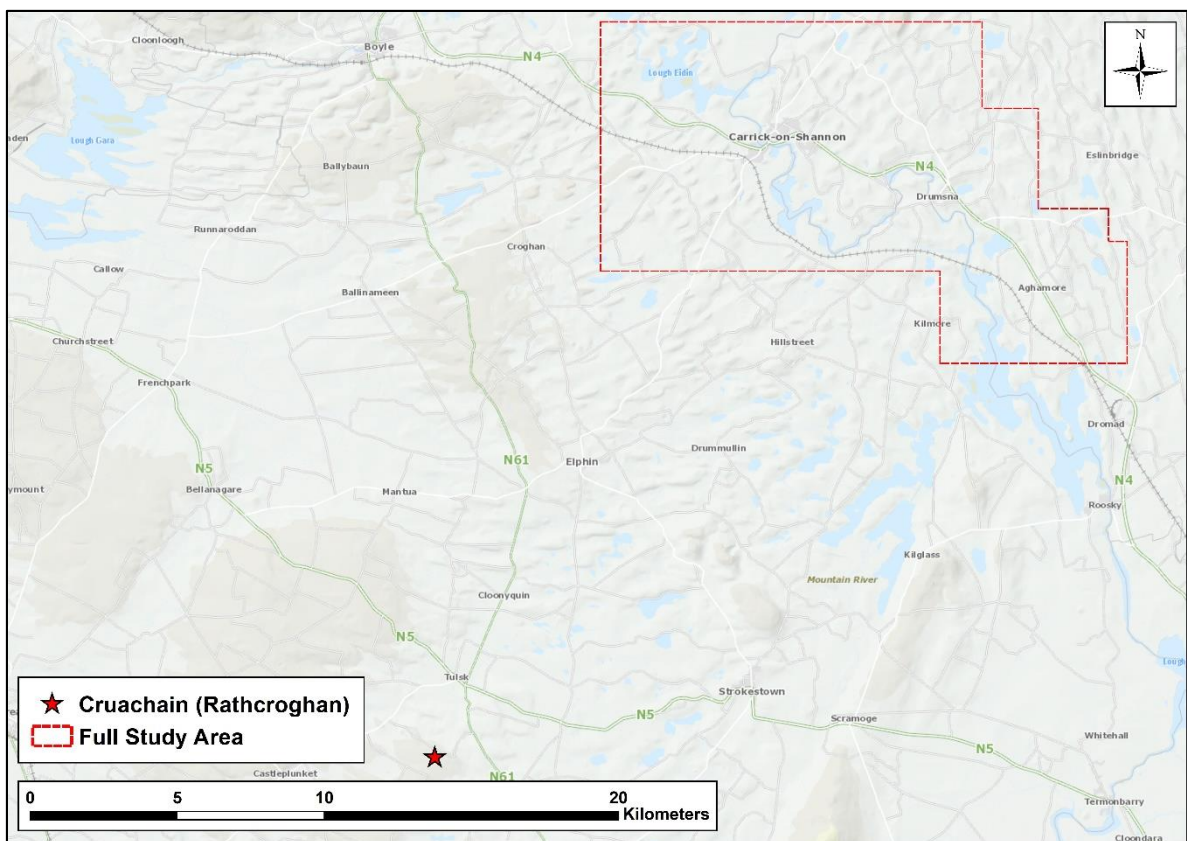


**Figure 4.12** The Tumna Gold Balls on display in the National Museum of Ireland (Photo: S. Curran)

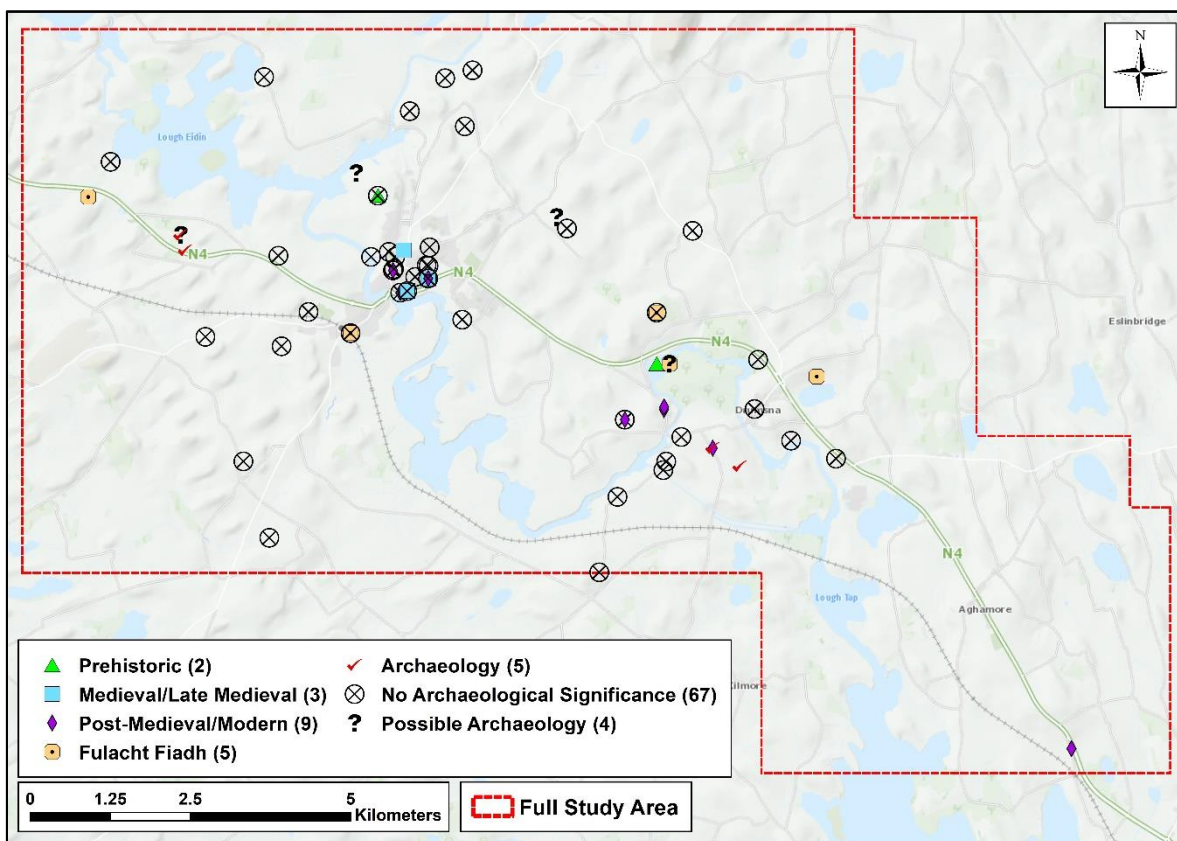




**Figure 4.13** Distribution of recorded medieval and later monuments within the study area  
(after SMR, OSi MapGenie, with additions)



**Figure 4.14** The study area in relation to Cruachain (Rathcroghan), Co. Roscommon  
(after OSi MapGenie, with additions)

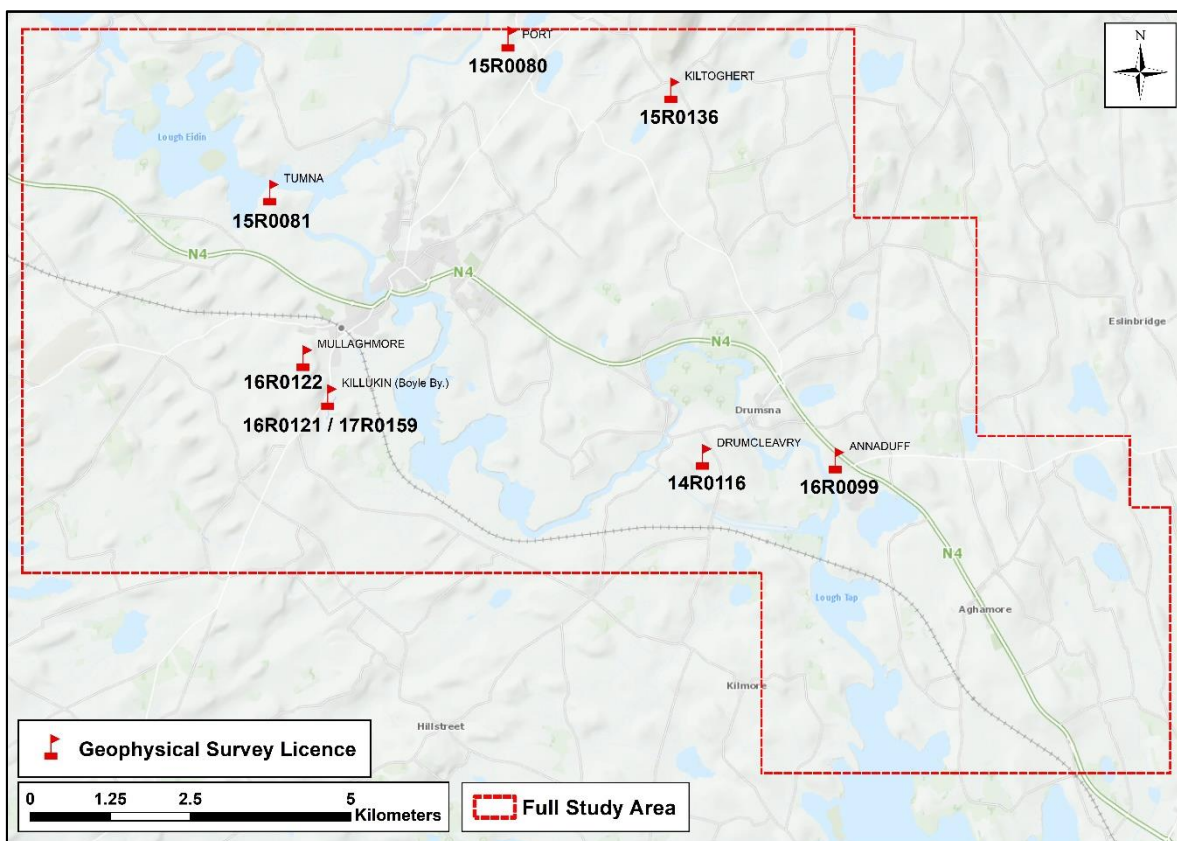


**Figure 4.15** Excavations within the study area  
(after [www.excavations.ie](http://www.excavations.ie); OSi MapGenie, with additions)



**Figure 4.16** The newly discovered rath at Carrick, Co. Leitrim (LE032-106)  
(after OSi MapGenie, with additions)





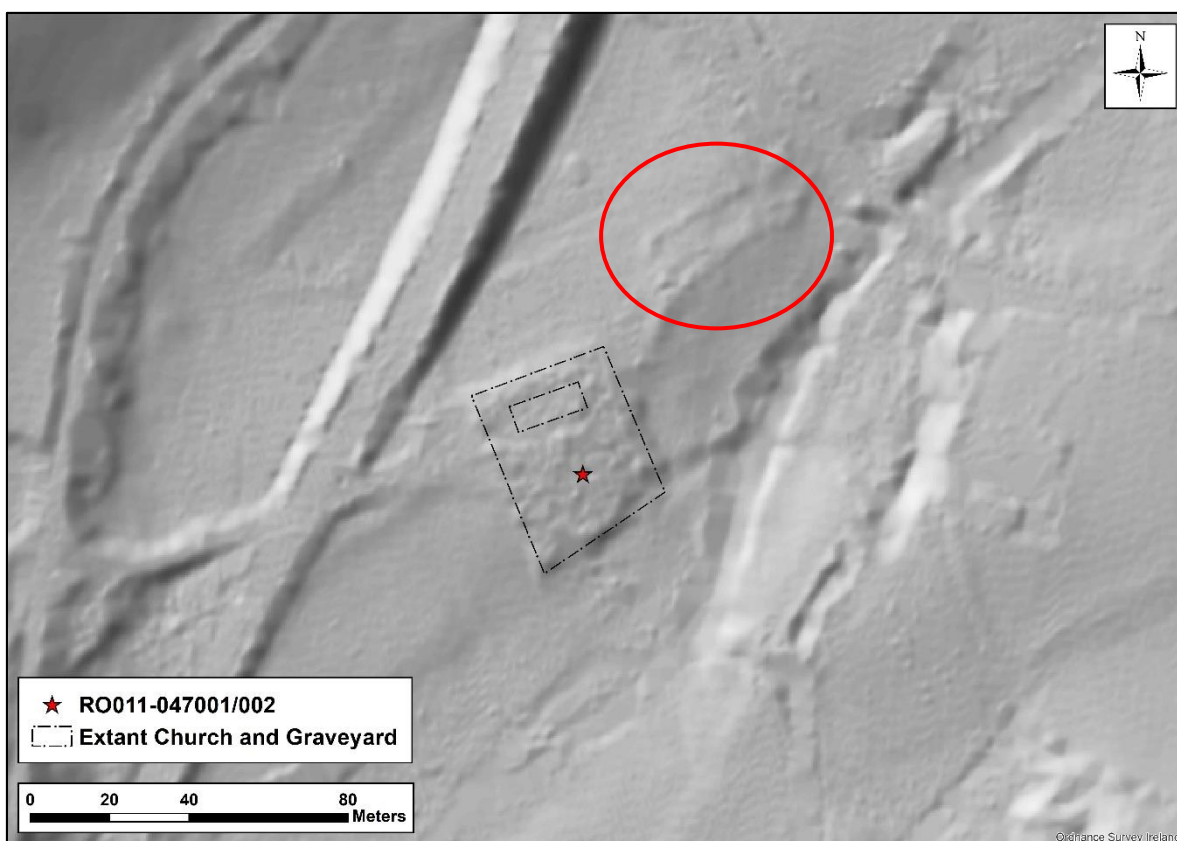
**Figure 4.17** Geophysical surveys undertaken as part of this research project  
*(after OSi MapGenie, with additions)*



**Figure 4.18** The enclosing features visible on the magnetometry survey results at Annaduff, Co. Leitrim  
*(after OSi MapGenie, with additions)*

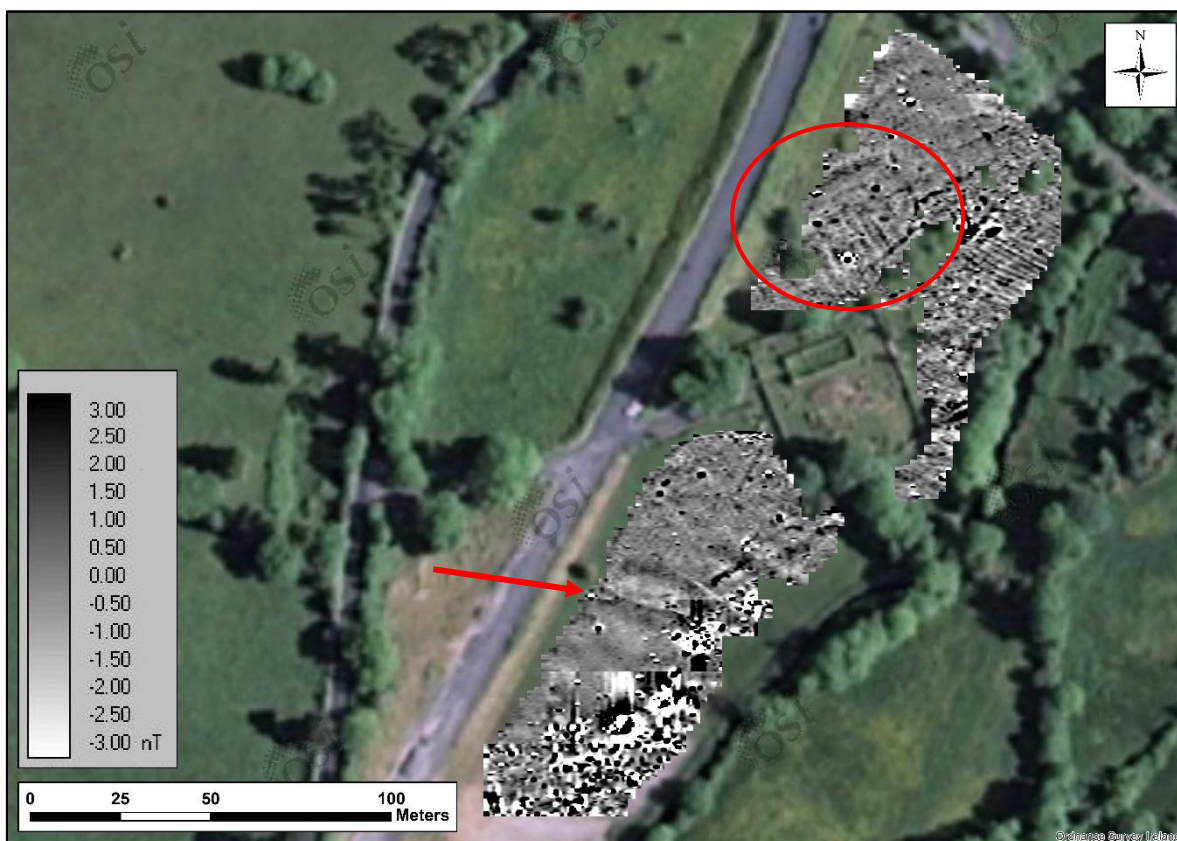


**Figure 4.19** The projected enclosure and extant ditch at Annaduff  
*(after OSi MapGenie, with additions; Photos: S. Curran)*

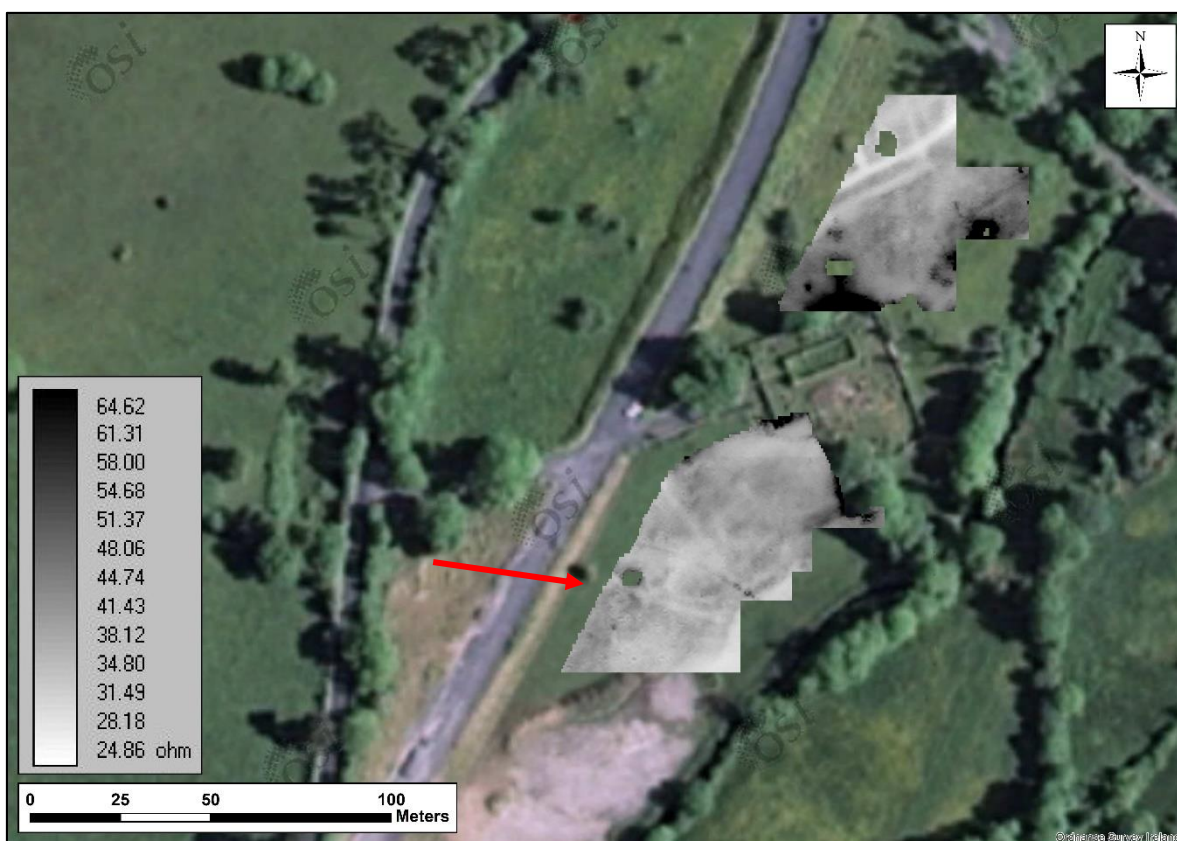


**Figure 4.20** The rectangular structure (possible church) at Killukin, Co. Roscommon  
*(Hillshade: Azi. 315 / Alt. 60)*



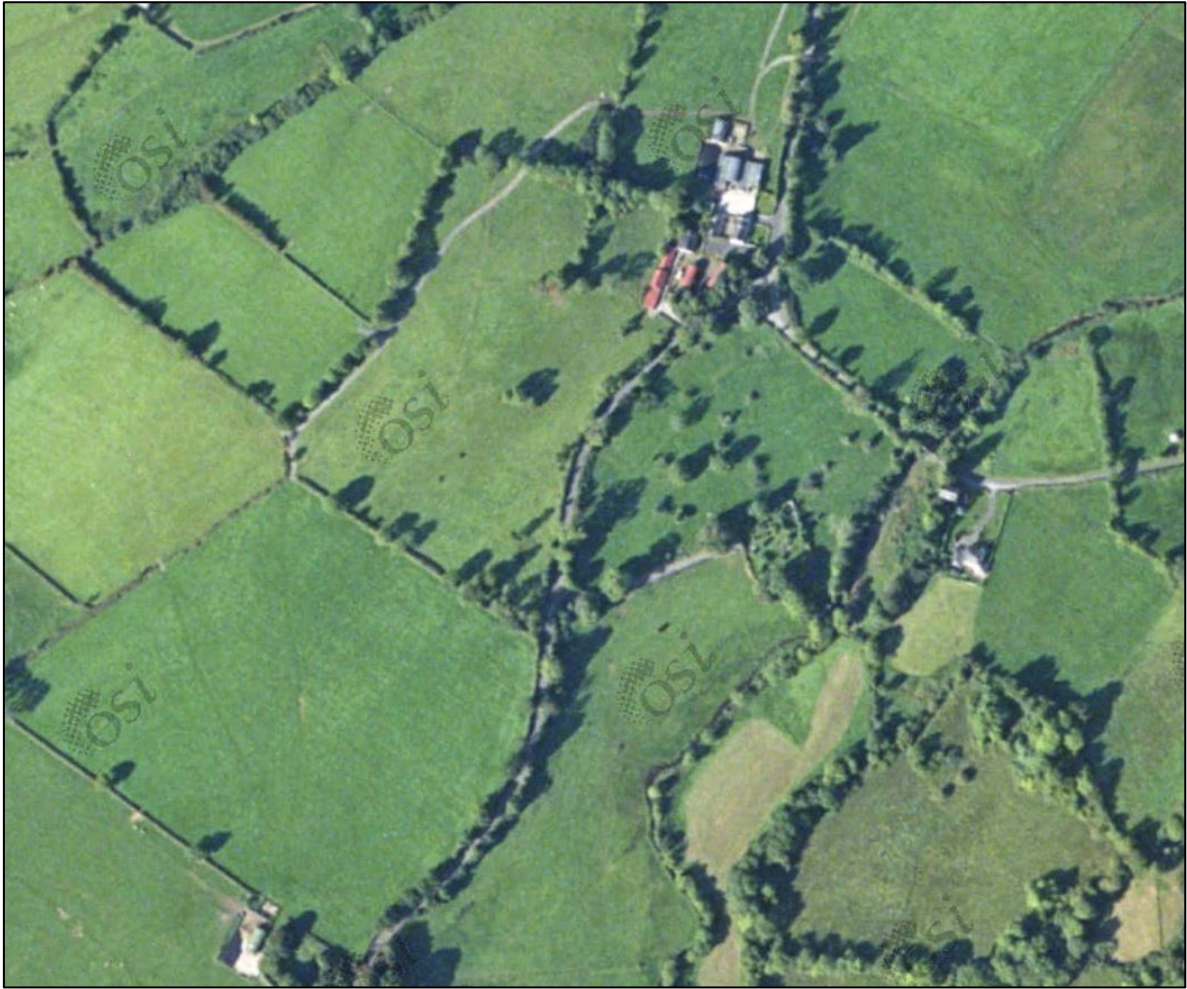


**Figure 4.21** The magnetometry results at Killukin, Co. Roscommon depicting the inner and outer enclosing features  
(after OSi MapGenie, with additions)



**Figure 4.22** The earth resistance results at Killukin, Co. Roscommon depicting a portion of the outer enclosure  
(after OSi MapGenie, with additions)

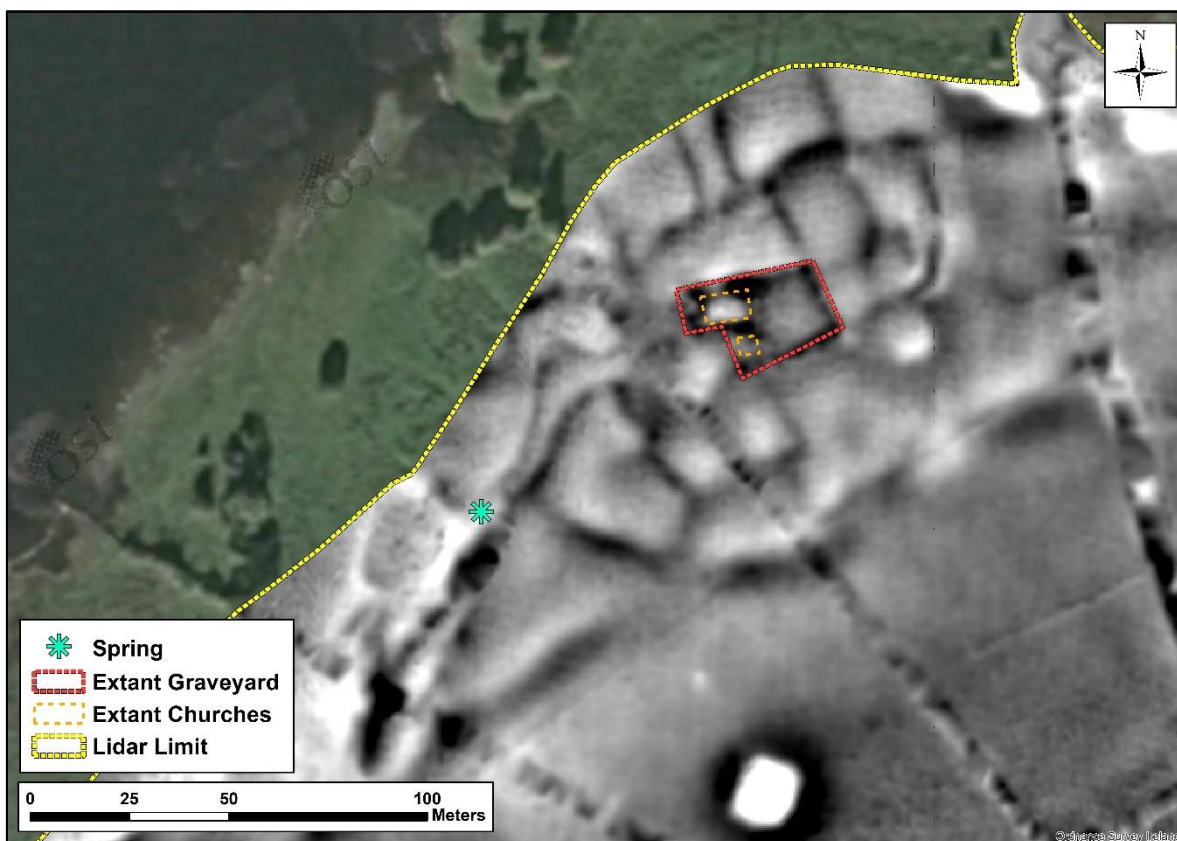




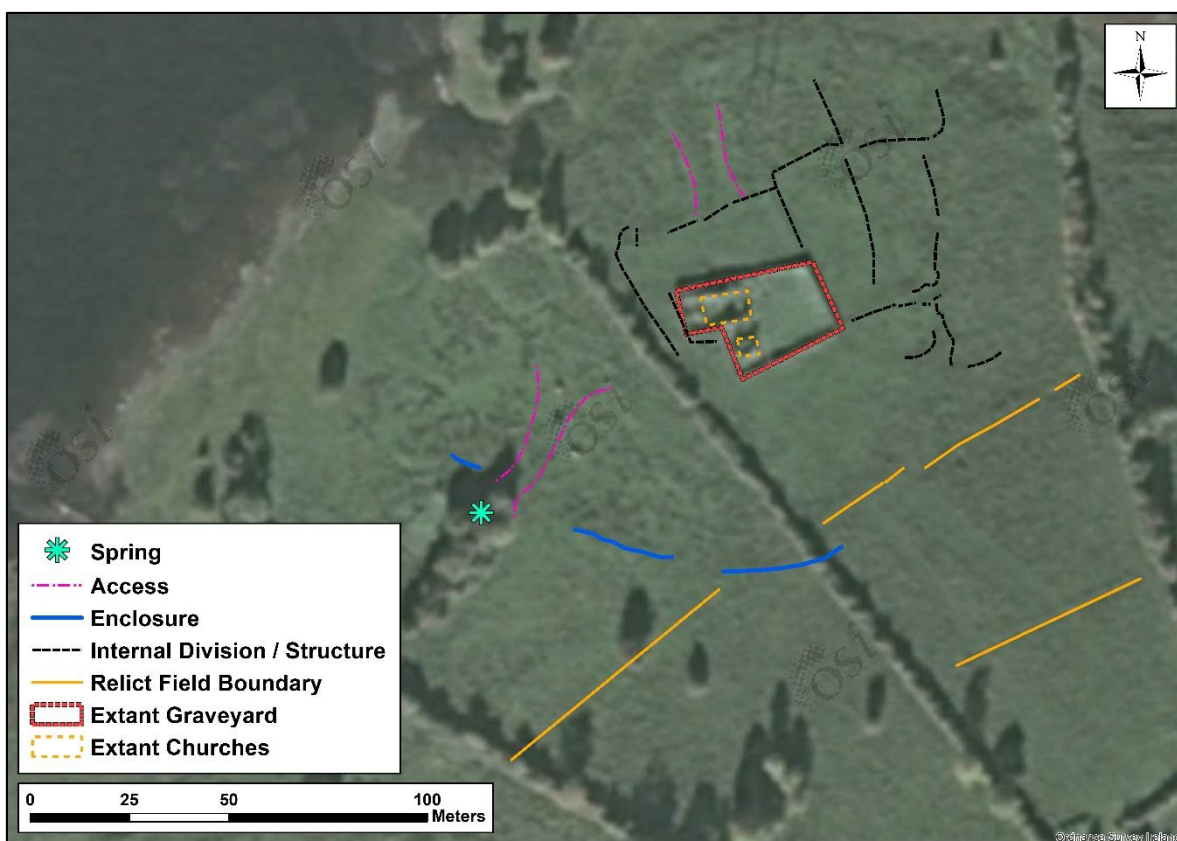
**Figure 4.23** Killukin, Co. Roscommon in 2005 before the R368 was inserted through the site  
(after <http://map.geohive.ie/mapviewer.html> 2005)



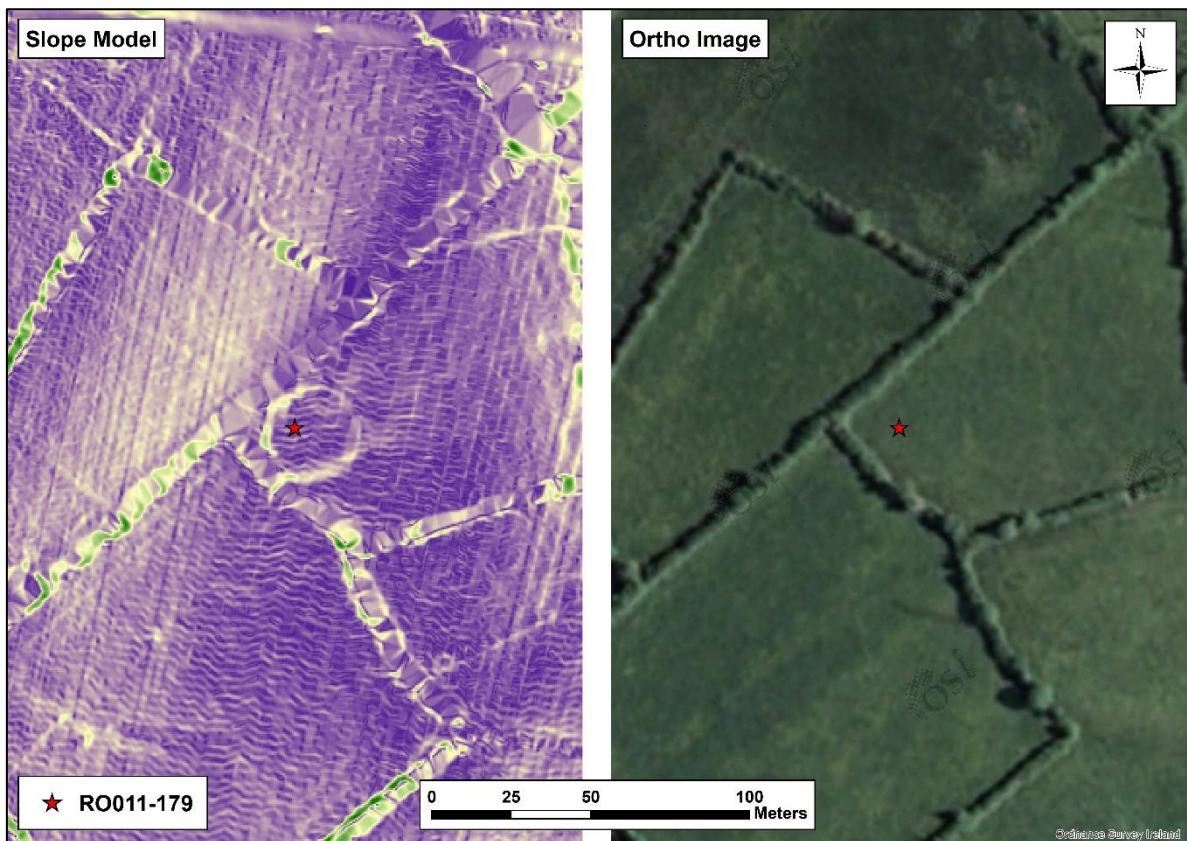




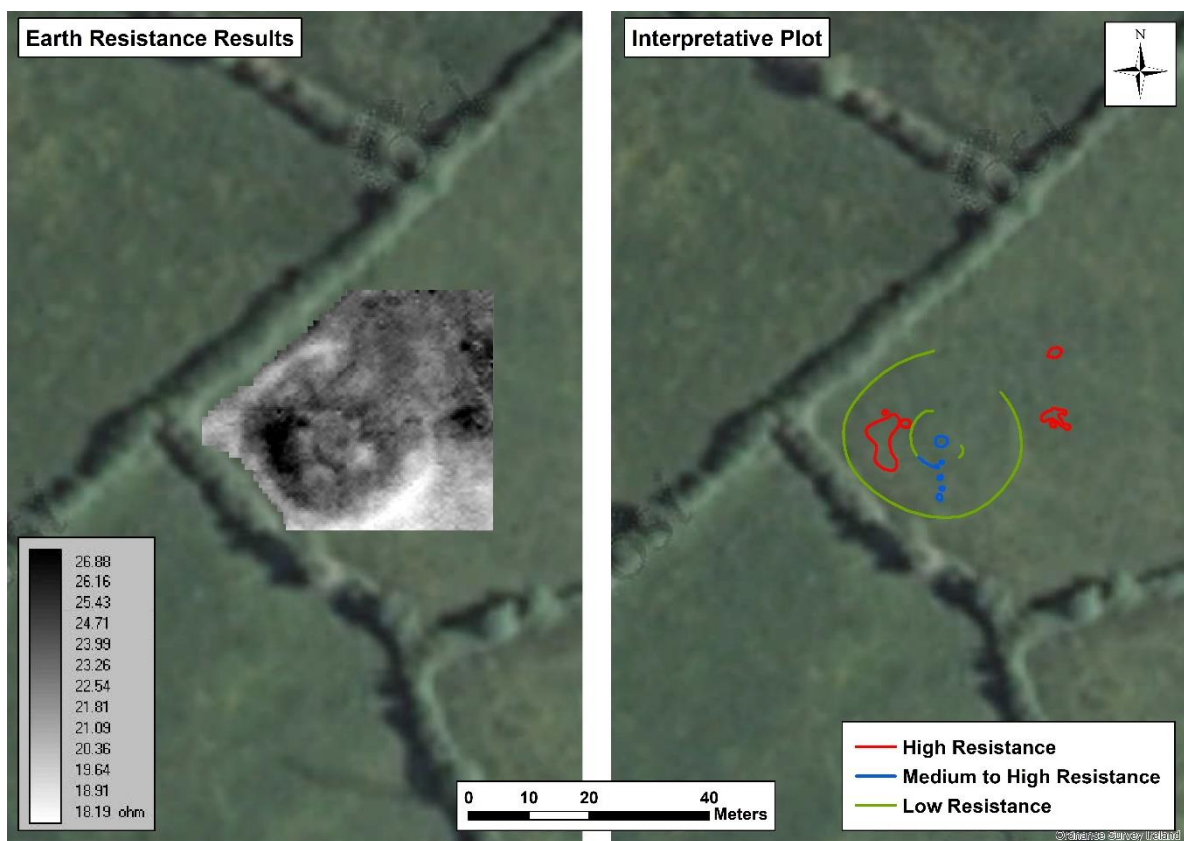
**Figure 4.25** Local Relief Model of the ecclesiastical enclosure and extant features at Tumna, Co. Roscommon  
(after OSi MapGenie, with additions)



**Figure 4.26** Interpretative Plot of the key features identified at Tumna, Co. Roscommon following the lidar and geophysical surveys  
(after OSi MapGenie, with additions)



**Figure 4.27** The newly discovered rath at Mullaghmore, Co. Roscommon  
(after OSi MapGenie, with additions)

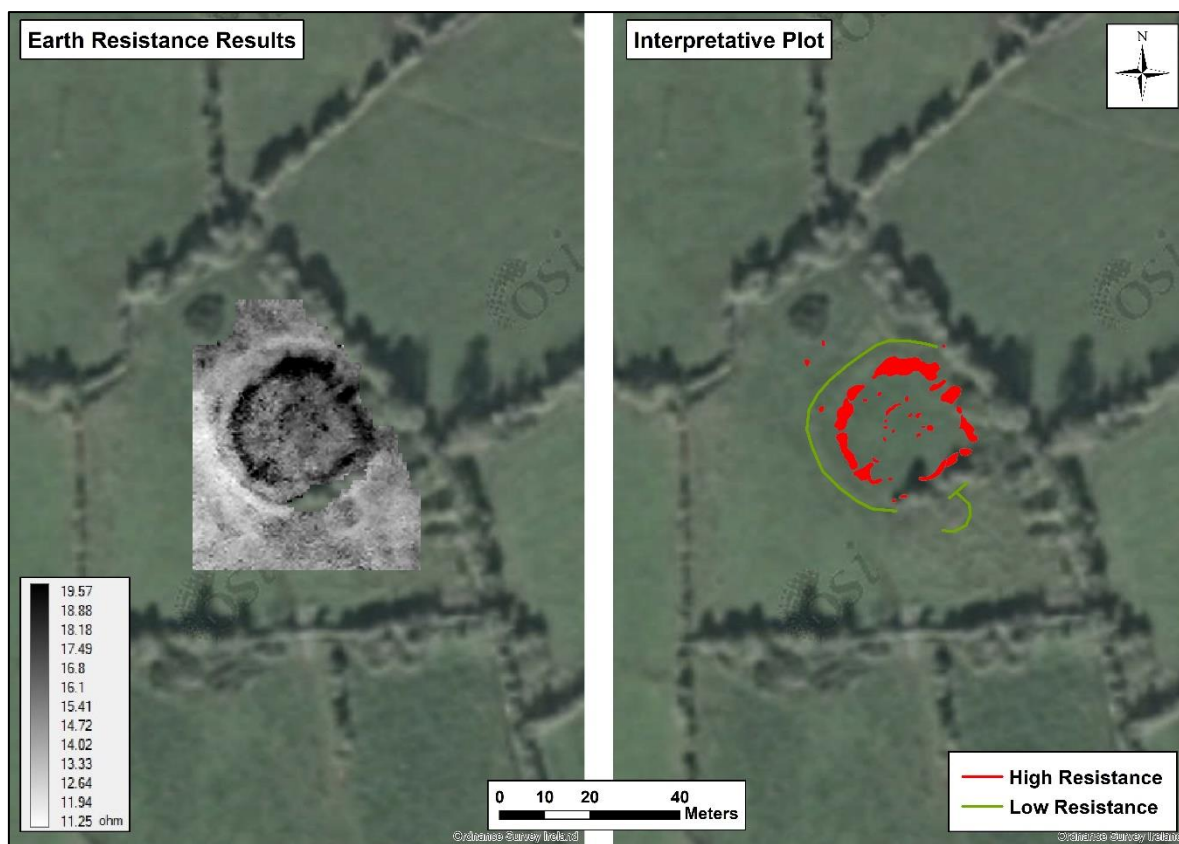


**Figure 4.28** The earth resistance survey results at Mullaghmore, Co. Roscommon  
(after OSi MapGenie, with additions)





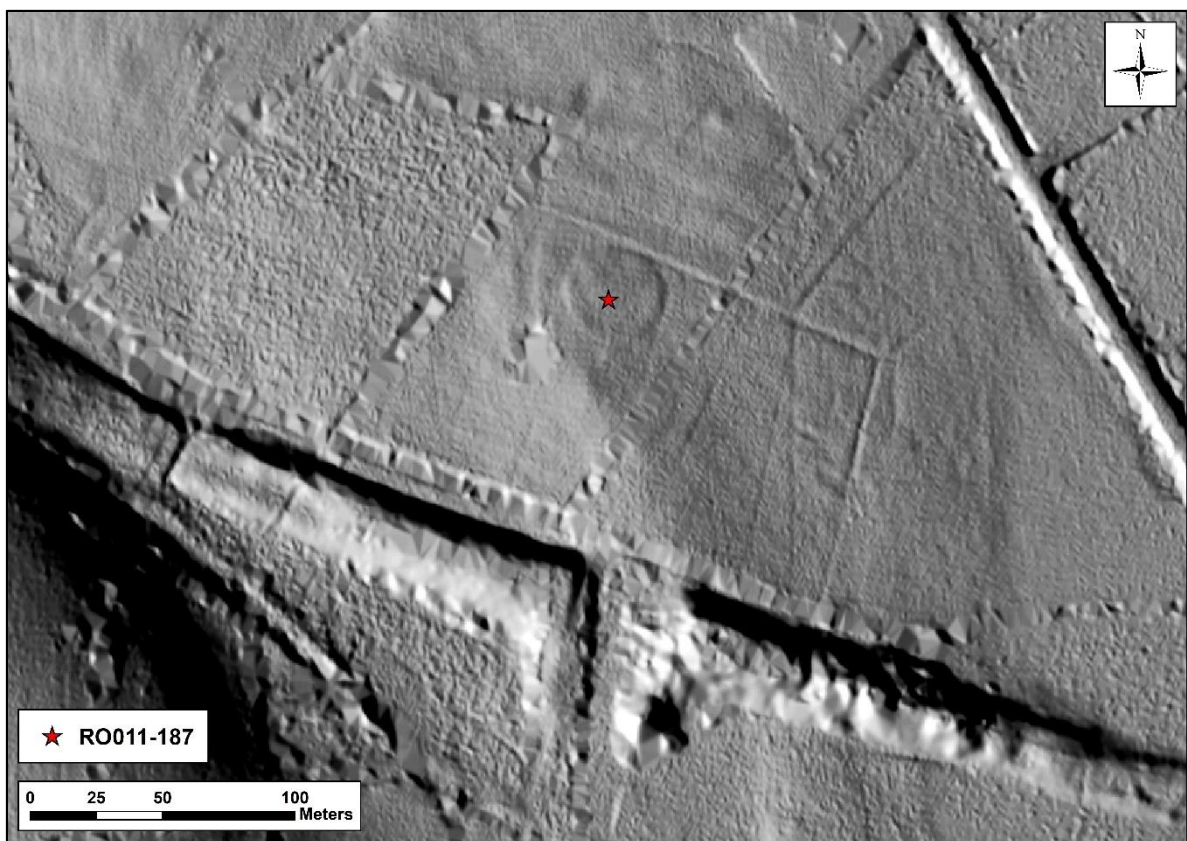
**Figure 4.29** View of Sheemore from the rath at Kiltoghert, Co. Leitrim (Photo: S. Curran)



**Figure 4.30** The earth resistance results at Kiltoghert, Co. Leitrim (after OSi MapGenie, with additions)

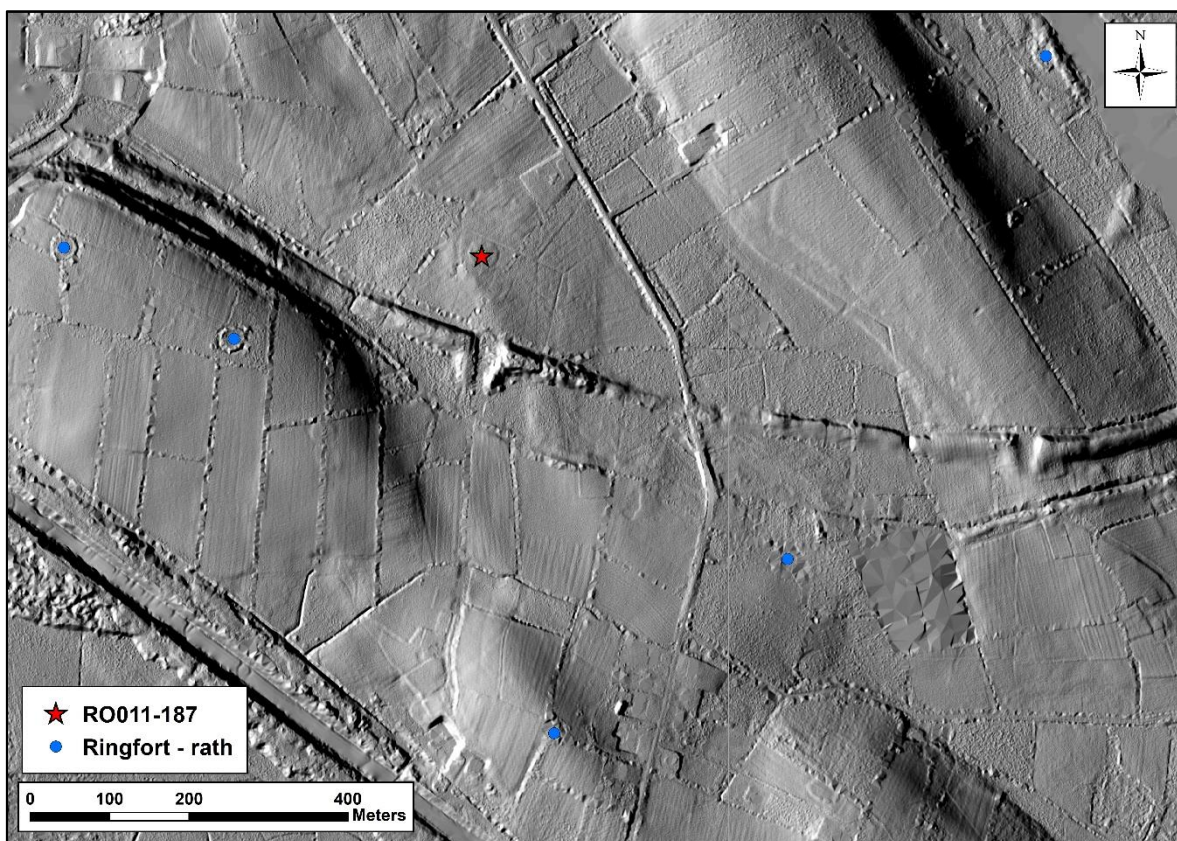


**Figure 4.31** Magnetometry results at Kiltoghert indicating a possible hearth feature  
(after OSi MapGenie, with additions)

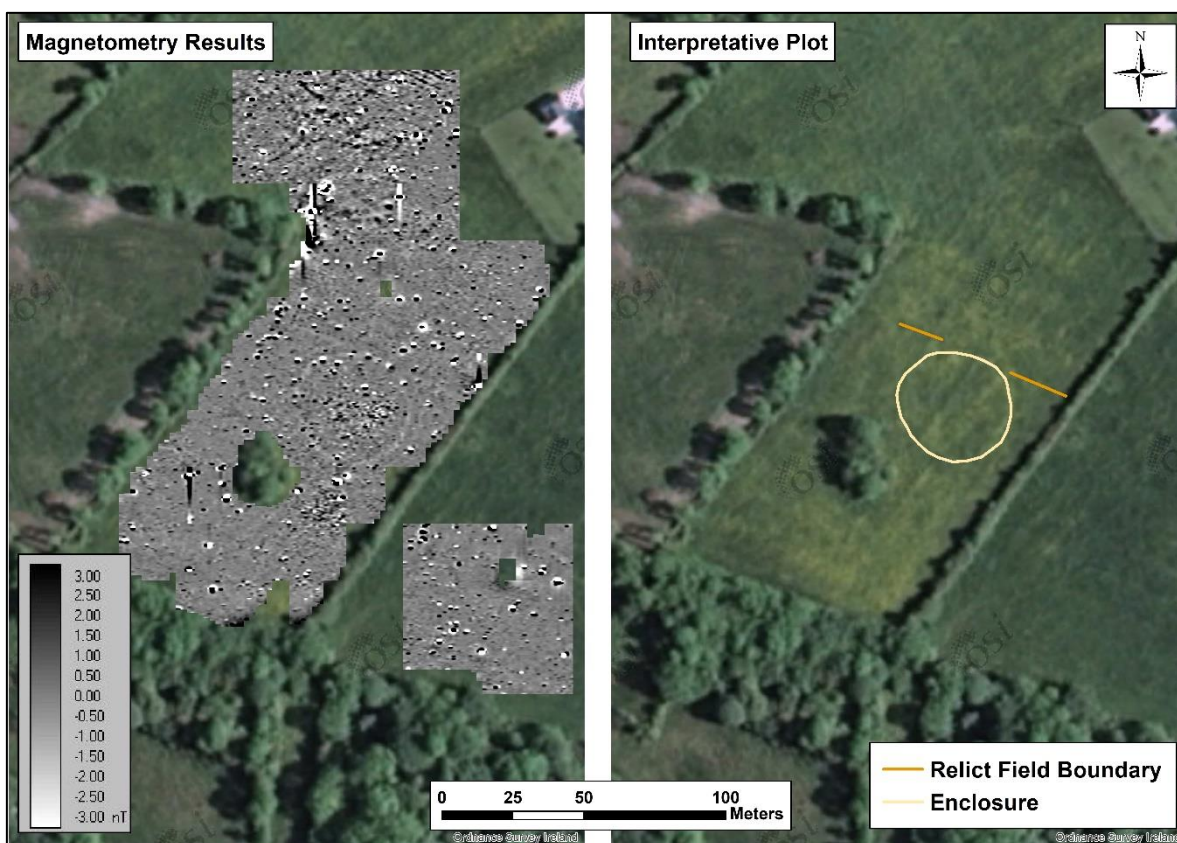


**Figure 4.32** The newly discovered enclosure at Drumcleavry, just inside the western entrance to the Doon of Drumsna, Co. Roscommon  
(Hillshade Azi. 280 / Alt. 20)





**Figure 4.33** Early medieval settlement near the Doon of Drumsna, Co. Roscommon (RO011-058)  
(Hillshade Azi. 280 / Alt. 20)



**Figure 4.34** The magnetometry results at Drumcleavry, Co. Roscommon  
(after OSi MapGenie, with additions)



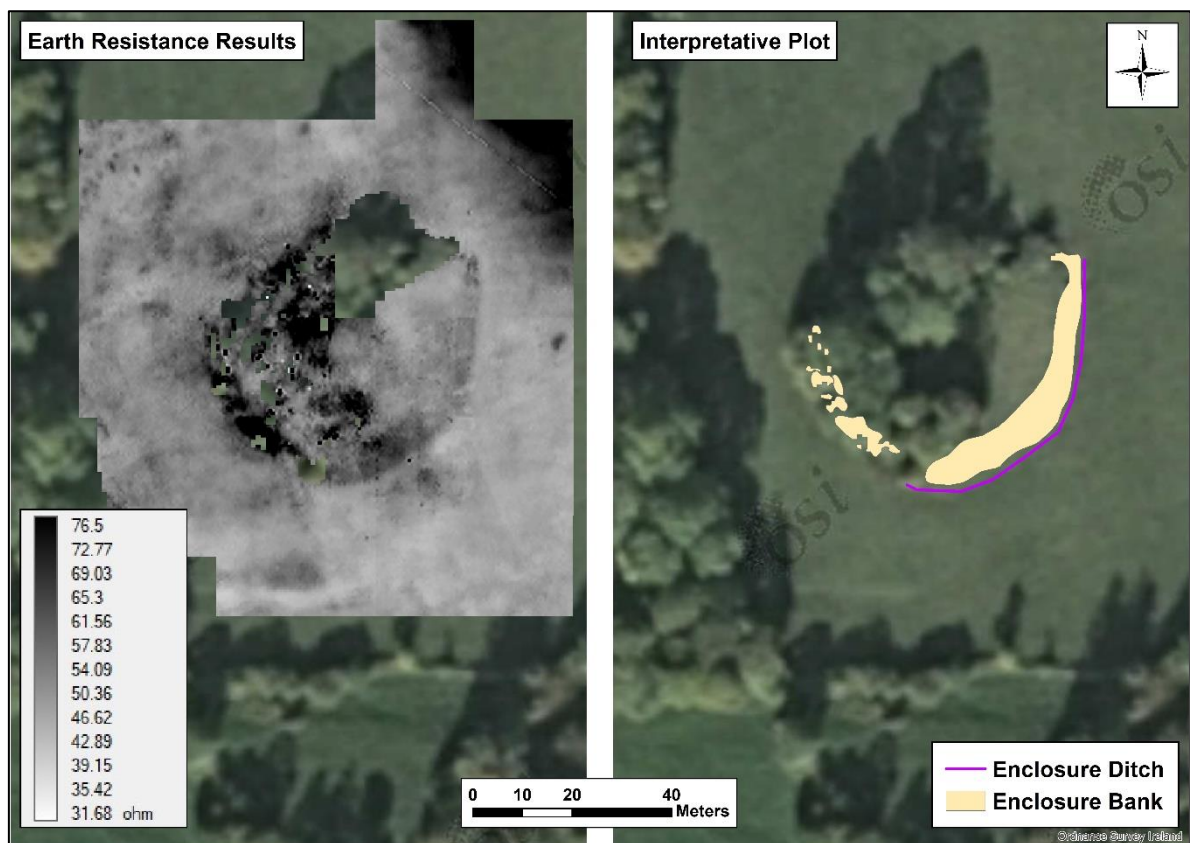


**Figure 4.35** The impressive banks and ditches at the bivallate rath at Port, Co. Leitrim (LE027-066) *(Photo S. Curran)*

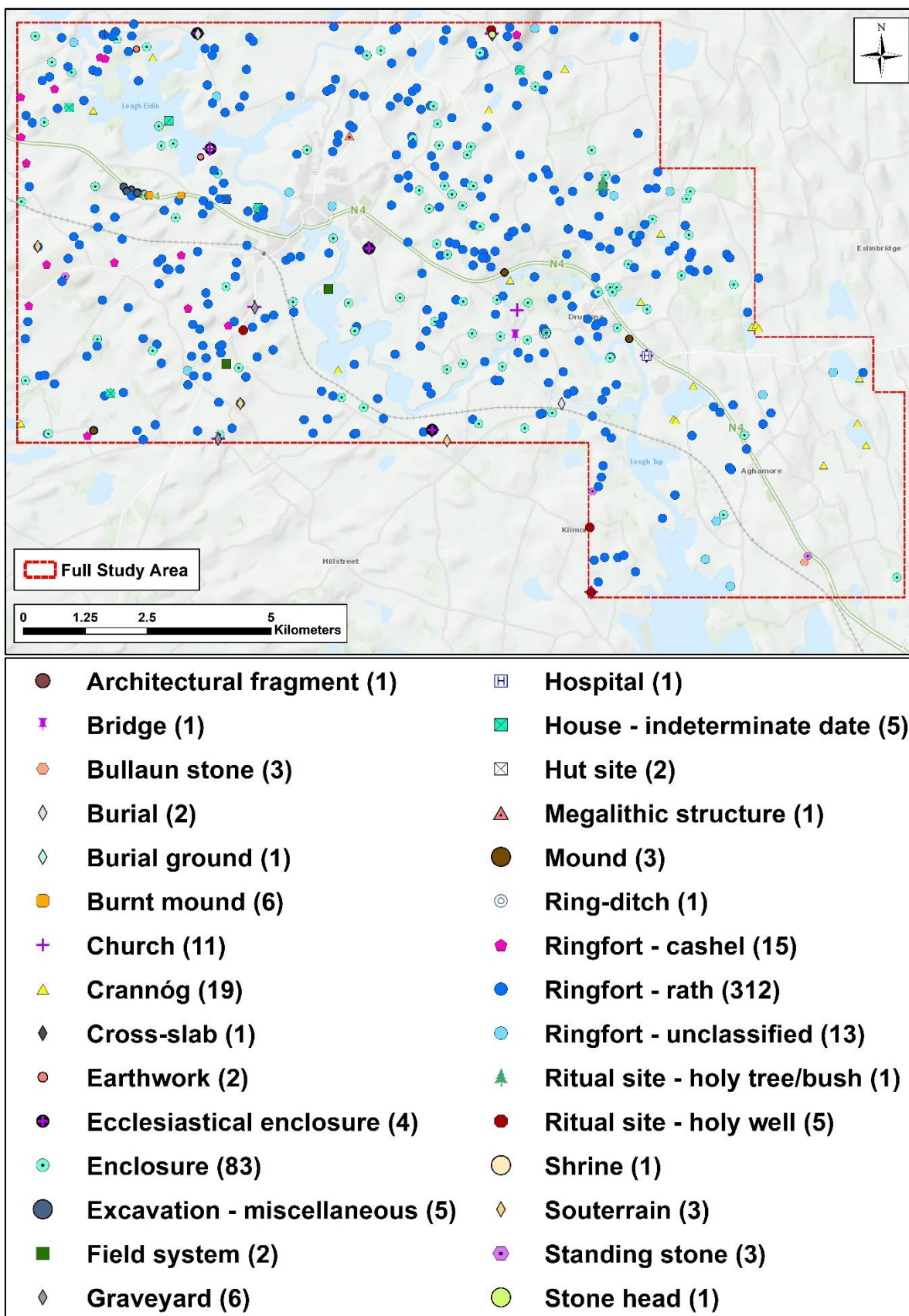


**Figure 4.36** The remains of the interior of the univallate rath at Port, Co. Leitrim (LE027-067) *(Photo S. Curran)*



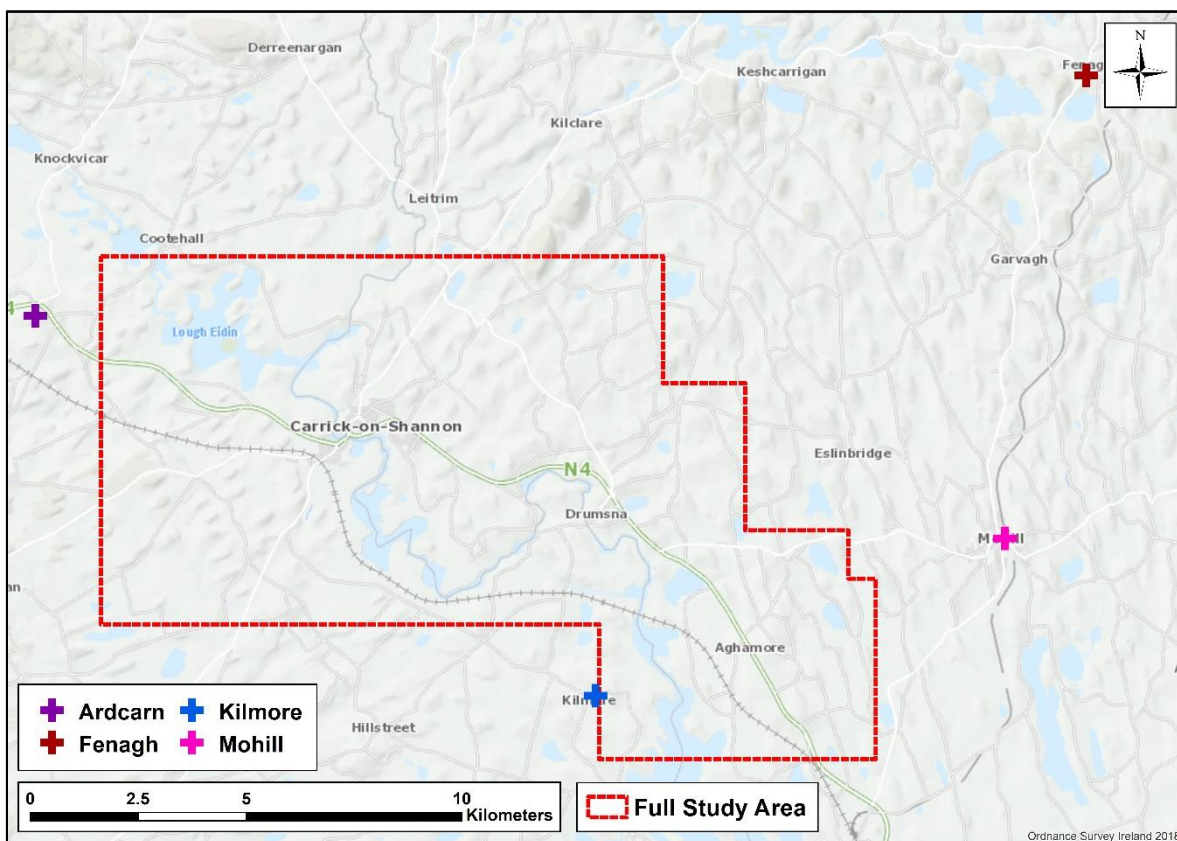


**Figure 4.37** The earth resistance results at the univallate rath at Port, Co. Leitrim (LE027-067)  
*(after OSi MapGenie, with additions)*

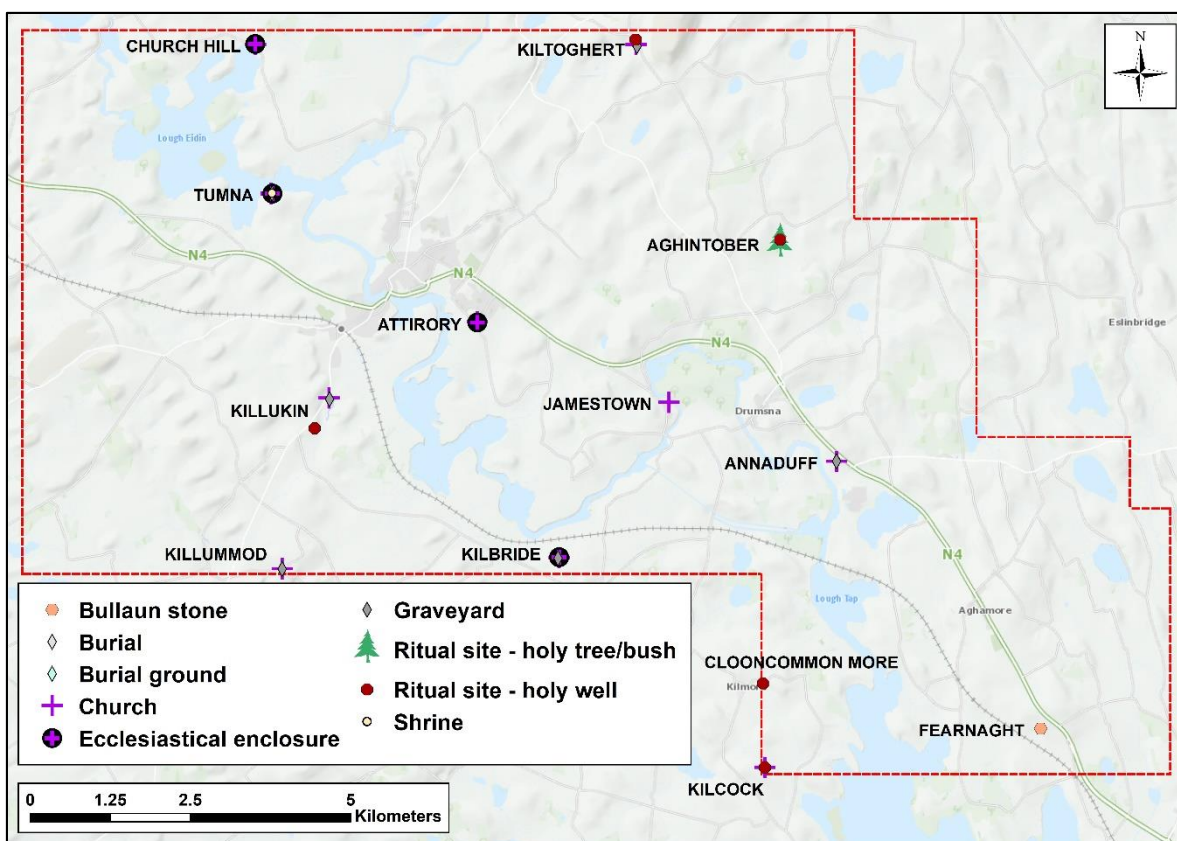


**Figure 4.38** Early medieval monuments within the study area  
*(after SMR; OSi MapGenie, with additions)*

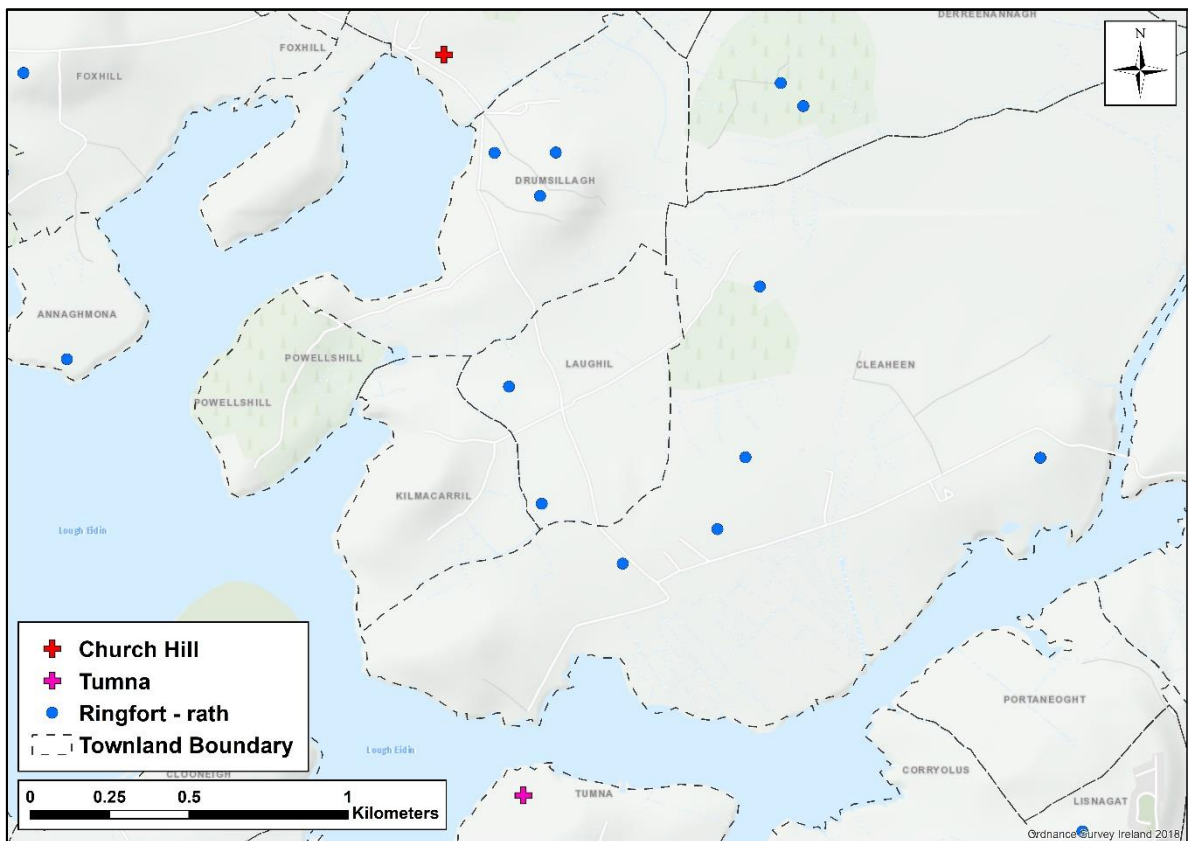




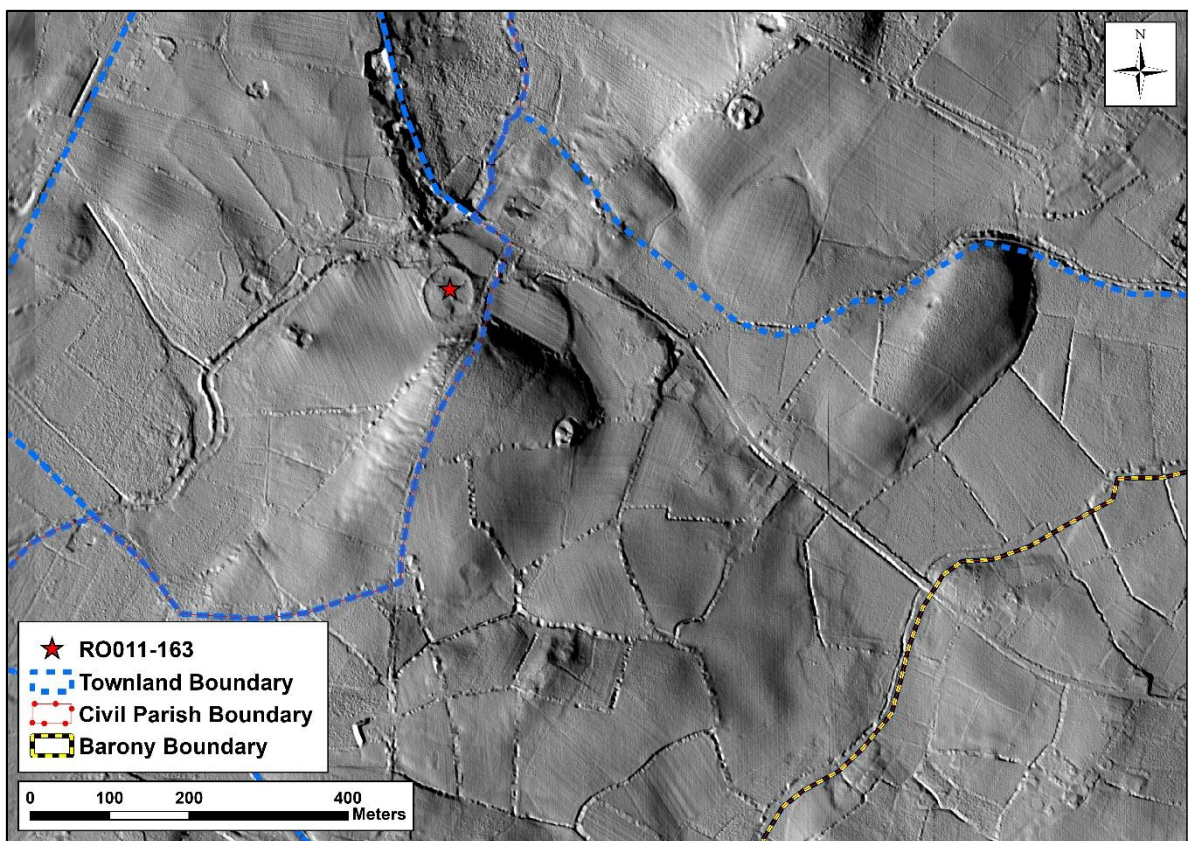
**Figure 4.39** Significant ecclesiastical sites within the environs of the study area  
(after OSi MapGenie, with additions)



**Figure 4.40** Probable early medieval ecclesiastical sites within the study area  
(after OSi MapGenie, with additions)

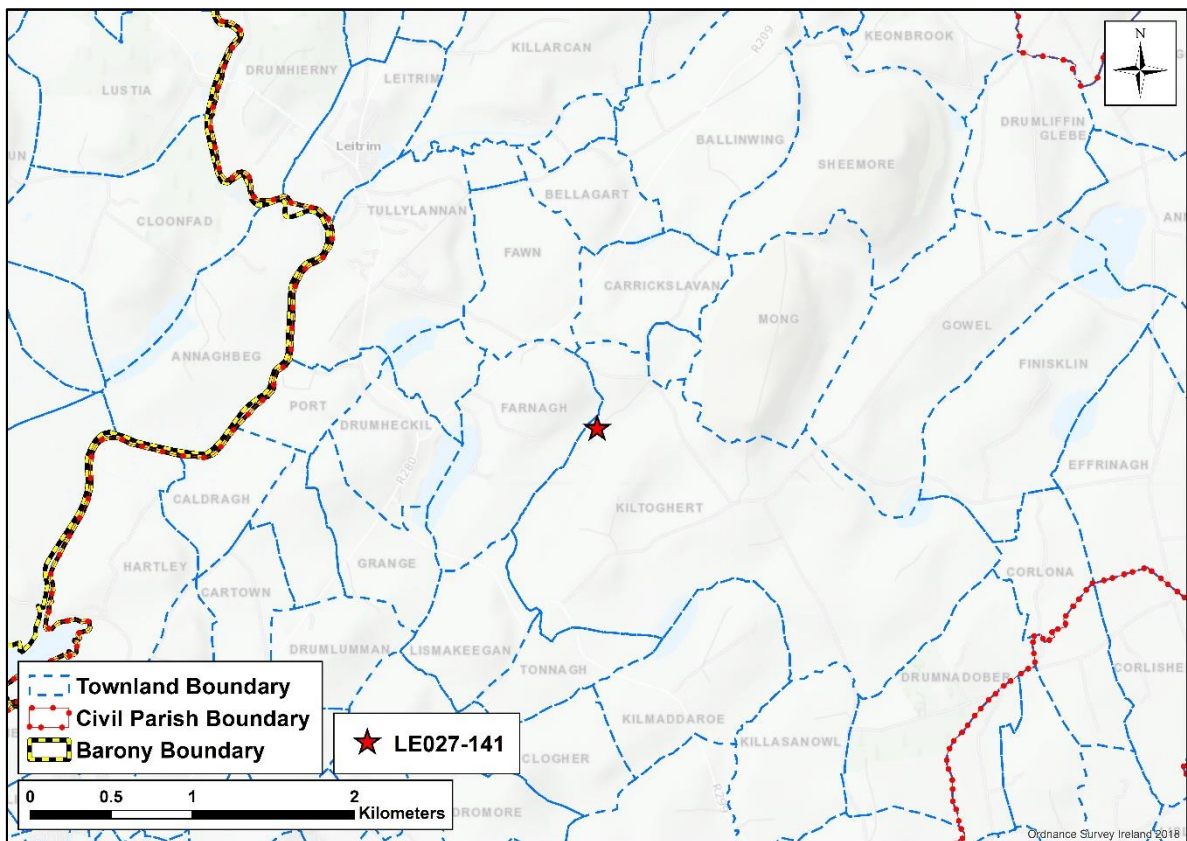


**Figure 4.41** Secular settlements in the environs of Church Hill & Tumna, Co. Roscommon  
(after OSi MapGenie, with additions)

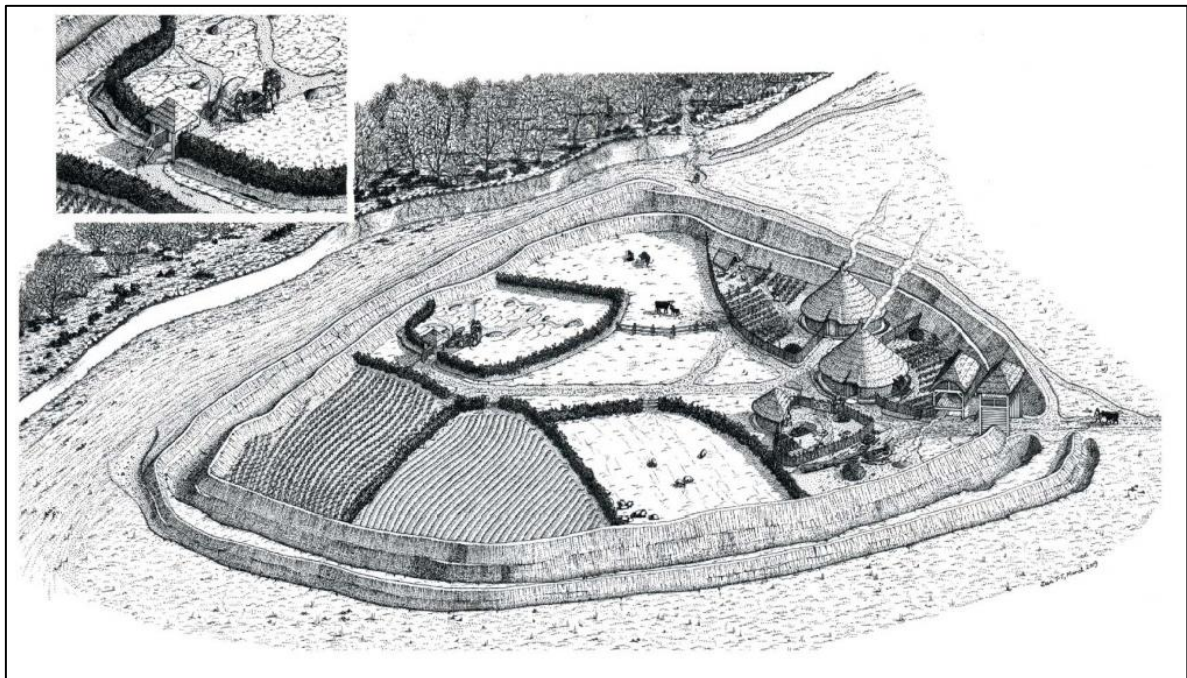


**Figure 4.42** The enclosure at Deerpark, Co. Roscommon in relation to the townland, civil parish, and barony boundaries  
(Hillshade Azi. 280 / Alt. 20)

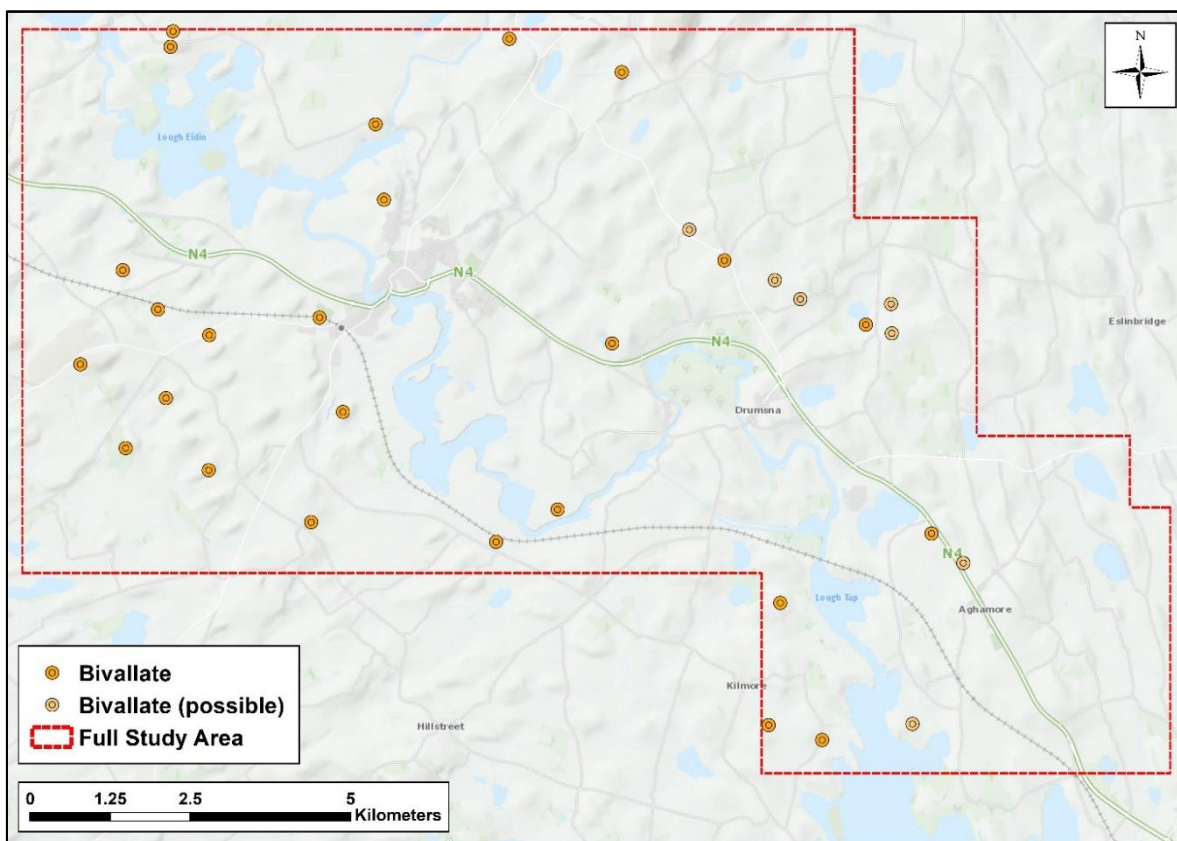




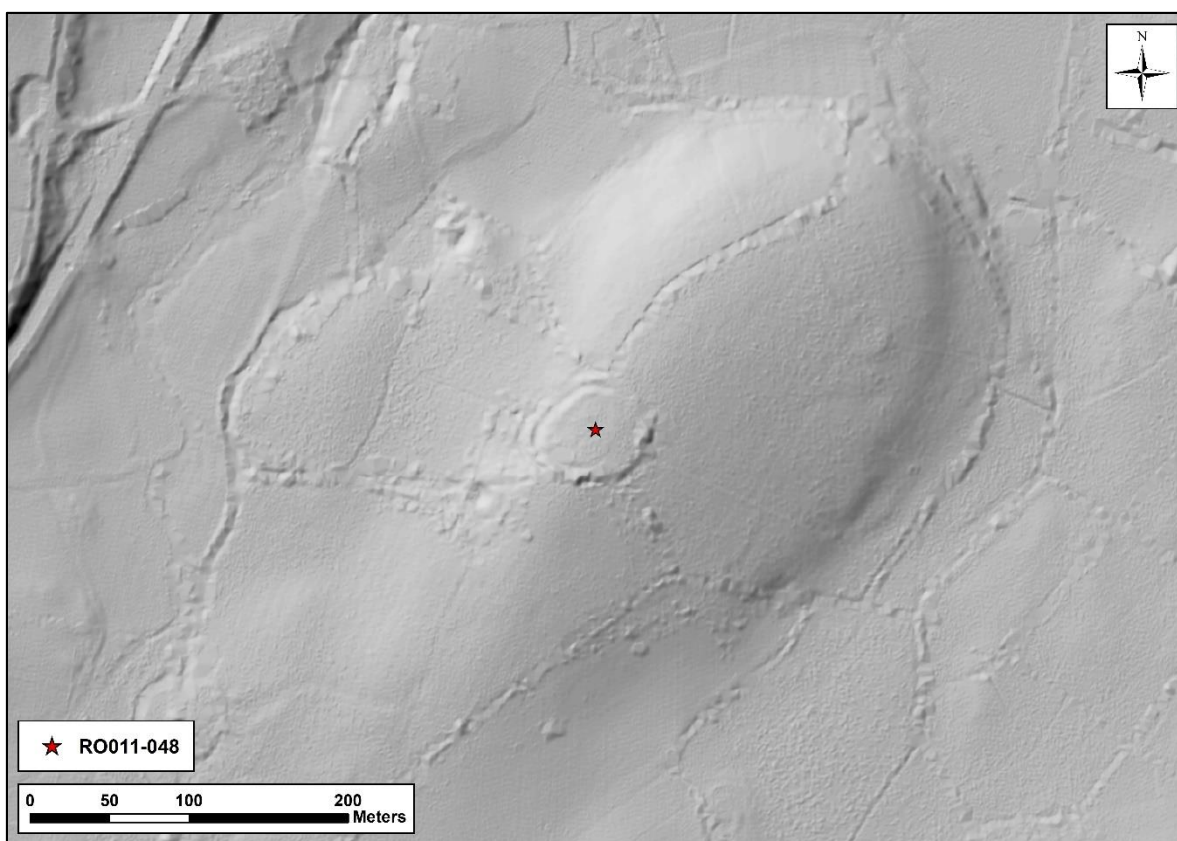
**Figure 4.43** The enclosure at Kiltoghert, Co. Leitrim in relation to the townland, civil parish, and barony boundaries  
(after OSi MapGenie, with additions)



**Figure 4.44** Reconstruction drawing of Parknahown, Co. Laois  
(Drawing by D. Tietzsh-Tyler; after O'Neill 2009, 52)



**Figure 4.45** Distribution of bivalent raths within the study area  
*(after OSi MapGenie, with additions)*

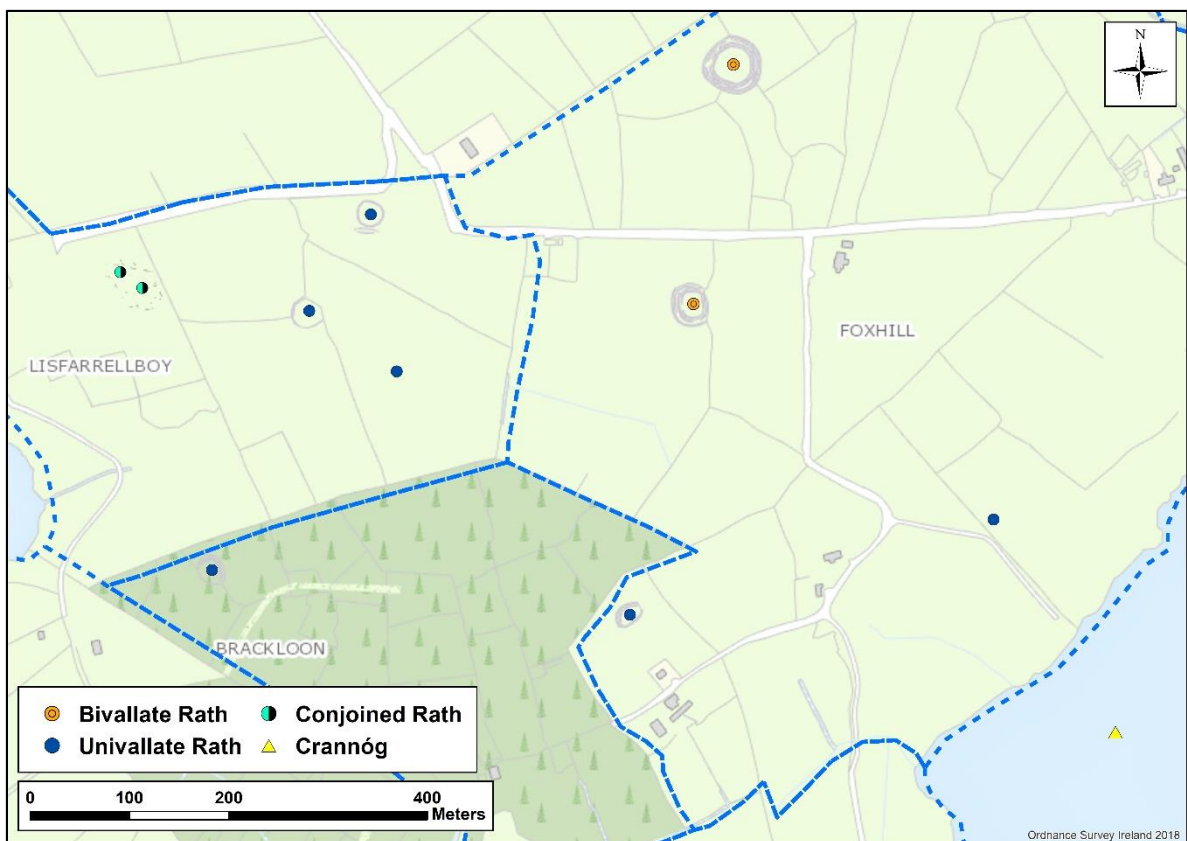


**Figure 4.46** Bivalent rath at Danesfort, Co. Roscommon  
*(Hillshade Azi. 315 / Alt. 60)*



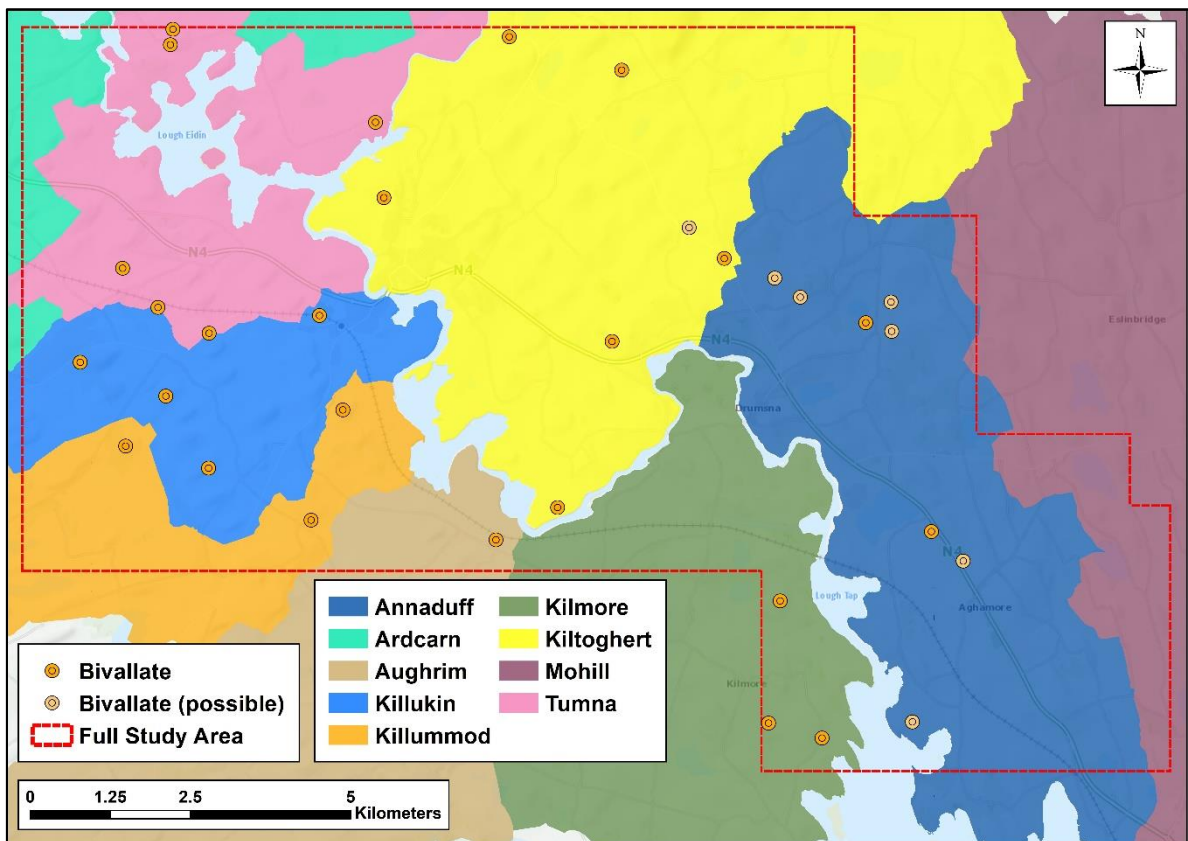


**Figure 4.47** The newly discovered bivallate rath at Coraughrim, Co. Leitrim  
(Hillshade Azi. 315 / Alt. 60) *(after OSi MapGenie, with additions)*

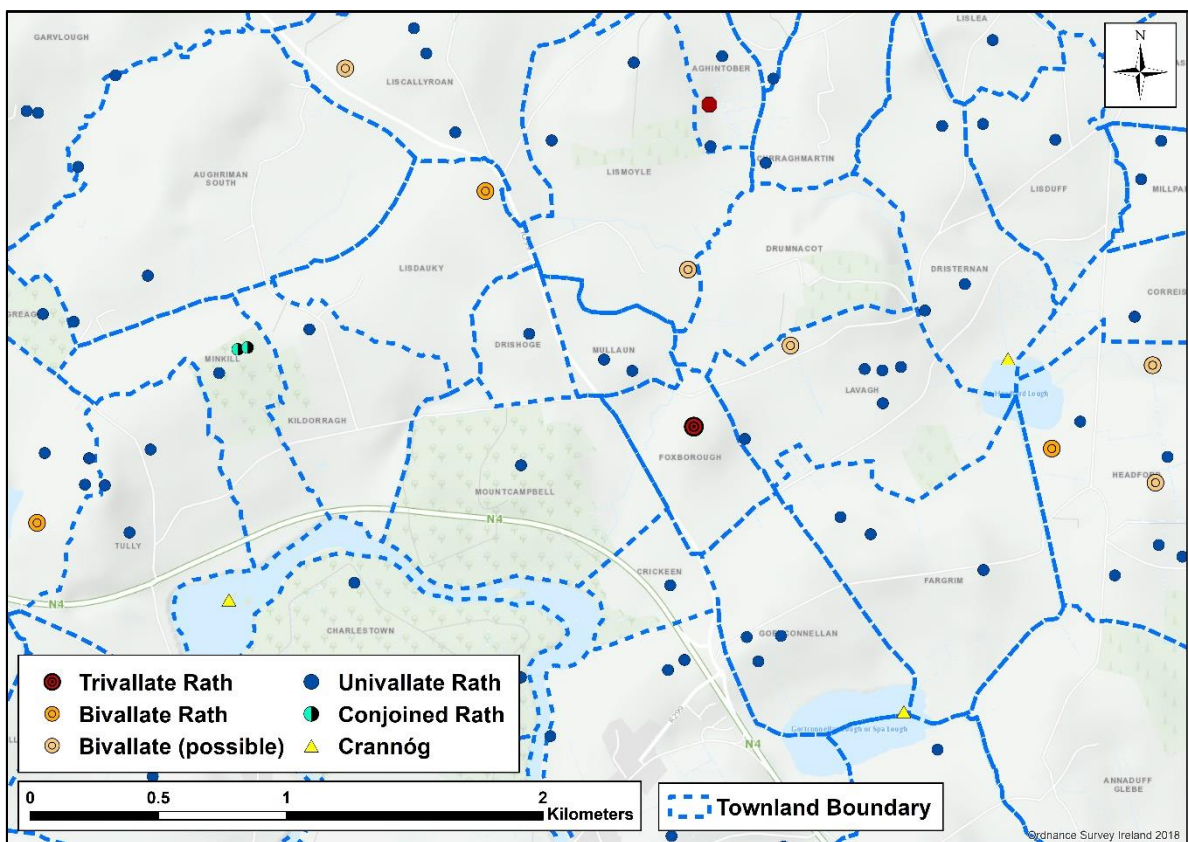


**Figure 4.48** Two bivallate raths at Foxhill, Co. Roscommon  
*(after OSi MapGenie, with additions)*

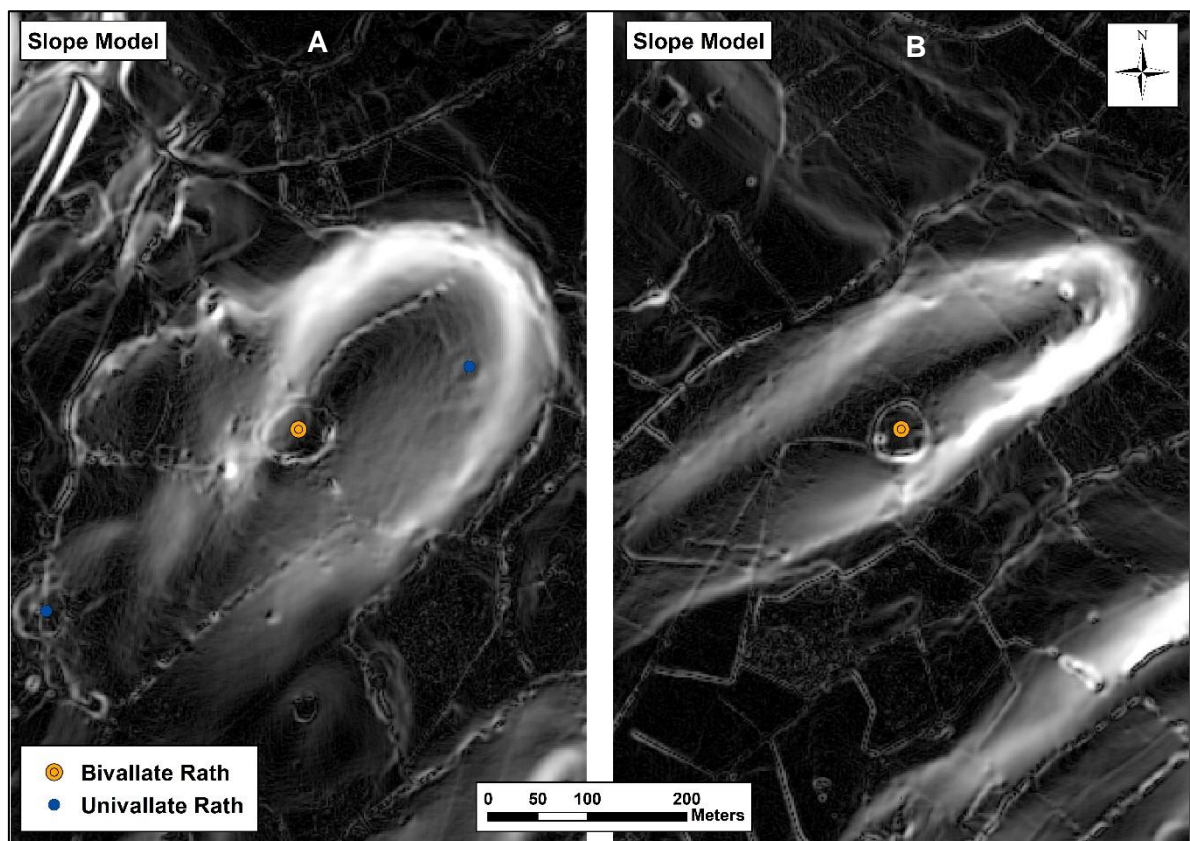




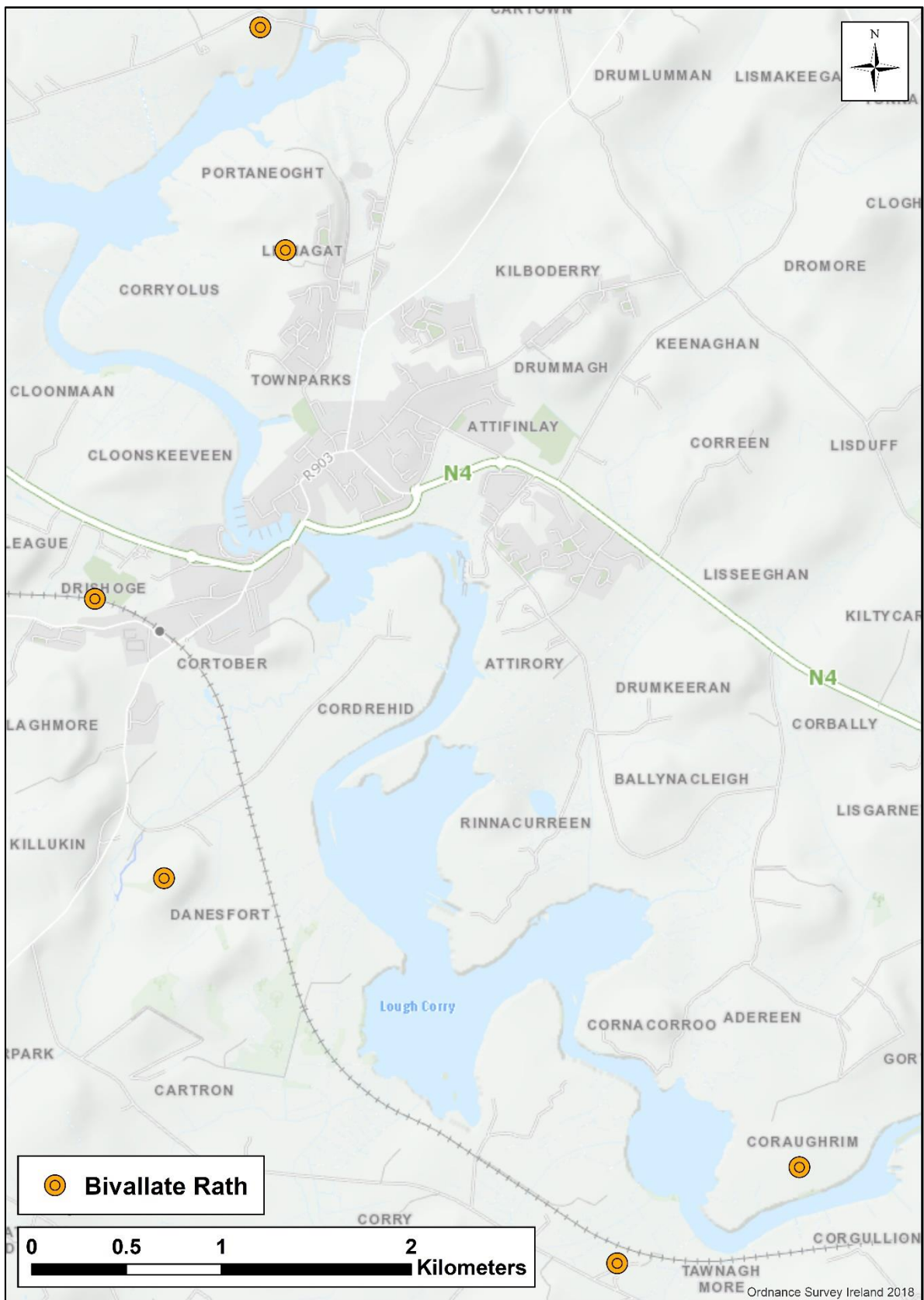
**Figure 4.49** Bivallate rath distribution per civil parish (after OSi MapGenie, with additions)



**Figure 4.50** Bivallate rath distribution within the environs of the trivallate rath at Foxborough, Co. Leitrim (after OSi MapGenie, with additions)

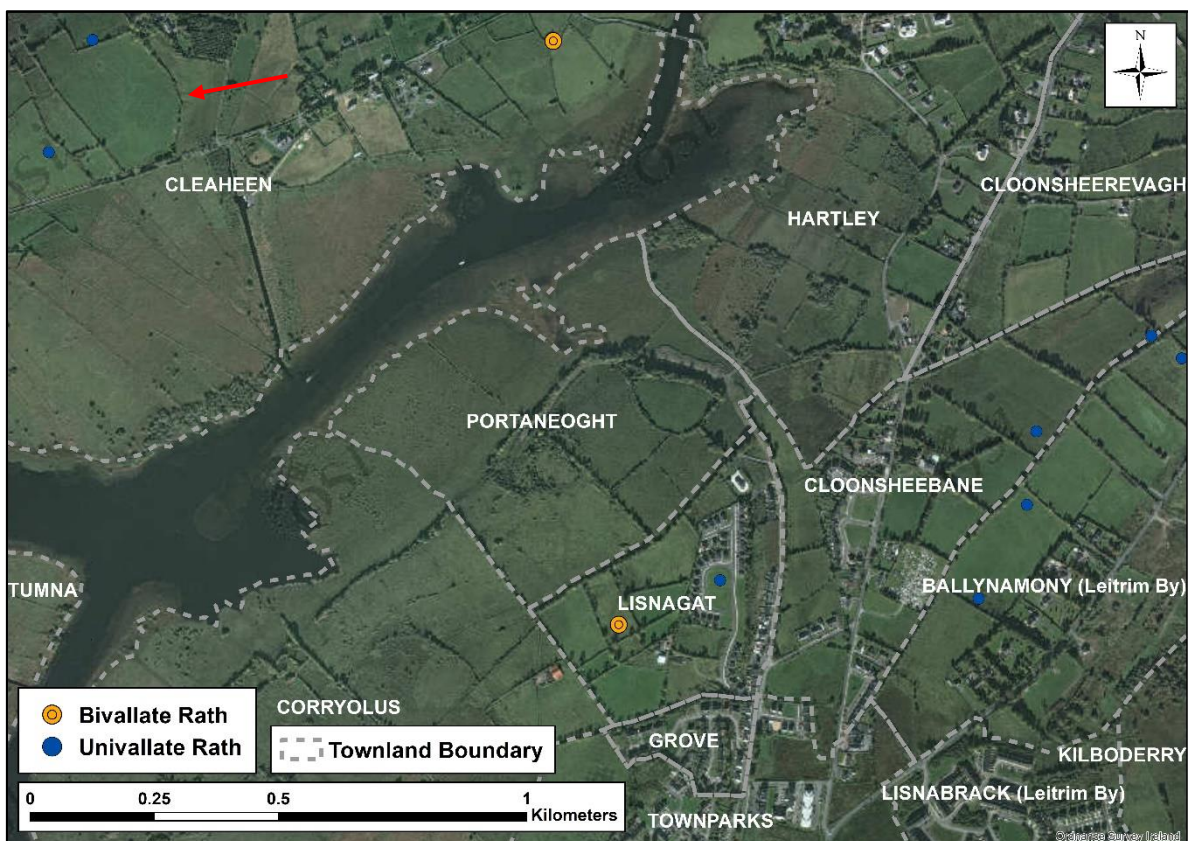


**Figure 4.51** The bivallate raths at (A) Danesfort and (B) Legvoy or Gardenstown  
Co. Roscommon

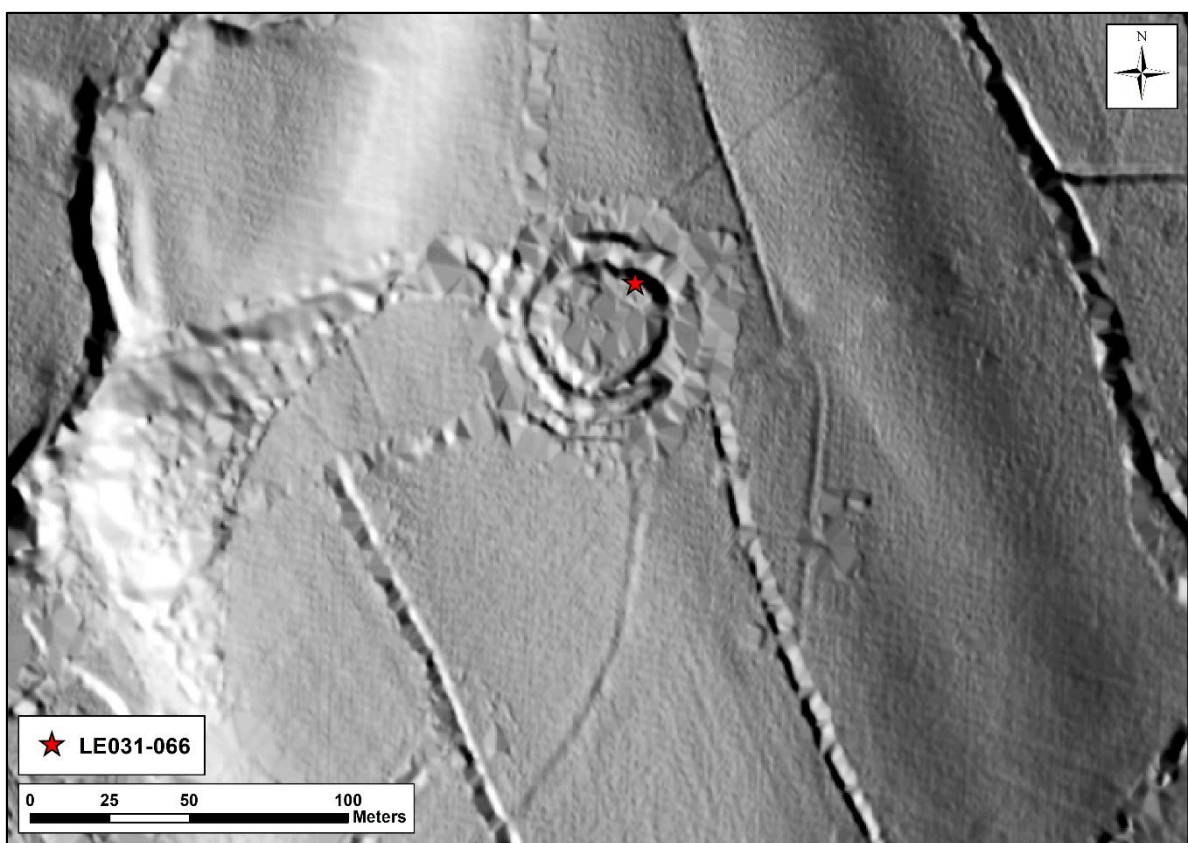


**Figure 4.52** The ‘opposing bivallate pairs’ overlooking the River Shannon  
*(after OSi MapGenie, with additions)*



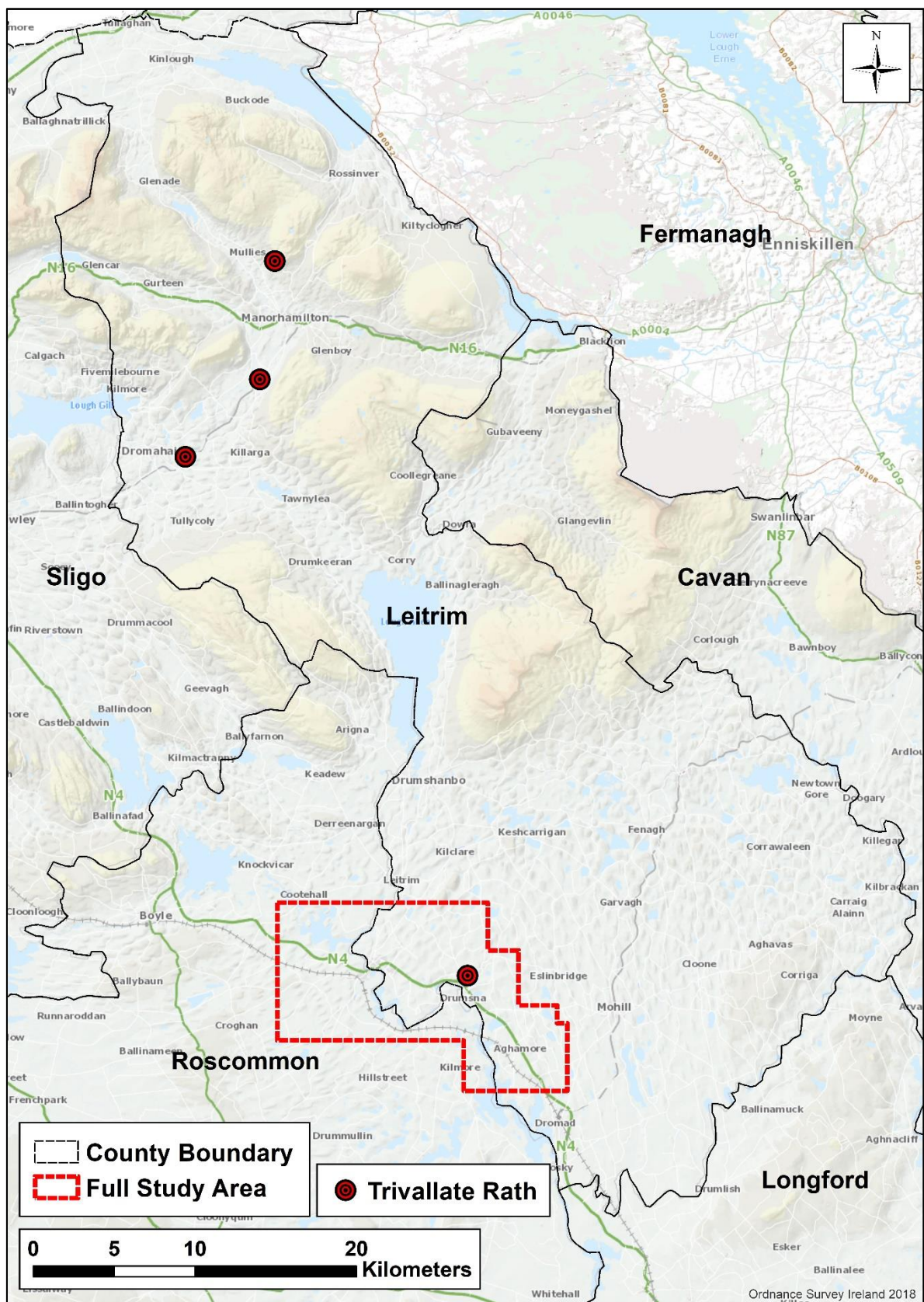


**Figure 4.53** The D-shaped field boundary at Cleaheen, Co. Roscommon  
(after OSi MapGenie, with additions)

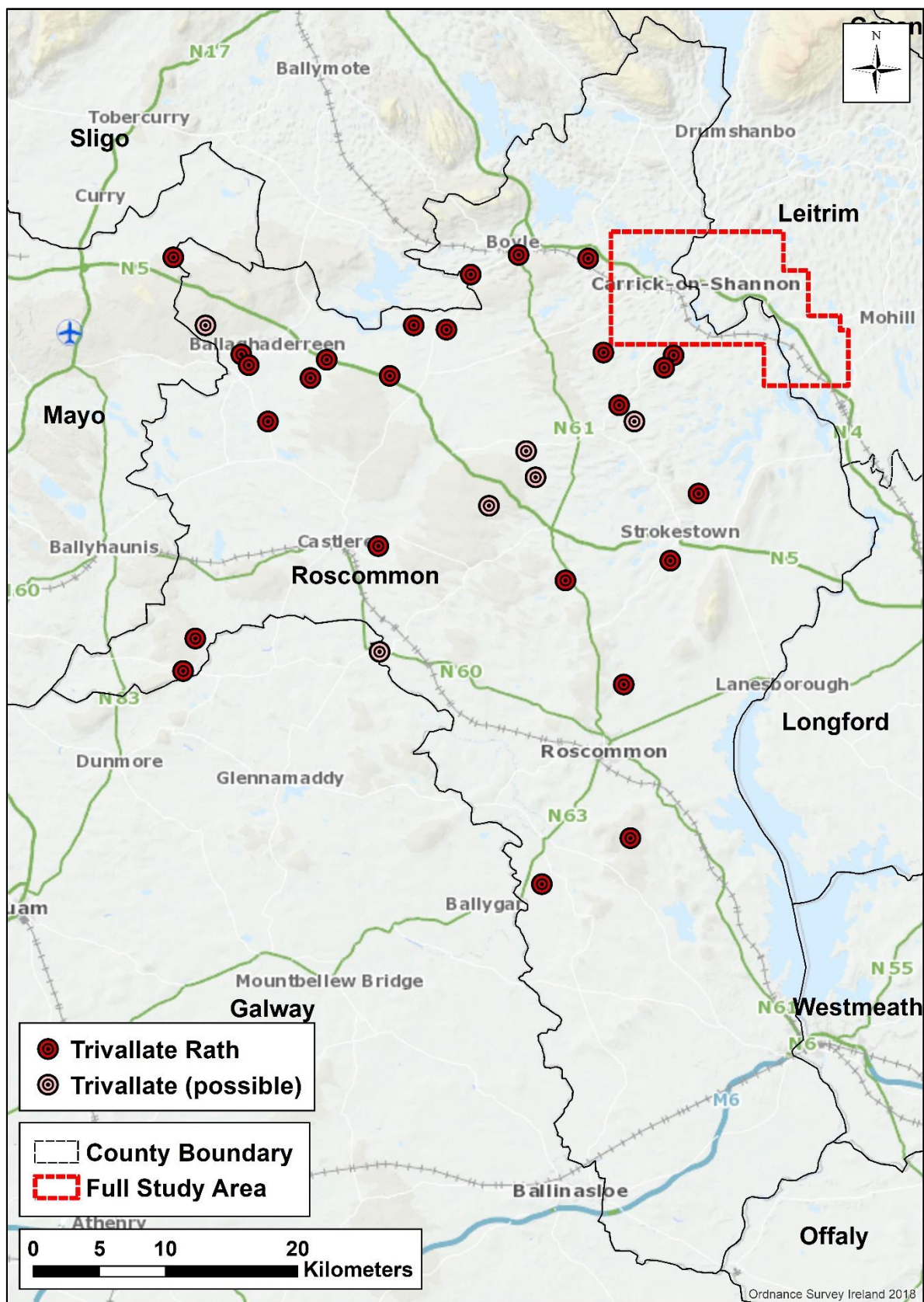


**Figure 4.54** Lidar image of the trivallate rath at Foxborough, Co. Leitrim  
(Hillshade Azi. 280 / Alt. 20)



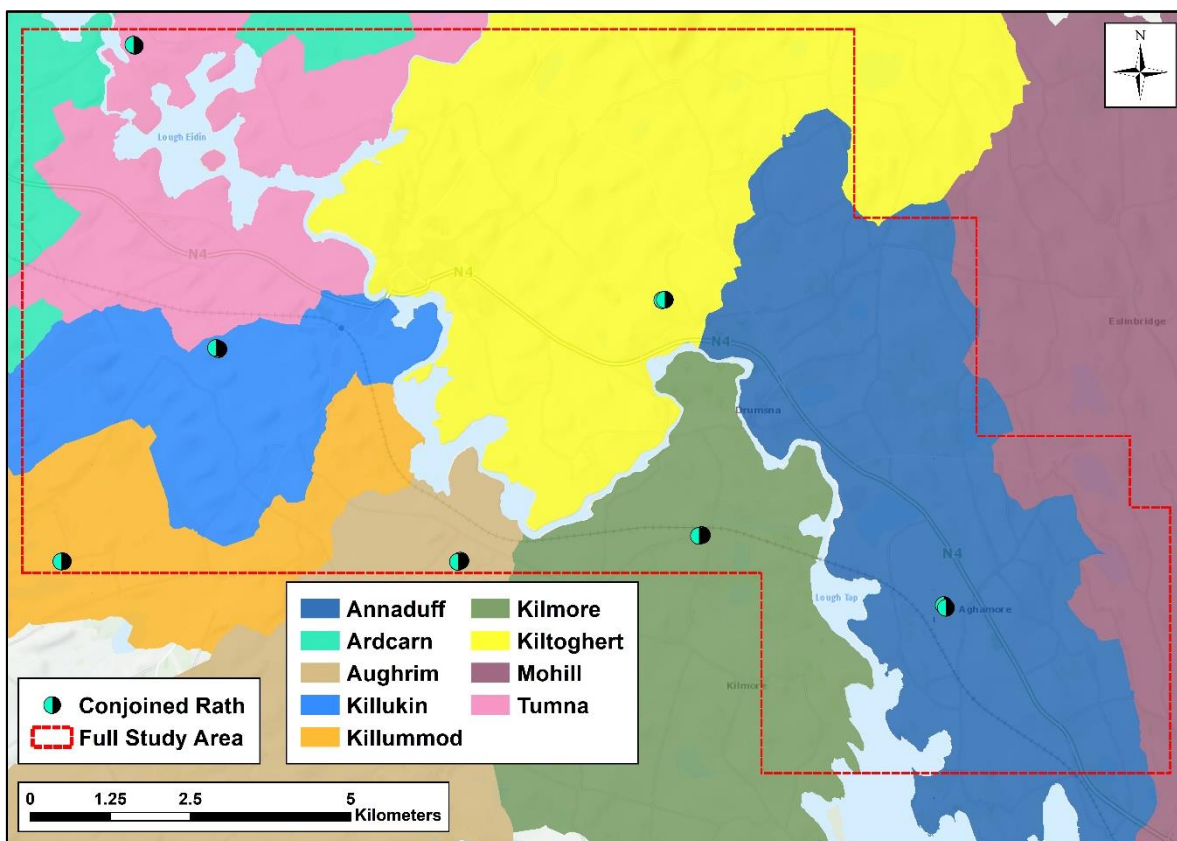


**Figure 4.55** Distribution of trivallate raths in Co. Leitrim  
*(after SMR; OSi MapGenie, with additions)*

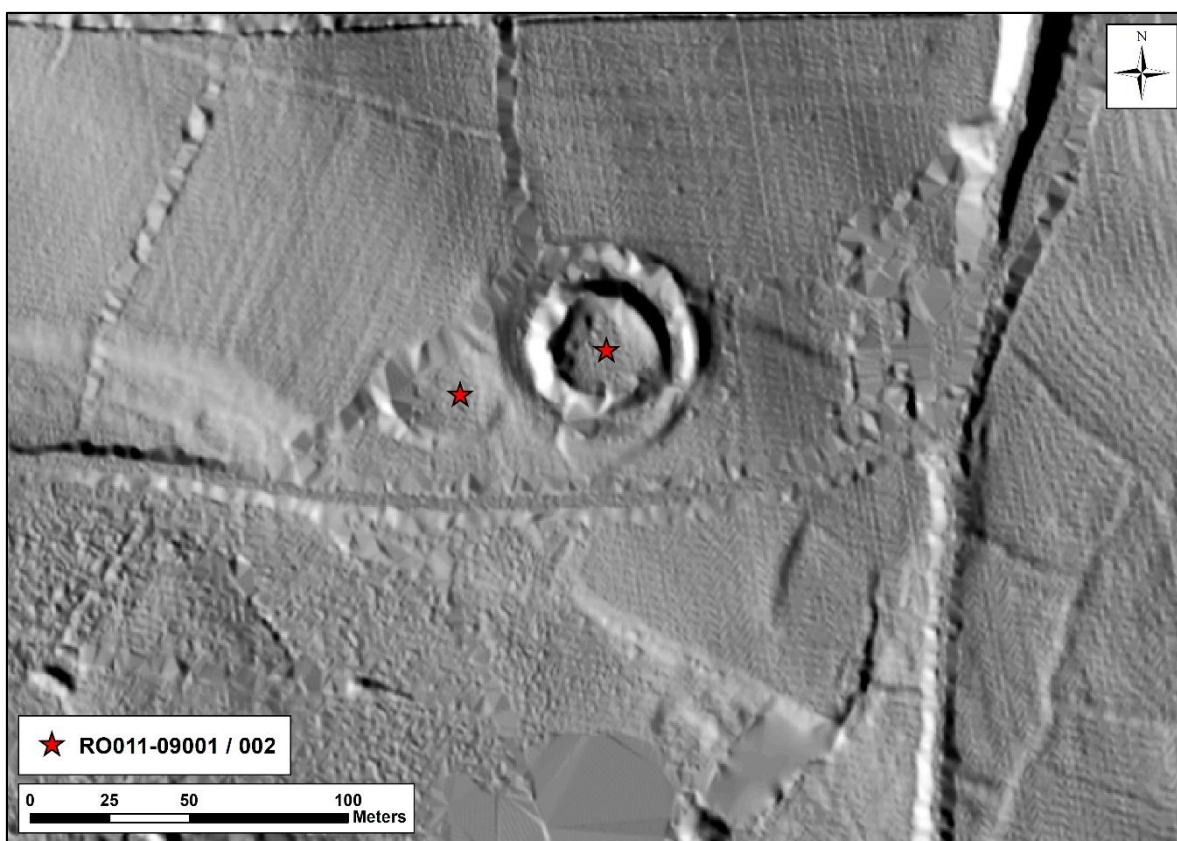


**Figure 4.56** Distribution of trivallate raths in Co. Roscommon  
*(after SMR; OSi MapGenie, with additions)*



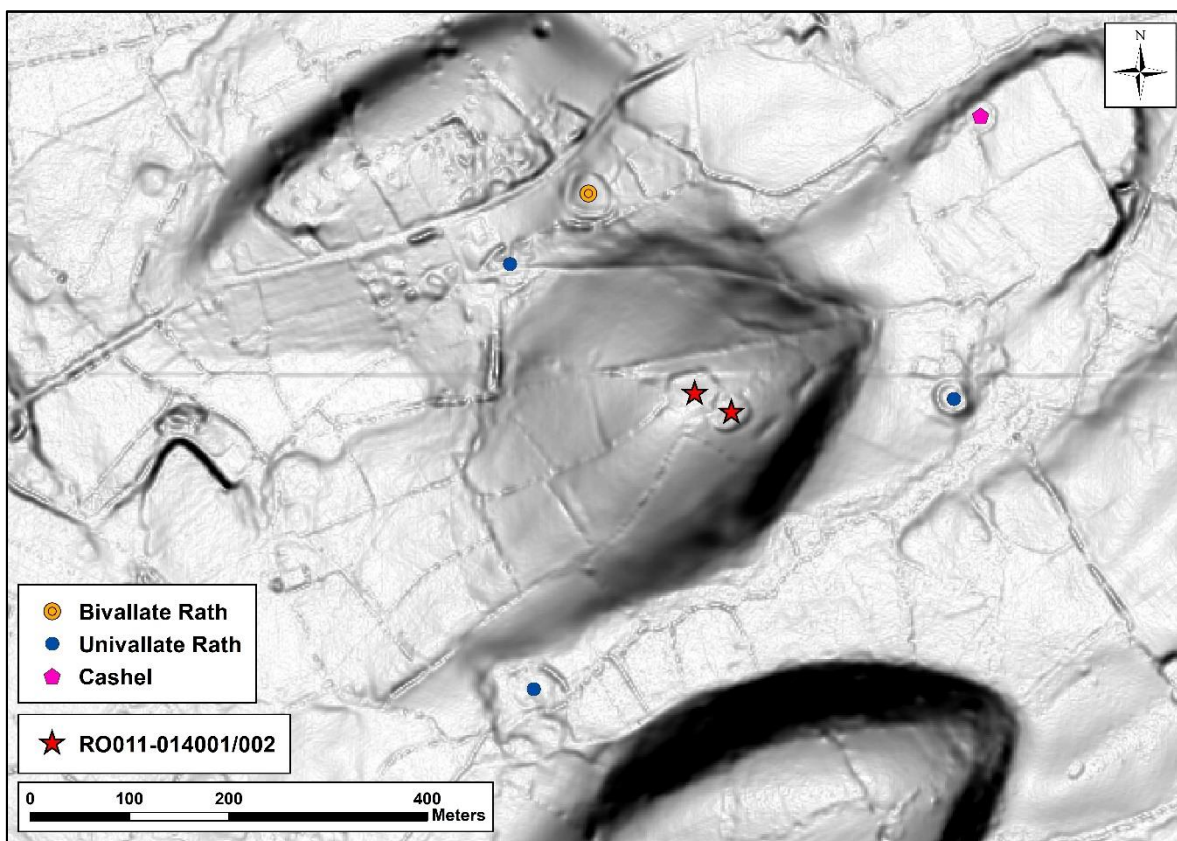


**Figure 4.57** Distribution of conjoined raths within the study area  
(after OSi MapGenie, with additions)

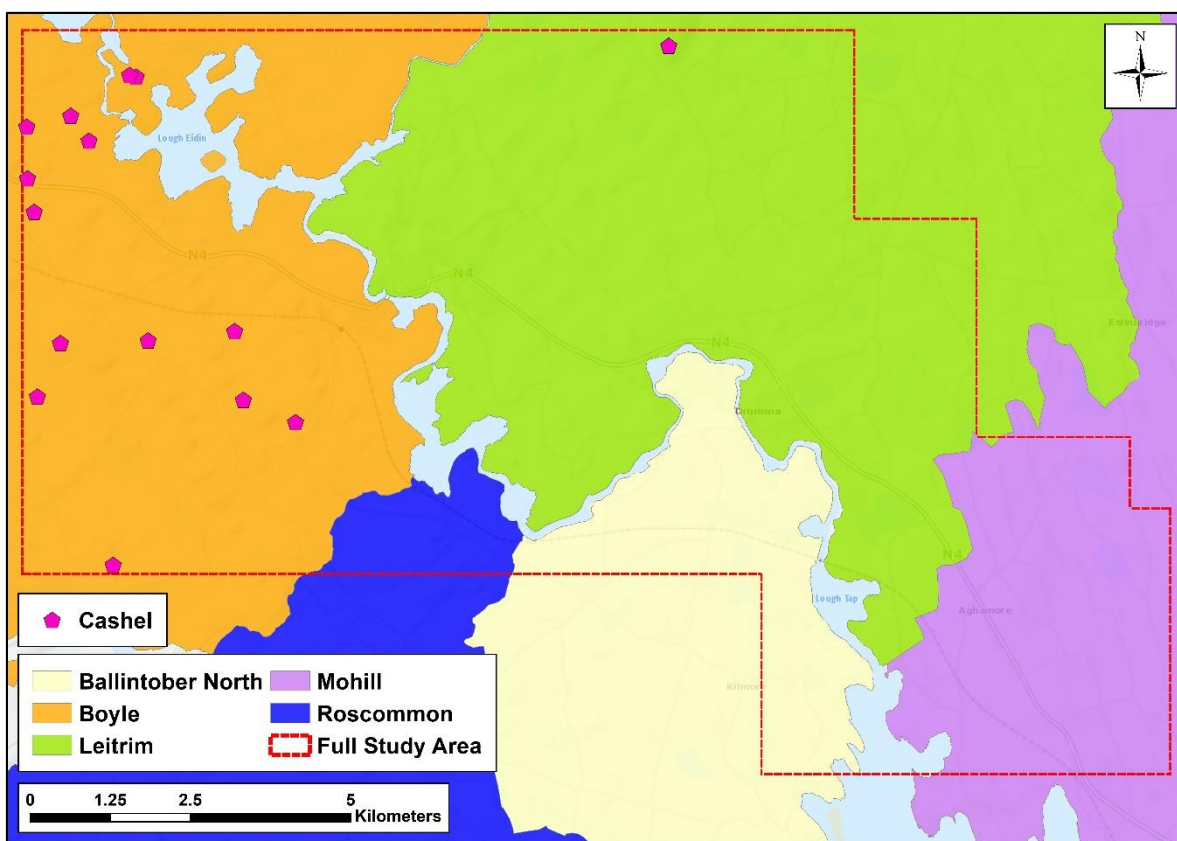


**Figure 4.58** The conjoined rath at Corralara, Co. Roscommon (Hillshade Azi. 280 / Alt. 20)

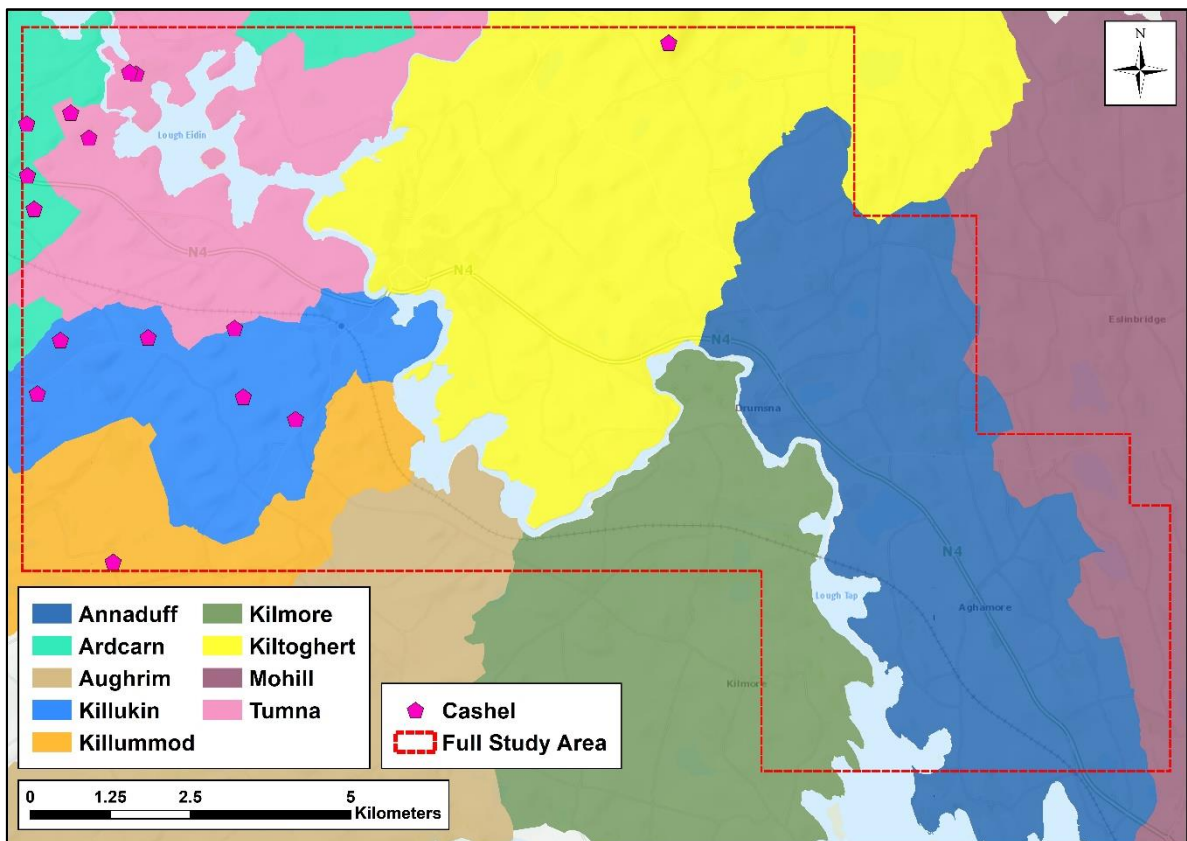




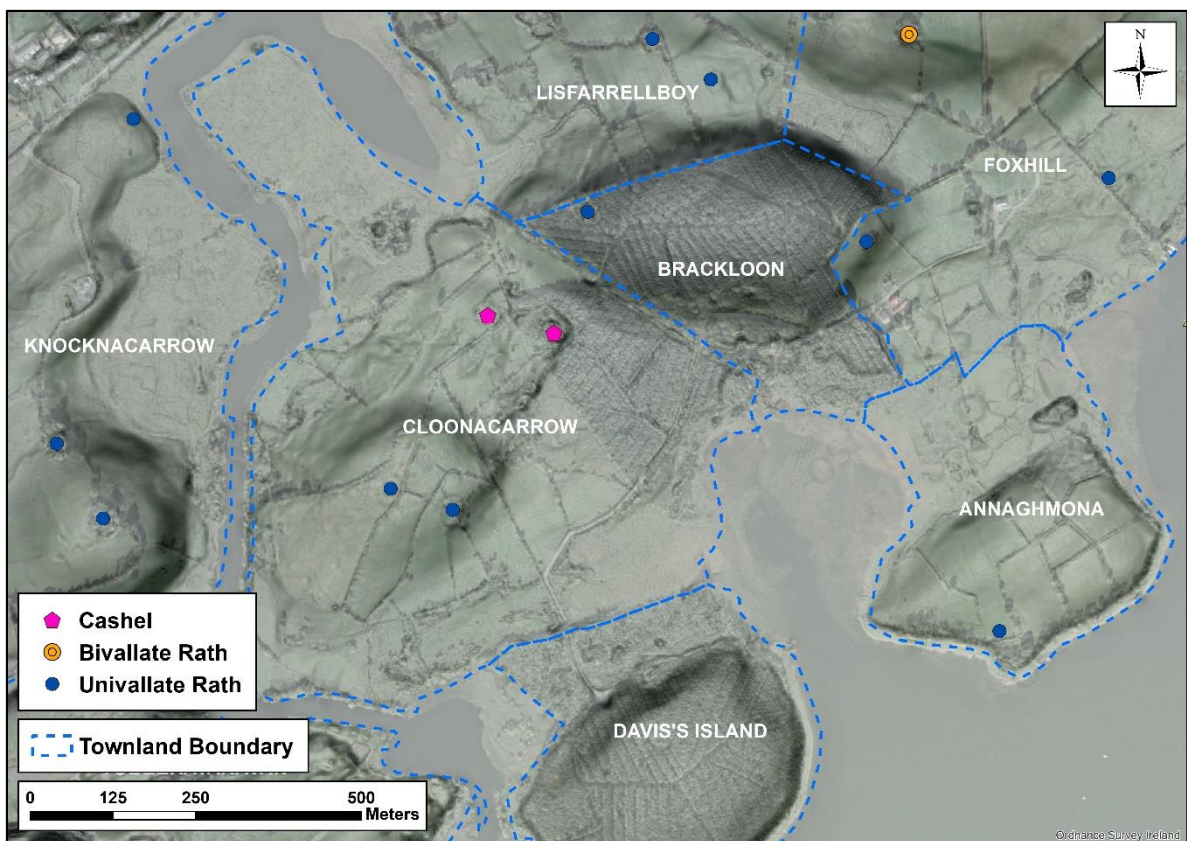
**Figure 4.59** The conjoined rath at Tawlaght, Co. Roscommon and surrounding settlement  
(*Slope model*)



**Figure 4.60** Distribution of cashels within the study area  
(*after SMR; OSi MapGenie, with additions*)

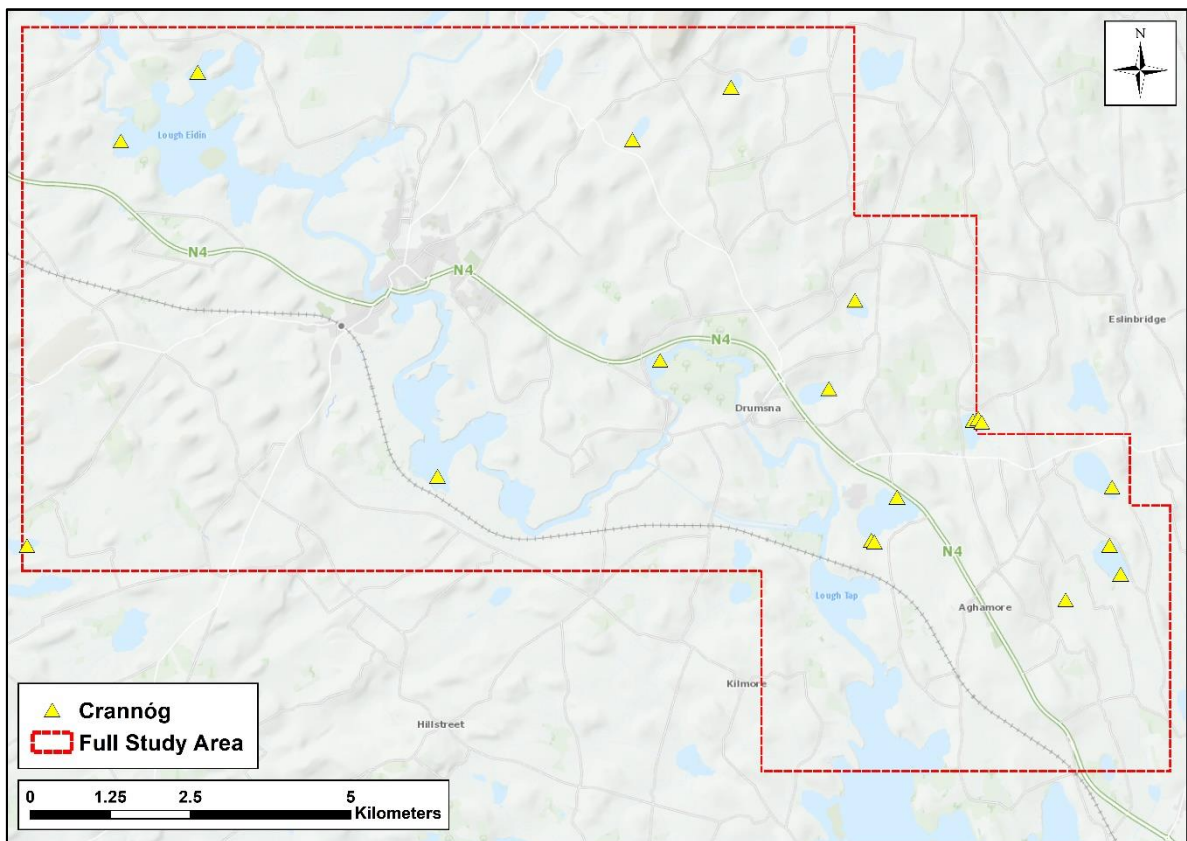


**Figure 4.61** Distribution of cashels in relation to civil parish boundaries  
(after OSi MapGenie, with additions)

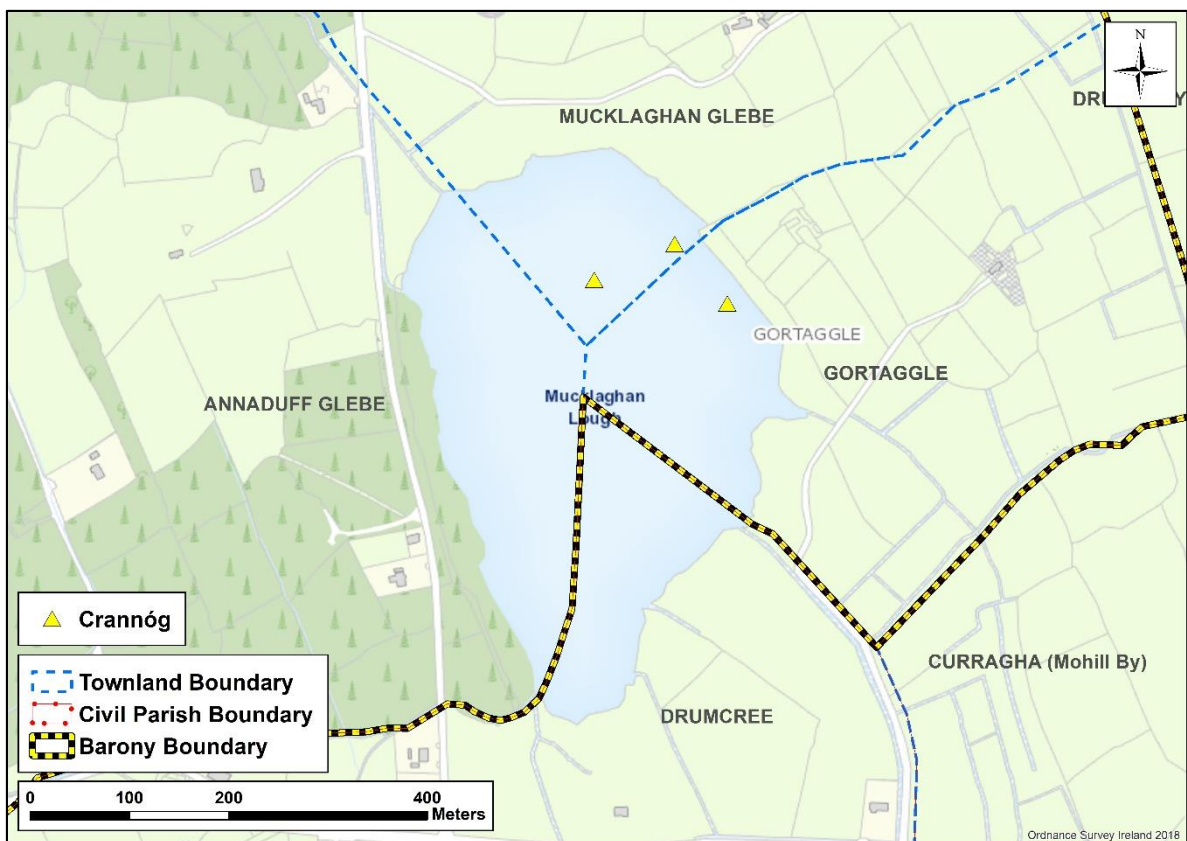


**Figure 4.62** Cashels and raths on Davis's Island, Co. Roscommon  
(after OSi MapGenie, with additions)

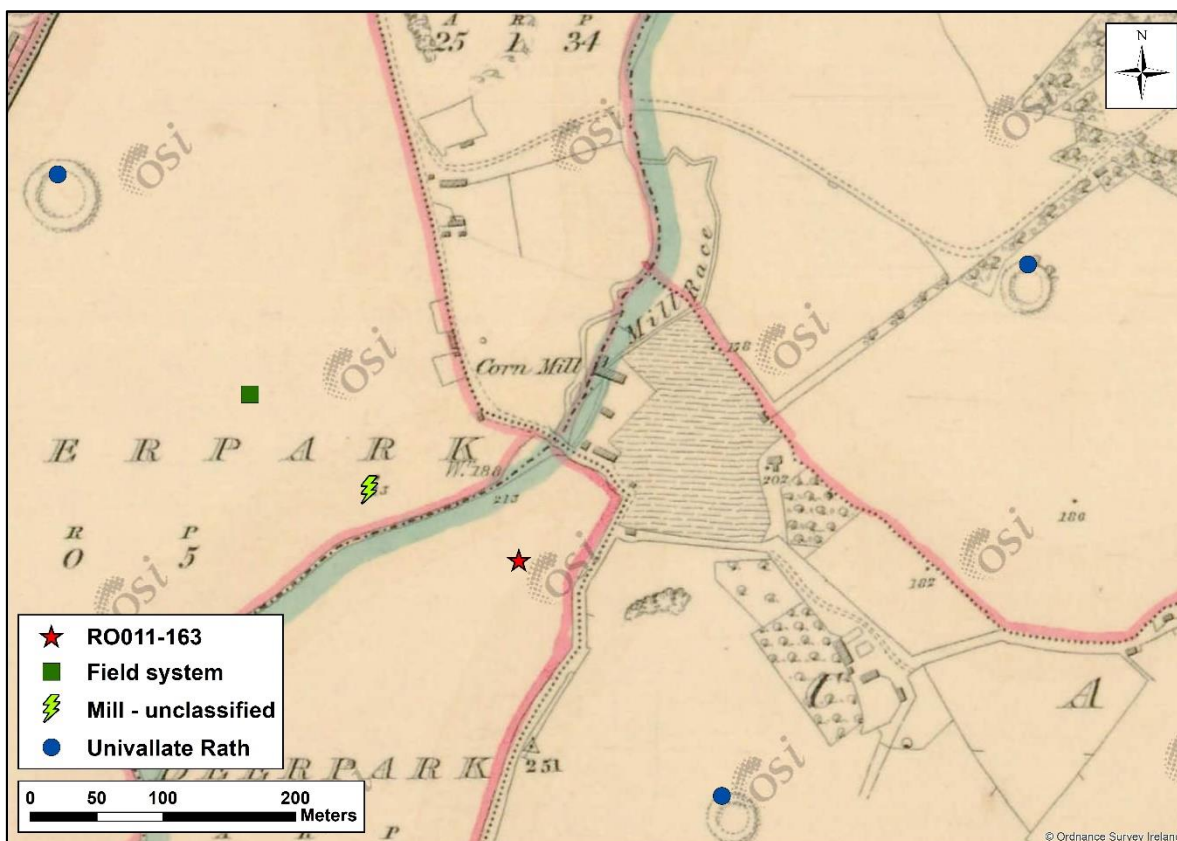




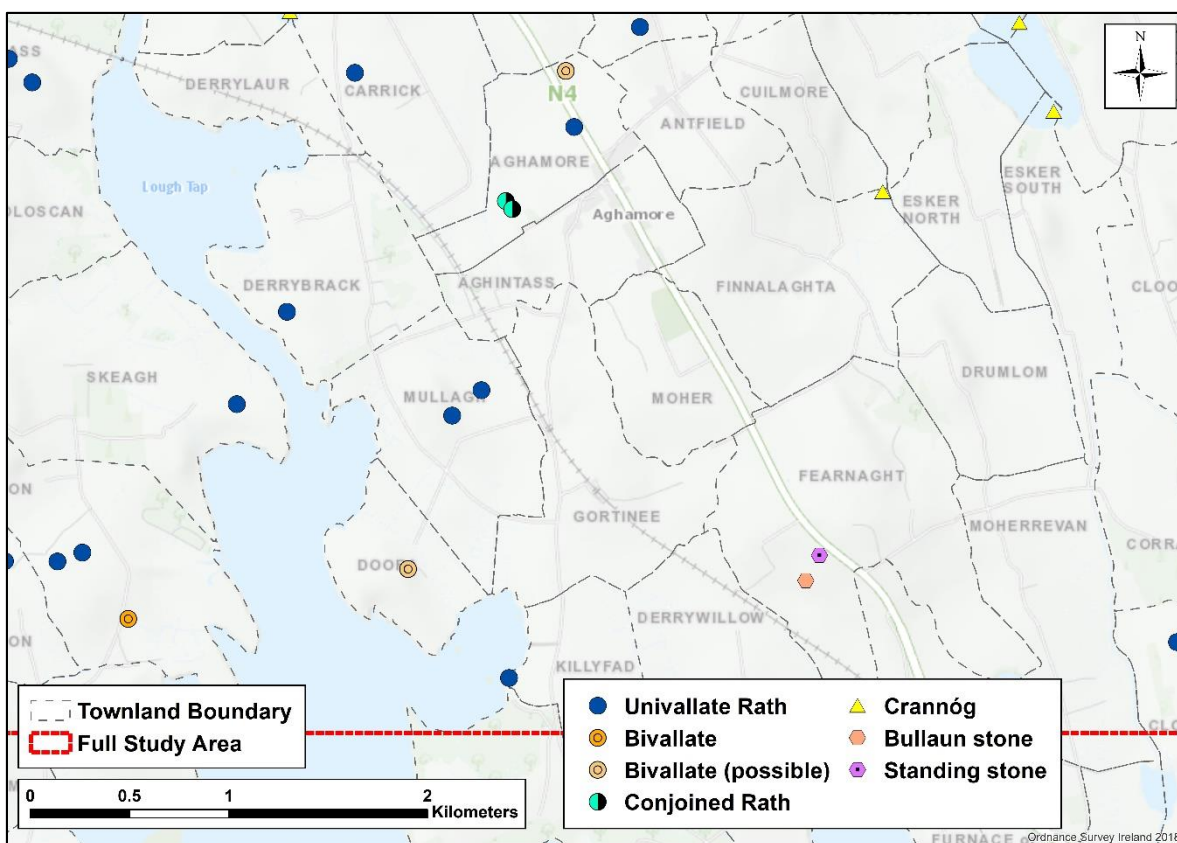
**Figure 4.63** Distribution of crannógs within the study area  
(after SMR; OSi MapGenie, with additions)



**Figure 4.64** Crannógs on Mucklaghan Lough, Co. Leitrim  
(after OSi MapGenie, with additions)

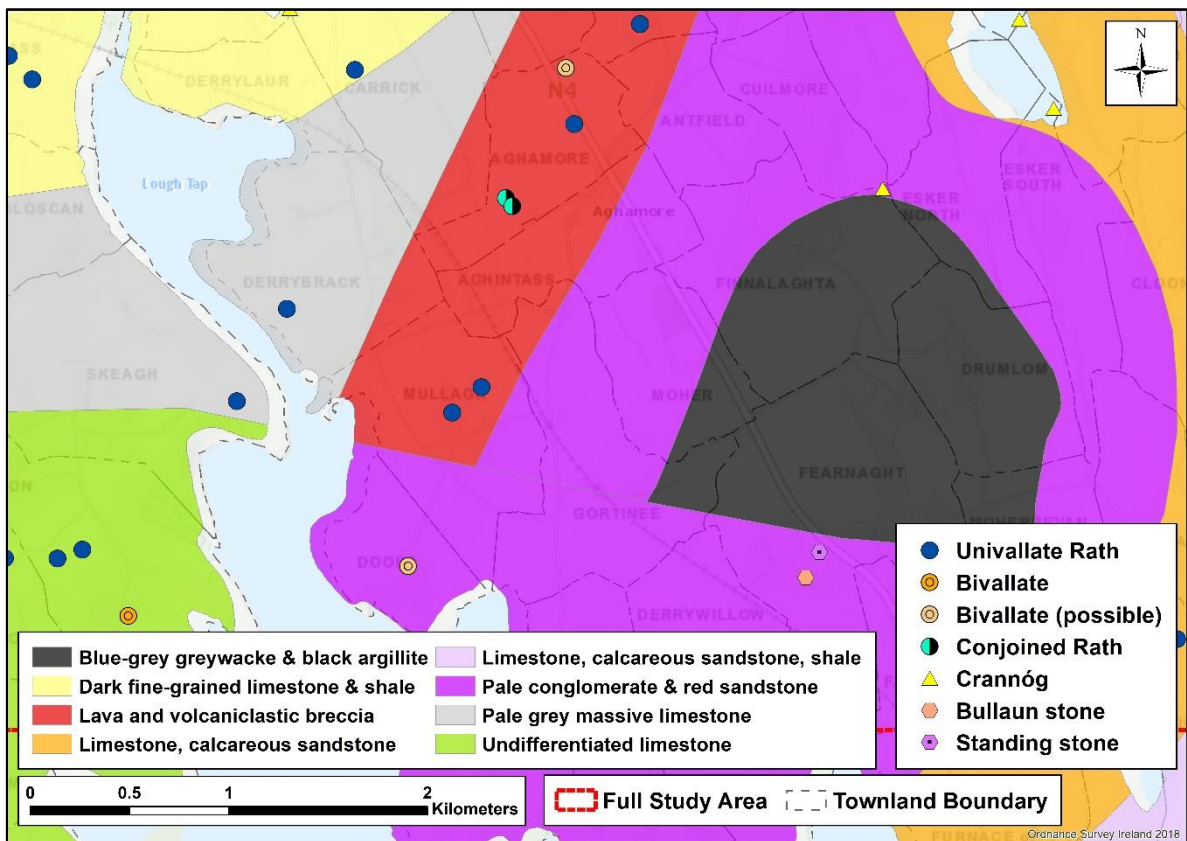


**Figure 4.65** The potential cemetery at Deerpark, Co. Roscommon and its environs  
(after OSi MapGenie, with additions)

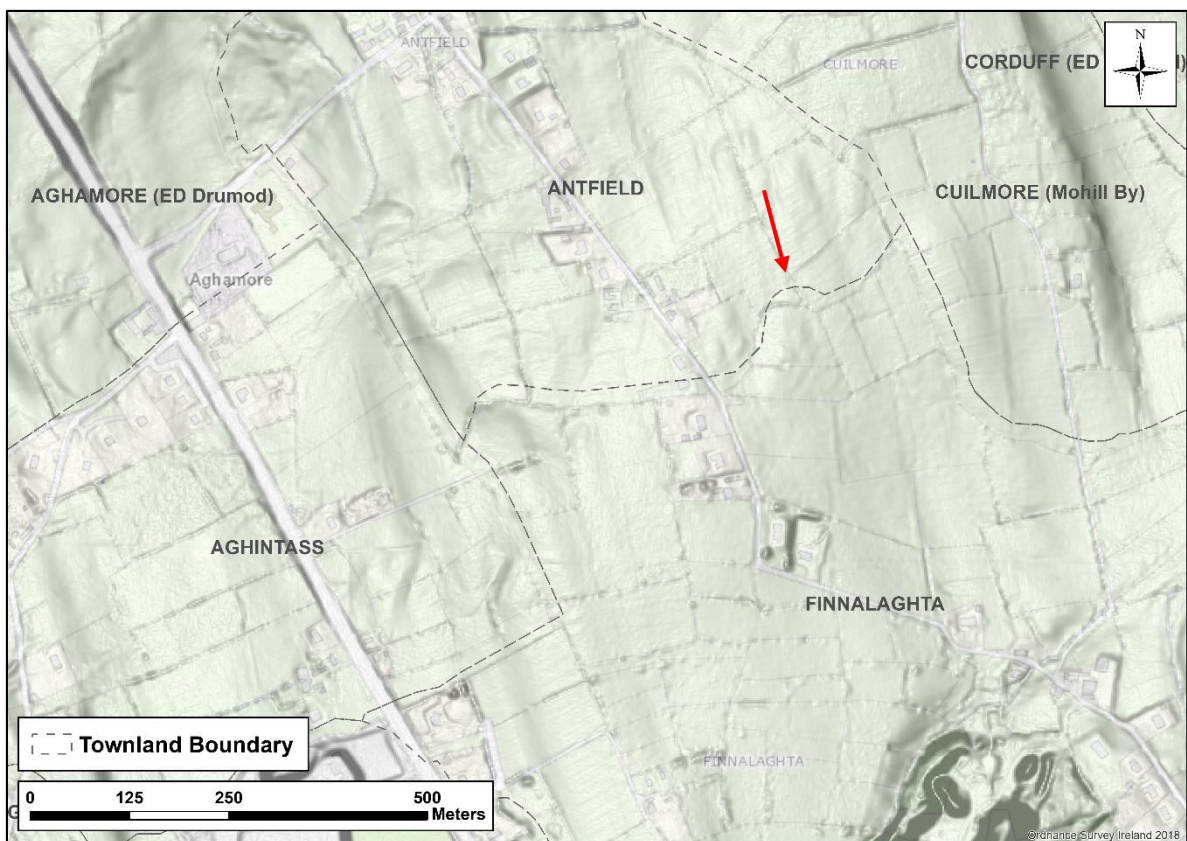


**Figure 4.66** The sparsely settled south-eastern portion of the study area  
(after OSi MapGenie, with additions)



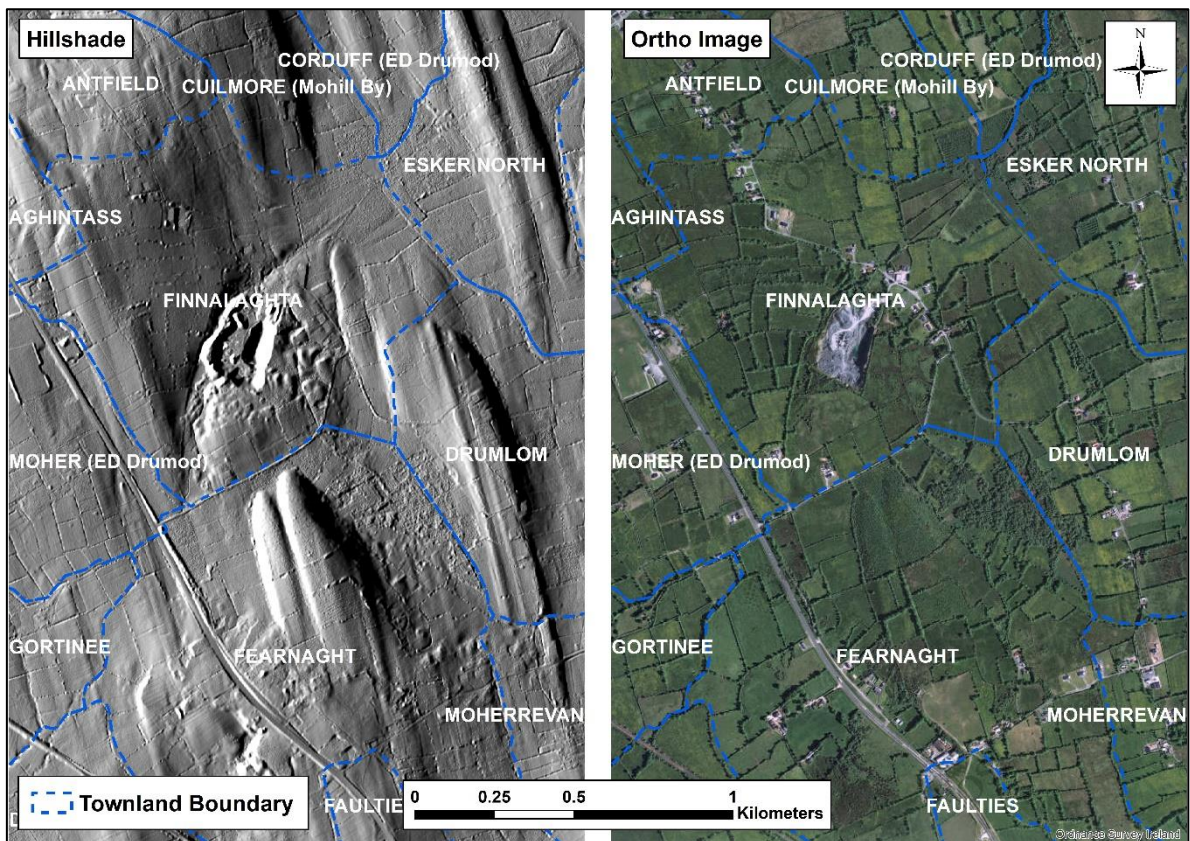


**Figure 4.67** The geology of the sparsely settled south-eastern portion of the study area  
(after GSI; OSi MapGenie, with additions)

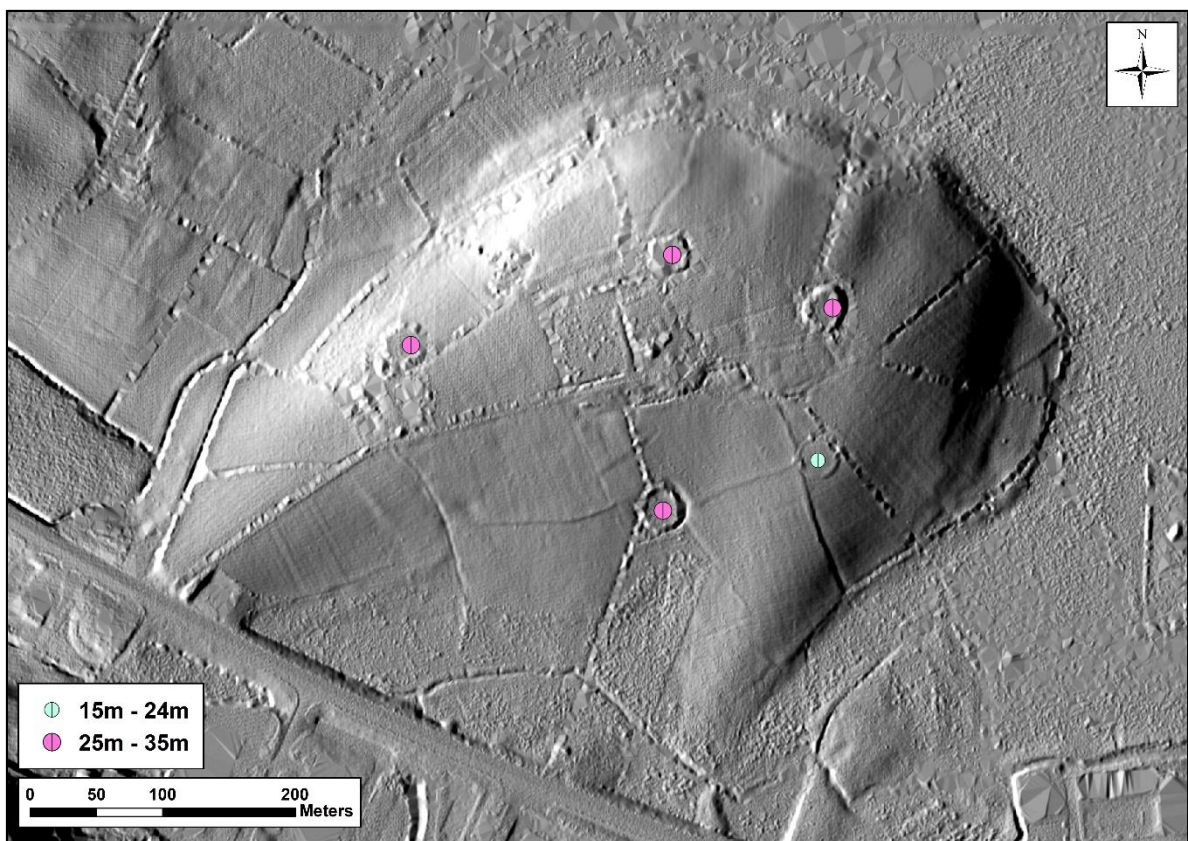


**Figure 4.68** The curving field boundary between Antfield and Finnalaghta, Co. Leitrim  
(after OSi MapGenie, with additions)



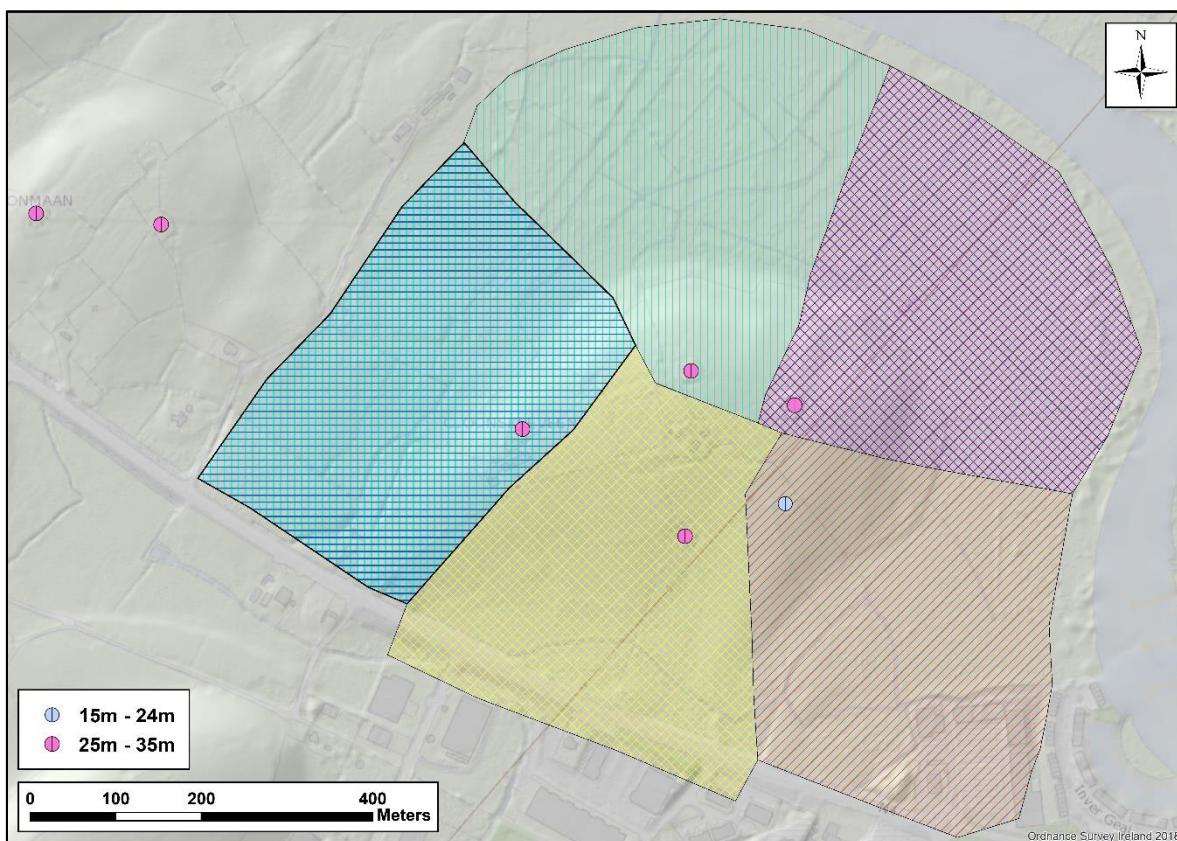


**Figure 4.69** Field patterns in the sparsely settled townlands of the south-eastern portion of the study area (*Hillshade: Azi. 280 / Alt. 20*) (after OSi MapGenie, with additions)

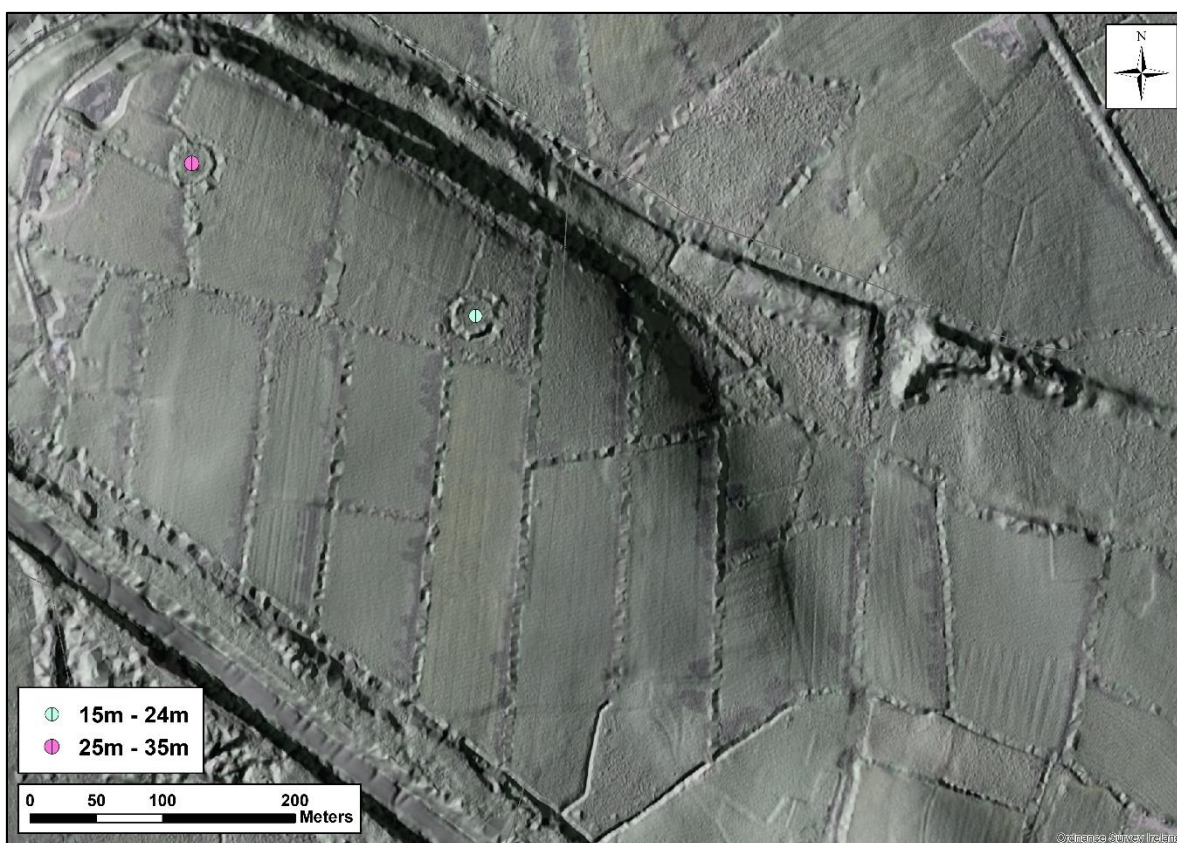


**Figure 4.70** The five raths on the drumlin of Cloonskeeveen townland, Co. Roscommon (*Hillshade: Azi. 280 / Alt. 20*)



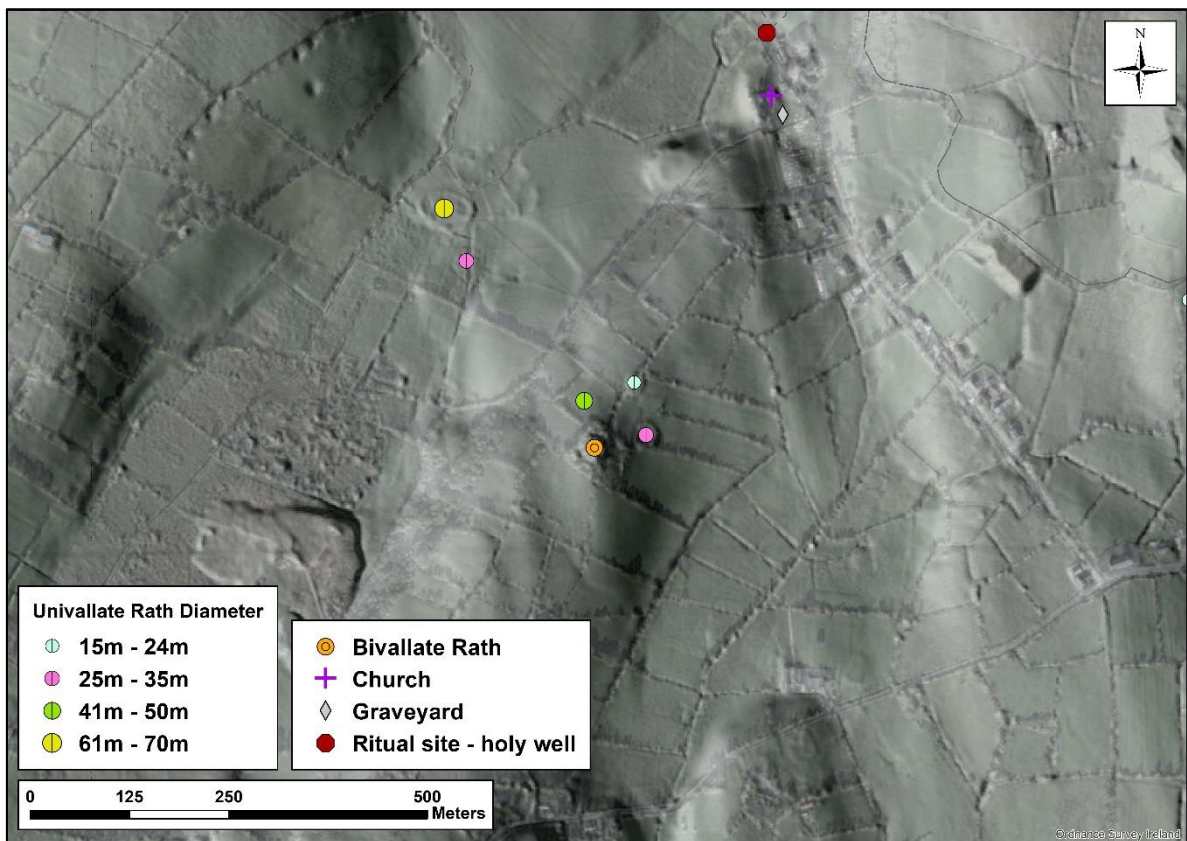


**Figure 4.71** Land allocation of approx. 13.9ha around each rath on the drumlin at Cloonskeveen, Co. Roscommon  
(Hillshade: Azi. 315 / Alt. 10)



**Figure 4.72** Two raths sharing a drumlin summit in Ardannafrin, Co. Leitrim  
(after OSi MapGenie, with additions)

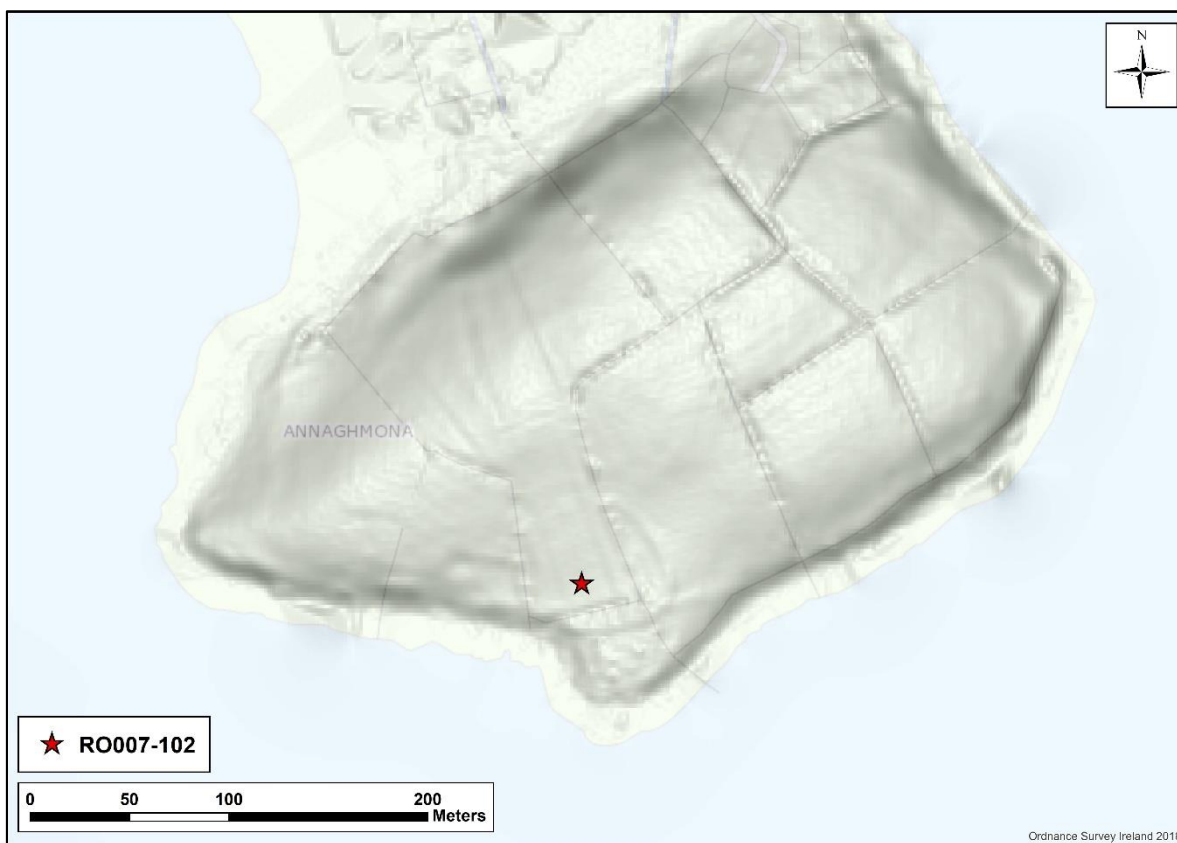




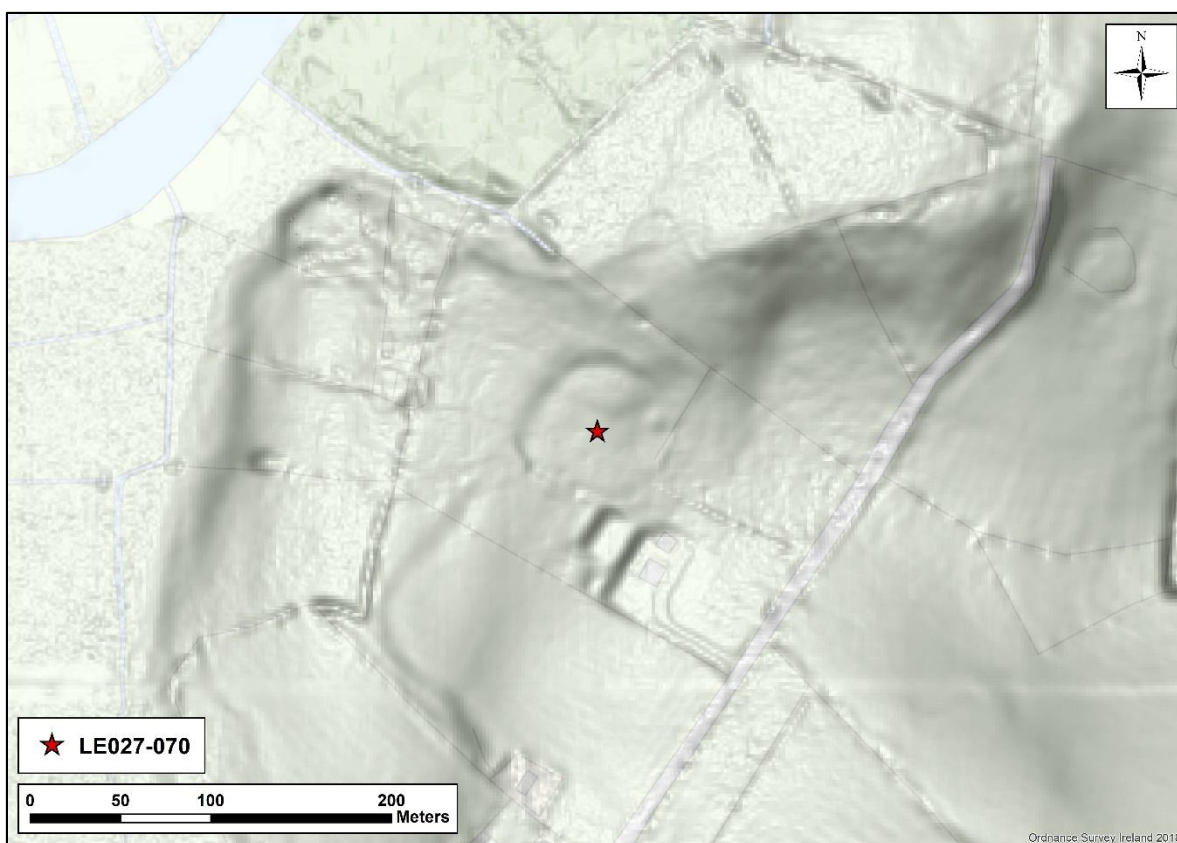
**Figure 4.73** Four raths of different morphology sharing a drumlin at Kiltoghert, Co. Leitrim  
(after OSi MapGenie, with additions)



**Figure 4.74** The enclosure at Relignaree, Co. Roscommon and its internal divisions  
(after [www.archaeology.ie](http://www.archaeology.ie))

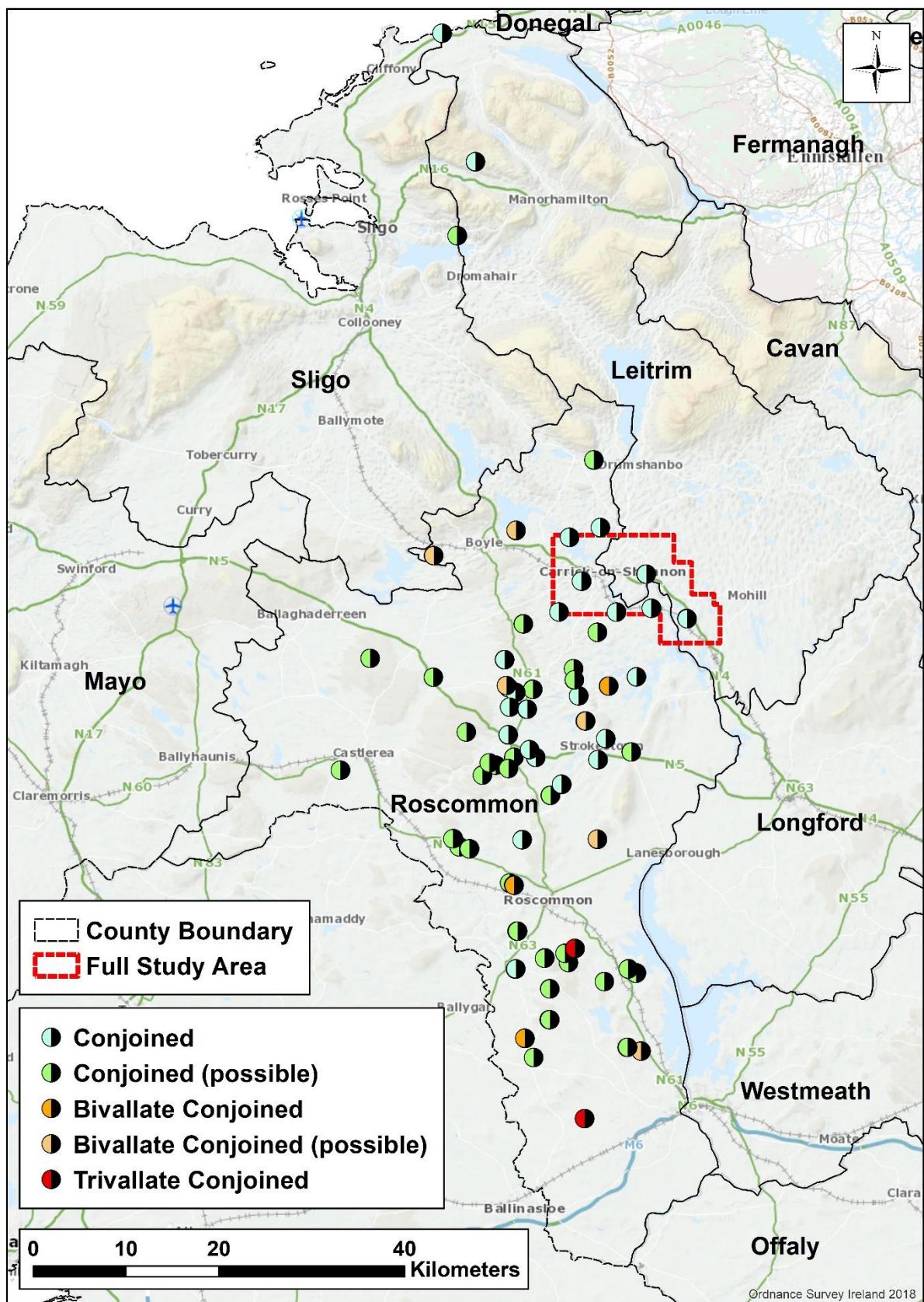


**Figure 4.75** The newly discovered enclosure in Annaghmona, Co. Roscommon on the banks of Lough Eidin  
(after OSi MapGenie, with additions)



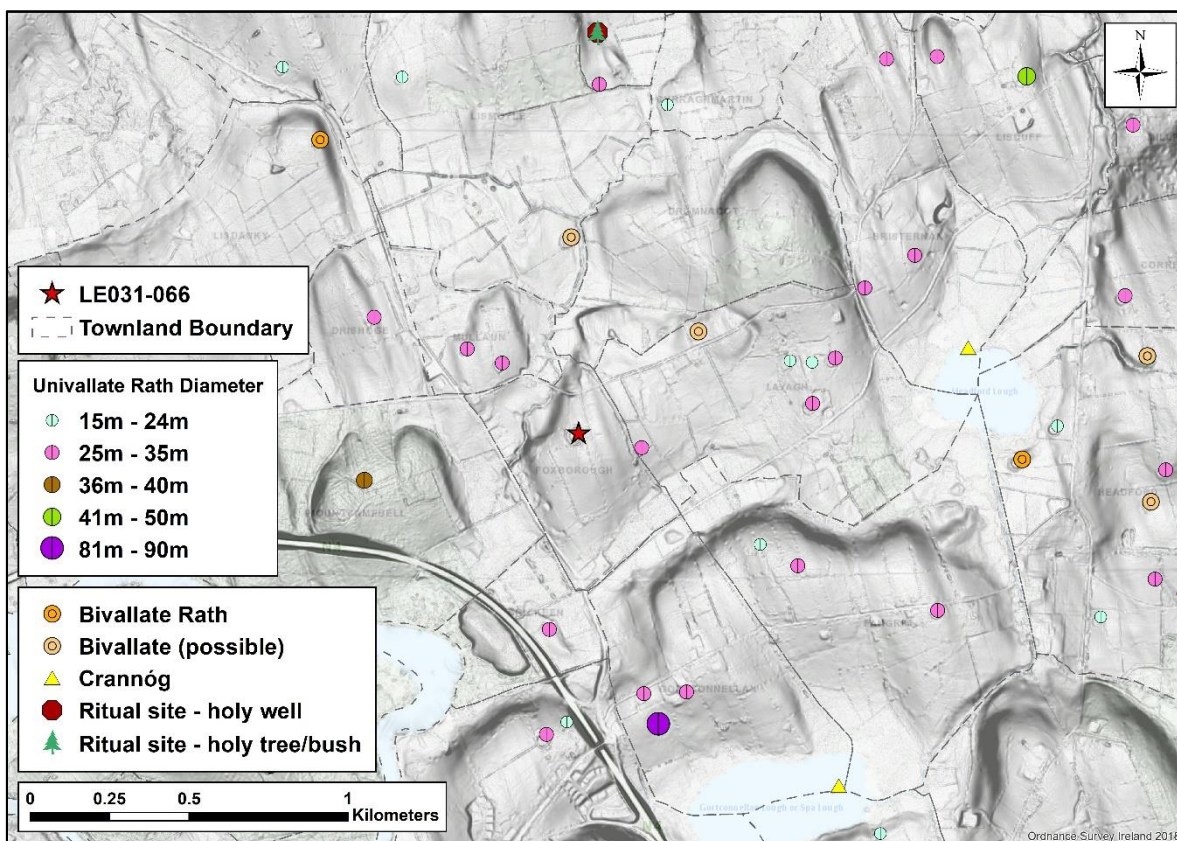
**Figure 4.76** The possible settlement-cemetery at Caldragh, Co. Leitrim  
(after OSi MapGenie, with additions)



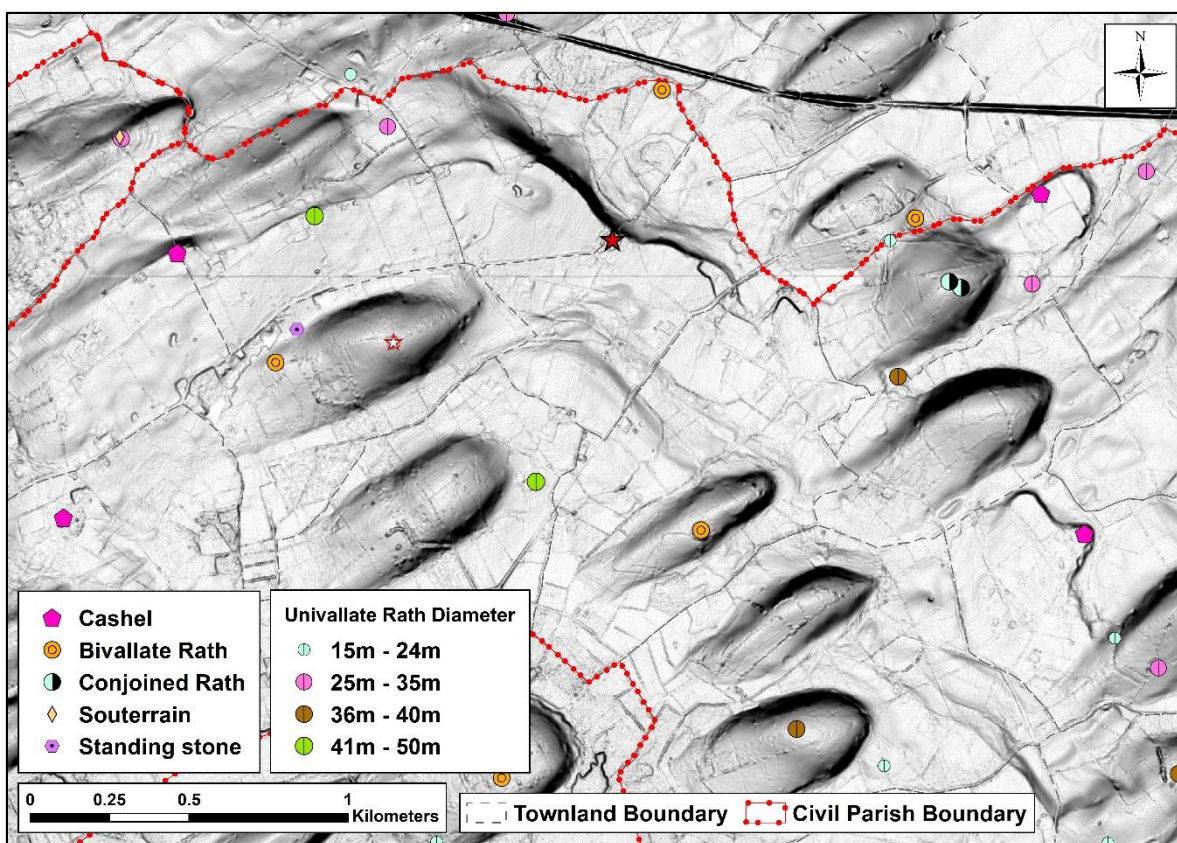


**Figure 4.77** Distribution of conjoined raths in Counties Leitrim and Roscommon  
(after SMR; OSi MapGenie, with additions)



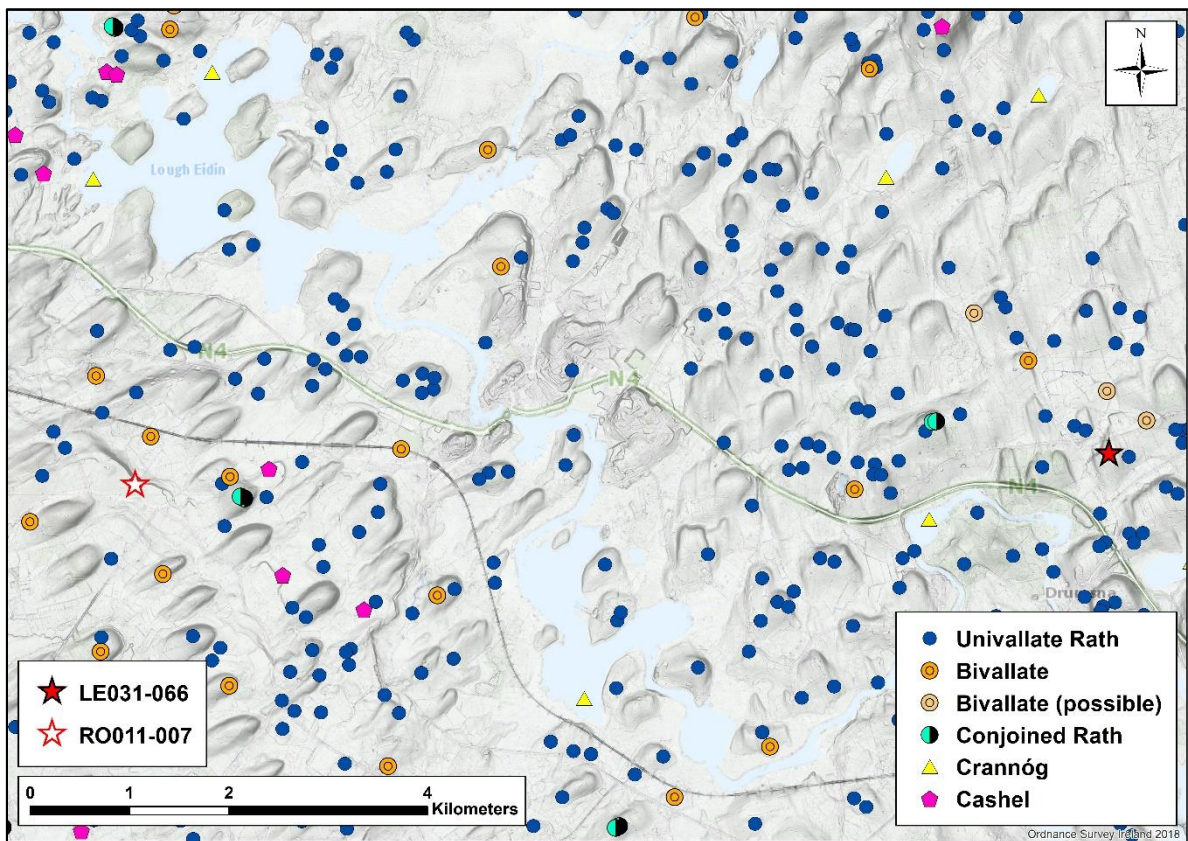


**Figure 4.78** The trivallate rath at Foxborough, Co. Leitrim and the distribution of settlement in its immediate environs (*slope model*) (after OSi MapGenie, with additions)



**Figure 4.79** The cashel at Carroward/Toormartin, Co. Roscommon and its environs (*slope model*) (after OSi MapGenie, with additions)



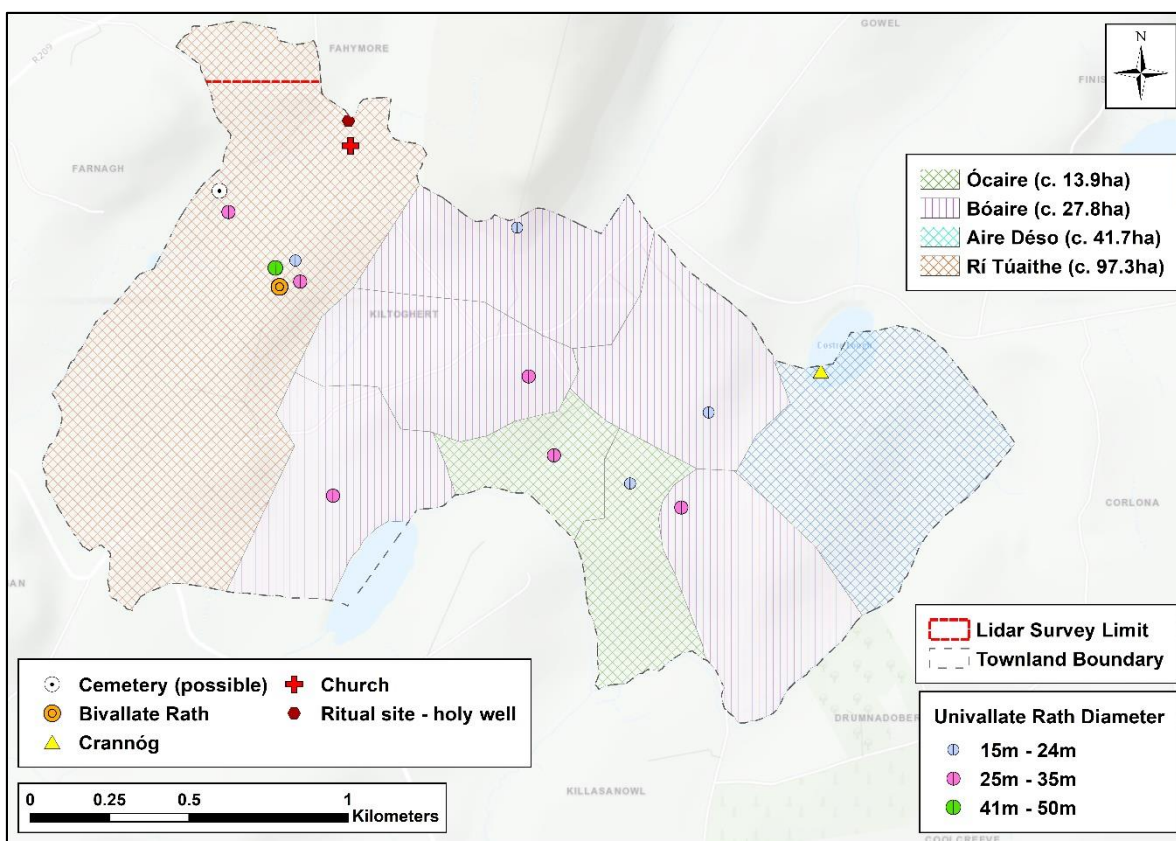
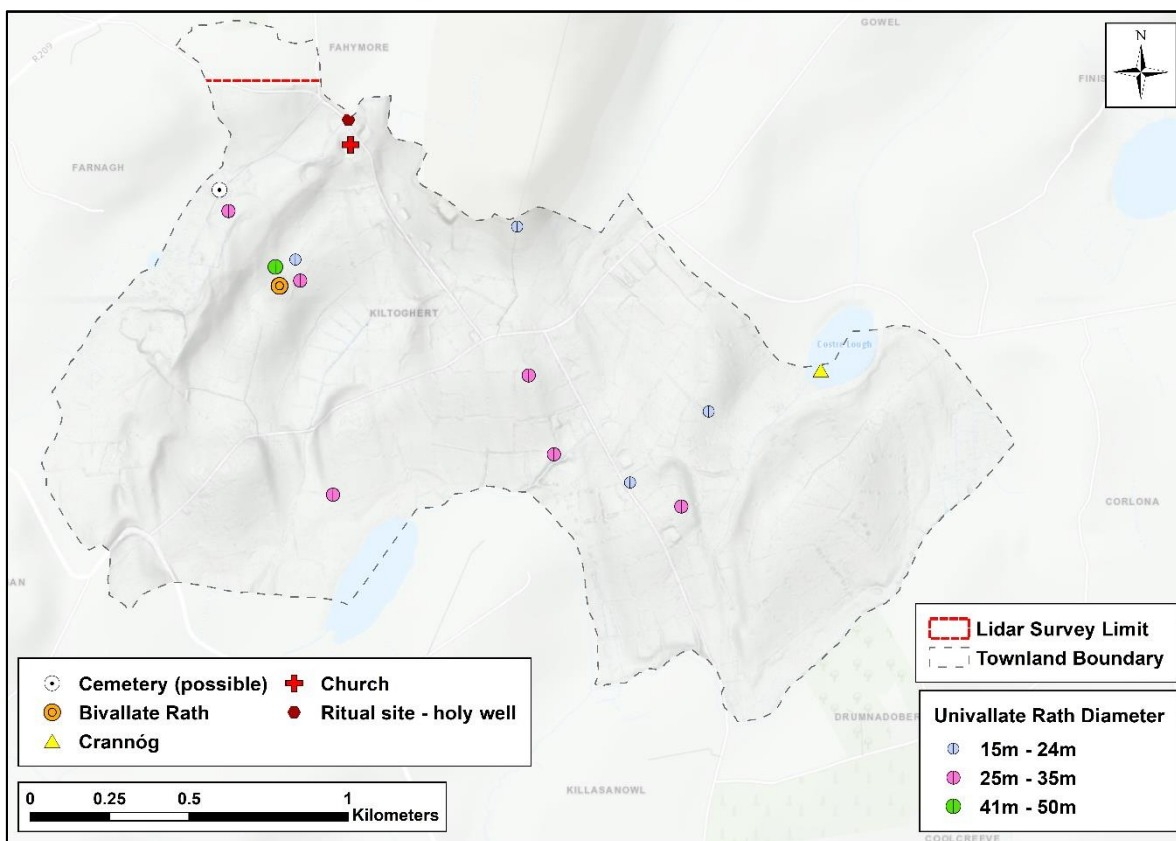


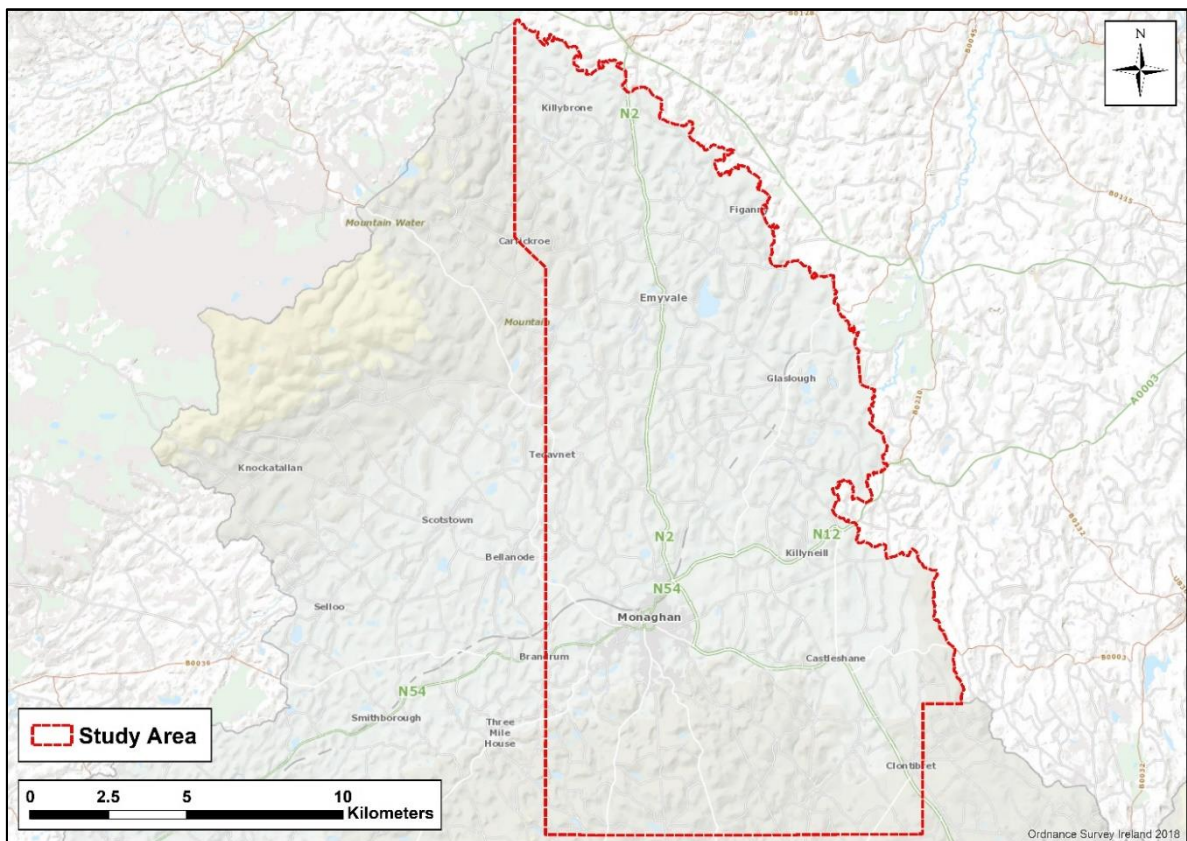
**Figure 4.80** The cashel at Carroward/Toormartin (RO011-007) in relation to the trivallate rath at Foxborough (LE031-066) (*slope model*) (after OSi MapGenie, with additions)



**Figure 4.81** The standing stone at Knockacorha, Co. Roscommon (photo: S. Curran)

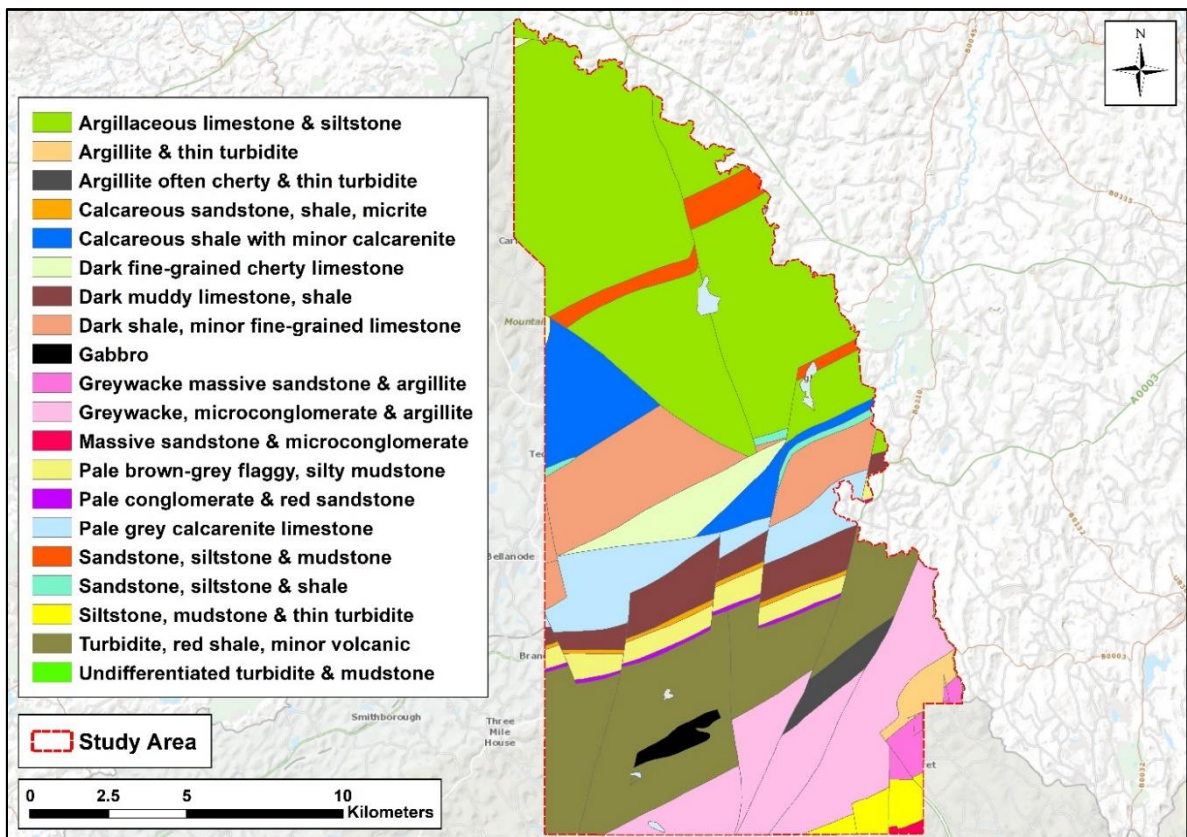






**Figure 5.1** The Monaghan study area

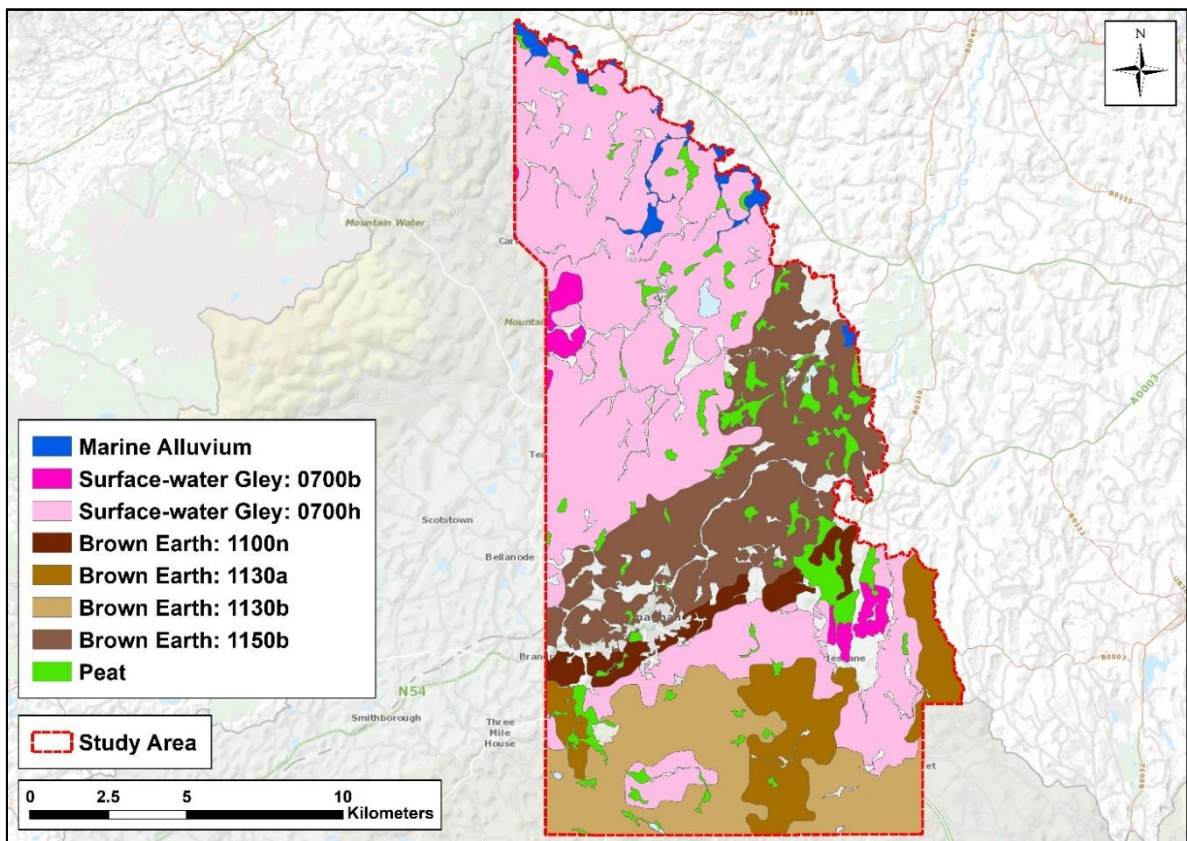
*(after OSi MapGenie, with additions)*



**Figure 5.2** Bedrock geology within the study area

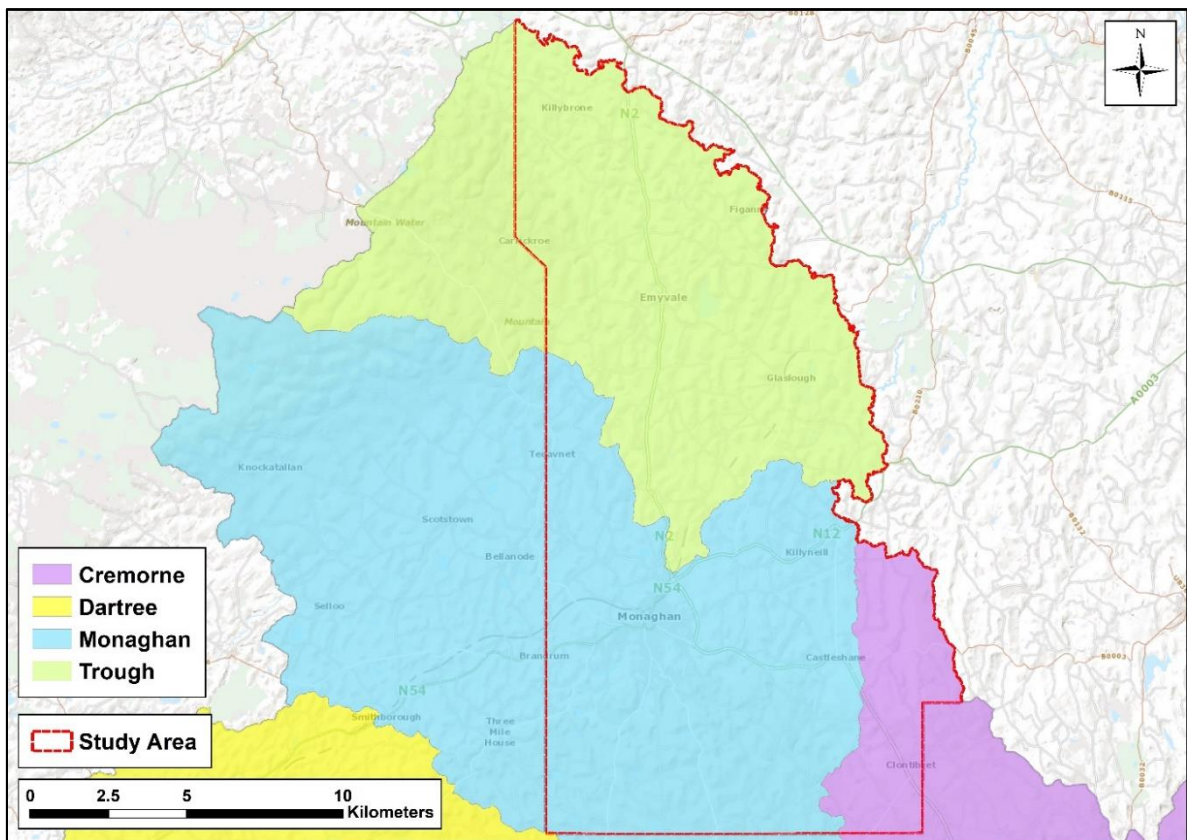
*(after GSI; OSi MapGenie, with additions)*





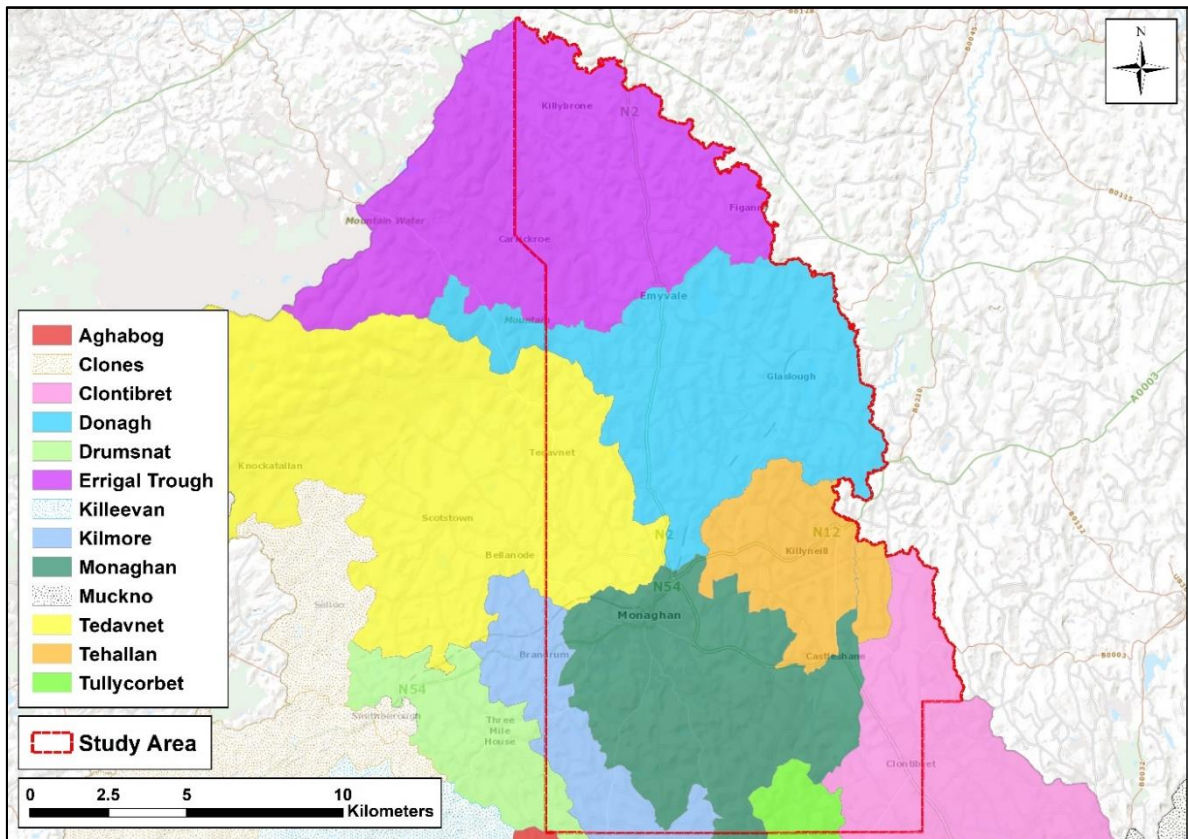
**Figure 5.3** Soils in the study area

(after OSi MapGenie, with additions)



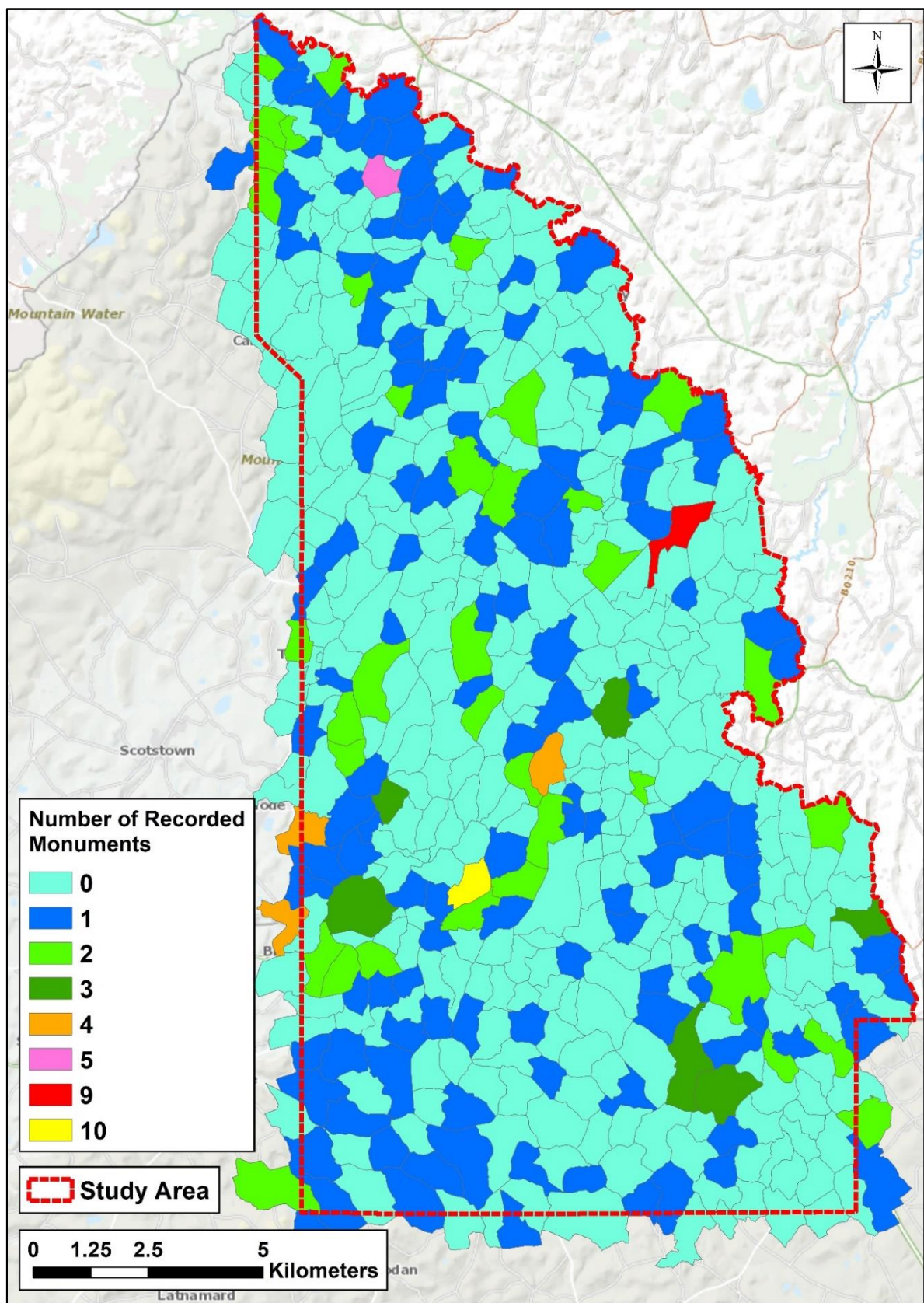
**Figure 5.4** The baronies within the study area

(after OSi MapGenie, with additions)



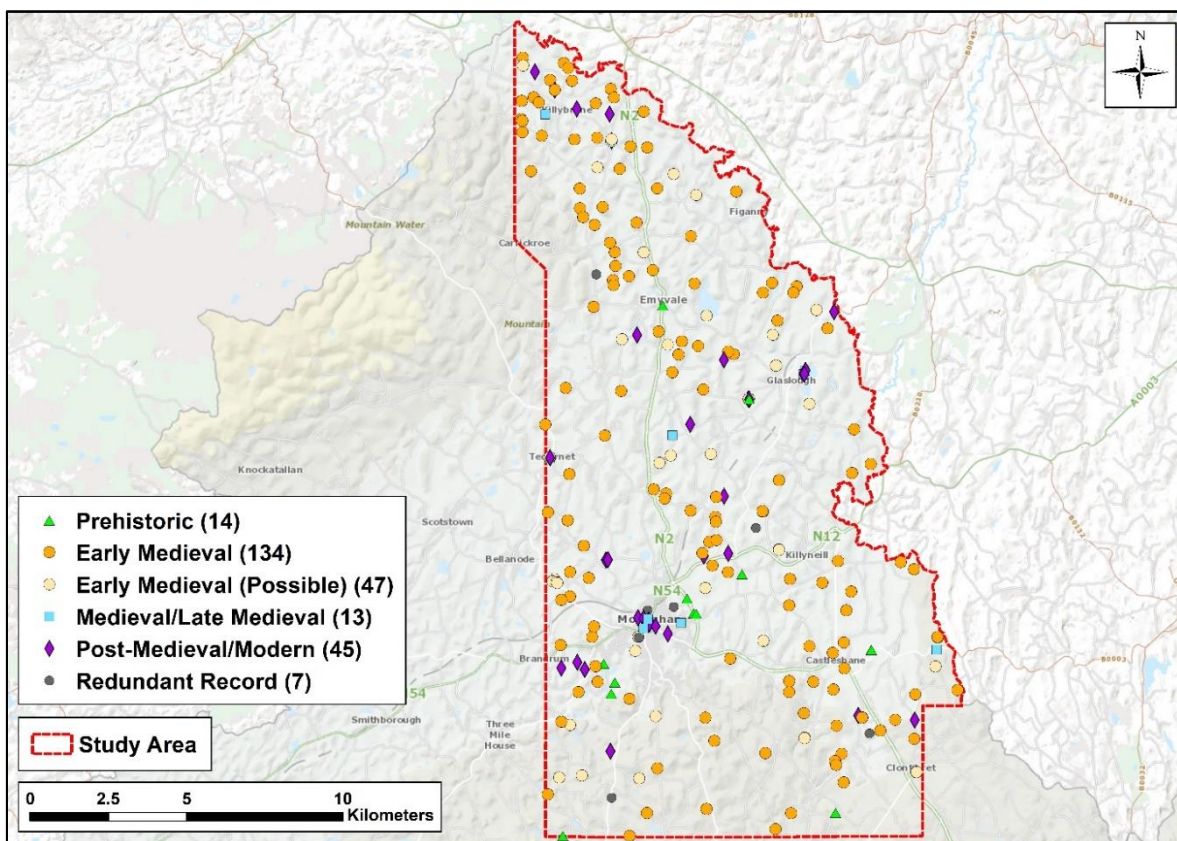
**Figure 5.5** The civil parishes within the study area (after OSi MapGenie, with additions)



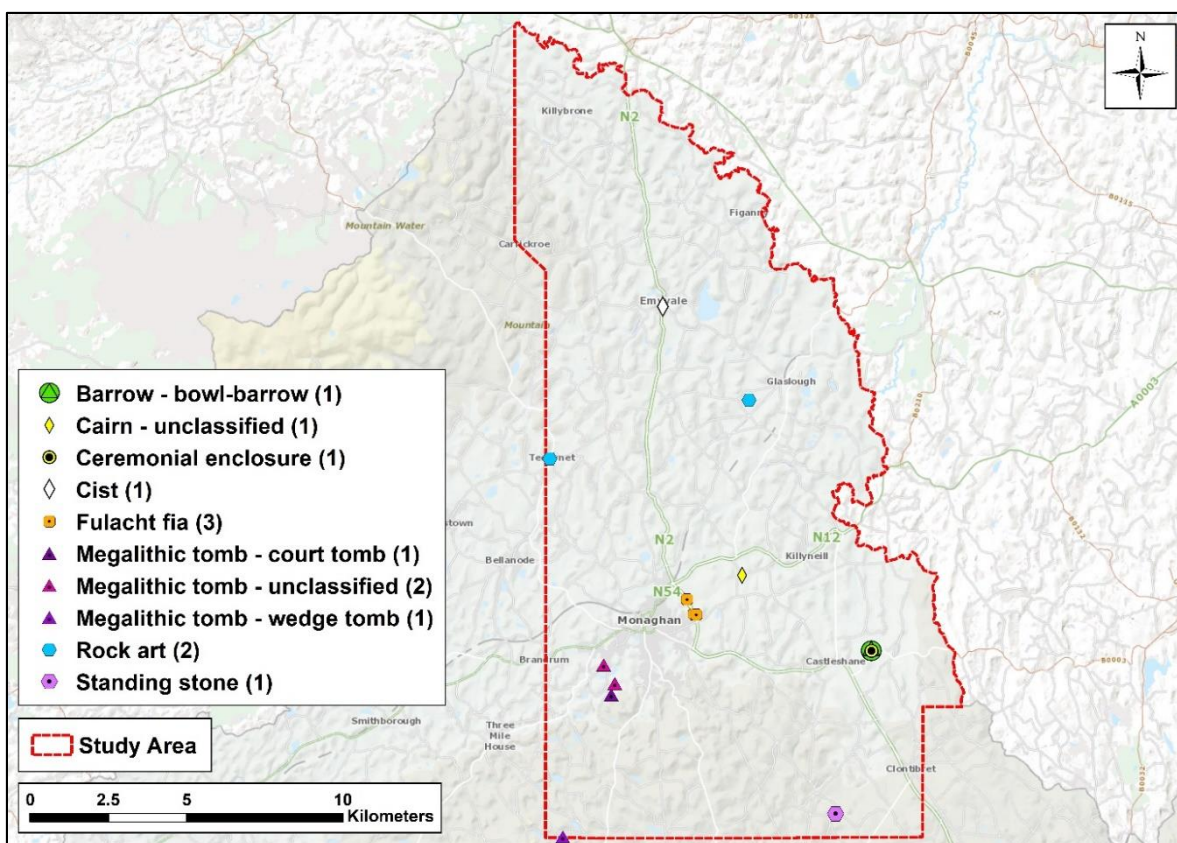


**Figure 5.6** Recorded archaeological monuments per townland in the study area  
(after SMR; OSi MapGenie, with additions)





**Figure 5.7** Recorded monuments (by period) within the study area  
(after SMR; OSi MapGenie, with additions)

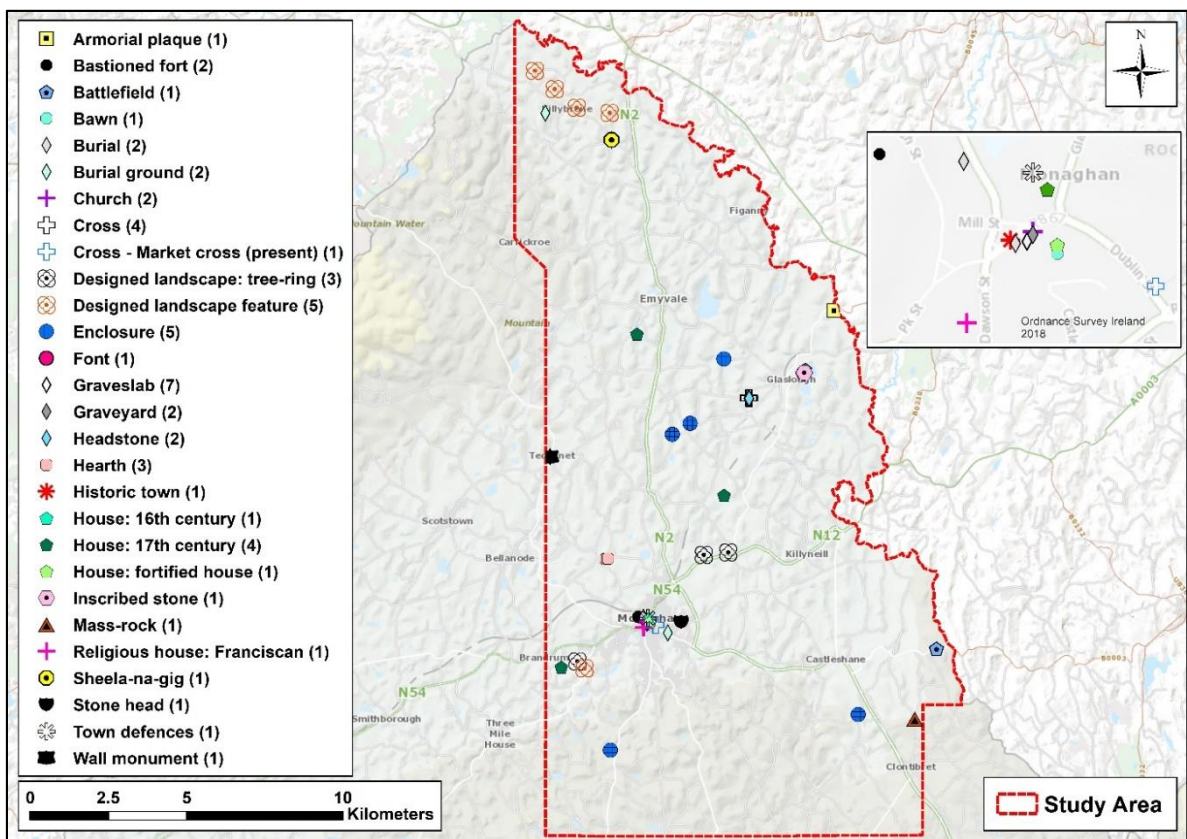


**Figure 5.8** Distribution of recorded prehistoric monuments within the study area  
(after SMR; OSi MapGenie, with additions)





**Figure 5.9** The Tedavnet gold discs on display in the National Museum of Ireland  
(Photo: S. Curran)



**Figure 5.10** Distribution of recorded medieval and later monuments within the study area  
(after SMR; OSi MapGenie, with additions)





**Figure 5.11** Depiction of the bastioned fort on Bartlett's map c. 1602; the fort is the feature furthest north; the town itself is depicted as an eight-pointed bastioned fortification  
*(Bartlett 1602, available at: <http://catalogue.nli.ie/Record/vtls000536690/HierarchyTree>)*

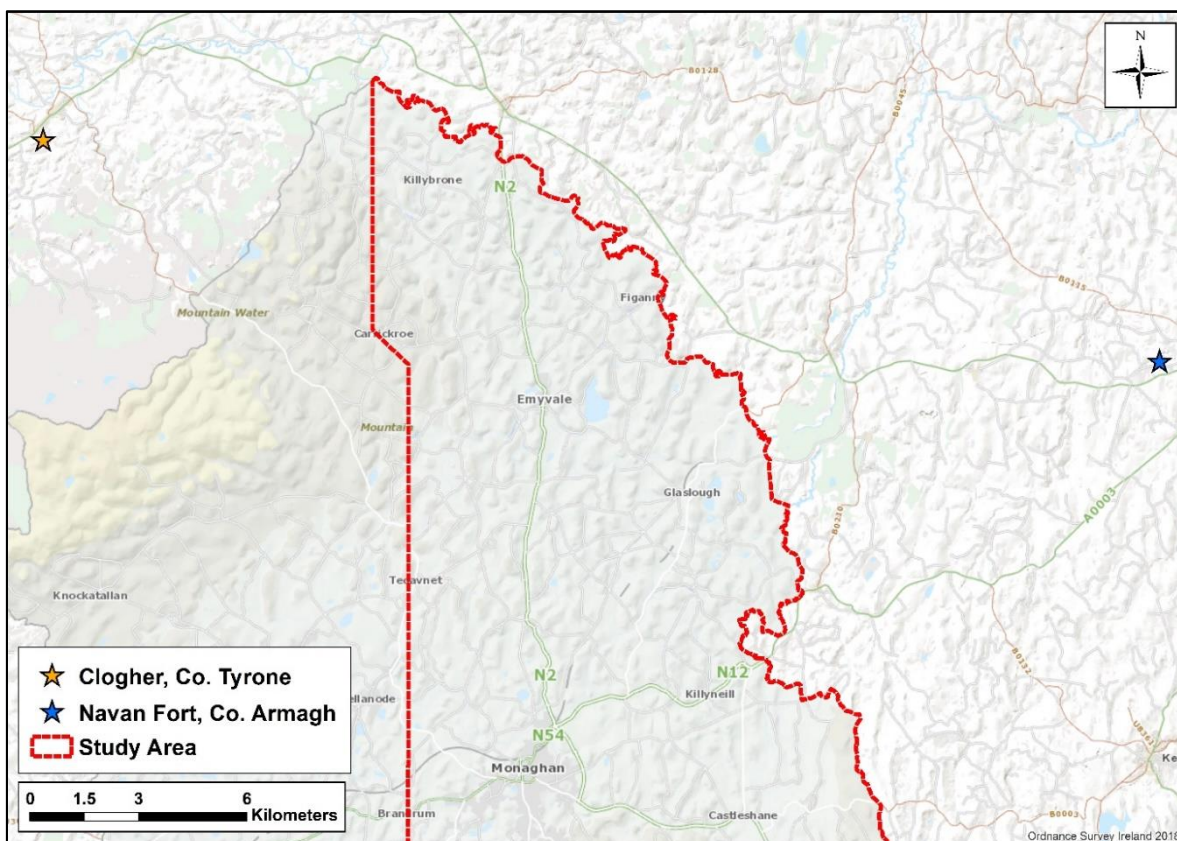




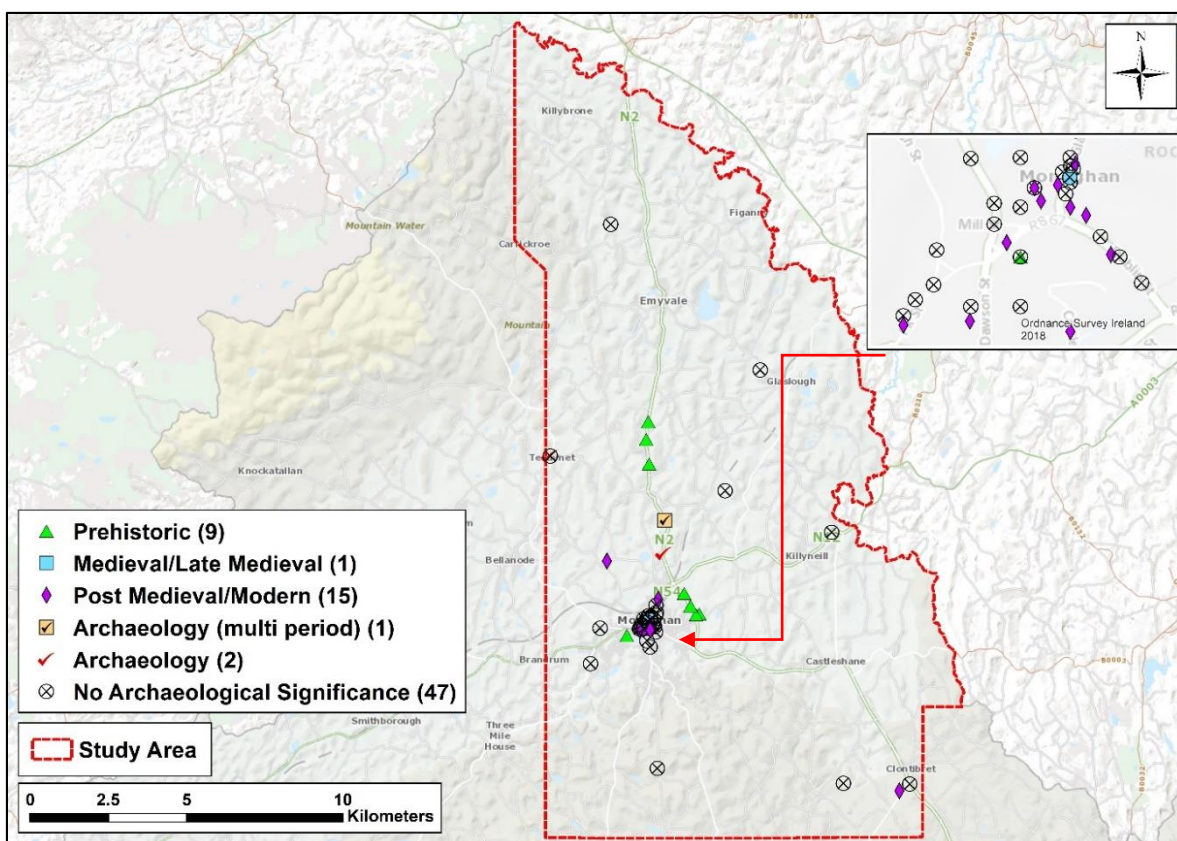
**Figure 5.12** The Donagh Cross within the cemetery at Donagh

*(photo: S. Curran)*



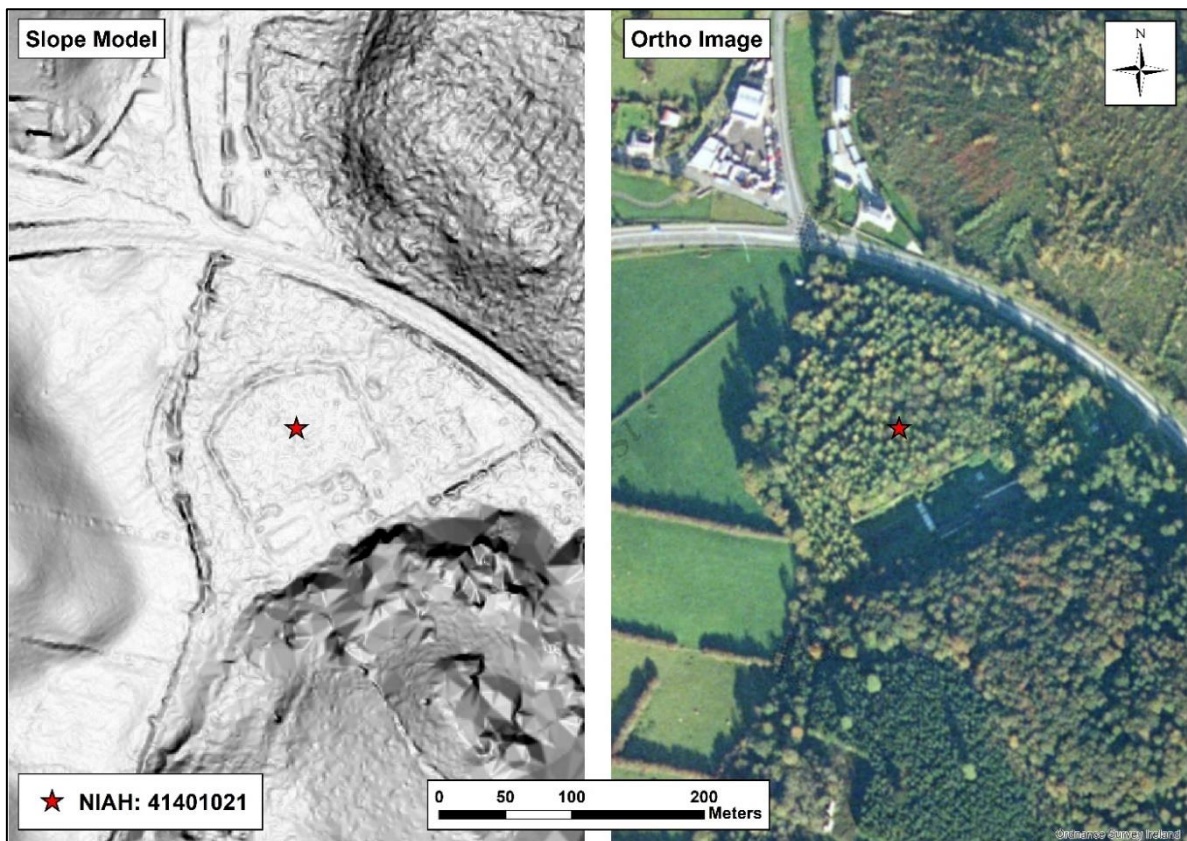


**Figure 5.13** The study area in relation to the location of Clogher Fort and Navan Fort  
(after OSi MapGenie, with additions)

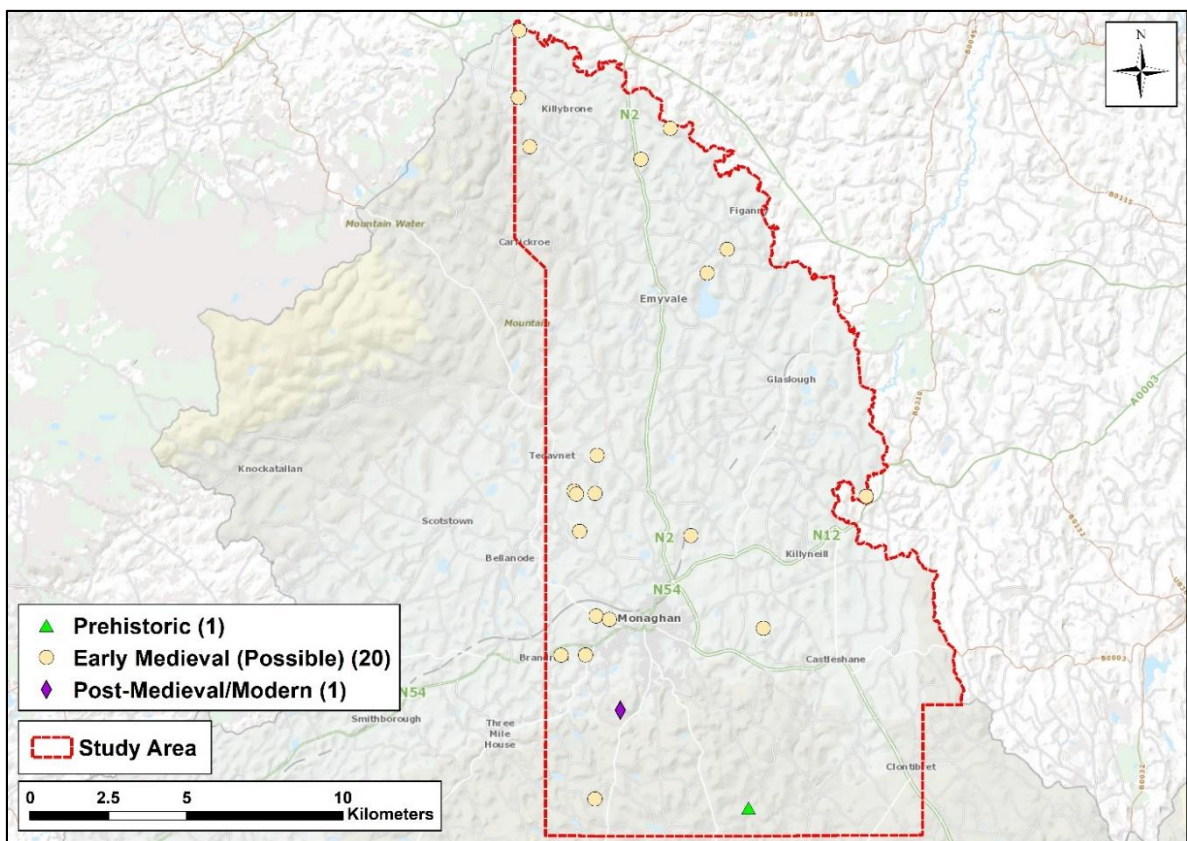


**Figure 5.14** Excavations within the study area  
(after [www.excavations.ie](http://www.excavations.ie); OSi MapGenie, with additions)



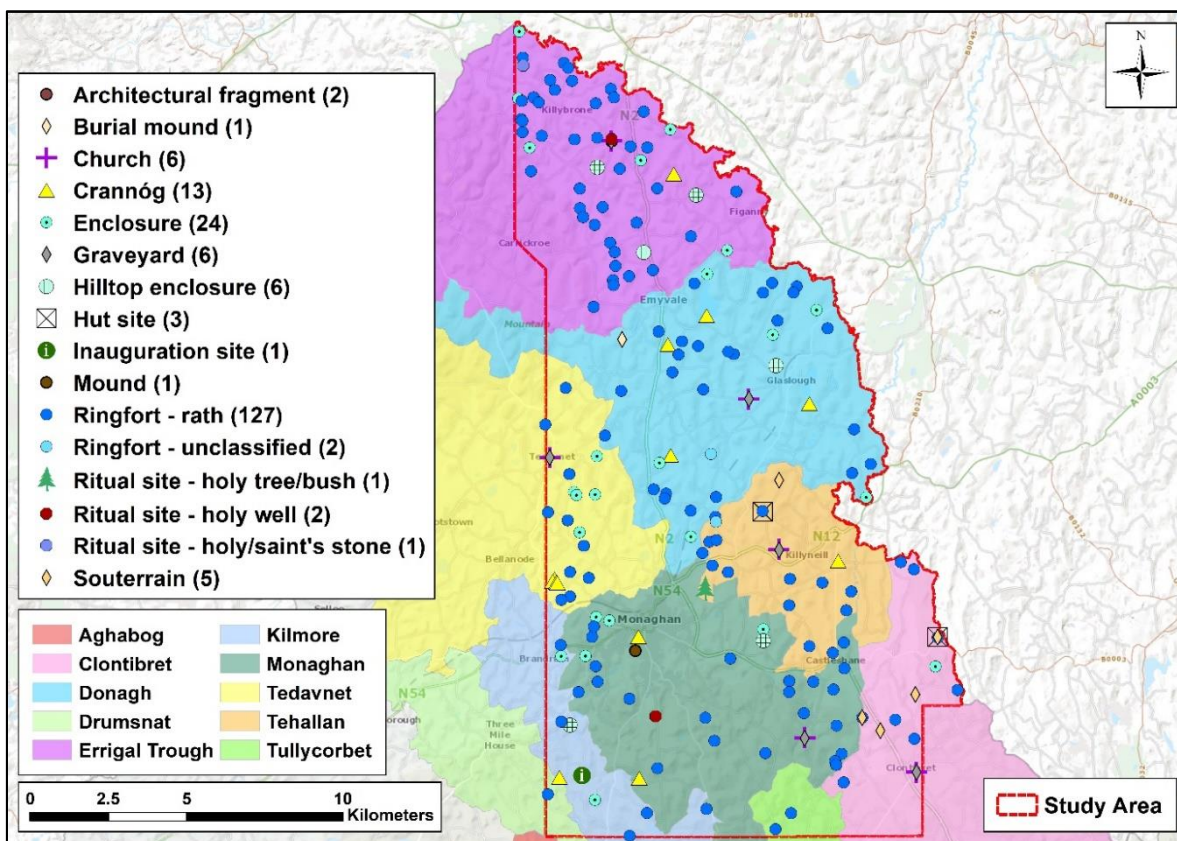


**Figure 5.15** The walled garden at Castleshane Demesne  
(after OSi MapGenie, with additions)

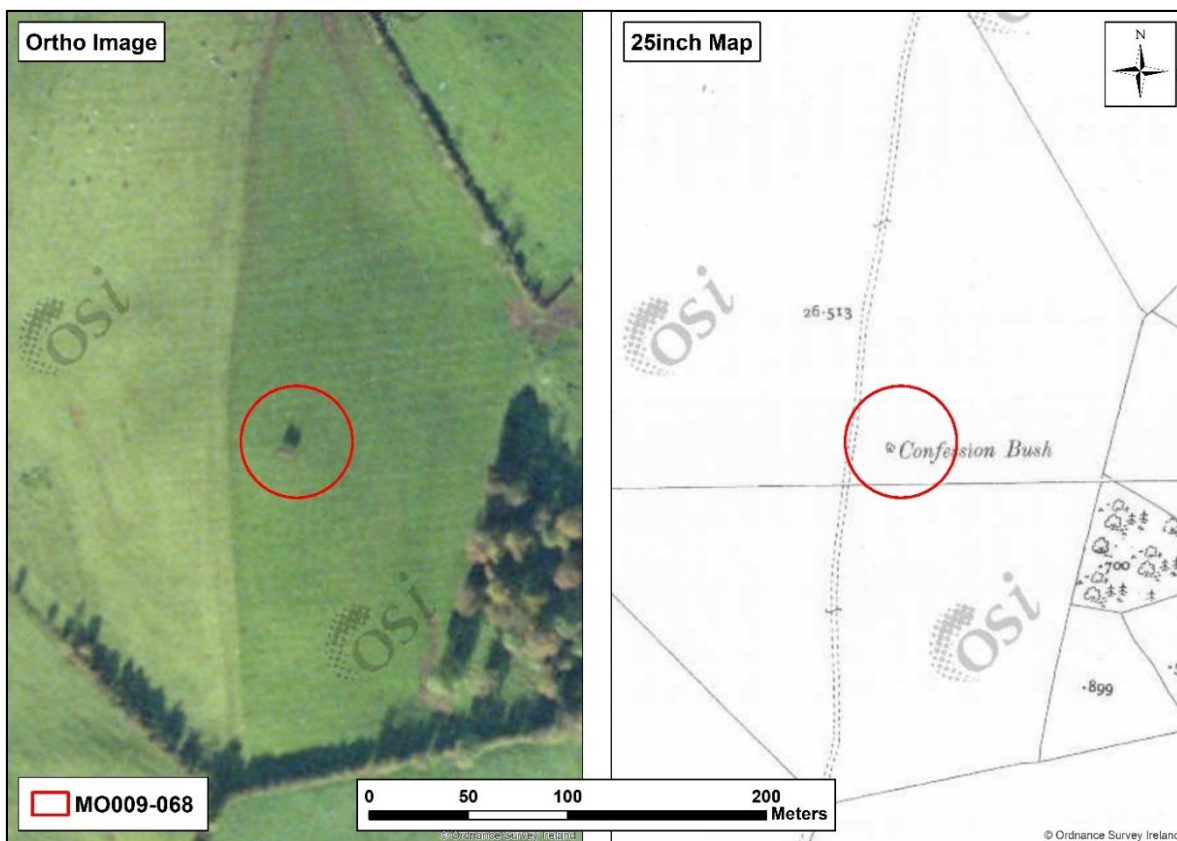


**Figure 5.16** Archaeological monuments discovered through the lidar analysis  
(after OSi MapGenie, with additions)

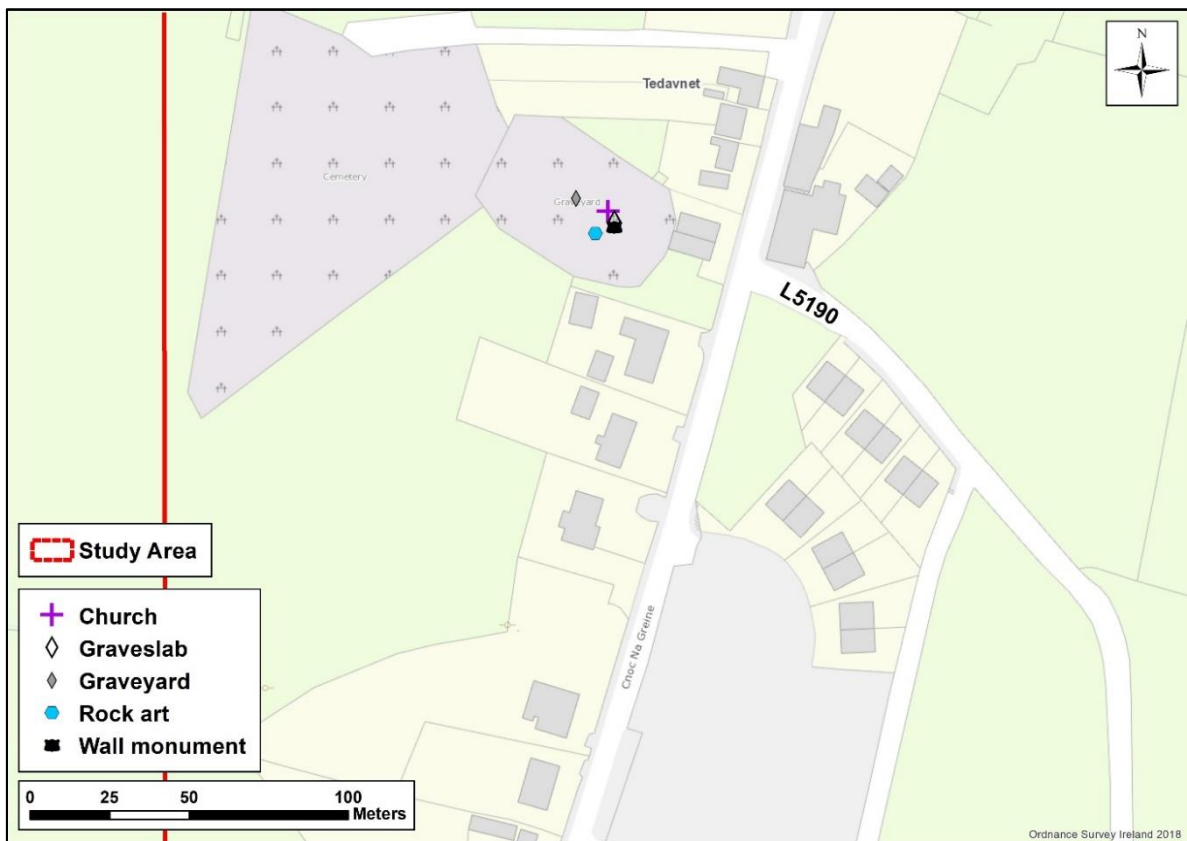




**Figure 5.17** Early medieval monuments within the study area  
(after SMR; OSi MapGenie, with additions)



**Figure 5.18** The 'confession bush' at Drumrutagh  
(after OSi MapGenie, with additions)



**Figure 5.19** The curving road (L5190) at Mullanarockan  
*(after OSi MapGenie, with additions)*



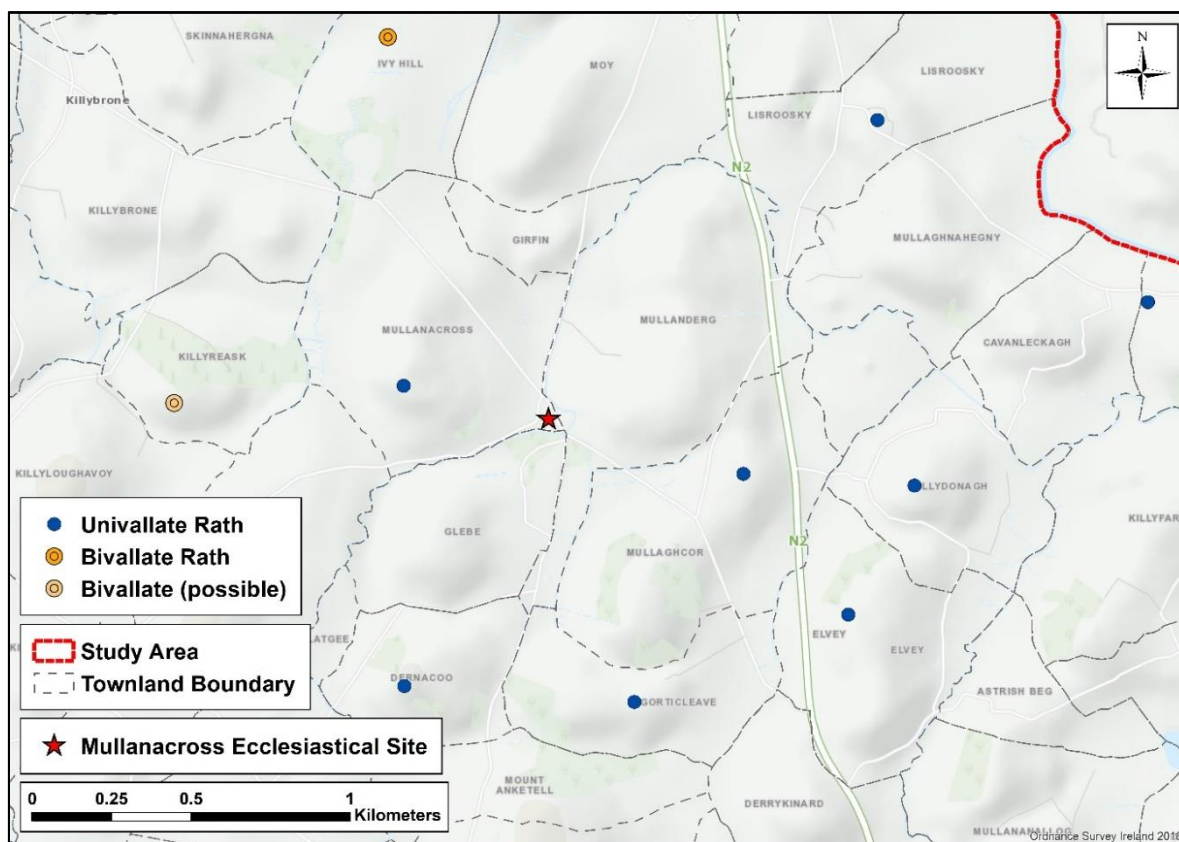
**Figure 5.20** The extant church and graveyard at Mullanacross  
*(Photo: S. Curran)*





**Figure 5.21** St. Muadain's Well, Mullanacross

(Photo: S. Curran)



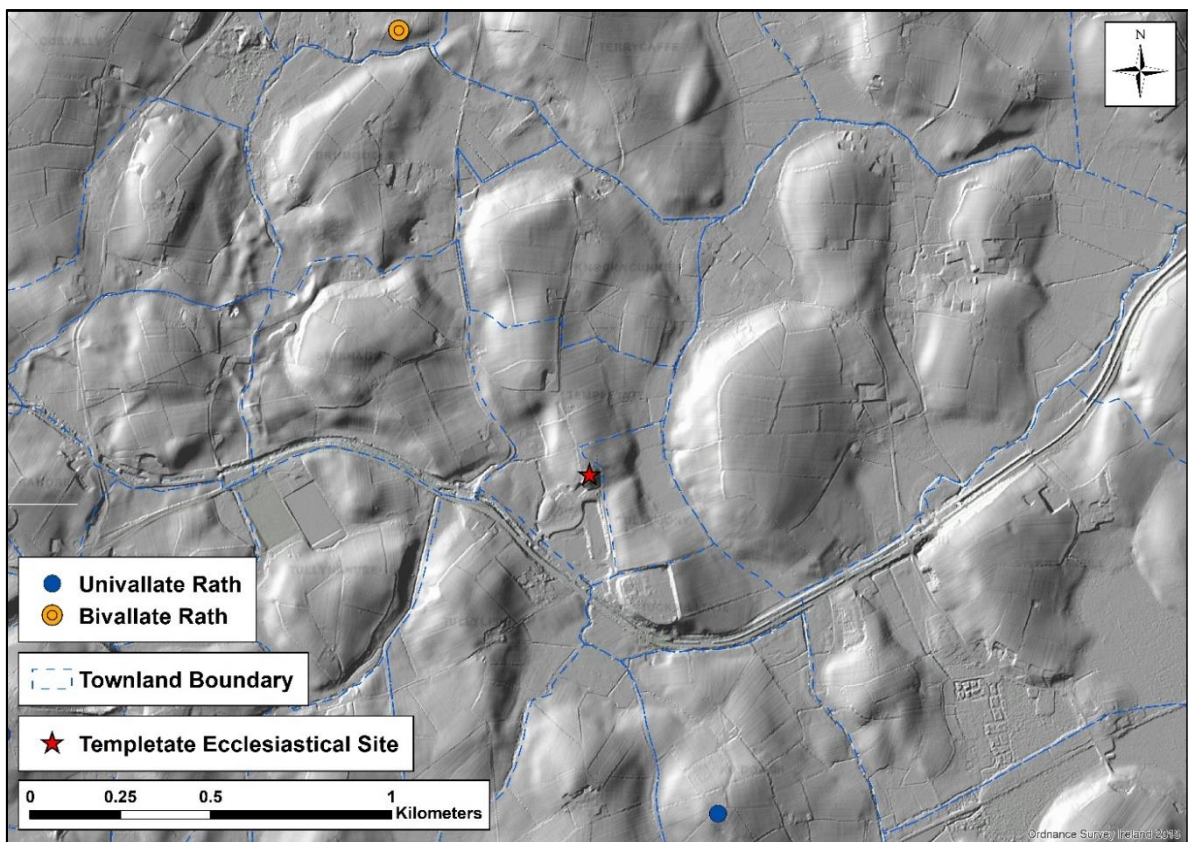
**Figure 5.22** Early medieval settlement in the environs of Mullanacross ecclesiastical site  
(after OSi MapGenie, with additions)





**Figure 5.23** The view from the graveyard at Templeate

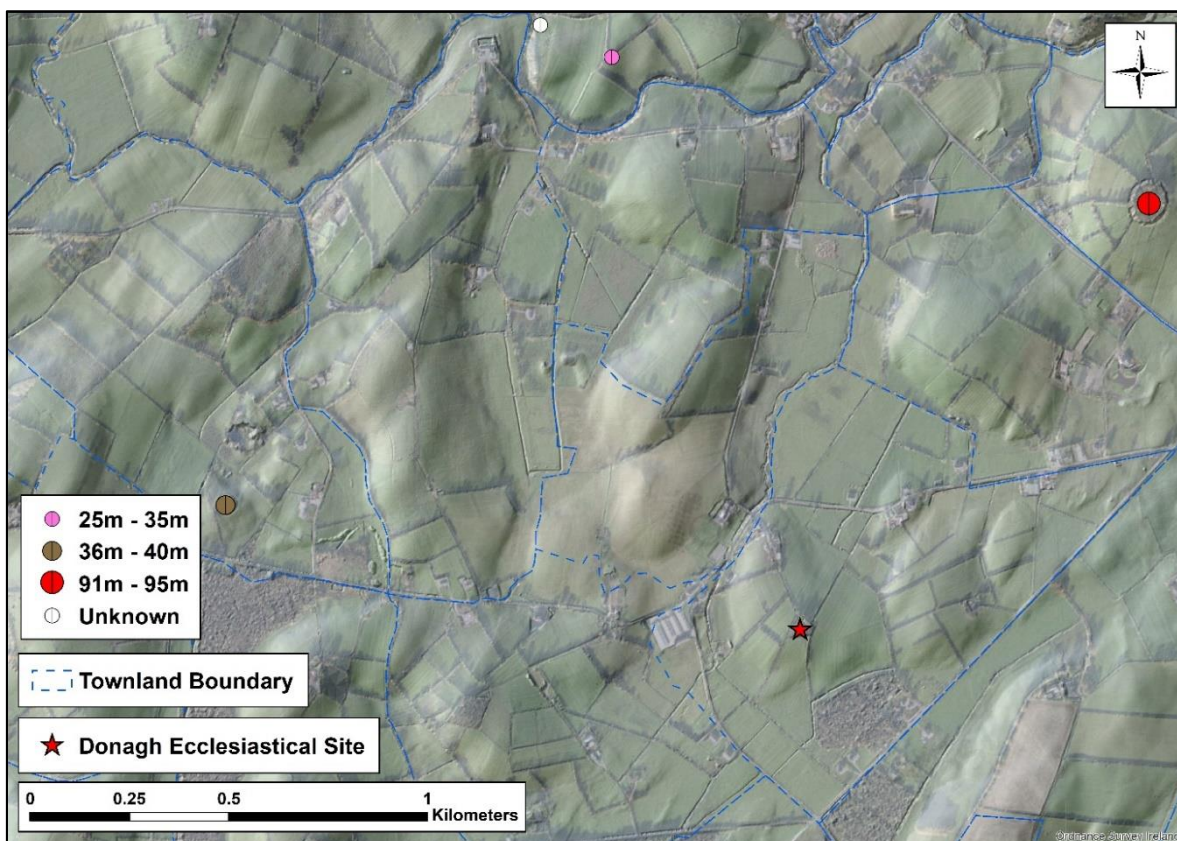
(Photo: S. Curran)



**Figure 5.24** Early medieval settlement in the environs of Templeate ecclesiastical site

(Hillshade: Azi. 300 / Alt. 45)





**Figure 5.25** Early medieval settlement in the environs of Donagh ecclesiastical site  
(Hillshade: Azi.300 / Alt. 45) (after OSi MapGenie, with additions)



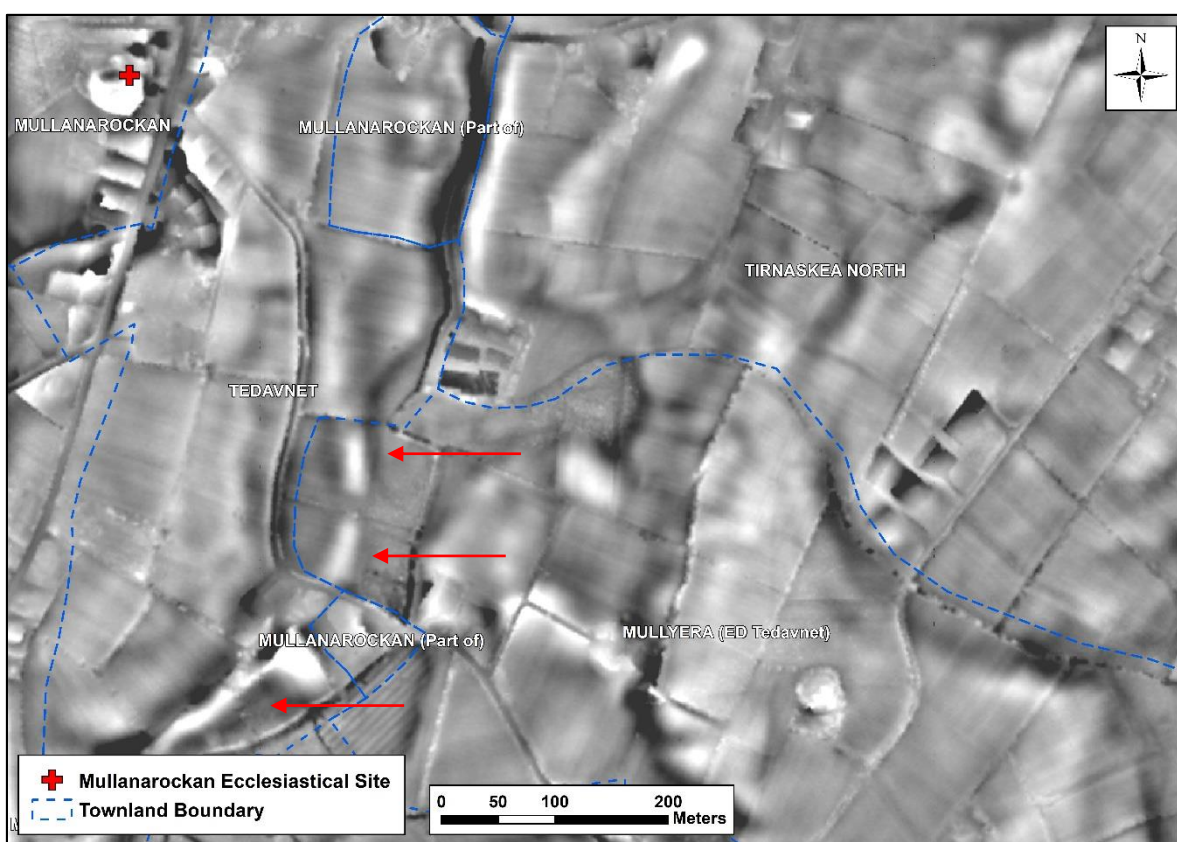
**Figure 5.26** The extant graveyard at Mullanarockan

(Photo: S. Curran)



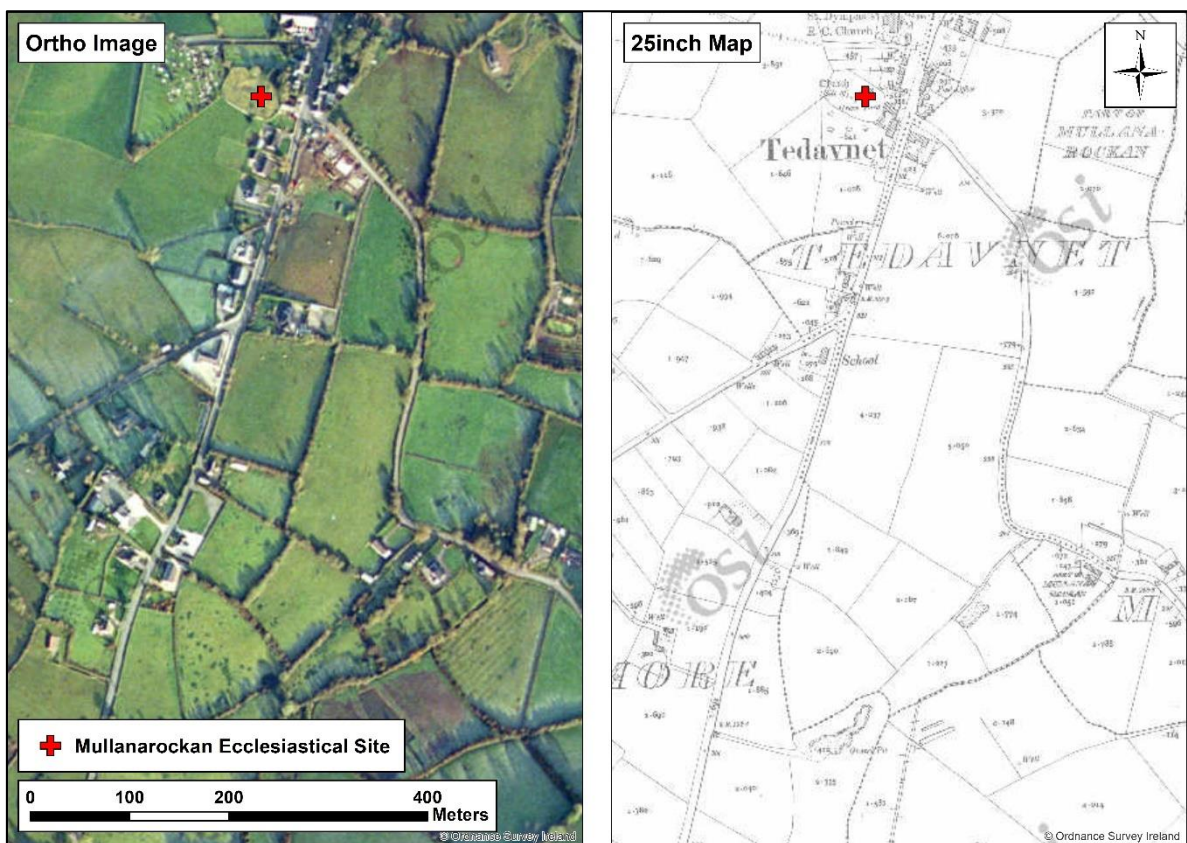


**Figure 5.27** The 'Robinson Monument' which is thought to mark the site of the original church  
(Photo: S. Curran)

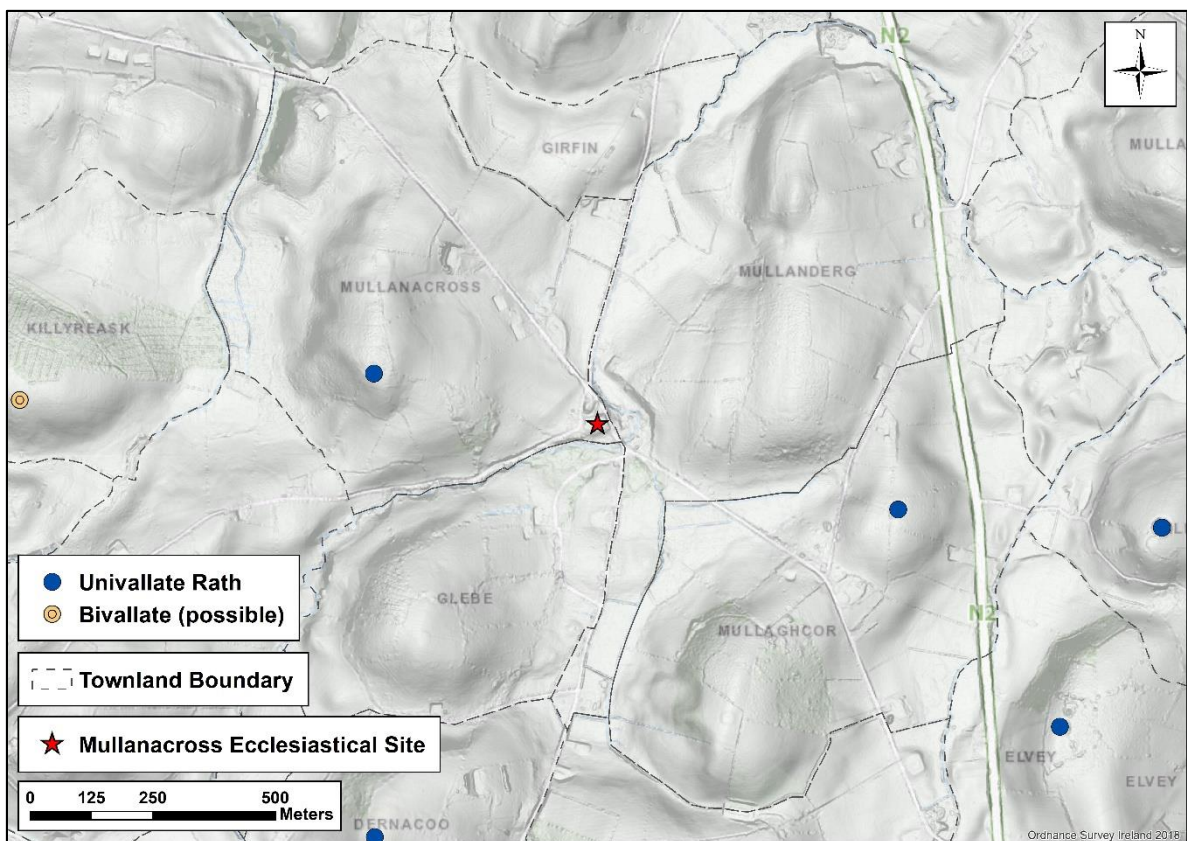


**Figure 5.28** The embankment in Mullyera townland  
(Local Relief Model; after RVT)

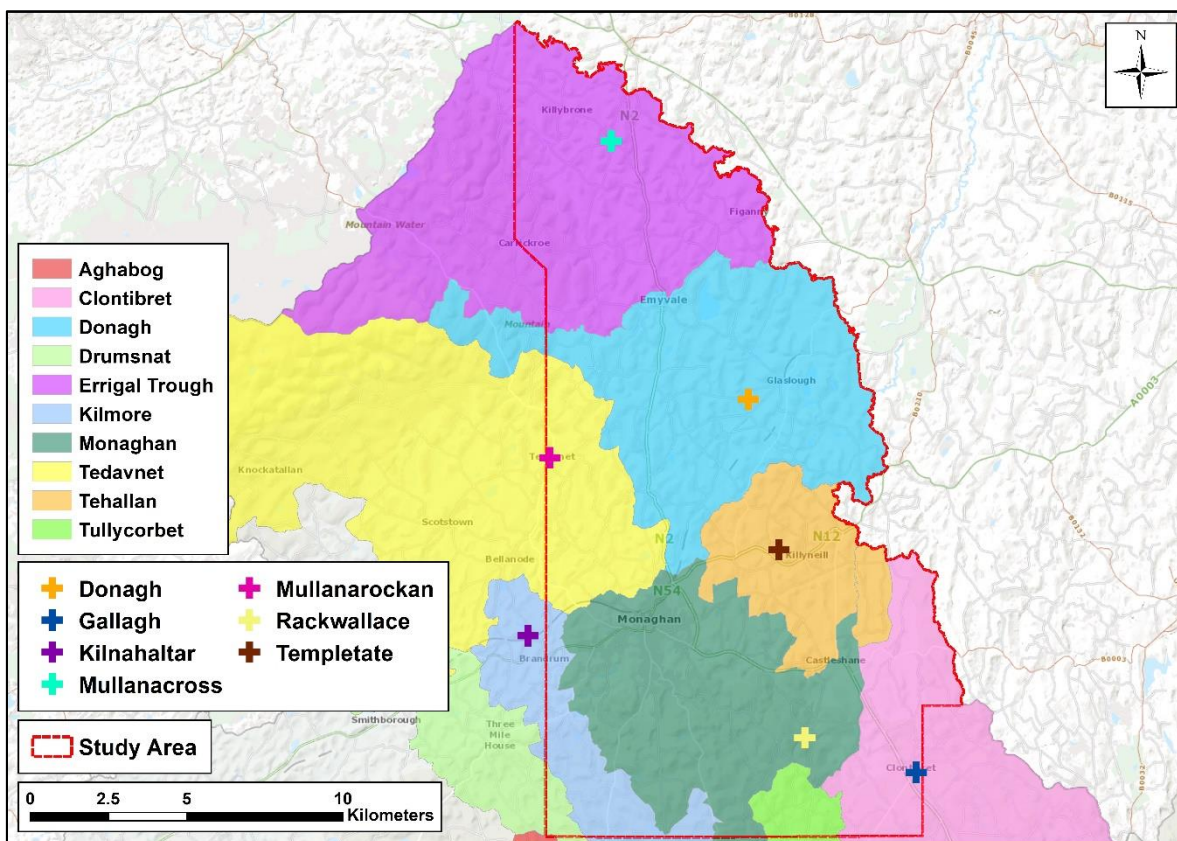




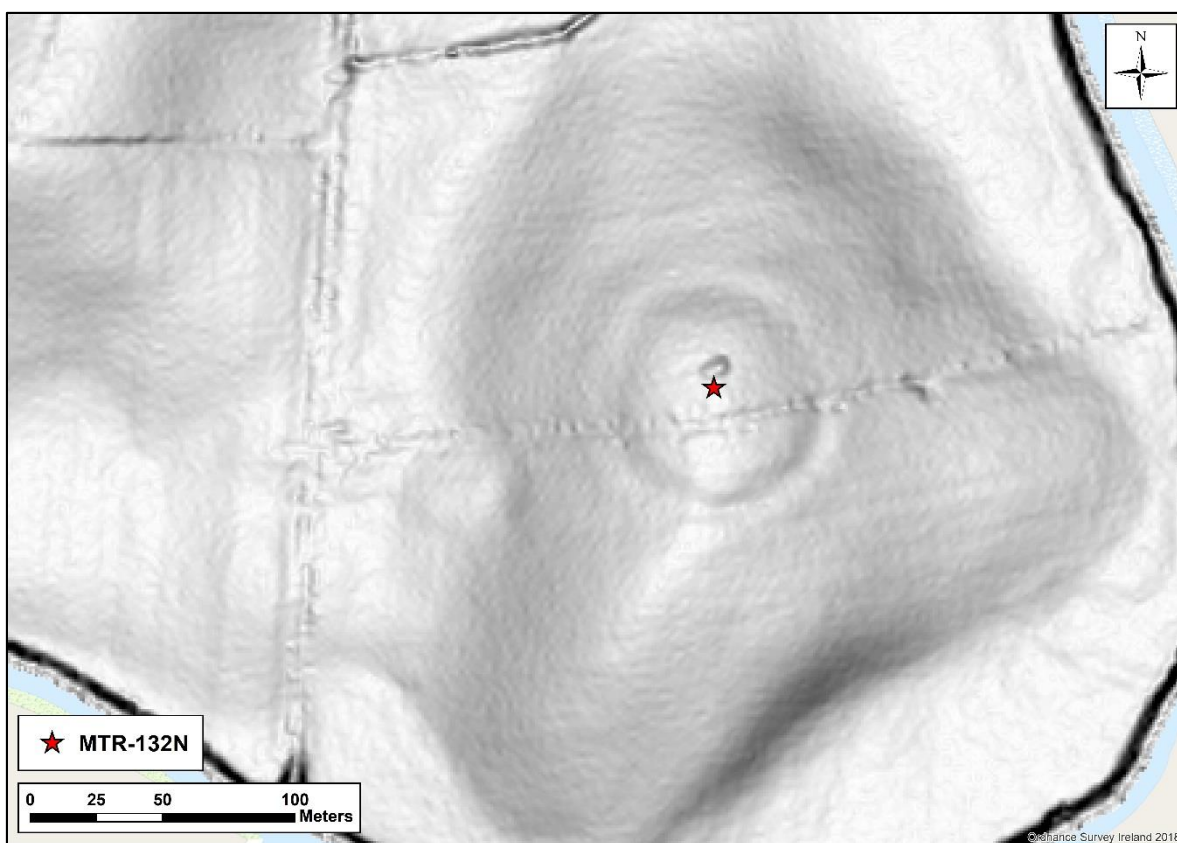
**Figure 5.29** The curvilinear roadway at Mullanarockan ecclesiastical site  
(after OSi MapGenie, with additions)



**Figure 5.30** The siting of Mullanarockan in the valley between four drumlins, and possible routeways (slope model)  
(after OSi MapGenie, with additions)

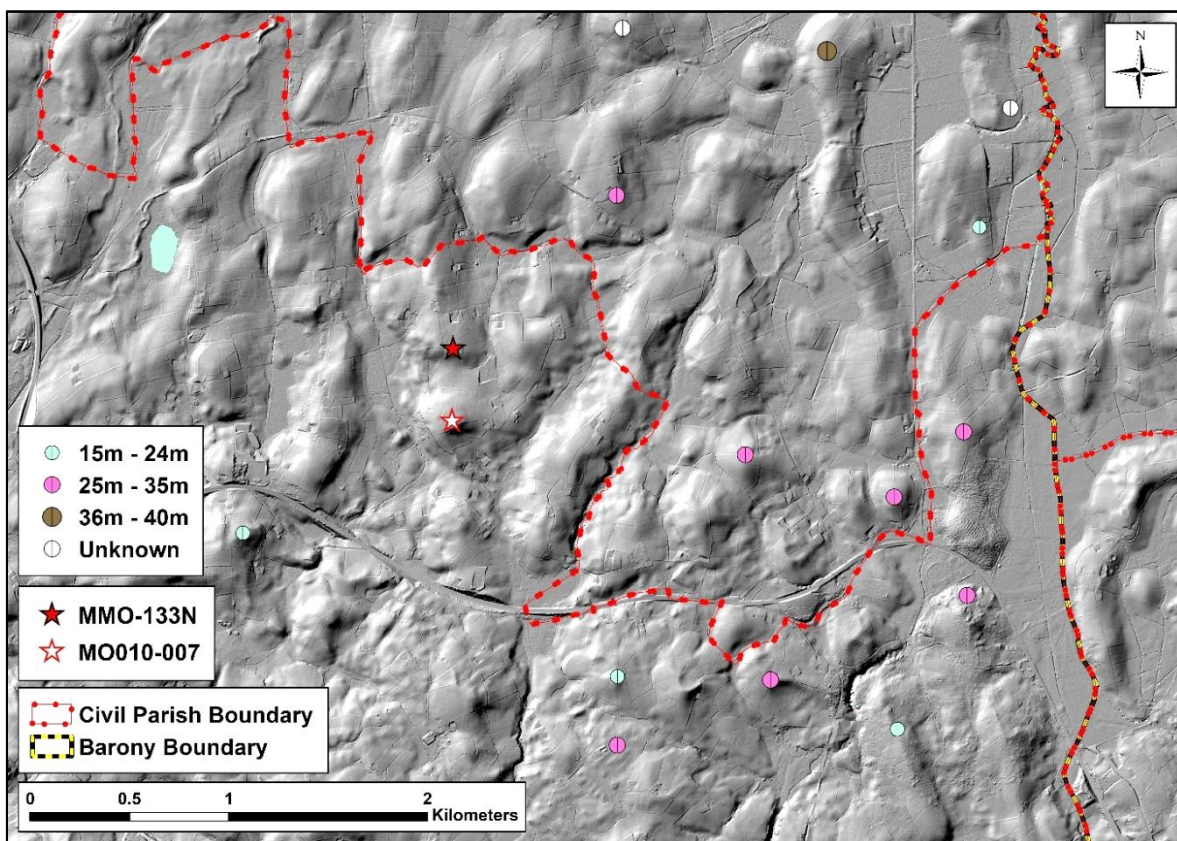


**Figure 5.31** Early medieval ecclesiastical sites within the study area  
(after OSi MapGenie, with additions)

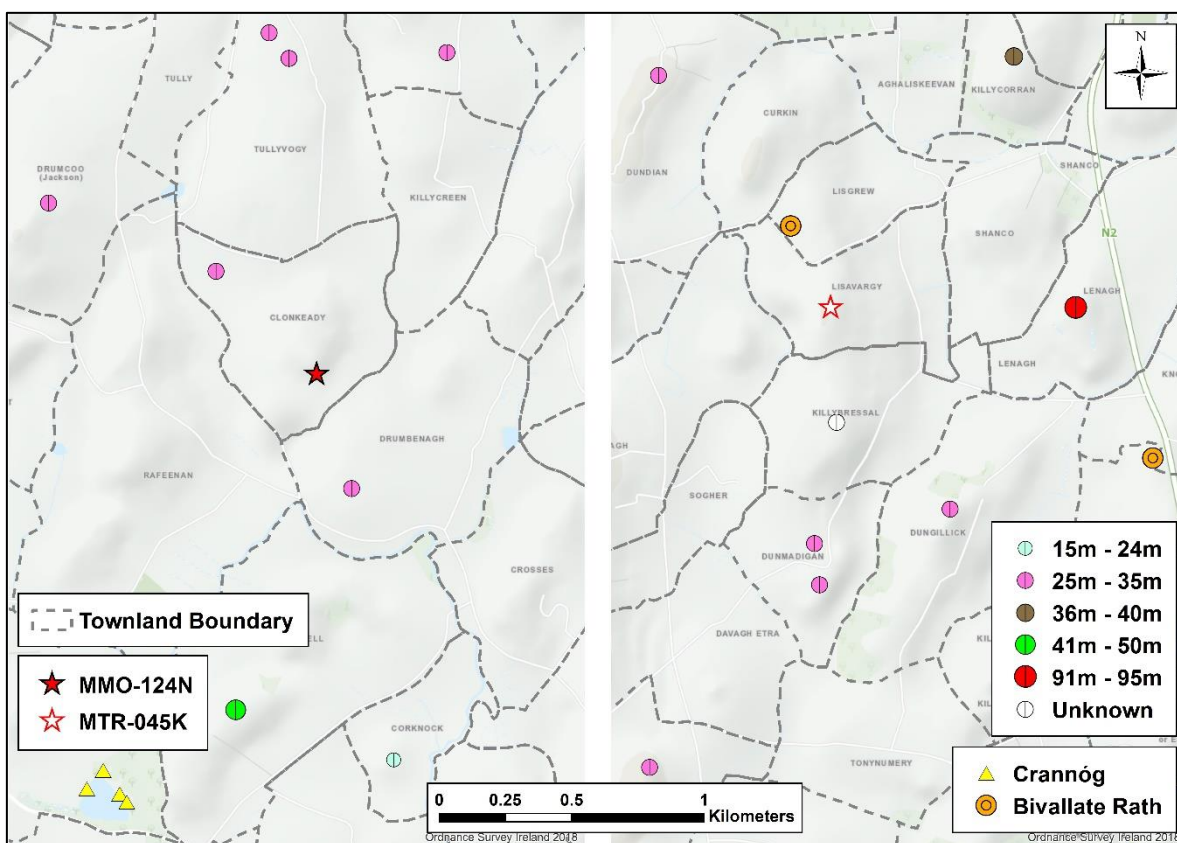


**Figure 5.32** Newly discovered enclosure at Annareagh South (slope model)  
(after OSi MapGenie, with additions)



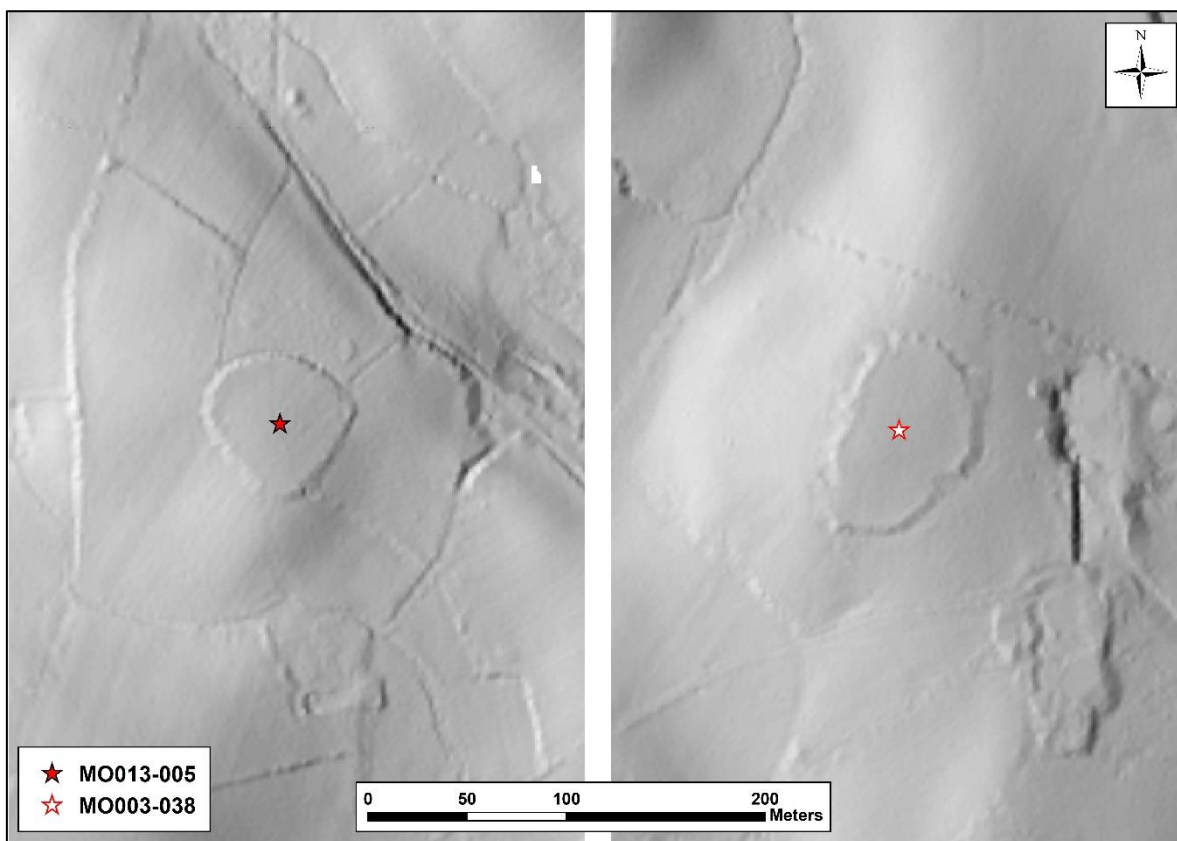


**Figure 5.33** Early medieval settlement in the environs of Feebane  
(Hillshade: Azi. 315 / Alt. 55)

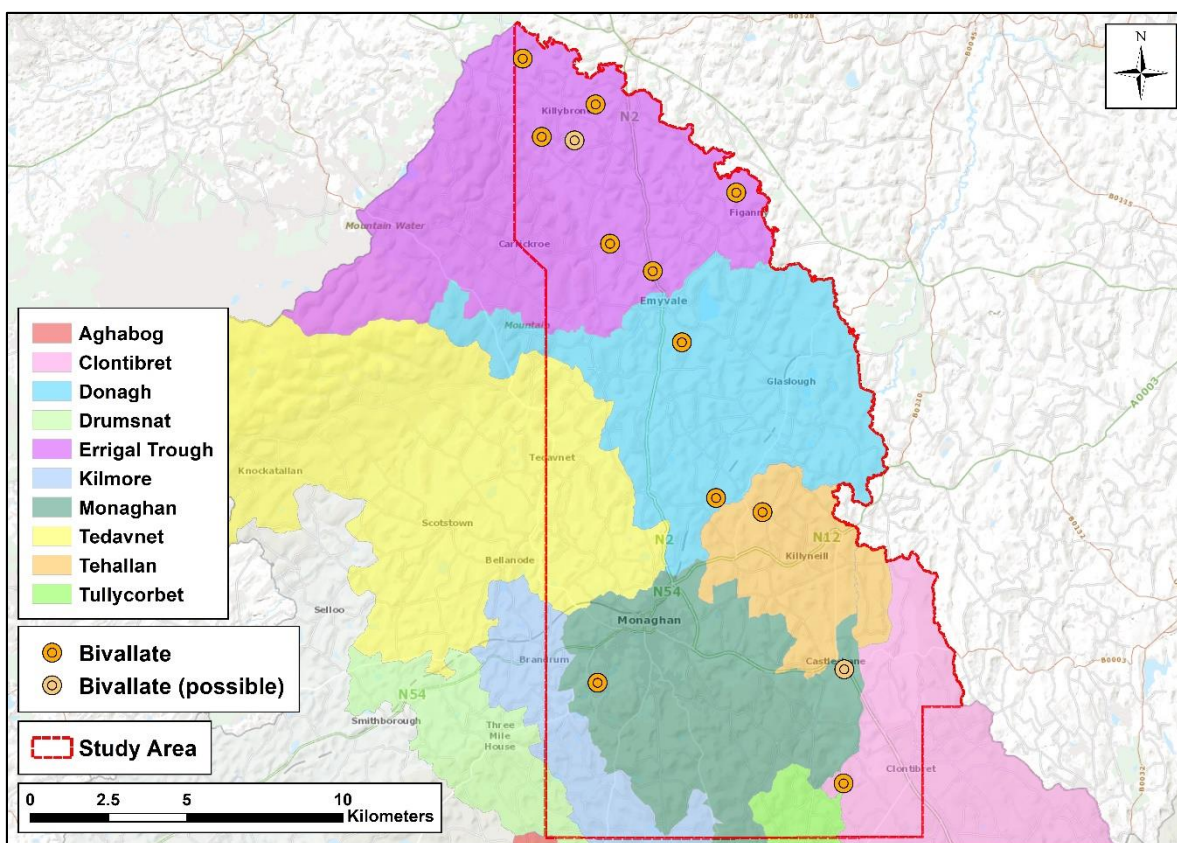


**Figure 5.34** The large enclosures at Clonkeady and Lisavargy  
(after OSi MapGenie, with additions)

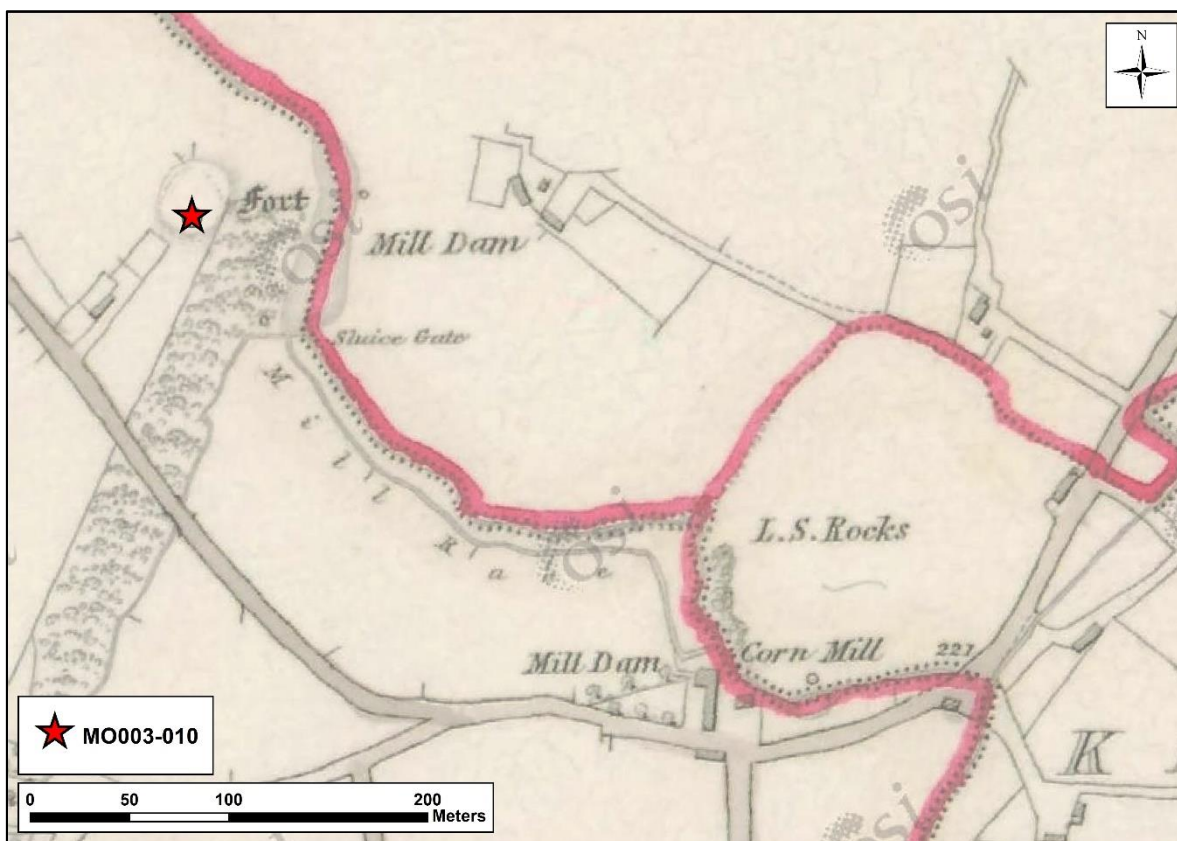




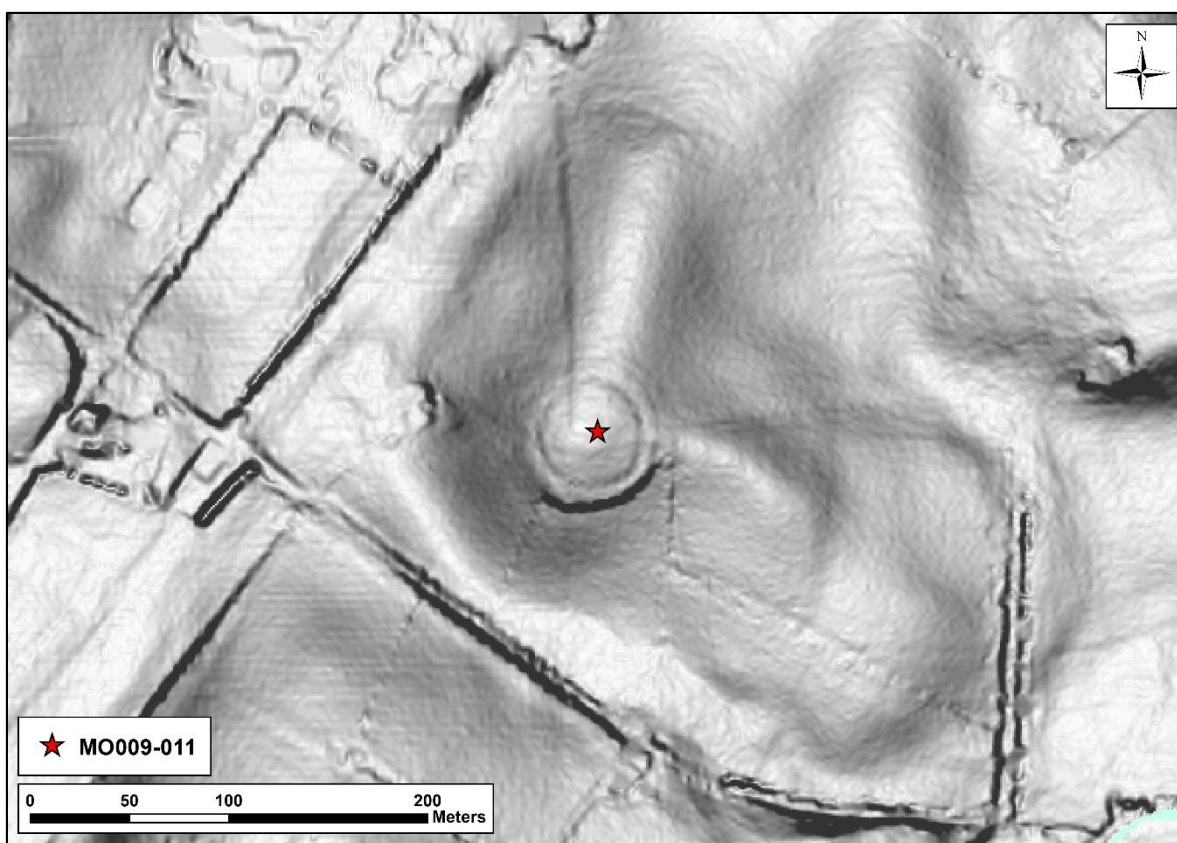
**Figure 5.35** The large enclosures at Cornaglare (MO013-005) and Lenagh (MO003-038)  
(Hillshade: Azi. 285 / Alt. 45)



**Figure 5.36** Distribution of bivallate raths within the study area  
(after SMR; OSi MapGenie, with additions)

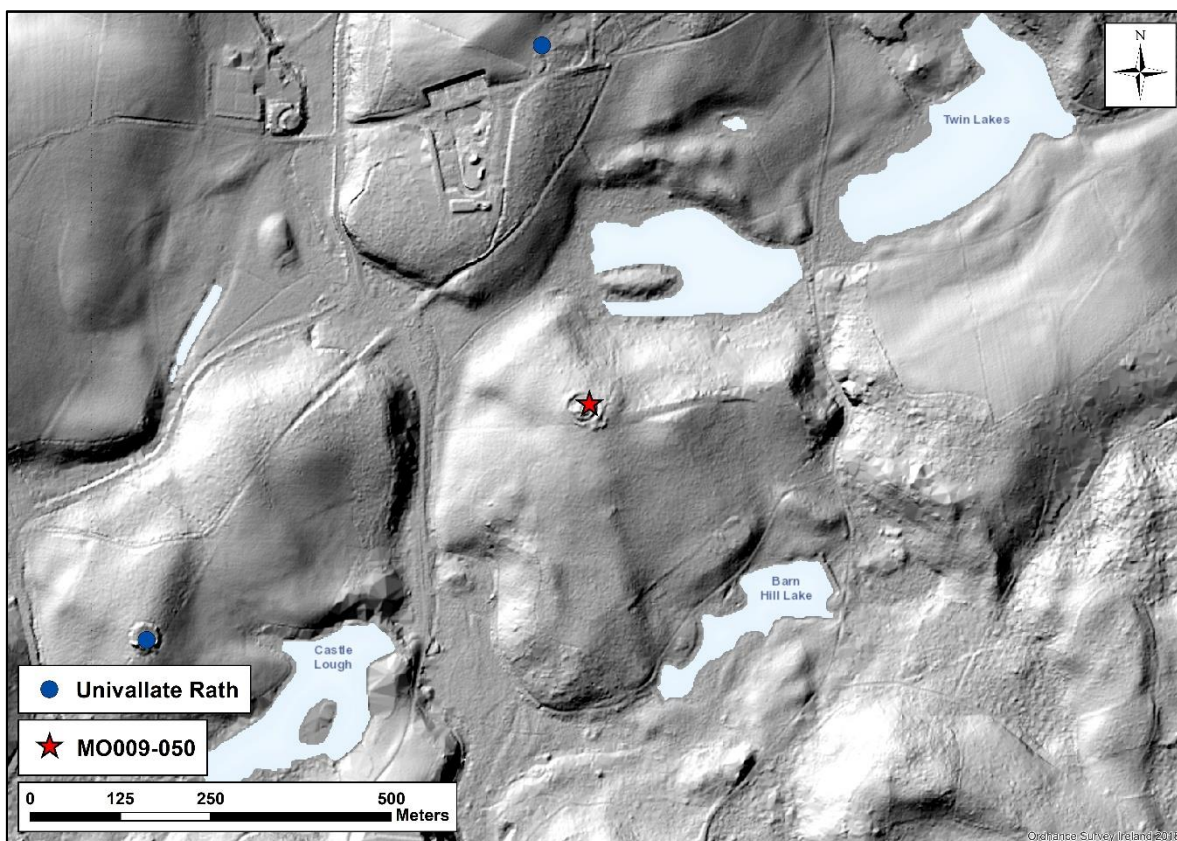


**Figure 5.37** The bivalent path at Dernagola as depicted on the 6 inch historic map  
(after OSi MapGenie, with additions)

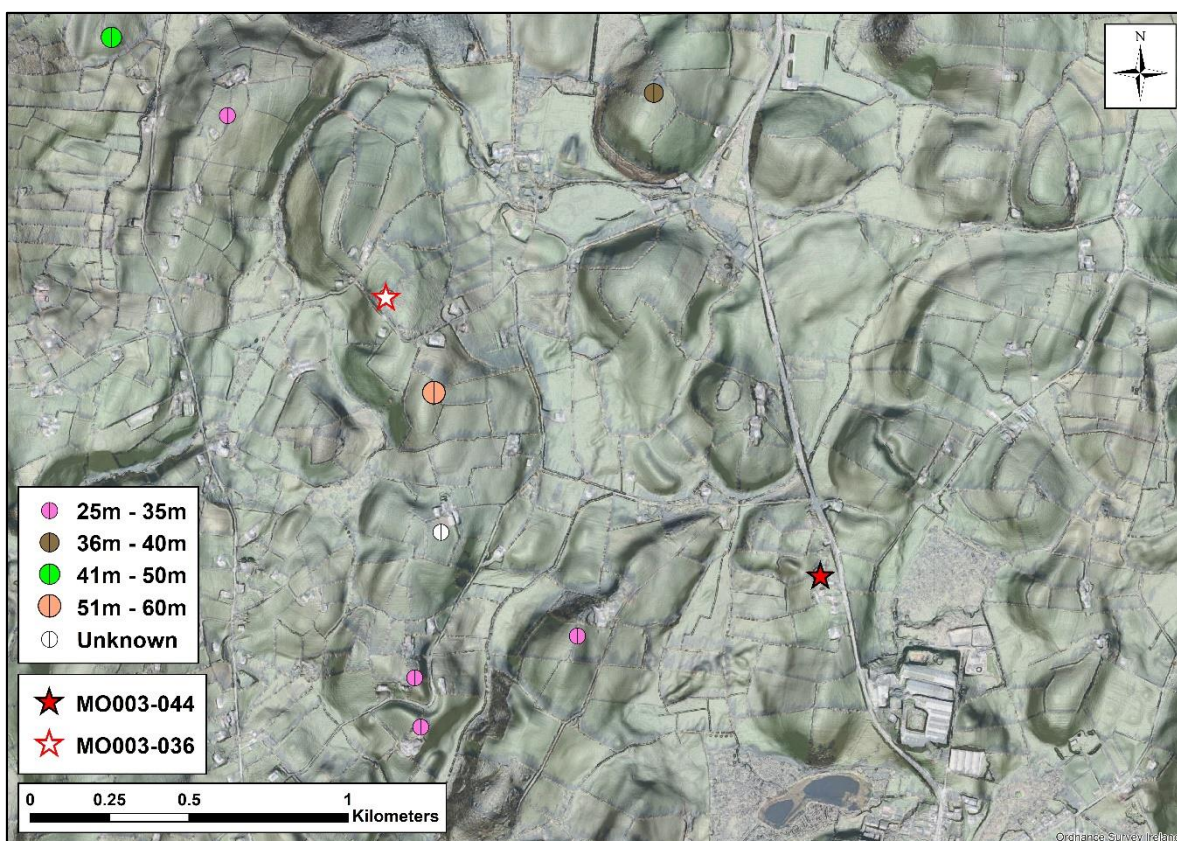


**Figure 5.38** The bivalent path at Faulkland (*slope model*)



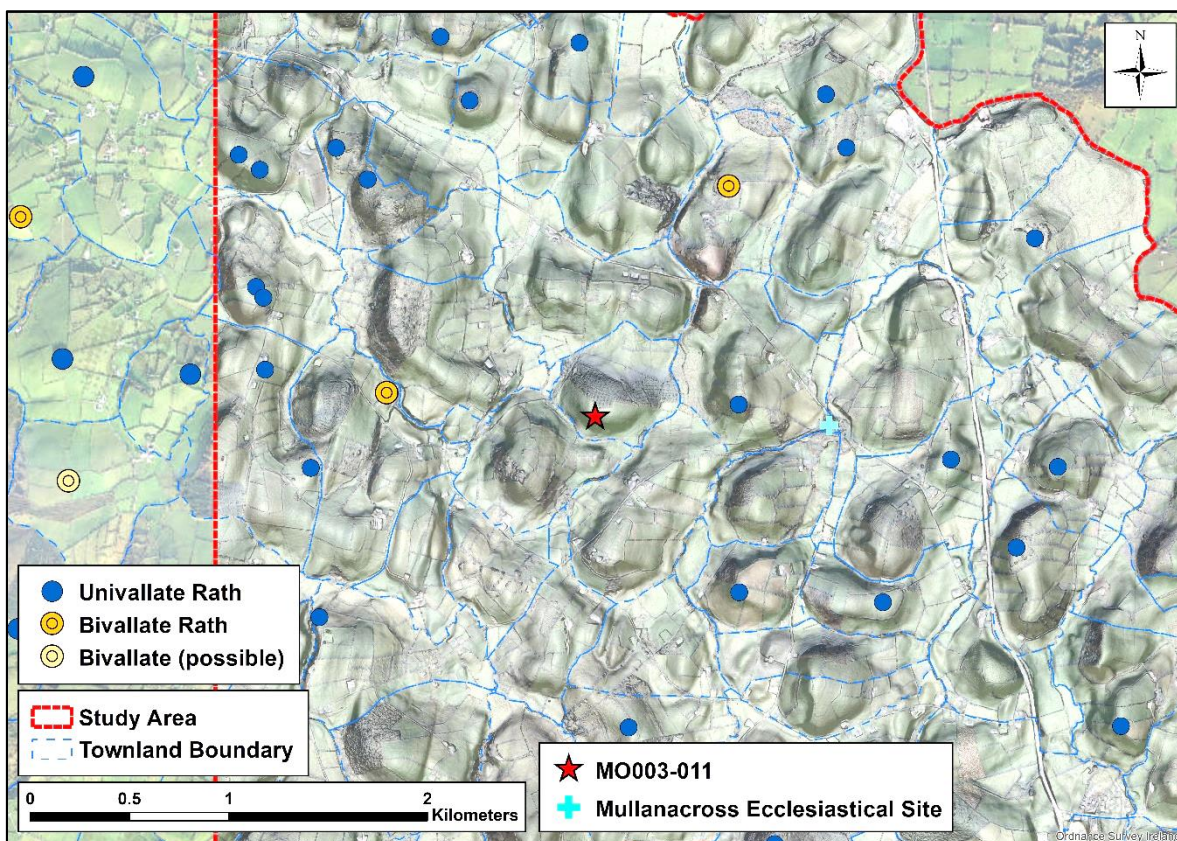


**Figure 5.39** The bivalent rath at Killydrutan (*Hillshade: Azi. 315 / Alt. 55*)  
(after OSi MapGenie, with additions)

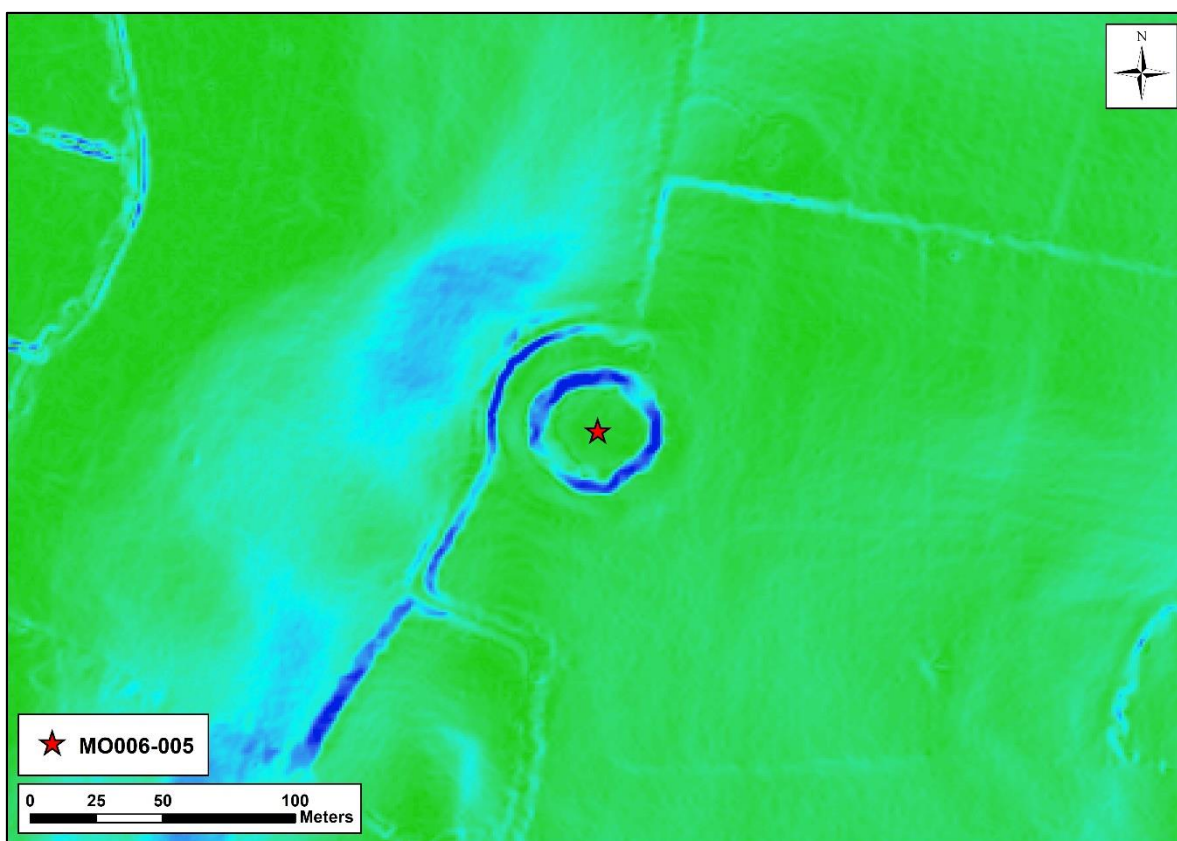


**Figure 5.40** Early medieval settlement within the environs of Corlattan/Knockakirwan and Lisgrew (*slope model*)  
(after OSi MapGenie, with additions)





**Figure 5.41** Early medieval settlement in the environs of Killyreask (MO003-011)  
(*slope model*) (after OSi MapGenie, with additions)



**Figure 5.42** The bivallate rath at Tully (*slope model*)



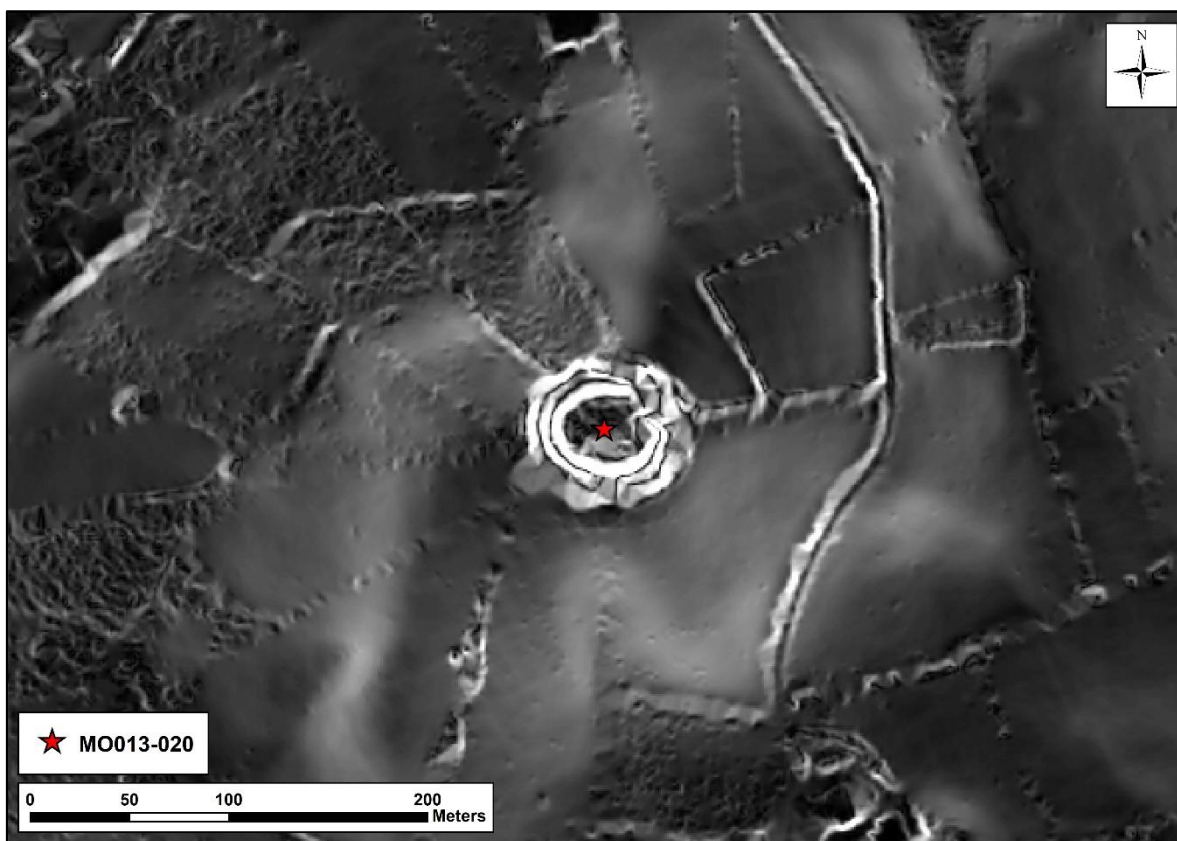


Figure 5.43 The bivalent rath at Lissaraw (*slope model*)

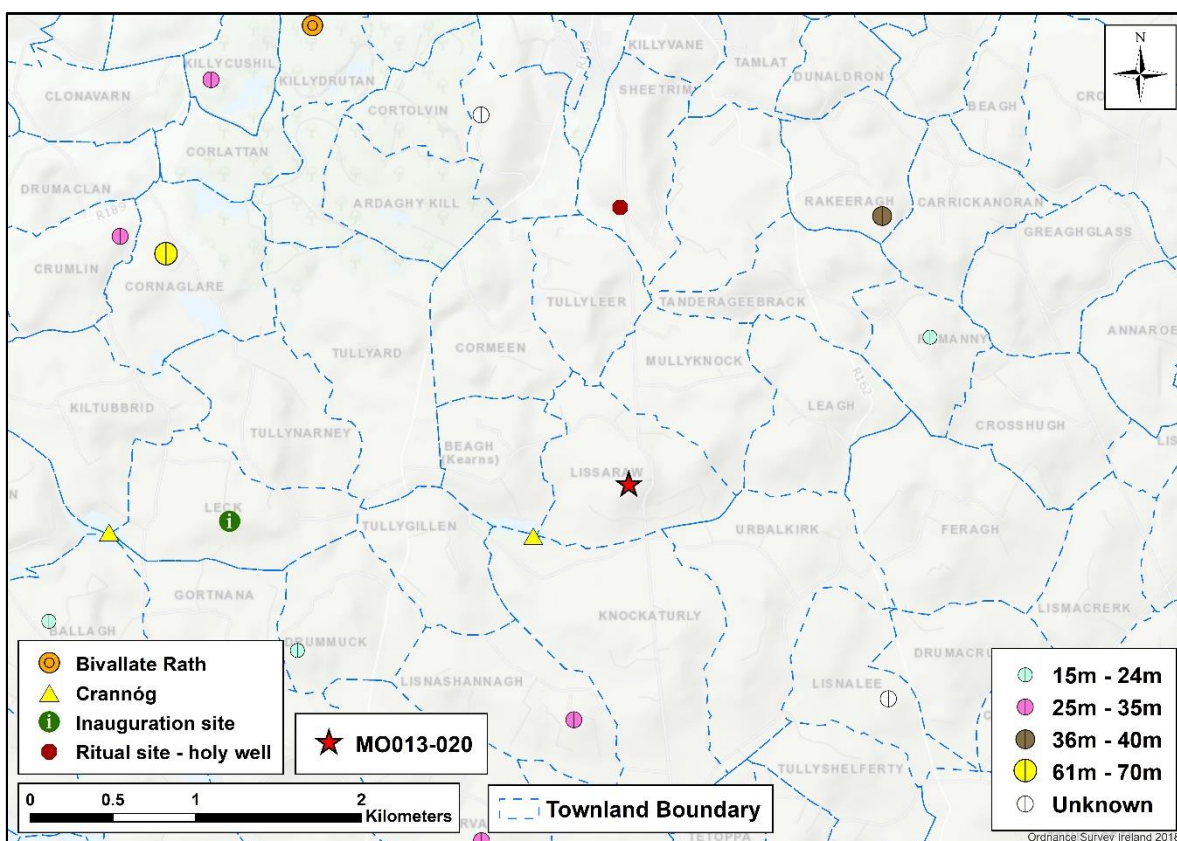
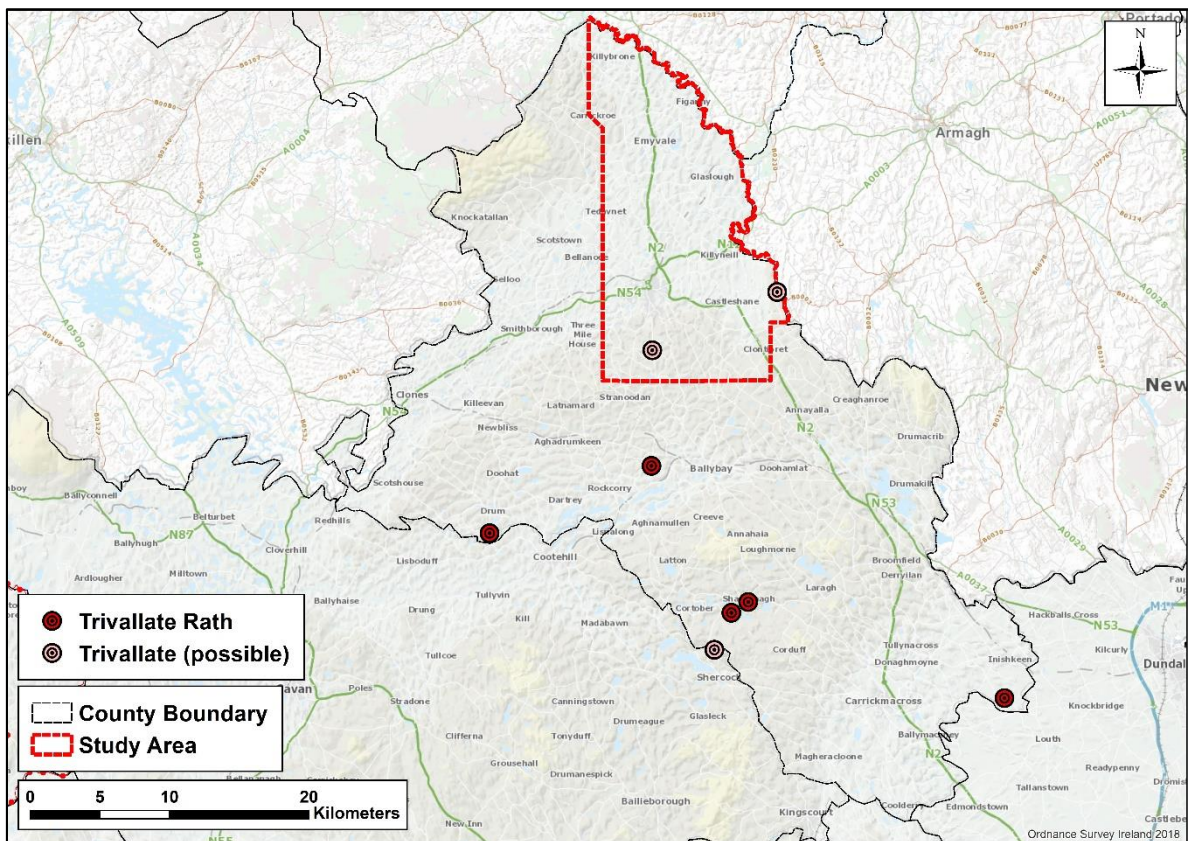
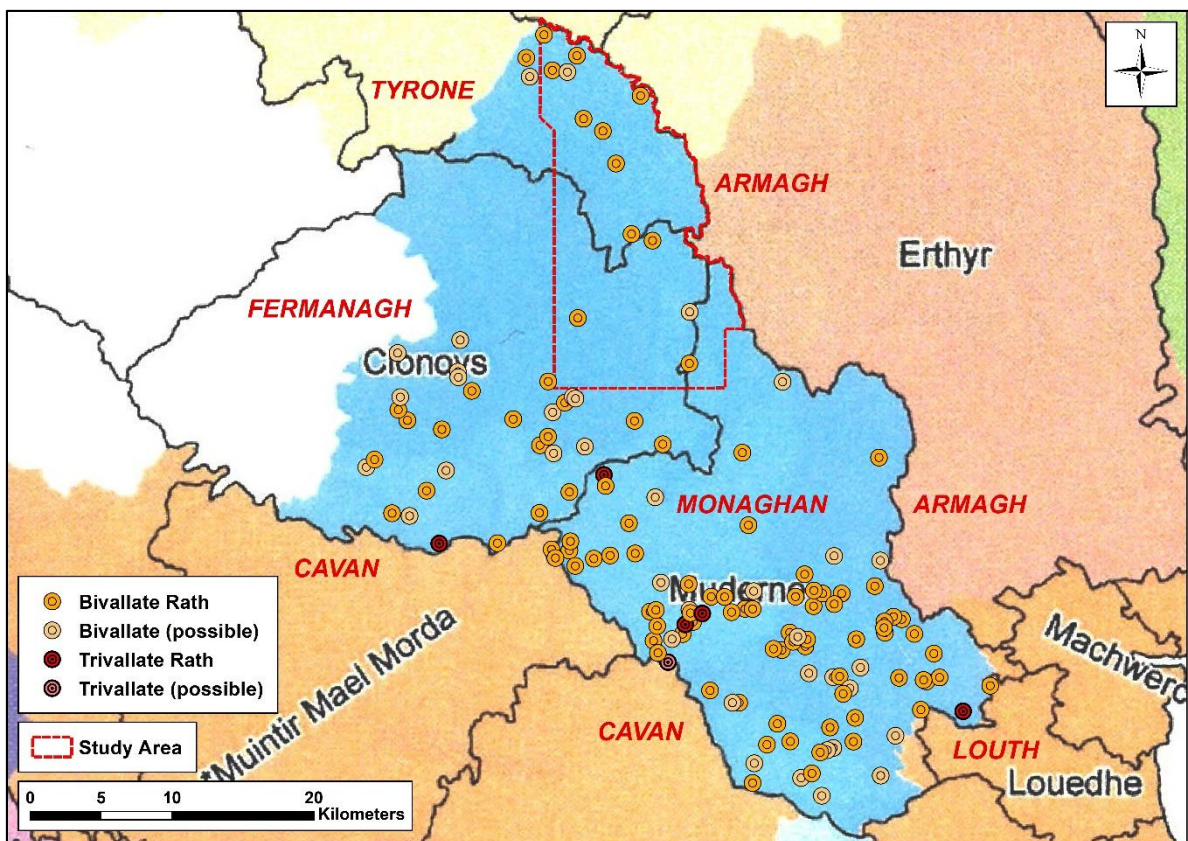


Figure 5.44 Early medieval settlement in the environs of Lissaraw  
(after OSi MapGenie, with additions)



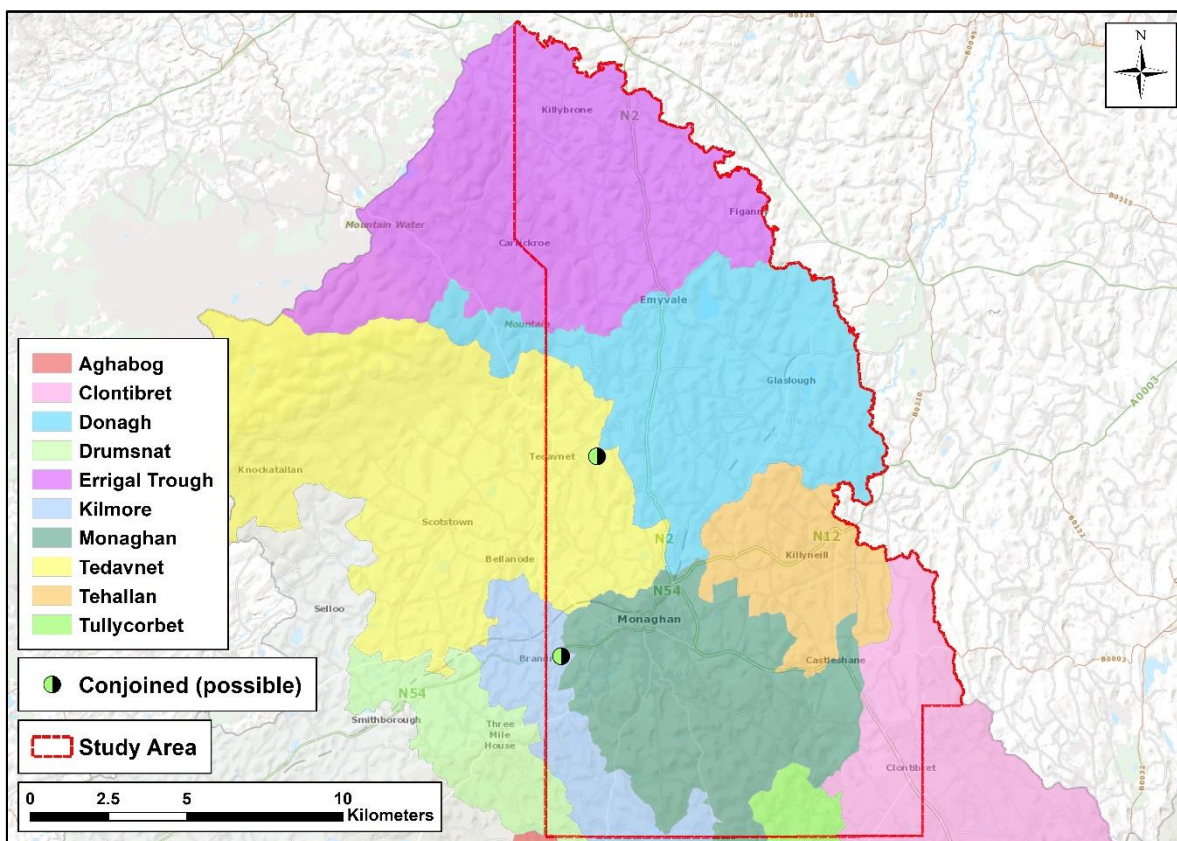


**Figure 5.45** Distribution of (possible) trivallate raths in Co. Monaghan  
(after OSi MapGenie, with additions)

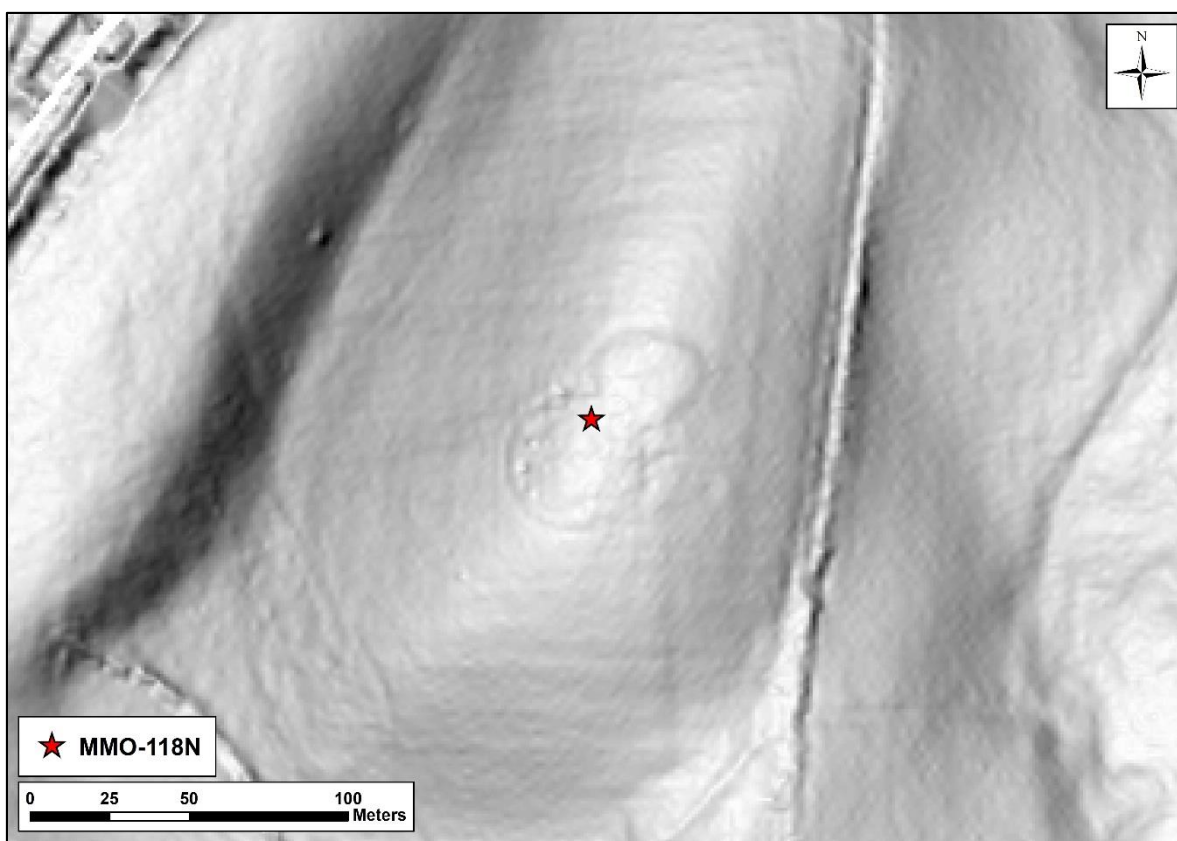


**Figure 5.46** Distribution of multivallate raths at the meeting of thirteenth-century territories  
(modern county names in red)  
(after MacCotter 2008, 258-259, with additions)



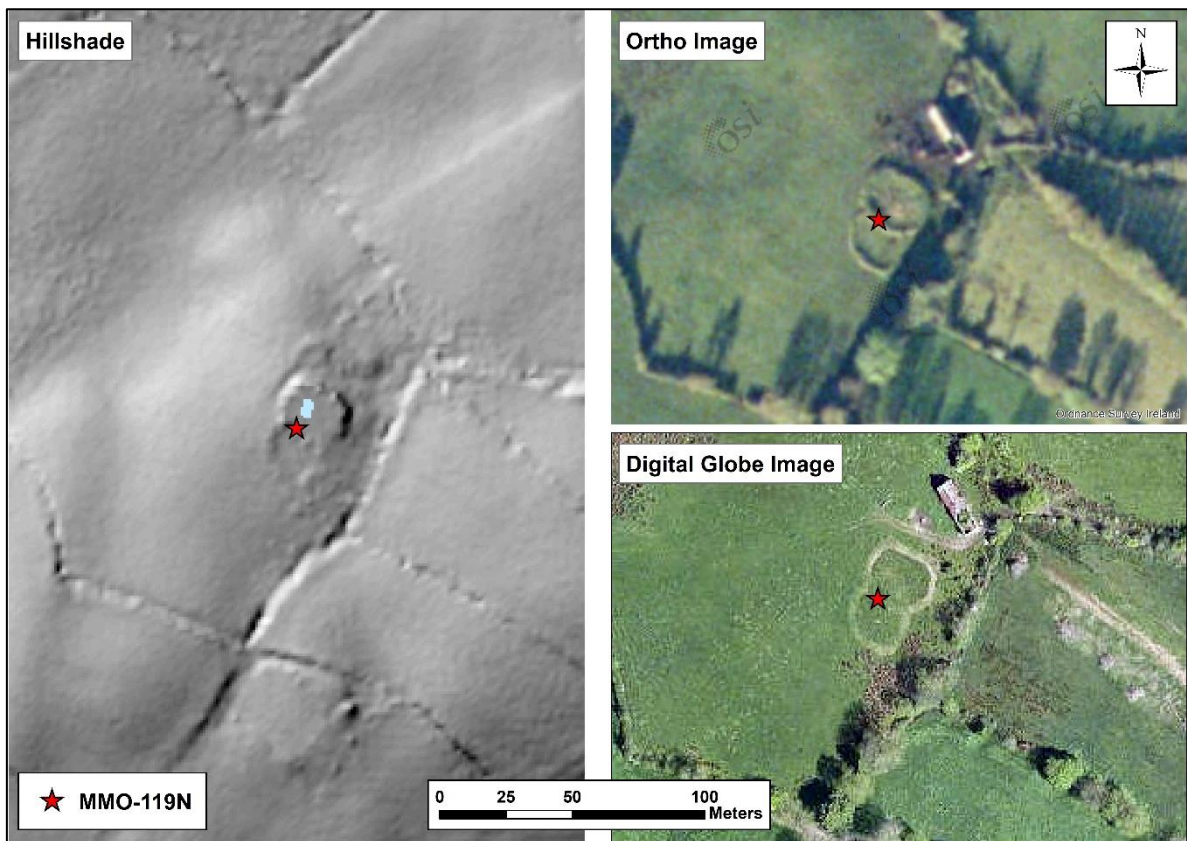


**Figure 5.47** Distribution of (possible) conjoined raths in the study area  
(after OSi MapGenie, with additions)

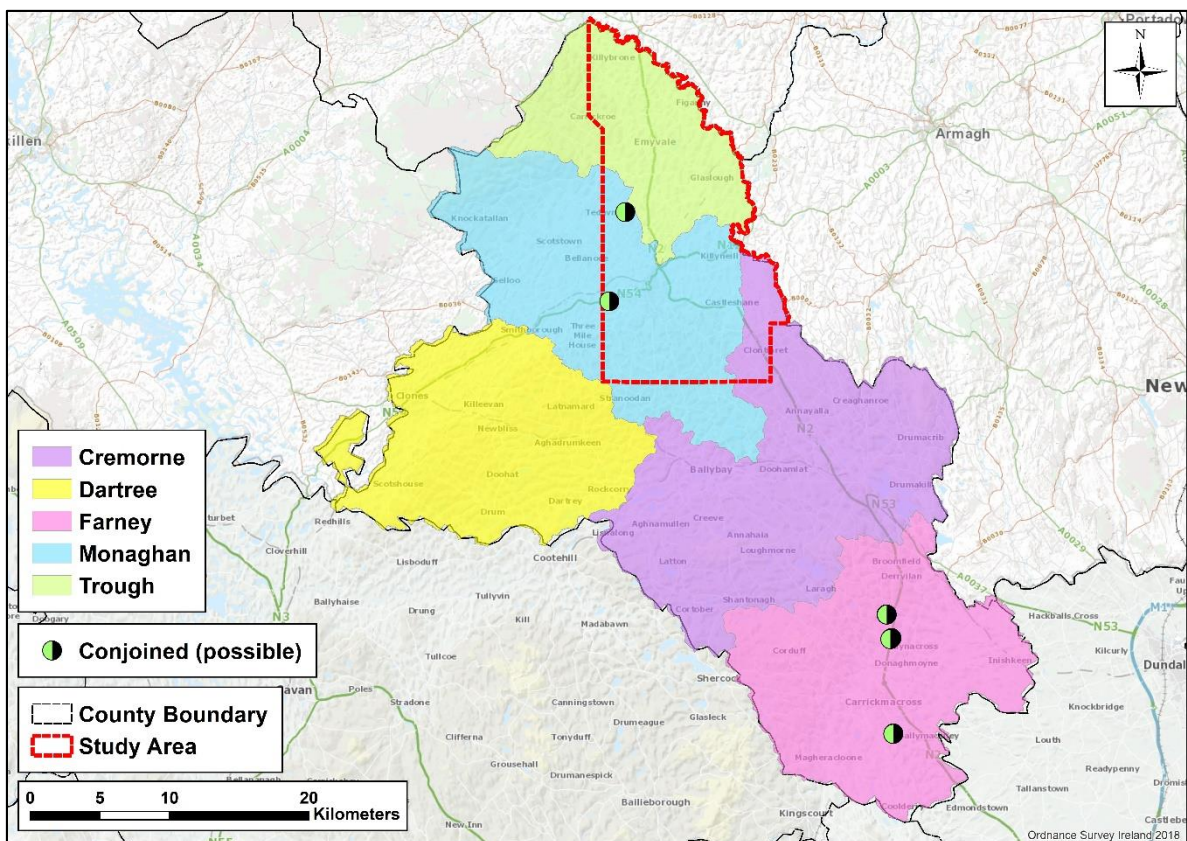


**Figure 5.48** The possible conjoined monument at Ballyleck (slope model)



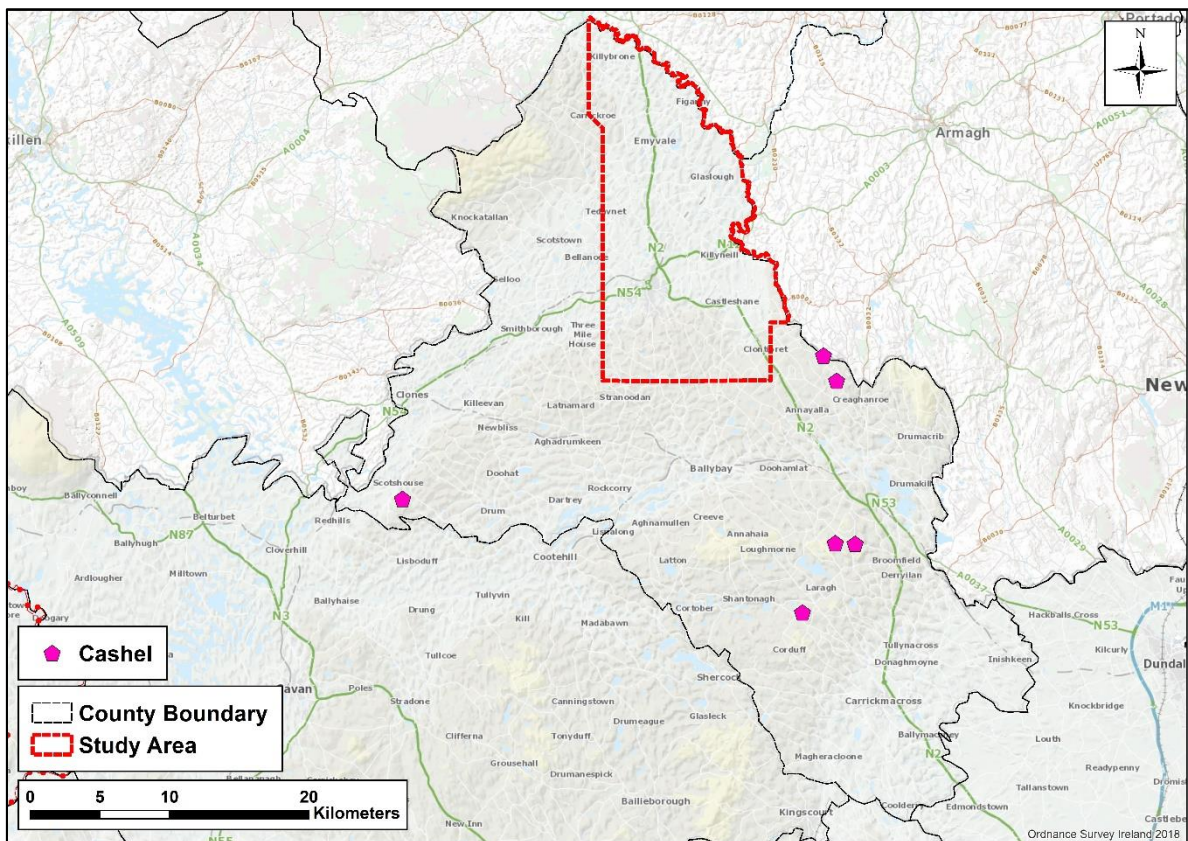


**Figure 5.49** The remains of the possible conjoined monument at Sheetrim  
(after OSi MapGenie, with additions)

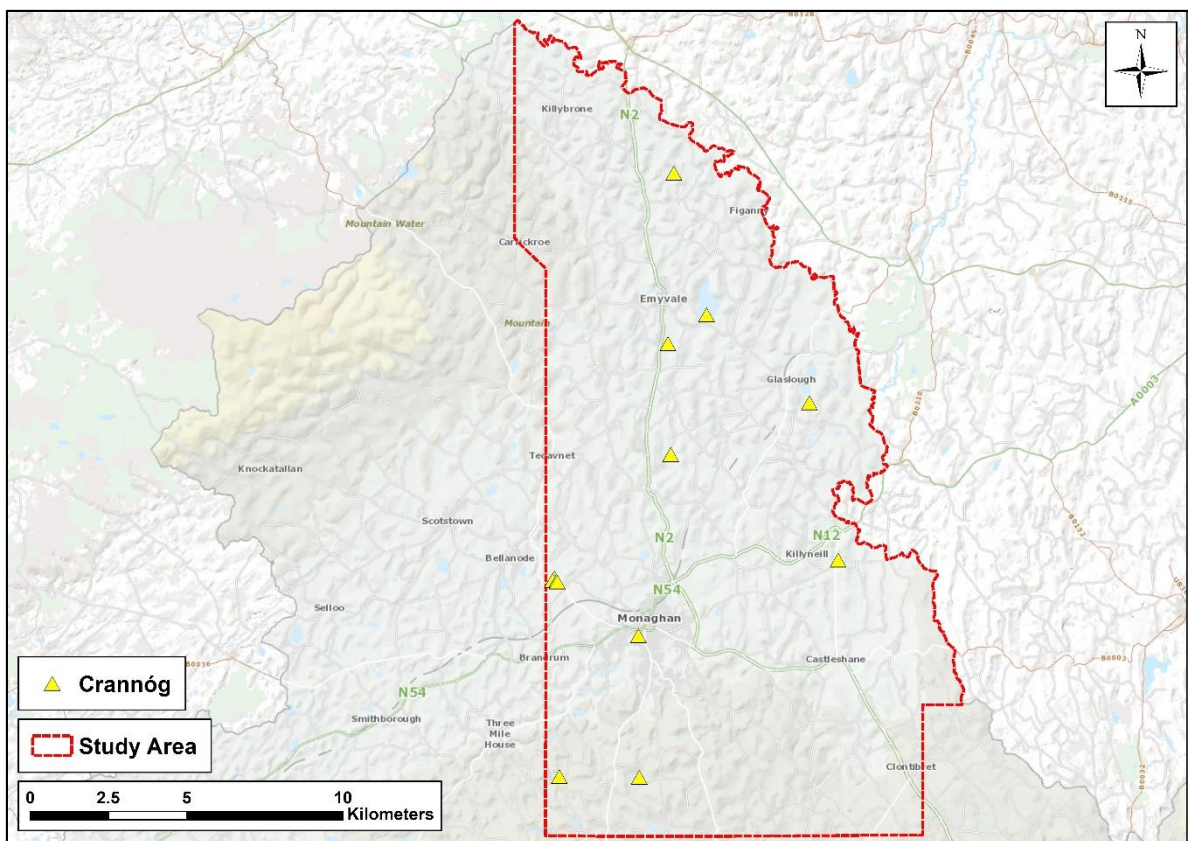


**Figure 5.50** Distribution of (possible) conjoined monuments within Co. Monaghan  
(after OSi MapGenie, with additions)



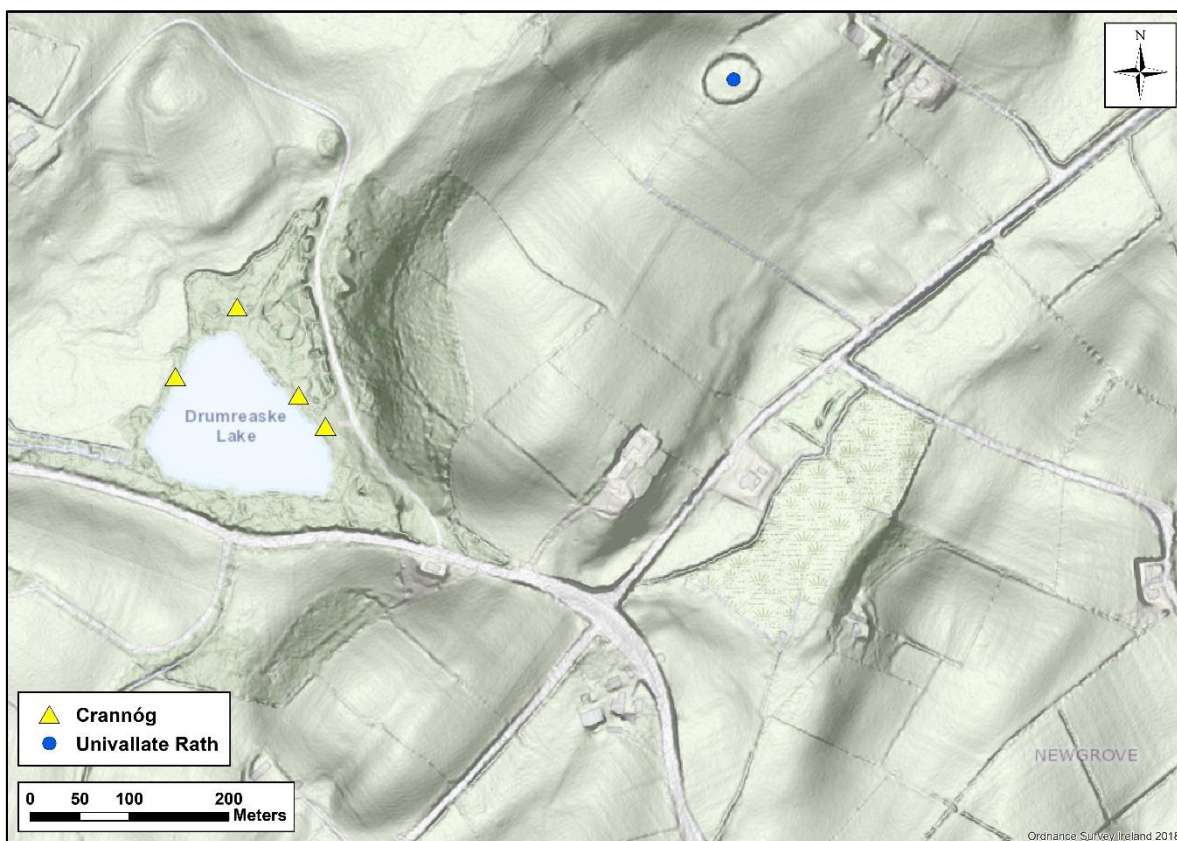


**Figure 5.51** Distribution of cashels within Co. Monaghan  
(after SMR; OSi MapGenie, with additions)

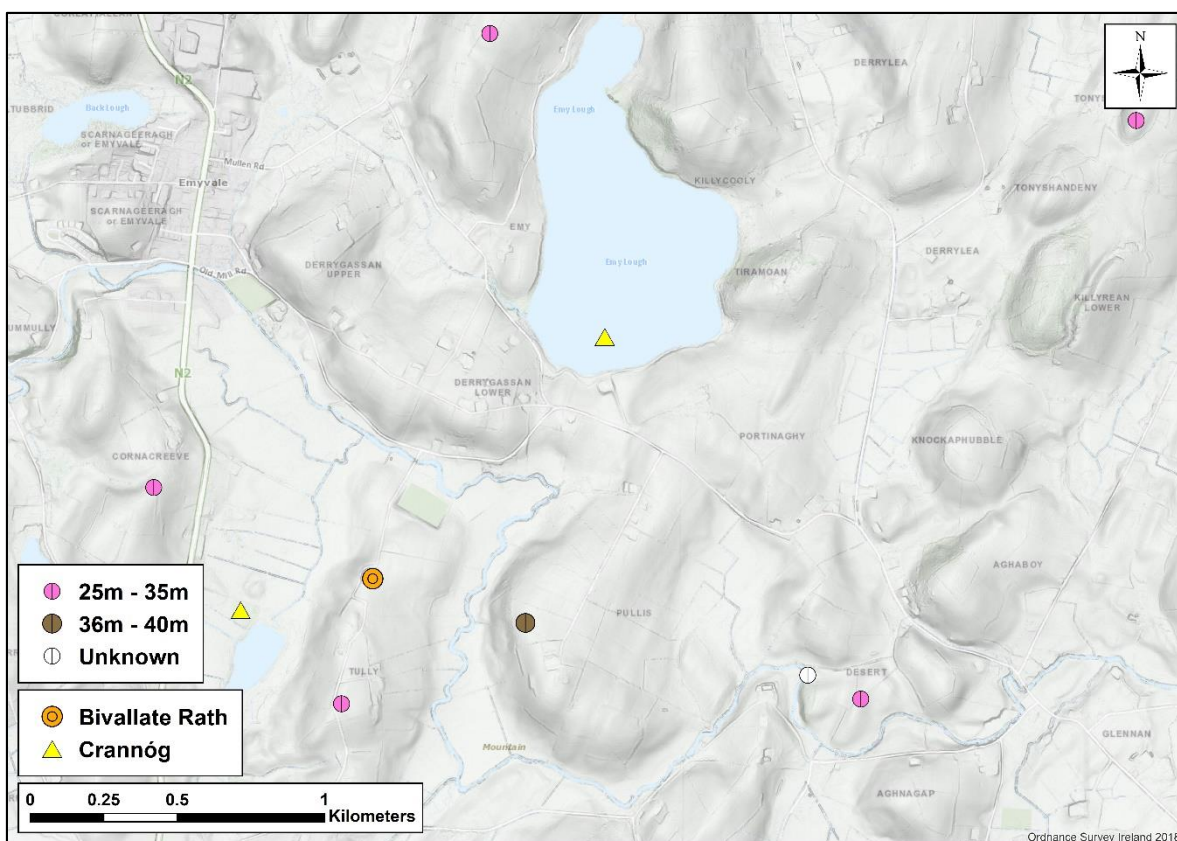


**Figure 5.52** Distribution of crannógs within the study area  
(after SMR; OSi MapGenie, with additions)



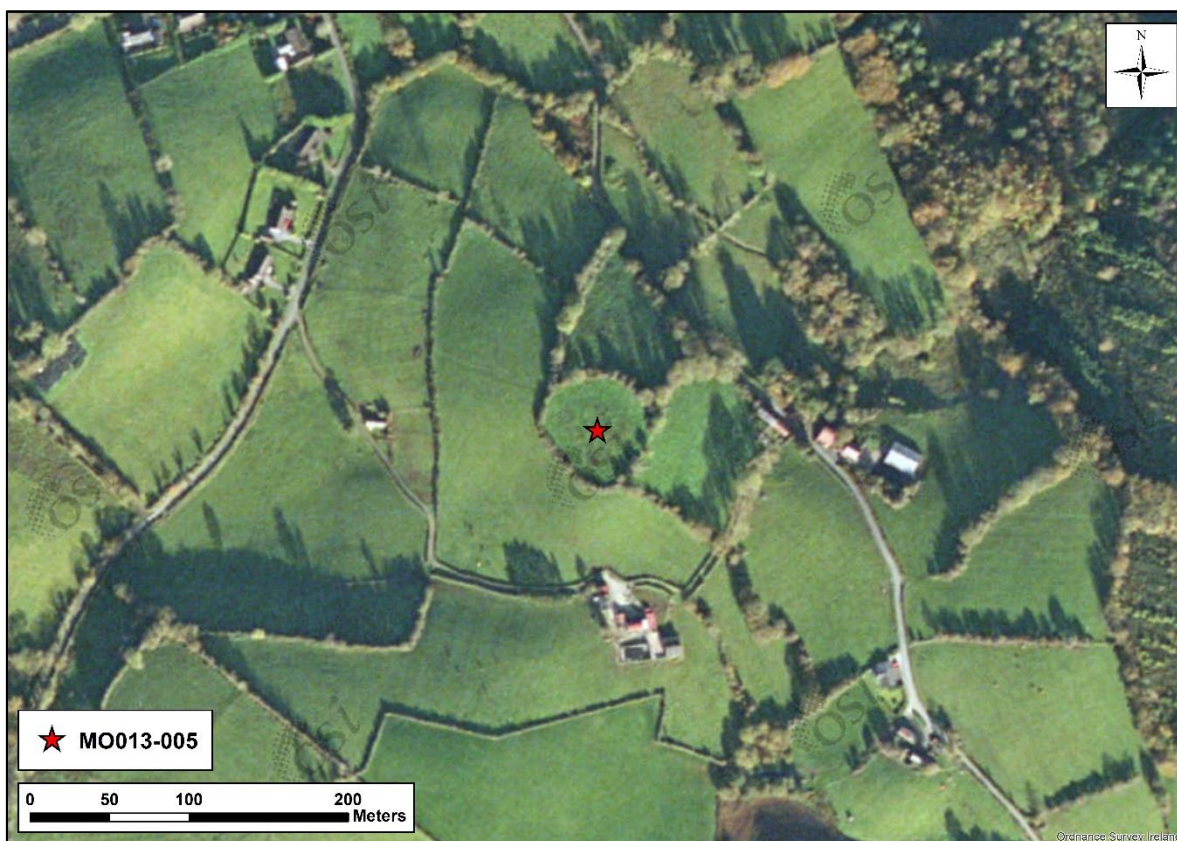


**Figure 5.53** The crannógs on Drumreask Lake (*slope model*)  
(after OSi MapGenie, with additions)



**Figure 5.54** The crannóg at Emy Lough and contemporary monuments (*slope model*)  
(after OSi MapGenie, with additions)

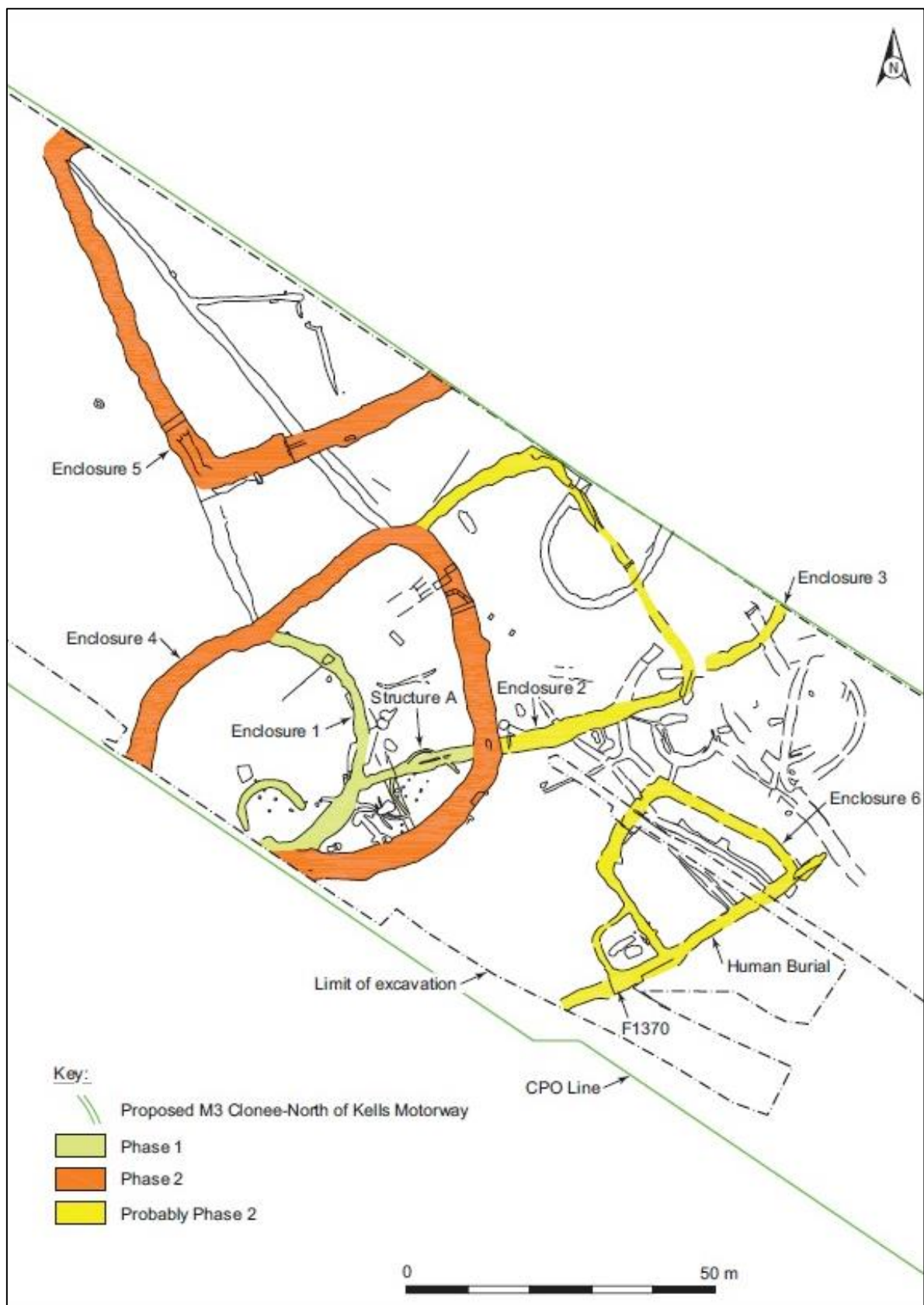




**Figure 5.55** The enclosure at Cornaglare and adjoining fields  
(after OSi MapGenie, with additions)

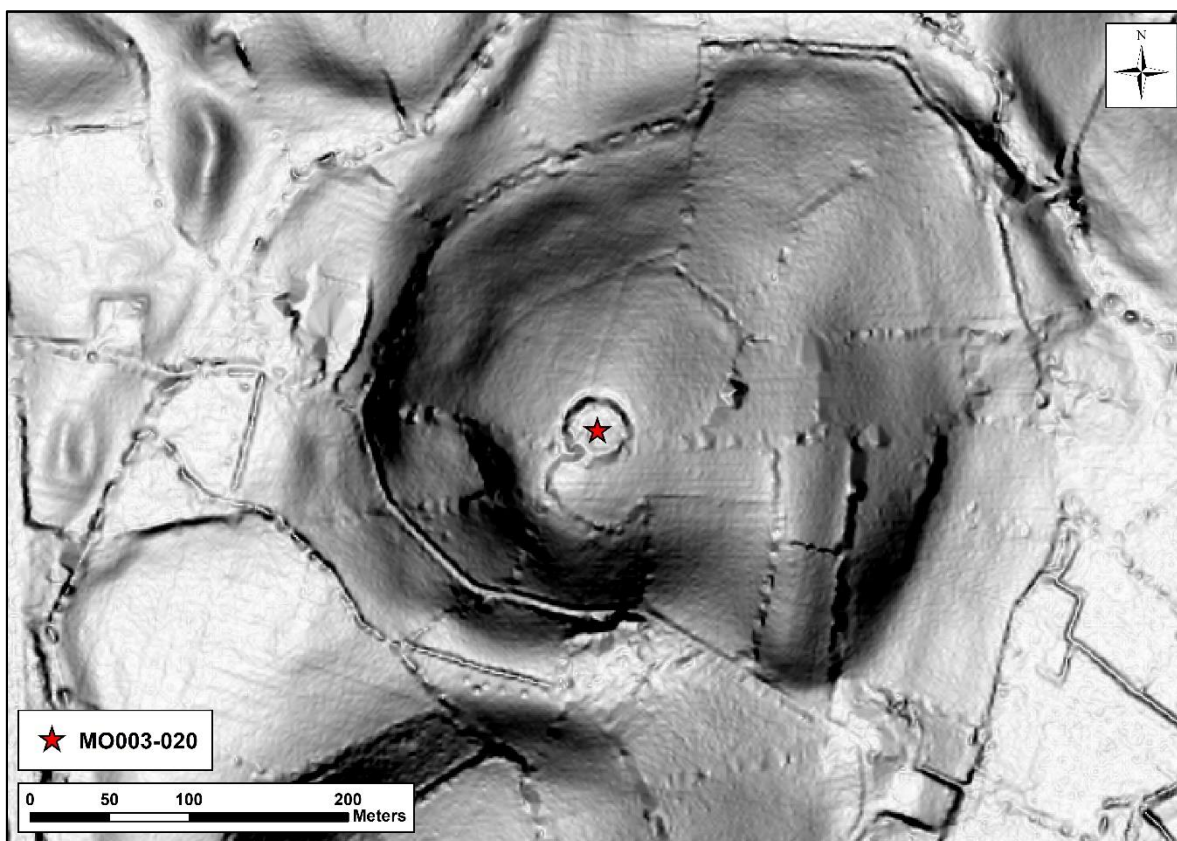


**Figure 5.56** Possible contemporary fields adjoining the enclosure at Clonkady  
(Openness negative; after RVT)

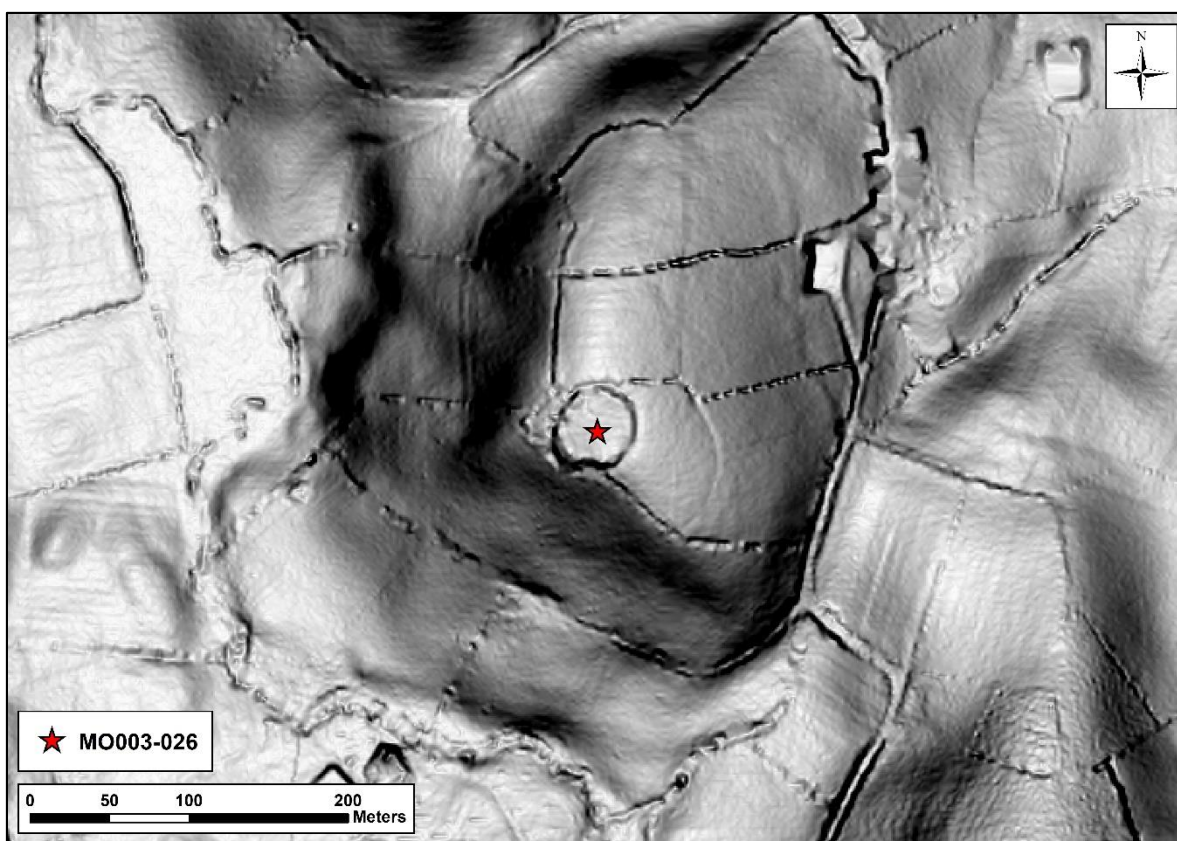


**Figure 5.57** Fieldsystems at Dowdstown, Co. Meath (after Cagney & O'Hara 2009, 125)

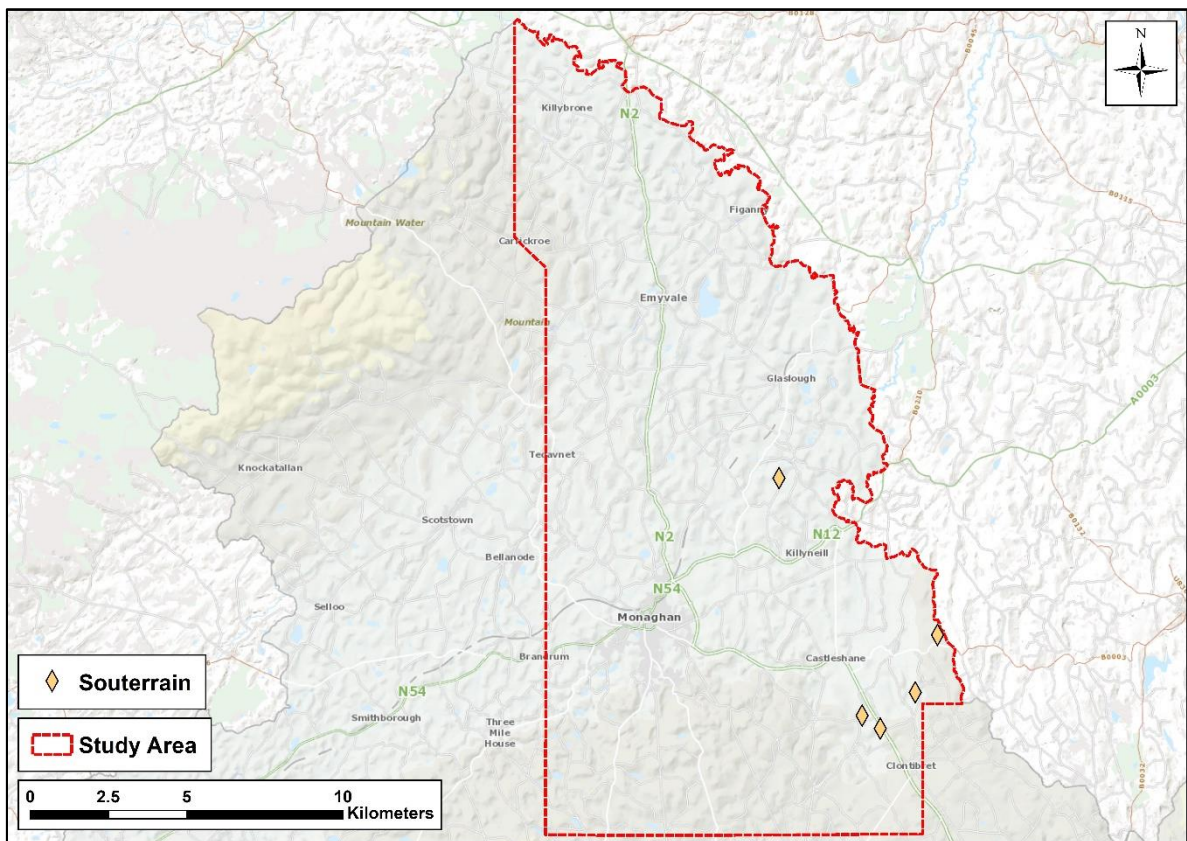




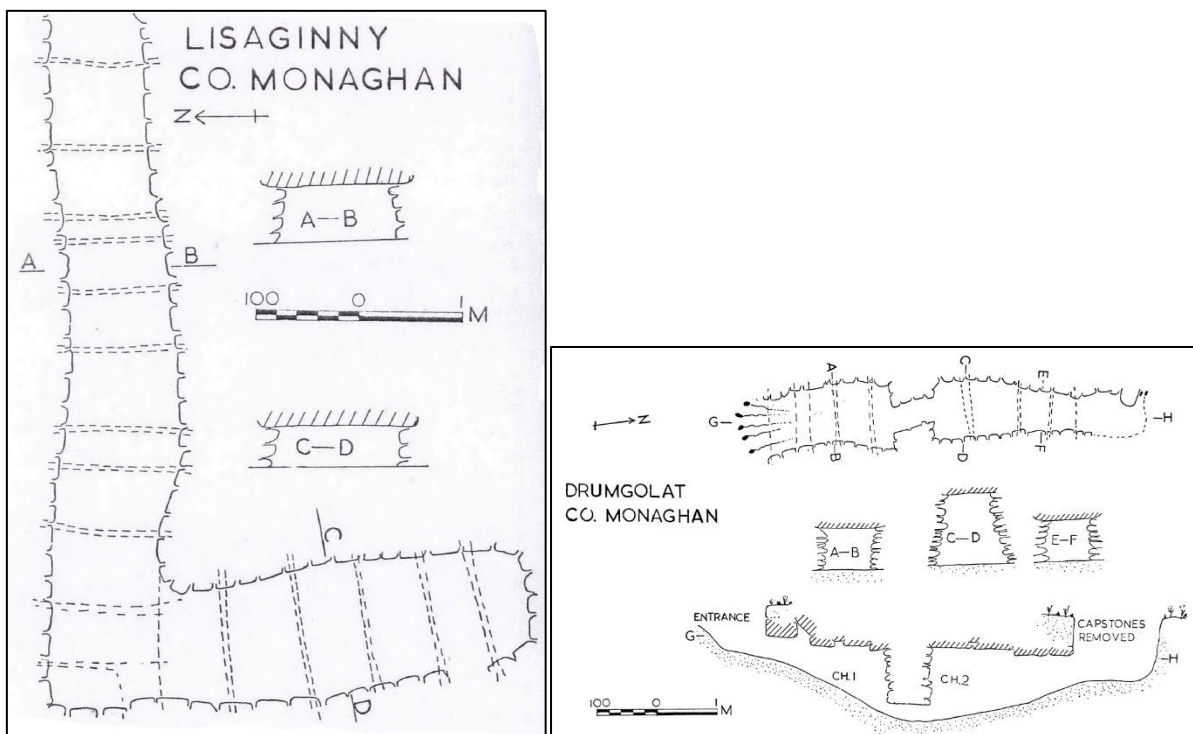
**Figure 5.58** The rath at Killydonagh and (possibly associated) curvilinear ditched feature  
(slope model)



**Figure 5.59** The rath at Mullanalogh and (possibly associated) curvilinear ditched feature  
(slope model)

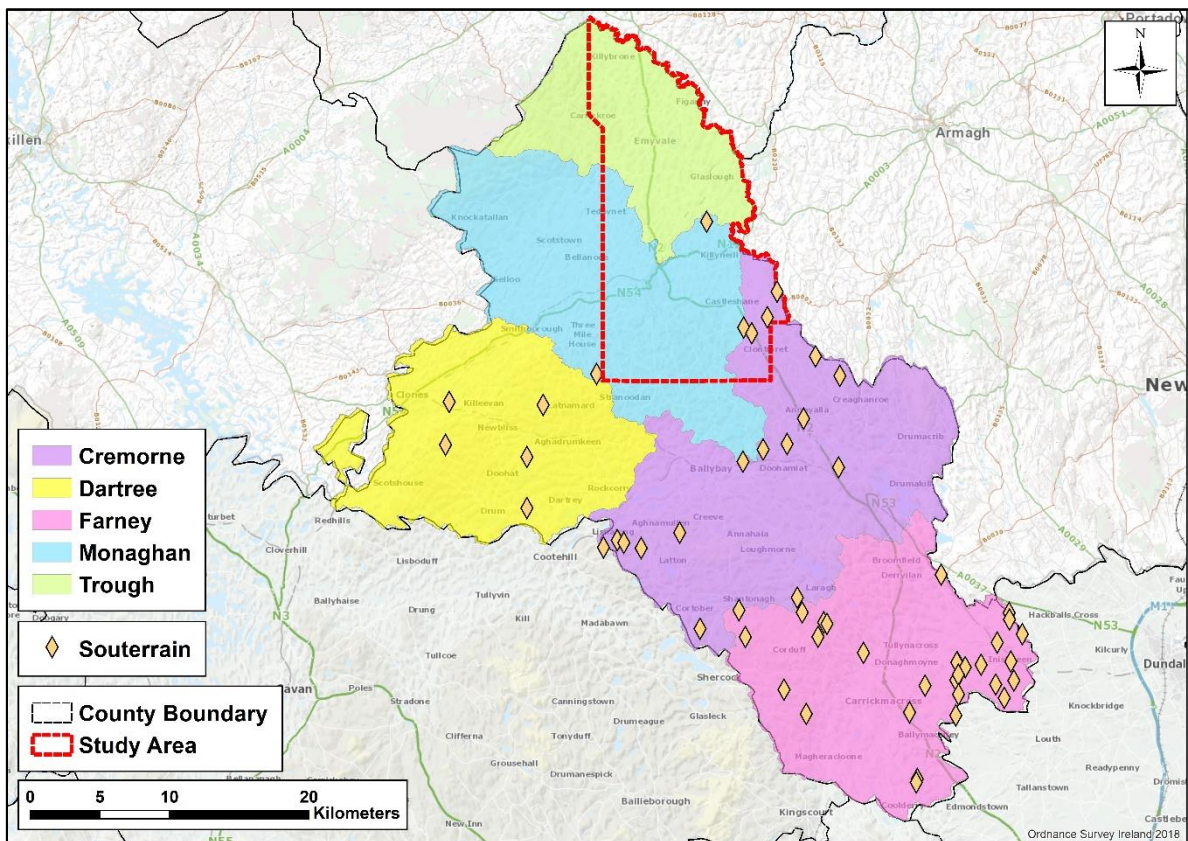


**Figure 5.60** Distribution of souterrains within the study area  
(after SMR; OSi MapGenie, with additions)

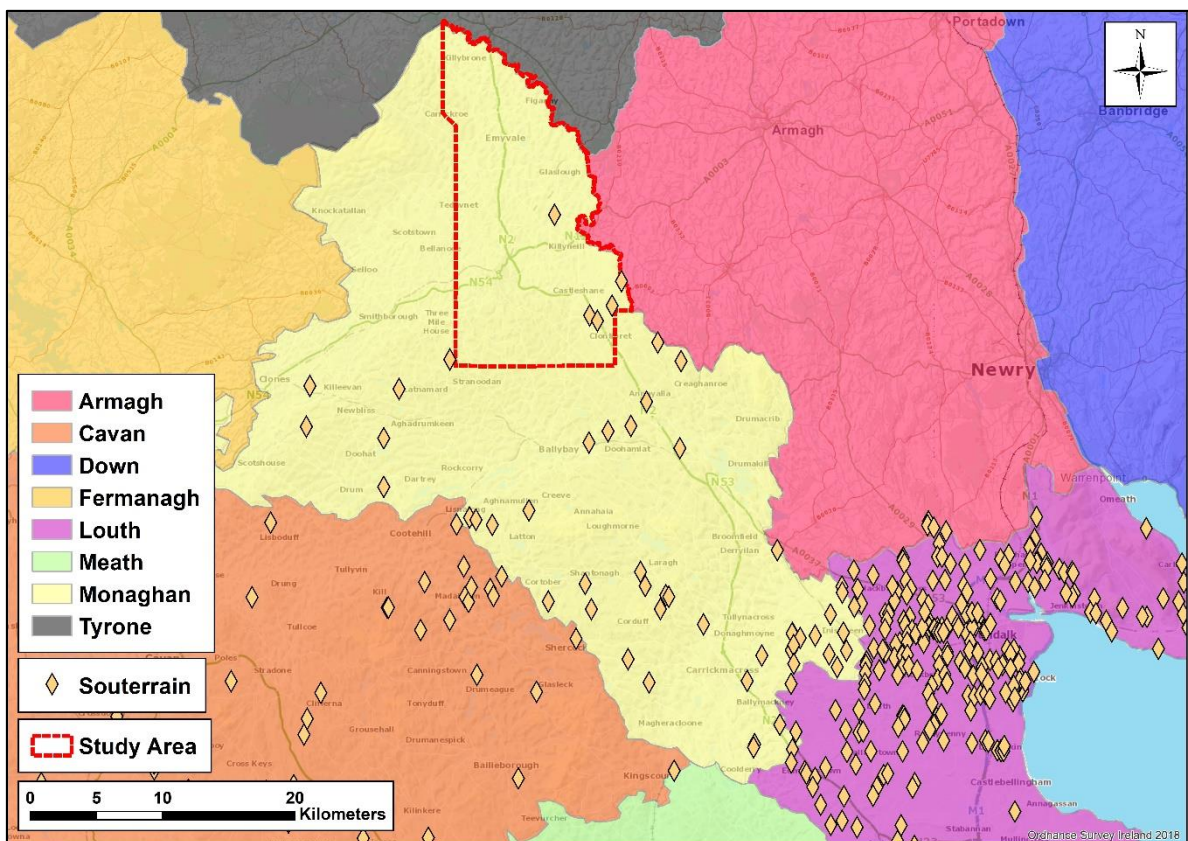


**Figure 5.61** Plan of the souterrains at Lisaginnny and Drumgolat  
(after McCormick 1978, 327 & 329)



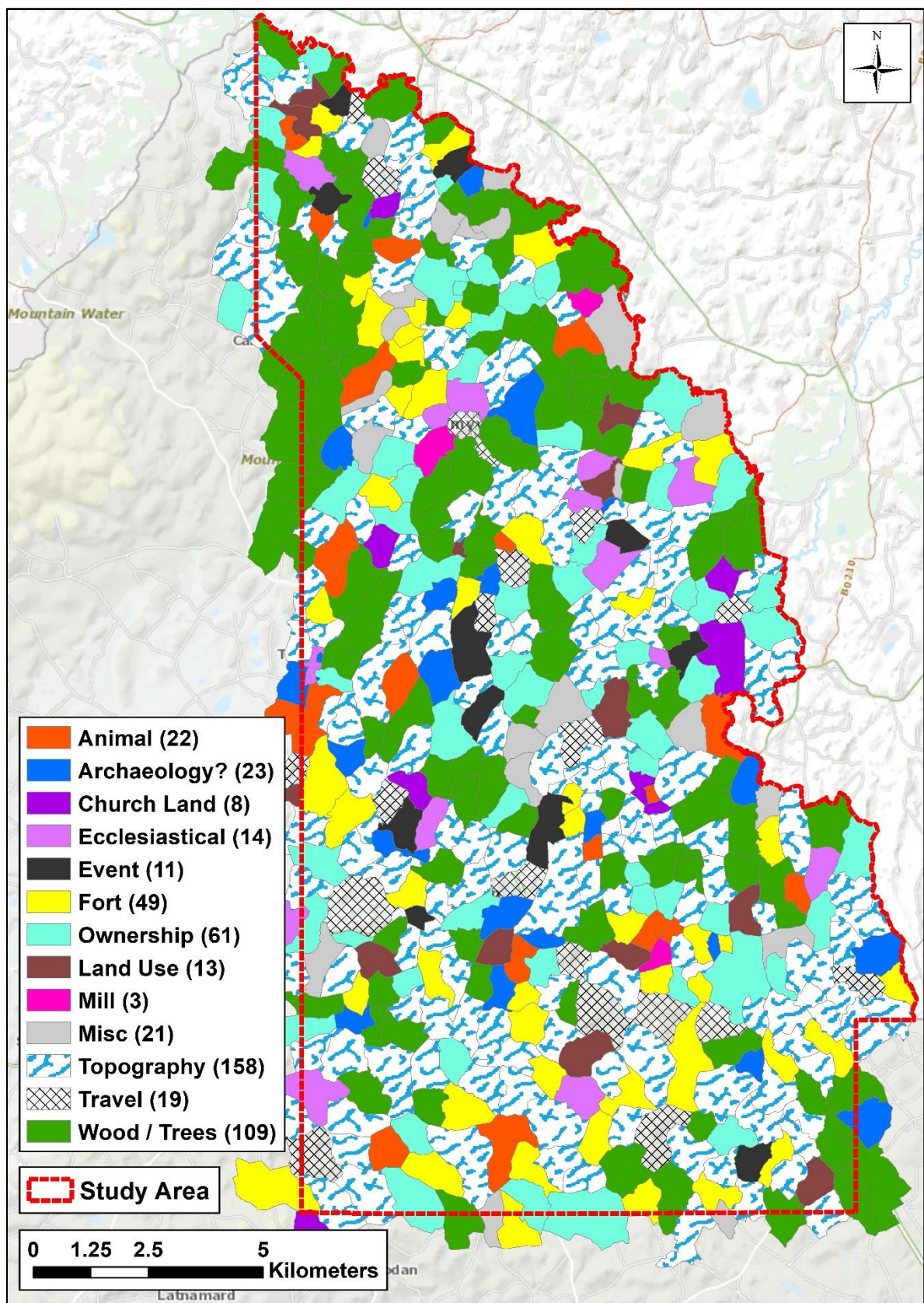


**Figure 5.62** Distribution of souterrains within Co. Monaghan  
(after SMR; OSi MapGenie, with additions)



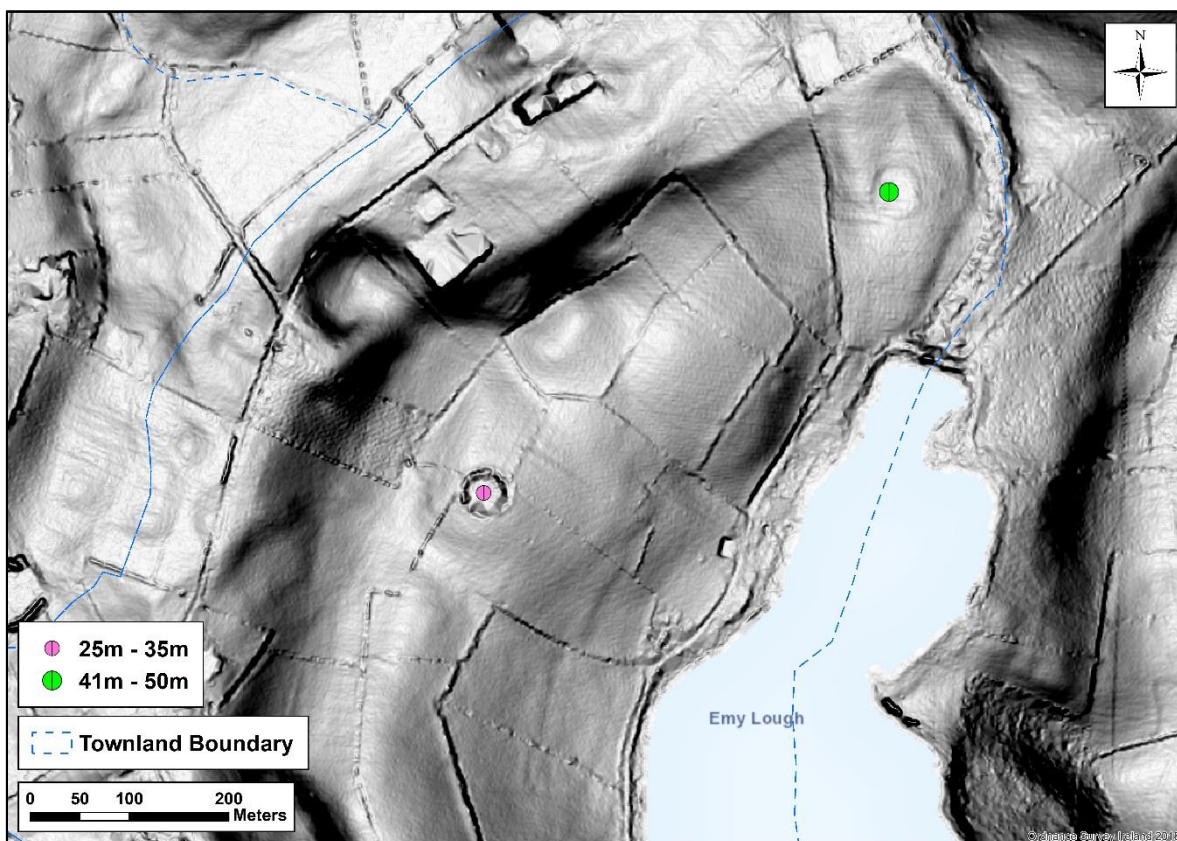
**Figure 5.63** Distribution of souterrains in Monaghan and neighbouring counties  
(after SMR; OSi MapGenie, with additions)



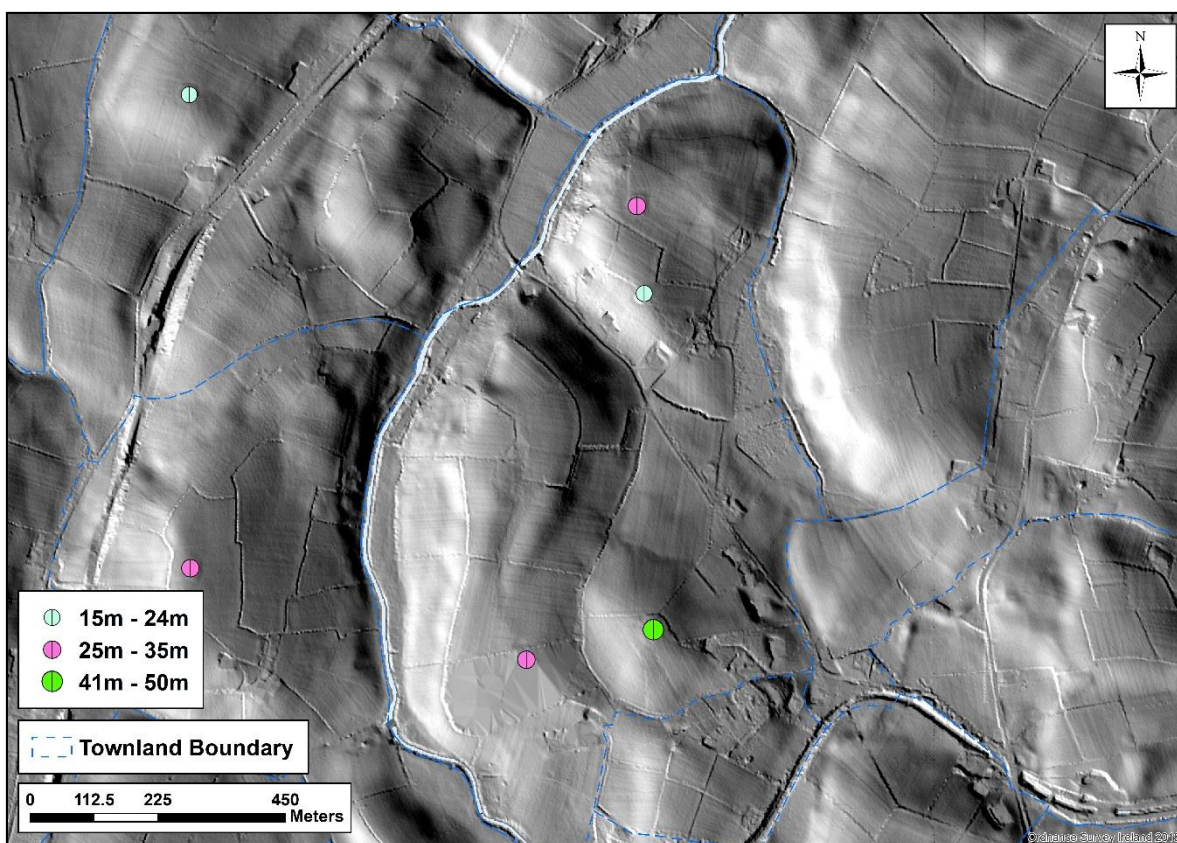


**Figure 5.64** Distribution of townland names and their meaning  
*(after [www.logainm.ie](http://www.logainm.ie); OSi MapGenie, with additions)*



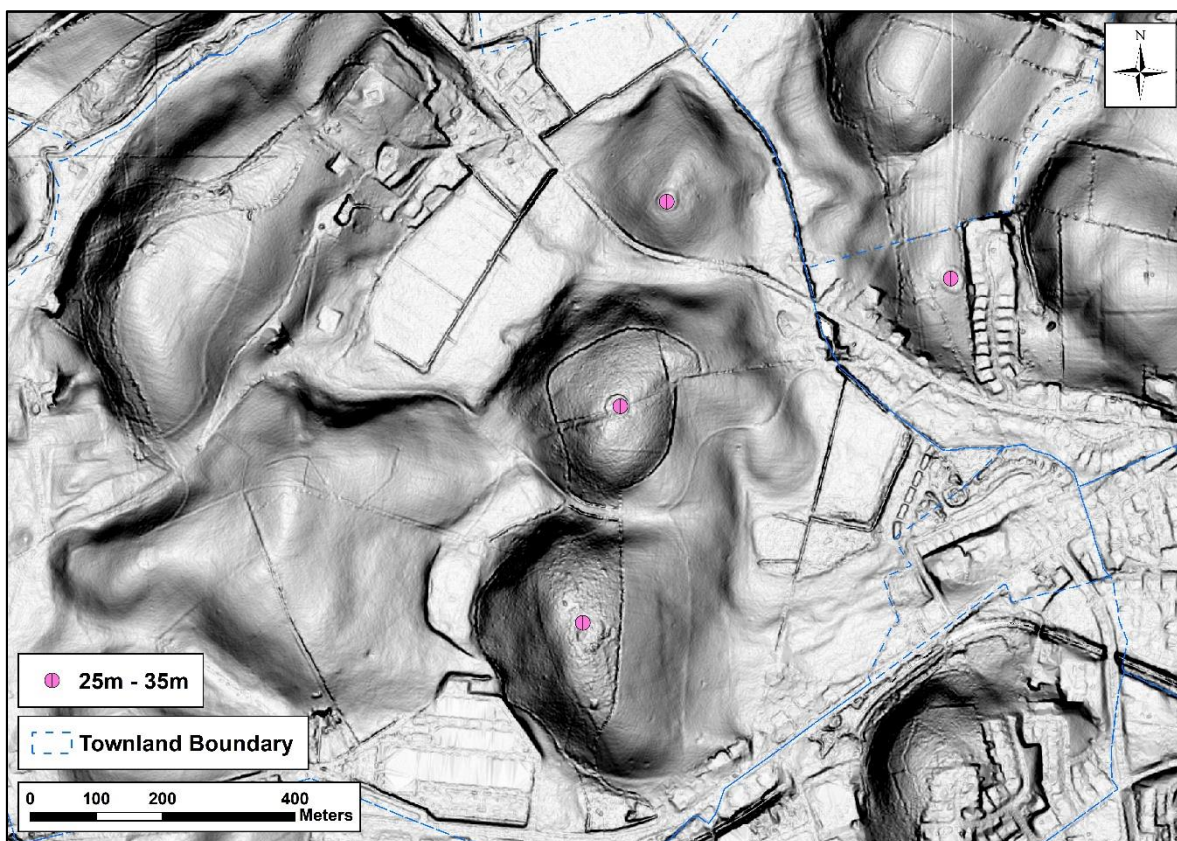


**Figure 5.65** The raths overlooking Emy Lough (*slope model*)  
(after OSi MapGenie, with additions)

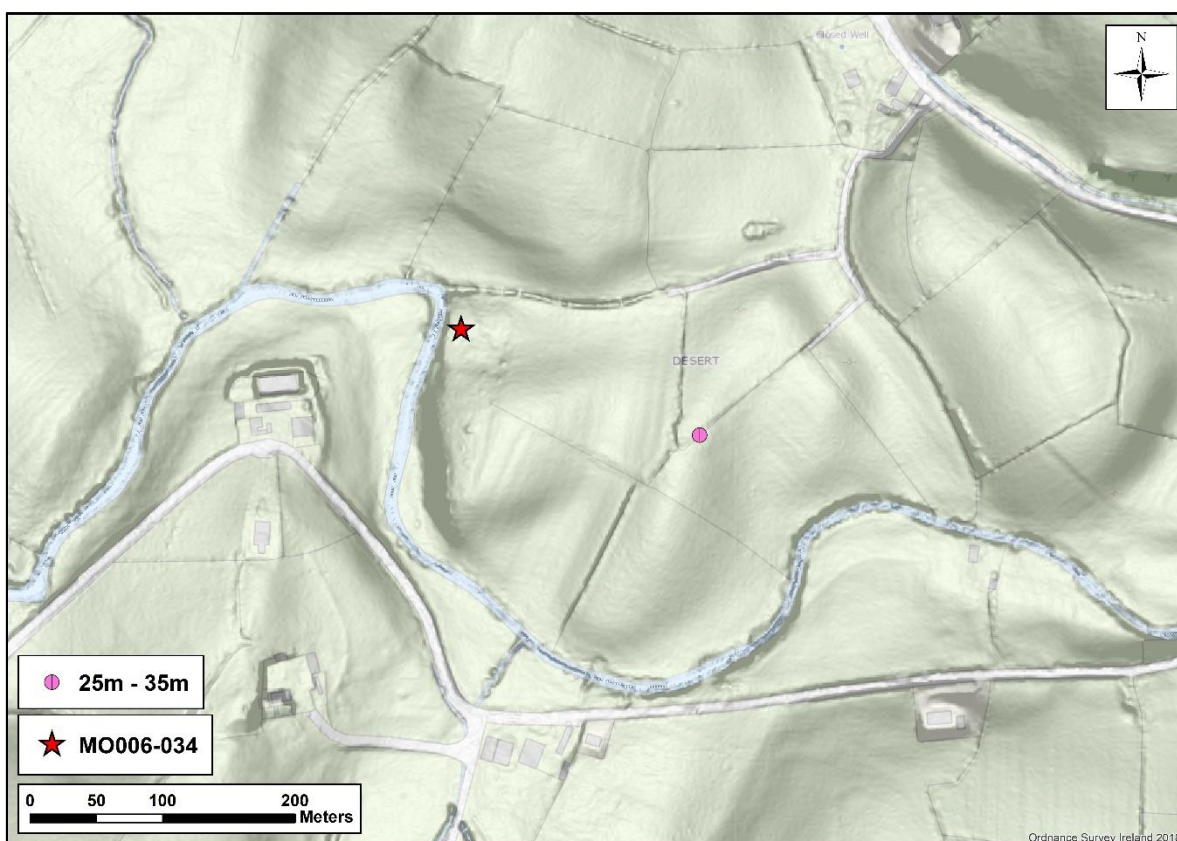


**Figure 5.66** Four raths in Crumlin townland  
(Hillshade: Azi. 240 / Alt. 45)



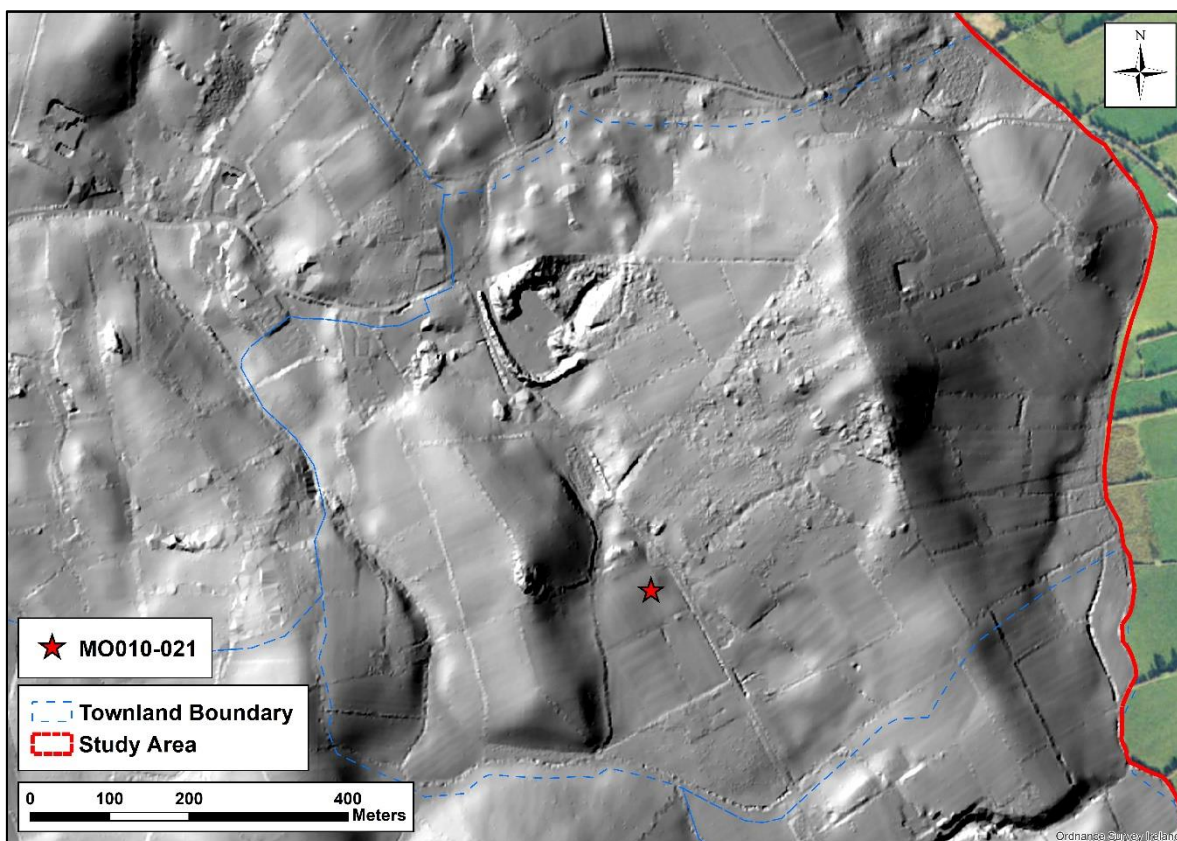


**Figure 5.67** The three neighbouring raths in Cornecassa Demesne (slope model)

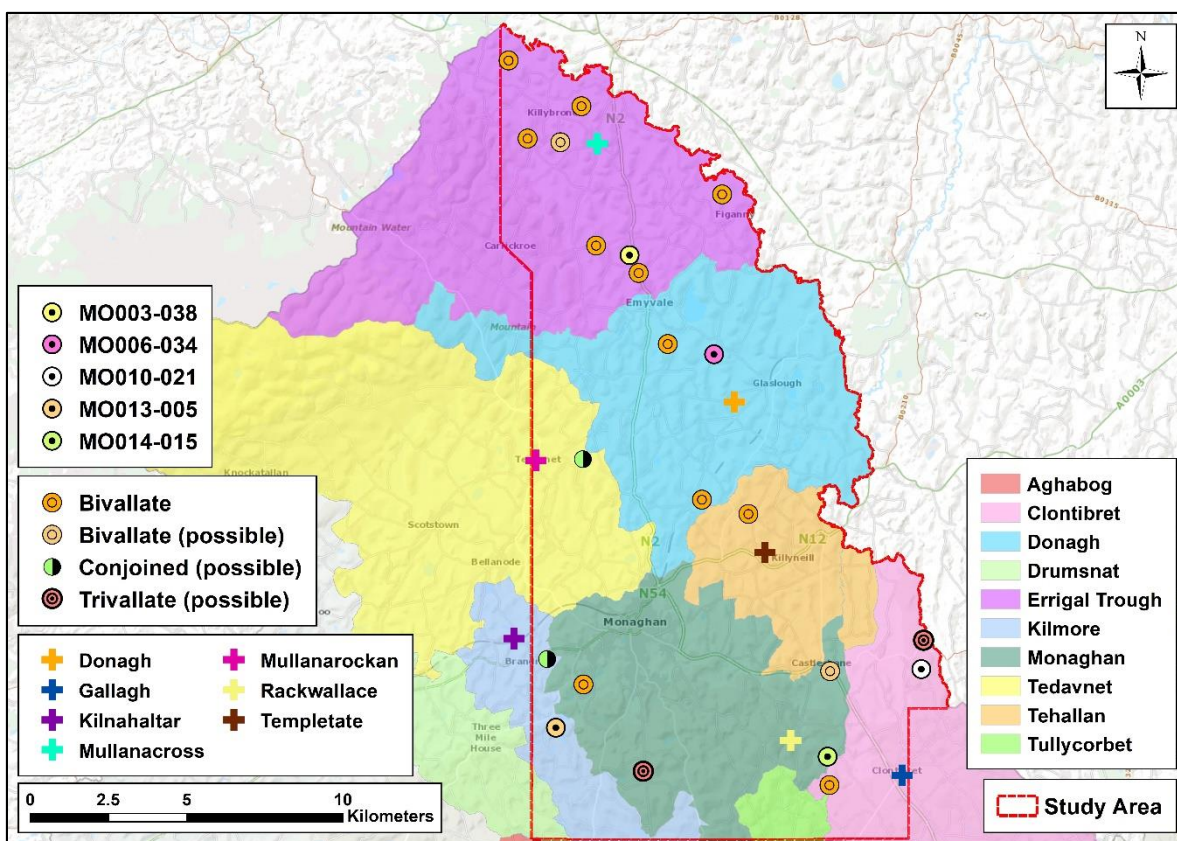


**Figure 5.68** The location of the possible settlement-cemetery in Desert townland (Slope model)  
(after OSi MapGenie, with additions)



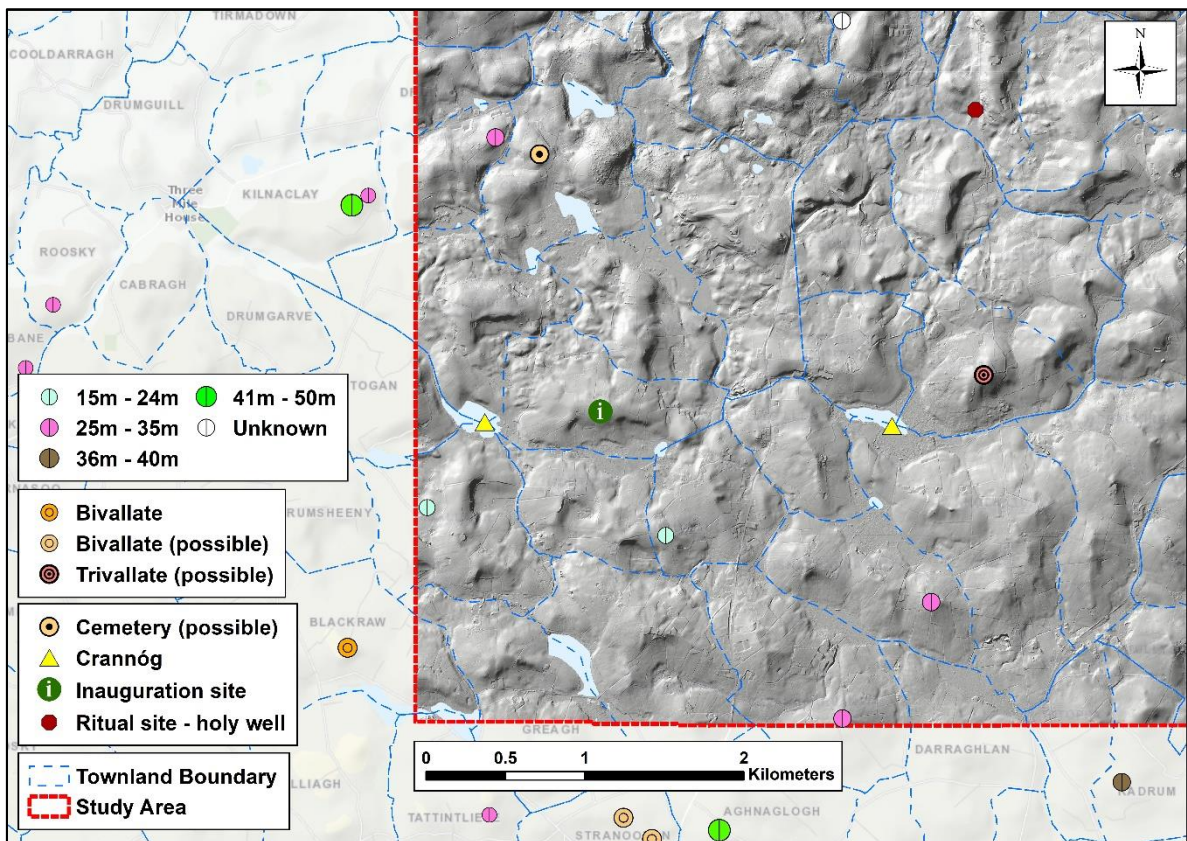


**Figure 5.69** The possible settlement-cemetery in Drumbeo townland  
(Hillshade: Azi. 300 / Alt. 45) (after OSi MapGenie, with additions)

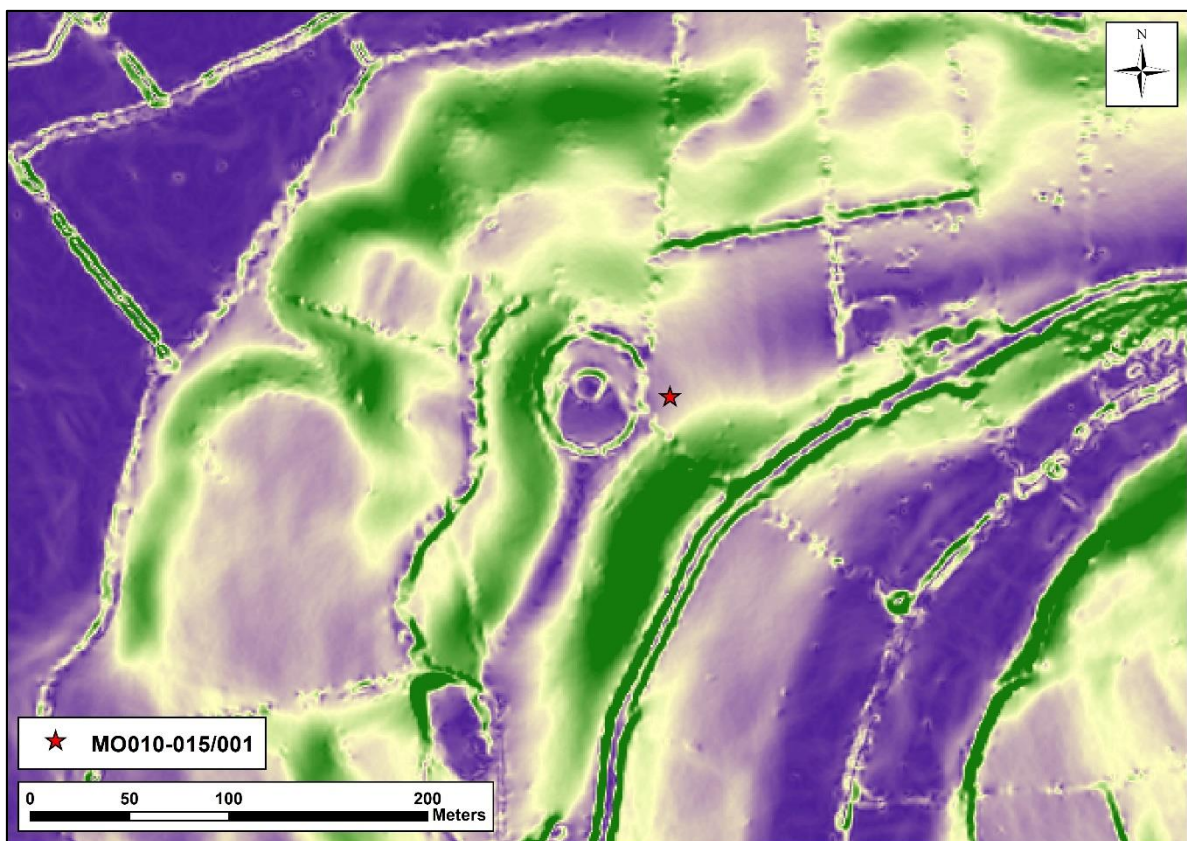


**Figure 5.70** Relationship between the possible settlement-cemeteries, high status, and ecclesiastical sites within the study area  
(after OSi MapGenie, with additions)





**Figure 5.71** Early medieval monuments in the vicinity of the possible inauguration site of Leck (*Hillshade: Azi. 315 / Alt. 55*) (after OSi MapGenie, with additions)

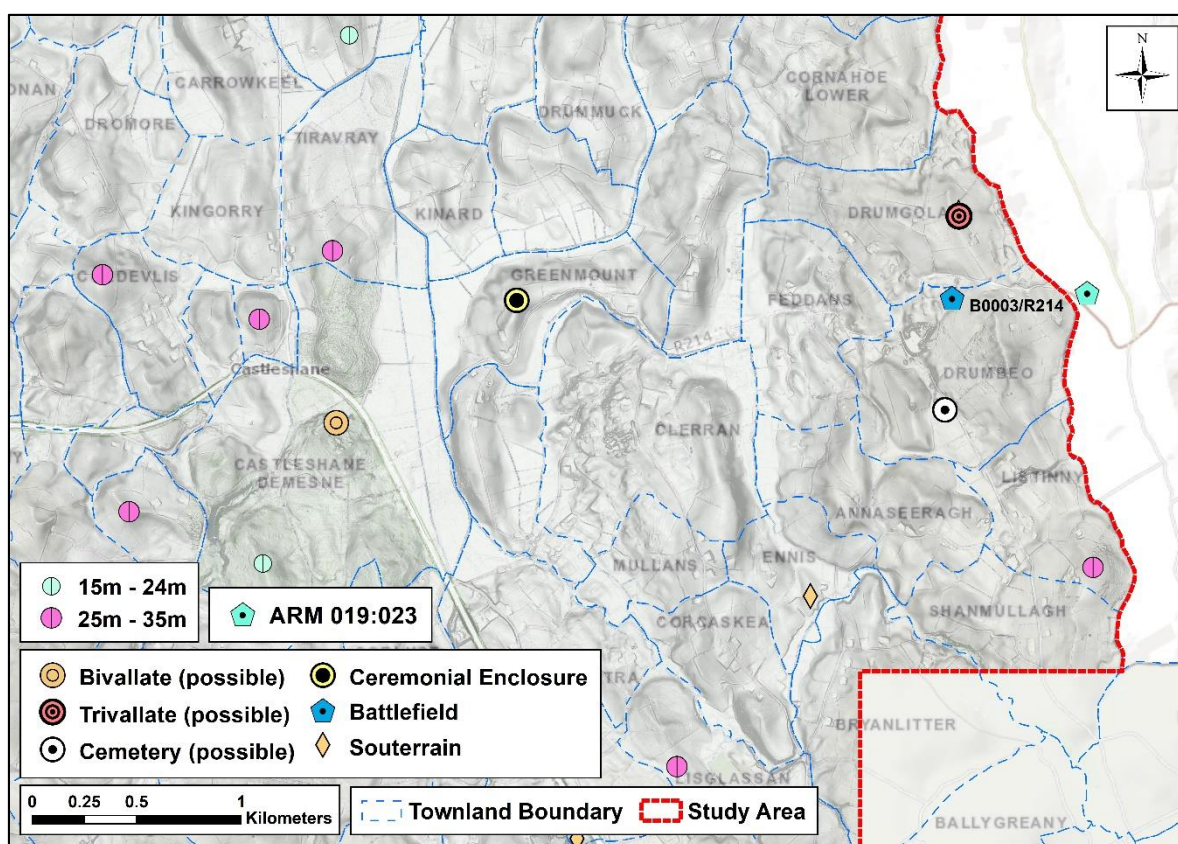


**Figure 5.72** The large enclosure at Greenmount (*slope model*)



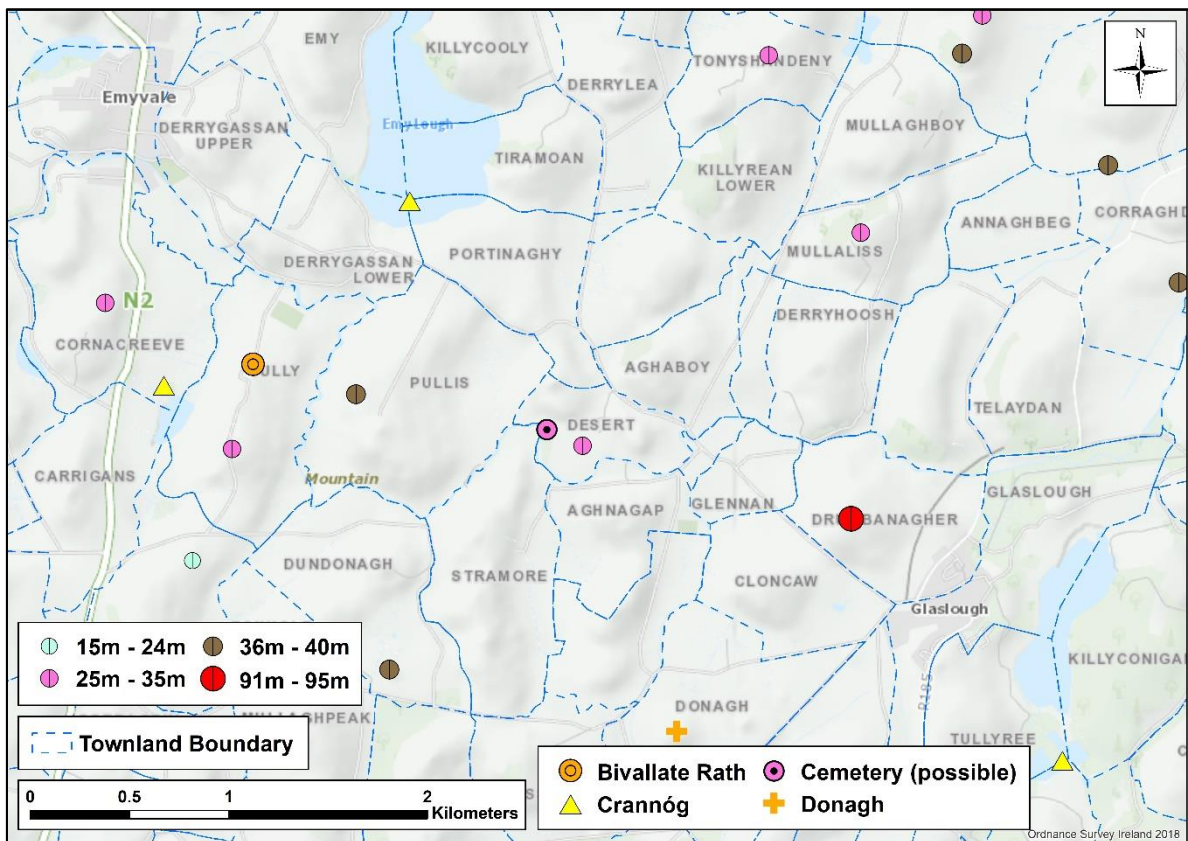


**Figure 5.73** The royal site of Clogher, Co. Tyrone  
(after <https://apps.communities-ni.gov.uk/NISMR-PUBLIC/Details.aspx?MonID=15700>)

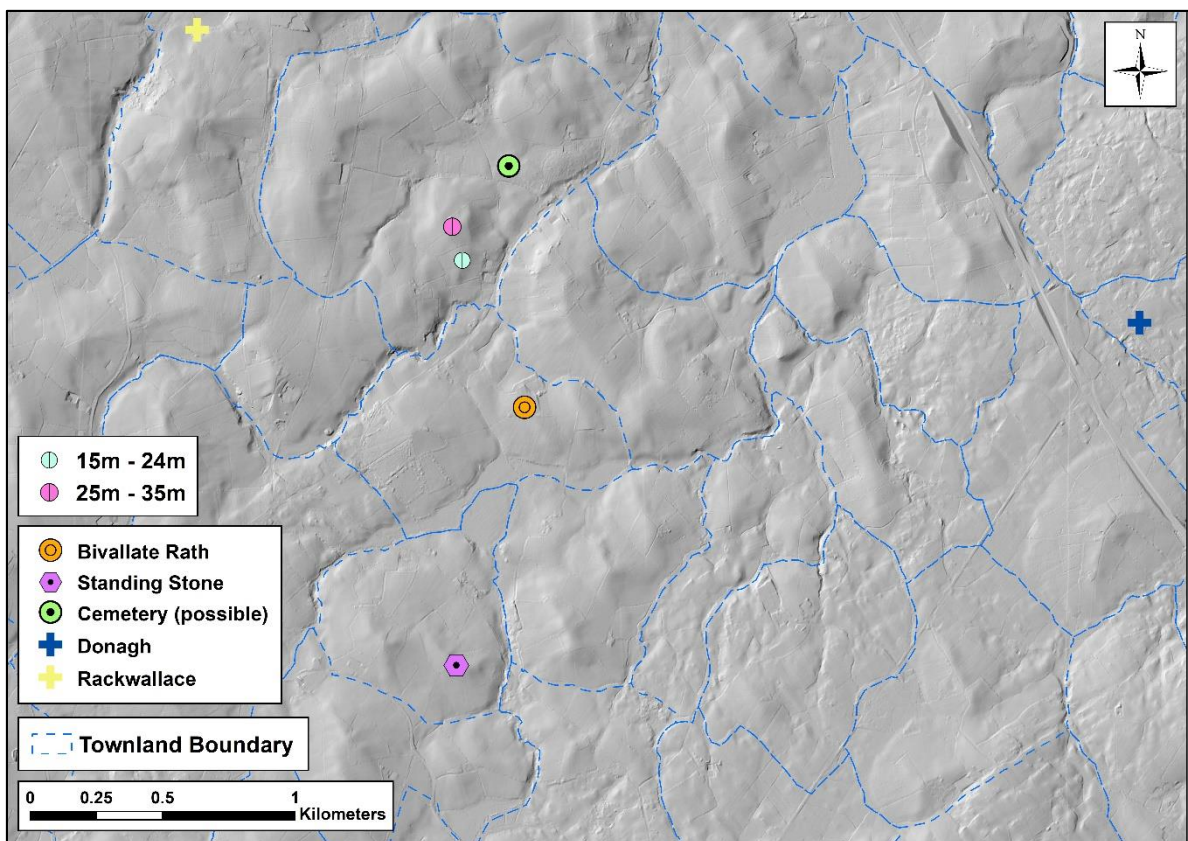


**Figure 5.74** The possible strategic siting of Drumbeo and Drumgolat  
(after OSi MapGenie, with additions)



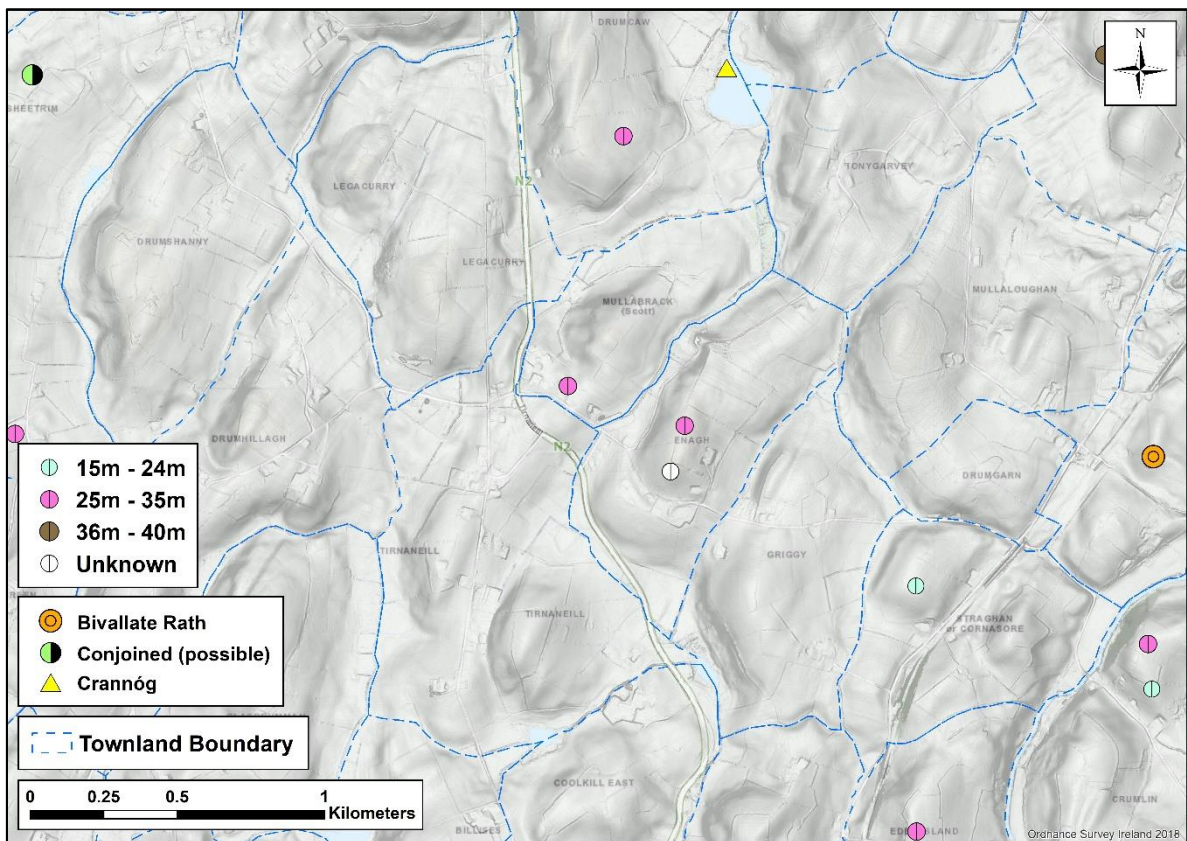


**Figure 5.75** Distribution in the northern part of the study area, possibly reflecting communal areas  
(after OSi MapGenie, with additions)

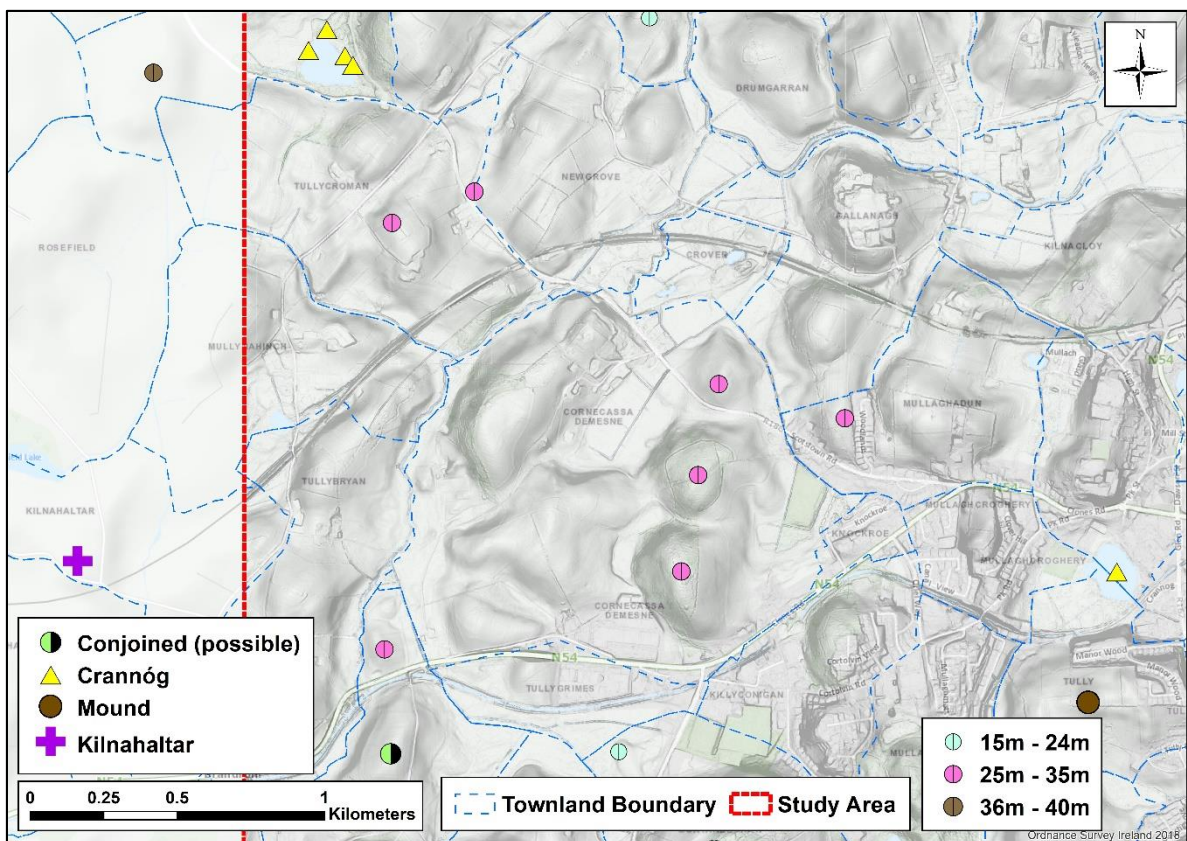


**Figure 5.76** The original location of the standing stone of Corfad and its relationship to other early medieval monuments in the environs  
(Hillshade: Azi. 300 / Alt. 45)



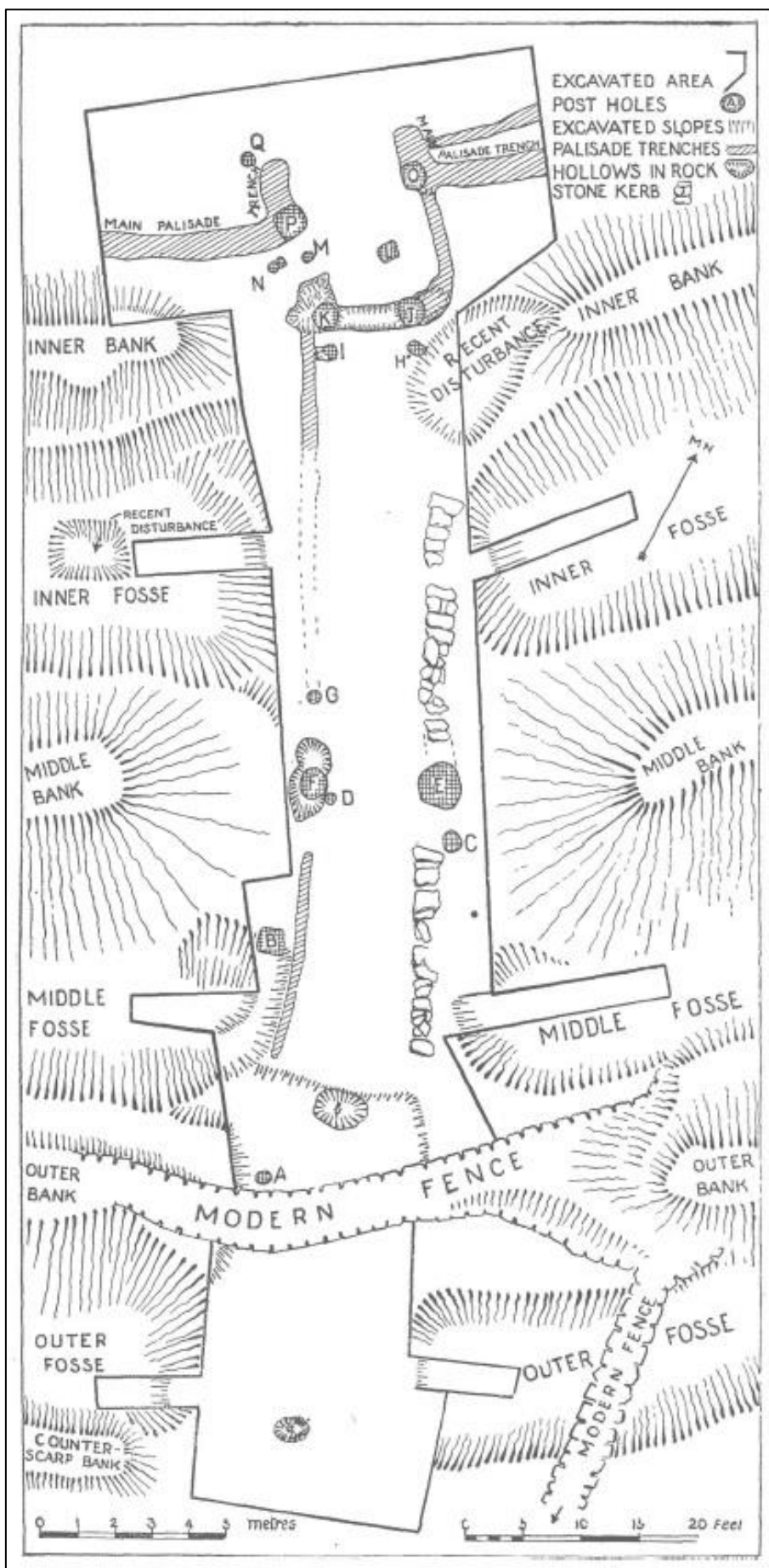


**Figure 5.77** The possible *óenach* location at Enagh in relation to Sheetrim and Faulkand  
(after OSi MapGenie, with additions)



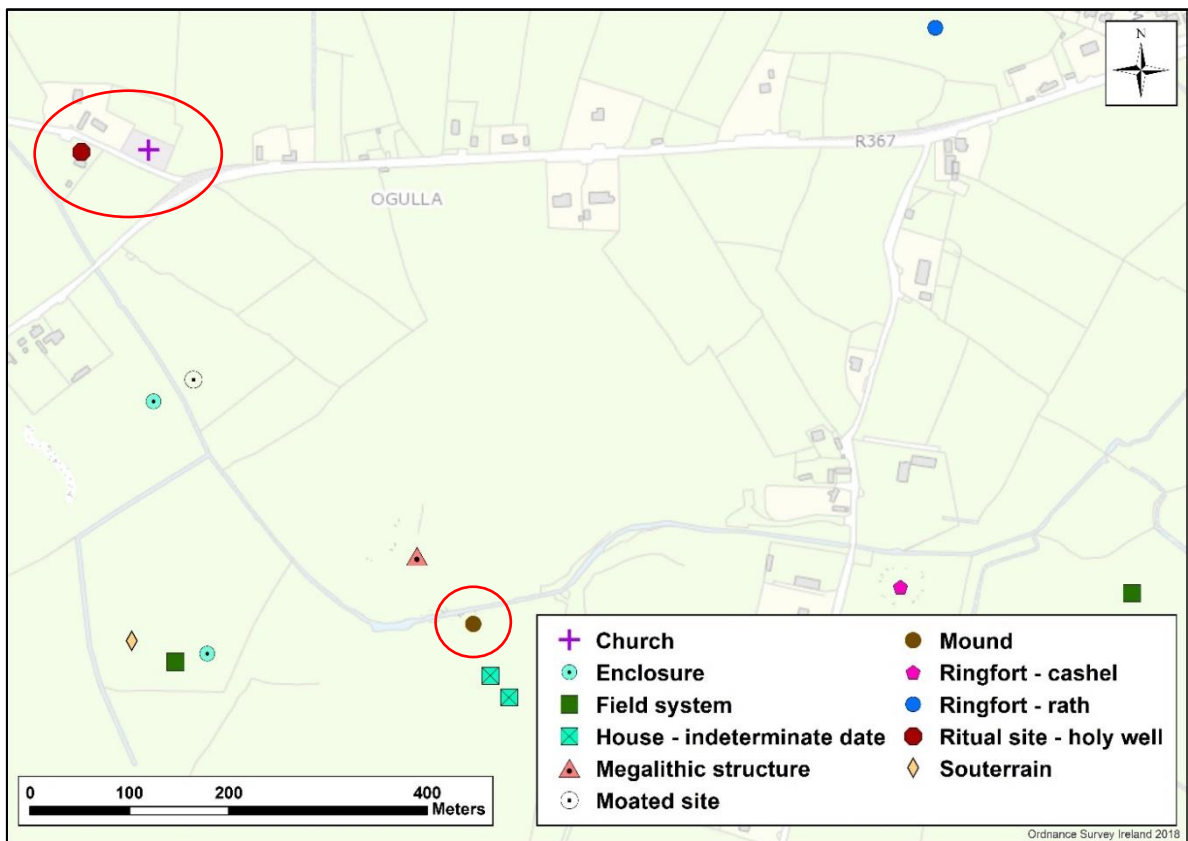
**Figure 5.78** Cluster of early medieval monuments in the west of the study area  
(after OSi MapGenie, with additions)



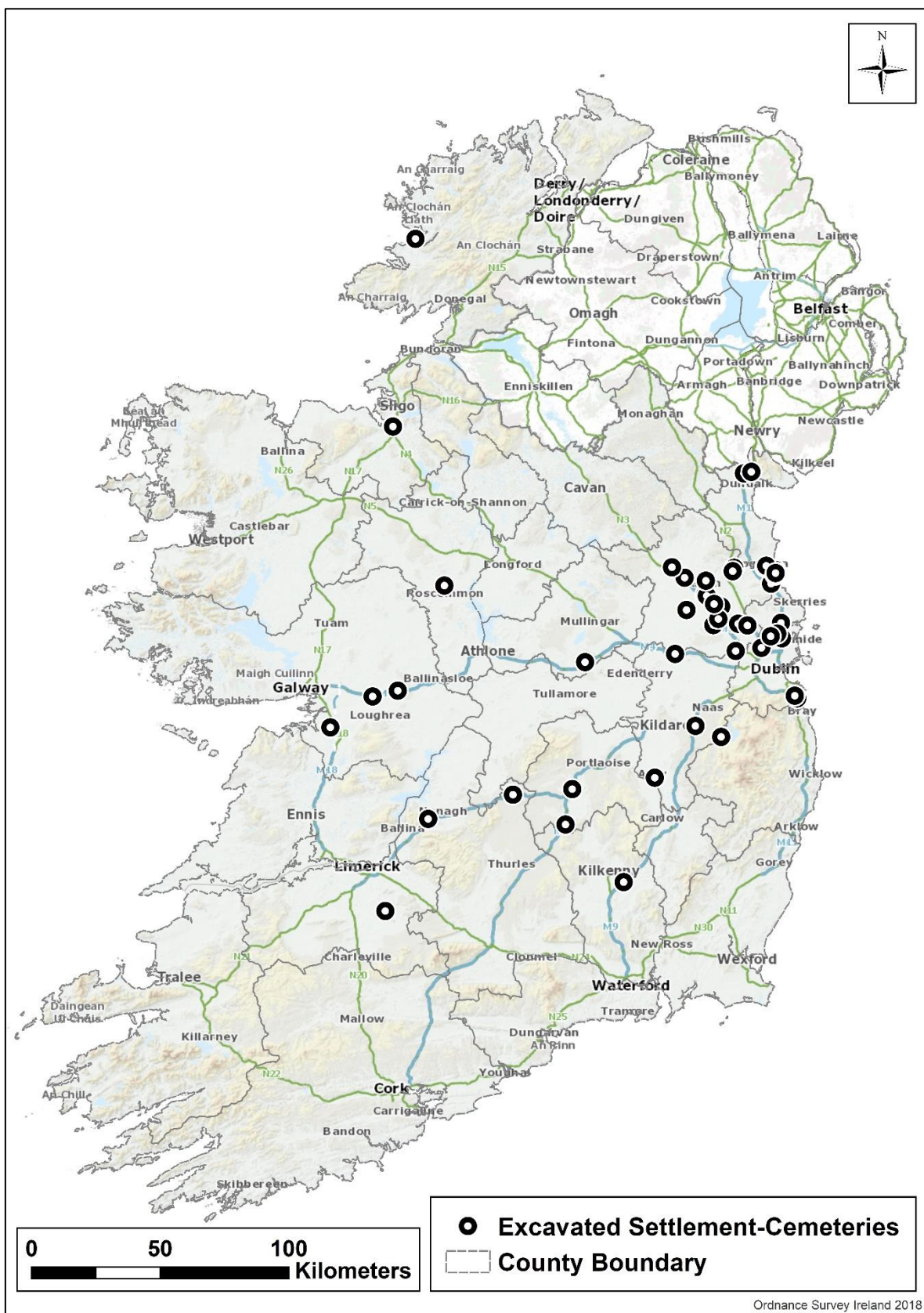


**Figure 6.1** The triple-gated entrance at Ballycatteen, Co. Cork

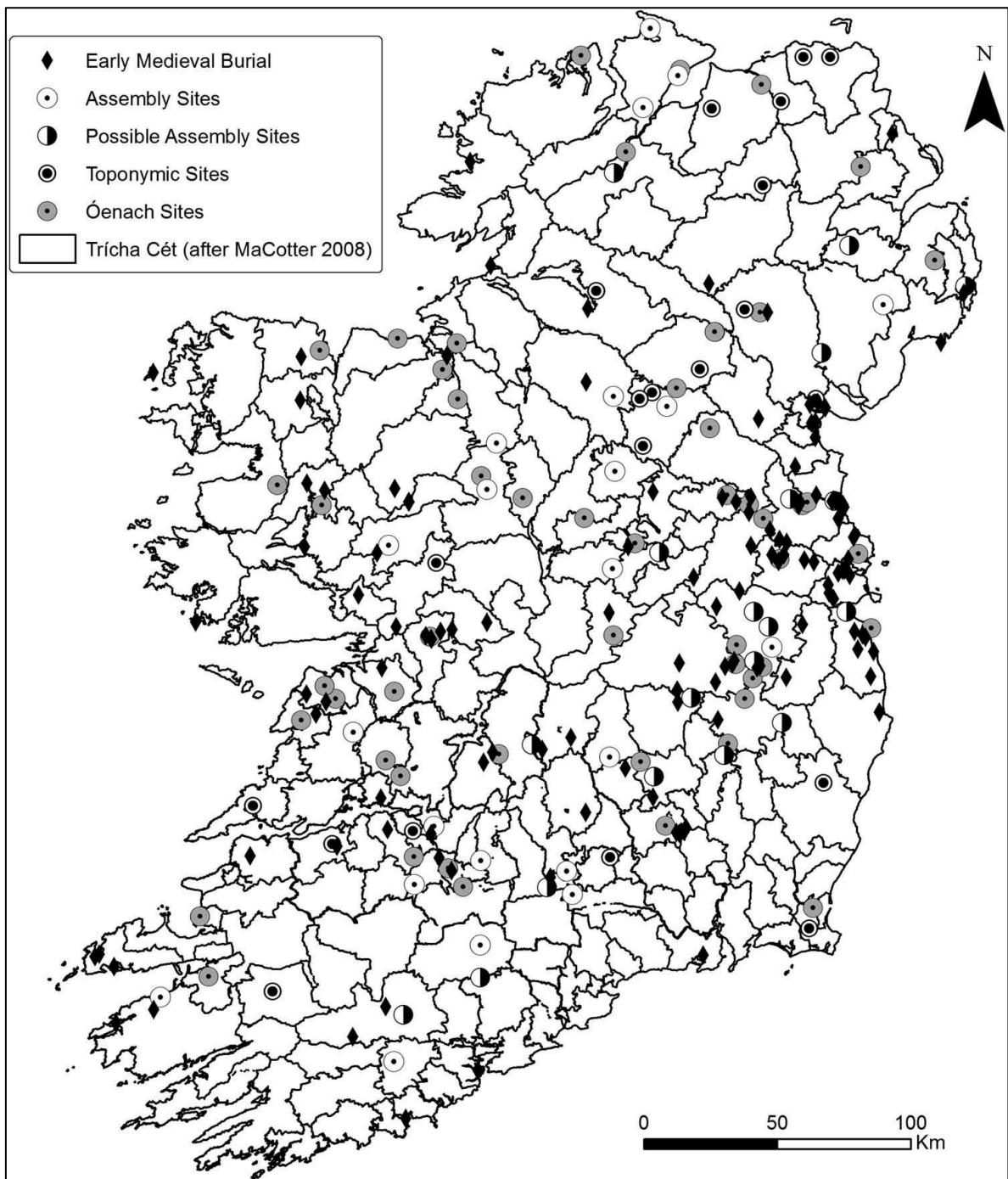
(after Ó Ríordáin & Hartnett 1943, 6)



**Figure 6.2** Suggested locations for the *fertá* constructed for the burial of the daughters of King Lóegaire  
(after OSi MapGenie, with additions)

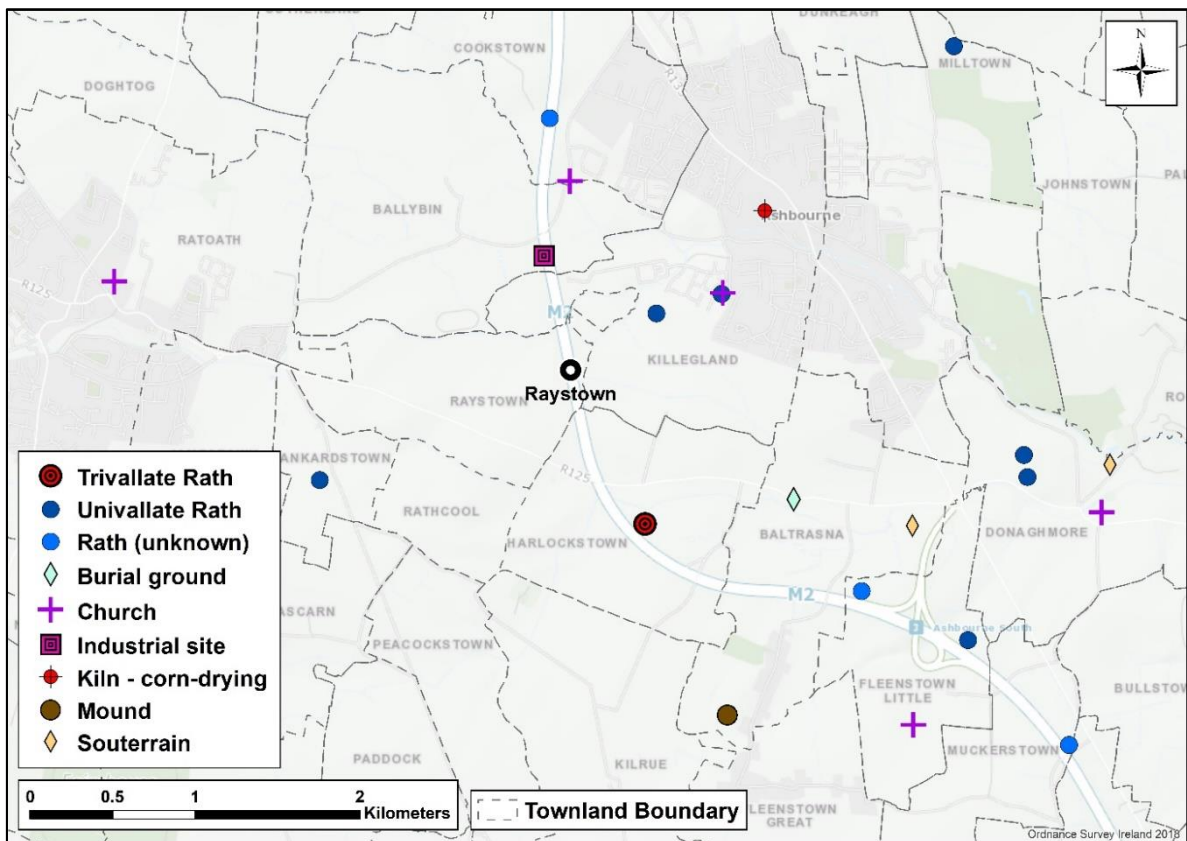


**Figure 6.3** Excavated settlement-cemeteries; many of which follow the national road network  
*(after OSi MapGenie, with additions)*

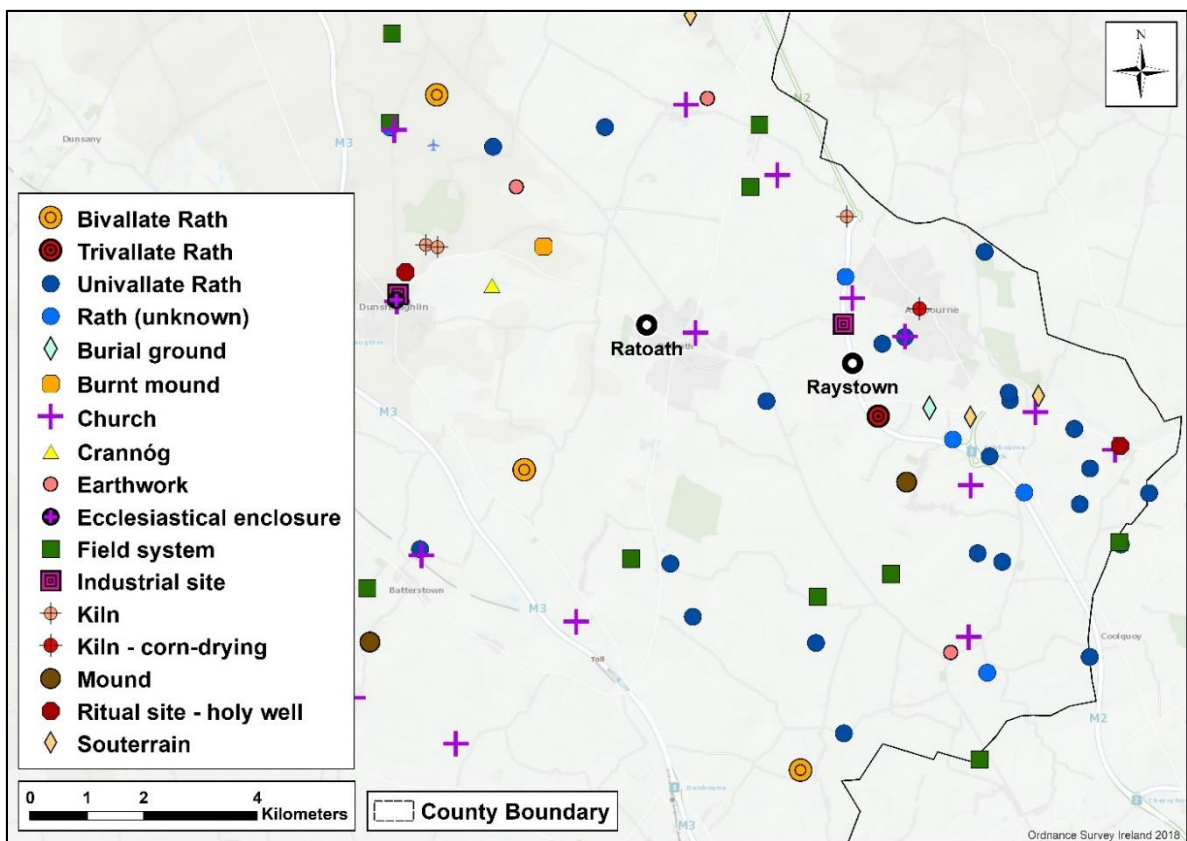


**Figure 6.4** Correlation between places of burial and assembly (after Gleeson 2018, 102)



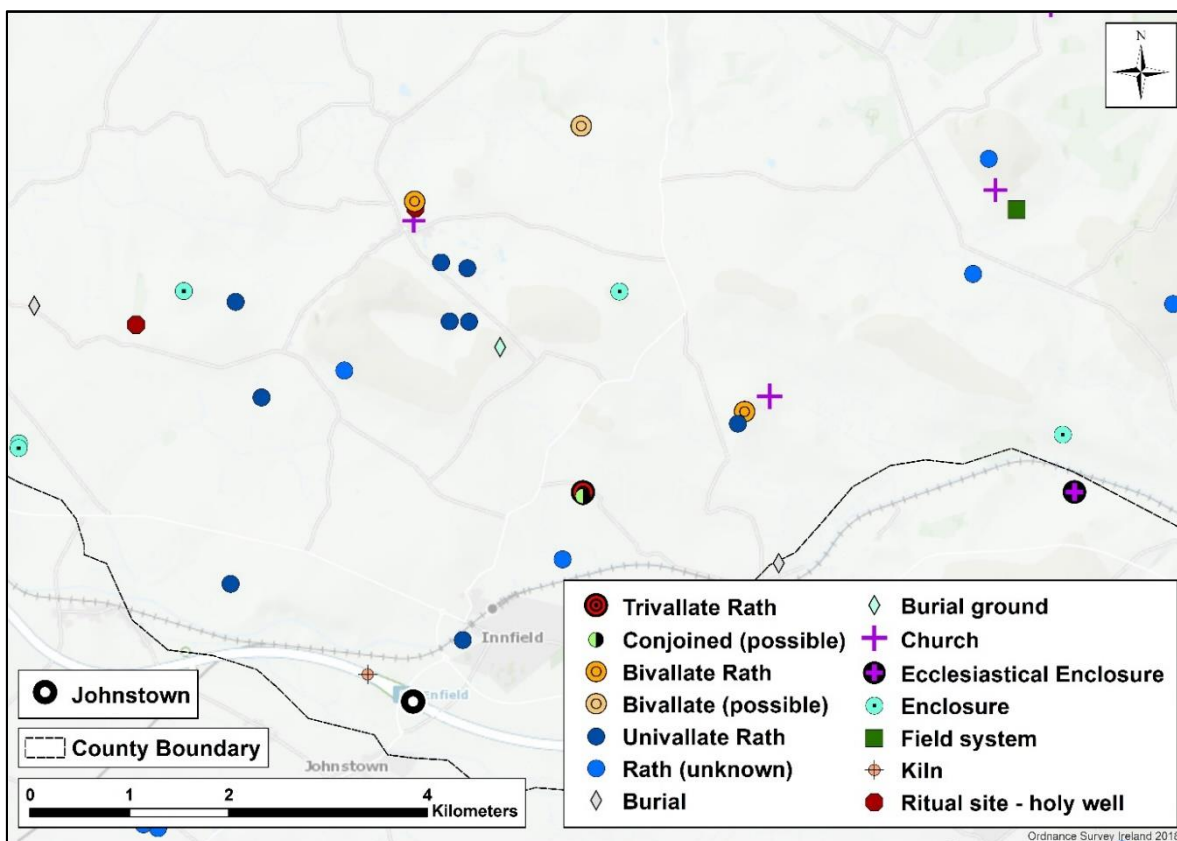


**Figure 6.5** Distribution of early medieval monuments in the environs of the settlement-cemetery at Raystown, Co. Meath (after SMR; OSi MapGenie, with additions)



**Figure 6.6** The possible early medieval community associated with the Raystown cemetery  
(after SMR; OSi MapGenie, with additions)





**Figure 6.7** Distribution of early medieval monuments in the environs of the settlement-cemetery at Johnstown, Co. Meath  
(after SMR; OSi MapGenie, with additions)

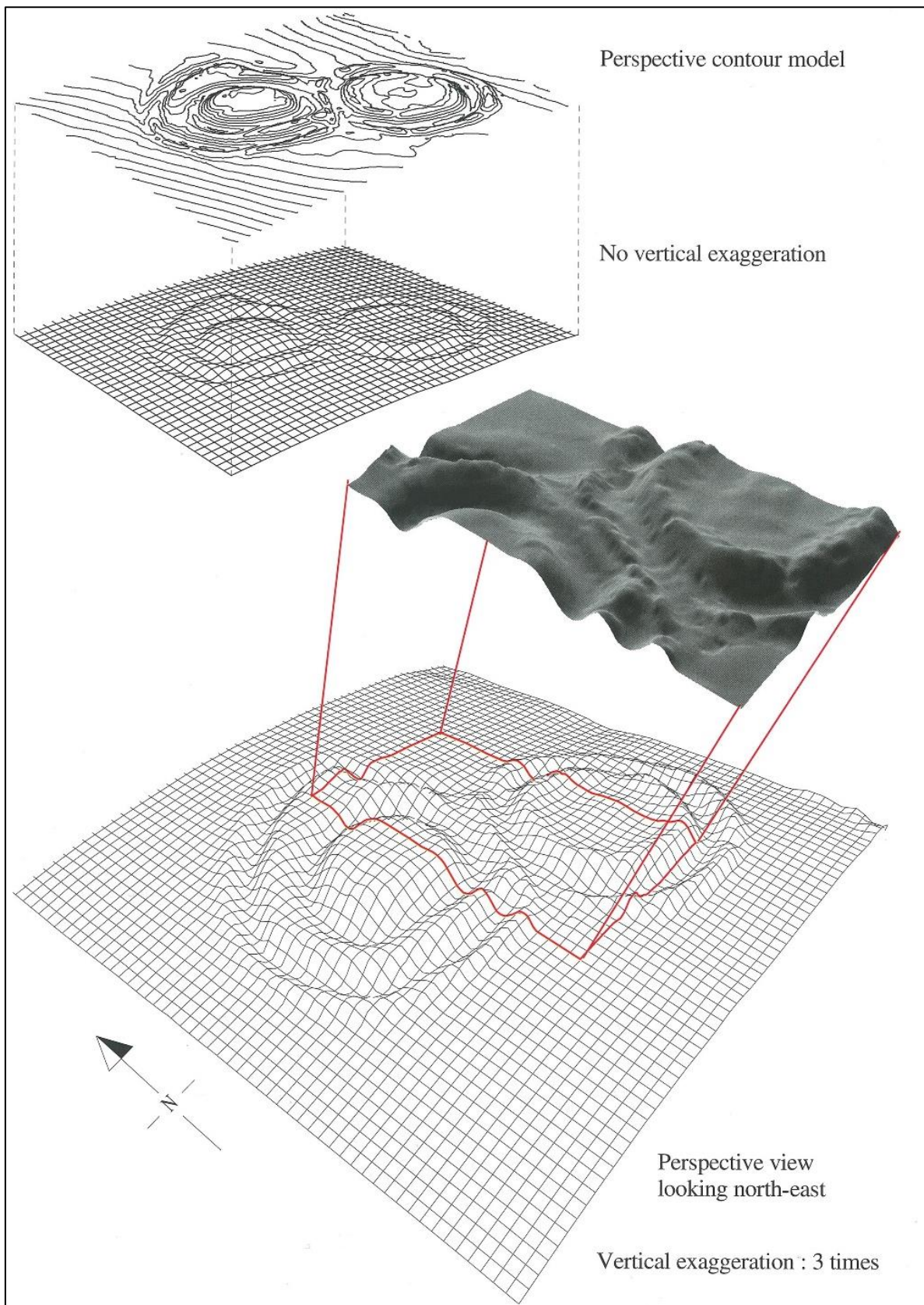


**Figure 6.8** The large oval enclosure at Posseckstown, Co. Meath (ME048-019)  
(Photo: S. Curran)



**Figure 6.9** The conjoined monument at Lismurtagh, Co. Roscommon comprising a bowl barrow and rath (RO028-063001/002) *(after [www.archaeology.ie](http://www.archaeology.ie))*

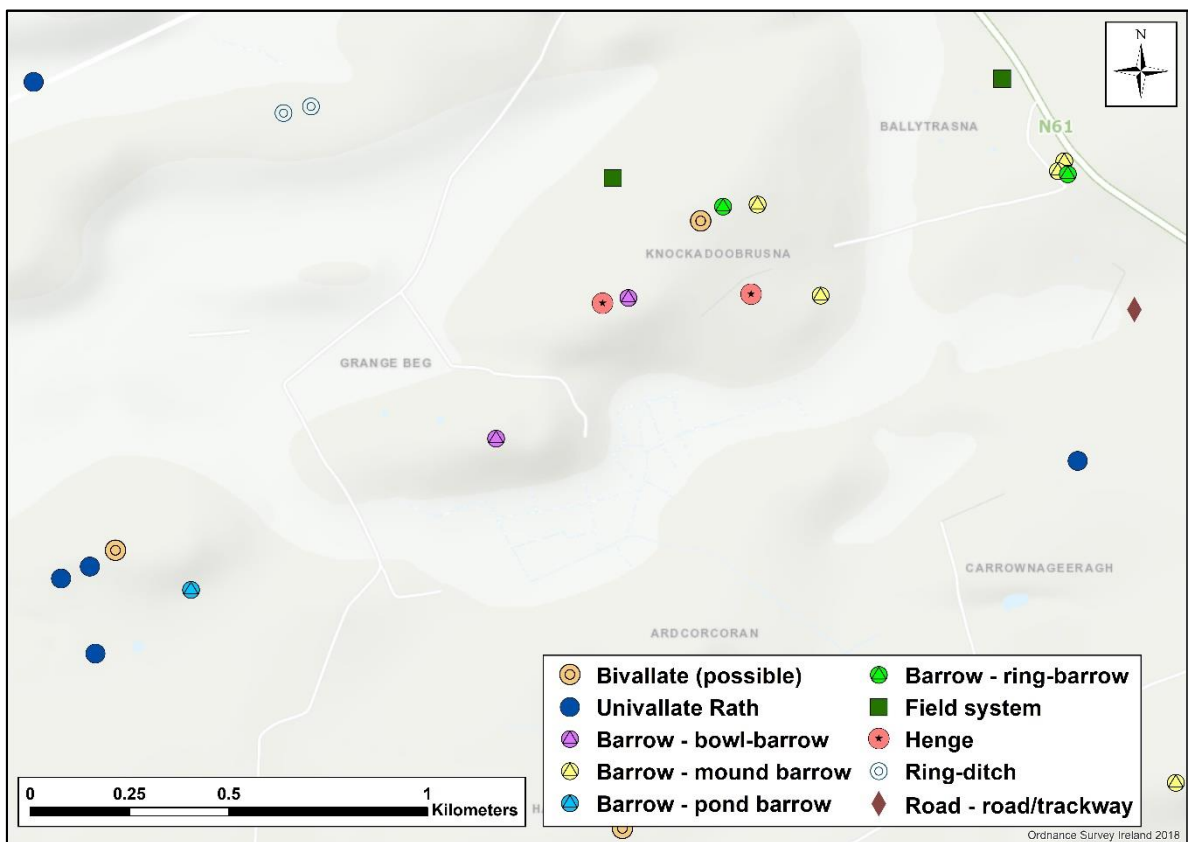




**Figure 6.10** The point of engagement between An Forrad and Tech Cormaic, Hill of Tara, Co. Meath  
(after Newman 1997, 85)

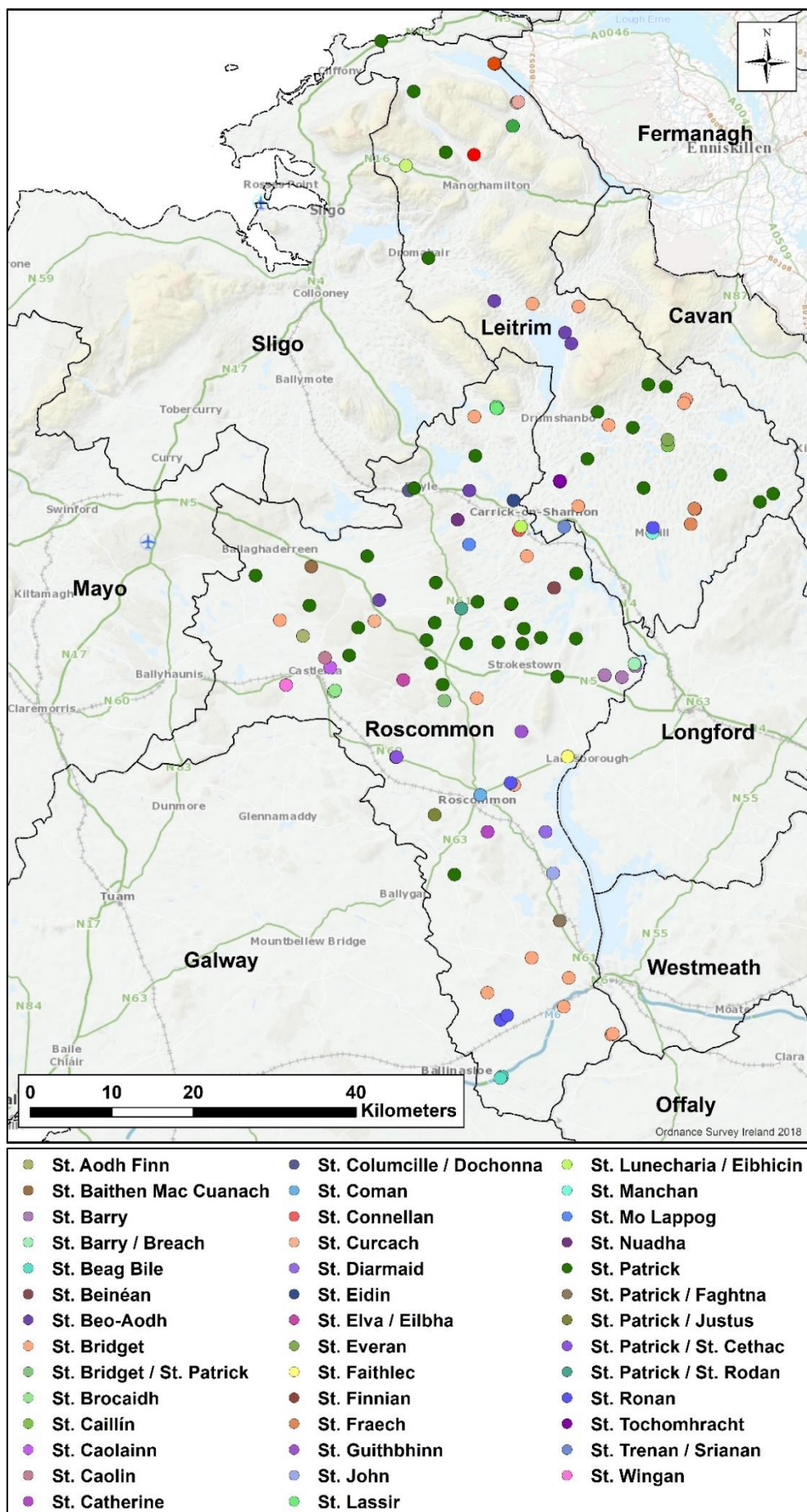


**Figure 6.11** The conjoined monument at Knockadoobrusna, Co. Roscommon  
(RO006-118001/002)  
(after [www.archaeology.ie](http://www.archaeology.ie))



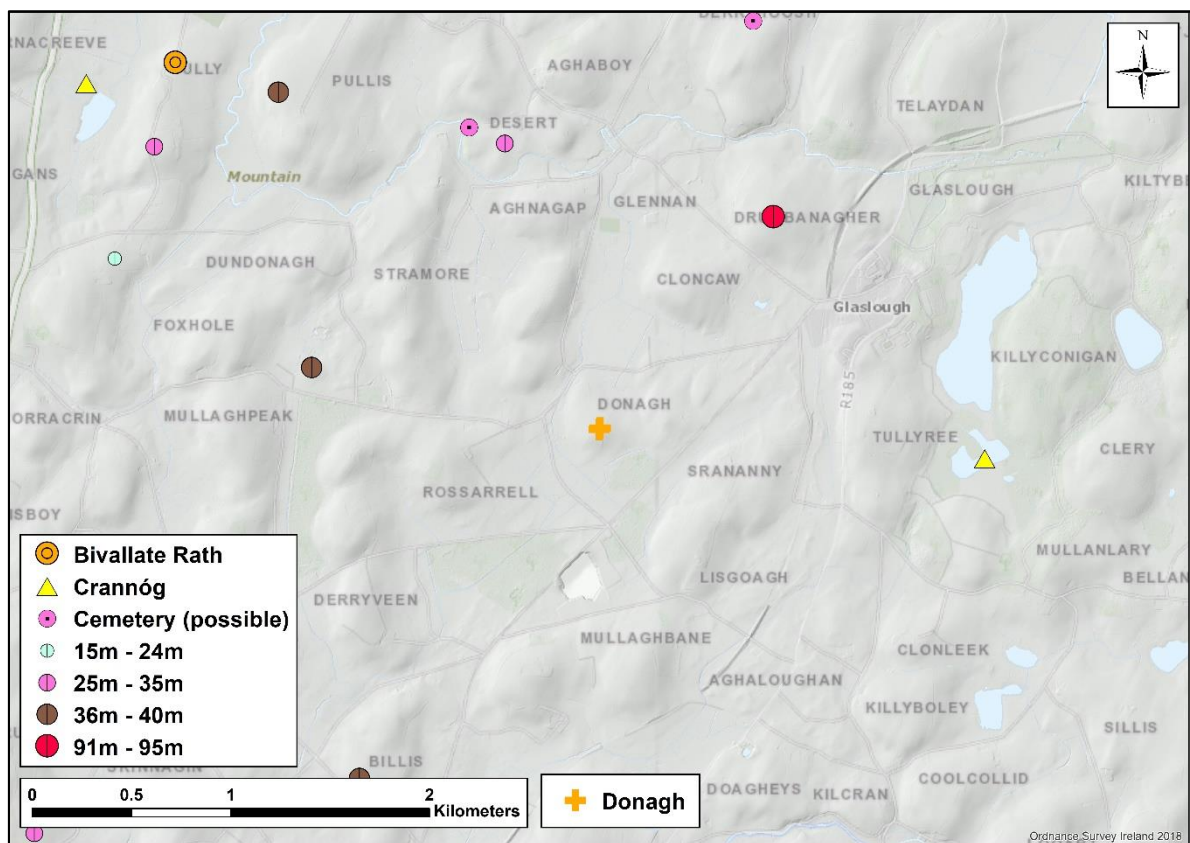
**Figure 6.12** Distribution of archaeological monuments in the environs of Knockadoobrusna  
(after SMR; OSi MapGenie, with additions)



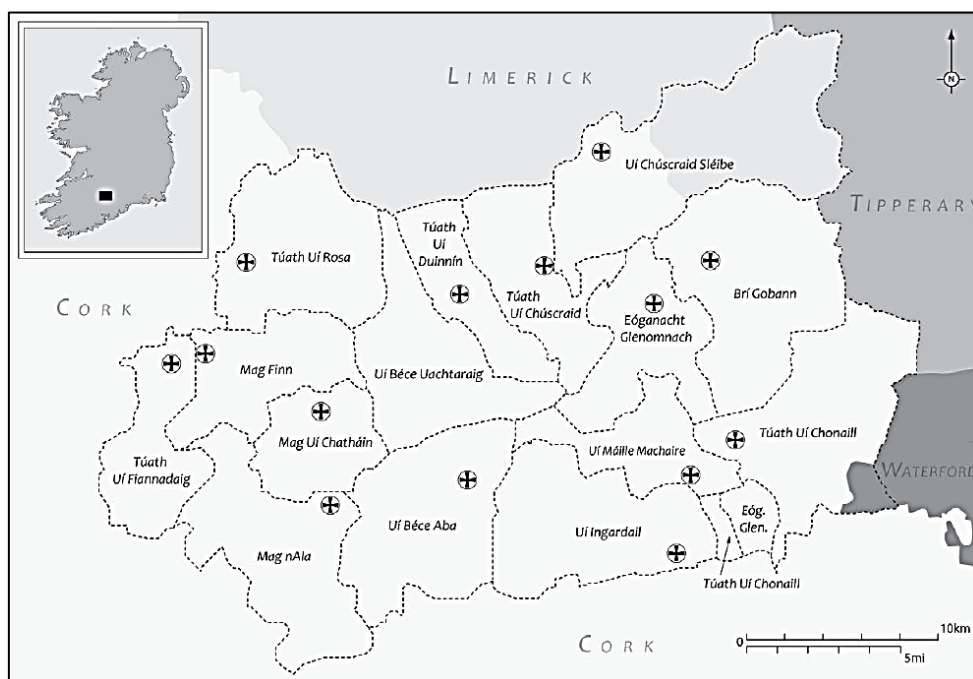


**Figure 6.13** Saintly associations in Counties Leitrim and Roscommon  
(after Ó Riain 2011; SMR; OSi MapGenie, with additions)

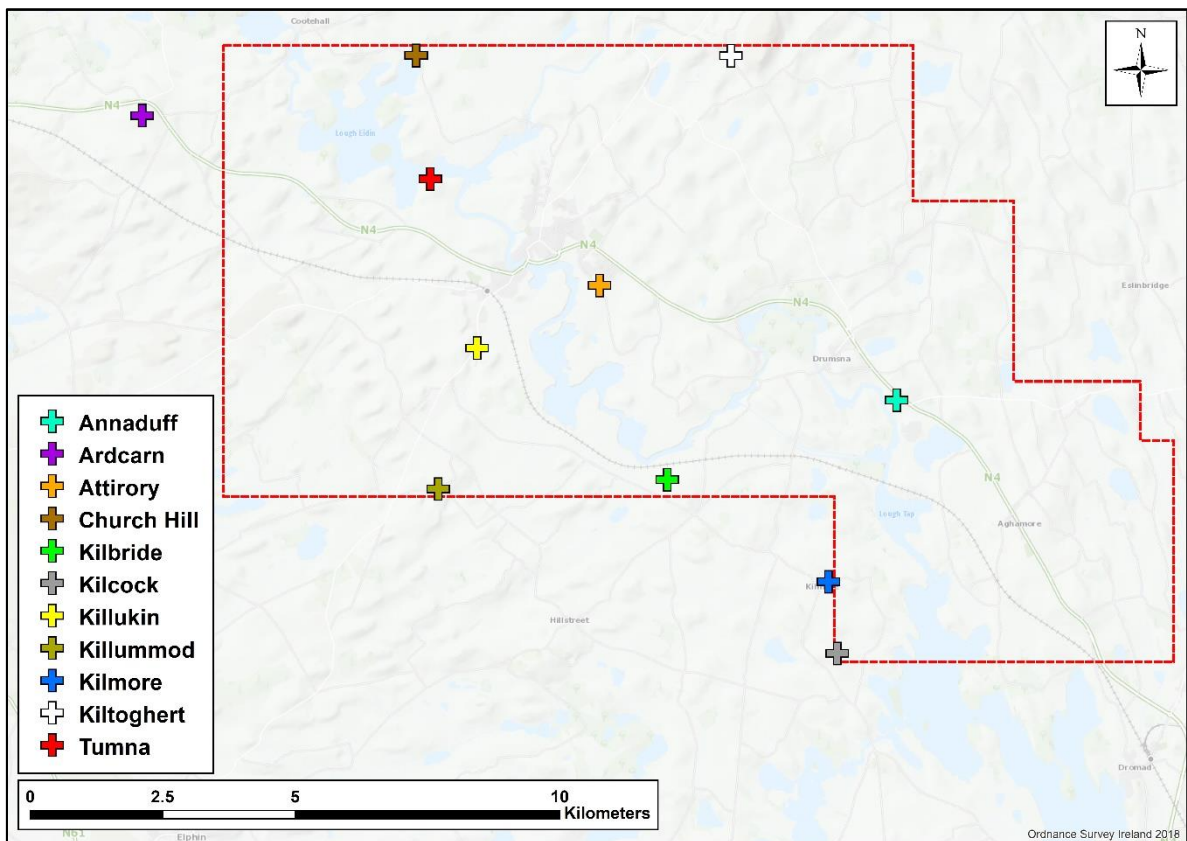




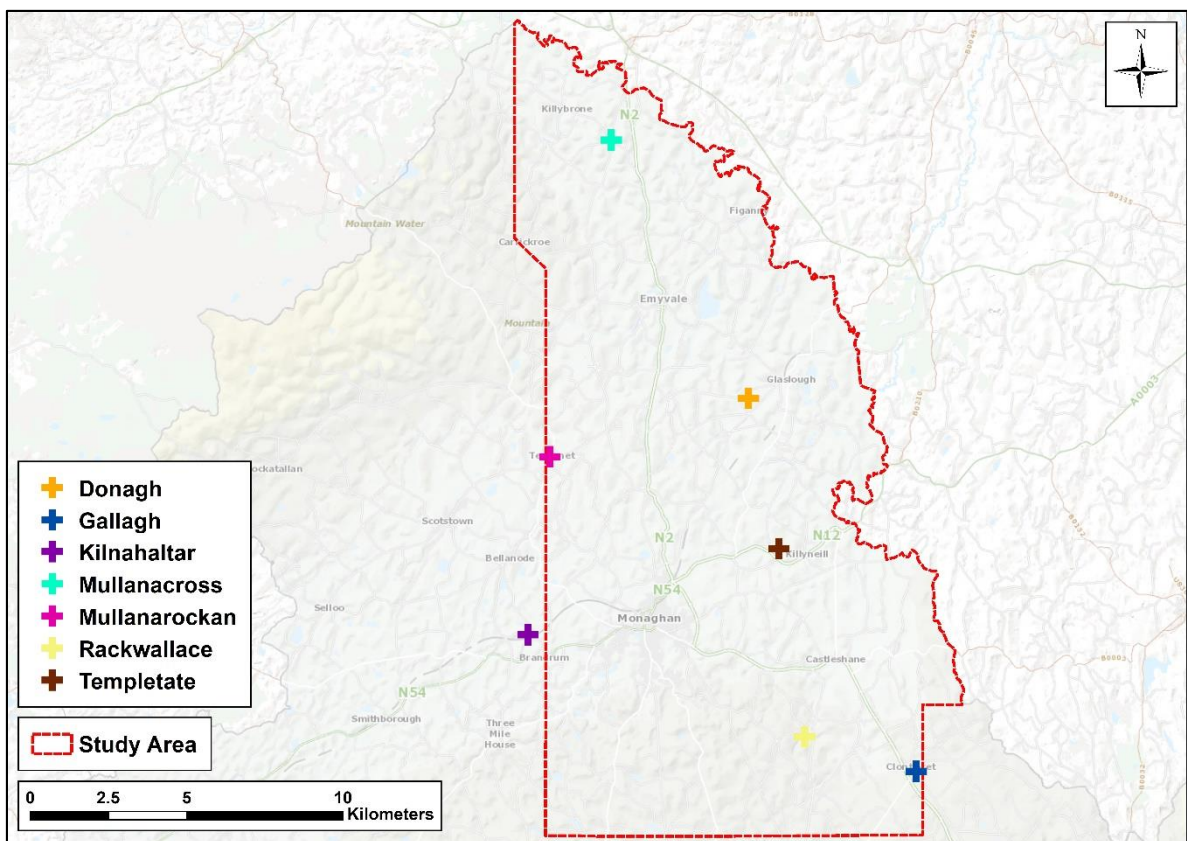
**Figure 6.14** The ecclesiastical site at Donagh, Co. Monaghan and its closest contemporary neighbours  
(after OSi MapGenie, with additions)



**Figure 6.15** The *túath* churches of the Fir Maige territory, Co. Cork  
(after MacCotter 2011, 272)

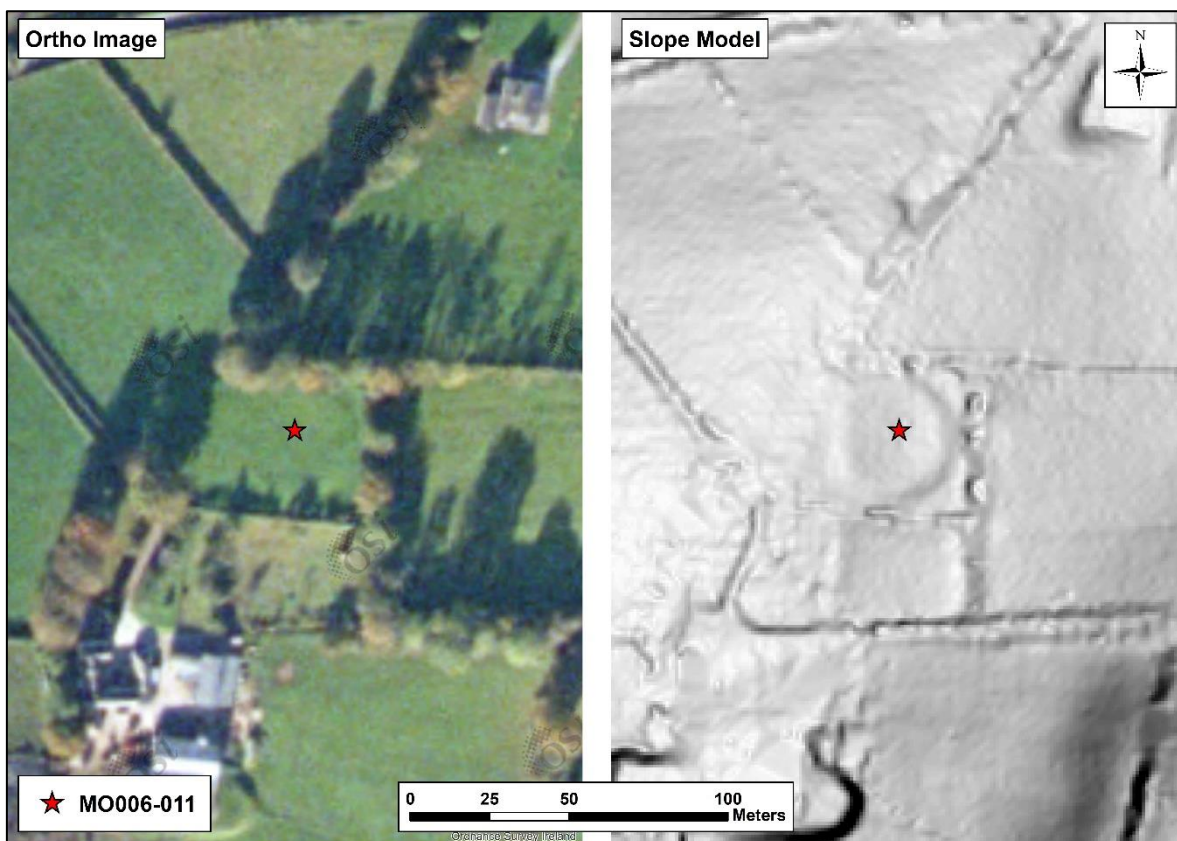


**Figure 6.16** Distribution of early medieval ecclesiastical sites in the Leitrim/Roscommon study area  
(after OSi MapGenie, with additions)

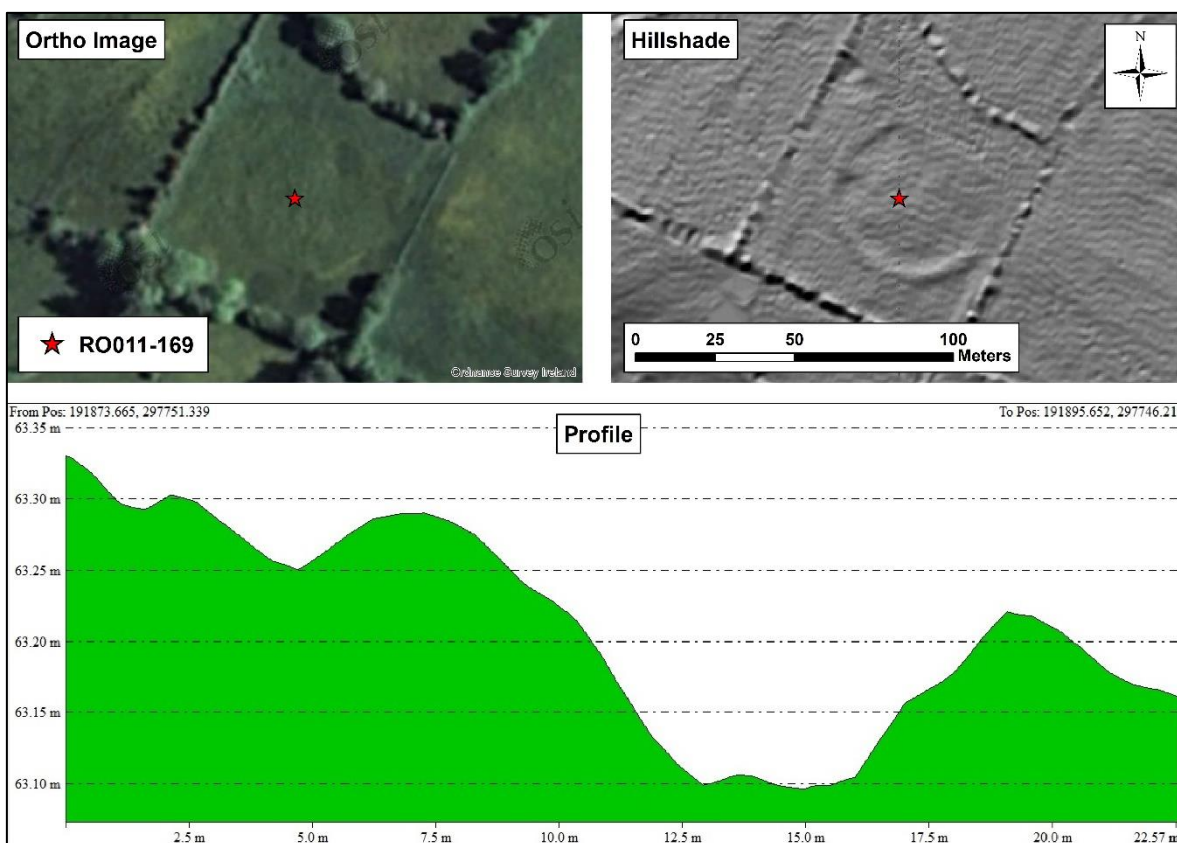


**Figure 6.17** Distribution of early medieval ecclesiastical sites in the Monaghan study area  
(after OSi MapGenie, with additions)

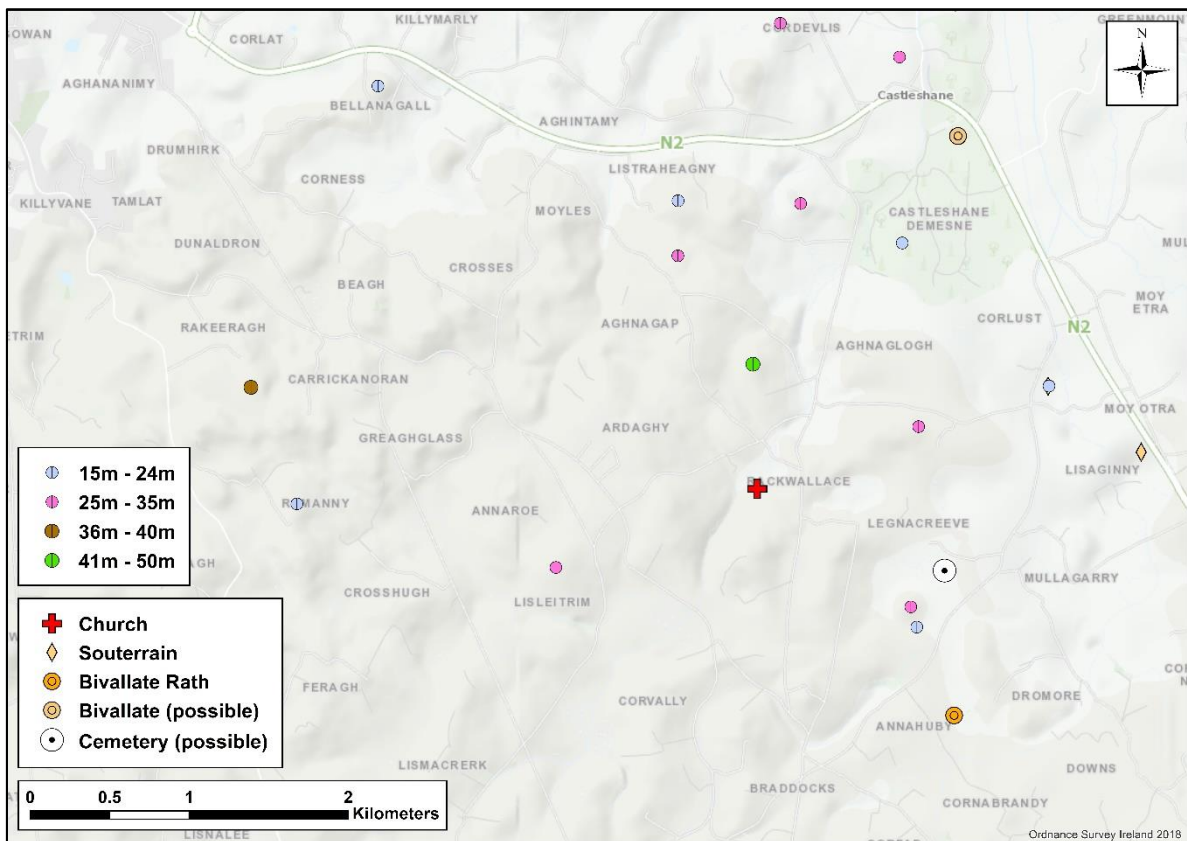




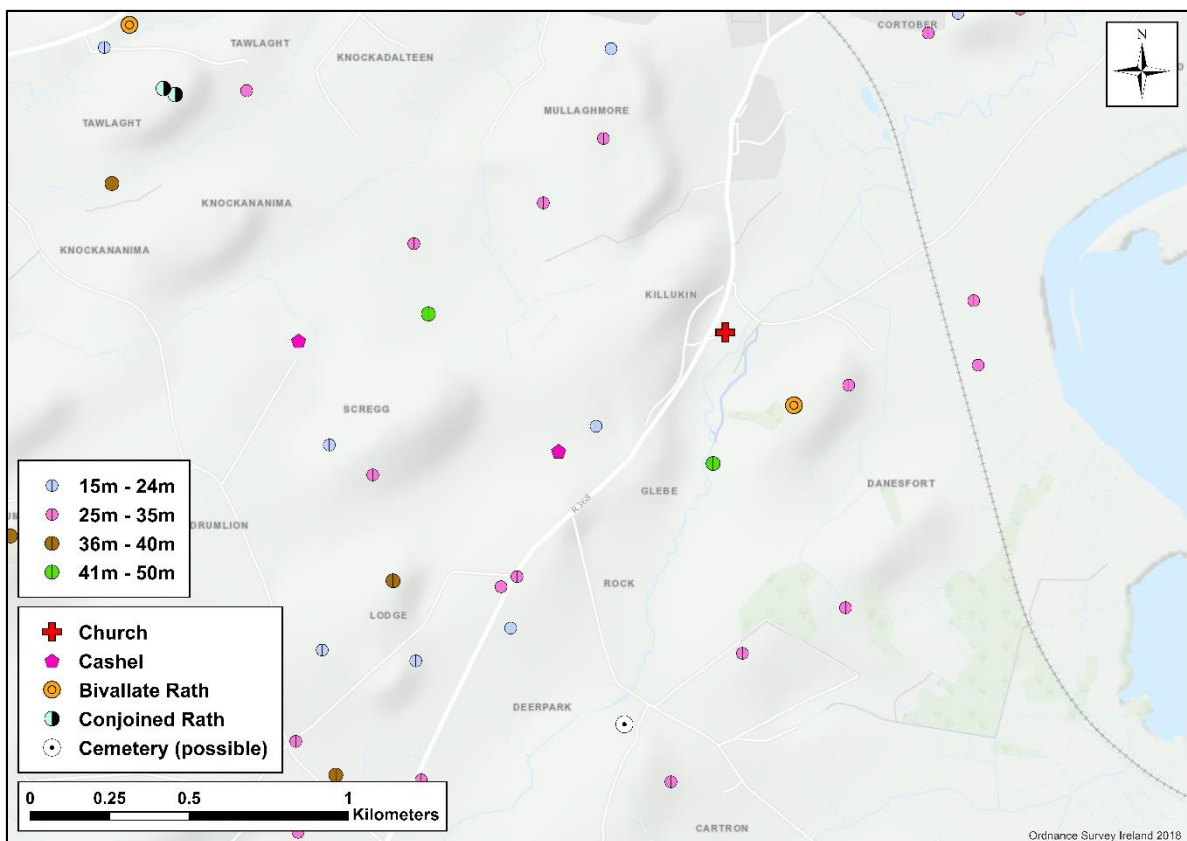
**Figure 7.1** Rath at Derryhallagh, Co. Monaghan which was described as ‘completely demolished’ (Anon 1967d) *(after OSi MapGenie, with additions)*



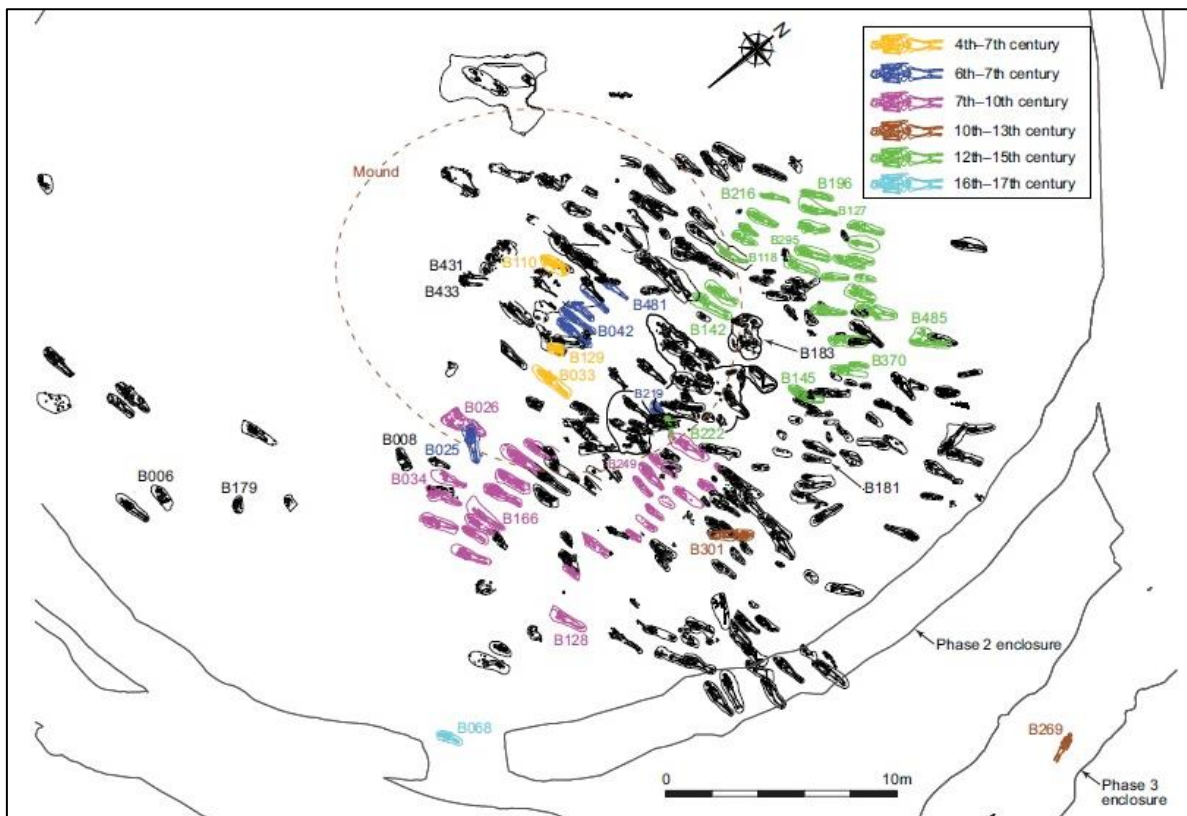
**Figure 7.2** The rath at Scregg, Co. Roscommon as depicted on ortho imagery, lidar hillshade (Azi. 250 / Alt. 60), and profile *(after OSi MapGenie, with additions)*



**Figure 7.3** Distribution of early medieval settlement in the environs of Rackwallace, Co. Monaghan  
(after OSi MapGenie, with additions)



**Figure 7.4** Distribution of early medieval settlement in the environs of Killukin, Co. Roscommon  
(after OSi MapGenie, with additions)



**Figure 7.5.** Evolution of the cemetery of Johnstown 1, Co. Meath  
*(after Clarke & Carlin 2008, 61)*



# APPENDICES

# Appendix 1

*Recorded monuments: Leitrim/Roscommon study area*

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
LE027-065----	LLE-202K	195256	303384	Castle - unclassified	PORT	Medieval/Late Medieval
LE027-066----	LLE-020K	195651	303287	Ringfort - rath	PORT	Early Medieval
LE027-067----	LLE-021K	195711	303324	Ringfort - rath	PORT	Early Medieval
LE027-069----	LLE-022K	194963	302883	Ringfort - rath	CALDRAGH	Early Medieval
LE027-070----	LLE-147K	195112	302777	Enclosure	CALDRAGH	Early Medieval (Possible)
LE027-071----	LLE-148K	195393	302872	Enclosure	CORHAWNAGH	Early Medieval (Possible)
LE027-072----	LLE-023K	196013	302840	Ringfort - rath	DRUMHECKIL	Early Medieval
LE027-076----	LLE-149K	196715	303294	Ringfort - rath	FARNAGH	Early Medieval
LE027-077----	LLE-024K	196660	303079	Ringfort - rath	FARNAGH	Early Medieval
LE027-078----	LLE-150K	197247	303004	Ringfort - rath	KILTOGHERT	Early Medieval
LE027-079001-	LLE-125K	197631	303212	Church	KILTOGHERT	Early Medieval (Possible)
LE027-079002-	LLE-187K	197645	303188	Graveyard	KILTOGHERT	Early Medieval (Possible)
LE027-079003-	LLE-199K	197625	303291	Ritual site - holy well	KILTOGHERT	Early Medieval (Possible)
LE027-079004-	LLE-302K	197646	303207	Redundant record	KILTOGHERT	Redundant
LE027-079005-	LLE-192K	198140	303124	Hospital	KILTOGHERT	Medieval/Late Medieval
LE027-079006-	LLE-204K	197643	303196	Graveslab	KILTOGHERT	Medieval/Late Medieval
LE027-079007-	LLE-295K	197645	303195	Stone head	KILTOGHERT	Early Medieval (Possible)
LE027-087----	LLE-025K	197995	303340	Ringfort - rath	MONG	Early Medieval
LE027-088----	LLE-151K	197951	303160	Ringfort - rath	MONG	Early Medieval
LE027-089----	LLE-001K	198139	303195	Ringfort - cashel	MONG	Early Medieval
LE027-090----	LLE-152K	198156	302955	Ringfort - rath	KILTOGHERT	Early Medieval
LE027-092----	LLE-153K	198503	303319	Ringfort - unclassified	MONG	Early Medieval
LE027-093----	LLE-026K	198881	303290	Ringfort - rath	GOWEL	Early Medieval
LE027-097----	LLE-213K	199871	303369	Barrow - ring-barrow	FINISKLIN	Prehistoric
LE027-098----	LLE-027K	194307	302051	Ringfort - rath	HARTLEY	Early Medieval
LE027-099----	LLE-028K	194392	302098	Ringfort - rath	HARTLEY	Early Medieval
LE027-100----	LLE-029K	194478	302292	Ringfort - rath	HARTLEY	Early Medieval
LE027-101----	LLE-030K	194851	301996	Ringfort - rath	CARTOWN	Early Medieval
LE027-102----	LLE-031K	194768	301359	Ringfort - rath	CLOONSHÉEBANE	Early Medieval
LE027-103----	LLE-154K	194829	301314	Ringfort - rath	BALLYNAMONY (Leitrim Bv.)	Early Medieval
LE027-104----	LLE-155K	195610	302617	Ringfort - rath	GRANGE	Early Medieval
LE027-105001-	LLE-131K	195962	302482	Church	DRUMHECKIL	Medieval/Late Medieval
LE027-106----	LLE-032K	195586	301751	Ringfort - rath	DRUMLUMMAN	Early Medieval
LE027-107----	LLE-156K	195738	301917	Ringfort - rath	DRUMLUMMAN	Early Medieval
LE027-108----	LLE-033K	196033	302046	Ringfort - rath	GRANGE	Early Medieval
LE027-109----	LLE-034K	196116	302115	Ringfort - rath	GRANGE	Early Medieval
LE027-110----	LLE-035K	195946	301847	Ringfort - rath	DRUMLUMMAN	Early Medieval
LE027-111----	LLE-036K	196204	301683	Ringfort - rath	LISMAKEEGAN	Early Medieval
LE027-112----	LLE-037K	196392	301756	Ringfort - rath	LISMAKEEGAN	Early Medieval
LE027-113----	LLE-113K	196458	301751	Enclosure	LISMAKEEGAN	Early Medieval (Possible)
LE027-114----	LLE-157K	196537	301390	Enclosure	TONNAGH	Early Medieval (Possible)
LE027-115----	LLE-038K	196826	301515	Ringfort - rath	TONNAGH	Early Medieval
LE027-116----	LLE-039K	197458	302851	Ringfort - rath	KILTOGHERT	Early Medieval
LE027-117----	LLE-040K	197473	302785	Ringfort - rath	KILTOGHERT	Early Medieval

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
LE027-118----	LLE-041K	197408	302769	Ringfort - rath	KILTOGHERT	Early Medieval
LE027-119----	LLE-132K	197573	301676	Crannog	KILMADDAROE	Early Medieval (Possible)
LE027-120----	LLE-042K	197531	301328	Ringfort - rath	KILMADDAROE	Early Medieval
LE027-121001-	LLE-043K	198192	302487	Ringfort - rath	KILTOGHERT	Early Medieval
LE027-121002-	LLE-195K	198204	302472	House - indeterminate date	KILTOGHERT	Early Medieval (Possible)
LE027-122----	LLE-044K	198140	301764	Ringfort - rath	KILMADDAROE	Early Medieval
LE027-123----	LLE-158K	198511	302150	Enclosure	KILTOGHERT	Early Medieval (Possible)
LE027-124----	LLE-045K	198758	302373	Ringfort - rath	KILTOGHERT	Early Medieval
LE027-125----	LLE-046K	198672	302075	Ringfort - rath	KILTOGHERT	Early Medieval
LE027-126----	LLE-133K	199111	302502	Crannog	KILTOGHERT	Early Medieval (Possible)
LE027-127----	LLE-200K	200194	302226	Road - unclassified togher	ARDLOUGHER,CORLISHEEN,CORLONA,EFFRINAGH	Prehistoric
LE027-139----	LLE-207K	198195	303150	Windmill	MONG	Medieval/Late Medieval
LE028-054----	LLE-047K	200509	303146	Ringfort - rath	EFFRINAGH	Early Medieval
LE031-001----	LLE-049K	193695	300778	Ringfort - rath	LISNAGAT	Early Medieval
LE031-002----	LLE-159K	193899	300867	Enclosure	LISNAGAT	Early Medieval (Possible)
LE031-003----	LLE-048K	194420	300830	Ringfort - rath	BALLYNAMONY (Leitrim By.)	Early Medieval
LE031-004----	LLE-196K	194758	301149	Megalithic structure	BALLYNAMONY (Leitrim By.)	Early Medieval (Possible)
LE031-005----	LLE-190K	193820	299620	Historic town	TOWNPARKS	Post-Medieval/Modern
LE031-005001-	LLE-186K	193811	299329	Fortification	TOWNPARKS	Post-Medieval/Modern
LE031-005002-	LLE-126K	193857	299746	Church	TOWNPARKS	Post-Medieval/Modern
LE031-005003-	LLE-127K	193785	299556	Church	TOWNPARKS	Post-Medieval/Modern
LE031-005004-	LLE-119K	193753	299284	Bridge	TOWNPARKS	Medieval/Late Medieval
LE031-006----	LLE-114K	194410	299730	Ringfort - unclassified	TOWNPARKS	Early Medieval
LE031-007----	LLE-002K	196017	301134	Ringfort - rath	CLOONMULLIGAN	Early Medieval
LE031-008----	LLE-003K	195708	300765	Ringfort - rath	AGHAMEENY	Early Medieval
LE031-009----	LLE-201K	195950	300671	Castle - unclassified	AGHANCARRA	Medieval/Late Medieval
LE031-010----	LLE-004K	195752	300290	Ringfort - rath	KEENAGHAN	Early Medieval
LE031-011----	LLE-005K	195940	300350	Ringfort - rath	KEENAGHAN	Early Medieval
LE031-012----	LLE-006K	195954	300104	Ringfort - rath	KEENAGHAN	Early Medieval
LE031-013----	LLE-007K	195608	299749	Ringfort - rath	CORREEN	Early Medieval
LE031-014----	LLE-143K	196168	300050	Enclosure	CORREEN	Early Medieval (Possible)
LE031-015----	LLE-008K	196480	300530	Ringfort - rath	DROMORE (Leitrim By.)	Early Medieval
LE031-016----	LLE-009K	196666	300340	Ringfort - rath	CORNASLIEVE	Early Medieval
LE031-017----	LLE-144K	196680	300140	Enclosure	CORNASLIEVE	Early Medieval (Possible)
LE031-018----	LLE-145K	196368	299680	Enclosure	CORREEN	Early Medieval (Possible)
LE031-019----	LLE-010K	196572	299713	Ringfort - rath	LISDUFF (Leitrim By., Carrick-on-Shannon ED)	Early Medieval
LE031-020001-	LLE-146K	196829	299970	Enclosure	LISDUFF (Leitrim By., Carrick-on-Shannon ED)	Early Medieval (Possible)
LE031-020002-	LLE-124K	196829	299970	Church	LISDUFF (Leitrim By., Carrick-on-Shannon ED)	Post-Medieval/Modern
LE031-021----	LLE-011K	197085	300208	Ringfort - rath	GARVLOUGH	Early Medieval
LE031-022----	LLE-012K	196932	300958	Ringfort - rath	CLOGHER (Leitrim By.)	Early Medieval
LE031-023----	LLE-013K	197563	300282	Ringfort - rath	AUGHRIMAN SOUTH	Early Medieval
LE031-024----	LLE-014K	197417	299925	Ringfort - rath	AUGHRIMAN SOUTH	Early Medieval
LE031-025----	LLE-015K	198205	300767	Ringfort - rath	KILLASANOWL	Early Medieval
LE031-026----	LLE-016K	198460	300310	Ringfort - rath	LISCALLYROAN	Early Medieval

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
LE031-027----	LLE-017K	198727	300466	Ringfort - rath	LISCALLYROAN	Early Medieval
LE031-028----	LLE-018K	198776	300368	Ringfort - rath	LISCALLYROAN	Early Medieval
LE031-029----	LLE-051K	198889	300059	Ringfort - rath	LISCALLYROAN	Early Medieval
LE031-030----	LLE-052K	199007	299830	Ringfort - rath	LISDAUKY	Early Medieval
LE031-031----	LLE-053K	199265	300028	Ringfort - rath	LISMOYLE	Early Medieval
LE031-032----	LLE-050K	199586	300332	Ringfort - rath	LISMOYLE	Early Medieval
LE031-033----	LLE-161K	199650	300861	Enclosure	COOLCREEVE	Early Medieval (Possible)
LE031-034----	LLE-214K	199976	300936	Barrow - ring-barrow	LISMANNAGH	Prehistoric
LE031-035----	LLE-160K	199930	300357	Enclosure	AGHINTOBER	Early Medieval (Possible)
LE031-036----	LLE-054K	200130	300270	Ringfort - rath	LISMANNAGH	Early Medieval
LE031-037----	LLE-055K	199885	300005	Ringfort - rath	AGHINTOBER	Early Medieval
LE031-038----	LLE-115K	200100	299940	Ringfort - unclassified	CURRAGHMARTIN	Early Medieval
LE031-039----	LLE-123K	195150	298890	Burial ground	ATTIRORY	Early Medieval (Possible)
LE031-039001-	LLE-128K	195151	298887	Church	ATTIRORY	Early Medieval (Possible)
LE031-039002-	LLE-122K	195168	298928	Bullaun stone	ATTIRORY	Early Medieval (Possible)
LE031-039003-	LLE-310K	195153	298877	Ecclesiastical enclosure	ATTIRORY	Early Medieval (Possible)
LE031-040----	LLE-056K	195940	299004	Ringfort - rath	LISSEEGHAN	Early Medieval
LE031-041----	LLE-057K	196223	298371	Ringfort - rath	DRUMKEERAN (Leitrim By., Carrick-on-Shannon ED)	Early Medieval
LE031-042----	LLE-162K	195780	297880	Enclosure	BALLYNACLEIGH	Early Medieval (Possible)
LE031-043----	LLE-163K	196520	298970	Enclosure	KILTYCARNEY	Early Medieval (Possible)
LE031-044----	LLE-058K	196779	298998	Ringfort - rath	KILTYCARNEY	Early Medieval
LE031-045----	LLE-059K	196900	298965	Ringfort - rath	KILTYCARNEY	Early Medieval
LE031-046----	LLE-060K	196596	298730	Ringfort - rath	KILTYCARNEY	Early Medieval
LE031-047----	LLE-164K	196735	298751	Enclosure	KILTYCARNEY	Early Medieval (Possible)
LE031-048----	LLE-061K	197280	299350	Ringfort - rath	GREAGH (Leitrim By., Carrick-on-Shannon ED)	Early Medieval
LE031-049----	LLE-165K	197400	299320	Enclosure	AUGHRIMAN SOUTH	Early Medieval (Possible)
LE031-050----	LLE-062K	197690	299500	Ringfort - rath	AUGHRIMAN SOUTH	Early Medieval
LE031-051----	LLE-063K	197287	298807	Ringfort - rath	KILTYCARNEY	Early Medieval
LE031-052----	LLE-064K	197257	298535	Ringfort - rath	KILTYCARNEY	Early Medieval
LE031-053----	LLE-065K	197460	298787	Ringfort - rath	KILTYCARNEY	Early Medieval
LE031-054----	LLE-066K	197700	298821	Ringfort - rath	TULLY (Leitrim By., Carrick-on-Shannon ED)	Early Medieval
LE031-055----	LLE-067K	197618	298497	Ringfort - rath	TULLY (Leitrim By., Carrick-on-Shannon ED)	Early Medieval
LE031-056----	LLE-134K	198006	298234	Crannog	RIVER SHANNON	Early Medieval (Possible)
LE031-057----	LLE-068K	197968	299119	Ringfort - rath	MINKILL	Early Medieval
LE031-058----	LLE-069K	198040	299212	Ringfort - rath	MINKILL	Early Medieval
LE031-059----	LLE-070K	198078	299219	Ringfort - rath	MINKILL	Early Medieval
LE031-060----	LLE-071K	198320	299290	Ringfort - rath	KILDORRAGH (Leitrim By.)	Early Medieval
LE031-061----	LLE-072K	199177	299272	Ringfort - rath	DRISHOGE	Early Medieval
LE031-062----	LLE-073K	199470	299172	Ringfort - rath	MULLAUN (Leitrim By.)	Early Medieval
LE031-063----	LLE-074K	199580	299128	Ringfort - rath	MULLAUN (Leitrim By.)	Early Medieval
LE031-064----	LLE-075K	199797	299524	Ringfort - rath	LISMOYLE	Early Medieval
LE031-065----	LLE-076K	200197	299227	Ringfort - rath	LAVAGH (Leitrim By.)	Early Medieval
LE031-066----	LLE-077K	199820	298910	Ringfort - rath	FOXBOROUGH	Early Medieval
LE031-067----	LLE-078K	200019	298862	Ringfort - rath	LAVAGH (Leitrim By.)	Early Medieval



SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
LE031-068----	LLE-079K	199719	297960	Ringfort - rath	DRUMSNA	Early Medieval
LE031-069----	LLE-166K	199783	297999	Enclosure	DRUMSNA	Early Medieval (Possible)
LE031-070----	LLE-167K	200026	298088	Enclosure	GORTCONNELLAN	Early Medieval (Possible)
LE031-071----	LLE-168K	200160	298093	Enclosure	GORTCONNELLAN	Early Medieval (Possible)
LE031-072----	LLE-169K	194743	297777	Enclosure	RINNACURREEN	Early Medieval (Possible)
LE031-073----	LLE-080K	194904	297297	Ringfort - rath	RINNACURREEN	Early Medieval
LE031-074----	LLE-081K	196324	297638	Ringfort - rath	DRUMMAUNROE	Early Medieval
LE031-075----	LLE-082K	196910	297840	Ringfort - rath	LISGARNEY	Early Medieval
LE031-076----	LLE-170K	197740	297840	Enclosure	JAMESTOWN	Early Medieval (Possible)
LE031-077----	LLE-083K	196644	297506	Ringfort - rath	DRUMMAUNROE	Early Medieval
LE031-078----	LLE-171K	196480	297400	Enclosure	DRUMMAUNROE	Early Medieval (Possible)
LE031-079----	LLE-084K	196590	297350	Ringfort - rath	DRUMMAUNROE	Early Medieval
LE031-080----	LLE-085K	196310	297210	Ringfort - rath	DRUMMAUNROE	Early Medieval
LE031-081----	LLE-172K	197240	297160	Enclosure	RUE	Early Medieval (Possible)
LE031-082----	LLE-191K	198117	297512	Historic town	JAMESTOWN	Post-Medieval/Modern
LE031-082001-	LLE-300K	198124	297581	Redundant record	JAMESTOWN	Redundant
LE031-082002-	LLE-212K	198063	297504	Town defences	JAMESTOWN	Post-Medieval/Modern
LE031-082003-	LLE-301K	198040	297328	Redundant record	JAMESTOWN	Redundant
LE031-082004-	LLE-129K	198145	297628	Church	JAMESTOWN	Early Medieval (Possible)
LE031-082005-	LLE-208K	197886	297569	Bastioned fort	JAMESTOWN	Post-Medieval/Modern
LE031-082006-	LLE-206K	198145	297500	Religious house - Franciscan nuns (Poor Clares)	JAMESTOWN	Medieval/Late Medieval
LE031-082007-	LLE-120K	198104	297115	Bridge	JAMESTOWN	Early Medieval (Possible)
LE031-082008-	LLE-121K	198099	297117	Bridge	JAMESTOWN	Post-Medieval/Modern
LE031-083----	LLE-304K	198070	297010	Redundant record	RIVER SHANNON	Redundant
LE031-084----	LLE-298K	199410	297650	Redundant record	DRUMSNA	Redundant
LE031-085----	LLE-086K	199570	297450	Ringfort - rath	DRUMSNA	Early Medieval
LE031-085002-	LLE-188K	199570	297450	Graveyard	DRUMSNA	Post-Medieval/Modern
LE031-086----	LLE-173K	199757	297356	Ringfort - rath	DRUMSNA	Early Medieval
LE031-087----	LLE-087K	199878	297395	Ringfort - rath	DRUMSNA	Early Medieval
LE031-088----	LLE-175K	200170	297270	Enclosure	DRUMSNA	Early Medieval (Possible)
LE031-089----	LLE-088K	195680	296740	Ringfort - rath	CORNACORROO	Early Medieval
LE031-090----	LLE-089K	196190	296902	Ringfort - rath	ADEREEN	Early Medieval
LE031-091----	LLE-176K	196726	296436	Enclosure	GORT	Early Medieval (Possible)
LE031-092----	LLE-174K	197050	296550	Enclosure	GORT	Early Medieval (Possible)
LE031-093----	LLE-210K	197360	296860	Designed landscape - tree-ring	JAMESTOWN,RUE	Early Medieval (Possible)
LE031-094----	LLE-090K	197492	296589	Ringfort - rath	JAMESTOWN	Post-Medieval/Modern
LE031-096----	LLE-177K	194868	297212	Enclosure	RINNACURREEN	Early Medieval
LE031-097----	LLE-091K	197857	297913	Ringfort - rath	TULLY (Leitrim By., Carrick-on-Shannon ED)	Early Medieval (Possible)
LE031-098----	LLE-216K	197780	298320	Fulacht fia	TULLY (Leitrim By., Carrick-on-Shannon ED)	Prehistoric
LE031-099----	LLE-116K	193540	300010	Ringfort - unclassified	TOWNPARKS	Early Medieval
LE031-100----	LLE-178K	199566	297065	Enclosure	DRUMSNA	Medieval/Late Medieval
LE031-101----	LLE-217K	197132	298261	Fulacht fia	KILTYCARNEY	Prehistoric
LE031-102----	LLE-198K	197891	298391	Mound	TULLY (Leitrim By., Carrick-on-Shannon ED)	Early Medieval (Possible)
LE031-103----	LLE-218K	198161	298521	Burnt mound	MINKILL	Prehistoric

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
LE031-104001-	LLE-219K	198596	298618	Fulacht fia	KILDORRAGH (Leitrim By.)	Prehistoric
LE031-104002-	LLE-194K	198596	298623	Hut site	KILDORRAGH (Leitrim By.)	Prehistoric
LE031-116----	LLE-305N	197139	300767	Redundant record	CLOGHER (Leitrim By.)	Redundant
LE031-117----	LLE-306K	197212	300933	Enclosure	CLOGHER (Leitrim By.)	Early Medieval (Possible)
LE031-127001-	LLE-307K	198880	300168	Ritual site - holy well	AGHINTOBER	Early Medieval (Possible)
LE031-127002-	LLE-308K	198880	300168	Cross-slab	AGHINTOBER	Early Medieval (Possible)
LE031-127003-	LLE-309K	198880	300168	Ritual site - holy tree/bush	AGHINTOBER	Early Medieval (Possible)
LE032-001----	LLE-092K	200584	301198	Ringfort - rath	CORLISHEEN	Early Medieval
LE032-004----	LLE-093K	200986	300420	Ringfort - rath	LISLEA	Early Medieval
LE032-005----	LLE-094K	200948	300092	Ringfort - rath	LISDUFF (Leitrim By., Drumsna ED)	Early Medieval
LE032-006----	LLE-117K	201230	300030	Ringfort - unclassified	LISDUFF (Leitrim By., Drumsna ED)	Early Medieval
LE032-007----	LLE-179K	201643	300026	Enclosure	MILLPARK	Early Medieval (Possible)
LE032-008----	LLE-180K	201565	298876	Enclosure	MILLPARK	Early Medieval (Possible)
LE032-018----	LLE-095K	200486	299135	Ringfort - rath	LAVAGH (Leitrim By.)	Early Medieval
LE032-019----	LLE-181K	200555	299130	Enclosure	LAVAGH (Leitrim By.)	Early Medieval (Possible)
LE032-020----	LLE-096K	200628	299143	Ringfort - rath	LAVAGH (Leitrim By.)	Early Medieval
LE032-021----	LLE-097K	200557	299001	Ringfort - rath	LAVAGH (Leitrim By.)	Early Medieval
LE032-022----	LLE-182K	200392	298557	Enclosure	FARGRIM	Early Medieval (Possible)
LE032-023----	LLE-098K	200510	298490	Ringfort - rath	FARGRIM	Early Medieval
LE032-024----	LLE-099K	200950	298350	Ringfort - rath	FARGRIM	Early Medieval
LE032-025----	LLE-135K	201046	299176	Cranog	DRISTERMAN	Early Medieval (Possible)
LE032-026----	LLE-100K	201540	299340	Ringfort - rath	CORREISH	Early Medieval
LE032-027----	LLE-183K	201610	299150	Enclosure	HEADFORD	Early Medieval (Possible)
LE032-028----	LLE-101K	201327	298930	Ringfort - rath	HEADFORD	Early Medieval
LE032-029----	LLE-102K	201216	298825	Ringfort - rath	HEADFORD	Early Medieval
LE032-030----	LLE-211K	201329	298770	Designed landscape - tree-ring	HEADFORD	Post-Medieval/Modern
LE032-031001-	LLE-203K	201342	298523	Castle - unclassified	HEADFORD	Medieval/Late Medieval
LE032-031002-	LLE-209K	201342	298523	Country house	HEADFORD	Post-Medieval/Modern
LE032-032----	LLE-103K	201668	298792	Ringfort - rath	HEADFORD	Early Medieval
LE032-033----	LLE-104K	201621	298692	Ringfort - rath	HEADFORD	Early Medieval
LE032-034----	LLE-205K	201560	298594	Moted site	HEADFORD	Medieval/Late Medieval
LE032-035----	LLE-184K	201463	298329	Enclosure	HEADFORD	Early Medieval (Possible)
LE032-036----	LLE-105K	201726	298402	Ringfort - rath	HEADFORD	Early Medieval
LE032-037----	LLE-106K	201990	298437	Ringfort - rath	HEADFORD	Early Medieval
LE032-038----	LLE-107K	202380	298757	Ringfort - rath	DERREEN (Leitrim By., Annaduff ED)	Early Medieval
LE032-039----	LLE-108K	202439	298686	Ringfort - rath	DERREEN (Leitrim By., Annaduff ED)	Early Medieval
LE032-042----	LLE-109K	203019	298276	Ringfort - rath	BUNNY BEG	Early Medieval
LE032-051----	LLE-136K	200639	297798	Cranog	GORTCONNELLAN	Early Medieval (Possible)
LE032-052----	LLE-185K	200770	297648	Enclosure	ANNADUFF	Early Medieval (Possible)
LE032-053----	LLE-215K	201236	297948	Barrow - unclassified	ANNADUFF GLEBE	Prehistoric
LE032-054001-	LLE-130K	200760	296710	Church	ANNADUFF	Early Medieval (Possible)
LE032-054002-	LLE-189K	200760	296710	Graveyard	ANNADUFF	Early Medieval (Possible)
LE032-054003-	LLE-118K	200760	296710	Architectural fragment	ANNADUFF	Early Medieval (Possible)
LE032-054004-	LLE-193K	200760	296710	Hospital	ANNADUFF	Early Medieval (Possible)

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
LE032-055----	LLE-110K	202799	297588	Ringfort - rath	MUCKLAGHAN GLEBE	Early Medieval
LE032-059----	LMO-034K	204480	296680	Redundant record	MUCKLOUGHER	Redundant
LE032-071----	LLE-137K	201301	295430	Crannog	DERRYLOUGHTER	Early Medieval (Possible)
LE032-072----	LLE-138K	201348	295403	Crannog	DERRYLOUGHTER	Early Medieval (Possible)
LE032-073----	LLE-299K	201709	296196	Redundant record	GORTINTY	Redundant
LE032-074----	LLE-139K	201703	296104	Crannog	GORTINTY	Early Medieval (Possible)
LE032-075----	LLE-296K	201871	295772	Redundant record	CARRICK (Leitrim By., Annaduff ED)	Redundant
LE032-076----	LLE-297K	201750	295680	Redundant record	CARRICK (Leitrim By., Annaduff ED)	Redundant
LE032-077----	LLE-111K	202239	295567	Ringfort - rath	DRUMGILRA (Leitrim By.)	Early Medieval
LE032-078----	LLE-112K	202506	295716	Ringfort - rath	DRUMGILRA (Leitrim By.)	Early Medieval
LE032-079----	LMO-006K	203106	295920	Ringfort - unclassified	UMMERA (Mohill By.)	Early Medieval
LE032-080----	LMO-003K	203110	295328	Ringfort - rath	DRUMCOORA (Mohill By.)	Early Medieval
LE032-081----	LMO-007K	204524	296375	Ringfort - unclassified	CLOONBO	Early Medieval
LE032-082----	LMO-031K	204730	296300	Redundant record	CLOONBO	Redundant
LE032-083----	LMO-032K	204760	296210	Redundant record	CLOONBO	Redundant
LE032-084----	LMO-004K	205130	296370	Ringfort - rath	BUNKILLEEN	Early Medieval
LE032-085----	LMO-012K	205060	296260	Crannog	BUNKILLEEN	Early Medieval (Possible)
LE032-086----	LMO-018K	205461	295500	Megalithic tomb - portal tomb	CLOONFINNAN	Prehistoric
LE032-087----	LMO-013K	205193	294903	Crannog	ESKER SOUTH	Early Medieval (Possible)
LE032-092----	LMO-033K	204810	294950	Redundant record	ESKER NORTH	Redundant
LE032-095----	LMO-014K	205020	295350	Crannog	CLOONBO, CLOONFINNAN	Early Medieval (Possible)
LE032-096----	LLE-140K	202889	297297	Crannog	MUCKLAGHAN GLEBE	Early Medieval (Possible)
LE032-097----	LLE-197K	200410	297050	Mound	ANNADUFF	Early Medieval (Possible)
LE032-098----	LLE-141K	202970	297333	Crannog	GORTAGGLE, MUCKLAGHAN GLEBE	Early Medieval (Possible)
LE032-099----	LLE-142K	203023	297273	Crannog	GORTAGGLE	Early Medieval (Possible)
LE032-101----	LLE-220K	200316	297332	Fulacht fia	DRUMSNA	Prehistoric
LE035-001----	LLE-019K	201333	293895	Ringfort - rath	DERRYBRACK	Early Medieval
LE035-002----	LMO-001K	202435	294452	Ringfort - rath	AGHAMORE (Mohill By., Drumod ED)	Early Medieval
LE035-003----	LMO-002K	202467	294411	Ringfort - rath	AGHAMORE (Mohill By., Drumod ED)	Early Medieval
LE035-004----	LMO-005K	202165	293372	Ringfort - unclassified	MULLAGH (Mohill By.)	Early Medieval
LE035-005----	LMO-011K	203290	294448	Cairn - unclassified	AGHINTASS, ANT FIELD	Post-Medieval/Modern
LE035-006----	LMO-015K	204332	294498	Crannog	FINNALAGHTA	Early Medieval (Possible)
LE035-014----	LMO-008K	201942	292599	Ringfort - unclassified	DOORA	Early Medieval
LE035-015----	LMO-035K	202357	292060	Redundant record	LOUGH BODERG	Redundant
LE035-016----	LMO-009K	202451	292052	Ringfort - unclassified	KILLYFAD	Early Medieval
LE035-017----	LMO-017K	204014	292668	Standing stone	FEARNAGHT	Early Medieval (Possible)
LE035-018----	LMO-010K	203945	292541	Bullaun stone	FEARNAGHT	Early Medieval (Possible)
RO006-064----	RBO-243K	188696	303358	Redundant record	Oakport Lough	Redundant
RO006-065----	RBO-067K	188947	303131	Ringfort - rath	KNOCKNACARROW	Early Medieval
RO006-110----	RBO-010K	188121	301931	Ringfort - cashel	LISMULKEARE	Early Medieval
RO006-111----	RBO-068K	188555	302266	Ringfort - rath	CLOONYBRIEN	Early Medieval
RO006-112001-	RBO-009K	188805	302103	Ringfort - cashel	TOBERATARAVAN	Early Medieval
RO006-112002-	RBO-276K	188815	302083	Redundant record	TOBERATARAVAN	Redundant
RO006-113----	RBO-066K	189076	302546	Ringfort - rath	KNOCKNACARROW	Early Medieval

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
RO006-114----	RBO-265K	18864	301701	Ringfort - rath	TOBERATARAVAN,USNA	Early Medieval
RO006-115001-	RBO-011K	189091	301714	Ringfort - cashel	USNA	Early Medieval
RO006-115002-	RBO-164K	189098	301718	House - indeterminate date	USNA	Early Medieval (Possible)
RO006-168----	RBO-064K	188230	301558	Ringfort - rath	LISMULKEARE	Early Medieval
RO006-169----	RBO-065K	188355	301412	Ringfort - rath	USNA	Early Medieval
RO006-170----	RBO-001K	188130	301125	Ringfort - cashel	ARDCONRA	Early Medieval
RO006-171----	RBO-191K	188665	301515	Megalithic tomb - wedge tomb	USNA	Prehistoric
RO006-172----	RBO-148K	188595	301424	Enclosure	USNA	Early Medieval (Possible)
RO006-173----	RBO-268K	188359	300888	Redundant record	ARDCONRA	Redundant
RO006-174----	RBO-269K	188425	300833	Redundant record	ARDCONRA	Redundant
RO006-175----	RBO-006K	188236	300603	Ringfort - cashel	ARDCONRA	Early Medieval
RO006-176----	RBO-058K	188294	300126	Ringfort - rath	RINN	Early Medieval
RO006-206----	RBO-188K	188996	300960	Fulecht fia	HUGHESTOWN	Prehistoric
RO007-024----	RBO-190K	189607	303350	Megalithic tomb - unclassified	COOTEHALL	Prehistoric
RO007-025001-	RBO-069K	189786	303196	Ringfort - rath	LISFARRELLBOY	Early Medieval
RO007-025002-	RBO-114K	189808	303180	Ringfort - rath	LISFARRELLBOY	Early Medieval
RO007-026----	RBO-149K	189902	303222	Hut site	LISFARRELLBOY	Early Medieval (Possible)
RO007-027----	RBO-070K	190038	303254	Ringfort - rath	LISFARRELLBOY	Early Medieval
RO007-028----	RBO-071K	189976	303157	Ringfort - rath	LISFARRELLBOY	Early Medieval
RO007-029----	RBO-062K	190403	303405	Ringfort - rath	FOXHILL	Early Medieval
RO007-030----	RBO-063K	190363	303164	Ringfort - rath	FOXHILL	Early Medieval
RO007-038001-	RBO-130K	191691	303212	Church	CHURCH HILL	Early Medieval (Possible)
RO007-038002-	RBO-119K	191687	303211	Bullaun stone	CHURCH HILL	Early Medieval (Possible)
RO007-038003-	RBO-142K	191686	303221	Ecclesiastical enclosure	CHURCH HILL	Early Medieval (Possible)
RO007-038004-	RBO-120K	191699	303203	Burial	CHURCH HILL	Early Medieval (Possible)
RO007-050----	RBO-015K	192746	303132	Ringfort - rath	DERREENANNAGH	Early Medieval
RO007-051----	RBO-072K	192817	303060	Ringfort - rath	DERREENANNAGH	Early Medieval
RO007-062----	RBO-016K	194444	303352	Ringfort - rath	ANNAGHBEG (Boyle By.)	Early Medieval
RO007-063001-	RBO-173K	195168	303335	Canal	ANNAGHBEG (Boyle By.)	Medieval/Late Medieval
RO007-063002-	RBO-267K	195202	303323	Redundant record	ANNAGHBEG (Boyle By.)	Redundant
RO007-064----	RBO-138K	189192	303036	Ringfort - unclassified	KNOCKNACARROW	Early Medieval (Possible)
RO007-065----	RBO-059K	189878	302896	Ringfort - rath	BRACKLOON (Boyle By.)	Early Medieval
RO007-066----	RBO-007K	189727	302740	Ringfort - cashel	CLOONACARROW (Boyle By.)	Early Medieval
RO007-067----	RBO-008K	189827	302713	Ringfort - cashel	CLOONACARROW (Boyle By.)	Early Medieval
RO007-068----	RBO-060K	189580	302478	Ringfort - rath	CLOONACARROW (Boyle By.)	Early Medieval
RO007-069----	RBO-061K	189674	302446	Ringfort - rath	CLOONACARROW (Boyle By.)	Early Medieval
RO007-071----	RBO-017K	189398	301860	Ringfort - rath	TOBERATARAVAN	Early Medieval
RO007-072----	RBO-054K	190299	302851	Ringfort - rath	FOXHILL	Early Medieval
RO007-073----	RBO-137K	190460	302902	Earthwork	FOXHILL	Early Medieval (Possible)
RO007-074----	RBO-073K	191846	302912	Ringfort - rath	DRUMSILLAGH (Boyle By., Tumna South ED)	Early Medieval
RO007-075----	RBO-074K	192038	302913	Ringfort - rath	DRUMSILLAGH (Boyle By., Tumna South ED)	Early Medieval
RO007-076----	RBO-075K	191989	302777	Ringfort - rath	DRUMSILLAGH (Boyle By., Tumna South ED)	Early Medieval
RO007-077----	RBO-139K	192076	301946	Ringfort - unclassified	LAUGHIL (Boyle By.)	Early Medieval (Possible)
RO007-078----	RBO-076K	191994	301809	Ringfort - rath	LAUGHIL (Boyle By.)	Early Medieval

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
RO007-079----	RBO-077K	192680	302492	Ringfort - rath	CLEAHEEN	Early Medieval
RO007-080----	RBO-078K	192635	301955	Ringfort - rath	CLEAHEEN	Early Medieval
RO007-081----	RBO-055K	192249	301620	Ringfort - rath	CLEAHEEN	Early Medieval
RO007-082----	RBO-056K	192547	301729	Ringfort - rath	CLEAHEEN	Early Medieval
RO007-083----	RBO-057K	193563	301953	Ringfort - rath	CLEAHEEN	Early Medieval
RO007-084001-	RBO-179K	191058	301404	Moated site	INISHATIRRA ISLAND	Medieval/Late Medieval
RO007-084002-	RBO-150K	191093	301463	Enclosure	INISHATIRRA ISLAND	Medieval/Late Medieval
RO007-084003-	RBO-151K	191028	301388	Enclosure	INISHATIRRA ISLAND	Medieval/Late Medieval
RO007-084004-	RBO-165K	191112	301450	House - indeterminate date	INISHATIRRA ISLAND	Early Medieval (Possible)
RO007-085----	RBO-183K	190142	300705	Designed landscape - tree-ring	DRUMHARLOW	Post-Medieval/Modern
RO007-086----	RBO-140K	191757	300722	Earthwork	TUMNA	Early Medieval (Possible)
RO007-087001-	RBO-131K	191936	300891	Church	TUMNA	Early Medieval (Possible)
RO007-087002-	RBO-161K	191950	300890	Graveyard	TUMNA	Early Medieval (Possible)
RO007-087003-	RBO-143K	191956	300886	Ecclesiastical enclosure	TUMNA	Early Medieval (Possible)
RO007-087004-	RBO-170K	191947	300895	Shrine	TUMNA	Early Medieval (Possible)
RO007-087005-	RBO-132K	191941	300881	Church	TUMNA	Early Medieval (Possible)
RO007-087006-	RBO-278K	191939	300881	Redundant record	TUMNA	Redundant
RO007-088----	RBO-079K	192024	300452	Ringfort - rath	TUMNA	Early Medieval
RO007-089----	RBO-080K	192009	300049	Ringfort - rath	TUMNA	Early Medieval
RO007-090----	RBO-081K	192220	300194	Ringfort - rath	TUMNA	Early Medieval
RO007-093----	RBO-134K	189589	301658	Crannog	Lough Eidin	Early Medieval (Possible)
RO007-094----	RBO-135K	190788	302733	Crannog	Lough Eidin	Early Medieval (Possible)
RO007-095----	RBO-270K	0	0	Redundant record	CLOONGOWNAGH	Redundant
RO007-096----	RBO-128K	189949	300381	Burnt mound	WOODBROOK	Prehistoric
RO007-097----	RBO-122K	190042	300223	Burnt mound	WOODBROOK	Prehistoric
RO007-098----	RBO-155K	190200	300120	Excavation - miscellaneous	CLOONGOWNAGH	Early Medieval (Possible)
RO007-099001-	RBO-156K	190358	300057	Excavation - miscellaneous	CLOONGOWNAGH	Early Medieval
RO007-099002-	RBO-157K	190261	300032	Excavation - miscellaneous	CLOONGOWNAGH	Early Medieval (Possible)
RO007-100----	RBO-158K	190482	300008	Excavation - miscellaneous	CLOONGOWNAGH	Early Medieval (Possible)
RO010-020----	RBO-147K	188137	299822	Enclosure	RINN	Early Medieval (Possible)
RO010-024001-	RBO-082K	188469	298912	Ringfort - rath	ARDGLASS	Early Medieval
RO010-024002-	RBO-117K	188464	298919	Souterrain	ARDGLASS	Early Medieval
RO010-025----	RBO-012K	188644	298554	Ringfort - cashel	MACNADILLE,TOORMORE	Early Medieval
RO010-046----	RBO-005K	188286	297721	Ringfort - cashel	DERRYLOW	Early Medieval
RO010-047----	RBO-018K	188265	297397	Ringfort - rath	DERRYLOW	Early Medieval
RO010-048----	RBO-019K	188212	297053	Ringfort - rath	DERRYLOW	Early Medieval
RO010-049----	RBO-171K	189021	298313	Standing stone	KNOCKACORHA	Early Medieval (Possible)
RO010-050----	RBO-083K	188954	298209	Ringfort - rath	KNOCKACORHA	Early Medieval
RO010-067----	RBO-084K	188500	296303	Ringfort - rath	BALLINVILLA	Early Medieval
RO010-068----	RBO-085K	188605	296317	Ringfort - rath	BALLINVILLA	Early Medieval
RO010-069----	RBO-086K	188804	296142	Ringfort - rath	BALLINVILLA	Early Medieval
RO010-082----	RBO-136K	188124	295344	Crannog	BALLINVILLA,CANBO	Early Medieval (Possible)
RO010-083001-	RBO-087K	188662	295131	Ringfort - rath	CANBO	Early Medieval
RO010-083002-	RBO-152K	188681	295134	Enclosure	CANBO	Early Medieval (Possible)



SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
RO010-084001-	RBO-175K	188764	295141	House - 16th/17th century	CANBO	Medieval/Late Medieval
RO010-084002-	RBO-172K	188757	295141	Bawn	CANBO	Medieval/Late Medieval
RO010-118----	RBO-144K	188137	296261	Concentric Enclosure	BALLINVILLA,LISDALY	Prehistoric
RO010-129----	RBO-186K	188414	298438	Penal Mass station	MACNADILLE	Post-Medieval/Modern
RO011-001----	RBO-020K	189190	299115	Ringfort - rath	WOODBROOK	Early Medieval
RO011-002----	RBO-277K	189215	298828	Redundant record	TOORMORE	Redundant
RO011-003----	RBO-045K	189619	299677	Ringfort - rath	WOODBROOK	Early Medieval
RO011-004----	RBO-046K	189681	299306	Ringfort - rath	WOODBROOK	Early Medieval
RO011-005----	RBO-050K	190023	299508	Ringfort - rath	DORRARY	Early Medieval
RO011-006----	RBO-047K	190170	299067	Ringfort - rath	CARROWARD (Boyle By.)	Early Medieval
RO011-007----	RBO-004K	190014	298597	Ringfort - cashel	CARROWARD (Boyle By.), TOORMY MARTIN	Early Medieval
RO011-008----	RBO-048K	190365	299937	Ringfort - rath	CLOONGOWNAGH	Early Medieval
RO011-009----	RBO-271K	190837	299411	Redundant record	CUILTYCONEEN	Redundant
RO011-010----	RBO-049K	191018	299645	Ringfort - rath	CUILTYCONEEN	Early Medieval
RO011-011----	RBO-274K	191043	299233	Redundant record	MEERA	Redundant
RO011-012----	RBO-088K	190888	298592	Ringfort - rath	TAWLAGHT (Boyle By., Killukin ED)	Early Medieval
RO011-013----	RBO-089K	190967	298663	Ringfort - rath	SROANKEERAGH	Early Medieval
RO011-014001-	RBO-090K	191074	298463	Ringfort - rath	TAWLAGHT (Boyle By., Killukin ED)	Early Medieval
RO011-014002-	RBO-115K	191111	298444	Ringfort - rath	TAWLAGHT (Boyle By., Killukin ED)	Early Medieval
RO011-015----	RBO-013K	191362	298741	Ringfort - cashel	TAWLAGHT (Boyle By., Killukin ED)	Early Medieval
RO011-016----	RBO-091K	191313	299847	Ringfort - rath	CUILTYCONEEN	Early Medieval
RO011-017----	RBO-275K	191461	299378	Redundant record	MEERA	Redundant
RO011-018----	RBO-052K	191929	299744	Ringfort - rath	MEERA	Early Medieval
RO011-019----	RBO-053K	192140	299880	Ringfort - rath	CLOONMAAN	Early Medieval
RO011-020001-	RBO-092K	192286	299867	Ringfort - rath	CLOONMAAN	Early Medieval
RO011-020002-	RBO-167K	192282	299870	Hut site	CLOONMAAN	Early Medieval (Possible)
RO011-021----	RBO-093K	192481	298588	Ringfort - rath	MULLAGHMORE	Early Medieval
RO011-022----	RBO-094K	192691	298940	Ringfort - rath	DRISHOGE	Early Medieval
RO011-023----	RBO-095K	192708	299628	Ringfort - rath	CLOONSKEEVEEN	Early Medieval
RO011-024001-	RBO-096K	192905	299696	Ringfort - rath	CLOONSKEEVEEN	Early Medieval
RO011-024002-	RBO-166K	192920	299697	House - indeterminate date	CLOONSKEEVEEN	Early Medieval (Possible)
RO011-025----	RBO-097K	193026	299656	Ringfort - rath	CLOONSKEEVEEN	Early Medieval
RO011-026----	RBO-098K	192898	299503	Ringfort - rath	CLOONSKEEVEEN	Early Medieval
RO011-027----	RBO-099K	193015	299541	Ringfort - rath	CLOONSKEEVEEN	Early Medieval
RO011-028----	RBO-100K	194344	298780	Ringfort - rath	CLOONSKEEVEEN	Early Medieval
RO011-029----	RBO-178K	189325	298274	Moated site	CORDREHID	Early Medieval
RO011-030----	RBO-021K	189773	297834	Ringfort - rath	KNOCKACORHA	Medieval/Late Medieval
RO011-031----	RBO-033K	189665	296902	Ringfort - rath	ARDLA VAGH	Early Medieval
RO011-032----	RBO-034K	189461	296700	Ringfort - rath	DRUMERR	Early Medieval
RO011-033----	RBO-035K	190292	297682	Ringfort - rath	LEGVOY OR GARDENSTOWN	Early Medieval
RO011-034----	RBO-036K	190593	297056	Ringfort - rath	DRUMLION	Early Medieval
RO011-035----	RBO-002K	191499	297670	Ringfort - cashel	SCREGG (Boyle By.)	Early Medieval
RO011-036----	RBO-039K	191595	297342	Ringfort - rath	SCREGG (Boyle By.)	Early Medieval
RO011-037----	RBO-037K	191732	297248	Ringfort - rath	SCREGG (Boyle By.)	Early Medieval

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
RO011-038----	RBO-038K	191796	Ringfort - rath		LODGE	Early Medieval
RO011-039----	RBO-022K	191573	Ringfort - rath		LODGE	Early Medieval
RO011-040----	RBO-040K	191867	Ringfort - rath		LODGE	Early Medieval
RO011-041----	RBO-041K	192135	Ringfort - rath		LODGE	Early Medieval
RO011-042----	RBO-042K	192185	Ringfort - rath		DEERPARK (Boyle By., Danesfort ED), LODGE	Early Medieval
RO011-043----	RBO-043K	192165	Ringfort - rath		DEERPARK (Boyle By., Danesfort ED)	Early Medieval
RO011-044001-	RBO-003K	192316	Ringfort - cashel		KILLUKIN (Boyle By.)	Early Medieval
RO011-044002-	RBO-273K	192316	Redundant record		KILLUKIN (Boyle By.)	Redundant
RO011-045----	RBO-169K	192615	Ritual site - holy well		GLEBE (Boyle By., Danesfort ED)	Early Medieval (Possible)
RO011-046----	RBO-044K	192802	Ringfort - rath		DANESFORT	Early Medieval
RO011-047001-	RBO-133K	192840	Church		KILLUKIN (Boyle By.)	Early Medieval (Possible)
RO011-047002-	RBO-162K	192847	Graveyard		KILLUKIN (Boyle By.)	Early Medieval (Possible)
RO011-048----	RBO-101K	193056	Ringfort - rath		DANESFORT	Early Medieval
RO011-049----	RBO-023K	193228	Ringfort - rath		DANESFORT	Early Medieval
RO011-050----	RBO-146K	193621	Enclosure		DANESFORT	Early Medieval (Possible)
RO011-051----	RBO-051K	193635	Ringfort - rath		DANESFORT	Early Medieval
RO011-052----	LLE-303K	198006	Redundant record		River Shannon	Redundant
RO011-054----	RBN-036K	198361	Enclosure		CLOONAVERY	Early Medieval (Possible)
RO011-055----	RBN-006K	198682	Ringfort - rath		CLOONAVERY	Early Medieval
RO011-056----	RBN-033K	198726	Enclosure		DRUMCLEAVRY	Early Medieval (Possible)
RO011-057001-	RBN-042K	198711	Ring-ditch		DRUMCLEAVRY	Early Medieval (Possible)
RO011-058----	RBN-041K	198711	Linear earthwork		CLOONAVERY, DRUMCLEAVRY, LACKAGH, ARDANAFFRIN	Prehistoric
RO011-059----	RBN-008K	198163	Ringfort - rath		ARDANAFFRIN	Early Medieval
RO011-060----	RBN-007K	198377	Ringfort - rath		ARDANAFFRIN	Early Medieval
RO011-061----	RBO-102K	189817	Ringfort - rath		DERRAUN	Early Medieval
RO011-062001-	RBO-103K	189938	Ringfort - rath		DERRAUN	Early Medieval
RO011-062002-	RBO-163K	189935	House - indeterminate date		DERRAUN	Early Medieval (Possible)
RO011-063----	RBO-024K	190195	Ringfort - rath		DERRAUN	Early Medieval
RO011-064----	RBO-182K	190130	Boundary mound		DERRAUN, DRUMERCOOL, DRUMERR, DRUMLION	Post-Medieval/Modern
RO011-065----	RBO-180K	190381	Moated site		BALLYCULLEEN	Medieval/Late Medieval
RO011-066----	RBO-104K	190959	Ringfort - rath		DRUMERCOOL	Early Medieval
RO011-067----	RBO-141K	191490	Ringfort - unclassified		LODGE	Early Medieval (Possible)
RO011-068----	RBO-105K	191497	Ringfort - rath		LODGE	Early Medieval
RO011-069----	RBO-106K	191616	Ringfort - rath		LODGE	Early Medieval
RO011-070----	RBO-028K	191884	Ringfort - rath		LODGE	Early Medieval
RO011-071----	RBO-029K	192123	Ringfort - rath		CULLEENATREEN OR FLAGFORD	Early Medieval
RO011-072001-	RBO-030K	192558	Ringfort - rath		CARTRON (Boyle By., Danesfort ED)	Early Medieval
RO011-072002-	RBO-116K	192556	Souterrain		CARTRON (Boyle By., Danesfort ED)	Early Medieval
RO011-073----	RBO-031K	192669	Ringfort - rath		CARTRON (Boyle By., Danesfort ED)	Early Medieval
RO011-074----	RBO-032K	192894	Ringfort - rath		DANESFORT	Early Medieval
RO011-075----	RRO-006K	193842	Ringfort - rath		CORRY (Roscommon By.)	Early Medieval
RO011-076----	RRO-001K	194197	Ringfort - rath		CORRY (Roscommon By.)	Early Medieval
RO011-077----	RRO-007K	194314	Ringfort - rath		CORRY (Roscommon By.)	Early Medieval
RO011-078----	RRO-009K	194533	Cranmogg		Lough Corry	Early Medieval (Possible)

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
RO011-079----	RRO-008K	194857	296534	Ringfort - rath	CORRY (Roscommon By.)	Early Medieval
RO011-080----	RRO-012K	195274	296483	Linear earthwork	CORRY (Roscommon By.)	Prehistoric
RO011-081----	RRO-010K	194602	295868	Enclosure	CORRY (Roscommon By.)	Early Medieval (Possible)
RO011-082----	RRO-011K	195045	295664	Enclosure	CORRY (Roscommon By.)	Early Medieval (Possible)
RO011-083----	RRO-002K	195329	295844	Ringfort - rath	CORRY (Roscommon By.)	Early Medieval
RO011-084----	RRO-005K	195444	295437	Ringfort - rath	CLOONFAD BEG	Early Medieval
RO011-085----	RBN-002K	197251	295422	Ringfort - rath	CORGULLION	Early Medieval
RO011-086----	RBN-003K	197700	296214	Ringfort - rath	CULTYCONWAY	Early Medieval
RO011-087----	RBN-004K	197786	296208	Ringfort - rath	CULTYCONWAY	Early Medieval
RO011-088----	RBN-035K	198297	295247	Enclosure	DANGAN (Nugent)	Early Medieval (Possible)
RO011-089----	RBN-005K	198780	296166	Ringfort - rath	CORRY (Ballintober North By.)	Early Medieval
RO011-090001-	RBN-009K	198657	295543	Ringfort - rath	CORRALARA	Early Medieval
RO011-090002-	RBN-026K	198611	295529	Ringfort - rath	CORRALARA	Early Medieval
RO011-091----	RBO-014K	189470	295095	Ringfort - cashel	FINNOR	Early Medieval
RO011-092001-	RBO-107K	189596	295203	Ringfort - rath	FINNOR	Early Medieval
RO011-092002-	RBO-272K	189593	295194	Mound	FINNOR	Early Medieval (Possible)
RO011-094----	RBO-025K	190470	295196	Ringfort - rath	CARROWREAGH (Boyle By.)	Early Medieval
RO011-095----	RBO-026K	190597	295015	Ringfort - rath	CARROWREAGH (Boyle By.)	Early Medieval
RO011-102----	RBO-181K	191691	295193	Ringfort - rath	KILLUMMOD	Early Medieval
RO011-105----	RBO-145K	192144	295118	Enclosure	CULLEENATREEN OR FLAGFORD	Early Medieval (Possible)
RO011-106001-	RBO-129K	192109	295035	Church	KILLUMMOD	Early Medieval (Possible)
RO011-106002-	RBO-160K	192109	295030	Graveyard	KILLUMMOD	Early Medieval (Possible)
RO011-107----	RBO-027K	192389	295243	Ringfort - rath	CULLEENATREEN OR FLAGFORD	Early Medieval
RO011-116----	RRO-003K	194023	295146	Ringfort - rath	CORRY (Roscommon By.)	Early Medieval
RO011-118----	RRO-004K	194851	295127	Ringfort - rath	CLOONFAD BEG	Early Medieval
RO011-127----	RBN-010K	196254	295167	Ringfort - rath	TAWNAGH MORE	Early Medieval
RO011-128001-	RBN-031K	196430	295208	Church	KILBRIDE	Early Medieval (Possible)
RO011-128002-	RBN-039K	196414	295197	Graveyard	KILBRIDE	Early Medieval (Possible)
RO011-128003-	RBN-073K	196428	295208	Redundant record	KILBRIDE	Redundant
RO011-128004-	RBN-034K	196429	295214	Ecclesiastical enclosure	KILBRIDE	Early Medieval (Possible)
RO011-129002-	RBN-027K	196728	294992	Southern	KILBRIDE	Early Medieval
RO011-150001-	RBO-174K	193712	299210	Castle - unclassified	CORTOBER	Medieval/Late Medieval
RO011-150002-	RBO-118K	193753	299284	Bridge	CORTOBER	Post-Medieval/Modern
RO011-151001-	RBN-028K	198104	297115	Bridge	CLOONAVERY	Post-Medieval/Modern
RO011-151002-	RBN-029K	198099	297117	Bridge	CLOONAVERY	Post-Medieval/Modern
RO011-152----	RBN-045K	198795	295470	Redundant record	CARTON (KING)	Redundant
RO011-153----	RBN-037K	198348	297030	Enclosure	CLOONAVERY	Early Medieval (Possible)
RO011-155----	RBO-110K	191335	298456	Ringfort - rath	TAWLAGHT (Boyle By., Killukin ED)	Early Medieval
RO011-156----	RBO-109K	191694	298810	Ringfort - rath	KNOCKADAL TEEN	Early Medieval
RO011-157----	RBO-111K	192434	297401	Ringfort - rath	KILLUKIN (Boyle By.)	Early Medieval
RO011-160001-	RBO-112K	190610	299968	Ringfort - rath	CLOONGOWNAGH	Early Medieval
RO011-160002-	RBO-153K	190628	299949	Enclosure	CLOONGOWNAGH	Early Medieval (Possible)
RO011-160003-	RBO-168K	190600	299959	Hut site	CLOONGOWNAGH	Prehistoric
RO011-160004-	RBO-187K	190640	299928	Fulacht fia	CLOONGOWNAGH	Prehistoric

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD
RO011-160005-	RBO-123K		190700	Burnt mound	CLOONGOWNAGH	Early Medieval (Possible)
RO011-160006-	RBO-124K		299950	Burnt mound	CLOONGOWNAGH	Early Medieval (Possible)
RO011-160007-	RBO-127K		190730	Burnt mound	CLOONGOWNAGH	Early Medieval (Possible)
RO011-160008-	RBO-189K		190572	House - prehistoric	CLOONGOWNAGH	Prehistoric
RO011-161----	RBO-185K		191387	Mass-rock (present location)	DRUMERCOOL	Post-Medieval/Modern
RO011-162001-	RBO-177K		192379	Mill - unclassified	DEERPARK (Boyle By., Danesfort ED)	Medieval/Late Medieval
RO011-162002-	RBO-159K		192274	Field system	DEERPARK (Boyle By., Danesfort ED)	Early Medieval (Possible)
RO011-163----	RBO-113K		192523	Enclosure	CLOONGOWNAGH	Early Medieval
RO011-164001-	RBO-121K		190500	Burnt mound	CLOONGOWNAGH	Early Medieval (Possible)
RO011-164002-	RBO-154K		190475	Excavation - miscellaneous	CLOONGOWNAGH	Early Medieval (Possible)
RO011-165001-	RBO-125K		191348	Burnt mound	CULTYCONEEN	Early Medieval (Possible)
RO011-165002-	RBO-126K		191359	Burnt mound	CULTYCONEEN	Early Medieval (Possible)
RO011-166----	RBO-176K		192950	Inscribed stone	DANESFORT	Medieval/Late Medieval
RO011-167----	RBO-184K		191340	Mass-rock	KNOCKANANIMA	Post-Medieval/Modern
RO011-168----	RBN-075K		197341	Linear earthwork	CULTYCONWAY	Prehistoric
RO012-001----	RBN-011K		198852	Ringfort - rath	CHARLESTOWN	Early Medieval
RO012-002----	RBN-012K		199399	Ringfort - rath	DRUMCLEAVRY	Early Medieval
RO012-004----	RBN-013K		199074	Ringfort - rath	LACKAGH	Early Medieval
RO012-005----	RBN-014K		199167	Ringfort - rath	CORRY (Ballintober North By.)	Early Medieval
RO012-006001-	RBN-015K		200038	Ringfort - rath	CLOONTEEM	Early Medieval
RO012-006002-	RBN-038K		200022	Enclosure	CLOONTEEM	Early Medieval (Possible)
RO012-007----	RBN-072K		200300	Redundant record	CLOONTEEM	Redundant
RO012-008----	RBN-016K		199663	Ringfort - rath	MOYGLASS (Ballintober North By., Cloonteam ED)	Early Medieval
RO012-012----	RBN-017K		200050	Ringfort - rath	MOYGLASS (Ballintober North By., Cloonteam ED)	Early Medieval
RO012-013----	RBN-074K		200456	Redundant record	MOYGLASS (Ballintober North By., Cloonteam ED)	Redundant
RO012-014----	RBN-018K		199882	Ringfort - rath	TOOLOSCAN	Early Medieval
RO012-015----	RBN-019K		199847	Ringfort - rath	TOOLOSCAN	Early Medieval
RO012-017----	RBN-046K		199670	Standing stone	TOOLOSCAN	Early Medieval (Possible)
RO012-022----	RBN-030K		199043	Burial	CARTON (KING),CORRY (Ballintober North By.)	Early Medieval (Possible)
RO012-031----	RBN-071N		0	Redundant record	Unknown	Redundant
RO018-003----	RBN-043K		199611	Ritual site - holy well	CLOONCOMMON MORE	Early Medieval (Possible)
RO018-004----	RBN-020K		201080	Ringfort - rath	SKEAGH	Early Medieval
RO018-005----	RBN-048K		201178	Barrow - unclassified	SKEAGH	Prehistoric
RO018-008----	RBN-021K		199698	Ringfort - rath	CLOONCOMMON BEG	Early Medieval
RO018-009----	RBN-022K		199913	Ringfort - rath	CLOONCOMMON BEG	Early Medieval
RO018-010001-	RBN-023K		200177	Ringfort - rath	CLOONCOMMON MORE	Early Medieval
RO018-010002-	RBN-047K		200200	Mass-rock	CLOONCOMMON MORE	Post-Medieval/Modern
RO018-011----	RBN-024K		200302	Ringfort - rath	CLOONCOMMON MORE	Early Medieval
RO018-012----	RBN-025K		200534	Ringfort - rath	CLOONCOMMON MORE	Early Medieval
RO018-013001-	RBN-032K		199639	Church	KILCOCK	Early Medieval (Possible)
RO018-013003-	RBN-044K		199639	Ritual site - holy well	KILCOCK	Early Medieval (Possible)

## **Appendix 2**

***Recorded monuments: Monaghan study area***



SMRS	P_ID	NAT_GRID	E_NAT_GRID	N	CLASSDESC	TLAND_NAME	Period
MO001-002----	MTR-001K	263229		351806	Ringfort - rath	CLONISBOYLE	Early Medieval
MO001-003----	MTR-002K	264540		351638	Ringfort - rath	DERRYLEVICK	Early Medieval
MO001-004----	MTR-003K	263614		351359	Designed landscape feature	DROMORE (Trough By.)	Post-Medieval/Modern
MO001-005----	MTR-004K	264103		351096	Ringfort - rath	CLONACULLAN	Early Medieval
MO001-006----	MTR-005K	264250		350775	Ringfort - rath	RAFLACONY	Early Medieval
MO001-006001-	MTR-119K	264246		350773	Designed landscape feature	RAFLACONY	Post-Medieval/Modern
MO001-007----	MTR-006K	264678		351479	Ringfort - rath	DERRYLEVICK	Early Medieval
MO001-008----	MTR-007K	264802		351065	Ringfort - rath	AGHADRUMCRU	Early Medieval
MO001-009----	MTR-008K	266043		350806	Ringfort - rath	AGHADERRY	Early Medieval
MO001-010----	MTR-009K	263238		351557	Ritual site - holy/saint's stone	CLONISBOYLE	Early Medieval (Possible)
MO003-003----	MTR-010K	263193		350426	Ringfort - rath	DRUMBURN	Early Medieval
MO003-005----	MTR-011K	263949		349999	Burial ground	URLISH	Medieval/Late Medieval
MO003-006----	MTR-012K	263578		350536	Ringfort - rath	MULLANAFINNOG	Early Medieval
MO003-007----	MTR-013K	263736		350377	Ringfort - rath	MULLANAFINNOG	Early Medieval
MO003-009----	MTR-014K	263219		349420	Ringfort - rath	TIRERAN	Early Medieval
MO003-010----	MTR-015K	263832		349304	Ringfort - rath	DERNAGOLA	Early Medieval
MO003-011----	MTR-016K	264882		349191	Ringfort - rath	KILLYREASK	Early Medieval
MO003-012----	MTR-017K	265554		350344	Ringfort - rath	IVY HILL	Early Medieval
MO003-013----	MTR-018K	266146		350537	Ringfort - rath	MOY (Trough By.)	Early Medieval
MO003-014----	MTR-019K	266004		350004	Designed landscape feature	MOY (Trough By.)	Post-Medieval/Modern
MO003-015----	MTR-020K	267095		350082	Ringfort - rath	LISROOSKY	Early Medieval
MO003-016----	MTR-021K	265604		349245	Ringfort - rath	MULLANACROSS (Trough By.)	Early Medieval
MO003-017----	MTR-022K	265050		347620	Ringfort - rath	KILLYECK (Anketell)	Early Medieval
MO003-018001-	MTR-023K	266068		349194	Ritual site - holy well	MULLANDERG	Early Medieval (Possible)
MO003-018002-	MTR-024K	266060		349144	Church	MULLANACROSS (Trough By.)	Early Medieval (Possible)
MO003-018003-	MTR-025K	266060		349136	Graveyard	MULLANACROSS (Trough By.)	Early Medieval (Possible)
MO003-018004-	MTR-026K	266071		349144	Architectural fragment	MULLANACROSS (Trough By.)	Early Medieval (Possible)
MO003-018005-	MTR-027K	266071		349144	Architectural fragment	MULLANACROSS (Trough By.)	Early Medieval (Possible)
MO003-018006-	MTR-028K	266071		349144	Sheela-na-gig	MULLANACROSS (Trough By.)	Medieval/Late Medieval
MO003-018007-	MTR-111K	266071		349144	Graveslab	MULLANACROSS (Trough By.)	Post-Medieval/Modern
MO003-019----	MTR-029K	266673		348968	Ringfort - rath	MULLAGHCOR	Early Medieval
MO003-020----	MTR-030K	267211		348931	Ringfort - rath	KILLYDONAGH	Early Medieval
MO003-023----	MTR-031K	263493		348174	Ringfort - rath	DERRYLEA BEG	Early Medieval
MO003-024----	MTR-032K	265606		348300	Hilltop enclosure	DERNACOO	Early Medieval (Possible)
MO003-025----	MTR-033K	266330		348250	Ringfort - rath	GORTICLEAVE	Early Medieval
MO003-026----	MTR-034K	267529		347627	Ringfort - rath	MULLANANALLOG	Early Medieval
MO003-027----	MTR-035K	268054		348084	Cranog	MULLANANALLOG	Early Medieval (Possible)
MO003-028----	MTR-036K	265052		346993	Ringfort - rath	LISKENNA	Early Medieval
MO003-029----	MTR-037K	265157		346706	Ringfort - rath	LISKENNA	Early Medieval
MO003-030----	MTR-038K	265786		347033	Ringfort - rath	GLASMULLAGH	Early Medieval
MO003-031----	MTR-039K	265522		346459	Ringfort - rath	DUNDIAN	Early Medieval
MO003-032----	MTR-040K	266864		346531	Ringfort - rath	KILLYCORRAN	Early Medieval
MO003-033----	MTR-041K	268775		347413	Hilltop enclosure	CAVAN (Cope)	Early Medieval (Possible)
MO003-034----	MTR-042K	270051		347525	Ringfort - rath	FIGULLAR	Early Medieval

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	Period
MO003-035----	MTR-043K	268599	346097	Ringfort - rath	KILLAKEADY	Early Medieval
MO003-036----	MTR-044K	266021	345891	Ringfort - rath	LISGREW	Early Medieval
MO003-037----	MTR-045K	266172	345588	Ringfort - rath	LISAVARGY	Early Medieval
MO003-038----	MTR-046K	267097	345584	Hilltop enclosure	LENAGH	Early Medieval (Possible)
MO003-039----	MTR-047K	265574	344879	Redundant record	SOGHER	Redundant
MO003-040----	MTR-048K	266194	345149	Ringfort - rath	KILLYBRESSAL	Early Medieval
MO003-041----	MTR-049K	266111	344691	Ringfort - rath	DUNMADIGAN	Early Medieval
MO003-042----	MTR-050K	266130	344536	Ringfort - rath	DUNMADIGAN	Early Medieval
MO003-043----	MTR-051K	266623	344822	Ringfort - rath	DUNGILLICK	Early Medieval
MO003-044----	MTR-052K	267388	345015	Ringfort - rath	CORLATTALLAN,KNOCKAKIRWAN	Early Medieval
MO003-045----	MTR-053K	268712	344590	Ringfort - rath	EMY	Early Medieval
MO003-047----	MTR-054K	263173	349837	Ringfort - rath	KILLYSLAVAN	Early Medieval
MO003-048----	MTR-055K	263211	349783	Ringfort - rath	KILLYSLAVAN	Early Medieval
MO003-050----	MTR-056K	264950	350172	Designed landscape feature	SKINNAHERGNA	Post-Medieval/Modern
MO004-002----	MTR-057K	271200	344607	Ringfort - rath	KILLYREAN UPPER	Early Medieval
MO004-003----	MTR-058K	271986	344494	Ringfort - rath	MONMURRY	Early Medieval
MO006-001----	MTR-059K	265488	343846	Ringfort - rath	DAVAGH OTRA	Early Medieval
MO006-002----	MTR-060K	266884	342940	House - 17th century	DERRYNASHALLOG	Post-Medieval/Modern
MO006-003----	MTR-061K	267570	343048	Ringfort - rath	CORNACREEVE (Trough By.)	Early Medieval
MO006-004----	MTR-062K	269103	343559	Crannog	DERRYGASSAN LOWER,EMY,PORTINAGHY,TIRAMOAN	Early Medieval (Possible)
MO006-005----	MTR-063K	268314	342738	Ringfort - rath	TULLY (Trough By., Donagh Par.)	Early Medieval
MO006-006----	MTR-064K	268208	342313	Ringfort - rath	TULLY (Trough By., Donagh Par.)	Early Medieval
MO006-007----	MTR-065K	268833	342588	Ringfort - rath	PULLIS	Early Medieval
MO006-008----	MTR-066K	269973	342329	Ringfort - rath	DESERT	Early Medieval
MO006-009----	MMO-007K	264596	341246	Ringfort - rath	DRUMDART	Early Medieval
MO006-010----	MTR-067K	266374	341153	Ringfort - rath	TULLYARD (Trough By., Donagh Par.)	Early Medieval
MO006-011----	MTR-068K	268009	341750	Ringfort - rath	DERRYHALLAGH	Early Medieval
MO006-012----	MTR-069K	269000	341202	Ringfort - rath	DUNDONAGH	Early Medieval
MO006-013----	MMO-002K	263949	340076	Ringfort - rath	AGHACLOGHA	Early Medieval
MO006-014----	MTR-070K	265854	339727	Ringfort - rath	CORRAGHBRACK	Early Medieval
MO006-015----	MTR-071K	268010	339736	Enclosure	BELDERG	Medieval/Late Medieval
MO006-016----	MTR-072K	269241	339134	Ringfort - unclassified	BILLIS	Early Medieval (Possible)
MO006-022001-	MMO-003K	264098	339026	Church	MULLANAROCKAN	Early Medieval (Possible)
MO006-022002-	MMO-004K	264088	339030	Graveyard	MULLANAROCKAN	Early Medieval (Possible)
MO006-022003-	MMO-113K	264094	339019	Rock art	MULLANAROCKAN	Prehistoric
MO006-022004-	MMO-112K	264100	339023	Graveslab	MULLANAROCKAN	Post-Medieval/Modern
MO006-022005-	MMO-114K	264100	339021	Wall monument	MULLANAROCKAN	Post-Medieval/Modern
MO006-023----	MMO-005K	264715	338497	Ringfort - rath	MULLYERA	Early Medieval
MO006-024----	MTR-073K	267604	338858	Enclosure	DRUMCAW (Trough By.)	Early Medieval (Possible)
MO006-026----	MTR-074K	269653	342147	Enclosure	STRAMORE	Post-Medieval/Modern
MO006-027----	MTR-075K	266402	342804	Burial mound	INISHDEVILIN	Early Medieval (Possible)
MO006-028----	MTR-076K	267954	339090	Crannog	DRUMCAW (Trough By.)	Early Medieval (Possible)
MO006-029----	MTR-077K	267865	342631	Crannog	CORNACREEVE (Trough By.)	Early Medieval (Possible)
MO006-030----	MTR-078K	267704	343885	Cist	SCARNAGEERAGH or EMYVALE	Prehistoric

SMRS	P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	Period
MO006-032----	MTR-079K	268580	340090	Enclosure	DRUMGAGHAN	Post-Medieval/Modern
MO006-034----	MTR-080K	269793	342410	Ringfort - rath	DESERT	Early Medieval
MO007-001----	MTR-081K	270909	344294	Ringfort - rath	TONYSHANDENY	Early Medieval
MO007-002----	MTR-082K	271884	344303	Ringfort - rath	MONMURRY	Early Medieval
MO007-003----	MTR-083K	271374	343401	Ringfort - rath	MULLALISS	Early Medieval
MO007-004----	MTR-084K	272620	343740	Enclosure	LEEK	Early Medieval (Possible)
MO007-005----	MTR-085K	272975	343150	Ringfort - rath	CORRAGHDOWN	Early Medieval
MO007-006----	MTR-086K	271325	341961	Hilltop enclosure	DRUMBANAGHER	Early Medieval (Possible)
MO007-007001-	MTR-087K	270447	340891	Church	DONAGH	Early Medieval (Possible)
MO007-007002-	MTR-088K	270466	340883	Cross	DONAGH	Post-Medieval/Modern
MO007-007003-	MTR-089K	270437	340902	Cross	DONAGH	Post-Medieval/Modern
MO007-007004-	MTR-090K	270453	340898	Graveyard	DONAGH	Early Medieval (Possible)
MO007-007005-	MTR-091K	270443	340897	Cross	DONAGH	Medieval/Late Medieval
MO007-007006-	MTR-092K	270462	340881	Headstone	DONAGH	Post-Medieval/Modern
MO007-007007-	MTR-093K	270464	340882	Graveslab	DONAGH	Post-Medieval/Modern
MO007-007008-	MTR-094K	270437	340887	Graveslab	DONAGH	Post-Medieval/Modern
MO007-007009-	MTR-112K	270463	340894	Rock art	DONAGH	Prehistoric
MO007-007010-	MTR-113K	270453	340898	Cross	DONAGH	Medieval/Late Medieval
MO007-008----	MTR-095K	273823	339925	Ringfort - rath	CLANICKNY	Early Medieval
MO007-009----	MTR-096K	274350	338822	Ringfort - rath	ANNAGOLA	Early Medieval
MO007-010----	MTR-097K	273754	338528	Ringfort - rath	ANNAREAGH SOUTH	Early Medieval
MO007-012----	MTR-098K	272389	340743	Crannog	TONYHAMIGAN	Early Medieval (Possible)
MO007-013----	MTR-099K	271223	342946	Enclosure	DERRYHOOSH	Early Medieval (Possible)
MO007-014001-	MTR-100K	272230	341703	Church	GLASLOUGH	Medieval/Late Medieval
MO007-014002-	MTR-101K	272230	341690	Graveyard	GLASLOUGH	Medieval/Late Medieval
MO007-014003-	MTR-114K	272229	341698	Inscribed stone	GLASLOUGH	Post-Medieval/Modern
MO007-014004-	MTR-115K	272211	341702	Headstone	GLASLOUGH	Post-Medieval/Modern
MO007-014005-	MTR-116K	272219	341699	Graveslab	GLASLOUGH	Post-Medieval/Modern
MO007-014006-	MTR-117K	272220	341700	Graveslab	GLASLOUGH	Post-Medieval/Modern
MO007-014007-	MTR-118K	272215	341696	Font	GLASLOUGH	Medieval/Late Medieval
MO007-015----	MTR-102K	273179	343691	Armorial plaque	CORRAGHDOWN	Post-Medieval/Modern
MO007-016----	MTR-133N	272255	341795	Bastioned fort	GLASLOUGH	Medieval/Late Medieval
MO007-018----	MTR-134N	272267	341815	House - 17th century	GLASLOUGH	Post-Medieval/Modern
MO007-019----	MMO-006K	271424	338306	Souterrain	CREIGHANS	Early Medieval
MO009-006----	MMO-007K	264032	337278	Ringfort - rath	DRUMCOO (Jackson)	Early Medieval
MO009-007----	MMO-008K	264664	337020	Ringfort - rath	CLONKEADY	Early Medieval
MO009-008----	MTR-103K	267415	338009	Ringfort - rath	MULLABRACK (Scott)	Early Medieval
MO009-009----	MTR-104K	267812	337874	Ringfort - rath	ENAGH (Trough By.)	Early Medieval
MO009-010----	MTR-105K	268598	337329	Ringfort - rath	STRAGHAN or CORNASORE	Early Medieval
MO009-011----	MTR-106K	269405	337769	Ringfort - rath	FAULKLAND	Early Medieval
MO009-012----	MMO-009K	269387	337133	Ringfort - rath	CRUMLIN (Monaghan By., Tehallan Par.)	Early Medieval
MO009-013----	MMO-010K	269400	336979	Ringfort - unclassified	CRUMLIN (Monaghan By., Tehallan Par.)	Early Medieval
MO009-017----	MMO-011K	265176	336200	Ringfort - rath	DRUMBENAGH	Early Medieval
MO009-019----	MMO-012K	264238	335136	Crannog	DRUMREASK	Early Medieval (Possible)

SMRS	P_ID	NAT_GRID	E_NAT_GRID_N	CLASSDESC	TLAND_NAME	Period
MO009-020----	MMO-013K	264176	335066	Crannog	DRUMREASK	Early Medieval (Possible)
MO009-021----	MMO-014K	264300	335047	Crannog	DRUMREASK	Early Medieval (Possible)
MO009-022----	MMO-015K	264327	335016	Crannog	DRUMREASK	Early Medieval (Possible)
MO009-023----	MMO-016K	264738	335365	Ringfort - rath	RACONNELL	Early Medieval
MO009-024----	MMO-017K	265335	335176	Ringfort - rath	CORKNOCK	Early Medieval
MO009-025----	MMO-018K	269192	336334	Ringfort - rath	CRUMLIN (Monaghan By., Tehallan Par.)	Early Medieval
MO009-026----	MTR-107K	269015	335881	Designed landscape - tree-ring	EDEN ISLAND	Post-Medieval/Modern
MO009-027----	MTR-108K	268970	335973	Ringfort - rath	EDEN ISLAND	Early Medieval
MO009-028----	MMO-019K	269416	336387	Ringfort - rath	CRUMLIN (Monaghan By., Tehallan Par.)	Early Medieval
MO009-029----	MMO-020K	269796	335961	Designed landscape - tree-ring	LISANORE	Post-Medieval/Modern
MO009-030----	MMO-021K	269291	335575	Ringfort - rath	DRUMRUTAGH	Early Medieval
MO009-031----	MMO-022K	269790	335361	Ringfort - rath	LISCARNEY	Early Medieval
MO009-032----	MMO-023K	270235	335293	Cairn - unclassified	CARN (Monaghan, By.)	Prehistoric
MO009-034----	MMO-024K	264740	334586	Ringfort - rath	NEWGROVE	Early Medieval
MO009-037----	MMO-025K	266923	333294	Crannog	MULLAGHMONAGHAN	Early Medieval (Possible)
MO009-037001-	MMO-026K	266929	333275	Redundant record	MULLAGHMONAGHAN	Redundant
MO009-044----	MMO-027K	267863	333394	Burial ground	TIRKEENAN	Post-Medieval/Modern
MO009-048----	MMO-028K	264434	333031	Ringfort - rath	BALLYLECK	Early Medieval
MO009-049----	MMO-029K	264456	332301	House - 17th century	BALLYLECK	Post-Medieval/Modern
MO009-050----	MMO-030K	265621	331861	Ringfort - rath	KILLYDRUTAN	Early Medieval
MO009-051----	MMO-031K	266170	331840	Megalithic tomb - unclassified	SKEAGARVEY	Prehistoric
MO009-053----	MMO-032K	264460	334480	Ringfort - rath	TULLYCROMAN	Early Medieval
MO009-055----	MMO-033K	269861	332602	Ringfort - rath	BELLANAGALL	Early Medieval
MO009-057----	MTR-109K	267764	337719	Ringfort - rath	ENAGH (Trough By.)	Early Medieval
MO009-059----	MTR-110K	269658	337794	House - 17th century	FAULKLAND	Post-Medieval/Modern
MO009-060----	MMO-034K	267180	333730	Historic town	KILNACLOY,MULLAGHMONAGHAN,ROOSKY,TIRKEENAN	Post-Medieval/Modern
MO009-060001-	MMO-035K	267086	333888	Burial	MULLAGHMONAGHAN	Post-Medieval/Modern
MO009-060002-	MMO-036K	267092	333563	Religious house - Franciscan friars	ROOSKY (Monaghan By., Monaghan Par.)	Medieval/Late Medieval
MO009-060003-	MMO-037K	267274	333720	House - fortified house	ROOSKY (Monaghan By., Monaghan Par.)	Post-Medieval/Modern
MO009-060004-	MMO-038K	267225	333866	Town defences	ROOSKY (Monaghan By., Monaghan Par.)	Medieval/Late Medieval
MO009-060005-	MMO-039K	267190	333723	Burial	ROOSKY (Monaghan By., Monaghan Par.)	Post-Medieval/Modern
MO009-060006-	MMO-040K	267472	333637	Cross - Market cross (present location)	TIRKEENAN	Post-Medieval/Modern
MO009-060007-	MMO-041K	266916	333903	Bastioned fort	MULLAGHMONAGHAN	Post-Medieval/Modern
MO009-060009-	MMO-042K	267225	333741	Graveyard	ROOSKY (Monaghan By., Monaghan Par.)	Post-Medieval/Modern
MO009-060010-	MMO-043K	267254	333832	House - 16th century	ROOSKY (Monaghan By., Monaghan Par.)	Post-Medieval/Modern
MO009-060011-	MMO-115K	267213	333727	Graveslab	ROOSKY (Monaghan By., Monaghan Par.)	Post-Medieval/Modern
MO009-060012-	MMO-116K	267225	333747	Church	ROOSKY (Monaghan By., Monaghan Par.)	Post-Medieval/Modern
MO009-060013-	MMO-136K	267274	333703	Bawn	ROOSKY (Monaghan By., Monaghan Par.)	Post-Medieval/Modern
MO009-061----	MMO-044K	267213	334146	Redundant record	KILNACLOY	Redundant
MO009-062----	MMO-045K	268054	334250	Redundant record	ROOSKY (Monaghan By., Monaghan Par.)	Redundant
MO009-063----	MMO-046K	265815	332437	Megalithic tomb - unclassified	GORTAKEEGHAN	Prehistoric
MO009-064----	MMO-047K	265555	332356	Ringfort - rath	GORTAKEEGHAN	Early Medieval
MO009-065----	MMO-048K	265443	333296	Ringfort - rath	CORNECASSA DEMESNE	Early Medieval
MO009-066----	MMO-049K	265500	333623	Ringfort - rath	CORNECASSA DEMESNE	Early Medieval

SMRS	P_ID	NAT_GRID	E_NAT_GRID_N	CLASSDESC	TLAND_NAME	Period
MO009-067----	MMO-050K	266826	332851	Mound	TULLY (Monaghan By., Monaghan Par.)	Early Medieval (Possible)
MO009-068----	MMO-051K	269063	334855	Ritual site - holy tree/bush	DRUMRUTAGH	Early Medieval (Possible)
MO009-069----	MMO-052K	265887	335752	Hearth	CROSSES	Post-Medieval/Modern
MO009-070----	MMO-053K	265948	335757	Hearth	CROSSES	Post-Medieval/Modern
MO009-071----	MMO-054K	265953	335760	Hearth	CROSSES	Post-Medieval/Modern
MO009-072----	MMO-055K	264967	332484	Designed landscape - tree-ring	CAMLA	Post-Medieval/Modern
MO009-073----	MMO-056K	265206	332251	Designed landscape feature	CAMLA	Post-Medieval/Modern
MO009-074----	MMO-057K	268480	334518	Fulacht fia	TULLYHIRM	Prehistoric
MO009-075----	MMO-058K	268695	334050	Fulacht fia	ANNAHAGH	Prehistoric
MO009-076----	MMO-059K	268775	334034	Fulacht fia	ANNAHAGH	Prehistoric
MO009-077----	MMO-060K	268289	333745	Stone head	LATLORCAN	Medieval/Late Medieval
MO010-001001-	MMO-061K	270889	337313	Ringfort - rath	TIRAVERA	Early Medieval
MO010-001002-	MMO-062K	270897	337298	Hut site	TIRAVERA	Early Medieval (Possible)
MO010-001003-	MMO-063K	270902	337301	Hut site	TIRAVERA	Early Medieval (Possible)
MO010-002----	MMO-064K	270673	336779	Redundant record	DRUMGOOLE	Redundant
MO010-003001-	MMO-065K	271417	336083	Church	TEMPLETATE (Monaghan By., Tehallan Par.)	Early Medieval (Possible)
MO010-003002-	MMO-066K	271422	336074	Graveyard	TEMPLETATE (Monaghan By., Tehallan Par.)	Early Medieval (Possible)
MO010-004----	MMO-067K	272802	335028	Ringfort - rath	ANNACRAMPH	Early Medieval
MO010-005----	MMO-068K	271743	334301	Ringfort - rath	FEDOO	Early Medieval
MO010-006----	MMO-069K	273570	334141	Ringfort - rath	GARRAN OTRA or GIBALTAR	Early Medieval
MO010-007----	MMO-070K	270915	333173	Hilltop enclosure	LISDRUMDOAGH	Early Medieval (Possible)
MO010-008----	MMO-071K	271748	331880	Ringfort - rath	LISTRAHEAGNY	Early Medieval
MO010-009----	MMO-072K	272391	332996	Ringfort - rath	CORDEVILIS (Monaghan By., Tehallan Par.)	Early Medieval
MO010-010----	MMO-073K	272518	331863	Ringfort - rath	CORDEVILIS (Monaghan By., Monaghan Par.)	Early Medieval
MO010-011----	MMO-074K	273140	332784	Ringfort - rath	LISMENAN	Early Medieval
MO010-012----	MMO-075K	273491	333111	Ringfort - rath	TIRAVRAY	Early Medieval
MO010-013----	MMO-076K	273508	332288	Ringfort - rath	CASTLESHANE DEMESNE	Early Medieval
MO010-014001-	MCR-001K	276488	333276	Ringfort - rath	DRUMGOLAT	Early Medieval
MO010-014002-	MCR-002K	276486	333291	Southern	DRUMGOLAT	Early Medieval
MO010-014003-	MCR-003K	276486	333282	Hut site	DRUMGOLAT	Early Medieval (Possible)
MO010-015----	MCR-004K	274372	332874	Ceremonial enclosure	GREENMOUNT	Prehistoric
MO010-015001-	MCR-022K	274367	332879	Barrow - bowl-barrow	GREENMOUNT	Prehistoric
MO010-016----	MMO-077K	271773	335142	Ringfort - rath	KILDOAGH	Early Medieval
MO010-017----	MMO-078K	273726	334741	Ringfort - rath	GARRAN ITRA	Early Medieval
MO010-018----	MMO-079K	273309	335712	Crannog	GARRAN ITRA, KILLYNEILL	Early Medieval (Possible)
MO010-019----	MCR-005K	275310	335680	Ringfort - rath	CAVANCREEVY	Early Medieval
MO010-020----	MCR-006K	275732	335449	Ringfort - rath	CAVANCREEVY	Early Medieval
MO010-021----	MCR-007K	276420	332350	Enclosure	DRUMBEO	Early Medieval (Possible)
MO010-023----	MCR-008K	276455	332885	Battlefield	DRUMGOLAT, DRUMBEO	Medieval/Late Medieval
MO013-005----	MMO-080K	264737	330481	Hilltop enclosure	CORNAGLARE (Monaghan By.)	Early Medieval (Possible)
MO013-006----	MMO-081K	265008	331533	Ringfort - rath	KILLYCUSHIL	Early Medieval
MO013-007----	MMO-082K	266060	331480	Megalithic tomb - court tomb	KILLYDRUTAN	Prehistoric
MO013-008----	MMO-083K	266640	331320	Ringfort - rath	CORNAMUNADY	Early Medieval
MO013-009----	MMO-084K	269063	330708	Ringfort - rath	RAKEERAGH (Monaghan By., Monaghan Par.)	Early Medieval



SMRS	P_ID	NAT_GRID	E_NAT_GRID_N	CLASSDESC	TLAND_NAME	Period
MO013-010----	MMO-085K	269352	329975	Ringfort - rath	RAMANNY	Early Medieval
MO013-015----	MMO-086K	264459	330586	Ringfort - rath	CRUMLIN (Monaghan By., Kilmore Par.)	Early Medieval
MO013-016----	MMO-087K	264392	328795	Cranog	GORTNANA,BALLAGH,KILTUBBRID,TOGAN,LECK	Early Medieval (Possible)
MO013-017----	MMO-088K	265120	328863	Inauguration site	LECK	Early Medieval (Possible)
MO013-018----	MMO-089K	266030	329639	Enclosure	TULLYARD (Monaghan By., Monaghan Par.)	Post-Medieval/Modern
MO013-019----	MMO-090K	266954	328771	Cranog	KNOCKATURLY	Early Medieval (Possible)
MO013-020----	MMO-091K	267532	329092	Ringfort - rath	LISSARAW	Early Medieval
MO013-023----	MMO-092K	264029	328258	Ringfort - rath	BALLAGH	Early Medieval
MO013-025----	MMO-093K	264508	326935	Megalithic tomb - wedge tomb	GREAGH (Monaghan By., Drumsnat Par.)	Prehistoric
MO013-026----	MMO-094K	267200	327863	Ringfort - rath	LISNASHANNAGH	Early Medieval
MO013-027----	MMO-095K	266643	326931	Ringfort - rath	CAVANAGARVAN	Early Medieval
MO013-042----	MMO-096K	269100	327790	Ringfort - rath	LISNALEE (Monaghan By.)	Early Medieval
MO013-043----	MMO-097K	267480	330760	Ritual site - holy well	SHEETRIM	Early Medieval (Possible)
MO013-045----	MMO-098K	266068	328155	Redundant record	DRUMMUCK	Redundant
MO014-001----	MMO-099K	271747	331534	Ringfort - rath	AGHNAGAP	Early Medieval
MO014-002----	MMO-100K	273157	331615	Ringfort - rath	CASTLESHANE DEMESNE	Early Medieval
MO014-003----	MMO-101K	272219	330853	Ringfort - rath	RACKWALLACE	Early Medieval
MO014-004----	MMO-102K	273260	330460	Ringfort - rath	CREEVE (Monaghan By.)	Early Medieval
MO014-005----	MMO-103K	273954	330787	Enclosure	CORLUST	Post-Medieval/Modern
MO014-006001-	MCR-009K	274080	330716	Ringfort - rath	LISAGINNY	Early Medieval
MO014-006002-	MCR-010K	274075	330714	Southern	LISAGINNY	Early Medieval
MO014-007----	MCR-011K	275138	330644	Ringfort - rath	LISGLASSAN	Early Medieval
MO014-008----	MCR-012K	275742	330038	Ringfort - rath	LISGLASSAN	Early Medieval
MO014-009----	MCR-013K	277128	331596	Ringfort - rath	LISTINNY	Early Medieval
MO014-013----	MMO-104K	270980	329574	Ringfort - rath	LISLEITRIM	Early Medieval
MO014-014001-	MMO-105K	272246	330069	Church	RACKWALLACE	Early Medieval (Possible)
MO014-014002-	MMO-106K	272240	330060	Graveyard	RACKWALLACE	Early Medieval (Possible)
MO014-015----	MMO-107K	273424	329555	Ringfort - rath	LEGNACREEVE	Early Medieval
MO014-016----	MMO-108K	273211	329326	Ringfort - rath	LEGNACREEVE	Early Medieval
MO014-017----	MMO-109K	273249	329199	Ringfort - rath	LEGNACREEVE	Early Medieval
MO014-018----	MCR-014K	273484	328644	Ringfort - rath	ANNAHUBY	Early Medieval
MO014-019001-	MCR-015K	275807	328962	Church	GALLAGH	Early Medieval (Possible)
MO014-019002-	MCR-016K	275815	328971	Graveyard	GALLAGH	Early Medieval (Possible)
MO014-023----	MMO-110K	271307	327149	Ringfort - rath	CORDEVILIS NORTH	Early Medieval
MO014-024----	MMO-111K	271812	327656	Ringfort - rath	KILNACRAN	Early Medieval
MO014-025----	MCR-017K	273227	327670	Standing stone	CORFAD	Prehistoric
MO014-038----	MCR-018K	274310	330210	Redundant record	LISAGINNY	Redundant
MO014-043----	MCR-019K	274660	330300	Southern	MOY OTRA	Early Medieval
MO014-045----	MCR-020K	275777	331459	Southern	ENNIS	Early Medieval
MO014-046----	MCR-021K	275754	330643	Mass-rock	LISGLASSAN	Post-Medieval/Modern

# Appendix 3

## ***Newly discovered monuments: Leitrim/Roscommon study area***

- A. Monuments added to SMR*
- B. Monuments not added to SMR*

SMRS	P ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD	Rating
LE027-141----	LLE-238N	197219	303070	Ringfort - rath	KILTOGHERT	Early Medieval	1
LE027-142----	LLE-241N	197576	302112	Ringfort - rath	KILTOGHERT	Early Medieval	1
LE027-143----	LLE-223N	195056	301952	Ringfort - rath	CARTOWN	Early Medieval	1
LE027-144----	LLE-253N	198271	302239	Ringfort - rath	KILTOGHERT	Early Medieval	3
LE031-007001-	LLE-230N	196042	301085	Enclosure	CLOONMULLIGAN	Early Medieval (Possible)	4
LE031-086001-	LLE-268N	199733	297311	Ringfort - rath	DRUMSNA	Early Medieval (Possible)	3
LE031-105----	LLE-225N	194517	301019	Ringfort - rath	BALLYNAMONY (Leitrim By.)	Early Medieval (Possible)	1
LE031-106----	LLE-244N	197044	299744	Enclosure	GARVLOUGH	Early Medieval (Possible)	1
LE031-107----	LLE-264N	199260	297702	Ringfort - rath	DRUMSNA	Early Medieval (Possible)	1
LE031-108----	LLE-236N	196404	295944	Ringfort - rath	CORAUGHRIM	Early Medieval (Possible)	1
LE031-109----	LLE-250N	197807	297102	Enclosure	JAMESTOWN	Early Medieval (Possible)	3
LE031-110----	LLE-247N	197522	298681	Ringfort - rath	TULLY (Leitrim By., Carrick-on-Shannon ED)	Early Medieval (Possible)	3
LE031-112----	LLE-237N	196326	296090	Ringfort - rath	CORAUGHRIM	Early Medieval (Possible)	2
LE031-113----	LLE-224N	194536	301167	Ringfort - rath	CLOONSHEEBANE	Early Medieval	3
LE031-114----	LLE-232N	196412	300742	Ringfort - rath	DROMORE (Leitrim By.)	Early Medieval	3
LE031-115----	LLE-243N	197139	300767	Enclosure	CLOGHER (Leitrim By.), DROMORE (Leitrim By.)	Early Medieval (Possible)	1
LE031-118----	LLE-245N	197046	298853	Ringfort - rath	KILTYCARNEY	Early Medieval	2
LE031-119----	LLE-246N	197444	298684	Ringfort - rath	KILTYCARNEY	Early Medieval	3
LE031-120----	LLE-227N	194334	298056	Field system	INISHMUCKER ISLAND	Early Medieval (Possible)	2
LE031-121----	LLE-249N	197709	297544	Ringfort - rath	JAMESTOWN	Early Medieval	3
LE031-122----	LLE-255N	199146	298759	Ringfort - rath	MOUNTCAMPBELL	Early Medieval	3
LE031-123----	LLE-261N	199728	298290	Ringfort - rath	CRICKEEN	Early Medieval	3
LE031-124----	LLE-265N	199293	297850	Enclosure	DRUMSNA	Medieval/Late Medieval	5
LE031-125----	LLE-269N	199771	297095	Ringfort - rath	DRUMSNA	Early Medieval	3
LE031-126----	LLE-287N	196030	300988	Ringfort - rath	DROMORE (Leitrim By.)	Early Medieval (Possible)	2
LE032-102----	LLE-276N	200789	300084	Ringfort - rath	DRISTERAN	Early Medieval	2
LE032-103----	LLE-278N	200721	299364	Ringfort - rath	DRISTERAN	Early Medieval	2
LE032-104----	LLE-280N	201634	298448	Ringfort - rath	HEADFORD	Early Medieval	3
LE032-105----	LLE-293N	202112	295680	Ringfort - rath	CARRICK (Leitrim By., Annaduff ED)	Early Medieval	3
LE032-106----	LLE-282N	201675	295097	Ringfort - rath	CARRICK (Leitrim By., Annaduff ED)	Early Medieval	3
LE032-107----	LMO-025N	203270	295550	Ringfort - rath	DRUMCOORA (Mohill By.)	Early Medieval	3
LE032-108----	LMO-027N	204033	295258	Barrow - ring-barrow	CORRUFF (Mohill By., Drumod ED)	Prehistoric	3
LE035-042----	LMO-019N	202778	294824	Ringfort - rath	AGHAMORE (Mohill By., Drumod ED)	Early Medieval	2
RO006-215----	RBO-192N	188393	303274	Barrow - ring-barrow	OAKPORT DEMESNE	Prehistoric	2
RO006-216----	RBO-198N	188702	302340	Ringfort - rath	CLOONYBRIEN, TOBERATARAVAN	Early Medieval	2
RO007-102----	RBO-266N	190500	302263	Ringfort - rath	ANNAGHMONA	Early Medieval	2

SMRS	P ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD	Rating
RO007-103----	RBO-242N	191891	302177	Ringfort - rath	LAUGHIL (Boyle By.)	Early Medieval	2
RO007-104----	RBO-228N	190910	301343	Enclosure	INISHATIRRA ISLAND	Early Medieval (Possible)	3
RO007-105----	RBO-230N	190958	300950	Redundant Record	CLOONEIGH (Boyle By.)	Early Medieval (Possible)	3
RO007-106----	RBO-229N	191199	300994	Enclosure	CLOONEIGH (Boyle By.)	Early Medieval (Possible)	3
RO007-107----	RBO-221N	189781	300342	Barrow - ring-barrow	WOODBROOK	Prehistoric	2
RO010-134----	RBO-208N	189077	298670	Ringfort - rath	TOORMORE	Early Medieval	1
RO011-053----	RBN-051N	194895	298300	Ringfort - rath	CHARLESTOWN	Early Medieval (Possible)	3
RO011-118001-	RRO-015N	194888	295145	Ringfort - rath	CLOONFAD BEG	Early Medieval	2
RO011-169----	RBO-249N	191907	297754	Ringfort - rath	SCREGG (Boyle By.)	Early Medieval	1
RO011-170----	RBO-234N	190869	296940	Ringfort - rath	DRUMLION	Early Medieval	1
RO011-171----	RBO-235N	190786	296811	Enclosure	DRUMERCOOL	Early Medieval (Possible)	1
RO011-172----	RBN-049N	197846	296490	Enclosure	CUILTYCONWAY	Early Medieval (Possible)	3
RO011-173----	RBO-209N	189306	298951	Ringfort - rath	TOORMORE	Early Medieval	2
RO011-174----	RBO-206N	191808	299838	Ringfort - rath	MEERA	Early Medieval	1
RO011-175----	RBO-212N	191797	299576	Ringfort - rath	MEERA	Early Medieval	2
RO011-176----	RBO-233N	190912	298164	Ringfort - rath	KNOCKANANIMA	Early Medieval	3
RO011-177----	RBO-248N	191861	297975	Ringfort - rath	KNOCKADALTEEN	Early Medieval	2
RO011-178----	RBO-247N	192268	298103	Enclosure	MULLAGHMORE	Early Medieval (Possible)	2
RO011-179----	RBO-246N	192457	298306	Ringfort - rath	MULLAGHMORE	Early Medieval	2
RO011-180----	RBO-254N	193478	298637	Ringfort - rath	CORTOBER	Early Medieval	2
RO011-181----	RBO-255N	193572	298699	Ringfort - rath	CORTOBER	Early Medieval	2
RO011-182----	RBO-256N	193767	298713	Ringfort - rath	CORTOBER	Early Medieval	3
RO011-183----	RBO-258N	193218	296830	Ringfort - rath	DANESFORT	Early Medieval	3
RO011-184----	RBO-238N	190839	295314	Ringfort - rath	CARROWREAGH (Boyle By.)	Early Medieval	1
RO011-185----	RRO-013N	194425	295899	Ringfort - rath	CORRY (Roscommon By.)	Early Medieval	2
RO011-186----	RBN-050N	197374	295337	Redundant Record	CORGULLION	Early Medieval (Possible)	3
RO011-187----	RBN-054N	198689	296767	Ringfort - rath	DRUMCLEAVRY	Early Medieval	2
RO012-023----	RBN-063N	199790	294070	Ringfort - rath	TOOLOSCAN	Early Medieval	1
RO012-024----	RBN-052N	199145	297931	Ringfort - rath	CHARLESTOWN	Early Medieval (Possible)	2
RO012-025----	RBN-056N	198854	295553	Redundant Record	CARTRON	Early Medieval (Possible)	2
RO012-026----	RBN-055N	199285	295999	Ringfort - rath	CORRY (Ballintober North By.)	Early Medieval	3
RO012-027----	RBN-059N	200150	296127	Ringfort - rath	CLOONTEEM	Early Medieval	3
RO012-028----	RBN-058N	199934	295988	Ringfort - rath	CLOONTEEM	Early Medieval	2
RO012-029----	RBN-057N	199864	295822	Ringfort - rath	CLOONTEEM	Early Medieval	3
RO012-030----	RBN-060N	199932	295168	Ringfort - rath	MOYGLASS (Ballintober North By., Cloonteen ED)	Early Medieval	2
RO018-030----	RBN-064N	199783	292141	Ringfort - rath	CLOONCOMMON BEG	Early Medieval	3

P ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	T LAND_NAME	PERIOD	Rating
LLE-221N	193783	300825	Enclosure	LISNAGAT	Prehistoric	5
LLE-228N	196635	303100	Enclosure	FARNAGH	Post-Medieval/Modern	5
LLE-231N	196026	300804	Enclosure	AGHANCARRA	Post-Medieval/Modern	5
LLE-233N	196570	300957	Enclosure	CLOGHER (Leitrim By.)	Early Medieval (Possible)	2
LLE-234N	196217	298425	Enclosure	DRUMKEERAN (Leitrim By., Carrick-on-Shannon ED)	Medieval/Late Medieval	5
LLE-240N	197395	302828	Enclosure	KILTOGHERT	Early Medieval (Possible)	3
LLE-242N	197230	300924	Enclosure	CLOGHER (Leitrim By.)	Post-Medieval/Modern	5
LLE-248N	197053	297805	Enclosure	LISGARNEY	Early Medieval (Possible)	3
LLE-254N	199171	300402	Enclosure	LISCALLYROAN	Post-Medieval/Modern	5
LLE-263N	200071	297993	Enclosure	GORTCONNELLAN	Early Medieval (Possible)	4
LLE-279N	200878	299467	Enclosure	DRISTERNAN	Early Medieval (Possible)	3
LLE-283N	202521	298146	Enclosure	DERREEN	Early Medieval (Possible)	4
LLE-285N	202048	295165	Pathway	CARRICK	Post-Medieval/Modern	5
LLE-286N	202061	295387	Enclosure	CARRICK	Post-Medieval/Modern	5
LLE-288N	197007	300082	Enclosure	GARVLOUGH	Post-Medieval/Modern	5
LLE-290N	197216	300143	Enclosure	GARVLOUGH	Early Medieval (Possible)	4
LLE-291N	197261	300136	Enclosure	GARVLOUGH	Early Medieval (Possible)	4
LLE-294N	202651	295280	Enclosure	DRUMGILRA (Leitrim By.)	Post-Medieval/Modern	5
LMO-020N	202737	295107	Enclosure	AGHAMORE (Mohill By., Drumode ED)	Early Medieval (Possible)	3
LMO-023N	202312	293500	Enclosure	MULLAGH [Mohill By.]	Early Medieval (Possible)	3
LMO-028N	204498	293017	Enclosure	FEARNAGHT	Post-Medieval/Modern	5
LMO-030N	205814	292232	Enclosure	CLOONTURK	Early Medieval (Possible)	3
RBN-061N	200026	295139	Enclosure	MOYGLASS (Ballintober North By., Cloonteen ED)	Post-Medieval/Modern	5
RBN-062N	200175	294953	Enclosure	MOYGLASS (Ballintober North By., Cloonteen ED)	Medieval/Late Medieval	5
RBO-194N	188413	303163	Enclosure	OAKPORT DEMESNE	Early Medieval (Possible)	4
RBO-195N	188270	302624	Enclosure	CLOONYBRIEN	Medieval/Late Medieval	5
RBO-196N	188543	302736	Enclosure	CLOONYBRIEN	Medieval/Late Medieval	5
RBO-197N	188749	302639	Enclosure	CLOONYBRIEN	Early Medieval (Possible)	3
RBO-200N	192099	300385	Enclosure	TUMNA	Early Medieval (Possible)	4
RBO-207N	188525	298482	Enclosure	MACNADILLE	Post-Medieval/Modern	5
RBO-210N	188221	296207	Enclosure	BALLINVILLA	Early Medieval (Possible)	2



P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	PERIOD	Rating
RBO-214N	189169	295805	Enclosure	CANBO	Medieval/Late Medieval	5
RBO-216N	189593	296870	Enclosure	DRUMERR	Post-Medieval/Modern	5
RBO-218N	189672	297045	Enclosure	DRUMERR	Early Medieval (Possible)	3
RBO-219N	190278	299330	Enclosure	DORRARY	Prehistoric	4
RBO-220N	189630	300128	Enclosure	WOODBROOK	Early Medieval (Possible)	4
RBO-223N	189146	302433	Enclosure	KNOCKNACARROW	Early Medieval (Possible)	4
RBO-225N	189161	303277	Enclosure	KNOCKNACARROW	Post-Medieval/Modern	5
RBO-226N	190064	303096	Enclosure	LISFARRELLBOY	Early Medieval (Possible)	3
RBO-227N	190665	302947	Enclosure	FOXHILL	Early Medieval (Possible)	1
RBO-231N	191250	299497	Enclosure	CUILTYCONEEN	Early Medieval (Possible)	3
RBO-241N	192744	302518	Enclosure	CLEAHEEN	Post-Medieval/Modern	5
RBO-251N	193063	297184	Enclosure	DANESFORT	Prehistoric	4
RBO-260N	194429	299081	Enclosure	CORDREHID	Early Medieval (Possible)	4

# Appendix 4

## *Geophysical survey reports*

<i>A. Annaduff</i>	<i>16R0099</i>
<i>B. Killukin</i>	<i>16R0121</i>
<i>C. Killukin</i>	<i>17R0159</i>
<i>D. Tumna</i>	<i>15R0081</i>
<i>E. Mullaghmore</i>	<i>16R0122</i>
<i>F. Kiltoghert</i>	<i>15R0136</i>
<i>G. Drumcleavry</i>	<i>14R0116</i>
<i>H. Port</i>	<i>15R0080</i>

# Appendix 4

## *Geophysical survey reports*

<i>A. Annaduff</i>	<i>16R0099</i>
<i>B. Killukin</i>	<i>16R0121</i>
<i>C. Killukin</i>	<i>17R0159</i>
<i>D. Tumna</i>	<i>15R0081</i>
<i>E. Mullaghmore</i>	<i>16R0122</i>
<i>F. Kiltoghert</i>	<i>15R0136</i>
<i>G. Drumcleavry</i>	<i>14R0116</i>
<i>H. Port</i>	<i>15R0080</i>

# Geophysical Survey Report

**Site:** *Annaduff, Co. Leitrim*

**RMP:** LE032-054001/002/003/004

**ITM:** 600698, 796762

**Licence:** 16R0099



**Report Author:** Susan Curran M.A.

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086 840 4472

## Summary

This report details the results of geophysical survey undertaken at an ecclesiastical site - classified as 'Church' and 'Graveyard' (RMP: LE032-054001 & LE032-054002 respectively) - in the townland of Annaduff, Co. Leitrim. An 'architectural fragment' (LE032-054003) and a 'hospital' (LE032-054004) are also listed at the site. The survey comprised the area to the west and north of the extant church and graveyard. The investigation was conducted in June/July 2016 and consisted of magnetic gradiometry and earth resistance. The survey has identified three potential concentric ecclesiastical enclosures (no longer visible on the ground) and several features which may relate to activities associated with the early ecclesiastical foundation.

## Survey Details

**Survey Licence Number:** 16R0099

**Survey Dates:** 25/06/16 – 01/07/2016

**Survey Team:** Susan Curran, Johann Farrelly, Jordan Young, Olivia O'Rourke

**Planning Reference No.:** N/A

**Townland:** Annaduff

**County:** Leitrim

**Barony:** Leitrim

**RMP No.:** LE032-054001 / 002 / 003 / 004

**National Grid Reference:**

**IG:** 200747, 296749 / **ITM:** 600698, 796762

**Geology:** Ballymore Limestone Formation; Dark fine-grained limestone & shale <sup>1</sup>

**Quaternary Sediments:** Till derived from limestones <sup>2</sup>

**Soils:** Fine loamy drift with limestones <sup>3</sup>

**Survey Type (1):** Fluxgate Gradiometer **Instrument:** Bartington Grad 601-2

**Sample Interval:** 0.25m **Traverse Interval:** 1m

**Grid Size:** 20m x 20m **Method:** Parallel Traverse

**Area Surveyed:** approx. 0.8 hectares **Survey Direction:** North

**Survey Type (2):** Earth Resistance **Instrument:** Geoscan RM85 Resistance Meter

**Sample Interval:** 0.5m **Traverse Interval:** 0.5m

**Array:** Parallel Twin **Method:** ZigZag Traverse

**Grid Size:** 20m x 20m **Survey Direction:** East

**Area Surveyed:** approx. 0.4 hectares

**Licence Holder:** Susan Curran

**Report Author:** Susan Curran

<sup>1</sup> www.gsi.ie – Bedrock Geology

<sup>2</sup> www.gsi.ie – Quaternary Sediments and Geomorphology mapviewer

<sup>3</sup> Irish National Soils Map, 1:250,000k, V1b(2014). Teagasc, Cranfield University. Jointly funded by the EPA STRIVE Research Programme 2007-2013 and Teagasc



# Contents

Summary & Survey Details.....	2
List of Figures.....	3
List of Plates.....	4
Project Background.....	5
Site Description.....	5
Survey Objectives.....	8
Methodology.....	8
The Results – Description and Interpretation.....	8
Discussion & Conclusion.....	10
Acknowledgements.....	11
References.....	11

## List of Figures

Figure 1:	Survey Location.....	13
Figure 2:	Survey Extent ( <i>licensed and completed</i> ).....	13
Figure 3:	Satellite image of LE032-054---.....	14
Figure 4:	Lidar hillshaded image of LE032-054---.....	14
Figure 5:	25inch Map showing the orchard and roadways.....	15
Figure 6:	LE032-054--- and environs.....	15
Figure 7:	Earth Resistance Results.....	16
Figure 8:	Earth Resistance Anomalies ( <i>digitised</i> ).....	17
Figure 9:	Magnetometry Results.....	18
Figure 10:	Magnetometry Anomalies ( <i>digitised</i> ).....	19
Figure 11:	Lidar Analysis ( <i>digitised</i> ).....	20
Figure 12:	Interpretative Plan – Earth Resistance, Magnetometry, Lidar.....	21
Figure 13:	First Edition Map showing the ditch in St. Ann’s Graveyard.....	22
Figure 14:	Location of potential enclosures in relation to the ditch.....	22

## List of Plates

Cover:	The Survey Area ( <i>facing south towards the River Shannon</i> )	
Plate 1:	The Survey Area ( <i>facing NNW towards the N4</i> ).....	23
Plate 2:	The Survey Area ( <i>facing SE towards the Graveyard</i> ).....	23
Plate 3:	The Stepped Slope.....	24
Plate 4:	The Church – western gable.....	24
Plate 5:	The Church – eastern gable.....	25
Plate 6:	Daniel Grose’s early 19 <sup>th</sup> century illustration.....	25
Plate 7:	The Nesbitt Vault.....	26
Plate 8:	The Graveyard.....	26
Plate 9:	The Church Window (past images).....	27
Plate 10:	The Church Window (as it appears today).....	27
Plate 11:	The Ditch at the rear of St. Ann’s Church.....	28
Plate 12:	The Ditch and Bank at the rear of St. Ann’s Church.....	28
Plate 13:	The field to the south of the survey area ( <i>facing SSW</i> ).....	29
Plate 14:	The field to the south of the survey area ( <i>facing SSE</i> ).....	29

## Project Background

The principal focus of the geophysical survey was the area to the west and north of the extant church and graveyard (RMP: LE032-054001 & LE032-054002 respectively) (Figures 1 & 2; Plates 1 & 2). The survey sought to identify any sub-surface remains which may point to the existence of an early church foundation, such as one or more potential ecclesiastical enclosures, or any structures or features which might be associated with such a monument.

The survey - comprising magnetic gradiometry and earth resistance - forms part of a PhD research project (funded by the Irish Research Council) which explores early medieval settlement in several case study areas in Ireland. The first of these case studies consists of a 140km<sup>2</sup> area of counties Leitrim and Roscommon, straddling the River Shannon and situated around Carrick-on-Shannon and environs. The research project utilises lidar and other remote sensing techniques to explore early medieval settlement patterns and the inter-relationship between associated monuments and status in early medieval Ireland. The original lidar analysis was undertaken in 2012<sup>4</sup> as part of the author's MA thesis (Curran 2012).

## Site Description

The site is located in the townland of Annaduff which is situated within the Civil Parish of the same name and the Barony of Leitrim. The townland is situated along the banks of the River Shannon and extends to Gortconnellan Lough (also known as Spa Lough) to the north. The church itself lies at the base of a gentle slope approx. 200m north of the Shannon which forms the boundary between the counties of Leitrim and Roscommon (Figure 3). The site slopes up to the north towards the N4, and the rise continues beyond the road where the drumlin summit is reached. There are two stepped levels within the field which run approximately E-W (Plate 3).

The site comprises four recorded monuments:

- 1) LE032-054001: Church (Plates 4 & 5)

The church is located within the graveyard (LE032-054002) and although it is now in ruins and considerably overgrown, all four walls survive to a height of approx. 3.5m (Moore 2003, 172). The church is rectangular in shape and is oriented E-W, measuring approx. 14m x 8.5m (ibid). The doorway is located in the western wall and a 15<sup>th</sup> century window is found in the eastern gable, inserted over the base of an earlier frame (ibid, 171). Daniel Grose produced an illustration of the church in the early 19<sup>th</sup> century when its roof was apparently still intact (Plate 6). The newly erected St. Ann's Church is depicted alongside it, although Grose appears to have taken some liberties in locating the site so close to the river's edge (Stalley 1991, 194). The 19<sup>th</sup> century Nesbitt family vault is contained within the church walls (Plate 7).

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<sup>4</sup> The lidar survey was flown in 2010 in advance of the Carrick-on-Shannon to Dromod roadscheme; it was commissioned by the National Roads Authority (now TII) and Leitrim County Council and was flown and processed by Ordnance Survey Ireland

## 2) LE032-054002: Graveyard (Plate 8)

The graveyard is rectangular in shape and is defined by a stone wall which measures approx. 50m x 30m. It is oriented E-W and contains the ruined church remains (LE032-054001). The graveyard is still in use and contains graves dating back to the 18<sup>th</sup> century (and possibly earlier).

## 3) LE032-054003: Architectural Fragment (Plates 9 &amp; 10)

The RMP does not specifically state to what the 'architectural fragment' corresponds, but it is likely to relate to the detailed carving around the 15<sup>th</sup> century window. There are three upper pinnacles with human heads on each side (Grant 1991). This particular style of window is quite rare in Ireland and may be influenced by the architecture at Clonmacnoise cathedral which features a similar design on the north doorway (Moore 2003, 171). This may have been a result of Annaduff being donated to Clonmacnoise according to the records of the Register of Clonmacnoise (ibid). Daniel Grose produced a detailed illustration in the early 19<sup>th</sup> century and Moore managed to capture a clear photograph in 2003 (Plate 9), however, sadly this feature is now almost completely obscured with ivy and other vegetation (Plate 10).

## 4) LE032-054004: Hospital

There are no physical details provided about the hospital at the site, the information regarding its existence comes from documentary sources dating to AD1595 (Gwynn & Hadcock 1988, 346).

A large, modern Church of Ireland church - St. Ann's - is located just to the NE of the graveyard. It was built in 1815 and is listed on the National Inventory of Architectural Heritage (Ref. 30815012). There is a separate graveyard to the rear which is associated with St. Ann's Church and contains graves dating from the early 19<sup>th</sup> century to the present day, in addition to the Waldron family mausoleum (National Inventory of Architectural Heritage). A curvilinear ditch runs across the graveyard (Plate 11) and curves towards the older graveyard (LE032-054002), ending at the point where it meets the wall. There is also a bank visible in places, although this does not seem to follow quite the same trajectory (Plate 12). The ditch is also marked on the first edition 6inch map (Figure 13) where it also ends at the junction with the graveyard wall – the ditch is not visible within the older graveyard.

The N4 runs SE-NW along the northern limits of the site following the realignment of the old road in the late 1990s; the previous road curved around to the south of the site, approx. 32m from the graveyard (now the L3630). However, this is not the original routeway as the historic maps show a road running approximately E-W directly alongside the outer wall of the older graveyard (Figure 4). Early cartographic sources also show that the field in which the survey took place was once in use as an orchard at least as far back as the 1800s and possibly earlier (Figure 5). There are still a small number of apple trees growing in the northern portion of the field.

Annaduff derives from the Irish 'Eanach Duibh' which translates as 'The Black Marsh' or 'The Marsh of Dubh', possibly referencing a personal name (Logainm.ie). However, the lands bordering the River Shannon are liable to flooding so the townland name may be an acknowledgement to this. The fact that one of the neighbouring townlands is known as 'Annaduff Glebe' may suggest that the lands of the church originally extended much further than is indicated today.

There are a number of references to Annaduff in the various documentary sources. The ecclesiastical foundation at Annaduff is believed to have been established by St. Comin Ea, although there are differing theories as to his origins. Gwynn & Hadcock (1988, 28) suggest that he may be St. Cuimmin Fionn of Iona. However, the association is also listed as Cuimíne Cadan (Monasticon Hibernicum) or Cuimín Cadhan meaning 'pious', who was linked to the Dál gCais of Thomond (Ó Riain 2011, 243). The deaths of two subsequent abbots are recorded in AD762 - Mac an tSair (O'Donovan 1851a, 365; Hennessy 1887, 233) and AD787 - Saermugh; (O'Donovan 1851a, 395). Brian Boru and Maelsechlainn are reported to have camped at Annaduff in AD1011, perhaps an indication of its strategic location at the time between the three provinces of Connacht, Meath and Ulster (Guckian 2010, 2). Indeed, the entry states that they were "again in camp at Enach-duibh" (Hennessy 1887, 525) which suggests that this may have been a frequent - or at the very least not an isolated - occurrence. It is possible that the monastery disappeared in the 12<sup>th</sup> century (Gwynn & Hadcock 1988, 28), possibly coinciding with the introduction of church reforms across the country. There are two 13<sup>th</sup> century references to events at Annaduff, although it is unclear whether they are specifically related to the environs of the ecclesiastical site or another location within the townland or parish. An O'Reilly contingent are reported to have camped at Annaduff in AD1253 over the course of an invasion of Muintir Eolais territory (Freeman 1996, 109; O'Donovan 1851b, 349). The annals also note the 'treacherous' killing of Magus O hAinlige at Annaduff in AD1297 (Freeman 1996, 197). A 16<sup>th</sup> century reference notes a 'hospital, Termon-Irrenagh, or Corbeship' and land of approx. 60 acres at the site in AD1595 (Gwynn & Hadcock 1988, 346).

There are a number of recorded monuments within the vicinity (Figure 6), the closest being a mound (LE032-097) which is located approx. 490m NE of the graveyard, although this may be natural (Moore 2003, 14). There is just one other recorded monument in the townland of Annaduff - a circular enclosure (LE032-052) which is located almost 1km to the north. There are two crannógs located within 1km of the site also - one on Gortconnellan Lough (LE032-051) to the north and the other on Gortinty Lough to the southeast (LE032-074). With the exception of one fulacht fiadh (LE032-101 - excavation Licence 94E0158), enclosures and raths make up the remaining recorded monuments in the vicinity of Annaduff church.

Archaeological testing took place at Annaduff (approx. 100m north of the church remains) in advance of the Drumsna-Jamestown bypass scheme in 1994 (Licence No. 94E0051). Apart from a clay pipe bowl and a lens of burning, no finds or features of archaeological significance were discovered.



## Survey Objectives

This survey was undertaken as part of a wider research project investigating early medieval settlement in the Carrick-on-Shannon area. The survey aimed to investigate the ecclesiastical remains of Annaduff (LE032-054---) and its immediate environment in order to identify any subsurface remains (e.g. ecclesiastical enclosure(s), building foundations, hearths, field boundaries etc.) that may help to advance our understanding of its potential date and function. Multiple geophysical survey techniques (magnetic gradiometry and earth resistance) were employed to help establish the nature and character of the site and its potential relationship with other early medieval monuments in the surrounding landscape.

## Methodology

- 1) An area of approx. 0.8 hectares comprising the area surrounding the extant graveyard was surveyed.
- 2) The survey grid, comprising a series of 20mx20m grid panels, was located and tied into the Irish National Grid using a Trimble GPS in conjunction with a VRS Now correction service.
- 3) Magnetic Gradiometry was undertaken using a Bartington Grad DL601-2 dual sensor fluxgate gradiometer. Data were recorded using parallel traverses at a traverse interval of 1m and a sample interval of 0.25m (4 points per metre along each traverse). A total of 23 grids were surveyed using this technique.
- 4) Earth resistance survey was undertaken using a Geoscan RM85 Resistance Meter. Data were recorded using zigzag traverses at a traverse interval of 0.5m and a sample interval of 0.5m. A total of 12 grids were surveyed using this technique.
- 5) All data were processed using Geoscan Research Geoplot version 3 software.
  - a. Earth Resistance Processing Steps: Despike, Interpolate Y, Interpolate X, Clip +/-2
  - b. Magnetometry Processing Steps: Zero Mean Traverse, Interpolate Y x 2, Clip +/-5

## The Results – Description and Interpretation (*Figures 7 - 12*)

The geophysical survey focused on the area to the west and northwest of the extant graveyard. The site's use as an orchard over at least a century means that the ground has experienced significant disturbance. It is probable that many of the discrete magnetic anomalies (more than 200<sup>5</sup>) found throughout the survey area correspond to tree-planting during this phase of the site's history (e.g. M14), although they cannot be discounted as having archaeological origins. Details from the lidar analysis are also included where relevant to the geophysical survey results.

The western field boundary comprises a bank which runs N-S the full length of the field. The bank itself produced high resistance anomalies (R1-R3) while the adjoining ground produced medium to high resistance anomalies. These readings are consistent with a stone-filled bank in addition to the ground

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<sup>5</sup> Due to the volume of these anomalies, the majority have not been numbered, but have been digitised (Figure 10)

being considerably drier due to the tree coverage. The eastern side of the field produced similar anomalies (R6), also linked to the embanked field boundary on this side. The medium to high resistance anomaly found in the SE of the survey area (R5) is situated against the extant graveyard wall and close to the field entrance and is likely to relate to stone collapse from the graveyard wall – stone was visible on the ground in this area during the survey.

R7 constitutes a discrete medium to high resistance anomaly and does not correspond to any magnetic or lidar anomalies. The signature of the response covers an area of approx. 2m x 2m, so while it may be a natural stone deposit, a potential archaeological origin cannot be discounted.

The medium to high resistance anomaly (R9) which runs approx. NW-SE from the field boundary corresponds to a linear feature which is visible on the lidar surface (L2), and to two parallel positive magnetic linear anomalies (M6). This is likely to be modern in date as there is evidence of modern drainage along the boundary at this point.

The magnetometry survey produced several anomalies which are consistent with burning (M2, M3, M4, M8, M12). M4 corresponds to modern burning which is visible on the ground. The remaining features may be modern or archaeological in origin, M3 in particular, is located within an area with other potential archaeological features. M2 is located along the line of the potential ecclesiastical enclosure and corresponds with a medium to high resistance anomaly (R4). The earth resistance is indicative of a buried stone feature, and – combined with the magnetic response – may represent the presence of a stone-lined hearth.

There are a number of ferrous responses visible from the magnetometry survey (e.g. M11, M13) which may indicate the presence of near-surface or buried archaeological ferrous metal. The location of the M13 anomalies at the summit of the hill close to the boundary with the N4 may indicate that they are linked to the road development or the modern fencing which forms the northern field boundary.

The lidar results show a series of ditched linear features (L4, L5) running N-S and E-W in the eastern portion of the survey area; these features also correspond to the location of several positive magnetic anomalies (M10, M9). The magnetic features consist of a multiple discrete anomalies which may be pits or the remains of a linear ditched feature. It is possible that the features depicted more fully on the lidar survey dataset relate to a series of small field divisions or garden plots, possibly associated with the early foundation or the later medieval church. The linear medium to high resistance anomaly (R8) may also relate to this series of divisions.

Perhaps the most significant discovery is the series of concentric curvilinear features which are represented by three separate positive magnetic anomalies (M1, M5, M7). M1 has the strongest signal and coincides with the location of a high resistance anomaly (R11) and a ditched feature visible on the lidar surface (L1). The signatures of the anomalies suggest that this may represent a stone-faced ditch or a ditch with a stony fill. M5 is located approx. 18m north of M1 and consists of a series of positive anomalies which appear to form a curvilinear shape, most likely a ditched feature. The third feature (M7) is a further 14m north and is also a potential ditched feature. A possible fourth curvilinear feature is represented by a low resistance anomaly (R10) which is located approx. 11m NW of R10. While this probable ditched feature does not correspond with any coherent magnetic feature, there are a number of discrete positive and negative magnetic responses in this zone and it appears to follow the same profile as the curvilinear features from the magnetometry survey. Given the trajectory of these features and the ditch which is visible in St. Ann's graveyard (Figures 13 & 14), it is unlikely that they are linked.

## Discussion & Conclusion

The identification of three possible enclosures confirms the archaeological significance of this site and likely places its foundation in the early medieval period. Sub-circular and oval enclosures such as these are synonymous with early ecclesiastical foundations and were used to demarcate sacred space (O'Sullivan et al. 2014, 145). Many churches had a single enclosure, while others had two or even three enclosures to define increasing degrees of sanctity (ibid. 145-146). Of course, without excavation and scientific dating, the exact nature of the enclosures cannot be determined with absolute certainty based solely on the geophysical survey evidence. Moreover, the limited area of the survey means that only a relatively short portion (approx. 30m-40m) of the potential enclosures is traceable. It is probable that M1 continues NE through the present graveyard, although its trajectory does not suggest that it is linked to the ditch that is visible to the N of St. Ann's Church (Figure 14). Should this feature prove to be an ecclesiastical enclosure linked to the early monastic foundation, its southern limits are likely to extend across the road and into the field closer to the River Shannon.

The presence of the potential garden plots located to the north of the extant church and graveyard provide evidence for agricultural activity, possibly the growing of vegetables etc., although it is not possible to ascertain which phase of activity they may relate to.

While the field has undoubtedly experienced some disturbance during its time as an orchard, there is still considerable evidence for buried archaeological features. However, given the sloped nature of the field, any structures or buildings associated with historical (or pre-historical) phases of activity are perhaps more likely to be located on more even, flatter ground, perhaps that now covered by the extant graveyard, the road (L3630) and/or into the field at the far side of the road. While the floodplains are quite marshy, there is certainly some high ground in this field (Plates 11 & 12).

## Acknowledgements

I would like to especially thank Brian Beirne for facilitating the research on his land. Sincere thanks to Cllr Des Guckian for his instrumental role in the project and his insights into the local area and the historical background of Annaduff. Thanks also to Co. Leitrim Heritage Officer Aoife Mulcahy and to Reverend Linda Frost for their contribution. I am indebted to TII and Leitrim County Council for the use of the lidar survey dataset in my research. Many thanks to both the Discovery Programme and UCD School of Archaeology for the use of their equipment and their continued support. Sincere thanks to Ger Dowling for his support and assistance throughout. Special thanks to the survey volunteers for their excellent work during the survey.

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Accessed 03/08/2017, 15:05pm

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Accessed 06/02/2017, 11:58am



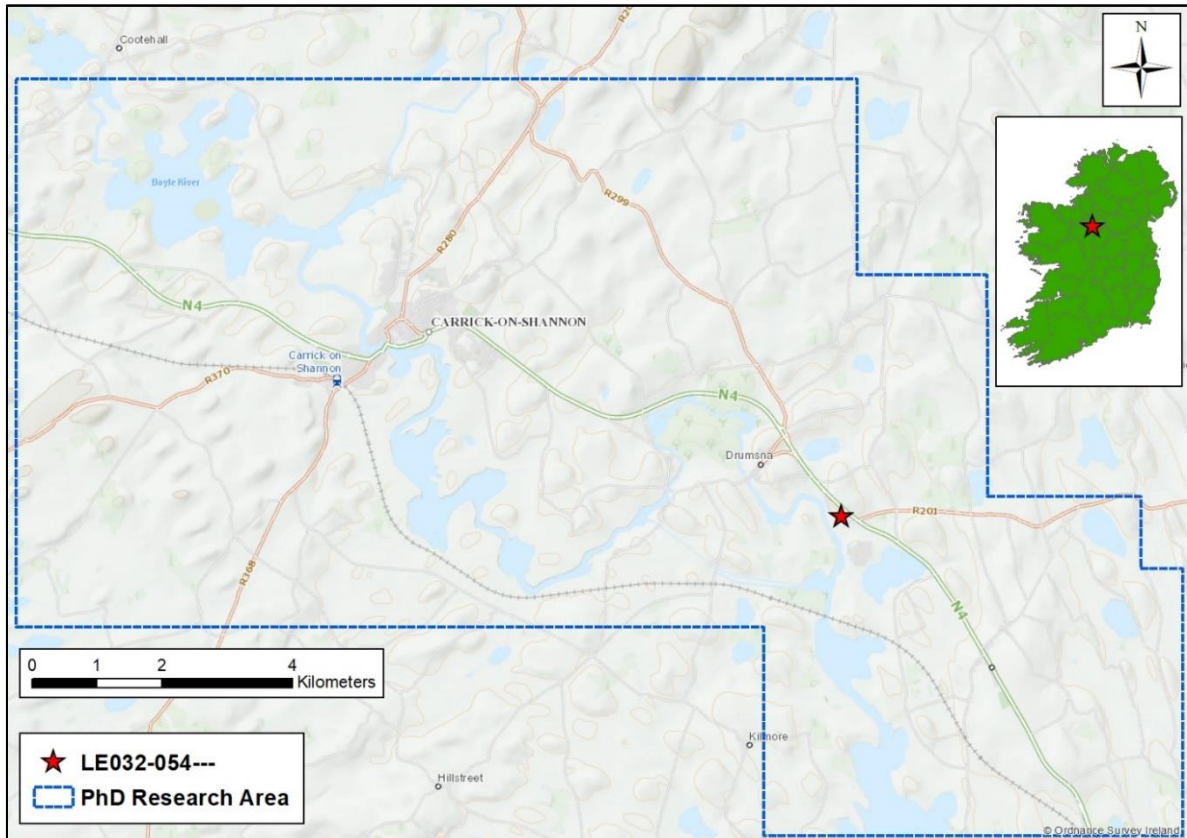


Figure 1: Survey Location

(source: OSi MapGenie, with additions)



Figure 2: Survey Extent on satellite image

(source: OSi MapGenie, with additions)





Figure 3: Satellite image of LE032-054---

(source: OSi MapGenie, with additions)

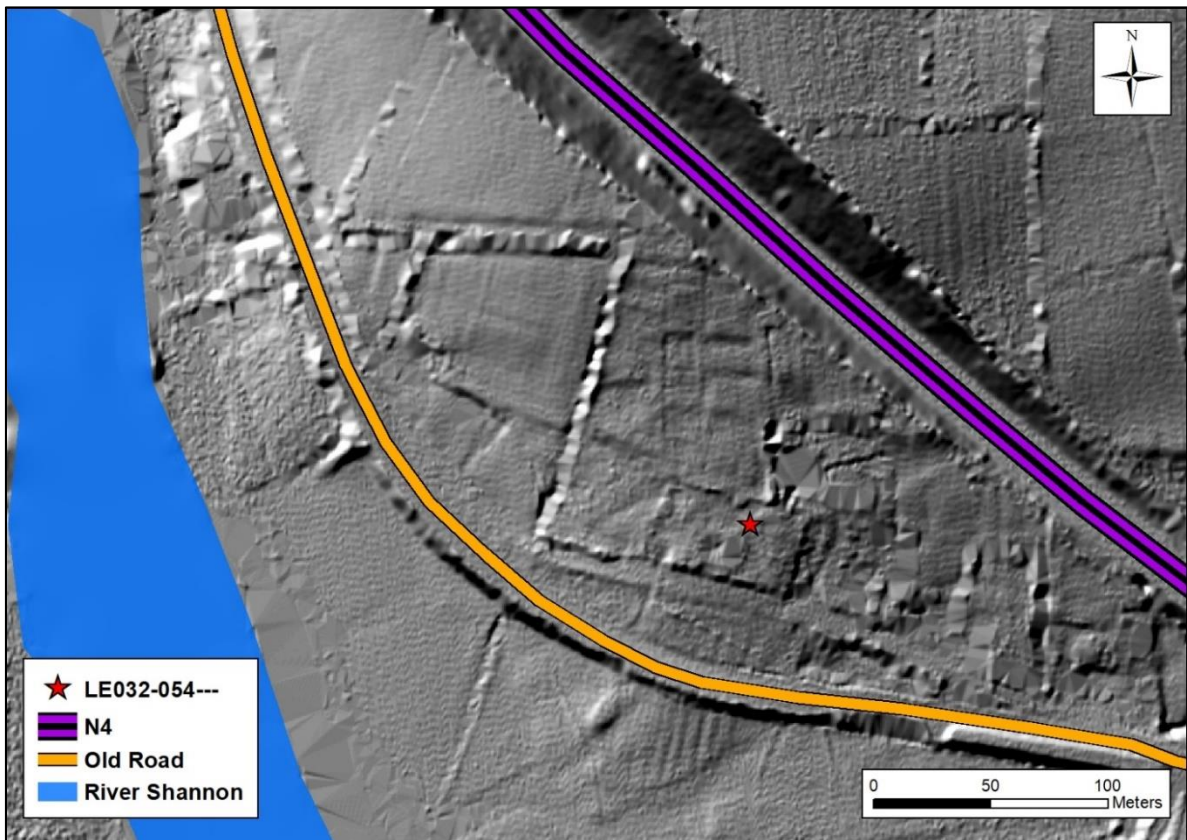
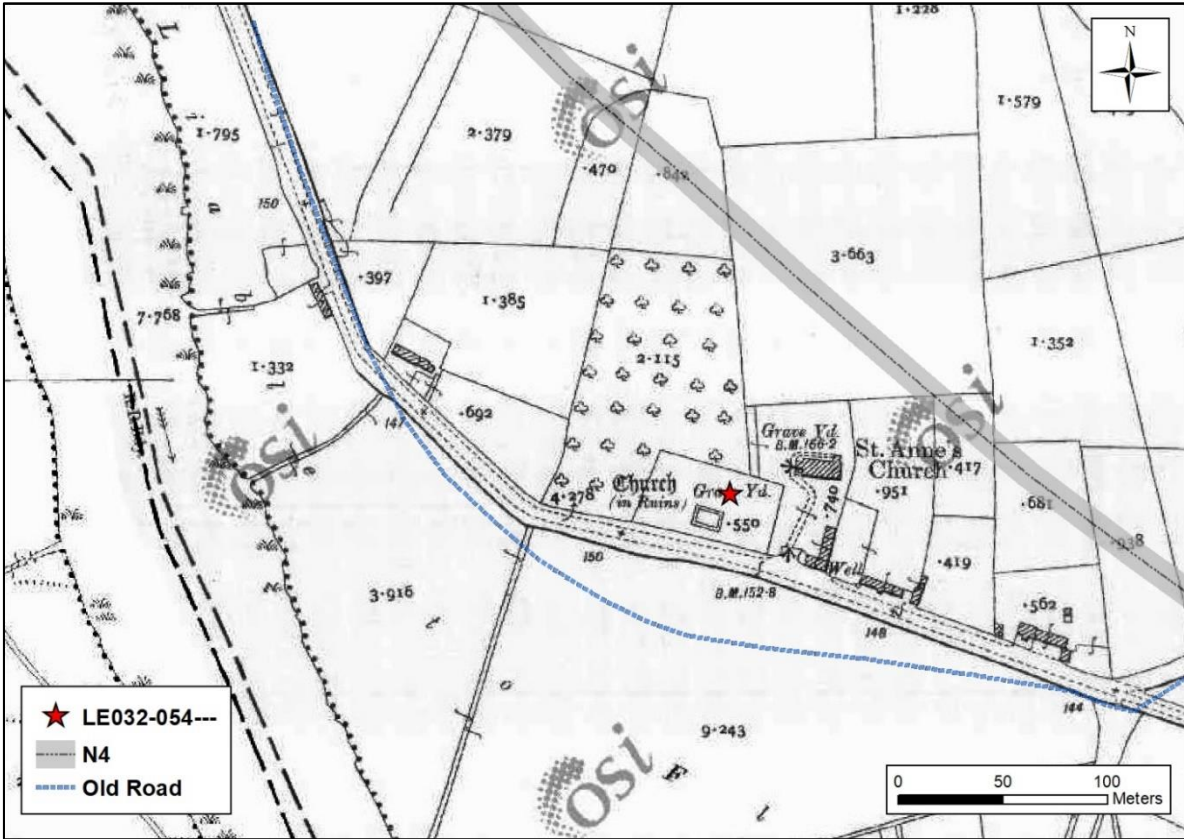


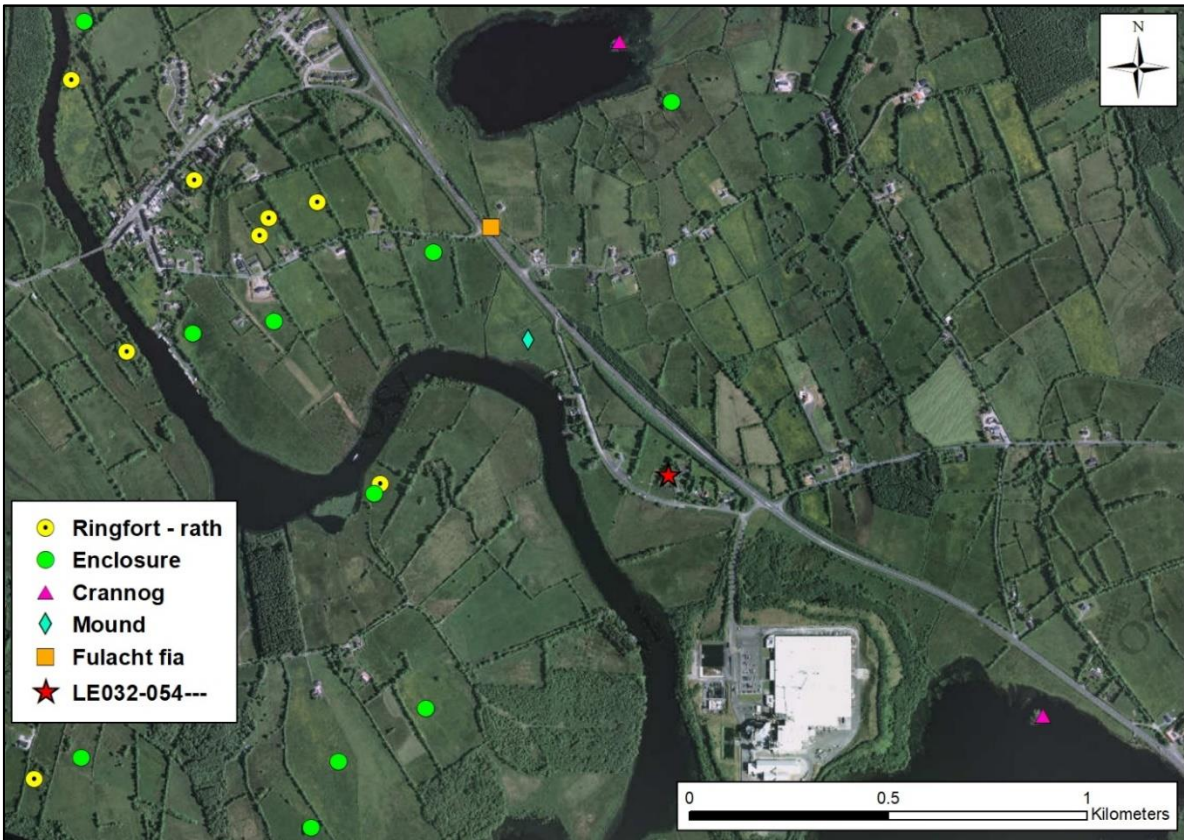
Figure 4: Lidar hillshaded image of LE032-054---





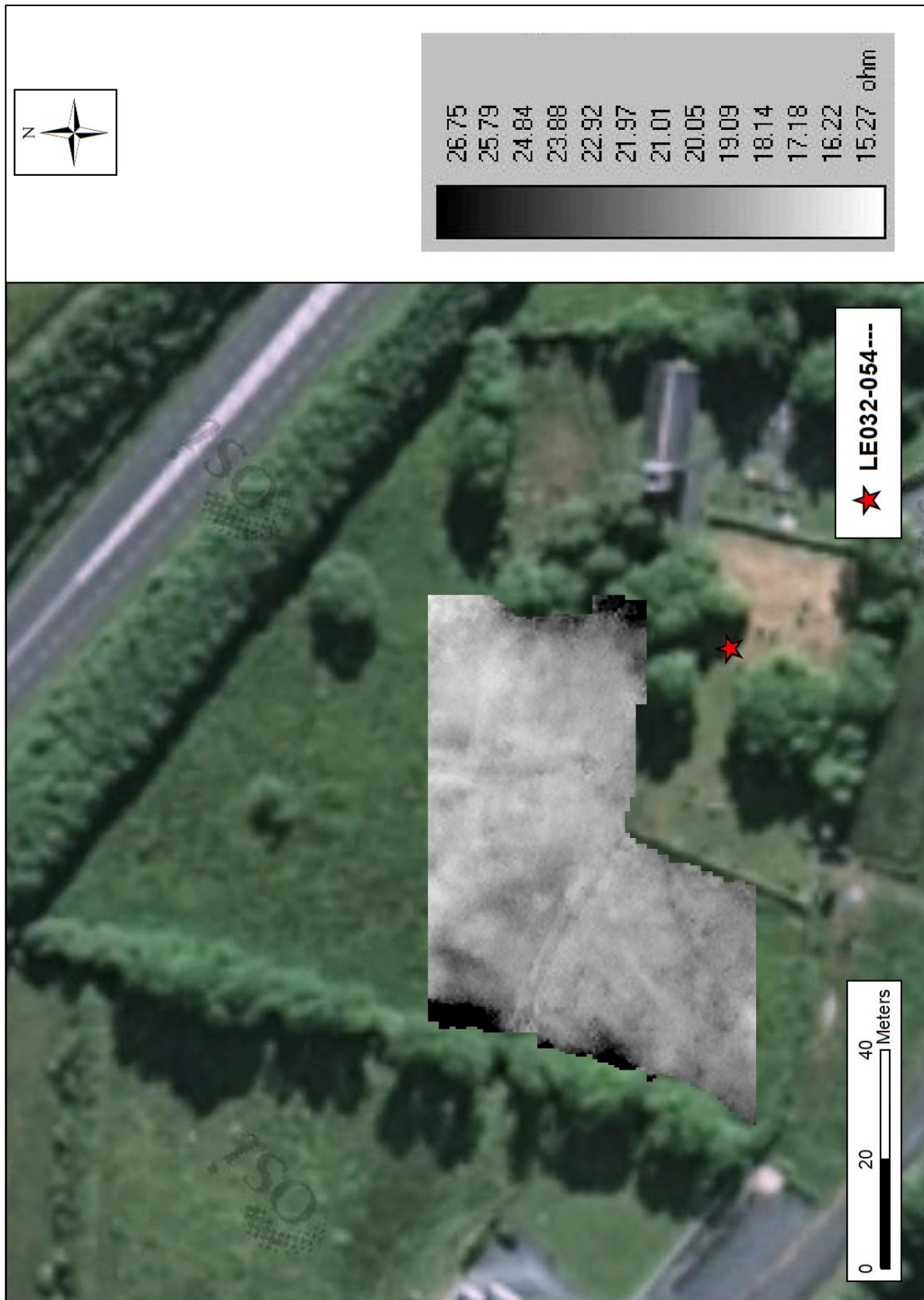
**Figure 5: 25inch map showing LE032-054---**

(source: OSi MapGenie, with additions)



**Figure 6: LE032-054--- and environs on satellite image**

(source: OSi MapGenie, with additions)



**Figure 7: Greyscale image of earth resistance results overlain on satellite image**  
 (source: OSi MapGenie, with additions)



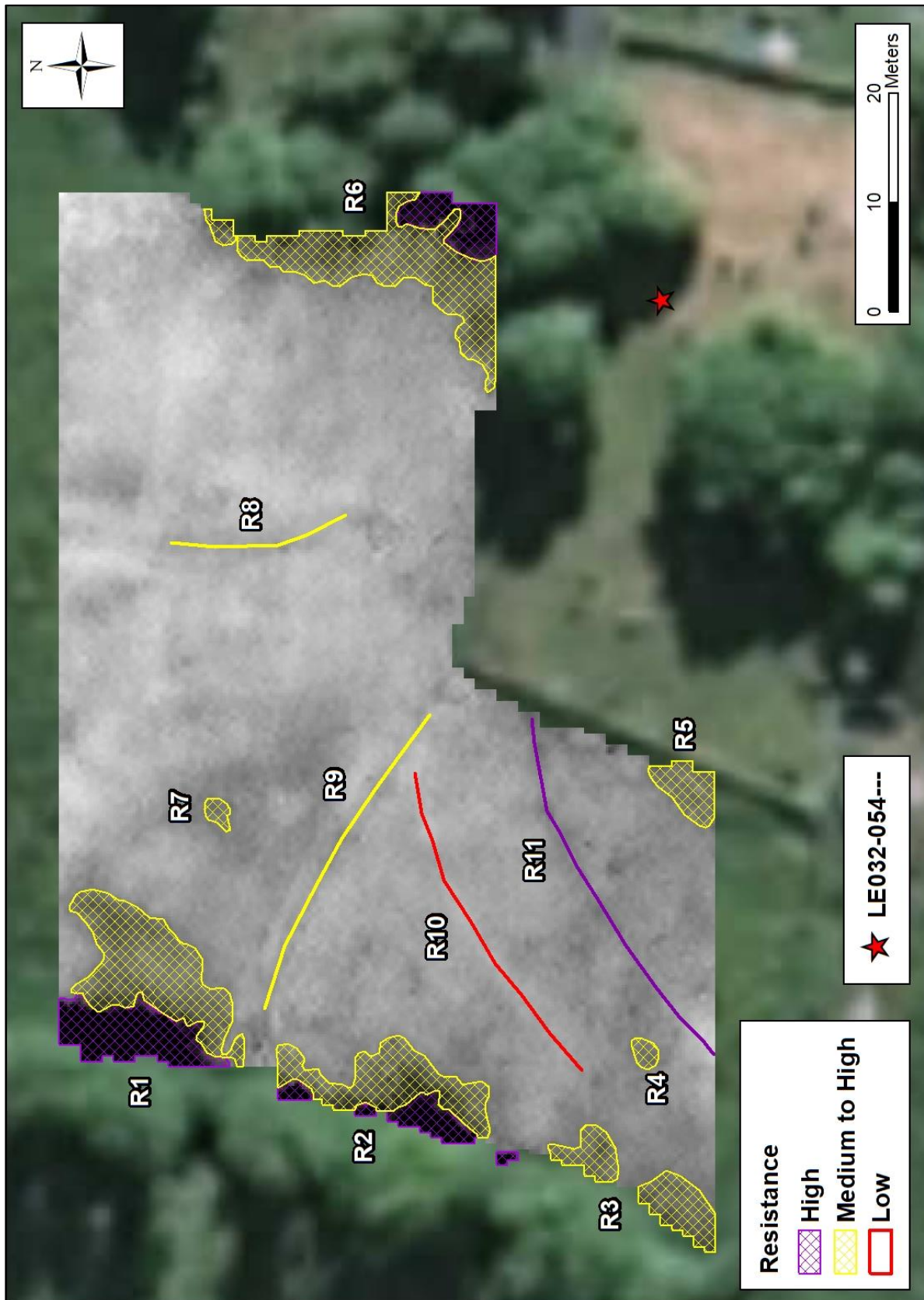
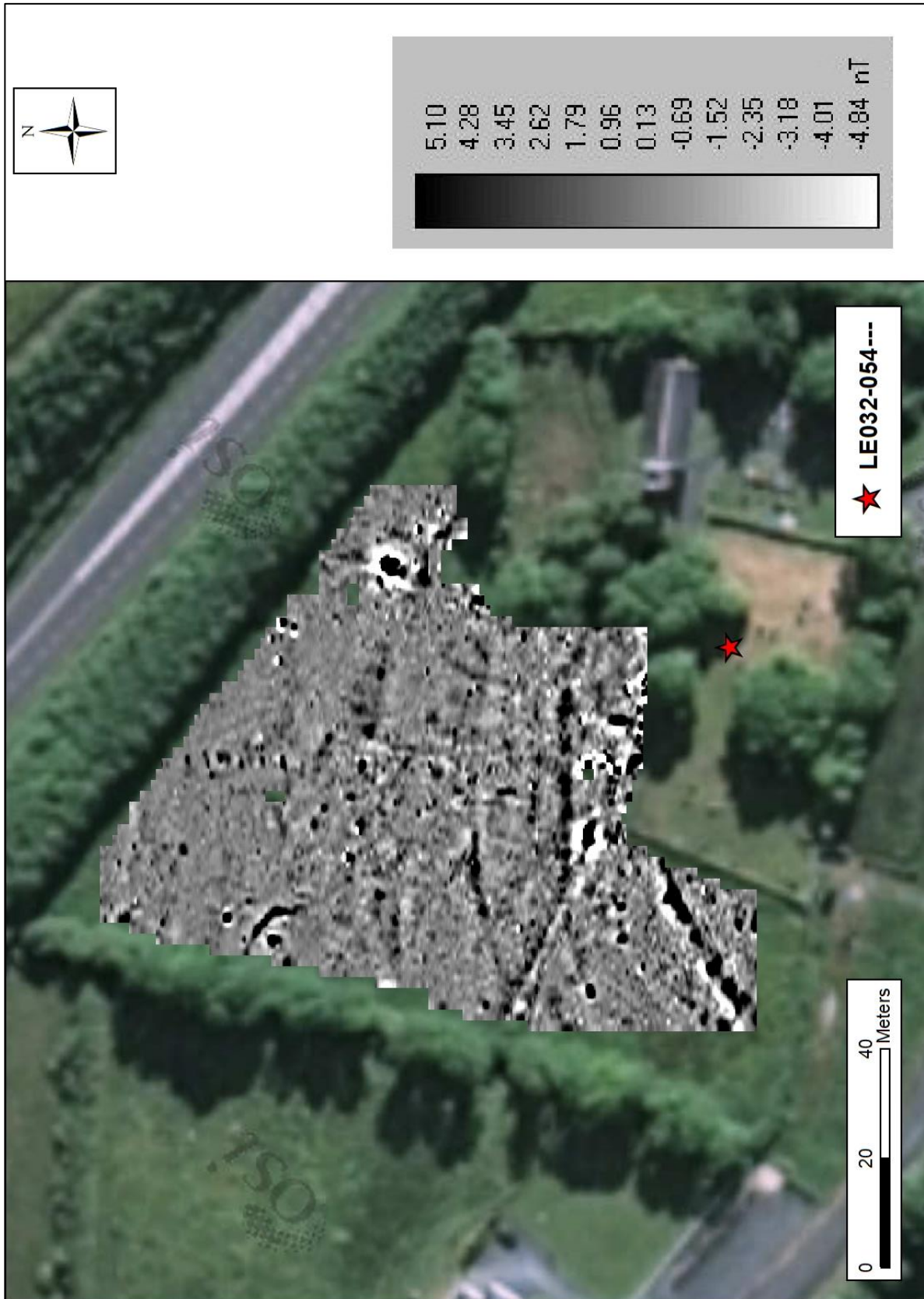


Figure 8: Greyscale image with digitised earth resistance anomalies

(source: OSi MapGenie, with additions)





**Figure 9: Greyscale image of magnetometry results overlain on satellite image**  
 (source: OSi MapGenie, with additions)

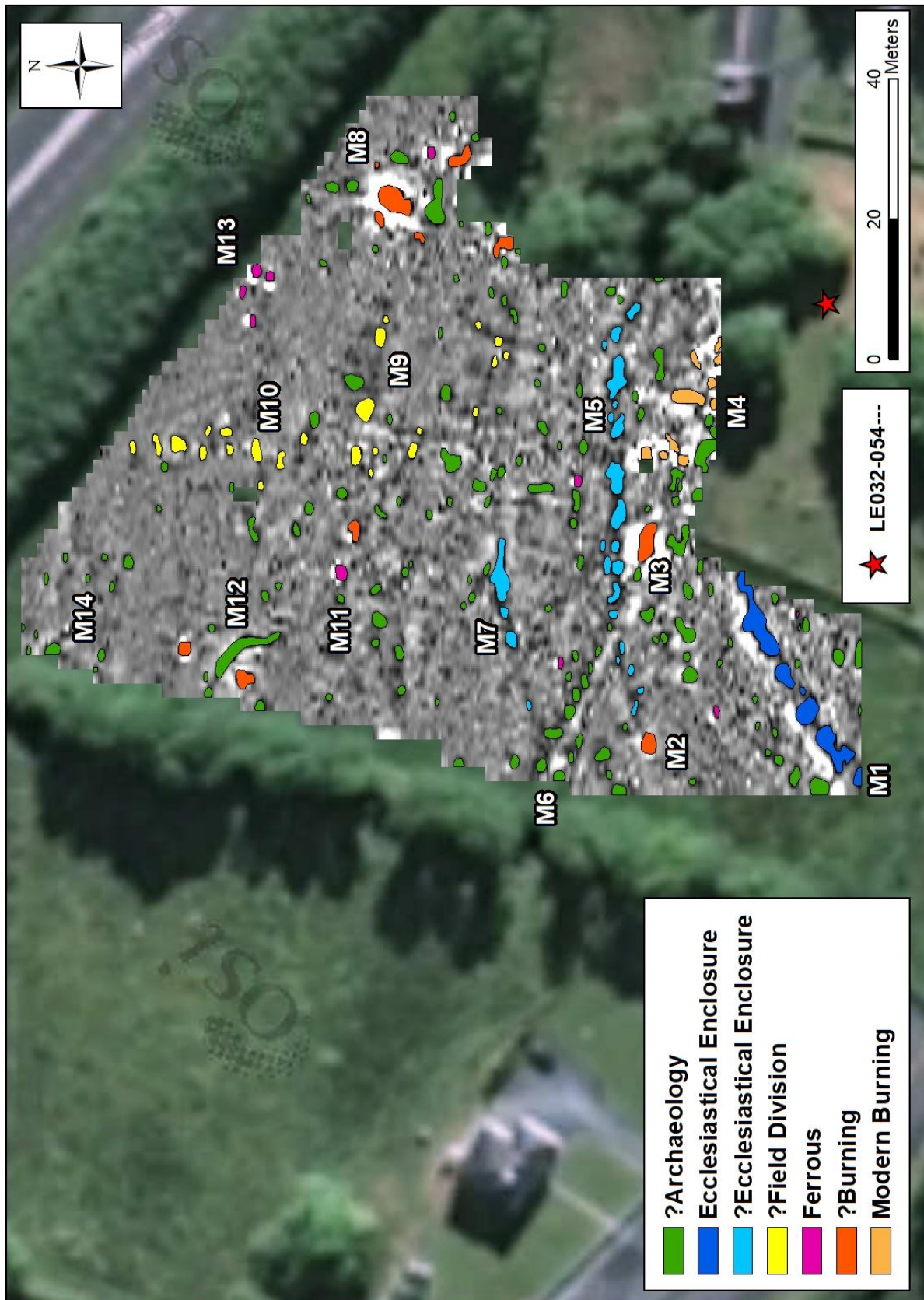


Figure 10: Greyscale image with digitised magnetometry anomalies

(source: OSi MapGenie, with additions)



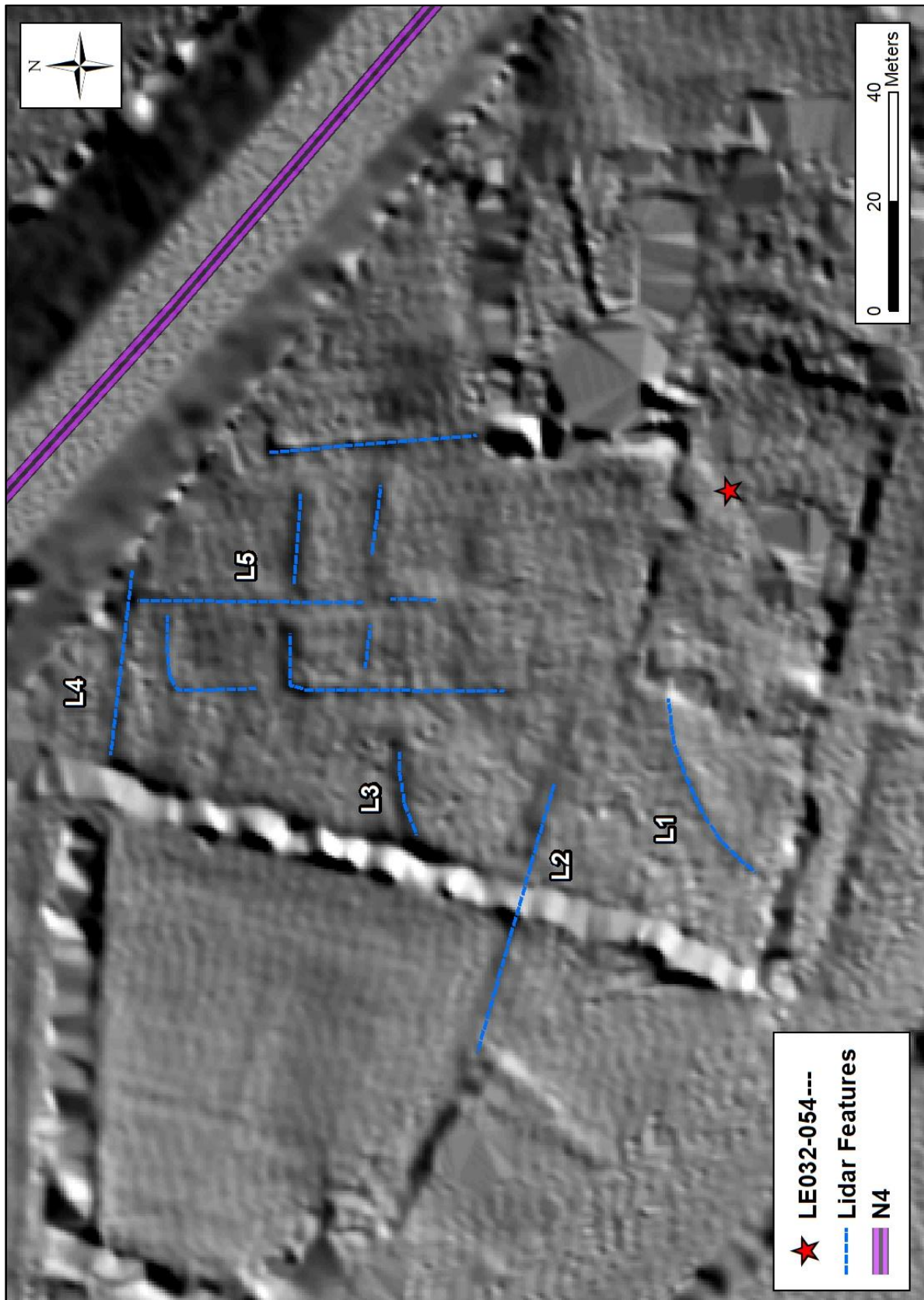


Figure 11: Digitised Lidar anomalies

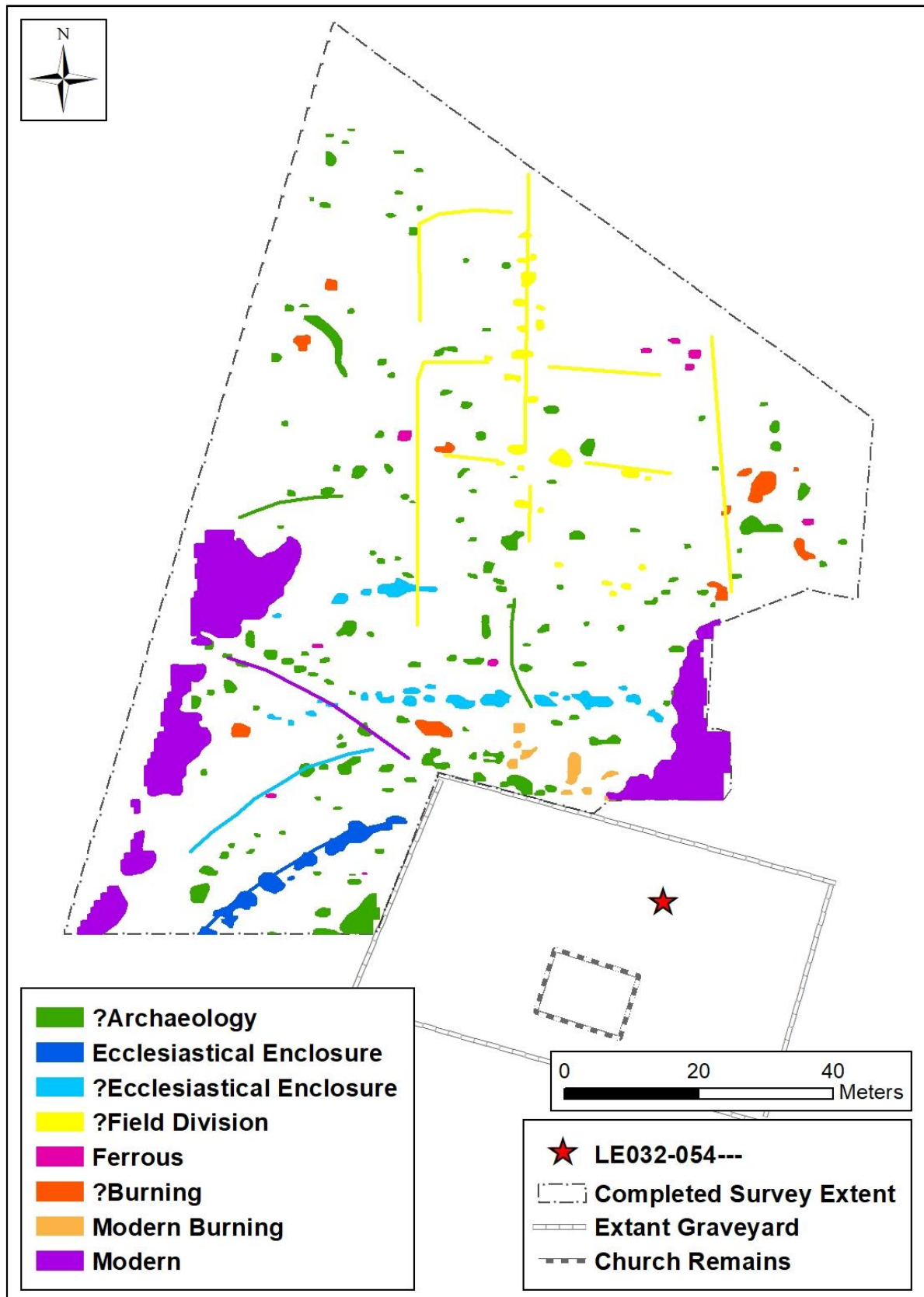


Figure 12: Combined Interpretative Plan - Earth Resistance, Magnetometry & Lidar

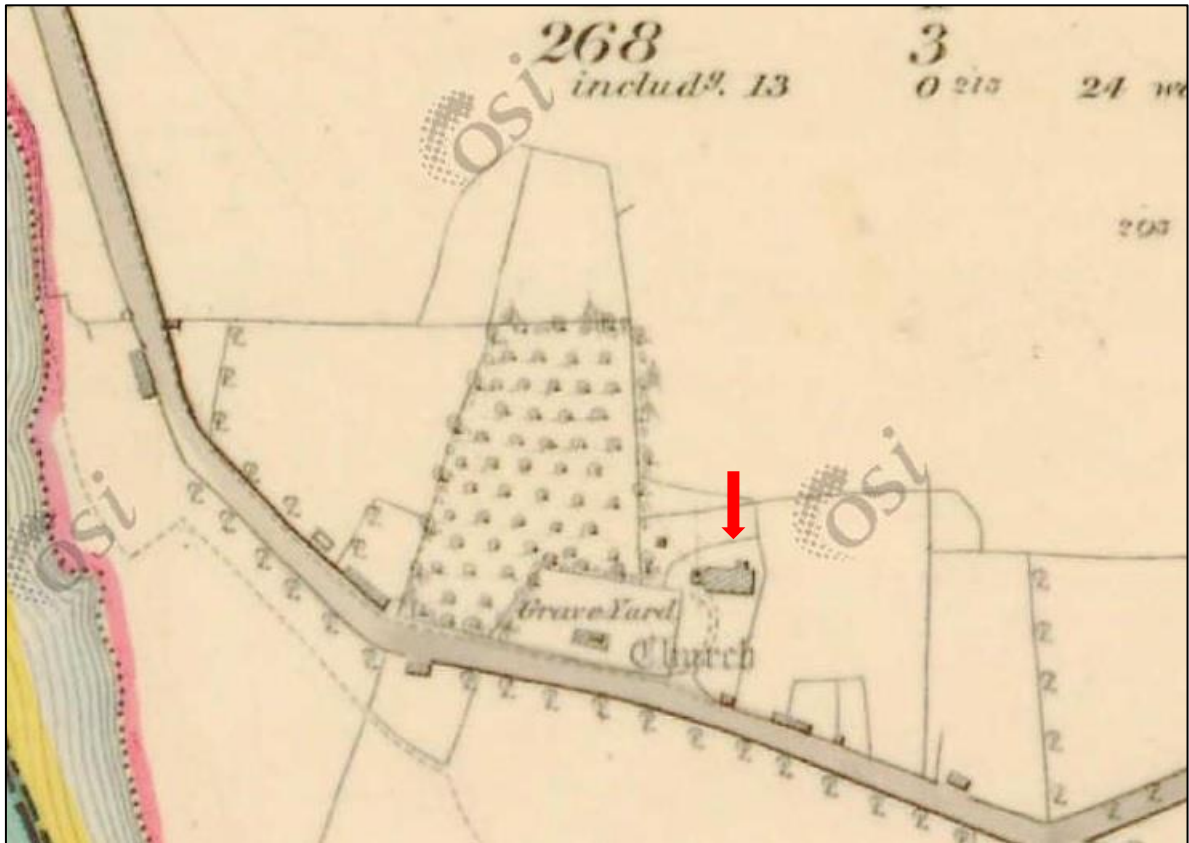


Figure 13: First Edition Map (6inch) showing the ditch in St. Ann's Graveyard  
(source: OSi MapGenie, with additions)

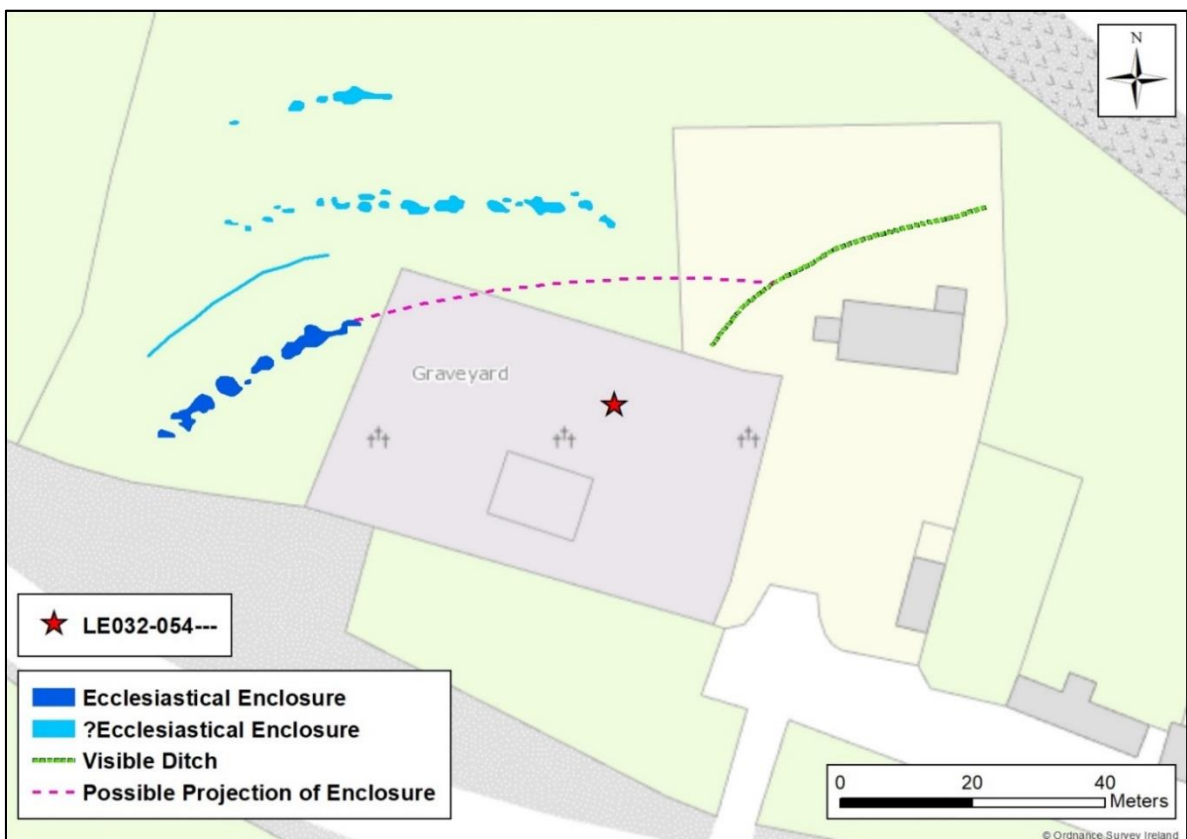


Figure 14: Potential enclosures in relation to the ditch (source: OSi MapGenie, with additions)





**Plate 1: The Survey Area (*facing NNW*) – Graveyard (LE032-054002) on right** (Photo: S. Curran)



**Plate 2: The survey area (*facing SE*) with one of the few remaining apple trees in the foreground** (Photo: S. Curran)





**Plate 3: The stepped slope (*facing NNE*)**

*(Photos: S. Curran)*



**Plate 4: The Church (LE032-054001) – western gable & doorway**

*(Photo: S. Curran)*





**Plate 5: The Church (LE032-054001) – eastern gable (*window hidden beneath the vegetation*)**  
(Photo: S. Curran)



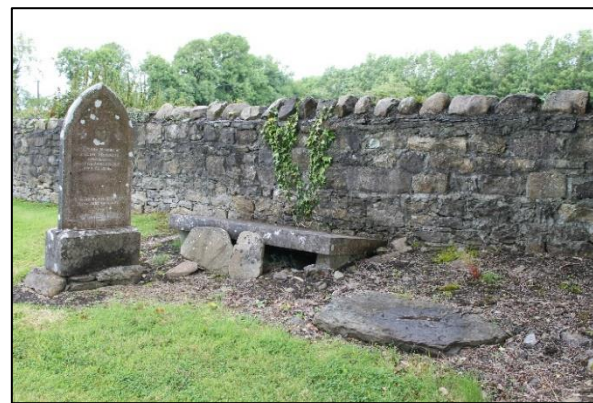
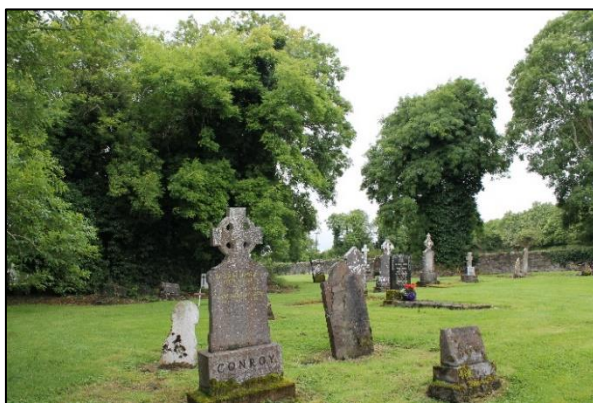
**Plate 6: Daniel Grose's early 19<sup>th</sup> century illustration of Annaduff Church**  
(after Stalley 1991, 194)





**Plate 7: The Nesbitt Vault inside LE032-054001 (*built against the eastern gable*)**

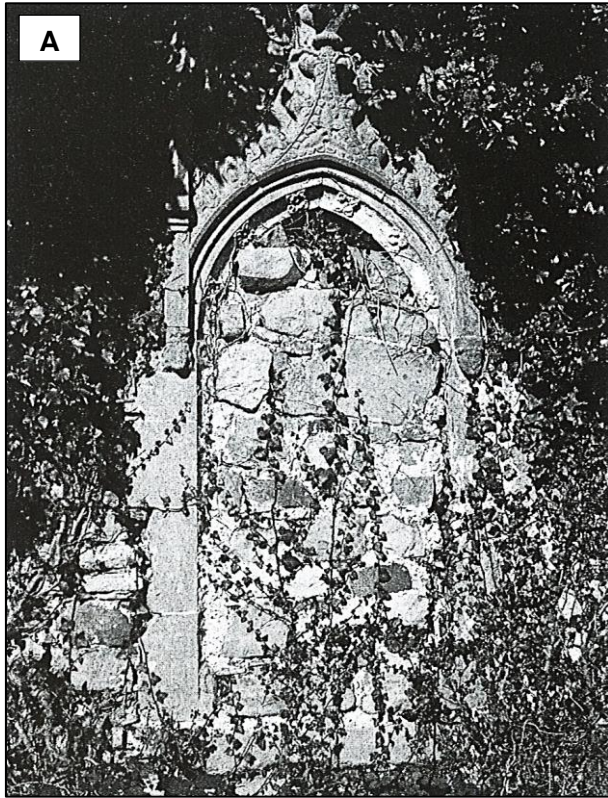
*(Photo: S. Curran)*



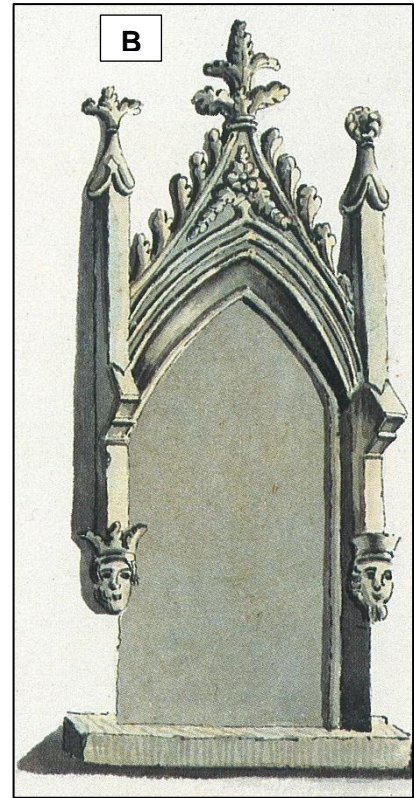
**Plate 8: The Graveyard – LE032-054002**

*(Photos: S. Curran)*





*A: after Moore 2003, 172*



*B: after Stalley 1991, 204*

**Plate 9: The hidden window (LE032-054003)**



**Plate 10: The window as it appears today**

*(Photo: S. Curran)*





**Plate 11: The ditch running E-W at the rear of St. Ann's Church (*facing ENE*)** (Photo: S. Curran)



**Plate 12: The bank and ditch (*facing east*)**

(Photo: S. Curran)





**Plate 13: The field to the south of Annaduff Church (*facing SSW*)**

*(Photo: S. Curran)*



**Plate 14: The field to the south of Annaduff Church (*facing SSE*)**

*(Photo: S. Curran)*

# Geophysical Survey Report

**Site:** *Killukin, Co. Roscommon*

**RMP:** RO011-047001 / 002

ITM: 592805, 797736

**Licence:** 16R0121



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## Summary

This report details the results of geophysical survey undertaken at an ecclesiastical site – classified as ‘Church’ and ‘Graveyard’ (RMP: RO011-047001 & RO011-047002 respectively) – in the townland of Killukin, Co. Roscommon. The survey extended over two fields (separated by the present remains) and targeted the area surrounding the extant church and graveyard. The investigation was conducted in July / August 2016 and consisted of magnetic gradiometry and earth resistance. The survey has identified two potential ecclesiastical enclosures (no longer visible on the ground) and several features and/or structures which may relate to activities associated with the ecclesiastical foundation.

## Survey Details

**Survey Licence Number:** 16R0121

**Survey Dates:** July / August 2016

**Survey Team:** Susan Curran, Karen O’Toole, Christine Brown, Olivia O’Rourke

**Planning Reference No.:** N/A

**Townland:** Killukin

**County:** Roscommon

**Barony:** Boyle

**RMP No.:** RO011-047001, RO011-047002

**National Grid Reference:**

**IG:** 192852, 297722 / **ITM:** 592805, 797736

**Geology:** Croghan Limestone Formation: Dark cherty limestone, shale <sup>1</sup>

**Quaternary Sediments:** Till derived from limestones; Alluvium<sup>2</sup>

**Soils:** Fine loamy drift with siliceous stones; River Alluvium<sup>3</sup>

**Survey Type (1):** **Fluxgate Gradiometer** **Instrument:** Bartington Grad 601-2

**Sample Interval:** 0.25m (HR<sup>4</sup>: 0.125m) **Traverse Interval:** 1m (HR: 0.5m)

**Grid Size:** 20m x 20m **Method:** Parallel Traverse

**Area Surveyed:** approx. 1 hectare **Survey Direction:** North

**Survey Type (2):** **Earth Resistance** **Instrument:** Geoscan RM85 Resistance Meter

**Sample Interval:** 0.5m **Traverse Interval:** 0.5m

**Array:** Parallel Twin **Method:** ZigZag Traverse

**Grid Size:** 20m x 20m **Survey Direction:** East

**Area Surveyed:** approx. 0.6 hectares

**Licence Holder:** Susan Curran

**Report Author:** Susan Curran

<sup>1</sup> www.gsi.ie – Bedrock Geology

<sup>2</sup> www.gsi.ie – Quaternary Sediments and Geomorphology mapviewer

<sup>3</sup> Irish National Soils Map, 1:250,000k, V1b(2014). Teagasc, Cranfield University. Jointly funded by the EPA STRIVE Research Programme 2007-2013 and Teagasc

<sup>4</sup> HR = High Resolution Survey

# Contents

Summary & Survey Details.....	2
List of Figures.....	3
List of Plates.....	4
Project Background.....	5
Site Description.....	5
Survey Objectives.....	7
Methodology.....	7
The Results – Description and Interpretation.....	7
Discussion & Conclusion.....	10
Acknowledgements.....	10
References.....	10

## List of Figures

Figure 1:	Survey Location.....	12
Figure 2:	Survey Extent ( <i>licensed and completed</i> ).....	12
Figure 3:	Lidar hillshaded image of the survey area.....	13
Figure 4:	The Impact of the road re-alignment.....	13
Figure 5:	25inch Map showing the orchard and spring.....	14
Figure 6:	RO011-047001/002 and environs.....	14
Figure 7:	River Alluvium.....	15
Figure 8:	Magnetometry Results.....	16
Figure 9:	Higher resolution magnetometry results.....	17
Figure 10:	Magnetometry Anomalies ( <i>digitised</i> ).....	18
Figure 11:	Earth Resistance Results.....	19
Figure 12:	Earth Resistance Anomalies ( <i>digitised</i> ).....	20
Figure 13:	Earth Resistance & Magnetometry Results - Interpretative Plot.....	21



## List of Plates

Cover:	The church remains (RO011-047001), facing north	
Plate 1:	The Northern Field, looking southwest towards the extant graveyard.....	22
Plate 2:	The Southern Field, looking south towards Killukin House.....	22
Plate 3:	The Extant Church & Graveyard ( <i>Drone Footage</i> ).....	23
Plate 4:	The Northern Field ( <i>Drone Footage</i> ).....	23
Plate 5:	Apple Trees in the Former Orchard.....	24
Plate 6:	Rubble in the Northern Field.....	24

## Project Background

The principal focus of the geophysical survey was the area surrounding the extant church and graveyard (RMP: RO011-047001 & RO011-047002 respectively) (Figures 1 & 2). The survey sought to identify any sub-surface remains which may point to the existence of an early Church foundation such as one or more potential ecclesiastical enclosures, or any structures or features which might be associated with such a monument.

The survey - comprising magnetic gradiometry and earth resistance - forms part of a PhD research project (funded by the Irish Research Council) which explores early medieval settlement in three case study areas in Ireland. The first of these case studies consists of a 140km<sup>2</sup> area of counties Leitrim and Roscommon, straddling the River Shannon and situated around Carrick-on-Shannon and environs. The research project utilises lidar and other remote sensing techniques to explore early medieval settlement patterns and the inter-relationship between associated monuments and status in early medieval Ireland. The original lidar analysis was undertaken in 2012 as part of the author's MA thesis (Curran 2012).

## Site Description

The site is located in the townland of Killukin which is found within the Civil Parish of the same name and the Barony of Boyle. The townland is situated along the banks of the Killukin River approximately 1.1km NE of Killukin Waterfall. This fast-flowing river forms the boundary between Killukin and the neighbouring townland of Danesfort to the east. The River Shannon lies less than 1km further east.

The ecclesiastical site is situated on a terrace on the left bank of the Killukin River and currently comprises two recorded monuments. The church (RMP: RO011-047001) is rectangular in shape and is believed to be 17<sup>th</sup> century in date (Moore 2010), possibly replacing an earlier structure which was recorded as being in ruins in 1615 (D'Alton 1845, 91-92). The church is oriented ENE–WSW and measures approx. 18m in length and approx. 6m in width (O'Connor 1995). The rectangular graveyard (RO011-047002) is defined by mortared stone walls and measures approx. 46m NNW–SSE by 36m ENE–WSW. The graveyard is still in use and contains late 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> century headstones in addition to two mausoleums (ibid) and several more recent burials. O'Connor (ibid) also noted the foundations of a rectangular structure – possibly an earlier church – “on the northern side of the graveyard”. It is likely that he is referring to the church remains within the graveyard rather than the rectangular feature which is visible on the lidar surface (Figure 3). This structure has a similar orientation to the present ruins, although it is slightly larger measuring approx. 20.5m x 8m internally. An area of overgrown rubble is visible in this part of the field, which partially overlaps the location of the lidar structure (Plate 6).

The R368 runs along the western border of the site, however, this is only a recent development following the re-alignment of the road in 2007/2008. Prior to this, the church was located within a single large sub-

oval field with the access path to the graveyard coming from the WSW. The re-alignment of the road resulted in the site effectively being bisected (Figure 4). Early cartographic sources show that the area to the north and west of the graveyard was previously in use as an orchard (Figure 5), certainly at least as far back as the 1800s and possibly longer. In the mid-1900s, the orchard grew a large variety of fruit, including apples, plums, damsons, cherries, gooseberries, raspberries and blackcurrants (Kelly & Murray 2006, 111). Several aging apple trees are still growing in the field to the north of the graveyard and continue to produce apples (Plate 5). The Griffith Valuation lists a church, graveyard and sexton's house within the present graveyard in 1858 (Keenehan 2006b, 143-144).

There are two townlands with the name 'Killukin' in Co. Roscommon, both with different origins and meanings - one in the Barony of Boyle and the other in Roscommon Barony. The former - which is the subject of this report - derives from 'Chill Abhaicín' or 'Cill Eibhicín' and has been anglicised (logainm.ie), however, there does not appear to be documentary evidence of a saint with this name. Archdall's *Monasticon Hibernicum* (1786, 613) attributes the foundation to St. Lunchairia who was born before AD 637.

There are a number of recorded monuments within the vicinity (Figure 6), the closest being two inscribed stones (RMP: RO011-166) which are located approx. 112m NE of the church, just inside the Danesfort boundary. The stones are located above the doorway to a now disused 18<sup>th</sup>/19<sup>th</sup> century cornmill, and the inscription '1640' is inscribed across them, however, this is not thought to be a date (Moore 2007). A millrace is also noted alongside the mill on the early cartographic sources, but it is not recorded on the RMP. A holy well (RMP: RO011-045) is located approx. 500m SSW of the site in the neighbouring townland of Glebe. O'Donovan lists it as 'Tobar Chonaolánaigh' or 'Connellan's Well' (O'Flanagan 1931, 120). While it may have been designated a holy well in the past, in more recent times it has acted as a pump house for Killukin House (Moore 2010). Rathes, cashels and enclosures make up the remaining recorded monuments in the vicinity of Killukin Graveyard, the closest of which is a bivallate rath (RMP: RO011-048 – classified as 'Ringfort-Rath') which is located on a drumlin summit approx. 300m SSE. A univallate rath (RMP: RO011-049 – also classified as 'Ringfort-Rath') is located less than 200m NE of this towards the edge of the drumlin summit.

There are no excavations listed within the immediate vicinity of the monument, although monitoring took place in a number of nearby townlands (e.g. Lodge, Drumlion) during the construction of the Flagford-Tonroe ESB Line under Licence 02E0944 (www.excavations.ie) - nothing of archaeological significance was discovered. Monitoring of top-soil stripping took place during the re-alignment of the R368 in 2007<sup>5</sup>. The area covered 150m x 25m but avoided Killukin graveyard by approx. 30m (Timoney & Timoney 2008, 2). Two stones were uncovered, one of which may be a quernstone and the other a 17<sup>th</sup> century roofing slate (ibid, 3). It is possible that the re-aligned road cuts through the original outer ecclesiastical enclosure.

<sup>5</sup> There is no excavation licence number available for this monitoring

## Survey Objectives

This survey was undertaken as part of a wider research project investigating early medieval settlement in the Carrick-on-Shannon area. The survey aimed to investigate the ecclesiastical remains of Killukin (RO011-047001 & RO011-047002) and their immediate environment in order to identify any subsurface remains (e.g. ecclesiastical enclosure(s), building foundations, hearths, field boundaries etc.) that may help to advance our understanding of its potential date and function. Multiple geophysical survey techniques (magnetic gradiometry and earth resistance) were employed to help establish the nature and character of the site and its potential relationship with other early medieval monuments in the surrounding landscape.

## Methodology

- 1) An area of approx. 1 hectare – comprising the area surrounding RO011-047001/002 – was surveyed. This comprised two separate fields – one to the NNE of the present graveyard and the other to the SSW. The area within the present graveyard (which is still in use) was not surveyed. The apple trees which continue to grow in the northern field prevented access in some places, particularly with the magnetometer where the low-hanging branches proved to be a significant impediment.
- 2) The survey grid, comprising a series of 20mx20m grid panels, was located and tied into the Irish National Grid using a Trimble GPS in conjunction with a VRS Now correction service.
- 3) Magnetic Gradiometry was undertaken using a Bartington Grad 01 DL601 dual sensor fluxgate gradiometer. Data were recorded using parallel traverses at a traverse interval of 1m and a sample interval of 0.25m (4 points per metre along each traverse) and/or at a higher resolution with a traverse interval of 0.5m and a sample interval of 0.125m. A total of 40 grids were surveyed at 1m x 0.25m, of which 6 were re-surveyed at a higher resolution of 0.5m x 0.125m.
- 4) More limited earth resistance survey was undertaken using a Geoscan RM85 Resistance Meter. Data were recorded using zigzag traverses at a traverse interval of 0.5m and a sample interval of 0.5m. A total of 21 grids were surveyed using this technique.
- 5) All data were processed using Geoscan Research Geoplot version 3 software.
  - a. Earth Resistance Processing Steps: Despike, Low Pass Filter, Interpolate Y, Interpolate X
  - b. Magnetometry Processing Steps: Zero Mean Traverse, Interpolate Y x 2

## The Results: Description and Interpretation (*Figures 7 – 13*)

The geophysical survey focused on the area surrounding the extant graveyard which is now divided into separate fields – one to the north and the other to the south (Plates 1 - 4). The higher resolution survey focused on the location of the inner enclosure which was identified in the preceding magnetometry survey.

A substantial area close to the river produced a highly disturbed magnetic response (M13), this area was quite wet during the survey and gravel was visible on the surface in places. This portion of the survey area corresponds with an area classified on the Irish National Soils Map as 'River Alluvium' (Figure 7).

A stone-lined modern drain is evident as high resistance and negative magnetic anomalies in the southern field (R12, M11). This linear feature runs NW-SE from the road towards the river and was also plotted using GPS (it is visible on the surface in places) in order to distinguish it from any other potential archaeological features. A low resistance anomaly (R11) which also commences at the road boundary runs towards R12 and is probably a modern drainage feature. In addition to the drainage features, there are a number of instances of apparent modern disturbance evident on the magnetometry results (M1) located close to the field boundary in the NE corner of the survey area. A high resistance anomaly (R7) is located in close proximity to the entrance of the field and is likely to correspond to near-surface stone which may be linked with the gateway, however, the earth resistance survey did not progress beyond this point and therefore it is not possible to ascertain the full extent of the anomaly which could provide further insight into its origins.

The spring recorded on the 25inch historic mapping (Figure 5) corresponds with a low resistance linear anomaly (R1) which runs SW-NE across the top of the northern field. A similar linear low resistance anomaly is located approx. 6m south of the spring (R2) and follows the same alignment, possibly a ditched feature relating to the spring.

A patch of rubble is visible within the field, although it is now covered almost completely by grass and other vegetation (Plate 6). This abuts the southern 'wall' of the rectangular structure which is visible on the lidar surface. A number of high resistance anomalies are visible in this area (R4, R5), both within the limits of the rectangular structure and up to 3.5m further south. These are likely to correspond to buried rubble from the remains of the rectangular structure. A linear medium to high resistance anomaly (R6) which runs approx. NE-SW may relate to a buried stone feature such as a wall. The magnetometry survey revealed a range of positive and negative magnetic anomalies which may relate to internal divisions and/or activities associated with the structure. A large area of magnetic disturbance (M5) is located on the SE side of the structure and may relate to the presence of near-surface ferrous metal given the extremely high readings. However, given its location around the rubble which is visible on the ground and the rectangular structure which is visible on the lidar, it is highly possible that the feature is archaeological rather than modern.

Several linear anomalies running NW-SE on the magnetometry results provide evidence of ploughing or tillage (M6) in the eastern portion of the northern field. This part of the field slopes slightly down towards the Killukin River.

A positive magnetic anomaly (M7) corresponds with the location of a ditch which is still visible in the northern field, running from the SE corner of the graveyard towards the river. It is most likely a modern feature and is not featured on the available early cartographic material.



The magnetometry results show a series of positive magnetic anomalies which form a feature of sub-oval plan (M3). This most likely represents the ditched inner enclosure of the original ecclesiastical site. It is oriented NE–SW and measures approx. 25m NW–SE by approx. 40m NE–SW. There is a gap of approx. 4.5m in the SE corner of the enclosure which may represent an entrance, although it is quite large and may be a later modification. There are multiple positive magnetic anomalies (M4) within the enclosure, some of which may be pits, while some may represent the remains of an earlier structure or structures associated with the enclosure. It appears that part of the western portion of the enclosure may have been truncated by the road re-alignment.

The earth resistance results show a high resistance anomaly (R3) which is oriented N-S and protrudes into the southern limits of the probable enclosure. It measures approx. 10m N-S, and at its widest measures approx. 20.5m E-W; the 'neck' measures approx. 2m E-W. The nature and shape of this feature suggest that it represents an area of stone paving, and it may continue south beneath the current graveyard (outside of the survey limits). It does not appear to be related to the enclosure. The wider 'base' portion of this feature is comparable in shape and size to a possible western entrance to the graveyard that is visible on the 25inch map (Figure 5). Indeed, the southern edge of the feature visible on this historic map appears as a curvilinear medium to high resistance anomaly (R9) while a second high resistance anomaly (R8) may indicate that this southern section originally had a division similar to that on the north side.

Both the magnetometry and earth resistance results suggest the presence of an outer enclosure, evident as a curvilinear anomaly on both survey results. Located in the southern field, it appears as a low resistance anomaly (R13) and a positive magnetic anomaly (M12) which overlay each other, suggesting that it may be a stone-faced ditch. It is not possible to estimate the extent of this enclosure as only this small southern portion (approx. 30m) is visible.

A number of positive magnetic anomalies (e.g. M9) suggest the presence of pits, possibly containing burnt material which are found throughout the site.

A high resistance anomaly (R10) abutting the SW corner of the graveyard most likely corresponds to rubble from the graveyard wall as it forms a right angle following the line of the graveyard.

There are a number of positive magnetic linear features visible on the magnetometry results (M2, M8, M10), although it is unclear whether they form coherent archaeological structures. The features that make up M2 in particular, appear to form a rectilinear feature. They are located close to the field entrance so they may be linked to developments in this regard, or they may be relict field boundaries, possibly linked to the early ecclesiastical site or to its later use as an orchard growing various fruits.

## Discussion & Conclusion

The identification of two probable enclosures confirms the archaeological significance of this site and likely places its foundation in the early medieval period. Sub-circular and oval enclosures such as these are synonymous with early ecclesiastical foundations and were used to demarcate sacred space (O’Sullivan et al. 2014, 145). Of course, without excavation and scientific dating, the exact nature of the enclosures cannot be determined with absolute certainty based solely on the geophysical survey evidence. While the northern field has undoubtedly experienced some disturbance during its time as an orchard, there is still substantial evidence for buried archaeological features and it is possible that some of the anomalies visible within the ‘inner enclosure’ correspond to the remains of a contemporary structure, possibly an early church. Only a short curvilinear portion of the potential outer enclosure is visible within the survey area, however, the curved nature of the original road to the west of the site appears to align with this feature and it is possible that this road may represent the original outer boundary of the ecclesiastical site, although this needs to be explored further. Further geophysical survey was undertaken in the fields to the north of this site, aimed at investigating the possible location of the northern limits of this outer enclosure (Licence No. 17R0159). Unfortunately these fields have been significantly disturbed in recent decades and the results here proved inconclusive as far as the outer enclosure is concerned (see 17R0159 report).

A number of the features may relate to the later church which was established at the site, e.g. the sub-rectangular structure which is visible on the lidar survey and the features which abut the present graveyard to the north and west. This part of the site was in use as an orchard from (at least) the early 1800s until the 1950s, and the landowner confirmed that the field has not undergone any major disturbance in his time. Indeed, it is possible that the rubble which is present in this field pre-dates the orchard and may relate to the later church establishment – perhaps the structure that was noted as being in ruins in the early 17<sup>th</sup> century (D’Alton 1845, 91-92). Documentary sources provide information about a succession of clergy from the early 17<sup>th</sup> century up to the 19<sup>th</sup> century (Keenehan 2006a, 91-92) so it is likely that a number of the anomalies – and possible structures - relate to this period of activity.

## Acknowledgements

I would like to especially thank Seán Murray for facilitating the research on his land and for all of the local information he provided. I am indebted to TII and Leitrim County Council for the use of the lidar survey dataset in my research. Many thanks to both the Discovery Programme and UCD School of Archaeology for the use of their equipment and their continued support. Thanks also to Ger Dowling for his support and assistance throughout. Special thanks to all of the survey volunteers for their excellent work during the survey. Huge thanks to Brendan O’Neill for his assistance with the drone survey.

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Accessed 06/02/2017, 10:14am

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<https://www.logainm.ie/en/42885>

Accessed 21/07/2017, 12:15pm

Teagasc

<http://gis.teagasc.ie/soils/soilguide.php>

Accessed 06/02/2017, 11:58am

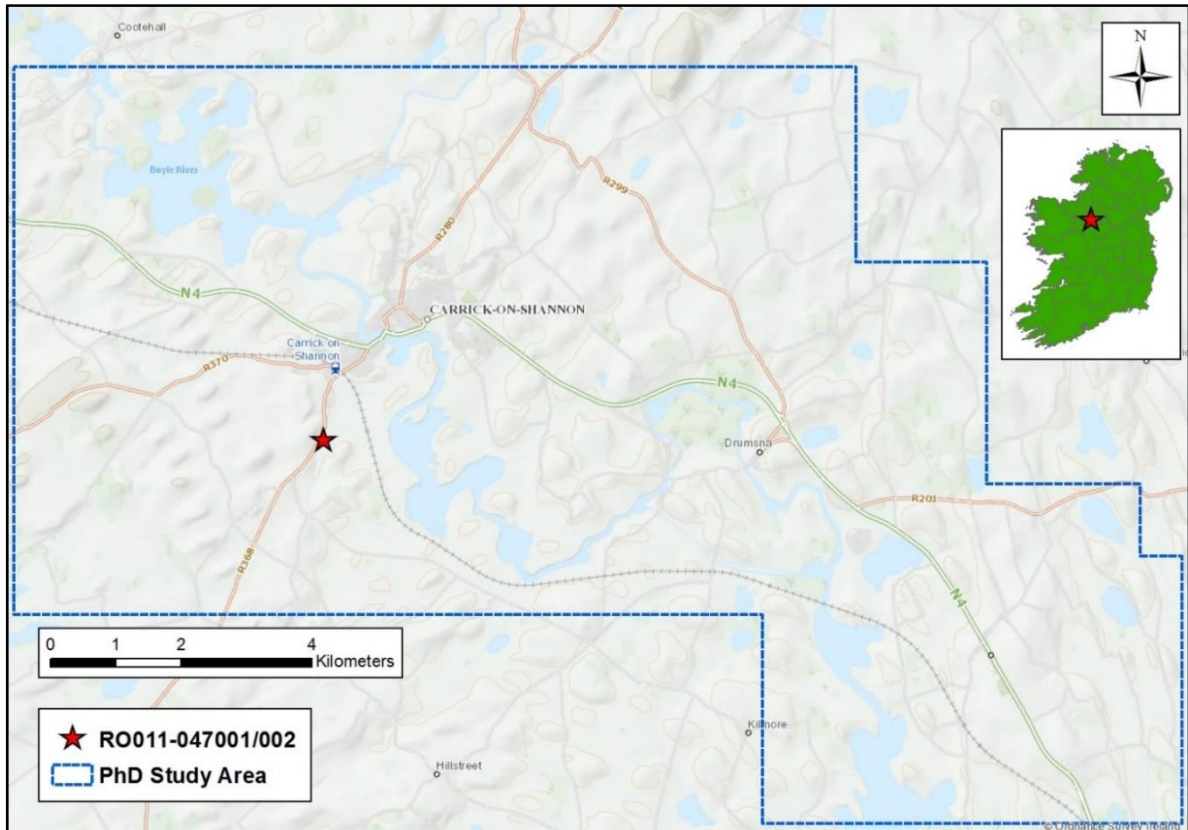


Figure 1: Survey Location (with PhD Research)

(source: OSi MapGenie, with additions)

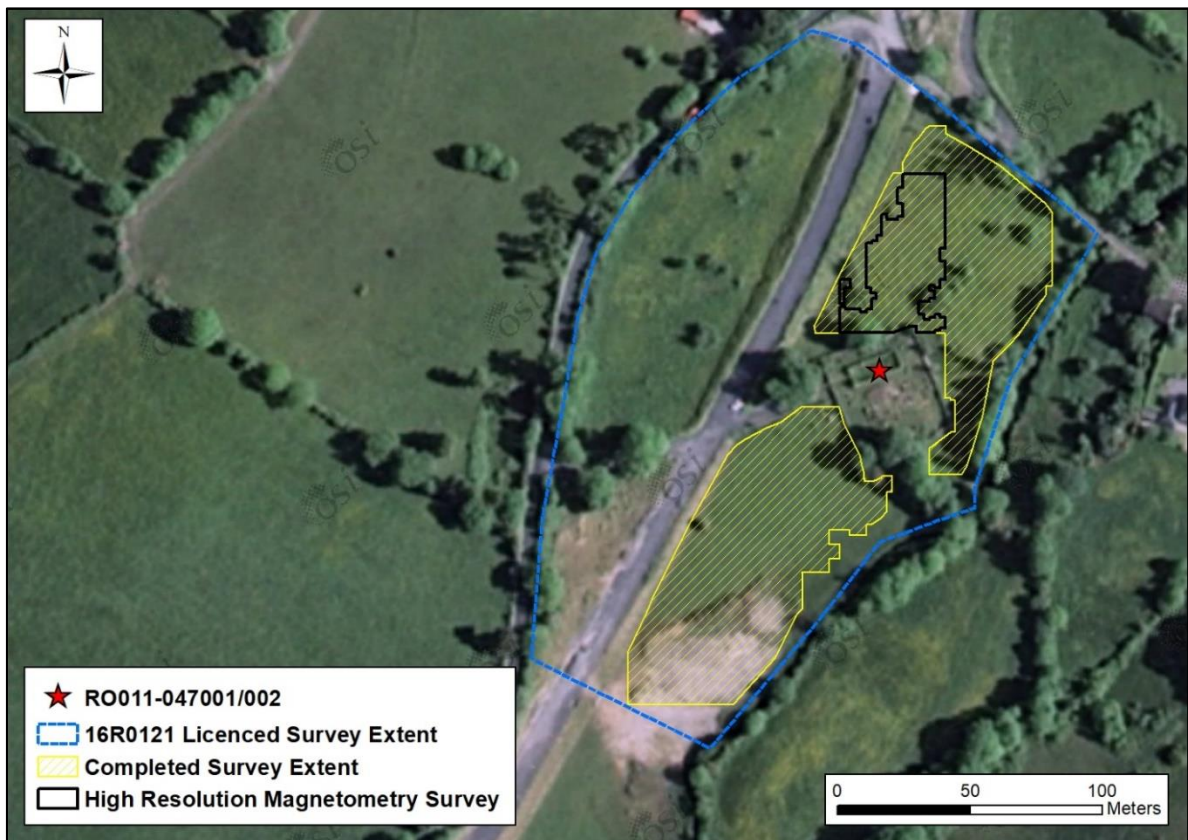


Figure 2: Survey Extent on satellite image

(source: OSi MapGenie, with additions)



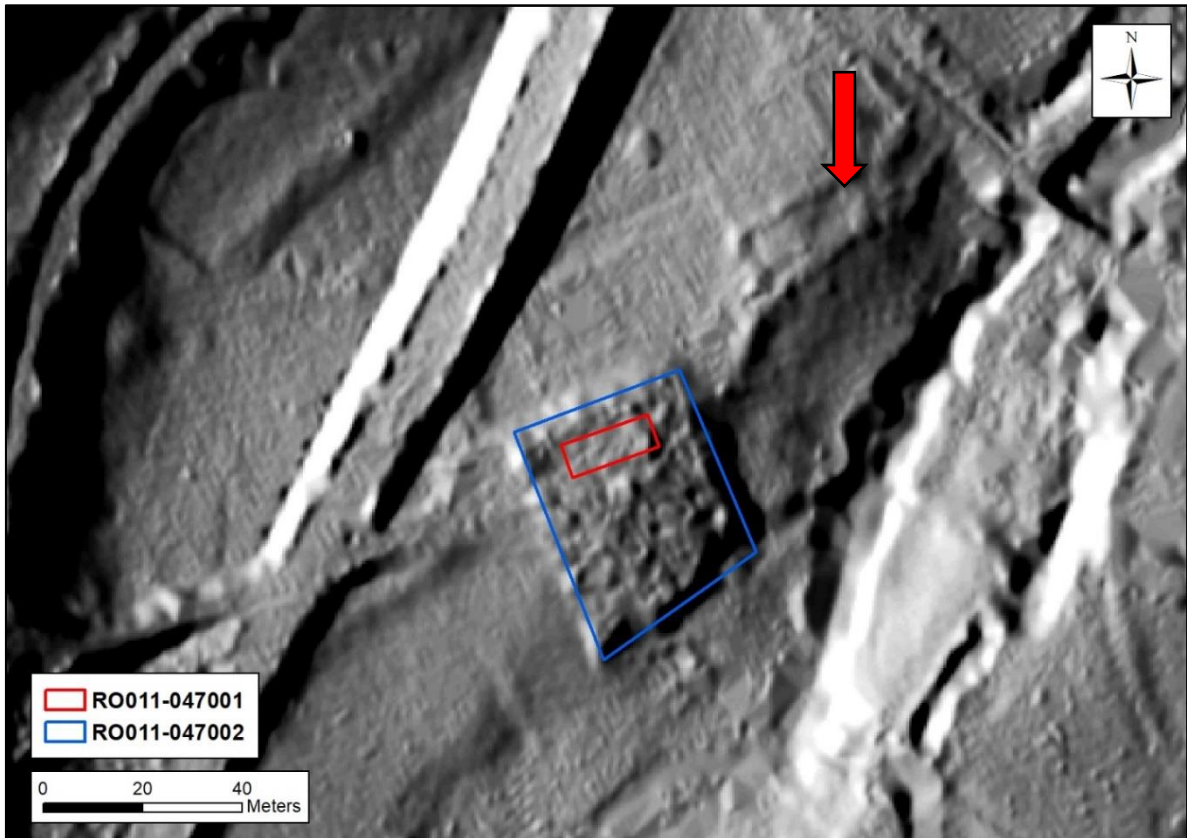


Figure 3: Lidar hillshaded image of RO011-047001/002 with rectangular structure to NE



Figure 4: The impact of the road re-alignment

(source: OSi MapGenie, with additions)



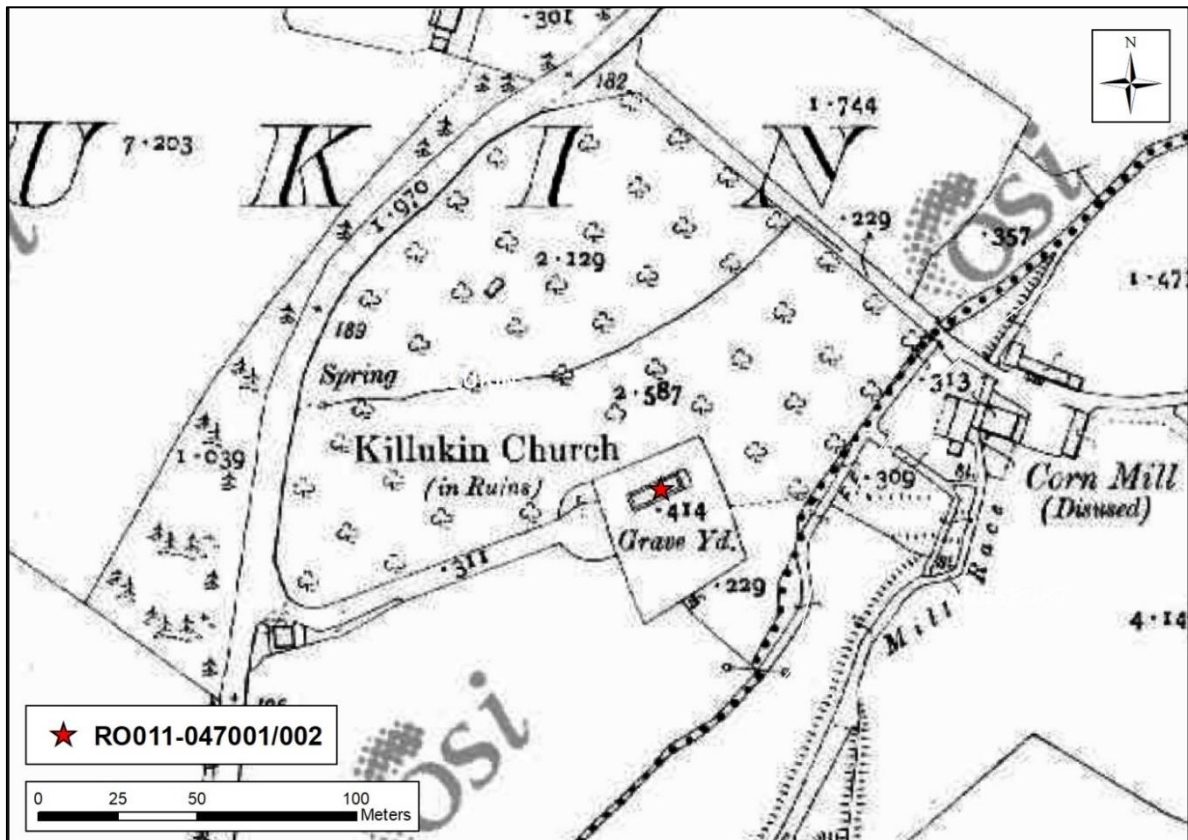


Figure 5: 25inch Map showing the Orchard and Spring (source: OSi MapGenie, with additions)

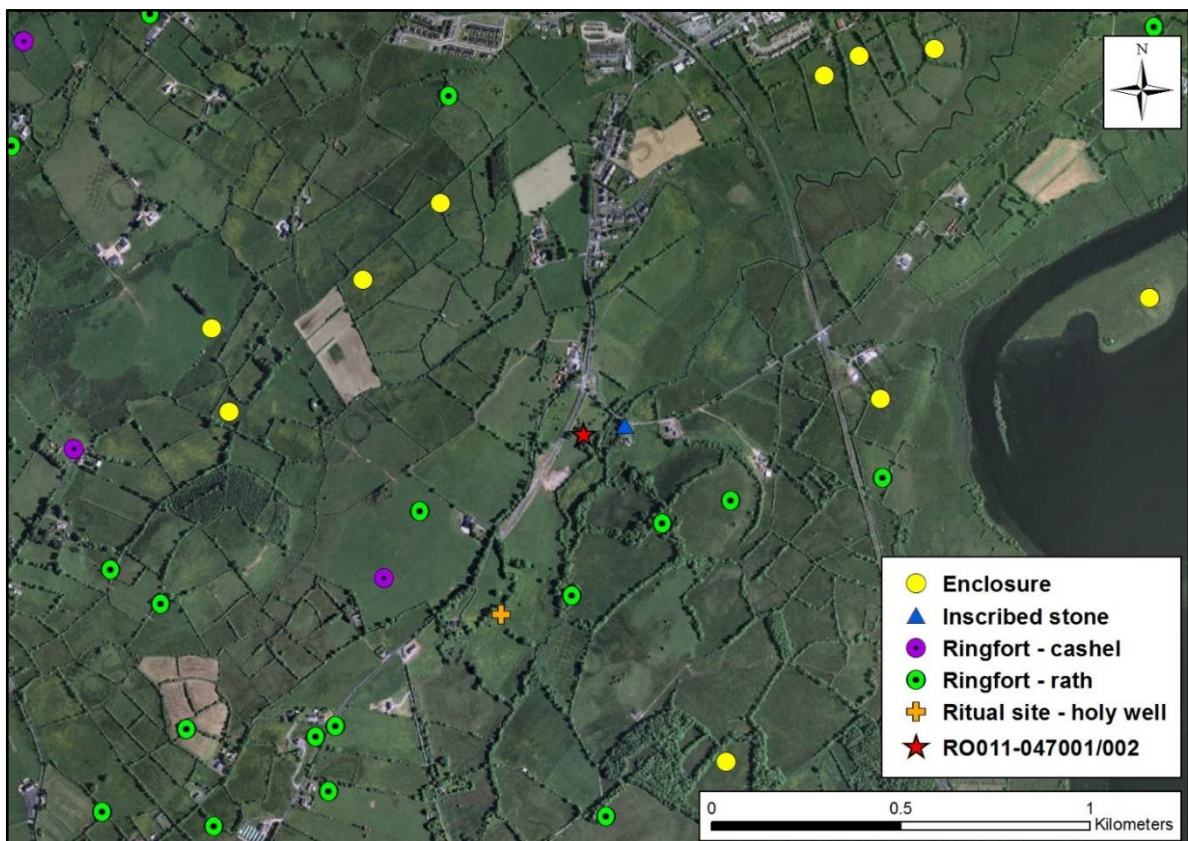
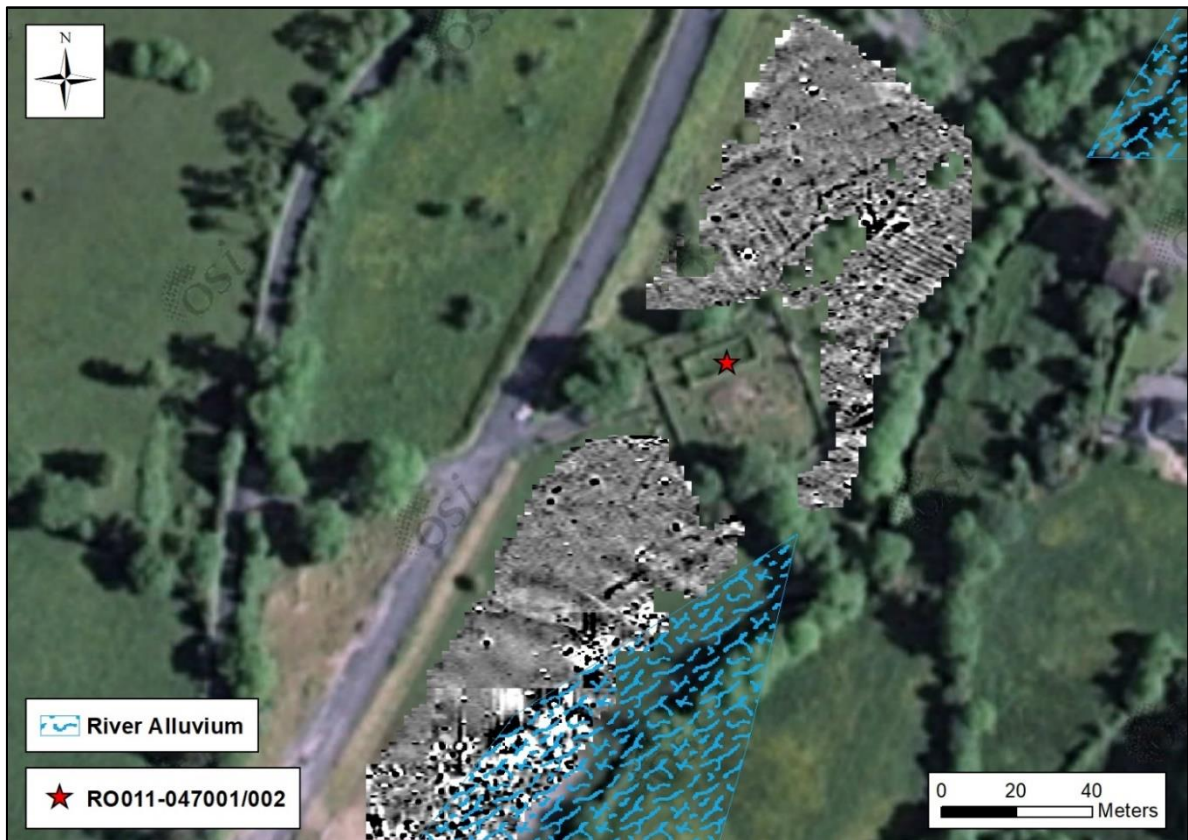


Figure 6: RO011-047001/002 and environs on satellite image

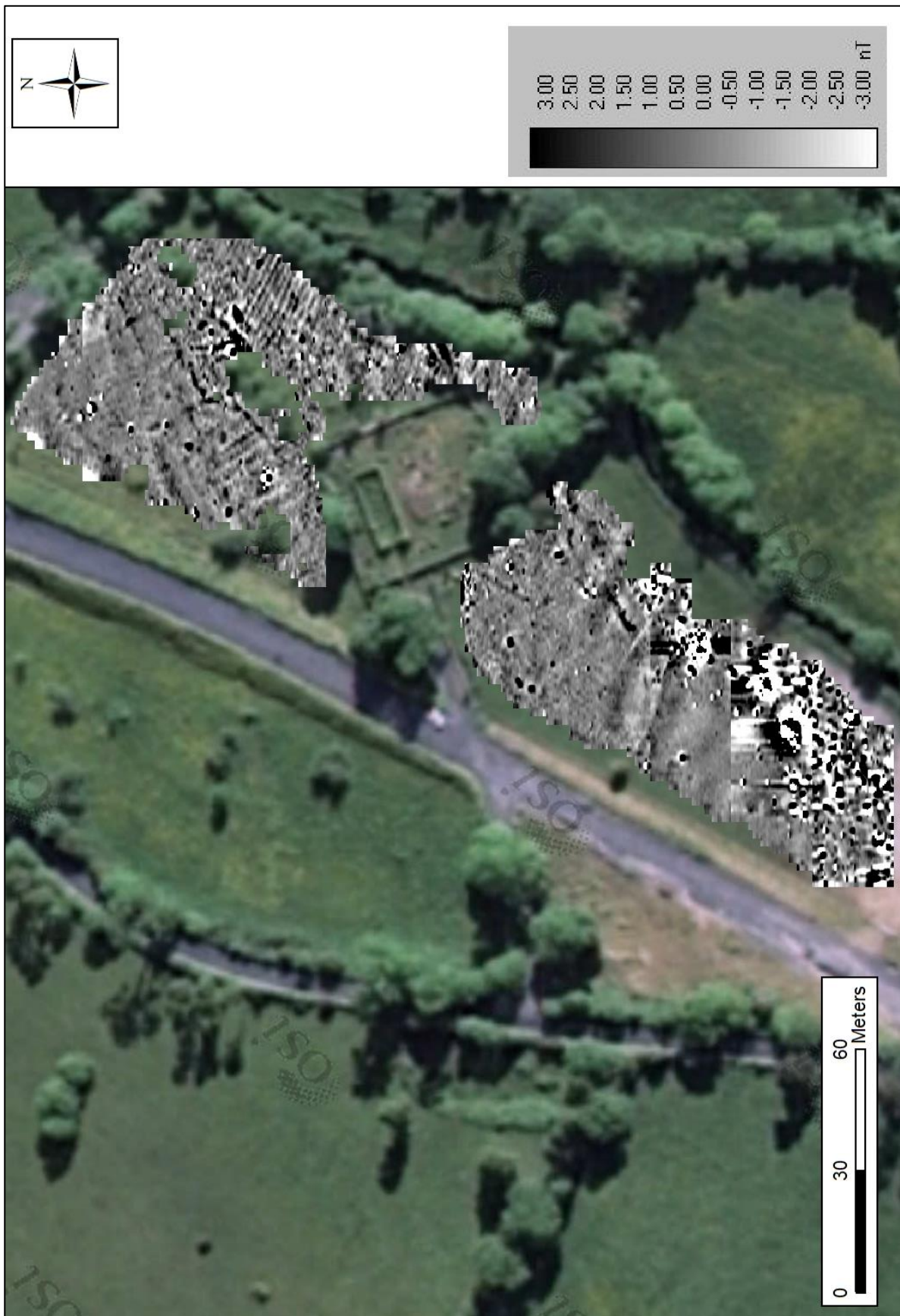
(source: OSi MapGenie, with additions)



**Figure 7: River Alluvium – Teagasc Soils Map**

*(source: OSi MapGenie, with additions)*





**Figure 8: Greyscale image of magnetometry results overlain on satellite image**  
 (source: OSi MapGenie, with additions)



**Figure 9: Greyscale image of higher resolution magnetometry results**

*(source: OSi MapGenie, with additions)*





Figure 10: Greyscale image with digitised magnetic anomalies

(source: OSi MapGenie, with additions)





**Figure 11: Greyscale image of earth resistance results overlain on satellite image**  
 (source: OSi MapGenie, with additions)

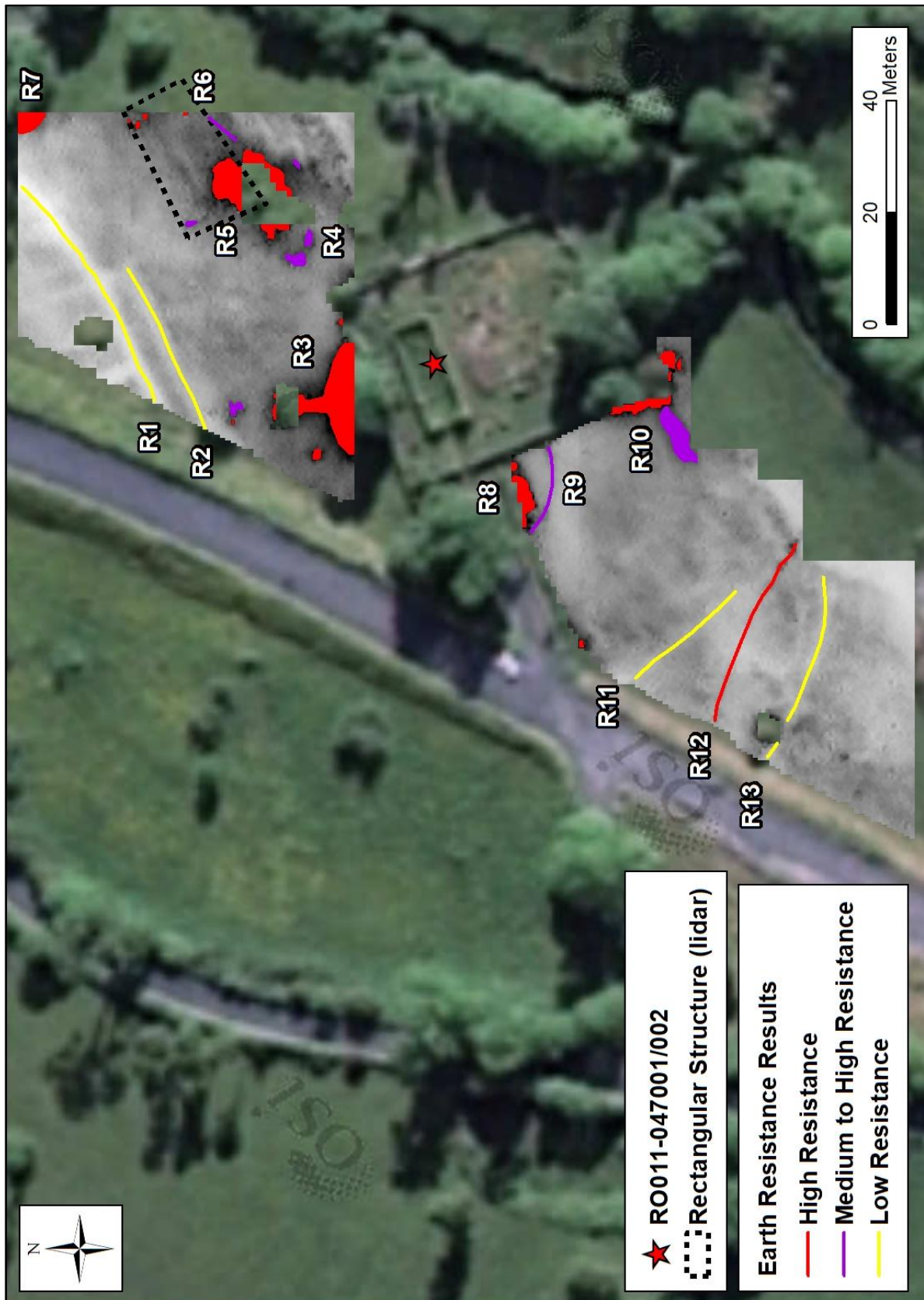


Figure 12: Greyscale image with digitised earth resistance anomalies  
(source: OSi MapGenie, with additions)



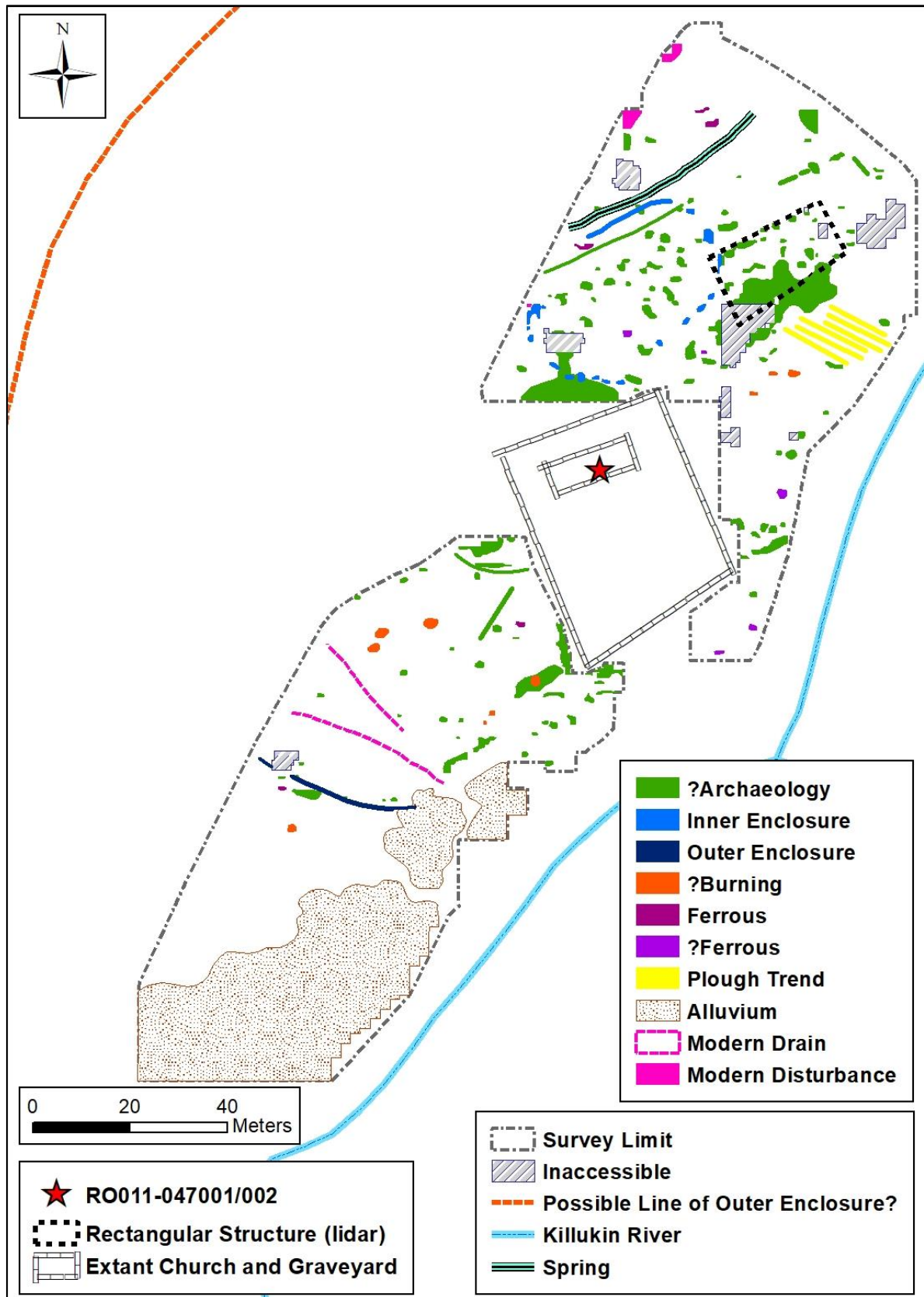


Figure 13: Earth Resistance &amp; Magnetometry Results – Interpretative Plan



**Plate 1: The Northern Field** (*looking southwest towards the graveyard*)

(Photo: S. Curran)



**Plate 2: The Southern Field** (*looking south towards Killukin House - behind the trees*)

(Photo: S. Curran)





**Plate 3: The Extant Church & Graveyard and the Southern Field (Drone Footage)**  
(Photo: B. O'Neill)



**Plate 4: The Northern Field with Graveyard in background (Drone Footage)**  
(Photo: B. O'Neill)





**Plate 5: Apple Trees continue to grow in the former orchard**

*(Photo: S. Curran)*



**Plate 6: Rubble in the Northern Field**

*(Photo: S. Curran)*



# Geophysical Survey Report

**Site:** *Killukin, Co. Roscommon*

**RMP:** RO011-047001 / 002

ITM: 592871, 797814

**Licence:** 17R0159



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## Summary

This report details the results of geophysical survey undertaken in the vicinity of an ecclesiastical site - classified as 'Church' and 'Graveyard' (RMP: RO011-047001 & RO011-047002 respectively) – in the townland of Killukin, Co. Roscommon. This survey was undertaken in a field approx. 100m to the north east of the recorded monuments in an attempt to locate the extent of the northern limits of a possible outer ecclesiastical enclosure which was identified in an earlier geophysical survey (16R0121). Unfortunately this area has been significantly disturbed in recent decades, however the results here have identified a potential section of the outer enclosure.

## Survey Details

**Survey Licence Number:** 17R0159

**Survey Dates:** 12<sup>th</sup> – 16<sup>th</sup> August 2017 (incl.)

**Survey Team:** Susan Curran, Olivia O'Rourke

**Planning Reference No.:** N/A

**Townland:** Killukin

**County:** Roscommon

**Barony:** Boyle

**RMP No.:** RO011-047001, RO011-047002

**National Grid Reference:**

**IG:** 192919, 297801 / **ITM:** 592871, 797814

**Geology:** Croghan Limestone Formation: Dark cherty limestone, shale<sup>1</sup>

**Quaternary Sediments:** Till derived from limestones; Cut over raised peat<sup>2</sup>

**Soils:** Fine loamy drift with limestones; River Alluvium<sup>3</sup>

**Survey Type (1):** Fluxgate Gradiometer

**Instrument:** Bartington Grad 601-2

**Sample Interval:** 0.25m

**Traverse Interval:** 1m

**Grid Size:** 20m x 20m

**Method:** Parallel Traverse

**Area Surveyed:** approx. 0.45 hectares

**Survey Direction:** North

**Survey Type (2):** Earth Resistance  
Meter

**Instrument:** Geoscan RM85 Resistance

**Sample Interval:** 0.5m

**Traverse Interval:** 0.5m

**Array:** Parallel Twin

**Method:** ZigZag Traverse

**Grid Size:** 20m x 20m

**Survey Direction:** East

**Area Surveyed:** approx. 0.3 hectares

**Licence Holder:** Susan Curran

**Report Author:** Susan Curran

<sup>1</sup> [www.gsi.ie](http://www.gsi.ie) – Bedrock Geology

<sup>2</sup> [www.gsi.ie](http://www.gsi.ie) – Quaternary Sediments and Geomorphology mapviewer

<sup>3</sup> [www.teagasc.ie](http://www.teagasc.ie) – Soils Guide

# Contents

Summary & Survey Details.....	2
List of Figures.....	3
List of Plates.....	3
Project Background.....	4
Site Description.....	4
Survey Objectives.....	6
Methodology.....	6
The Results – Description and Interpretation.....	6
Discussion & Conclusion.....	8
Acknowledgements.....	8
References.....	9

## List of Figures

Figure 1: Survey Location.....	10
Figure 2: Survey Extent ( <i>licensed and completed</i> ).....	10
Figure 3: Lidar hillshaded image of the survey area.....	11
Figure 4: Aerial Image of R368 Re-alignment.....	11
Figure 5: 25inch map depicting the survey area.....	12
Figure 6: RO011-047001/002 and environs.....	12
Figure 7: Magnetometry Results.....	13
Figure 8: Magnetometry Anomalies ( <i>digitised</i> ).....	14
Figure 9: Earth Resistance Results.....	15
Figure 10: Earth Resistance Anomalies ( <i>digitised</i> ).....	16
Figure 11: Earth Resistance & Magnetometry Results - Interpretative Plan.....	17
Figure 12: 17R0159 & 16R0121 Combined Interpretative Plan.....	18

## List of Plates

Cover: The Survey Area, facing south east	
Plate 1: Southern Portion of the Survey Area.....	19
Plate 2: Northern Portion of the Survey Area.....	19
Plate 3: Tree-lined Field Division.....	20
Plate 4: Magnetometry Survey in Progress ( <i>northern section</i> ).....	20
Plate 5: The Church Remains (RO011-047001).....	21

## Project Background

The principal focus of the geophysical survey was an area approx. 100m to the north east of the extant Killukin Church and Graveyard (RMP: RO011-047001 & RO011-047002 respectively) (Figures 1 & 2). The survey sought to identify any sub-surface remains which could point to the location of the northern limits of the possible outer ecclesiastical enclosure which was identified in a previous geophysical survey (Curran 2017).

The survey - comprising magnetic gradiometry and earth resistance - forms part of a PhD research project (funded by the Irish Research Council) which explores early medieval settlement in three case study areas in Ireland. The first of these case studies consists of a 140km<sup>2</sup> area of counties Leitrim and Roscommon, straddling the River Shannon and situated around Carrick-on-Shannon and environs. The research project utilises lidar and other remote sensing techniques to explore early medieval settlement patterns and the inter-relationship between associated monuments and status in early medieval Ireland. The original lidar analysis was undertaken in 2012 as part of the author's MA thesis (Curran 2012).

## Site Description

The site is located in the townland of Killukin which is found within the Civil Parish of the same name and the Barony of Boyle. The townland is situated along the banks of the Killukin River approximately 1.1km NE of Killukin Waterfall. This fast-flowing river forms the boundary between Killukin and the neighbouring townland of Danesfort to the east. The River Shannon lies less than 1km further east.

The ecclesiastical site is situated on a terrace on the left bank of the Killukin River and currently comprises two recorded monuments. The church (RMP: RO011-047001) (Plate 5) is rectangular in shape and is believed to be 17<sup>th</sup> century in date (Moore 2010), possibly replacing an earlier structure which was recorded as being in ruins in AD 1615 (D'Alton 1845, 91-92). The church is oriented ENE–WSW and measures approx. 18m in length and approx. 6m in width (O'Connor 1995). The rectangular graveyard (RO011-047002) is defined by mortared stone walls and measures approx. 46m NNW–SSE by 36m ENE–WSW. The graveyard is still in use and contains late 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> century headstones in addition to two mausoleums (ibid) and several more recent burials. O'Connor (ibid) also noted the foundations of a rectangular structure – possibly an earlier church – “on the northern side of the graveyard”. It is likely that he is referring to the church remains within the graveyard rather than the rectangular structure which is visible on the lidar surface (Figure 3). This structure has a similar orientation to the present ruins, although it is slightly larger measuring approx. 20.5m x 8m internally. An area of overgrown rubble is visible in this part of the field, which partially overlaps the location of the lidar structure.

The R368 runs along the western border of the site, however, this is only a recent development following the re-alignment of the road in 2007/2008. The L50805 which now forms the southern boundary of the survey area – and separates it from the subject of the 2016 survey - was also impacted during the re-alignment of the R368. As a result, there is considerable disturbance within this zone, particularly along



the western and south western field boundaries (Figure 4). The original route of the L50805 is present on the early cartographic sources (Figure 5), thus the survey area has been separated from the fields containing the ecclesiastical sites for at least two centuries. Prior to the re-alignment of the R368, the church was located within a single large sub-oval field with the access path to the graveyard coming from the WSW. The re-alignment of the road resulted in the site effectively being bisected into eastern and western portions. Early cartographic sources show that the area immediately to the north and west of the graveyard was previously in use as an orchard, certainly at least as far back as the 1800s and possibly longer. In the mid-1900s, the orchard grew a large variety of fruit (Kelly & Murray 2006, 111) and several aging apple trees are still growing in the field immediately to the north of the graveyard and continue to produce apples. The usage of the field which is the subject of the present survey is not depicted. The Griffith Valuation lists a church, graveyard and sexton's house within the present graveyard in 1858 (Keenehan 2006, 143-144). The tree-lined division within the survey area does not appear in the earlier cartographic maps, but is in place on the later 25inch mapping.

There are two townlands with the name 'Killukin' in Co. Roscommon, both with different origins and meanings - one in the Barony of Boyle and the other in Roscommon Barony. The former - which is the subject of this report - derives from 'Chill Abhaicín' or 'Cill Eibhicín' and has been anglicised (logainm.ie), however, there does not appear to be documentary evidence of a saint with this name. Archdall's *Monasticon Hibernicum* (1786, 613) attributes the foundation to St. Lunechairia who was born before AD 637.

There are a number of recorded monuments within the vicinity (Figure 6), the closest being two inscribed stones (RMP: RO011-166) which are located approx. 112m NE of the church, just inside the Danesfort boundary. The stones are located above the doorway to a now disused 18<sup>th</sup>/19<sup>th</sup> century cornmill, and the inscription '1640' is inscribed across them, however, this is not thought to be a date (Moore 2007). A millrace is also noted alongside the mill on the early cartographic sources, but it is not recorded on the RMP. A holy well (RMP: RO011-045) is located approx. 500m SSW of the site in the neighbouring townland of Glebe. O'Donovan lists it as 'Tobar Chonaolánaigh' or 'Connellan's Well' (O'Flanagan 1931, 120). While it may have been designated a holy well in the past, in more recent times it has acted as a pump house for Killukin House (Moore 2010). Rath, cashels and enclosures make up the remaining recorded monuments in the vicinity of Killukin Graveyard, the closest of which is a bivallate rath (RMP: RO011-048 – classified as 'Ringfort-Rath') which is located on a drumlin summit approx. 300m SSE. A univallate rath (RMP: RO011-049 – also classified as 'Ringfort-Rath') is located less than 200m NE of this towards the edge of the drumlin summit.

There are no excavations listed within the immediate vicinity of the monument, although monitoring took place in a number of nearby townlands (e.g. Lodge, Drumlion) during the construction of the Flagford-Tonroe ESB Line under Licence 02E0944 ([www.excavations.ie](http://www.excavations.ie)) - nothing of archaeological significance was discovered. Monitoring of top-soil stripping took place during the re-alignment of the R368 in 2007.<sup>4</sup>

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<sup>4</sup> There is no excavation licence number available for this monitoring

The area covered 150m x 25m but avoided Killukin graveyard by approx. 30m (Timoney & Timoney 2008, 2). Two stones were uncovered, one of which may be a quernstone and the other a 17<sup>th</sup> century roofing slate (ibid, 3). It is possible that the re-aligned R368 and/or L50805 cut through the original outer ecclesiastical enclosure.

## Survey Objectives

This survey was undertaken as part of a wider research project investigating early medieval settlement in the Carrick-on-Shannon area and was a follow-up to the 2016 geophysical survey (16R0121) which identified a number of possible ecclesiastical features (Curran 2017). The present survey aimed to further investigate the enclosing feature(s) and their immediate environment in order to ascertain the extent of the northern limits of the probable outer enclosure. Multiple geophysical survey techniques (magnetic gradiometry and earth resistance) were employed to help establish the nature and character of the site.

## Methodology

- 1) An area of approx. 0.5ha was surveyed. This consisted of a field approx. 100m to the north east of the recorded monuments RO011-047001/002; the field is separated into two parts by a division comprised of trees and bushes (Plates 1-3).
- 2) The survey grid, comprising a series of 20mx20m grid panels, was located and tied into the Irish National Grid using a Trimble GPS in conjunction with a VRS Now correction service.
- 3) Magnetic Gradiometry was undertaken using a Bartington Grad 01 DL601 dual sensor fluxgate gradiometer (Plate 4). Data were recorded using parallel traverses at a traverse interval of 1m and a sample interval of 0.25m (4 points per metre along each traverse). A total of 19 grids were surveyed using this technique.
- 4) More limited earth resistance survey was undertaken using a Geoscan RM85 Resistance Meter. Data were recorded using zigzag traverses at a traverse interval of 0.5m and a sample interval of 0.5m. A total of 11 grids were surveyed using this technique.
- 5) All data were processed using Geoscan Research Geoplot version 4 software.
  - a. Magnetometry Processing Steps: Zero Mean Traverse, Low Pass Filter, Interpolate Y x 2
  - b. Earth Resistance Processing Steps: Despiking, Edge Match, Low Pass Filter, Interpolate Y / X

## The Results – Description and Interpretation (Figures 7 - 12)

The survey focused on the areas to either side of the tree-lined field division, as this is where the northern limits of the potential outer enclosure could be expected to be located.

As depicted on the Digital Globe aerial image, the area to the north of the field boundary was significantly disturbed during the R368 re-alignment; this is reflected in the magnetometry results (M1) which almost exactly correspond to the aerial image (Figure 4). This disturbance obscures any potential

archaeological remains that might exist beneath the ground surface here. As a result, the earth resistance survey was limited to the southern section.

The magnetometry survey produced a large number of ferrous responses (e.g. M6) which are most likely modern in origin. There were also a number of strong positive and negative responses (M14, M16) in the vicinity of the field entrance to the SSW – these correspond to a high resistance anomaly (R6) and are likely to relate to modern interference resulting from the insertion of the gate and the stabilising of the ground around it. Similar anomalies are indicative of other areas of probable modern disturbance (M3, M7, M11), all located along the field boundaries to the north and east. The positive magnetic response produced by M10 may be archaeological in origin, perhaps indicating the presence of a ditch or large pit, however, its location - sandwiched between two areas of modern disturbance - may cast some doubt on its archaeological potential. This area was found to be very wet and boggy during the survey.

Three positive magnetic anomalies suggest the presence of pits, possibly containing burnt material (M5, M12, M13). The strength of the M12 response is highly suggestive of burning and may represent the location of a fire or hearth, which could be archaeological or more recent in origin.

A number of positive magnetic anomalies were found throughout the survey area (M4, M9, M8, M15, M17), although they do not appear to form part of a coherent feature or structure. M15 consists of a series of positive anomalies forming a rough linear arrangement which runs approximately north-south. It is inconclusive as to whether these are discrete features or whether they form part of a potential ditched feature. M17 is a negative magnetic anomaly which could be indicative of an embanked feature of archaeological origins, however, given its proximity to the field (and road) boundary, it is more likely that this relates to a modern construction.

The positive magnetic anomaly along the tree-lined boundary (M2) forms a curvilinear feature which appears to turn away from the field boundary. Given its location and morphology, this may constitute a ditched feature, possibly corresponding to the outer enclosure of the ecclesiastical site.

A large area (approx. 22m x 111m) of very low resistance (R2) corresponds with a very marshy area adjacent to the northern field boundary. Only one other low resistance anomaly is visible (R7), this is close to the south eastern boundary and was also quite wet underfoot during the survey.

Two high resistance anomalies are located close to the northern and eastern field boundaries (R1 and R8 respectively). R1 corresponds with the magnetic anomaly associated with the potential ditch feature (M2) and may represent a stone deposit within this part of the ditch. However, the earth resistance survey does not progress beyond this point and so its full extent cannot be determined. This potential

feature is quite close to the entranceway to the northern section of the field (i.e. the other side of the tree-lined field division) and may be linked with this.

Three high resistance anomalies are located within the approximate centre of the survey area (R3, R4, R5). R4 forms a linear feature running roughly north-south for approx. 14m, terminating in R5 which measures approx. 6m x 6m. Both anomalies are suggestive of sub-surface stone, perhaps relating to buried archaeological features. If this area is indeed within the footprint of the large outer enclosure of the ecclesiastical site, they may relate to the remains of walled and/or paved structures. R3 is situated approx. 7m to the north east of R4, closer to a number of magnetic anomalies, including the potential burning indicated by M5 and other ferrous responses. It is unclear whether R3 is an isolated feature (e.g. a naturally occurring boulder) or whether it is related to any of the surrounding anomalies, potentially forming part of an archaeological feature.

## **Discussion & Conclusion**

Without excavation and scientific dating, the nature of the anomalies and potential features cannot be determined with absolute certainty. Likewise, not all archaeological remains may have been picked up by the geophysical survey.

There is a lot of disturbed ground within the study area and this has significantly impacted the results, particularly in the northern section where any potential archaeological remains have been completely obscured. However, the positive magnetic feature (M2) identified close to the present field boundary is well-positioned to be part of the potential outer ecclesiastical enclosure. A section of the possible southern limits of the outer enclosure was discovered during the 2016 survey (Curran 2017), this is located approx. 100m to the south of the probable inner enclosure which was identified during the same survey. Assuming that the inner enclosure was in the approximate centre of the outer enclosure, the northern limits of the outer enclosure should be located approx. 100m to the north of the inner enclosure, i.e. roughly within the environs of the tree-lined division which separates the survey area. This is consistent with the siting of the curvilinear magnetic feature identified on the survey (M2), however, it was not reflected in the earth resistance survey. This area is quite wet and there are no other indications of this possible enclosure within the study area, thus this hypothesis cannot be determined without further investigations.

## **Acknowledgements**

I would like to especially thank Seán Murray for again facilitating the research on his land and for all of the local information he provided. I am indebted to TII and Leitrim County Council for the use of the lidar survey dataset in my research. Many thanks to both the Discovery Programme and UCD School of Archaeology for the use of their equipment and their continued support. Huge thanks (yet again) to Olivia for her help with the survey.

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Accessed 06/02/2017, 10:14am

Logainm.ie

<https://www.logainm.ie/en/42885>

Accessed 21/07/2017, 12:15pm

Teagasc

<http://gis.teagasc.ie/soils/soilguide.php>

Accessed 06/02/2017, 11:58am



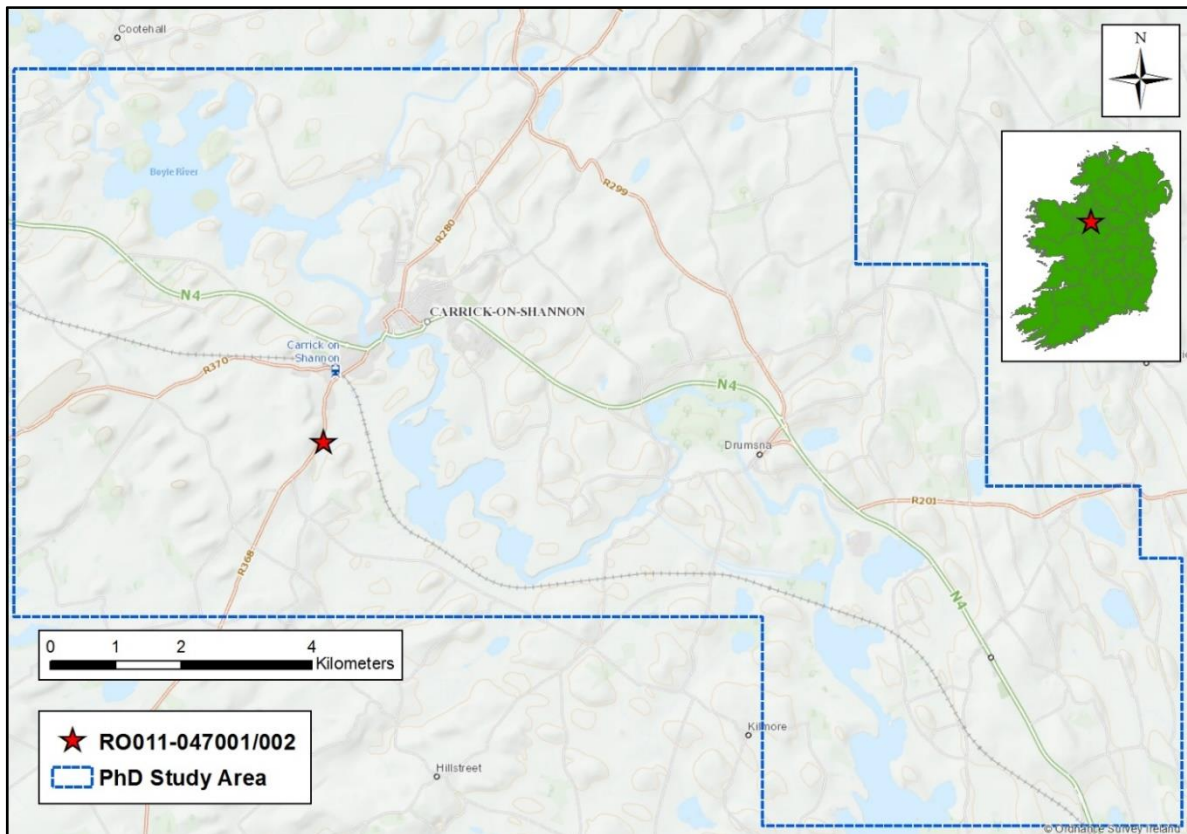


Figure 1: Survey Location (with PhD Research area in blue)

(source: OSi MapGenie, with additions)



Figure 2: Survey Extent on satellite image

(source: OSi MapGenie, with additions)



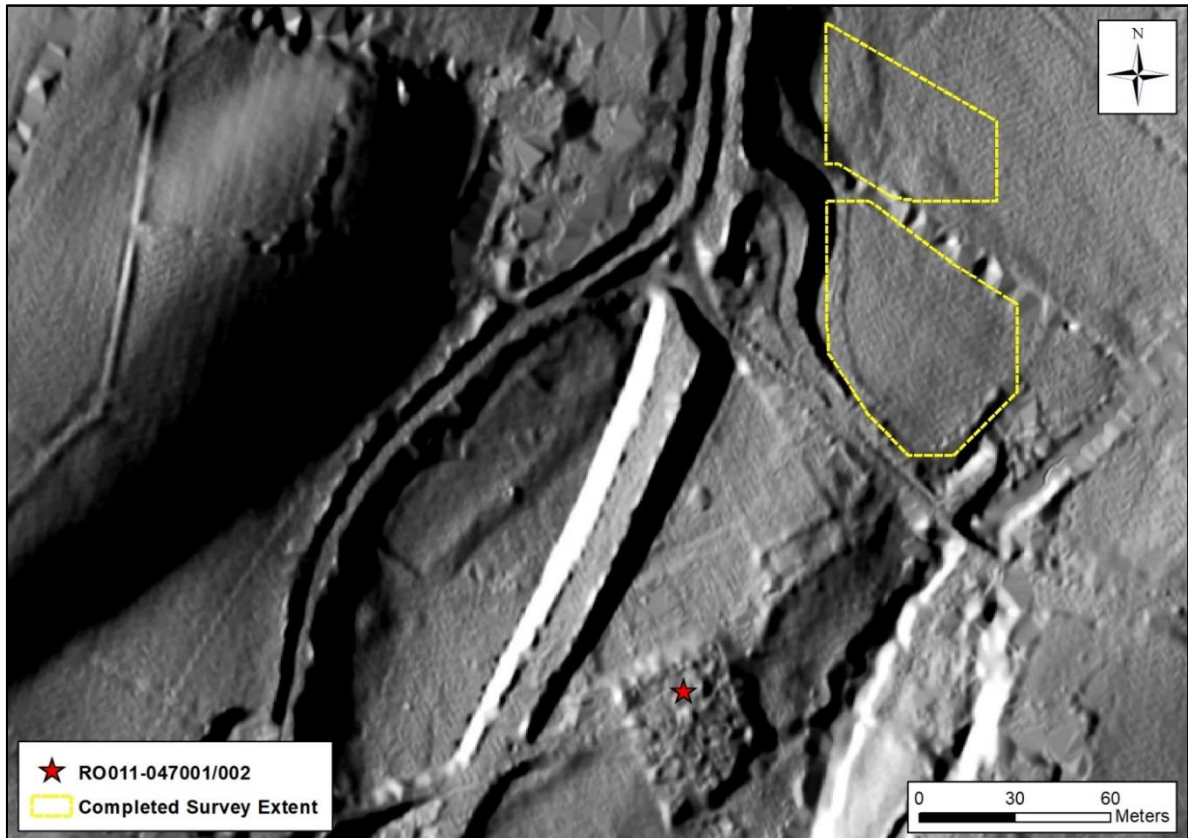


Figure 3: Lidar hillshaded image of RO011-047001/002 and 17R0159 survey area



Figure 4: Aerial image of the survey area with disturbance during the R368 re-alignment  
(source: OSi Geohive Map)



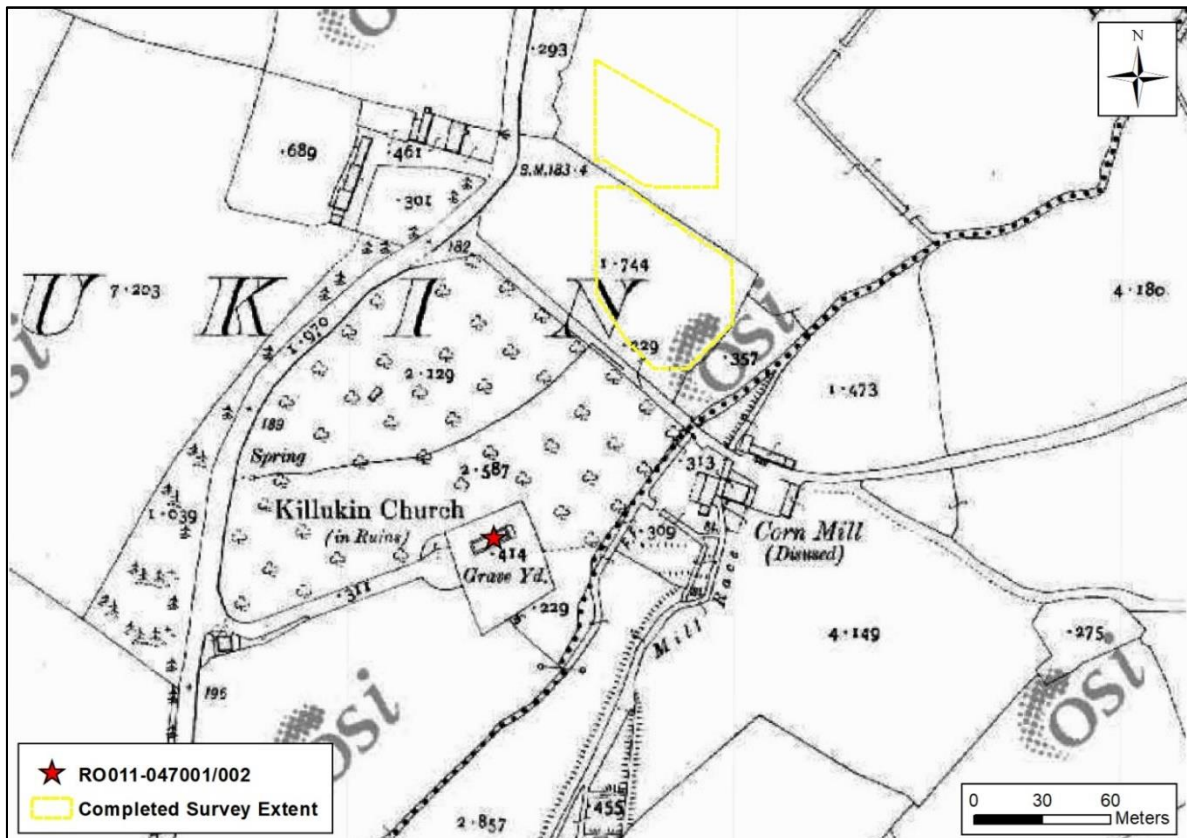


Figure 5: 25inch Map showing the 2017 survey area (source: OSi MapGenie, with additions)

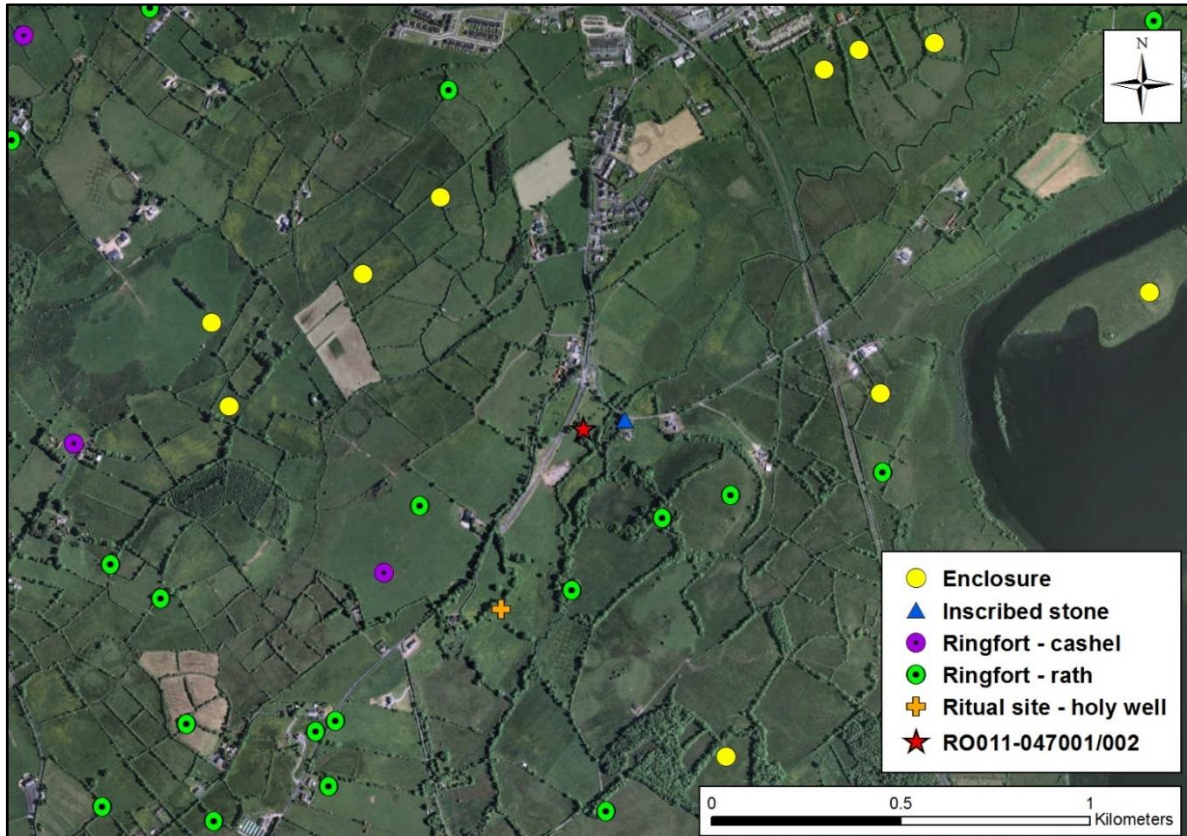


Figure 6: RO011-047001/002 and environs on satellite image (source: OSi MapGenie, with additions)

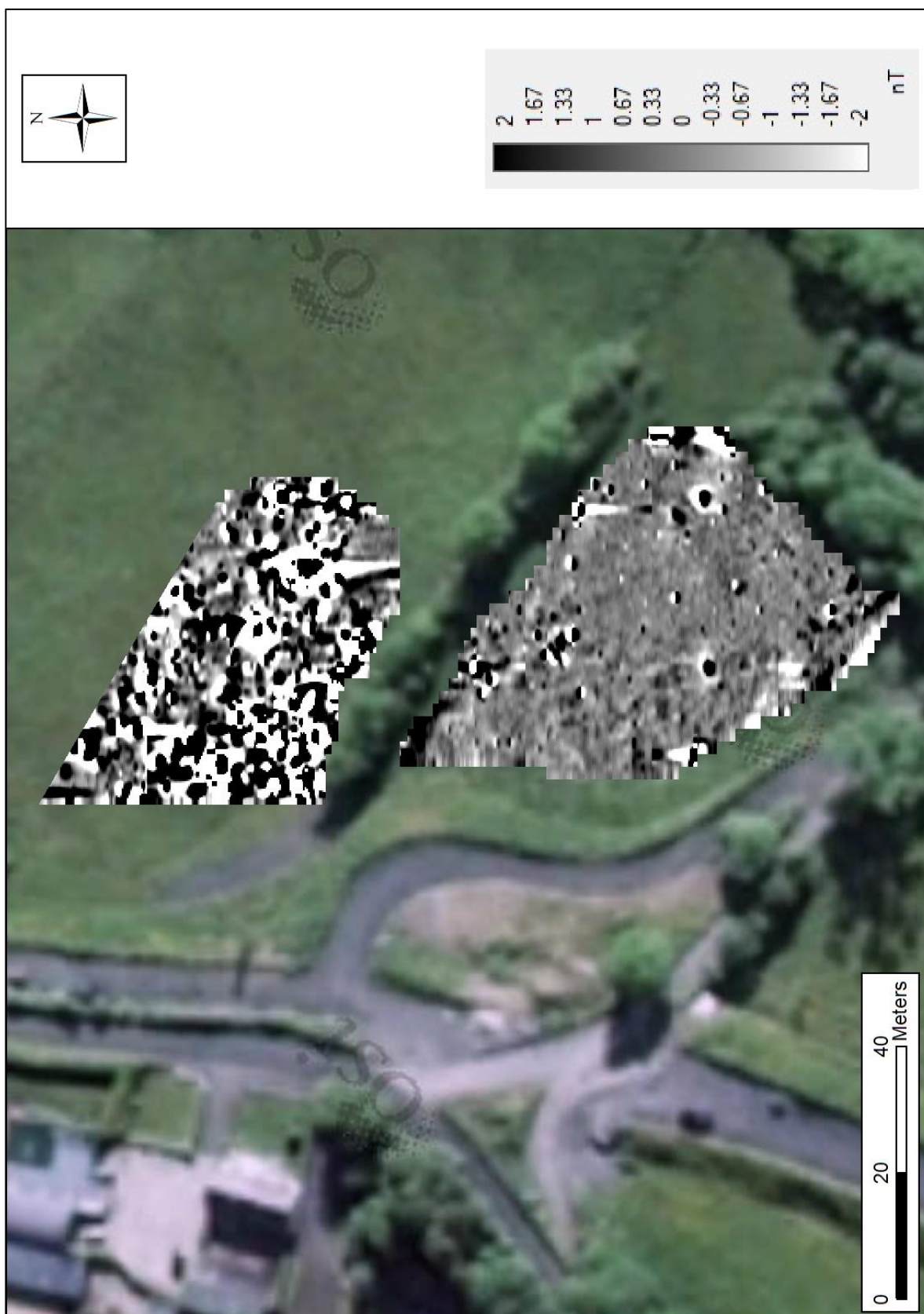


Figure 7: Greyscale image of magnetometry results overlain on satellite image

(source: OSi MapGenie, with additions)



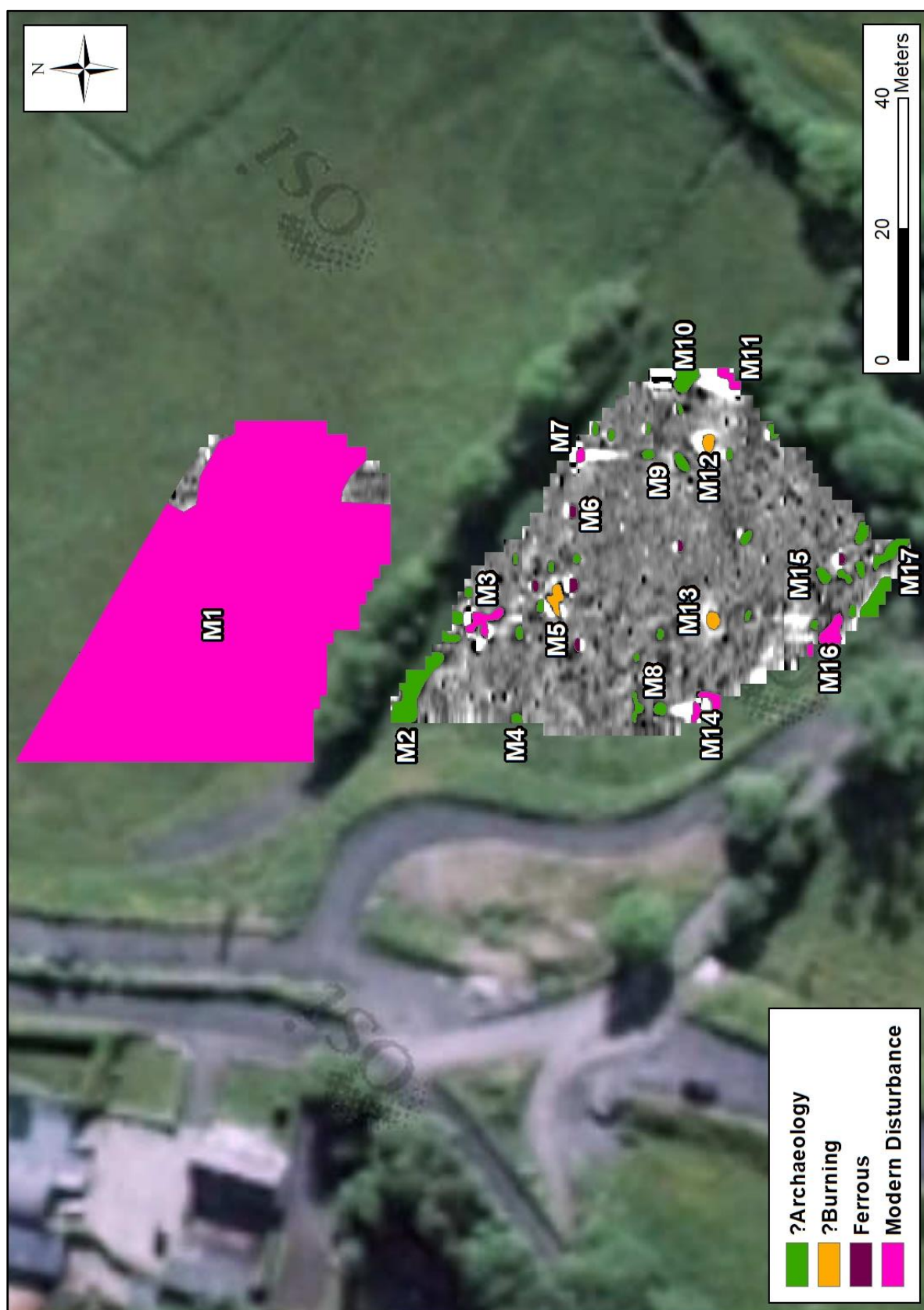
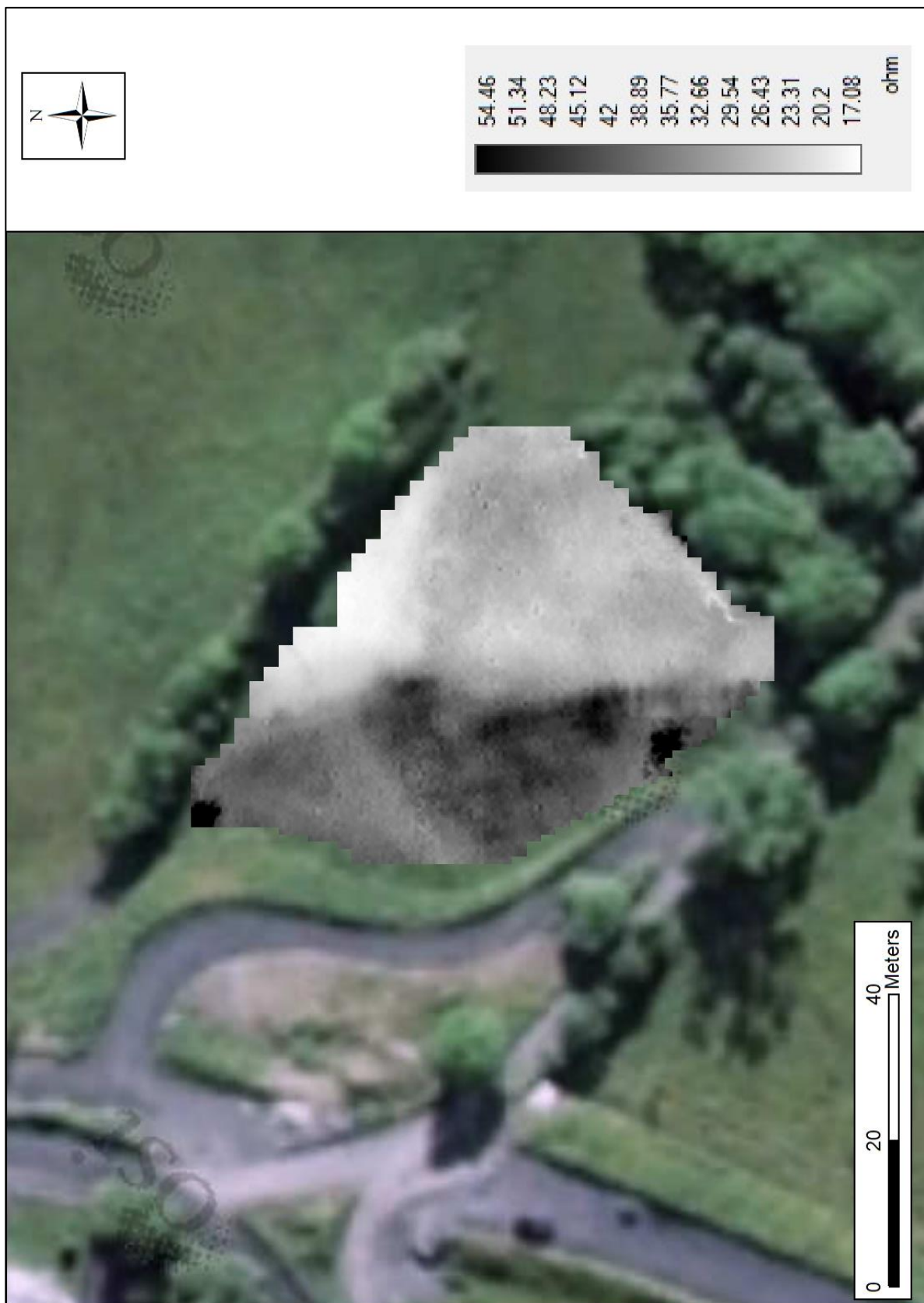


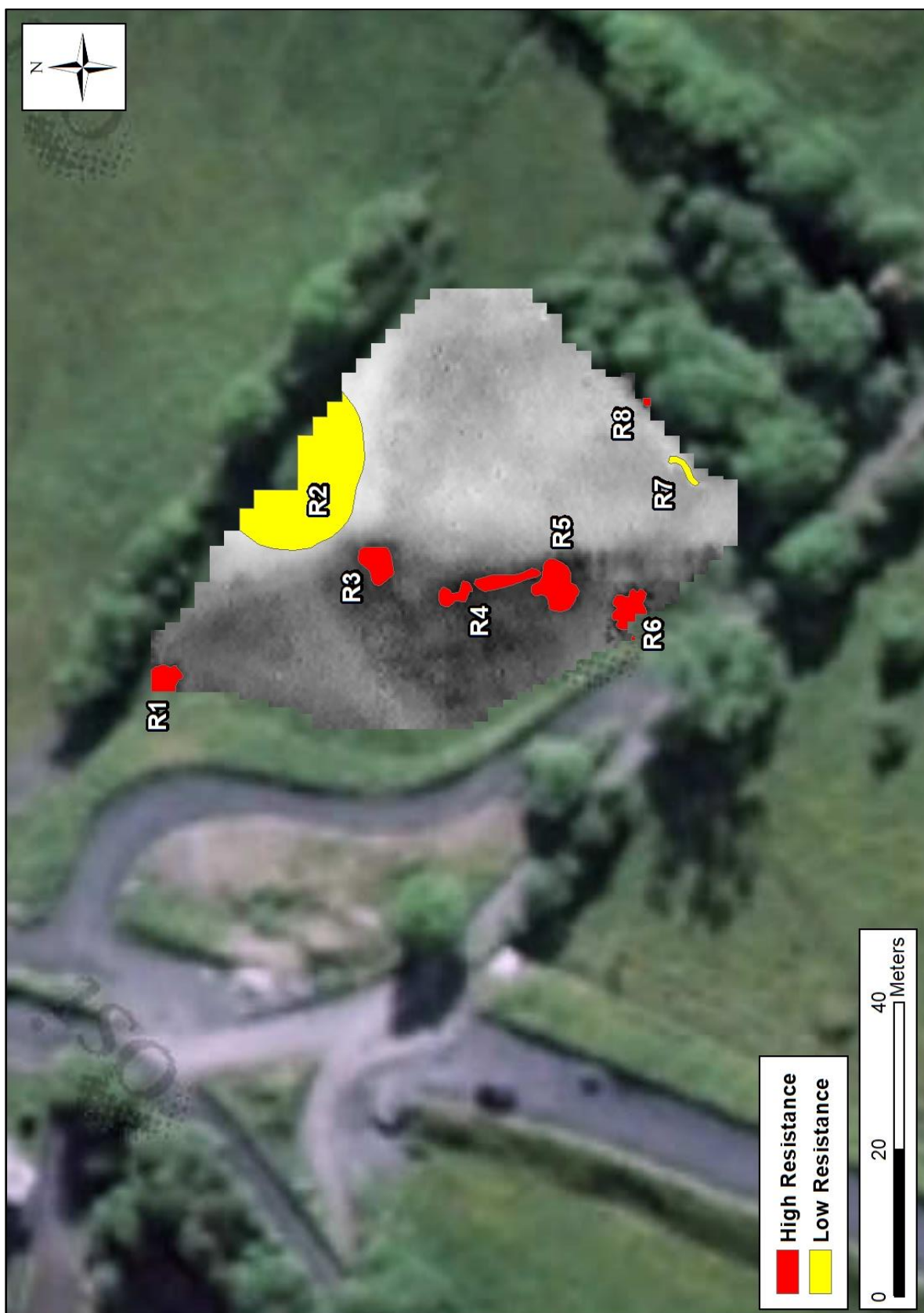
Figure 8: Greyscale image with digitised magnetic anomalies

(source: OSi MapGenie, with additions)





**Figure 9: Greyscale image of earth resistance results overlain on satellite image**  
(source: OSi MapGenie, with additions)



**Figure 10: Greyscale image with digitised earth resistance anomalies**  
*(source: OSi MapGenie, with additions)*

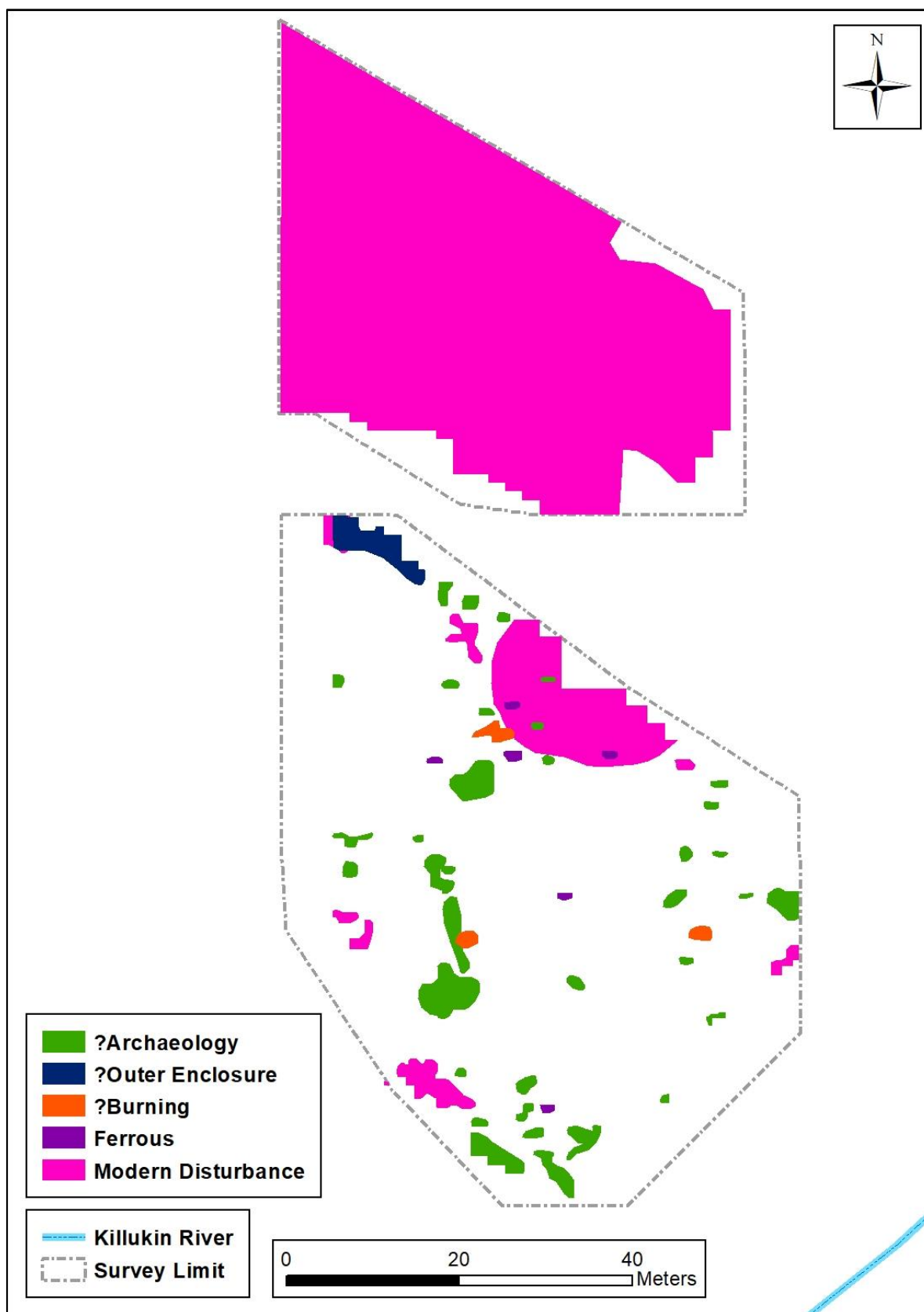


Figure 11: Earth Resistance & Magnetometry Results – Interpretative Plan

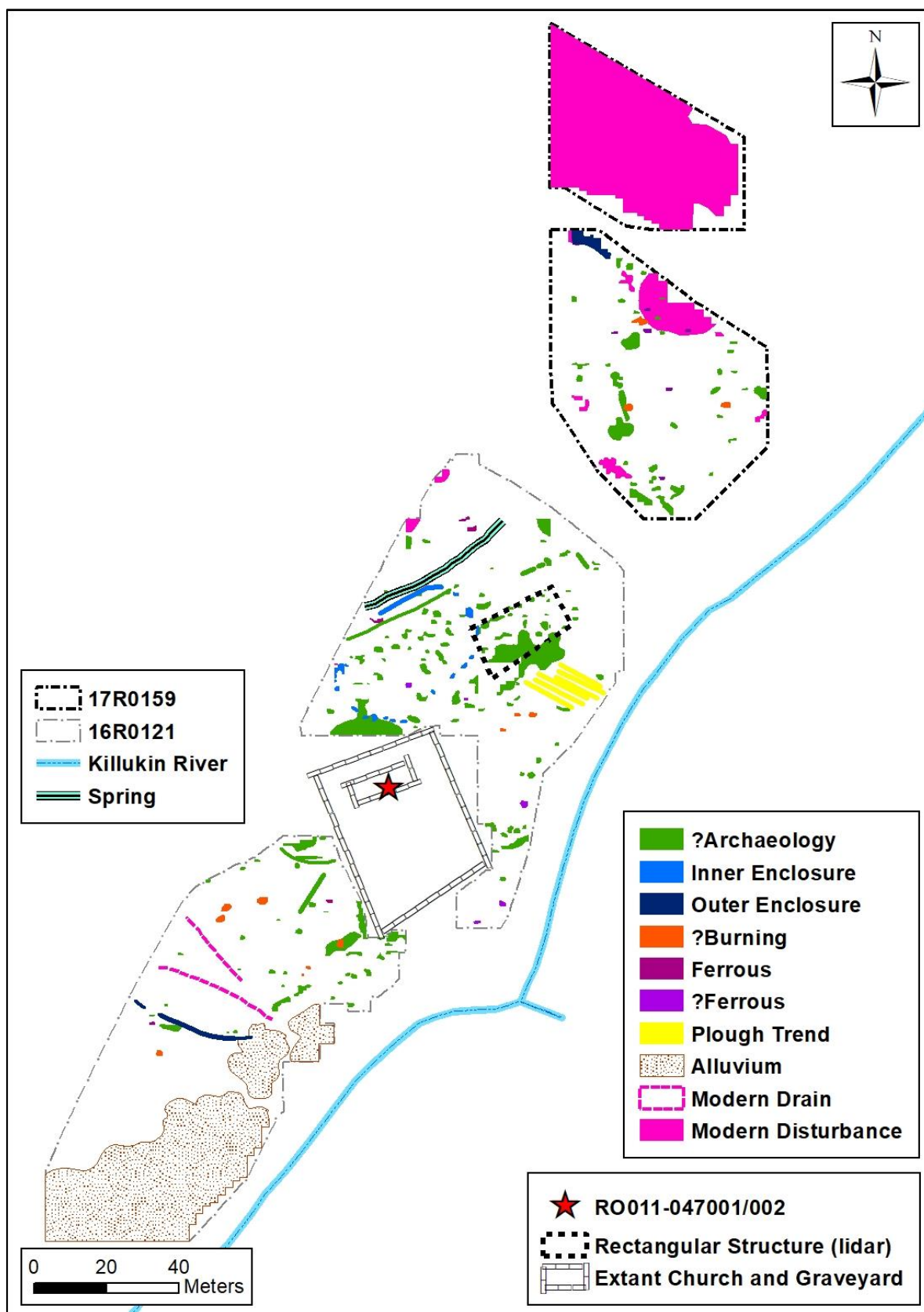


Figure 12: 17R0159 & 16R0121 Combined Interpretative Plan  
(magnetometry & earth resistance)





**Plate 1: The southern portion of the study area** *(facing north east)*

*(Photo: S. Curran)*



**Plate 2: The northern portion of the study area** *(facing south east)*

*(Photo: S. Curran)*





**Plate 3: The tree-lined field division** (*facing east*)

(*Photo: S. Curran*)



**Plate 4: Magnetometry survey in progress in the northern section**

(*Photo: O. O'Rourke*)





**Plate 5: The Church Remains (RO011-047001)** (*facing north*)

(*Photo: S. Curran*)

# Geophysical Survey Report

**Site:** *Tumna, Co. Roscommon*

**RMP:** RO007-087001/002/003/004/005

**ITM:** 591895, 800906

**Licence:** **15R0081**



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## Summary

This report details the results of geophysical survey undertaken at the ecclesiastical site of Tumna, Co. Roscommon (Plate 1). The site has several recorded components which appear to date to different periods of use: two churches, a graveyard, an ecclesiastical enclosure, and a shrine (RMP: RO007-087001 / 005 / 002 / 003 / 004 respectively). The survey, which consisted of magnetic gradiometry and earth resistance, targeted the ecclesiastical enclosure and the area surrounding the extant churches and graveyard. The survey has identified an ecclesiastical enclosure (no longer visible on the ground) and several sub-rectangular structures which may relate to further phases of ecclesiastical activity at the site.

## Survey Details

**Survey Licence Number:** 15R0081 (*ext. 2016*)

**Survey Dates:** July / August 2015; May / June 2016

**Survey Team:** Susan Curran, Peter Dodd, Paul Codd, Johann Farrelly, Olivia O'Rourke, Karen Dempsey

**Planning Reference No.:** N/A

**Townland:** Tumna

**County:** Roscommon

**Barony:** Boyle

**RMP No.:** RO007-087001 / 002 / 003 / 004 / 005

**National Grid Reference:**

**IG:** 191942, 300893 / **ITM:** 591895, 800906

**Geology:** Croghan Limestone Formation: Dark cherty limestone, shale<sup>1</sup>

**Quaternary Sediments:** Till derived from limestones<sup>2</sup>

**Soils:** Fine loamy drift with siliceous stones<sup>3</sup>

**Survey Type (1):** Fluxgate Gradiometer **Instrument:** Bartington Grad 601-2

**Sample Interval:** 0.25m **Traverse Interval:** 0.5m

**Grid Size:** 20m x 20m **Method:** Parallel Traverse

**Area Surveyed:** approx. 1.7 hectares **Survey Direction:** North

**Survey Type (2):** Earth Resistance **Instrument:** Geoscan RM85 Resistance Meter

**Sample Interval:** 0.5m **Traverse Interval:** 0.5m

**Array:** Single / Parallel Twin **Method:** ZigZag Traverse

**Grid Size:** 20m x 20m **Survey Direction:** East

**Area Surveyed:** approx. 0.75 hectares

**Licence Holder:** Susan Curran

**Report Author:** Susan Curran

<sup>1</sup> www.gsi.ie – Bedrock Geology

<sup>2</sup> www.gsi.ie – Quaternary Sediments and Geomorphology mapviewer

<sup>3</sup> www.teagasc.ie – Soils Guide

# Contents

Summary & Survey Details.....	2
List of Figures.....	3
List of Plates.....	4
Project Background.....	5
Site Description.....	5
Survey Objectives.....	8
Methodology.....	8
The Results – Description and Interpretation.....	8
Discussion & Conclusion.....	12
Acknowledgements.....	12
References.....	13

## List of Figures

Figure 1: Survey Location.....	15
Figure 2: The Tumna ‘peninsula’.....	15
Figure 3: Survey Extent ( <i>licensed and completed</i> ).....	16
Figure 4: Lidar Hillshaded Image of Tumna.....	16
Figure 5: Lidar Standard Deviation Model of Tumna.....	17
Figure 6: Lidar Local Relief Model of Tumna.....	17
Figure 7: Recorded Monuments at Tumna.....	18
Figure 8: RO007-087--- and Environs.....	18
Figure 9: Earth Resistance Results.....	19
Figure 10: Earth Resistance Anomalies ( <i>digitised</i> ).....	20
Figure 11: Magnetometry Results.....	21
Figure 12: Magnetometry Anomalies ( <i>digitised</i> ).....	22
Figure 13: Lidar Anomalies ( <i>digitised</i> ).....	23
Figure 14: Combined Interpretative Plan.....	24
Figure 15: The Principal Features – amalgamation of the three survey techniques.....	25



## List of Plates

Cover:	Tumna and the Boyle River / Lough Eidin	
Plate 1:	Tumna – facing upslope.....	26
Plate 2:	The ‘island’ at Tumna.....	26
Plate 3:	Church remains at Tumna.....	27
Plate 4:	Interior of RO007-087001.....	27
Plate 5:	Tumna Graveyard.....	28
Plate 6:	The Saint’s Shrine.....	28
Plate 7:	Stone Altar within RO007-087005.....	29
Plate 8:	The Spring / Well.....	29
Plate 9:	The Tumna Gold Balls.....	30
Plate 10:	The wall in-situ.....	30
Plate 11:	Tumna from the air ( <i>drone footage</i> ).....	31

## Project Background

The principal focus of the geophysical survey was the ecclesiastical enclosure (RO007-087003) and the area surrounding the extant churches and graveyard (Figures 1 & 2). The survey area incorporated the land within and surrounding the current graveyard, from approximately mid-slope south of the recorded monuments to the 'island' on the north (Figure 3). Although the enclosure was identified by Wakeman in 1887 (107), it is no longer visible on the ground; however, part of it was re-discovered over the course of lidar survey analysis undertaken in 2012<sup>4</sup> (Curran 2012; Curran 2013, 100). The lidar survey also hinted at the remains of other buried structures in the area immediately surrounding the present graveyard (Figures 4-6). It has been suggested that a roughly circular 'island' to the north of the graveyard - now connected by a makeshift footbridge - is a crannóg (Keenehan 2006, 119), although it is not recorded on the RMP (Plate 2).

The survey - comprising magnetic gradiometry and earth resistance - forms part of a PhD research project (funded by the Irish Research Council) which explores early medieval settlement in three case study areas in Ireland. The first of these case studies consists of a 140km<sup>2</sup> area of counties Leitrim and Roscommon, straddling the River Shannon and situated around Carrick-on-Shannon and environs. The research project utilises lidar and other remote sensing techniques to explore early medieval settlement patterns and the inter-relationship between associated monuments and status in early medieval Ireland.

## Site Description

The site is located in the townland of Tumna which is situated within the Civil Parish of the same name and the Barony of Boyle. The townland is bounded on three sides by water as it forms a small headland, jutting out into the confluence of the River Shannon and the Boyle River which then flows into the waters of Lough Eidin / Drumharlow Lake immediately to the west. At certain times of the year in very wet weather, the whole drumlin can be surrounded by water, effectively becoming an island (C. Kelleher pers. comm.).

The ecclesiastical site is situated at the base of the north-facing slope of a drumlin, approx. 75m from the river bank. There is marshy ground to the W, SW & N of the ecclesiastical remains and there is a sharp drop to the floodplains of the river to the NW, a stone wall is in place here in one area. According to local sources, there was a fording point here in the past and there were stepping stones to facilitate the river crossing (C. Kelleher pers. comm.). However, the stones were removed in the mid-19<sup>th</sup> century when the River Shannon was deepened to enable steamers to access Carrick-on-Shannon (Keenehan et al. 2006, 118). Although according to local sources, many boats still scrape against stones under the water at a certain point when the water levels are low.

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<sup>4</sup> The lidar survey was flown in 2010 in advance of the Carrick-on-Shannon to Dromod roadscheme; it was commissioned by the National Roads Authority (now TII) and Leitrim County Council and was flown and processed by Ordnance Survey Ireland

The site comprises five recorded monuments (Figure 7):

1) RO007-087001: Church (Plates 3 & 4)

This is the larger of the two churches, measuring approx. 13.5m x 6.96m (Moore 2010) and is possibly late medieval in date (O'Connor 1995). The walls survive up to 3m in places but have been reduced to rubble for the most part.

2) RO007-087002: Graveyard (Plate 5)

The graveyard is sub-rectangular in shape and measures approx. 35m E-W and 22.5m E-W (Moore 2010). It is defined by a stone wall which is collapsed and/or unstable in places; the two churches and saint's tomb are contained within it. There are hundreds of people buried within the graveyard (N. Kelleher pers. comm.) with small uninscribed stones marking some of them. The last official burial was interred in the mid-1940s (ibid).

3) RO007-087003: Ecclesiastical Enclosure

The enclosure was identified by Wakeman in 1887 (107) as a "circular wall composed of earth and stones, and now only just traceable". More than a century later, the enclosure is no longer visible on the ground, however, sections of it can be traced on the lidar surface (see red arrow on Figure 4). It appears to be oval in shape, oriented approximately E-W and encompassing the graveyard and other recorded monuments at the site.

4) RO007-087004: Shrine (Plate 6)

The reputed tomb of St. Egidius is located within the graveyard and is just east of the larger church RO007-087001 (Moore 2010). It is a low altar-like structure comprising two flat sidestones which support a recumbent limestone slab (ibid). The sidestone on the eastern side is broken in two. The shrine is oriented approximately N-S and measures approx. 1.5m x 0.7m. Bone fragments are visible within the tomb. There are no visible inscriptions or markings on the slabs, although the surface of the upper slab is topped with 'cursing' stones.

5) RO007-087005: Church (Plate 3)

The smaller of the two churches is located approx. 1m inside the southern wall of the graveyard and approx. 1.5m south of RO007-087001. This church is in relatively good condition and the walls are largely intact. It measures approx. 4m E-W x 2.75m N-S. According to the RMP, the church is most likely later than RO007-087001, possibly 18<sup>th</sup> century in date (O'Connor 1995). A stone altar is in place against the eastern wall (Plate 7) – this was originally classified as a separate monument (RO007-087006) but has now been removed from the RMP (redundant record) as this classification no longer exists (Moore 2010). Given its architecture, the presence of the stone altar, and its alignment with the larger adjacent building, this church may actually be earlier in date than the 18<sup>th</sup> century (Prof. T. O'Keeffe pers. comm.).

A spring (Plate 8) is located approx. 70m to the west of the graveyard and is marked on early cartographic sources. It is currently surrounded by a fence, trees and overgrown vegetation. This is not known as a holy well today, but its proximity to the ecclesiastical site means that it may have served as an important fresh water source for the ecclesiastical community.

There are a number of possible derivations of 'Tumna' with the most likely being 'Tuaim Mná' which translates as 'Tomb/Tumulus of the Woman' (Logainm.ie), a reference to the patron saint of the site – Saint Eidin (also known as Etain or Éadaoin) – after whom the lake is named (Keenehan et al. 2006, 117). St. Eidin is said to be buried within the shrine (RMP: RO007-087004) (Herity 2010, 77; Wakeman 1887, 108) and her feast day continues to be celebrated on 5<sup>th</sup> July each year (Ó Riain 2011, 279). Another possible translation is 'Tuaim an Aith' meaning 'Noise of the Ford' (Keenehan et al. 2006, 117) which could refer to the fording point mentioned above.

There are a number of recorded monuments within the vicinity (Figure 8), the closest - a circular embanked enclosure which is classified as an 'earthwork' (RO007-086) – lying approx. 230m to the south west on the banks of Lough Eidin. A second enclosure – classified as 'Ringfort-Rath' (RO007-088) - is situated approx. 450m to the south, close to the drumlin summit. Inishatirra Island lies approx. 1km to the NW of the site and is reputed to be a residence of the Mac Dermot kings of Moylurg in the 13<sup>th</sup> and 14<sup>th</sup> century (O'Connor 1998, 114). The island is home to a number of monuments, including a moated site (RO007-084001), three enclosures (RO007-084002, RO007-084003, RO007-104) and a possible house site (RO007-084004). A further nine enclosures and/or ringfort-raths are distributed in all directions within a 1km radius of the ecclesiastical site, both on the Tumna 'peninsula' and on the opposite banks in the townlands of Cleaheen and Laughil, Co. Roscommon.

The stunning 'Tumna gold balls' (Plate 9) were found within the townland of Tumna in 1834 by men digging potatoes (Cahill 2004, 99) and are currently on display in the National Museum of Ireland. It is unclear where exactly within the townland they were found, simply that they were "near the ruins of an old chapel and a fort, on the west banks of the Shannon" (Anon 1834, 144). The gold balls are thought to be part of a necklace and are Late Bronze Age in date (Cahill 2004, 102), thus indicating prehistoric activity in the area and constituting the earliest known evidence for human activity at the site.

Tumna is referenced in the Annals of Loch Cé in the year AD1249 as the priest Mulkieran O'Lenaghan died there on his way to Ardcarne (Hennessy 1871, 391-393) which lies approx. 5km to the west. There is a further documentary reference to the parish church at Tumna in AD1306 in the ecclesiastical taxation of Elphin where it is listed as 'Thuanna' (Sweetman & Handcock 1974, 224). There are references to a Dominican foundation at the site from the 13<sup>th</sup> century, although this may actually be Franciscan (Gwynn & Hadcock 1988, 275). Friars of the Third Order are listed as holding land here in AD1586, comprising a church, small cemetery and arable and pasture land (Archdall 1786, 623). A 21 year lease of the 'abbey' was granted to Richard Kendlemarch (Kyndelinshe) in AD1588 (ibid). There is a local tradition of a female order at Tumna (Keenehan et al. 2006, 119), although this is not referenced in the available documentary evidence and it is difficult to distinguish from a male/mixed establishment from an archaeological perspective.

No excavations are recorded in the immediate vicinity of Tumna, however, just over 1km to the south west in the townland of Cultyconeen, Co. Roscommon, two burnt mounds were discovered during monitoring of a road scheme (Licence 04E1374). They are recorded on the RMP as RO011-165001 and RO011-165002.

## Survey Objectives

This survey was undertaken as part of a wider research project investigating early medieval settlement in the Carrick-on-Shannon area. The survey aimed to investigate the ecclesiastical remains – in particular the enclosure - and their immediate environment in order to identify any subsurface remains (e.g. building foundations, hearths, field boundaries etc.) that may help to advance our understanding of its potential date and function. Multiple geophysical survey techniques (magnetic gradiometry and earth resistance) were employed to help establish the nature, extent and character of the site and its potential relationship with other early medieval monuments in the surrounding landscape.

## Methodology

- 1) An area of approx. 1.7 hectares – comprising RO007-087001 / 002 / 003 / 004 / 005 and their environs – was surveyed. Vegetation and ground conditions (e.g. rubble, marshy ground etc.) prevented survey in some areas.
- 2) The survey grid, comprising a series of 20mx20m grid panels, was located and tied into the Irish National Grid using a Trimble GPS in conjunction with a VRS Now correction service.
- 3) Magnetic Gradiometry was undertaken using a Bartington Grad DL601-2 dual sensor fluxgate gradiometer. Data were recorded using parallel traverses at a traverse interval of 0.5m and a sample interval of 0.25m (4 points per metre along each traverse). A total of 46 grids were surveyed using this technique
- 4) More limited earth resistance survey was undertaken using a Geoscan RM85 Resistance Meter. Data were recorded using zigzag traverses at a traverse interval of 0.5m and a sample interval of 0.5m. A total of 19 grids were surveyed using this technique.
- 5) All data were processed using Geoscan Research Geoplot version 3 software.
  - a. Earth Resistance Processing Steps: Despiking, Edge Match, Low Pass Filter, Interpolate Y/X
  - b. Magnetometry Processing Steps: Zero Mean Grid, Clip +/-3, Interpolate Y

## The Results – Description and Interpretation

The earth resistance and magnetometry surveys focused on the areas surrounding the extant remains, using the lidar survey data as a guide. A large number of anomalies were identified, the majority of which are likely to relate to the various phases of religious activity which took place at the site over a period spanning almost 1,000 years. Many of the features identified in the geophysical surveys also correspond to features visible on the lidar survey data. The survey results are presented separately in greyscale and with digitised anomalies (earth resistance – Figures 9 & 10; magnetometry – Figures 11 & 12). The



principal results are described below in conjunction with the lidar survey analysis (Figure 13) and with reference to a summary interpretative plan which combines the three techniques (Figure 14) and a simplified interpretative plan (Figure 15) with the principal structures labelled A - K.

**A:** One of the principal objectives of the geophysical survey at Tumna was to investigate the ecclesiastical enclosure which would be a strong indicator of its early medieval origins. Parts of the enclosure (RMP: RO007-087003) are visible as a raised, curved feature on the lidar survey data (L1, L2), curving around the upstanding remains from the SSW towards the riverbank. The earth resistance survey did not extend to the area where one would expect to locate the remains of the enclosure, however, the magnetometry results appear to have picked up the enclosure to the W and SW (including beyond the limits of the lidar survey). These positive magnetic anomalies (M20 and possibly M21) may represent the magnetised material of the enclosing bank itself or constitute evidence of a ditch associated with the bank. They appear to be a continuation of the enclosure as suggested by the lidar surface. From the northern limits of the lidar survey, the ground drops towards the river and becomes quite marshy in places. In the western field (NW corner of the survey), a stone wall/bank marks a drop of approx. 1m from the survey area to the river (Plate 10). It is possible that the northern limits of the ecclesiastical enclosure were demarcated by the river or that this surviving wall is located along the trajectory of the original enclosure.

**B:** A 'funnel-shaped' feature leads NNE from the spring/well. It is defined by two curvilinear positive magnetic anomalies (M19) approx. 7m apart and up to approx. 14m apart at the widest part. They also correspond to two raised lidar features (L11, L12) which are indicative of banks. The magnetic anomalies are almost exactly consistent with the position of the lidar features and the positive magnetic response suggests that the banks may be constructed of magnetised material. It is unclear where the opposite end of this feature leads to as it heads towards the present graveyard. It may be related to M18 which comprises a series of positive magnetic responses, although they do not appear to form a coherent feature. This feature (B) appears to respect the ecclesiastical enclosure and so it may be a contemporary development, possibly connecting the later church with the spring, as an access way, a driveway, or even as a means of channelling water to the church site. As the ground is quite marshy here, it is possible that the river in fact reached this point in the past and that the 'funnel' provided access to the river itself (similar to 'D' below).

**C:** A large sub-rectangular feature is evident in both the earth resistance (R15, R17, R18, R19 and possibly R20) and the magnetometry results (M12). There are also some suggestions of this structure on the lidar surface (L19, L20). The high resistance signature and appearance of the earth resistance anomalies suggest that they represent collapsed masonry, potentially that of a building or walled enclosure. This potential structure is visible on the W, N and E, but the southern boundary is not present. It may run beneath the present graveyard wall – there are high resistance anomalies along the inside of the northern graveyard wall (R21), although this may be the result of collapse from the present graveyard wall and church. However, given that the eastern side of this structure appears to extend from and follow

the same line as the present graveyard, it is possible that the original sub-rectangular comprised this whole area (including the graveyard), thereby measuring approx. 40m x 40m. Two linear features present the possibility of two potential W 'sides', which are approx. 4m apart (R19, R20). The more easterly of the two (R20) is very close to the present graveyard wall and follows its trajectory; it is probable that this high resistance feature is generated by rubble from this wall. It is also possible that they form a type of corridor feature, perhaps related to the large rectangular structure. The area within the structure is quite disturbed and contains both earth resistance and magnetic anomalies which may point to internal features and/or structures, however, they lack clarity and cannot be identified as distinct archaeological features. The earth resistance results show a possible entrance (R18) to this structure marked by a gap of approx. 2m in the NW corner where R17 appears to curve inwards. The fact that a similar magnetic signature (M17) is picked up on the other side of the modern field boundary could indicate that this structure extends even further west, possibly extending as far south as M18, although there is not definite evidence of this in the survey.

**D:** A 'funnel' feature similar in morphology to 'B' is located at the north of the study area, leading from 'C' northwards towards the river. These two curvilinear anomalies are visible on the magnetometry survey (M13) and on the lidar survey (L21, L22). They are approx. 8.5m apart at the narrowest point up to approx. 14m at the widest. As the ground at this points drops towards the river, it is possible that this structure provided direct access to the water or fulfilled a similar function to 'B' given their parallels. The earth resistance survey incorporates only part of this feature – where it meets 'C' – but it is visible as high resistance anomalies (R16). The high resistance and magnetic anomalies do not overlay each other, in fact the resistance anomalies are approx. 1m to the west of the corresponding features from the magnetic and lidar surveys. While they may form part of a single structure, it is possible that the features indicated by the magnetometry and earth resistance are separate structures, possibly relating to different phases of activity or the evolution of the site.

**E, F, G, H:** The eastern part of the survey area, adjoining the present graveyard and the sub-rectangular structure ('D' described above) is dominated by a number of apparently connected sub-rectangular features which are defined by positive magnetic anomalies (M4, M6, M8, M9, M10, M11) and high resistance readings (R7, R8, R9, R10, R14). Some of these features are also visible as raised features on the lidar surface (L15, L16, L17, L18, L24, L25, L26). The earth resistance anomalies suggest collapsed masonry and the lidar supports the presence of a built-up structure. The corresponding positive magnetic responses may represent the presence of magnetised material in the banks or possibly even the foundation trenches which hold the stone in place. Both structures 'E' and 'F' measure approx. 27m E-W while 'E' measures approx. 20m N-S and 'F' is slightly shorter at approx. 17m, although both may extend further north beyond the survey limits. Bordering the southern limits are two N-S oriented sub-rectangular structures (H & G). These are narrower than 'E' & 'F', measuring approx. 20m and 16m E-W respectively. Both are defined by positive magnetic anomalies and high resistance readings. There is a possible entrance gap on the eastern side of 'G' which measures approx. 1.6m. The presence of high resistance (R12, R13) and positive magnetic responses (M7) in the southern portion of 'G' suggest that this feature may be further subdivided. It is unclear whether these results

represent the remains of field boundaries or buildings and indeed they may be a combination of both, although the lack of ploughing or tillage evidence on either of the survey results somewhat negates against their interpretation as fields. The SE of 'G' has a rounded corner which protrudes from the structure, measuring approx. 1.5m in diameter. This lies adjacent to the possible entranceway (see 'I' below), possibly indicating that this feature at least may be a building rather than a field boundary.

**I:** A possible 'entrance' feature to the above provides access to the south, curving around 'G' to the SE and running westwards towards the present graveyard. This 2m wide linear feature is defined by positive magnetic responses (M5, M6) and high resistance readings (R6, R7), possibly indicating a wall.

**J:** The presence of a further sub-square feature is defined predominantly by positive magnetic responses (M3) with some interspersed high resistance readings (R6). It measures approx. 20m N-S by approx. 13m E-W, although it may extend further east beyond the survey area.

**K:** There are two relict field boundaries visible on the magnetometry results as positive anomalies (M2) and three such features are visible on the lidar surface (L3–L7). Only one such feature is visible on the earth resistance survey (R1 – corresponding to L5) as a low resistance anomaly (the survey limits did not extend as far as the other anomalies). The signatures suggest that these are ditched boundaries. However, the earth resistance also shows four isolated high resistance anomalies (R2) which follow the same trajectory as R1 and may be related, possibly as stone-lined pits or postholes which were put in place to hold a fence. There is evidence of ploughing in multiple directions on the magnetometry results (M1) which may indicate multiple phases of use for the fields and/or different crops, indeed records indicate that flax was grown in the area in the past (Keenehan 2006, 118).

**Other:** The magnetometry survey has identified a number of areas of possible burning, although they may not necessarily be contemporary with the churches. M22 is located along the line of the ecclesiastical enclosure and three other instances are located within the possible structures 'C' and 'H'. There are no corresponding high resistance anomalies which could be indicative of a stone-lined hearth and it is unclear whether they are contemporaneous with the structures that surround them. The highly magnetic anomalies within 'H' have been classified as possible burning due to the highly magnetic response. However, covering an area of approx. 6m x 7.5m, they may also constitute the remains of a house structure which contains highly magnetic refuse etc. M16 to the NW of the study area is circular in shape and potentially represents a kiln or pit containing burnt material, or again, the remains of a potential house structure. There is considerable magnetic disturbance just south of this anomaly which could be related to M16; however, this is located close to the trackway leading into the field so it is more likely to be a result of modern interference.

M14 produced a ferrous response, which, given its signature, is most likely indicative of the presence of near-surface ferrous metal.

The potential crannóg to the north of the graveyard produced only magnetic disturbance (M15) and no other anomalies. It is unlikely to be anything other than spoil which resulted from the widening of the river in the past.

The area immediately to the south of the present graveyard is quite disturbed and displays a number of positive and negative magnetic anomalies (M23). They may represent an extension of agricultural practices beyond the fields further upslope.

## **Discussion & Conclusion**

Without excavation and scientific dating, the nature of the enclosure and the other potential structures identified through the geophysical survey cannot be determined with absolute certainty, however, they do point to the existence of multiple phases of activity at the site. The identification of the enclosure location is extremely important as it is indicative of an early church foundation at the site. Sub-circular and oval enclosures such as these are synonymous with early ecclesiastical foundations and were used to demarcate sacred space (O'Sullivan et al. 2014, 145). Many churches had a single enclosure, while others had two or even three enclosures to define increasing degrees of sanctity (ibid. 145-146). The enclosure identified by Wakeman and visible from the survey results is likely to correspond to one of the outer enclosures, an inner enclosure would most likely be smaller. It is possible that the inner enclosure was replaced by the sub-rectangular structure (C – in conjunction with the extant graveyard) as the site developed and was altered, as was common with many monastic establishments which evolved over multiple periods (ibid. 148). It is not possible to speculate whether any of the other features are contemporaneous with the enclosure, however, the appearance and layout of the large sub-rectangular structure (C) and the adjoining structures (E, F, G, H) suggests that these structures are at least contemporaneous with one another and most likely relate to a later phase of activity at the site, e.g. the periods of use by the Dominicans and/or Friars of the Third Order. With the ecclesiastical site in use for almost 1,000 years – possibly continuously – it is probable that any potential earlier structures have been obscured or destroyed by later construction. Indeed, it is likely that at least some of the stone from earlier periods of use has been incorporated into later structures, even the present graveyard wall.

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Accessed 12/06/2017, 2:30pm

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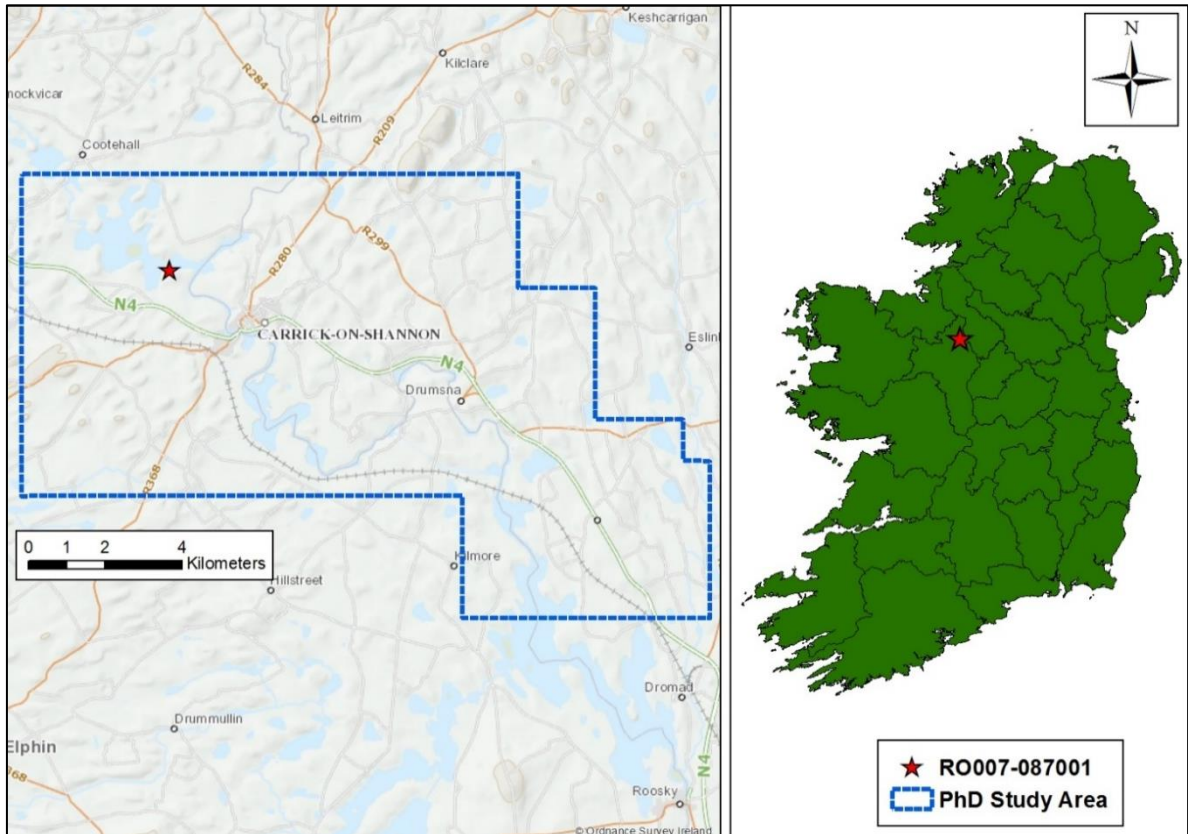


Figure 1: Survey Location

(source: OSi MapGenie, with additions)



Figure 2: The Tumna 'peninsula'

(source: OSi MapGenie, with additions)

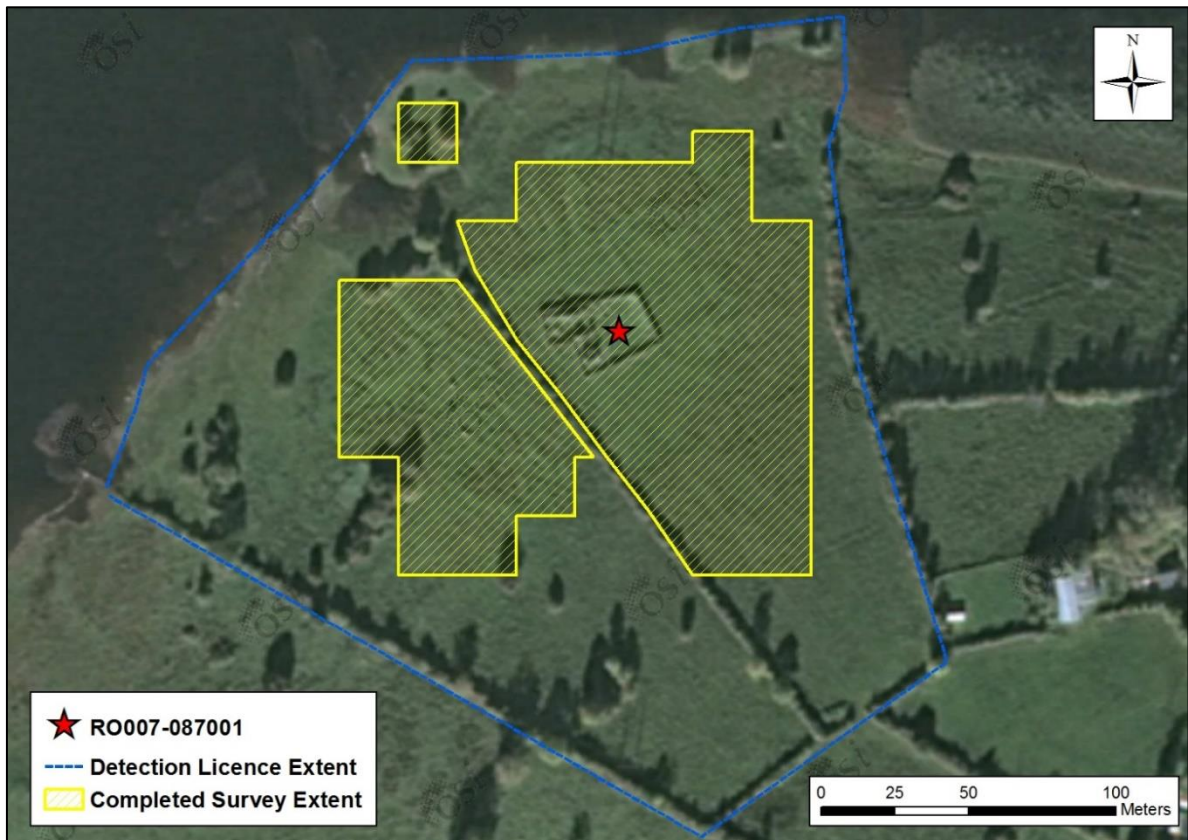


Figure 3: Survey Extent on satellite image

(source: OSi MapGenie, with additions)

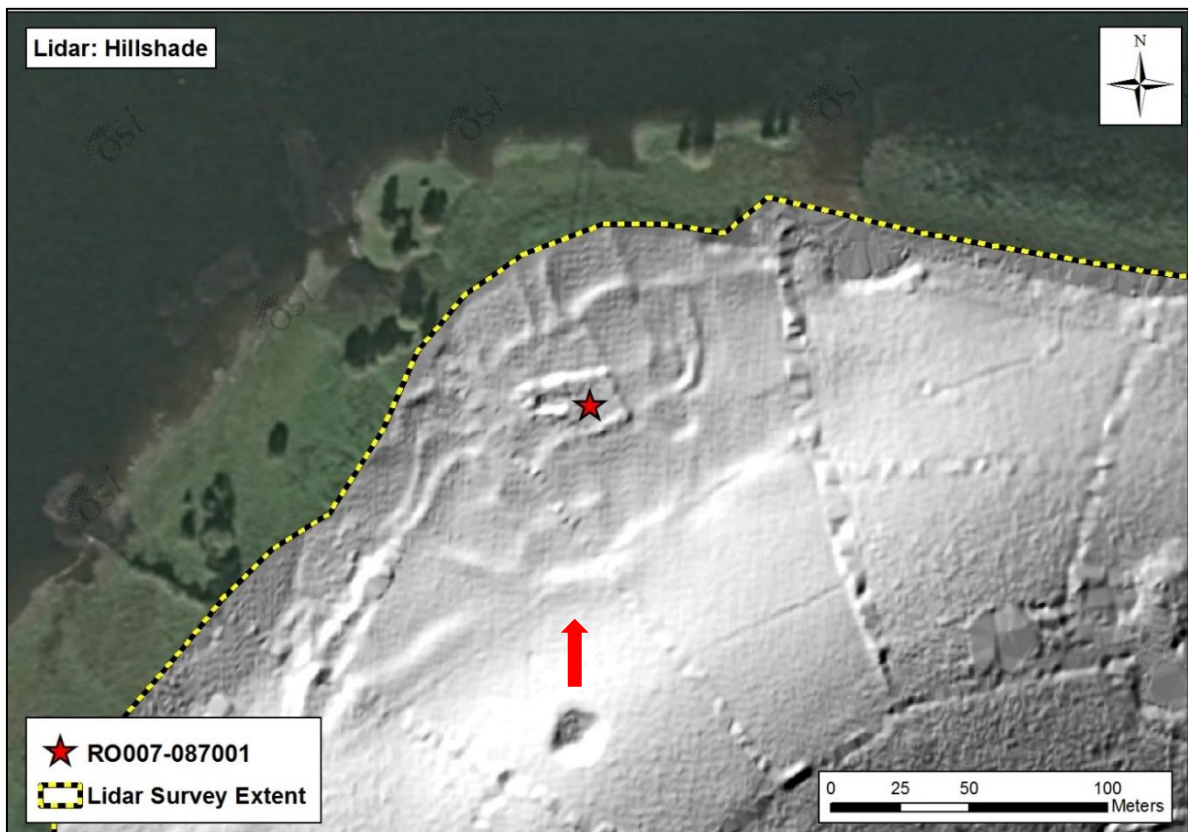


Figure 4: Lidar Hillshaded Image overlain on satellite image

(source: OSi MapGenie, with additions)



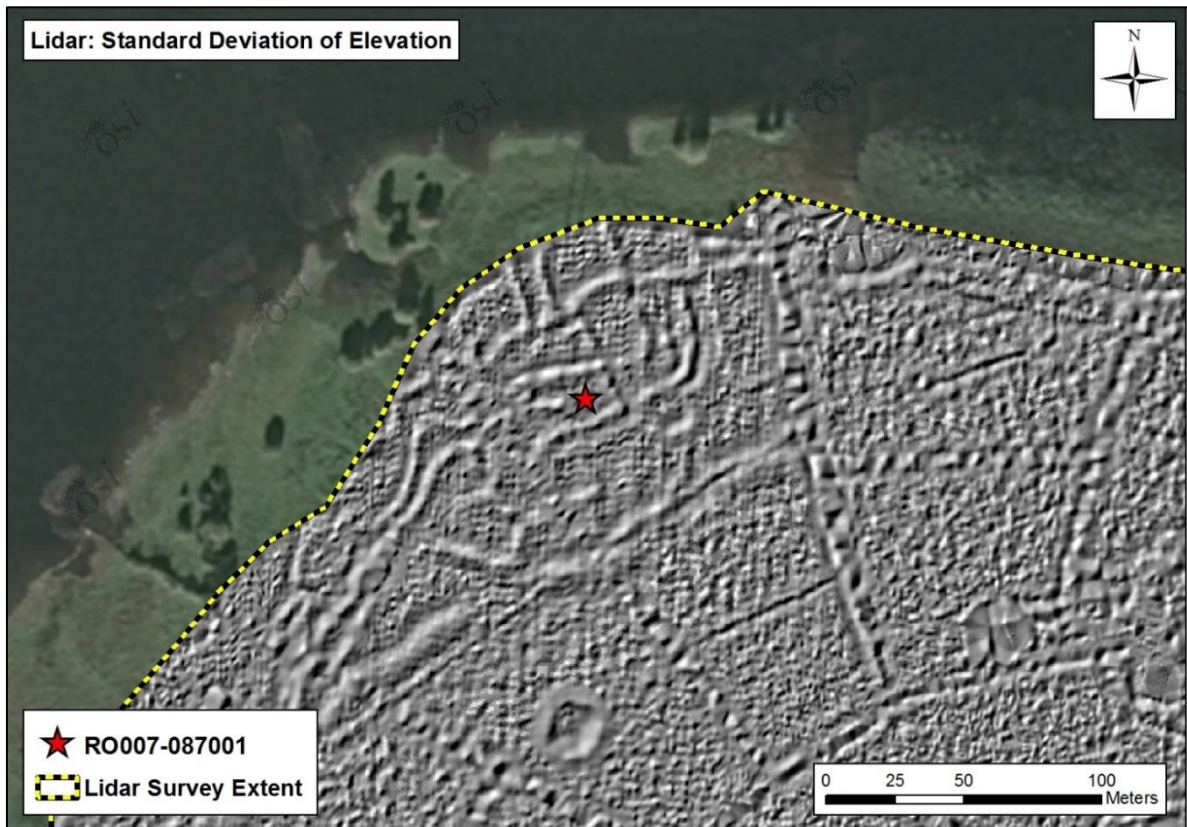


Figure 5: Lidar Standard Deviation Model overlain on satellite image  
(source: OSi MapGenie, with additions)

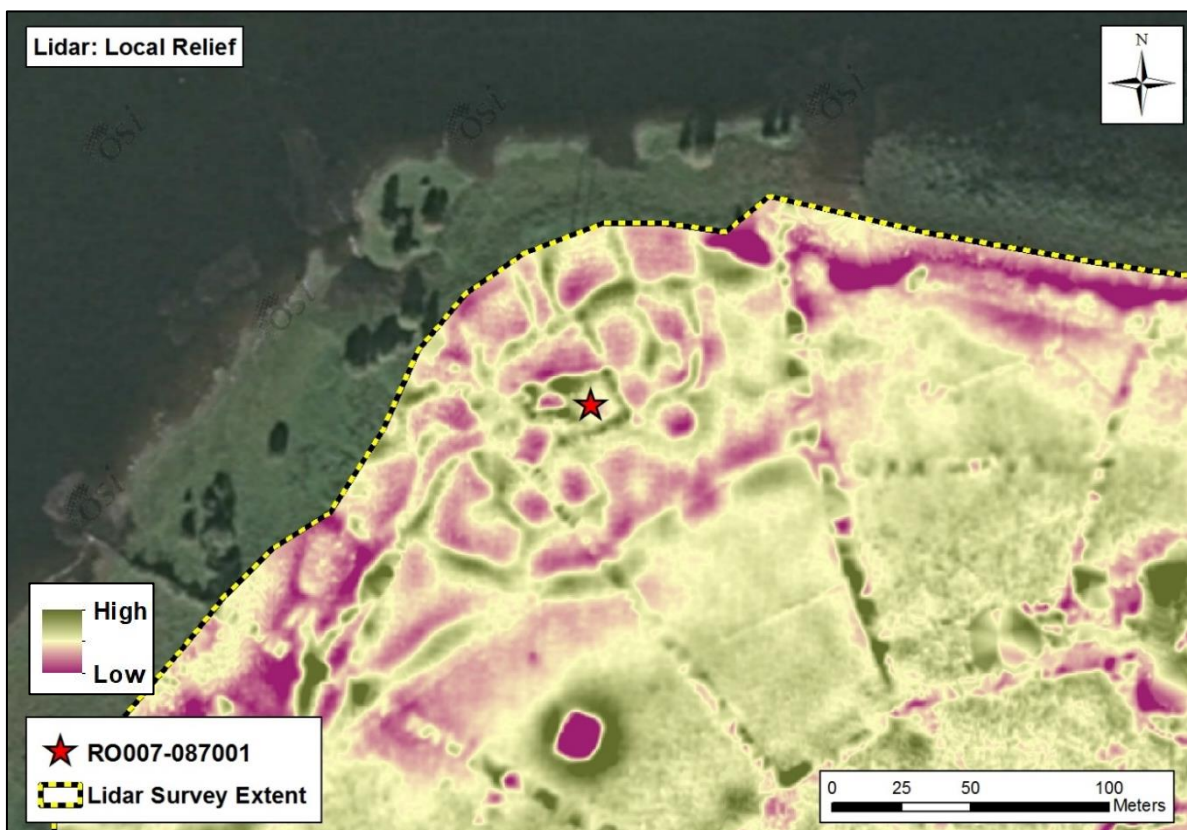


Figure 6: Lidar Local Relief Model overlain on satellite image  
(source: OSi MapGenie, with additions)





Figure 7: Tumna's Recorded Monuments (source: NMS Historic Environment Mapviewer, with additions)

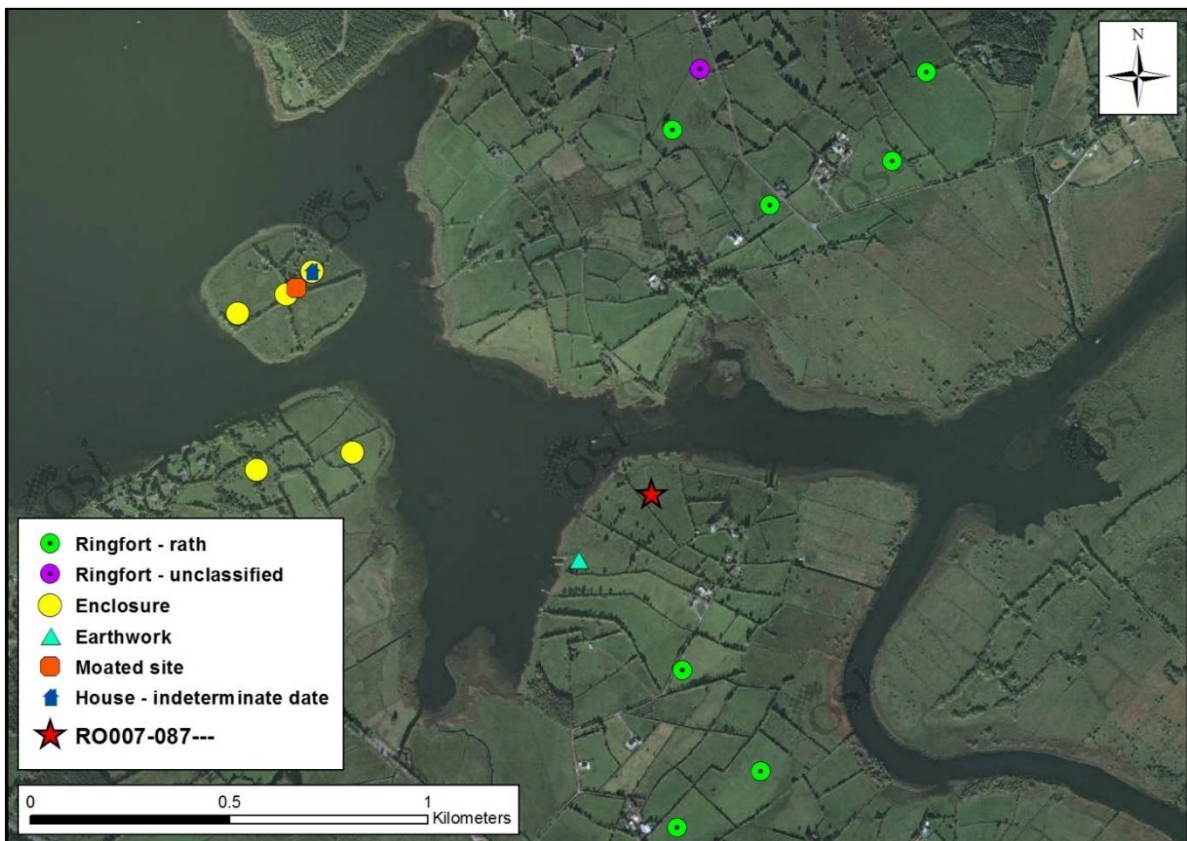


Figure 8: RO007-087--- and environs on satellite image

(source: OSi MapGenie, with additions)



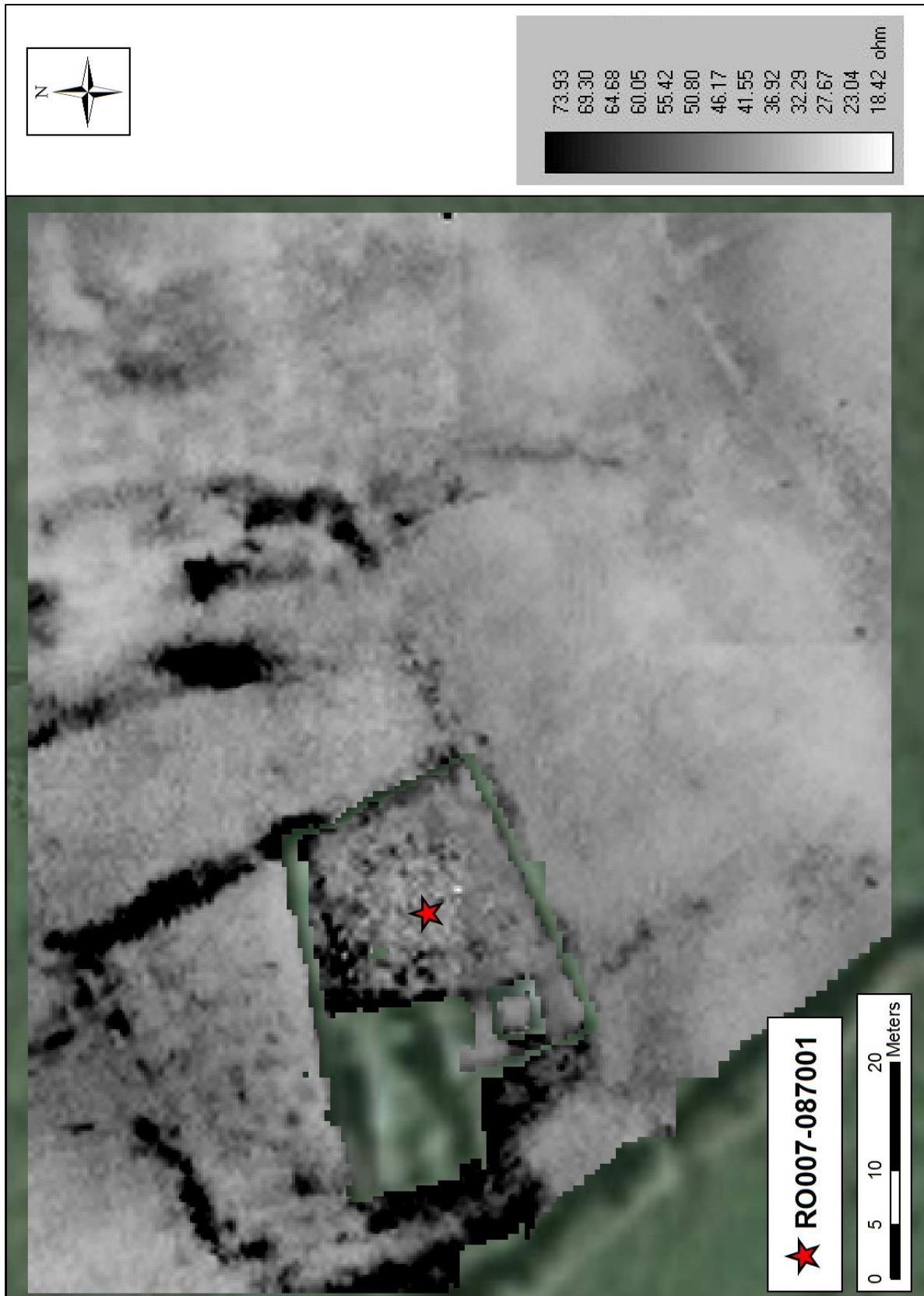


Figure 9: Greyscale image of earth resistance results overlain on satellite image  
(source: OSi MapGenie, with additions)

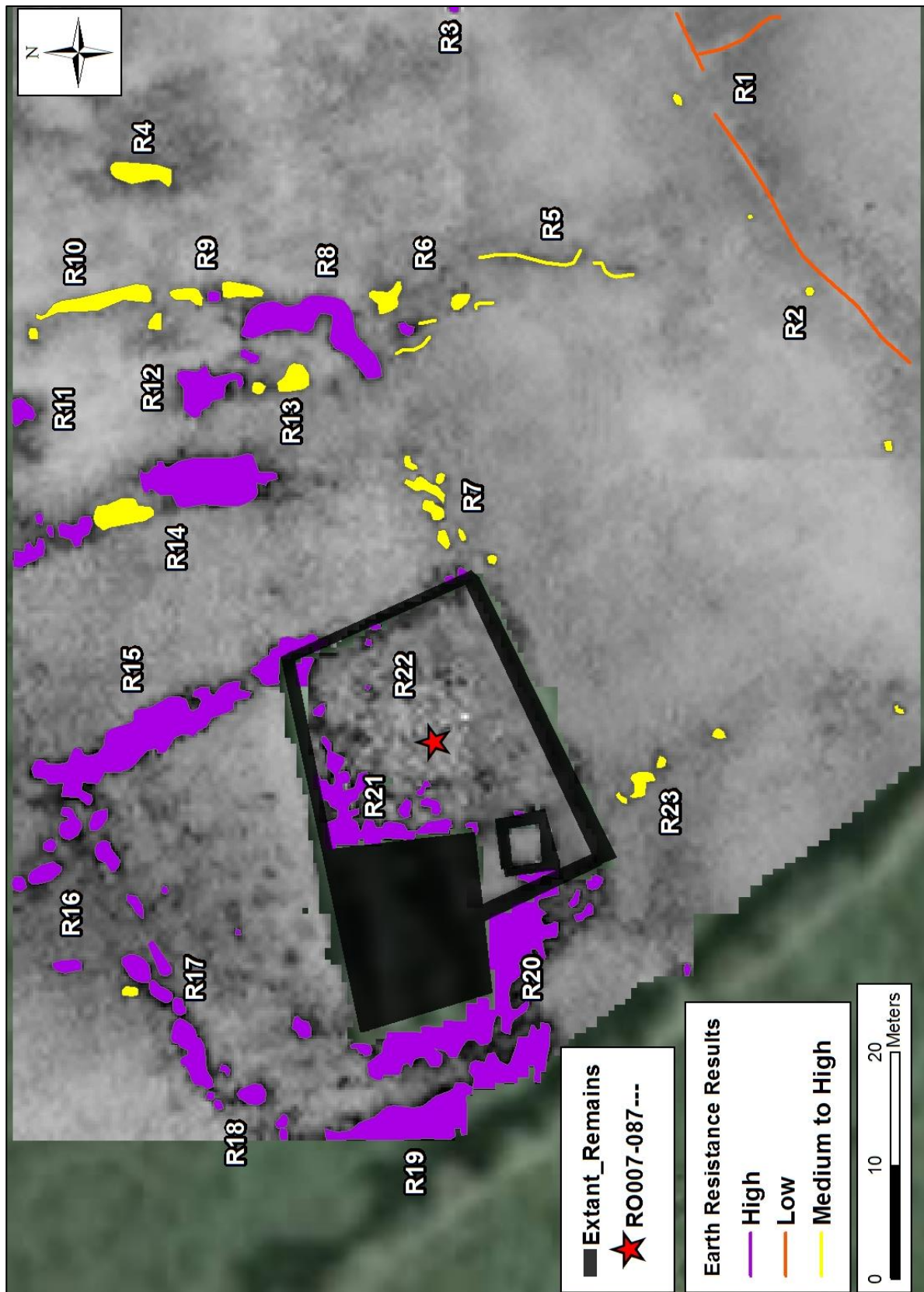


Figure 10: Greyscale image (earth resistance results) with digitised earth resistance anomalies  
(source: OSi MapGenie, with additions)





Figure 11: Greyscale image of magnetometry results overlain on satellite image  
 (source: OSi MapGenie, with additions)

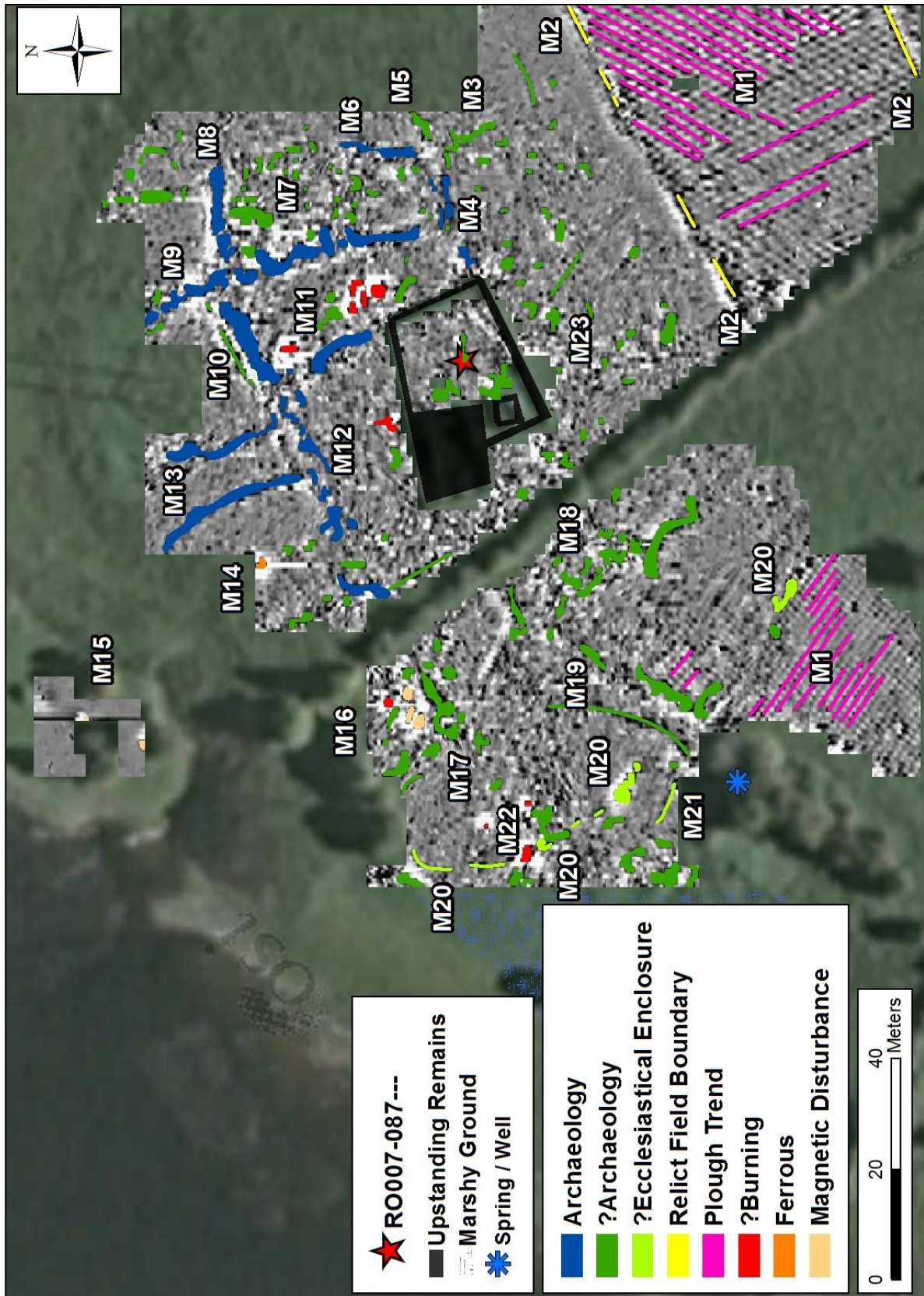


Figure 12: Greyscale image (magnetometry results) with digitised magnetometry anomalies  
 (source: OSi MapGenie, with additions)





Figure 13: Digitised Lidar Anomalies overlain on satellite image (source: OSi MapGenie, with additions)





Figure 14: Combined Interpretative Plan – Lidar, Earth Resistance &amp; Magnetometry Results

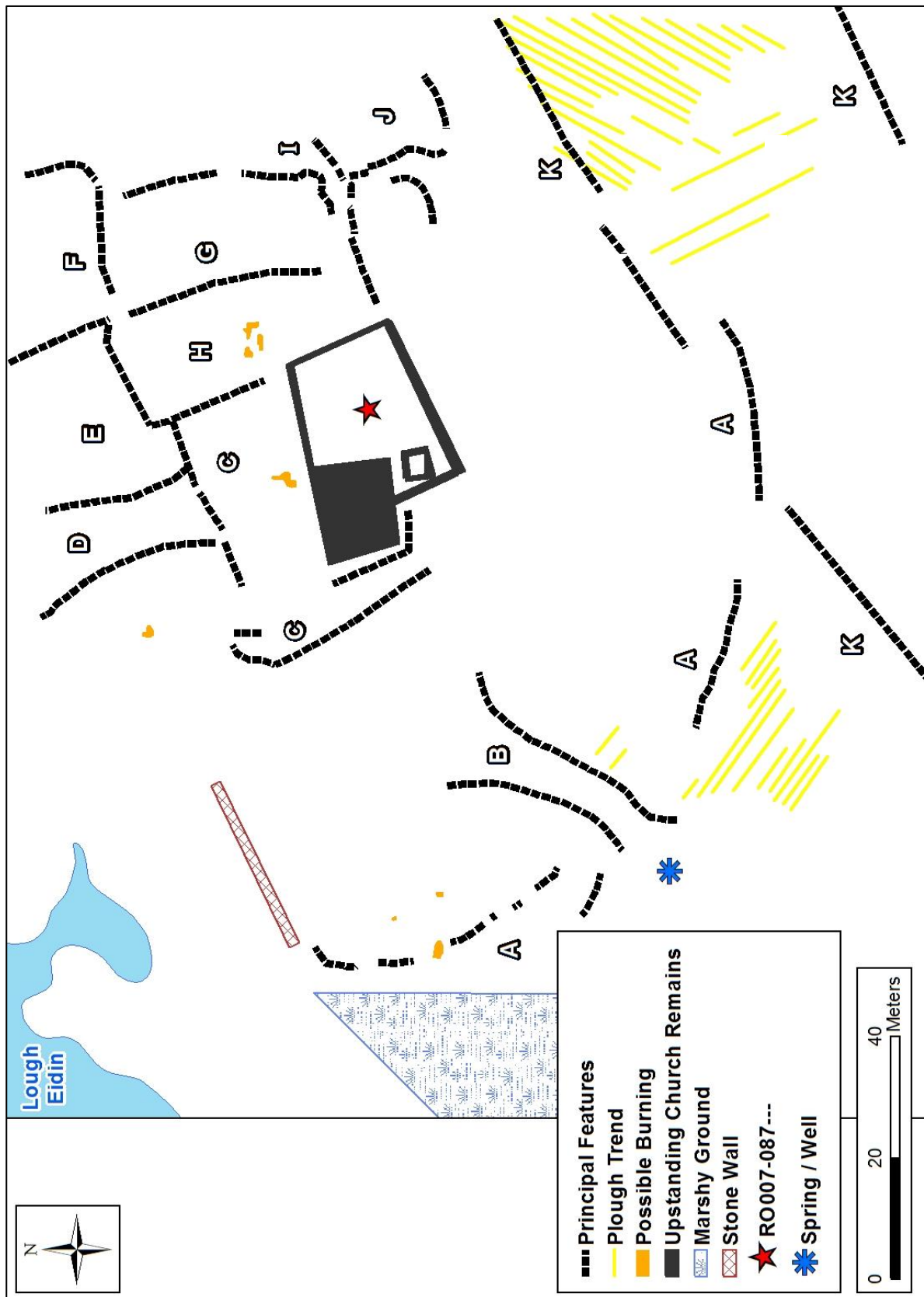


Figure 15: Simplified Plan with principal features amalgamated from the three survey techniques (lidar, magnetometry, earth resistance)





**Plate 1: Tumna** (*facing south – upslope - from the 'island'*)

(Photo: S. Curran)



**Plate 2: The 'island' at Tumna** (*facing NNW*)

(Photo: S. Curran)





**Plate 3: The church remains at Tumna (facing SW) RO007-087001 (foreground) & RO007-087005**  
(Photo: S. Curran)



**Plate 4: Interior of RO007-087001 (facing east)**

(Photo S. Curran)





**Plate 5: RO007-087002 - The Graveyard with uninscribed stone markers** (*facing NE*)  
(Photo: S. Curran)



**Plate 6: RO007-087004 - The Saint's Shrine** (*clockwise from left: facing S, E, W*)  
(Photo: S. Curran)





**Plate 7: Stone Altar against east gable of RO007-087005**

*(Photo: S. Curran)*



**Plate 8: The Spring** (clockwise from left: facing SE, S, N)

*(Photo: S. Curran)*





**Plate 9: The Tumna Gold Balls**

*(after Cahill 2004, 99)*



**Plate 10: The wall in-situ**

*(Photo: S. Curran)*





**Plate 11: Tumna from the air (drone footage)**

*(Photo: B. O'Neill)*

# Geophysical Survey Report

**Site:** *Mullaghmore, Co. Roscommon*

**RMP:** RO011-179

ITM: 592417, 798319

**Licence:** 16R0122



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## Summary

This report details the results of geophysical survey undertaken at an enclosure – classified as ‘Ringfort – Rath’ - (RMP: RO011-179) in the townland of Mullaghmore, Co. Roscommon. The survey also targeted an unrecorded (potential) earthen monument located approx. 150m further downslope to the east. The investigation was conducted in July 2016 and consisted of magnetic gradiometry and earth resistance. The survey has identified a possible circular structure within the enclosure (RO011-179) and a number of potential archaeological features within the surrounding area which may relate to activities associated with the enclosure.

## Survey Details

**Survey Licence Number:** 16R0122

**Survey Dates:** 25<sup>th</sup> – 29<sup>th</sup> July 2016

**Survey Team:** Susan Curran, Karen O’Toole and Jeanne Connolly (University College Dublin)

**Planning Reference No.:** N/A

**Townland:** Mullaghmore

**County:** Roscommon

**Barony:** Boyle

**RMP No.:** RO011-179

**National Grid Reference:**

**IG:** 192465, 298306 / **ITM:** 592417, 798319

**Geology:** Dark cherty limestone, shale<sup>1</sup>

**Quaternary Sediments:** Till derived from Devonian and Carboniferous sandstones and shales<sup>2</sup>

**Soils:** Fine loamy drift with limestones<sup>3</sup>

**Survey Type (1):** Fluxgate Gradiometer

**Instrument:** Bartington Grad 601-2

**Sample Interval:** 0.25m

**Traverse Interval:** 1m

**Grid Size:** 20m x 20m

**Method:** Parallel Traverse

**Area Surveyed:** approx. 1 hectare

**Survey Direction:** East

**Survey Type (2):** Earth Resistance  
Meter

**Instrument:** Geoscan RM85 Resistance

**Sample Interval:** 0.5m

**Traverse Interval:** 0.5m

**Array:** Parallel Twin

**Method:** ZigZag Traverse

**Grid Size:** 20m x 20m

**Survey Direction:** North

**Area Surveyed:** approx. 0.3 hectares

**Licence Holder:** Susan Curran

**Report Author:** Susan Curran

<sup>1</sup> www.gsi.ie – Bedrock Geology

<sup>2</sup> www.gsi.ie – Quaternary Sediments and Geomorphology mapviewer

<sup>3</sup> www.teagasc.ie – Soils Guide



# Contents

Summary & Survey Details.....	2
List of Figures.....	3
List of Plates.....	4
Project Background.....	5
Site Description.....	5
Survey Objectives.....	6
Methodology.....	6
The Results – Description and Interpretation.....	7
Area One.....	7
Area Two.....	8
Discussion & Conclusion.....	9
Acknowledgements.....	10
References.....	10

## List of Figures

Figure 1: Survey Location.....	11
Figure 2: Survey Extent ( <i>licensed and completed</i> ).....	11
Figure 3: Satellite Image of RO011-179.....	12
Figure 4: Lidar hillshaded image of RO011-179.....	12
Figure 5: Lidar profile of ditch and bank.....	13
Figure 6: RO011-179 and environs.....	13
Figure 7: Possible Unrecorded Monument (aerial & lidar hillshade).....	14
Figure 8: Area One: Earth Resistance Results.....	15
Figure 9: Area One: Earth Resistance Anomalies.....	16
Figure 10: Area Two Earth Resistance Results.....	17
Figure 11: Area Two Earth Resistance Anomalies.....	17
Figure 12: Area One Magnetometry Results.....	18
Figure 13: Area Two Magnetometry Results.....	19
Figure 14: Full Magnetometry Results.....	20
Figure 15: Magnetometry Results – Interpretative Plot.....	21
Figure 16: Earth Resistance & Magnetometry Results - Interpretative Plot.....	22

## ***List of Plates***

<b>Cover:</b>	<b>RO011-179 Ringfort – Rath: Survey in Progress</b>	
<b>Plate 1:</b>	<b>Survey Area One – RO011-179</b>	<b>23</b>
<b>Plate 2:</b>	<b>Drop from rath centre to fosse</b>	<b>23</b>
<b>Plate 3:</b>	<b>Earth Resistance survey in progress</b>	<b>24</b>
<b>Plate 4:</b>	<b>Survey Area Two</b>	<b>24</b>
<b>Plate 5:</b>	<b>Survey Area Two bank</b>	<b>25</b>

## Project Background

The principal focus of the geophysical survey was an enclosure (RO011-179) (Figure 1) which was discovered in 2012 over the course of lidar survey analysis undertaken by the author (Curran 2012). It was added to the Record of Monuments and Places in 2014 and classified as 'Ringfort – Rath'. The survey area incorporated RO011-179 and its immediate surrounding area, including a second, unrecorded, embanked feature which is located approx. 150m further downslope to the east (Figure 2).

The survey - comprising magnetic gradiometry and earth resistance - forms part of a PhD research project (funded by the Irish Research Council) which explores early medieval settlement in three case study areas in Ireland. The first of these case studies consists of a 140km<sup>2</sup> area of counties Leitrim and Roscommon, straddling the River Shannon and situated around Carrick-on-Shannon and environs. The research project utilises lidar and other remote sensing techniques to explore early medieval settlement patterns and the inter-relationship between associated monuments and status in early medieval Ireland.

## Site Description

The site is located in the townland of Mullaghmore, Co. Roscommon which is situated within the Civil Parish of Killukin and the Barony of Boyle. The townland is predominantly made up of the large hill / drumlin upon which RO011-179 and two other recorded enclosures are located, and a small area of low-lying ground to the northeast. While there is no confirmed Irish name for this particular occurrence of Mullaghmore (Logainm.ie), it is likely to derive from the Irish 'Mullach Mór' which translates as great or big hilltop, thus appropriately fitting the topography of this townland.

Enclosure RO011-179 is situated in pasture on a gentle southwest-facing slope, close to the summit of a low drumlin (Figure 3 & 4). The position affords spectacular views over the surrounding landscape, although these are somewhat obscured by dense vegetation in places.

The circular enclosure measures approx. 23m N-S and approx. 22m E-W. It is defined by a low bank / scarp with an outer fosse. The lidar profile shows minimal survival of the internal bank (Figure 5). The surrounding area is prone to waterlogging, particularly to the west / southwest between the fosse and the field boundary. There is drop-off of approx. 0.5m on the northern boundary from the enclosure interior to the fosse (Plate 2). No internal structures, entrance or associated field boundaries are visible on the ground or on the lidar surface.

RO011-179 appears to lie within a potential hub of early medieval settlement and activity (Figure 6), with the majority of the recorded monuments in its environs classified as 'Ringfort-Rath' and/or 'Enclosure' in the RMP. There are two enclosures within 300m: RO011-021 (Ringfort-Rath) is situated

approx. 272m to the NNE; and RO011-178 (Enclosure) lies approx. 275m to SW (also discovered over the course of the lidar survey). Three cashels are situated to the NW, W and SW and a further 19 enclosures and/or ringfort-raths are distributed in all directions within a 1km radius of RO011-179. Killukin Church and graveyard (RO011-047001/002) are located approx. 700m to the SE. While the current church remains are most likely 17<sup>th</sup> century in date (Moore 2010), there are indications of an early medieval foundation on the site – this is the subject of Detection Licence 16R0121.

The remains of a possible unrecorded monument are located approx. 150m further downslope to the east of RO011-179 with excellent views of the surrounding landscape. This is visible on the lidar hillshade image and is quite prominent on the ground. It comprises a wide bank (approx. 1.5m) of sub-circular plan that runs along the edge of the slope summit. There is no evidence for a fosse, nor does the enclosure appear complete. The adjoining curved field boundary on the WNW (Figure 7) is not marked on early cartographic sources and may therefore be a modern feature and unrelated to the embankment.

Test-trenching was carried out in 2005 at the foot of the drumlin, approx. 400m NW of the survey area (Licence No. 05E0592)<sup>4</sup>, however, it failed to produce any evidence of archaeological activity.

## Survey Objectives

This survey was undertaken as part of a wider research project investigating early medieval settlement in the Carrick-on-Shannon area. The survey aimed to investigate the enclosure (RO011-179) and its immediate environment in order to identify any subsurface remains (e.g. house foundations, hearths, field boundaries etc.) that may help to advance our understanding of its potential date and function. The survey also sought to investigate the potential second monument hinted at on both aerial photography and the lidar surface. Multiple geophysical survey techniques (magnetic gradiometry and earth resistance) were employed to help establish the nature and character of the site and its potential relationship with other early medieval monuments in the surrounding landscape.

## Methodology

- 1) An area of approx. 1 hectare – comprising RO011-179 and the potential monument to the east – was surveyed. This was focused on two separate areas: Area One: RO011-179 and its immediate vicinity; Area Two: the unrecorded feature located further downslope approx. 150m to the east.
- 2) The survey grid, comprising a series of 20mx20m grid panels, was located and tied into the Irish National Grid using a Trimble GPS in conjunction with a VRS Now correction service.

<sup>4</sup> <http://www.excavations.ie/report/2005/Roscommon/0014367/> - Excavations.ie Database

- 3) Magnetic Gradiometry was undertaken on both areas using a Bartington Grad 01 DL601 dual sensor fluxgate gradiometer. Data were recorded using parallel traverses at a traverse interval of 1m and a sample interval of 0.25m (4 points per metre along each traverse) and/or at a higher resolution with a traverse interval of 0.5m and a sample interval of 0.25m. A total of 36 grids were surveyed at 1m x 0.25m, of which 6 (in the rath interior) were re-surveyed at a higher resolution of 0.5m x 0.25m.
- 4) More limited earth resistance survey was undertaken using a Geoscan RM85 Resistance Meter. Data were recorded using zigzag traverses at a traverse interval of 0.5m and a sample interval of 0.5m. A total of 10 grids were surveyed using this technique.
- 5) All data were processed using Geoscan Research Geoplot version 3 software.
  - a. Earth Resistance Processing Steps: Despiking, Low Pass Filter, Interpolate Y, Interpolate X
  - b. Magnetometry Processing Steps: Zero Mean Traverse, Low Pass Filter, Interpolate Y x 2

## The Results – Description and Interpretation

### **AREA ONE: Earth Resistance Survey & Magnetometer Survey**

#### *Earth Resistance (Figures 8, 9)*

The earth resistance results show a low resistance anomaly of circular plan (R1) that corresponds with the enclosure ditch visible both on the lidar surface and on the ground. This ditch feature is incomplete with a gap of approx. 12m in the NE quadrant. This is too large to be an entrance, but it may mark its original location as there is no evidence of an entrance elsewhere along the line of the enclosure. The area of the enclosure is quite disturbed, possibly by ploughing in recent times (evidence for ploughing is particularly pronounced in the magnetic survey data – see Figures 14 & 15 below). There are no indications of an enclosure bank in the earth resistance survey data.

The centre of the enclosure contains a sub-circular anomaly of medium to low resistance (R2/R4). The low resistance features may correspond to the slot trenches which would have held a walled structure in place. This feature measures approx. 8.5m diameter and has a small medium to high resistance anomaly (approx. 2m diameter) at its approximate centre (R3) which could be a stone-lined hearth or pit. The shape, size and location of this structure are broadly consistent with the houses associated with early medieval ringforts (such is the classification of this enclosure), though this cannot be verified in the absence of excavation. The high resistance area to the west of this structure (R6) may reflect a paved or cobbled area. There is a possible paved pathway leading from the central structure southwards towards the enclosing ditch which is indicated by the presence of four distinct instances of medium to high resistance anomalies (R5) – possibly paving stones. This might suggest that the main entrance to the enclosure in fact lies in the southern quadrant.

A high resistance anomaly located approx. 4.5m to the east of the enclosure (R7) corresponds with an area of magnetic disturbance. This may indicate an area of burning which has a base or outline of



stones, possibly a hearth or kiln. A further high resistance anomaly (R8) approx. 10.5m to the NE of the enclosure corresponds with a positive magnetic anomaly, and may relate to a stone-lined pit.

#### *Magnetic Gradiometry (Figures 12, 14, 15)*

The ditch produced a very faint magnetic response (M1) but there are no indications of a corresponding bank or palisade in the magnetic survey data. A number of positive anomalies (M2) within the centre of the enclosure may be pits and they appear to correlate with a series of low resistance anomalies (R2), most likely forming part of a possible building or house. The survey results show a high level of magnetic disturbance, particularly within the enclosure. This is most probably due to the effects of ploughing as there are plough trends visible throughout the data – these have not been mapped across the whole dataset as their abundance would obscure the other features, instead they are mapped in one area (M6) to show the general trend. The ploughing has displaced and spread magnetically enhanced material across the survey area, thus potentially obscuring any additional archaeological features.

Numerous ferrous responses (M7) were found within the survey area and these are most likely the result of modern, near-surface iron, although the potential for the presence of archaeological objects and/or burning cannot be discounted. Significant magnetic interference from a number of metal pylons that run alongside the survey area are also visible in the survey data (M8).

A series of positive magnetic anomalies form two possible linear features (M3) to the WNW of the enclosure, one running approx. SE – NW and the other almost perpendicular running SW – NE. However, it appears to cut the enclosure and may therefore post-date it. Two of these anomalies correspond to a high resistance feature from the earth resistance survey (R7/R8) and may represent stone-filled pits.

A further series of positive anomalies (M4) form a potential linear running approx. SE from the enclosure, but they do not appear to form a distinctive feature. Likewise, a series of positive anomalies (M5) do not appear to form a definite feature and may represent isolated pits which may or may not be associated with the enclosure.

## **AREA TWO: Earth Resistance Survey & Magnetometer Survey**

#### *Earth Resistance (Figures 10, 11)*

The earth resistance survey of area two consisted of four 20m x 20m grids targeted at the substantial bank which is visible on the ground and on the lidar surface.

A medium to high resistance anomaly (R12) corresponds approximately with the location of a positive magnetic anomaly (M10). This may indicate the presence of a stone-filled ditch running along the exterior of the bank or the presence of stone along the bank edge. A second medium to high resistance anomaly (R13) is located on the interior of the bank and corresponds with one of the pit-like features noted in the magnetic survey (M11), which again may suggest the presence of an internal stone-filled ditch, or the presence of stone / compacted earth along the outer edge of the bank.

There are a number of high resistance 'patches' running ENE to WSW approximately 14m south of the bank, the largest of which is approx. 1.5m long. This may be related to the landscape features which are visible on the historic 25inch map as they run directly towards them, possibly evidence of drainage or a stone-lined/paved pathway.

#### *Magnetic Gradiometry (Figures 13, 14, 15)*

The magnetometer survey consisted of eleven 20m x 20m grids (some partial) covering the embanked area and a smaller area at the other side of the field boundary. It was not possible to survey downslope of the embankments as it was extremely steep - the bank is located on the break of slope.

The results show a positive anomaly running along the outside of the bank (M10). This is a possible ditch feature which corresponds to high resistance anomaly (R12) mapped in the earth resistance survey. There are a number of isolated magnetic responses in the 'interior' (e.g. M11) but these do not appear to represent a definitive structure and most likely relate to pits or modern intrusions, although one such feature may correspond with an internal ditch suggested by the earth resistance evidence above (R13).

## **Discussion & Conclusion**

Without excavation and scientific dating, the nature of enclosure RO011-179 cannot be determined with absolute certainty. However, based on its morphology and siting, RO011-179 appears to be a rath defined by an internal bank and outer fosse, and indeed, this is its RMP classification. Measuring approx. 8.5m in diameter, the circular structure revealed by the geophysical survey at its approximate centre, corresponds to the expected size and shape of an early medieval house. However, there is no evidence for any associated field or garden plots and the modern disturbance (mainly ploughing) may have affected the magnetic responses in places.

The second potential monument does not feature on the historic maps, despite the fact that the bank is very prominent and visible on the ground. It is possible that this constitutes the remains of a designed landscape feature, or perhaps even the remains of a defensive redoubt (pers. comm. Paul Stevens).

The location has excellent views over the surrounding landscape to the east and is just over 1.5km from the River Shannon and approx. 5km from the walled plantation town of Jamestown which was constructed at a fording point on the River Shannon. While it is not possible to see the River Shannon from the site's vantage point, it certainly has a strategic position over the surrounding landscape in the direction of the 17<sup>th</sup> century plantation town limits. Nevertheless, further work is required to establish the precise date and function of this potential monument.

### Acknowledgements

I would like to thank Nigel Laird and family for facilitating the research on their land, and to Rosie Dolan for her help. Many thanks to both the Discovery Programme and UCD School of Archaeology for the use of their equipment and their continued support. Sincere thanks to Ger Dowling for his support and assistance throughout. Special thanks to survey volunteers Karen O'Toole and Jeanne Connolly for their excellent work during the survey.

### References

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<http://www.excavations.ie/report/2005/Roscommon/0014367/> Accessed 08/02/2017, 3:45pm

Geological Survey of Ireland

<https://www.gsi.ie/Publications+and+Data/Digital+Data/Available+Digital+Data.htm>

Accessed 06/02/2017, 10:14am

Logainm.ie

<https://www.logainm.ie/en/42889>

Accessed 08/02/2017, 12:29pm

Teagasc

<http://gis.teagasc.ie/soils/soilguide.php>

Accessed 06/02/2017, 11:58am

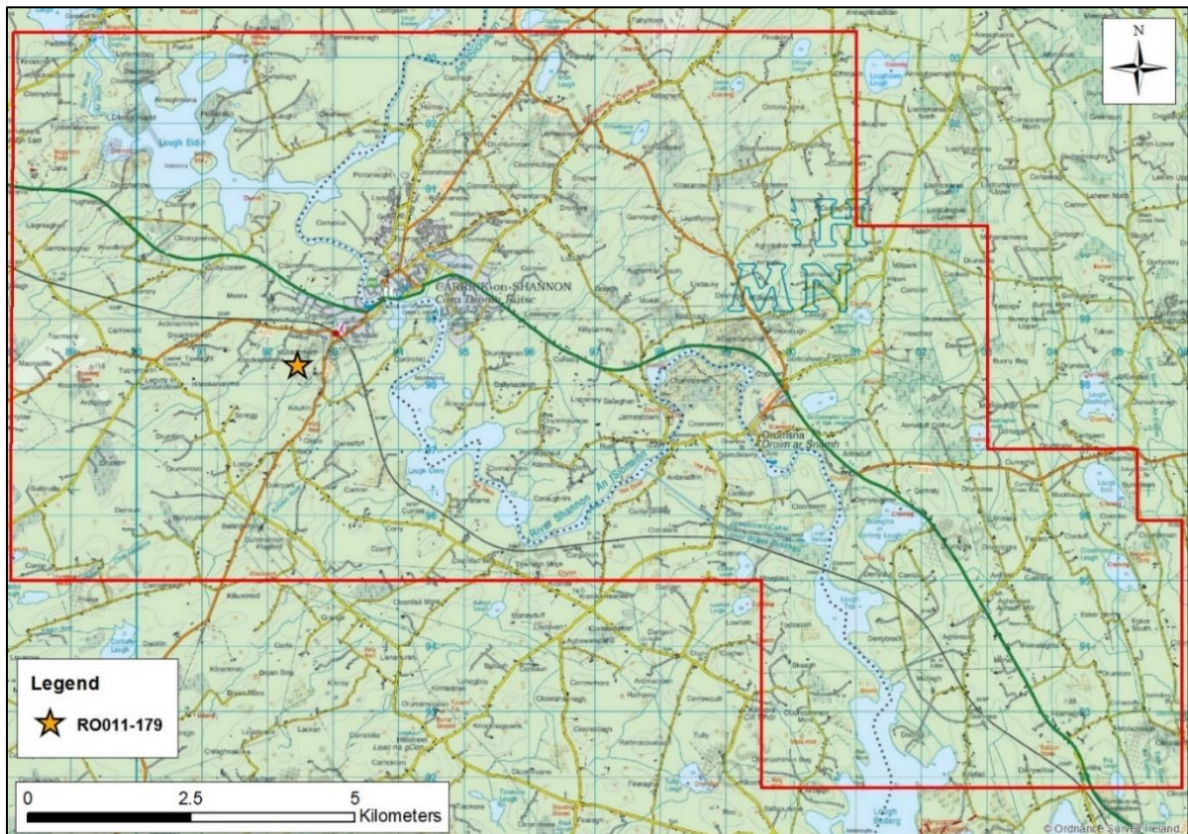


Figure 1: Survey Location (with PhD Research area in red)

(source: OSi MapGenie, with additions)

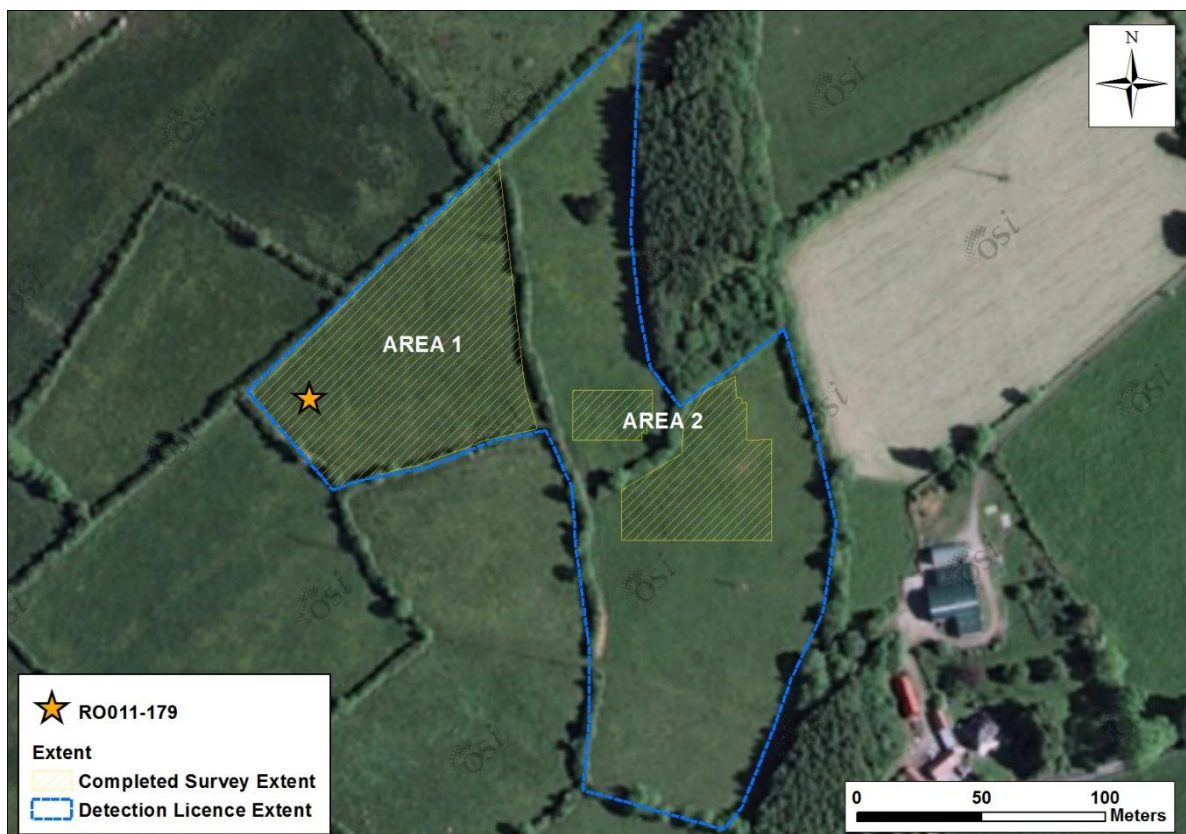


Figure 2: Survey Extent on satellite image

(source: OSi MapGenie, with additions)





Figure 3: Satellite image of RO011-179

(source: OSi MapGenie, with additions)

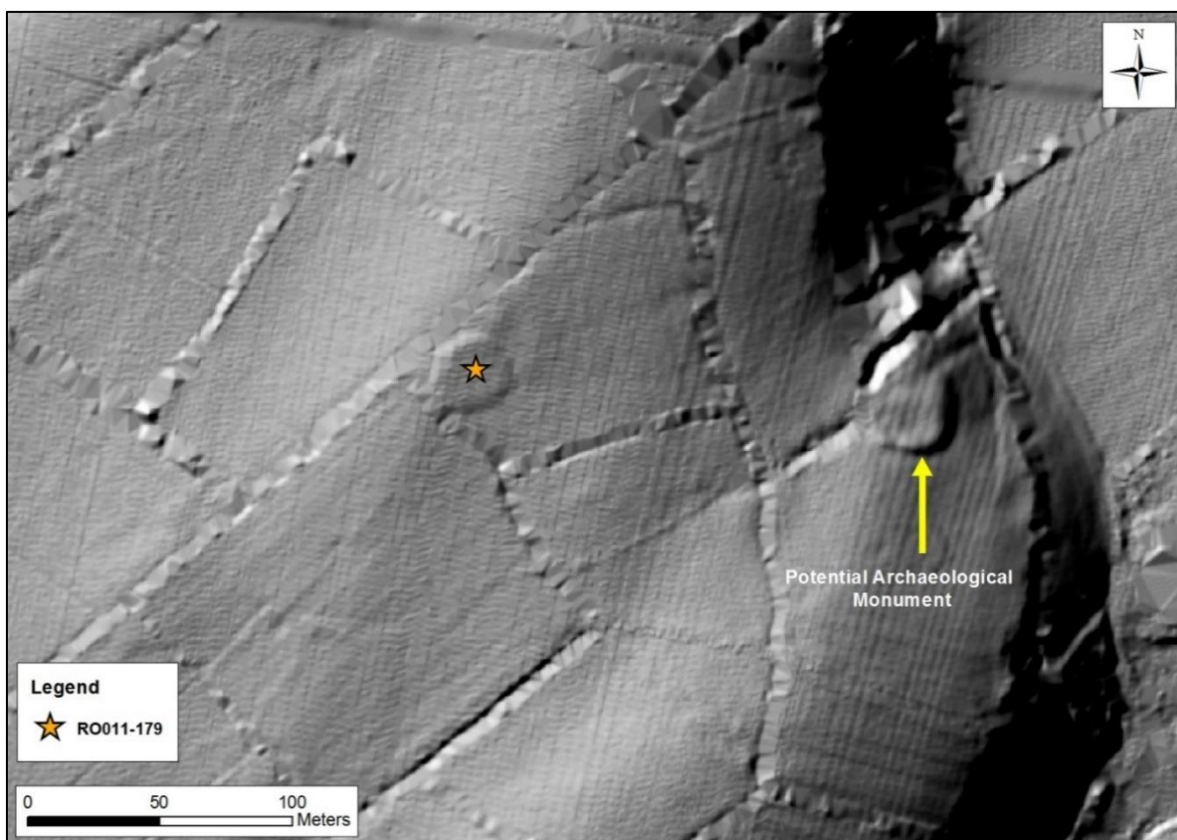


Figure 4: Lidar hillshaded image of RO011-179



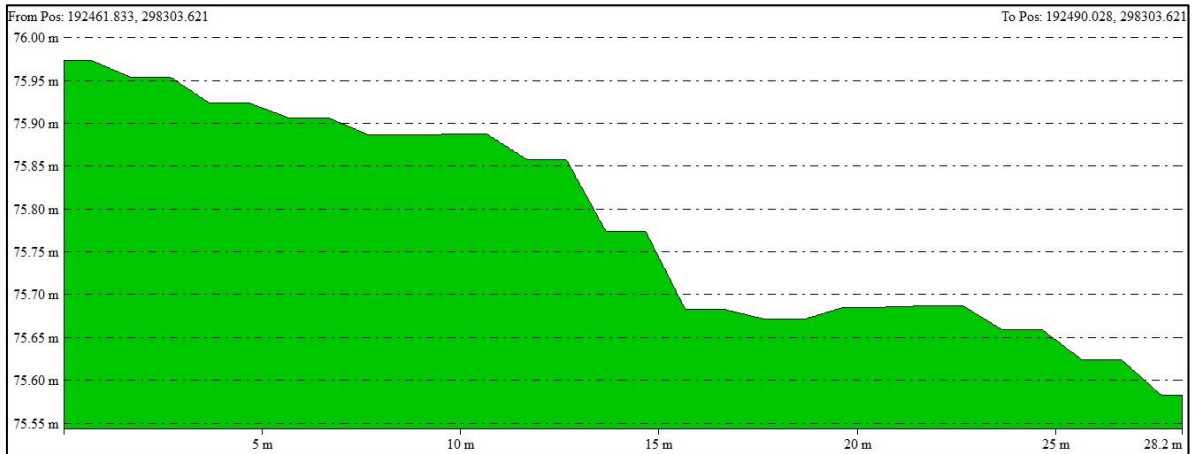


Figure 5: Profile of ditch and bank (taken from centre of enclosure to east)

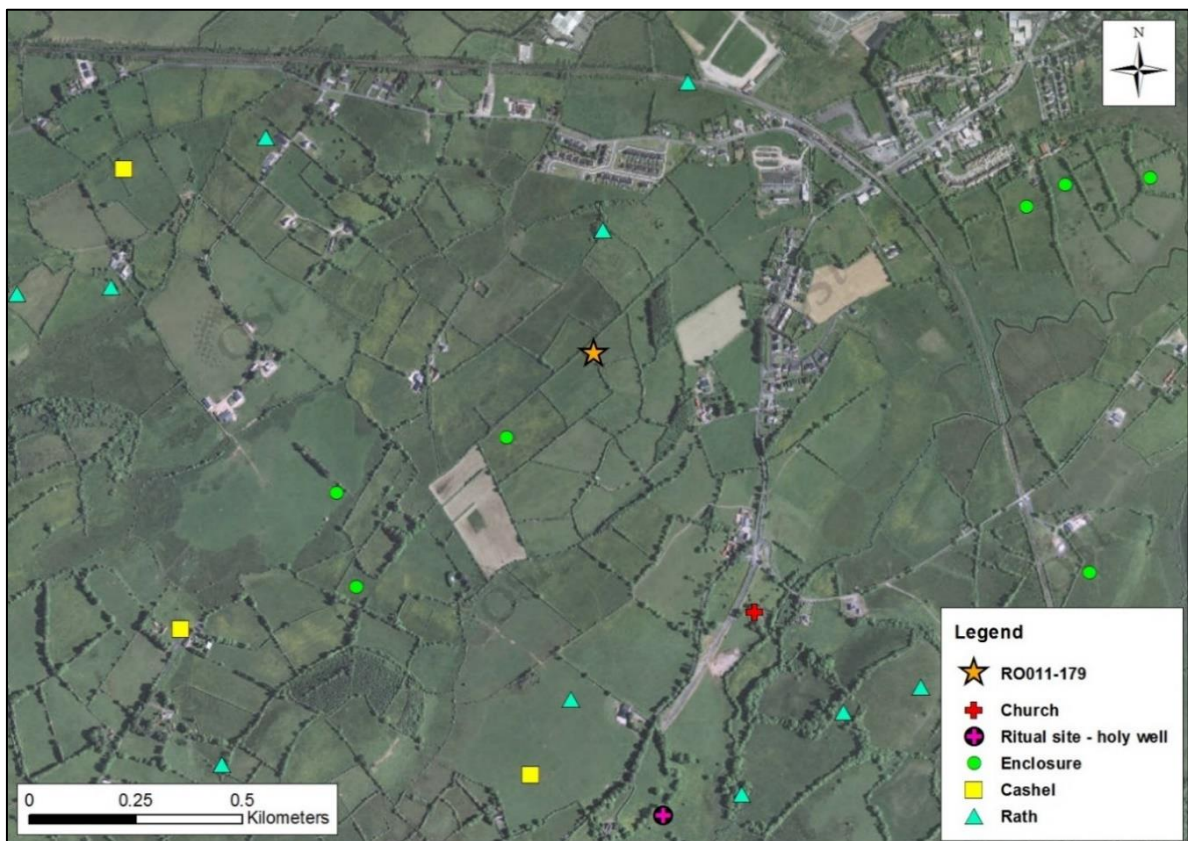
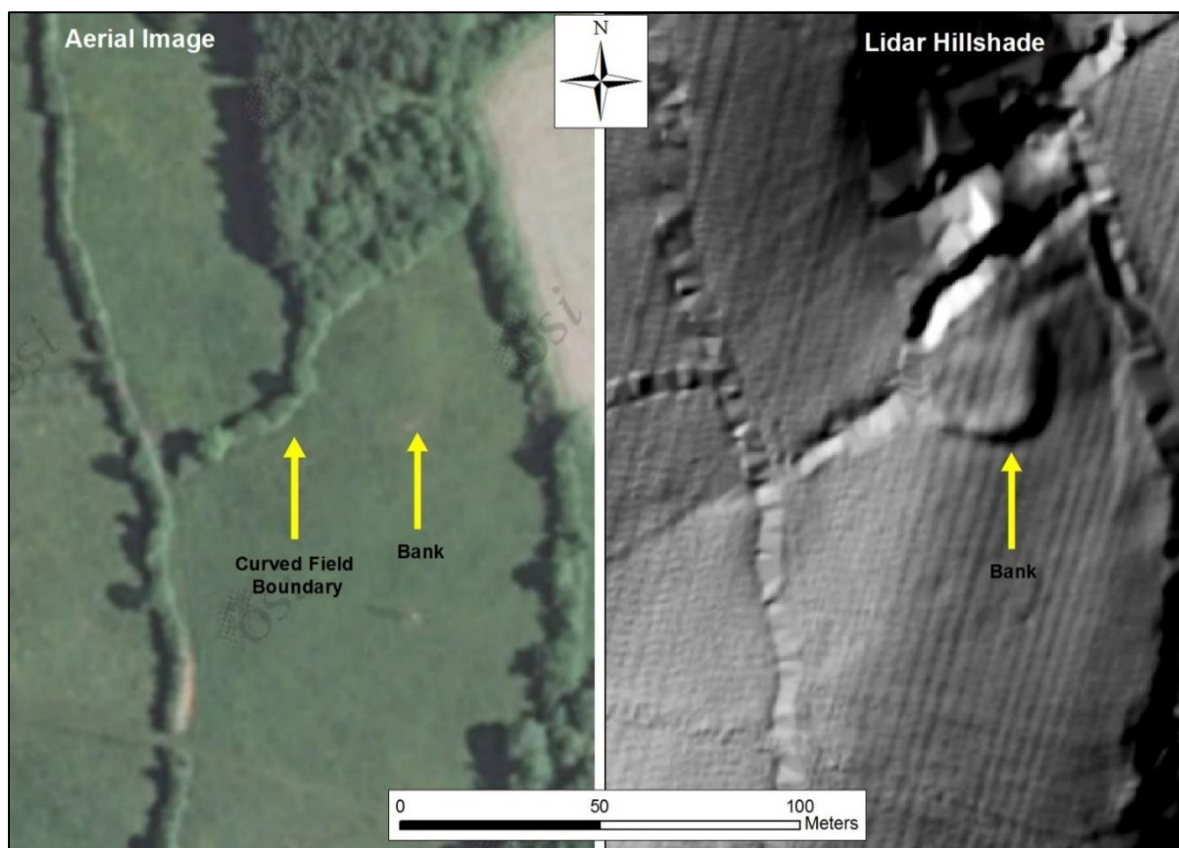


Figure 6: RO011-179 and environs on satellite image (source: OSi MapGenie, with additions)



**Figure 7: Possible Unrecorded Monument (satellite image & hillshade)**  
(source: OSi MapGenie, with additions)



**Figure 8: Greyscale image of Area One earth resistance results overlain on satellite image**  
*(source: OSi MapGenie, with additions)*

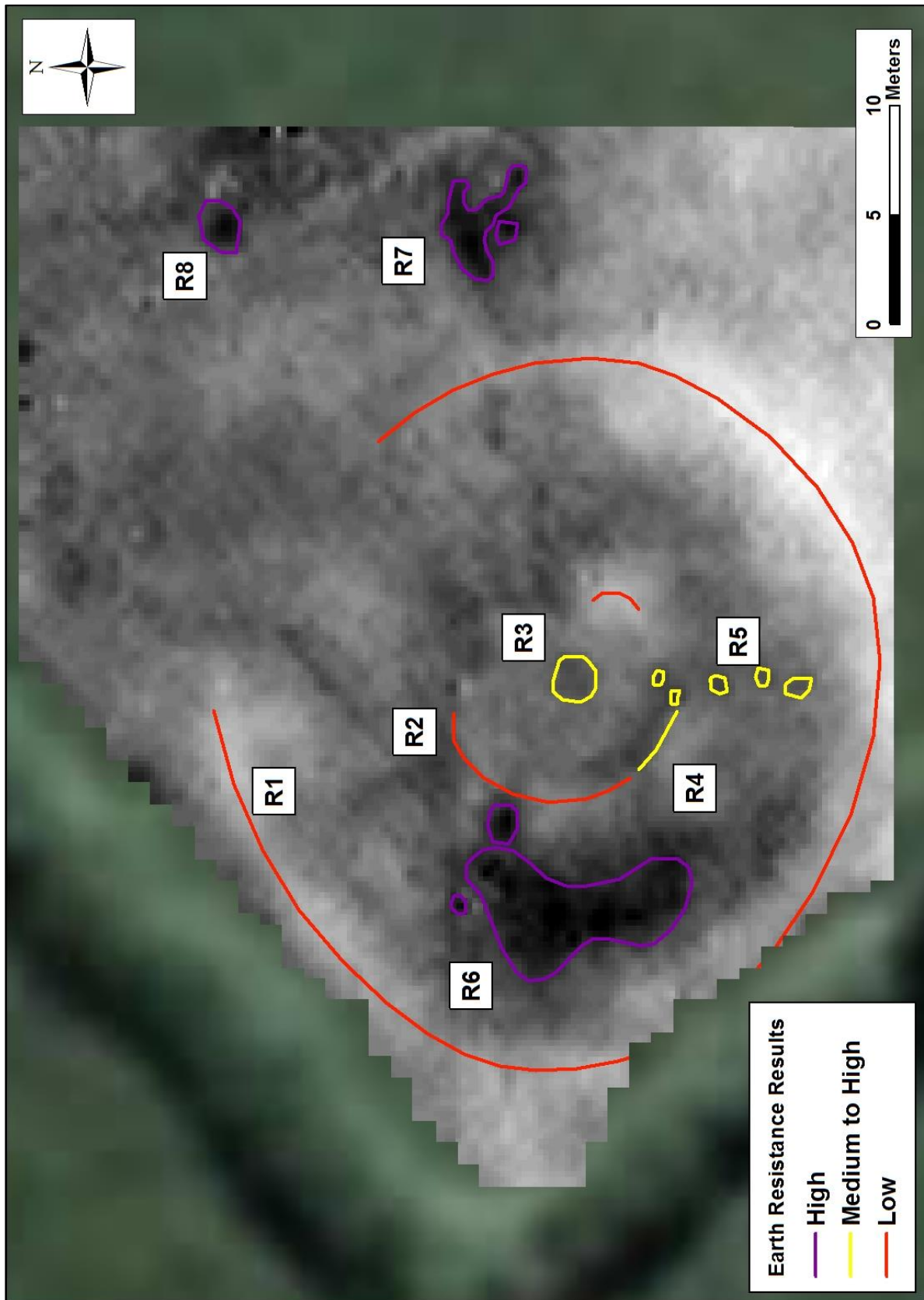


Figure 9: Greyscale image with digitised Area One earth resistance anomalies

(source: OSi MapGenie, with additions)



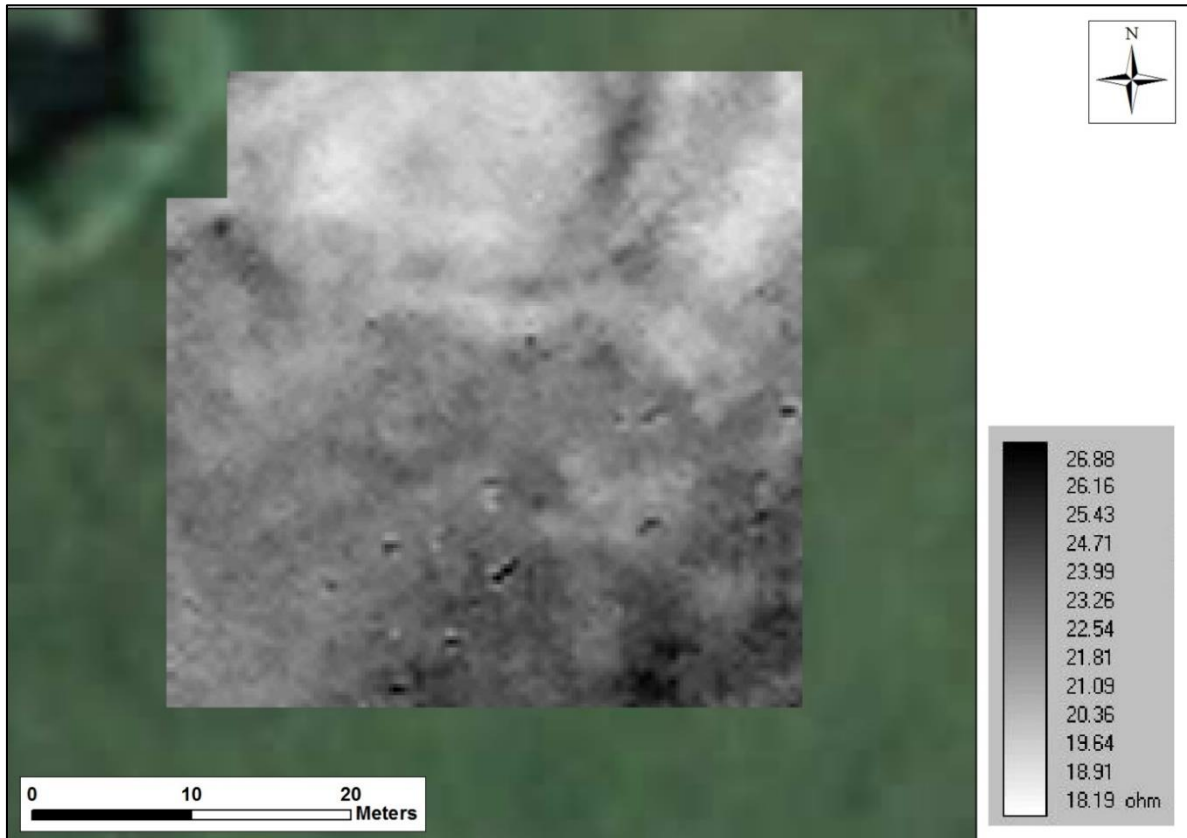


Figure 10: Greyscale image of Area Two earth resistance results

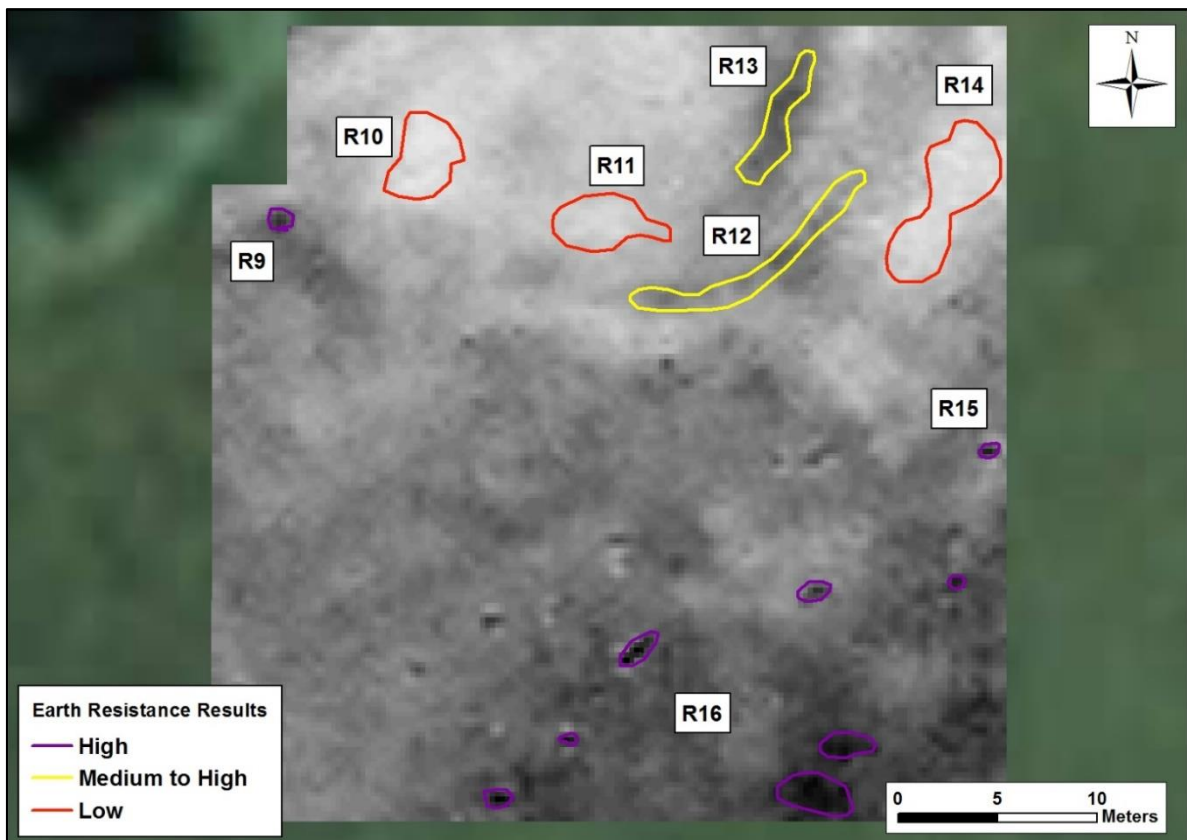
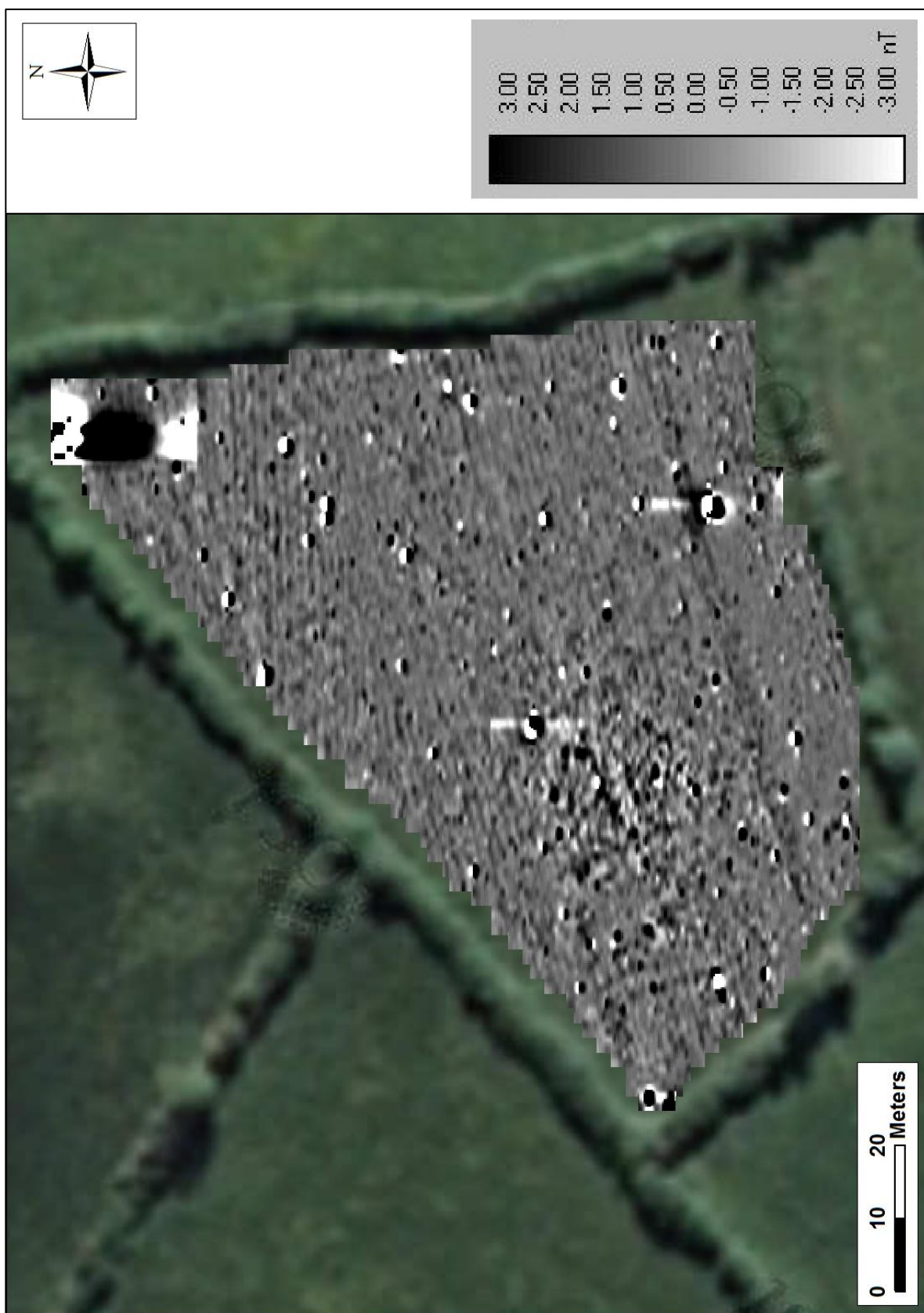
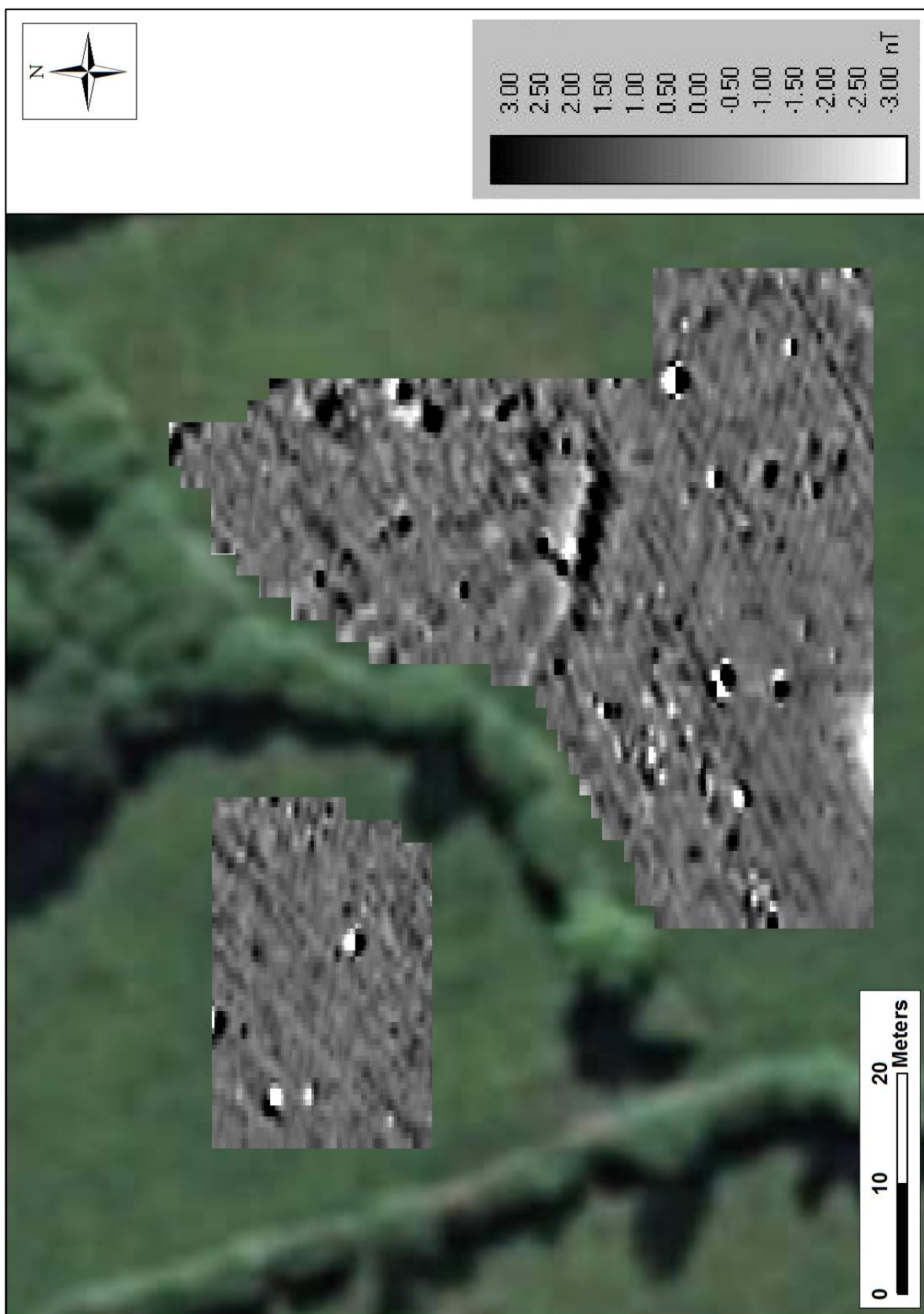


Figure 11: Greyscale image with digitised Area Two earth resistance anomalies





**Figure 12: Greyscale image of Area One magnetometry results overlain on satellite image**  
*(source: OSi MapGenie, with additions)*



**Figure 13: Greyscale image of Area Two magnetometry results overlain on satellite image**  
*(source: OSi MapGenie, with additions)*



**Figure 14: Greyscale image of full magnetometry results overlain on satellite image**  
*(source: OSi MapGenie, with additions)*



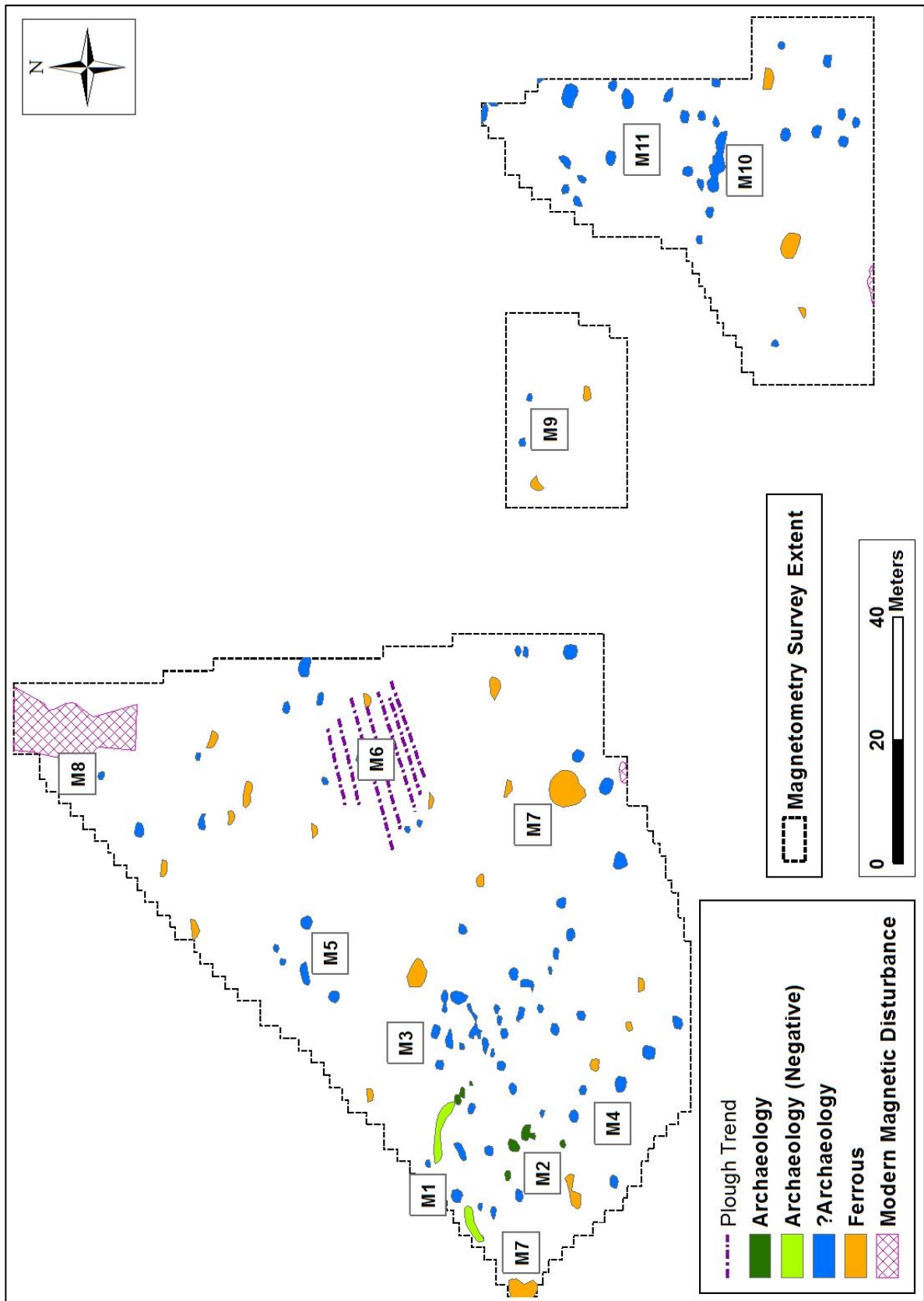


Figure 15: Magnetometry Results – Interpretative Plan

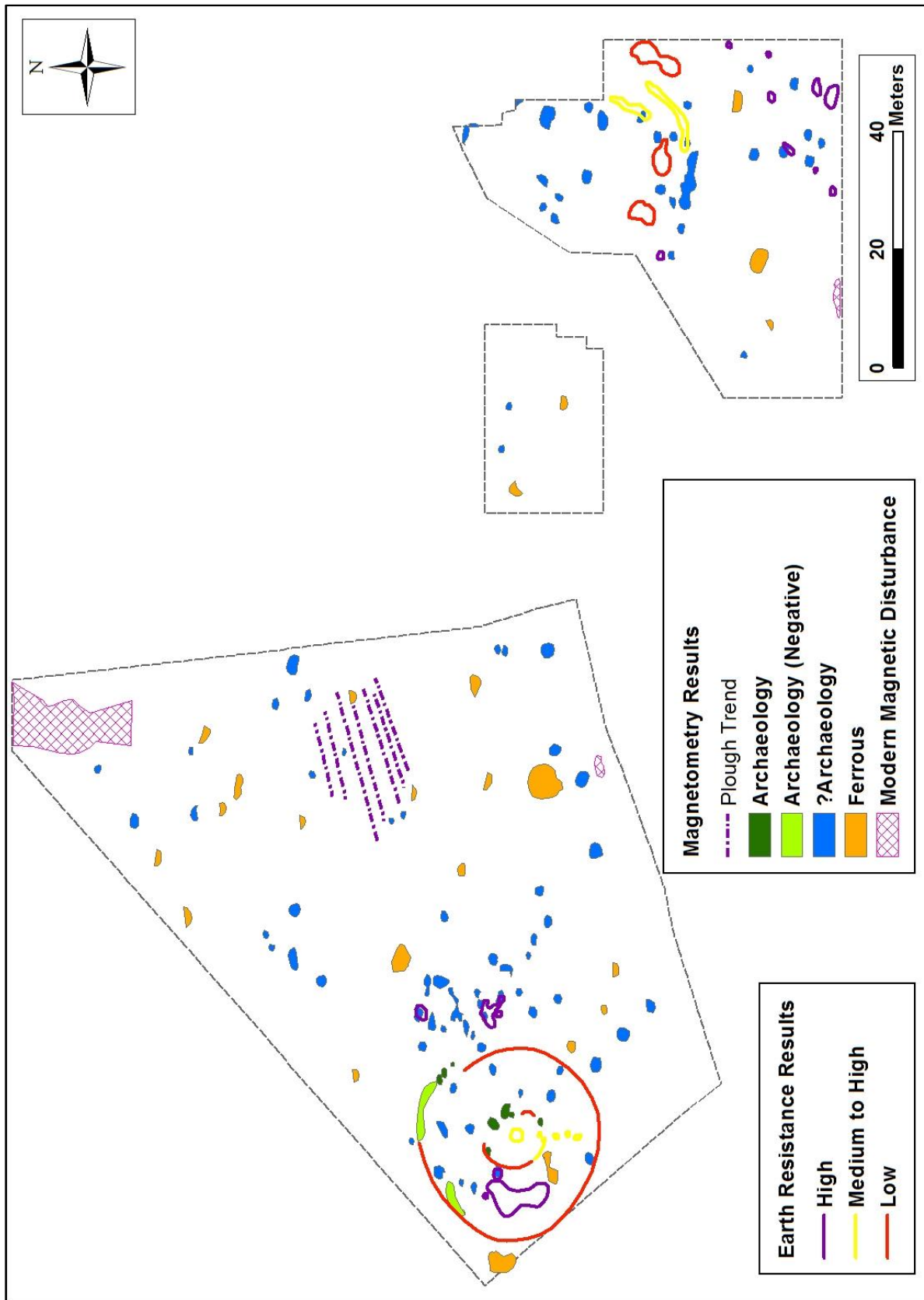


Figure 16: Earth Resistance & Magnetometry Results – Interpretative Plan





**Plate 1: Area One, looking northwest, ranging rods demarcating the extent of R0011-179**  
(Photo: S. Curran)



**Plate 2: Drop from Rath Centre to Fosse (northern part of enclosure)**  
(Photo: S. Curran)





**Plate 3: Area One Earth Resistance Survey in progress**

*(Photo: S. Curran)*



**Plate4: Area Two (bank marked with arrows), looking southwards towards Jamestown**

*(Photo: S. Curran)*



**Plate 5: Area Two, looking northwards upslope towards the bank**

*(Photo: S. Curran)*

# Geophysical Survey Report

**Site:** *Kiltoghert, Co. Leitrim*

**RMP:** LE027-121001 / 002

ITM: 598151, 802512

**Licence:** 15R0136



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## Summary

This report details the results of geophysical survey undertaken at an enclosure - classified as 'Ringfort – Rath' - (RMP: LE027-121001) in the townland of Kiltoghert, Co. Leitrim (Plate 1). The survey also incorporated a second monument - classified as 'House – indeterminate date' (RMP: LE027-121002) - which is located along the south eastern perimeter of the rath (Plate 2). The investigation was conducted in October 2015 and completed in June 2016, and consisted of magnetic gradiometry and earth resistance. The survey has identified an inner bank composed of stone, a potential circular structure within the interior, and a probable entrance in the north eastern quadrant of the enclosure.

## Survey Details

**Survey Licence Number:** 15R0136 (*ext. 2016*)

**Survey Dates:** October 2015; June 2016

**Survey Team:** Susan Curran, Peter Dodd, Dr. Karen Dempsey, Tony Curran

**Planning Reference No.:** N/A

**Townland:** Kiltoghert

**County:** Leitrim

**Barony:** Leitrim

**RMP No.:** LE027-121001, LE027-121002

**National Grid Reference:**

**IG:** 198199, 302499 / **ITM:** 598151, 802512

**Geology:** Croghan Limestone Formation, dark cherty limestone, shale<sup>1</sup>

**Quaternary Sediments:** Till derived from limestones<sup>2</sup>

**Soils:** Fine loamy drift with siliceous stones<sup>3</sup>

**Survey Type (1):** Fluxgate Gradiometer **Instrument:** Bartington Grad 601-2

**Sample Interval:** 0.25m **Traverse Interval:** 0.5m

**Grid Size:** 20m x 20m **Method:** Parallel Traverse

**Area Surveyed:** approx. 0.34 hectares **Survey Direction:** North

**Survey Type (2):** Earth Resistance **Instrument:** Geoscan RM85 Resistance Meter

**Sample Interval:** 0.5m **Traverse Interval:** 0.5m

**Array:** Parallel Twin **Method:** ZigZag Traverse

**Grid Size:** 20m x 20m **Survey Direction:** East

**Area Surveyed:** approx. 0.25 hectares

**Licence Holder:** Susan Curran

**Report Author:** Susan Curran

<sup>1</sup> www.gsi.ie – Bedrock Geology

<sup>2</sup> www.gsi.ie – Quaternary Sediments and Geomorphology mapviewer

<sup>3</sup> Irish National Soils Map, 1:250,000k, V1b(2014).Teagasc, Cranfield University.Jointly funded by the EPA STRIVE Research Programme 2007-2013 and Teagasc



# Contents

Summary & Survey Details.....	2
List of Figures.....	3
List of Plates.....	3
Project Background.....	4
Site Description.....	4
Survey Objectives.....	5
Methodology.....	5
The Results – Description and Interpretation.....	6
Discussion & Conclusion.....	7
Acknowledgements.....	8
References.....	9

## List of Figures

Figure 1:	Survey Location.....	10
Figure 2:	Survey Extent ( <i>licensed and completed</i> ).....	10
Figure 3:	Lidar hillshaded image of LE027-121001/002.....	11
Figure 4:	Recorded monuments within the vicinity of LE027-121/002.....	11
Figure 5:	Earth Resistance Results.....	12
Figure 6:	Earth Resistance Anomalies ( <i>digitised</i> ).....	13
Figure 7:	Magnetometry Results.....	14
Figure 8:	Magnetometry Anomalies ( <i>digitised</i> ).....	15
Figure 9:	Earth Resistance & Magnetometry Results: Combined Interpretative Plan.....	16

## List of Plates

Cover:	LE027-121001 (rath)	
Plate 1:	The northern extent of LE027-121001.....	17
Plate 2:	LE027-121002 (house).....	17
Plate 3:	View of Mong Hill from the rath.....	18
Plate 4:	View of Kilmaddaroe Lough from the site.....	18
Plate 5:	Surviving portion of the ‘bank’.....	19
Plate 6:	The ‘bank’ and raised interior of the rath.....	19

## Project Background

The principal focus of the geophysical survey was the area within and surrounding the remains of the rath and the adjoining house site (RMP: LE027-121001 & LE027-121002 respectively) (Figures 1 & 2). The survey sought to identify any sub-surface remains which may point to the existence of internal features or structures, and/or any potential field boundaries relating to the enclosure.

The survey - comprising magnetic gradiometry and earth resistance - forms part of a PhD research project (funded by the Irish Research Council) which explores early medieval settlement in three case study areas in Ireland. The first of these case studies consists of a 140km<sup>2</sup> area of counties Leitrim and Roscommon, straddling the River Shannon and situated around Carrick-on-Shannon and environs. The research project utilises lidar (Figure 3) and other remote sensing techniques to explore early medieval settlement patterns and the inter-relationship between associated monuments and status in early medieval Ireland. The original lidar analysis was undertaken in 2012 as part of the author's MA Thesis (Curran 2012).

## Site Description

The site is located in the townland of Kiltoghert which is situated within a Civil Parish of the same name and the Barony of Leitrim. Kiltoghert is one of the largest townlands in the county of Leitrim, covering an area of approx. 330 hectares. The townland name derives from the Irish 'Cill Tachúrc' which translates as 'Church of Tachúrc' (Logainm.ie). Saint Tachúrc is thought to be one and the same with Saint Tochomhracht, a female saint associated with the Conmaicne (Ó Riain 2011, 575).

LE027-121001 / 002 are situated on the summit of a drumlin with extensive views in all directions. Mong Hill (Plate 3) is less than 500m to the north, while Sheemore is just under 2km to the north north east. Kilmaddaroe Lough lies approx. 600m to the south west (Plate 4). Only a small portion of what initially appears to be the enclosing bank of LE027-121001 is still visible on the south south east (Plates 5 & 6), the remainder of the rath is defined by a ditch which encircles the raised centre; it measures approx. 31m in diameter. Viewed in light of the geophysical survey results, this 'bank' actually appears to be located along the course of the enclosing ditch, and so it is possible that this is not actually part of the bank, but is instead merely related to tree growth. The remains of LE027-121002 measure approx. 4m x 4m, and adjoin the remaining portion of the 'bank'; this is visible on the ground as a sub-rectangular area defined by a bank, although Markus Casey's 1991 field report mentions the presence of a ditch (Casey 1991).

Kiltoghert townland is home to 20 recorded monuments, the majority of which are classified as 'ringfort – rath'. In addition, four potential enclosures were identified as part of a lidar survey in 2012 but have not been added to the Sites and Monuments Record. There are 27 recorded monuments within the immediate vicinity of LE027-12100, 31 if including the four potential unrecorded enclosures (Figure 4). Located just 280m to the south south east, the closest monument is an enclosure (LE027-144) which is located on low-lying ground adjacent to the stream which feeds Kilmaddaroe Lough. This monument

was discovered over the course of the author's 2012 lidar survey (Curran 2012). Two further enclosures (probable raths) are located less than 500m to the north and south east (LE027-090 & LE027-123 respectively). Kiltoghert church and graveyard (LE027-079001 & LE027-079002 respectively) are located approx. 900m to the north west of the site. The upstanding remains are more recent in date, but there are references to a church at this location in the early 15<sup>th</sup> century (Moore 2003, 182; Pinkman 1942, 34). The earliest foundation is attributed to Saint Tochomhracht (who gave her name to the townland and parish), and the nearby holy well (LE027-079003) is associated with her (Moore 2017). A graveslab (LE027-079006) and stone head (LE027-079007) are also recorded within the graveyard.

There are no recorded excavations in the vicinity of the site (Excavations.ie). The four closest excavations are approx. 3km away to the north (Ballinwing, Co. Leitrim), south (Liscallyroan) and south west (Dromore & Cornaslieve), with only the Ballinwing example producing any possible archaeology.

## Survey Objectives

This survey was undertaken as part of a wider research project investigating early medieval settlement in the Carrick-on-Shannon area. The survey aimed to investigate the rath (LE027-121001) and its immediate environment in order to identify any subsurface remains (e.g. house foundations, hearths, field boundaries etc.) that may help to advance our understanding of its potential date and function. The survey also sought to investigate the possible house site adjoining the rath (LE027-121002). Multiple geophysical survey techniques (magnetic gradiometry and earth resistance) were employed to help establish the nature and character of the site and its potential relationship with other early medieval monuments in the surrounding landscape.

## Methodology

- 1) An area of approx. 0.4 hectares – comprising LE27-121001 and LE027-121002 was surveyed.
- 2) The survey grid, comprising a series of 20mx20m grid panels, was located and tied into the Irish National Grid using a Trimble GPS in conjunction with a VRS Now correction service.
- 3) Magnetic Gradiometry was undertaken using a Bartington Grad 01 DL601 dual sensor fluxgate gradiometer. Data were recorded using parallel traverses at a traverse interval of 0.5m and a sample interval of 0.25m (4 points per metre along each traverse). A total of 12 grids were surveyed using this technique.
- 4) More limited earth resistance survey was undertaken using a Geoscan RM85 Resistance Meter. Data were recorded using zigzag traverses at a traverse interval of 0.5m and a sample interval of 0.5m. A total of 8 grids were surveyed using this technique.
- 5) All data were processed using Geoscan Research Geoplot version 3/4 software.
  - a. Earth Resistance Processing Steps: Despike, Low Pass Filter, Interpolate Y, Interpolate X
  - b. Magnetometry Processing Steps: Zero Mean Traverse, Low Pass Filter, Interpolate Y x 2

## The Results – Description and Interpretation (*Figures 5 – 9*)<sup>4</sup>

The earth resistance results show a low resistance anomaly of circular plan (R1) that corresponds with the enclosure ditch which is (barely) visible on the ground. This ditch feature is incomplete in parts in the south east quadrant as the surviving portion of the tree-lined 'bank' prevented survey. The ditch was also not located on the eastern side of the enclosure where it appears to have been incorporated into the field boundary. The ditched feature corresponds to a negative magnetic anomaly (M2), which is visible in three sections from north to south west<sup>5</sup>.

A concentric high resistance anomaly (R2) is located approx. 5m inside of the enclosure ditch, enclosing an area of approx. 25m in internal diameter (E-W). This high resistance feature is consistent with the presence of a stone wall or a bank constructed of stone. However, the feature appears to run inside of the small section of possible bank that is still visible, albeit with several gaps. While the gaps to the south south west and south east appear to be more recent, there appears to be a very definite truncation in the high resistance feature in the north eastern quadrant. This gap measures approx. 1.5m and is likely to indicate the location of the original entrance. Although it is also possible that this is a more recent development, possibly linked with the establishment of the field boundary.

The centre of the enclosure contains a series of anomalies which appear to form a sub-circular feature (R4) measuring approx. 6m in diameter. The high resistance features may correspond to the location of a walled structure, or a structure with stone foundations, potentially a house. Certainly, the shape, size and location of this structure are broadly consistent with the houses associated with early medieval raths (such is the classification of this enclosure), though this cannot be verified in the absence of excavation. These high resistance anomalies are complemented by a number of positive magnetic anomalies (M3) which may represent stone-filled postholes, also linked with the structure. However, there are a number of positive magnetic anomalies within the interior of the rath enclosure (e.g. M6), so it is difficult to distinguish between those associated with a possible house structure and isolated pits. A high positive magnetic anomaly (M4) is located within the potential house structure, possibly an indication of burning, which could point to the location of a hearth – should the structure indeed prove to be a house.

Several high resistance anomalies within and outside of the enclosure (e.g. R5, R6, R7, R8) do not appear to form any coherent features and may correspond to naturally occurring stone and/or rocks. One possible exception to this is along the southern perimeter of the enclosure where a high resistance anomaly (R9) may correspond to a portion of the remaining bank.

<sup>4</sup> Earth Resistance Results: Figures 5-6; Magnetometry Results: Figures 7-8; Interpretative Plan: Figure 9

<sup>5</sup> Ditches would 'normally' present as positive magnetic anomalies, however, the negative response here may be related to the scarping of the ringfort interior and/or the fill of the ditch which may have become waterlogged, causing the magnetic properties to convert from positive to negative (Fassbinder 2015, 89).

There are numerous positive magnetic anomalies throughout the survey area, both within and outside of the rath (e.g. M9). There is no clear pattern evident and these features may represent the location of postholes and/or pits (some of which may contain burnt material).

Several high positive magnetic responses may indicate the presence of burnt material (e.g. M7, M8), although it is not possible to ascertain whether they are archaeological or more recent in origin. The strength of a number of the responses (in particular M8) suggests that at least some of the anomalies may correspond to the presence of kilns. Perhaps the most significant of these is M4 which is located within the structure in the rath interior (i.e. demarcated by R4). Given its location and the strength of the reading, this may be consistent with the presence of a hearth or fireplace.

Abutting the south eastern section of the rath enclosure, the possible house site (LE027-121002) is represented by a relatively faint low resistance anomaly (R3), pinpointing the location of the slight ditch which is mentioned in Casey's field report (Casey 1991). A series of positive magnetic anomalies (M10) lie within the perimeter with the largest of these being located in the south east corner. The remaining features are spaced out along the northern section where this house structure would have abutted the rath. It is unclear as to whether these features – possibly postholes – relate to the rath or the house structure (or both).

The magnetometry survey identified a number of linear features comprised of both positive and negative anomalies (M1). These are located to the north and south east of the rath, but do not encroach upon it. The linear features appear to run in multiple directions – north east to south west, north west to south east, and east to west. During his 1991 visit to the site, Casey mentioned the existence of old lazy beds 'nearby' but fails to give a more specific location. Aerial images show possible lazy beds in the field to the north east of the rath field, running approximately north east to south west. It is likely that the anomalies represented by M1 are lazy beds, or at the very least are linked to modern agricultural practices. The ground in these areas, particularly to the north east of the rath, is extremely wet and churned up.

## **Discussion & Conclusion**

Without excavation and scientific dating, the exact nature of the enclosure and its potential internal and external features cannot be determined with absolute certainty. Likewise, not all archaeological remains may have been picked up by the geophysical survey.

LE027-121001 is already listed on the RMP with a classification of 'ringfort-rath', although its defining features are no longer particularly visible on the ground. This geophysical survey has succeeded in identifying the extent of the outer ditch and probable inner bank of the enclosure, with a possible entrance feature in the north eastern quadrant. Measuring approx. 6m in diameter, the sub-circular



structure revealed by the geophysical survey at the approximate centre of the enclosure, corresponds to the expected size and shape of an early medieval house. This is further supported by the evidence of potential burning within this structure. However, there is no coherent evidence for any associated field or garden plots and modern disturbance (agricultural) may have affected the magnetic responses in places.

The nature of the house site which abuts the rath (LE027-121002) is still unclear, as is its relationship with the rath. While the geophysical survey identified a number of potential archaeological features associated with this structure, they lack the clarity necessary to provide a more comprehensive interpretation.

### **Acknowledgements**

Sincere thanks to Pádraig Gilbride for facilitating the research on his land, and for his interest in the project. Many thanks to both the Discovery Programme and UCD School of Archaeology for the use of their equipment and their continued support. Special thanks to the survey volunteers for their excellent work during the survey.

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Accessed 22/03/2018, 15:20pm

Teagasc

<http://gis.teagasc.ie/soils/soilguide.php>

Accessed 21/03/2018, 19:30am

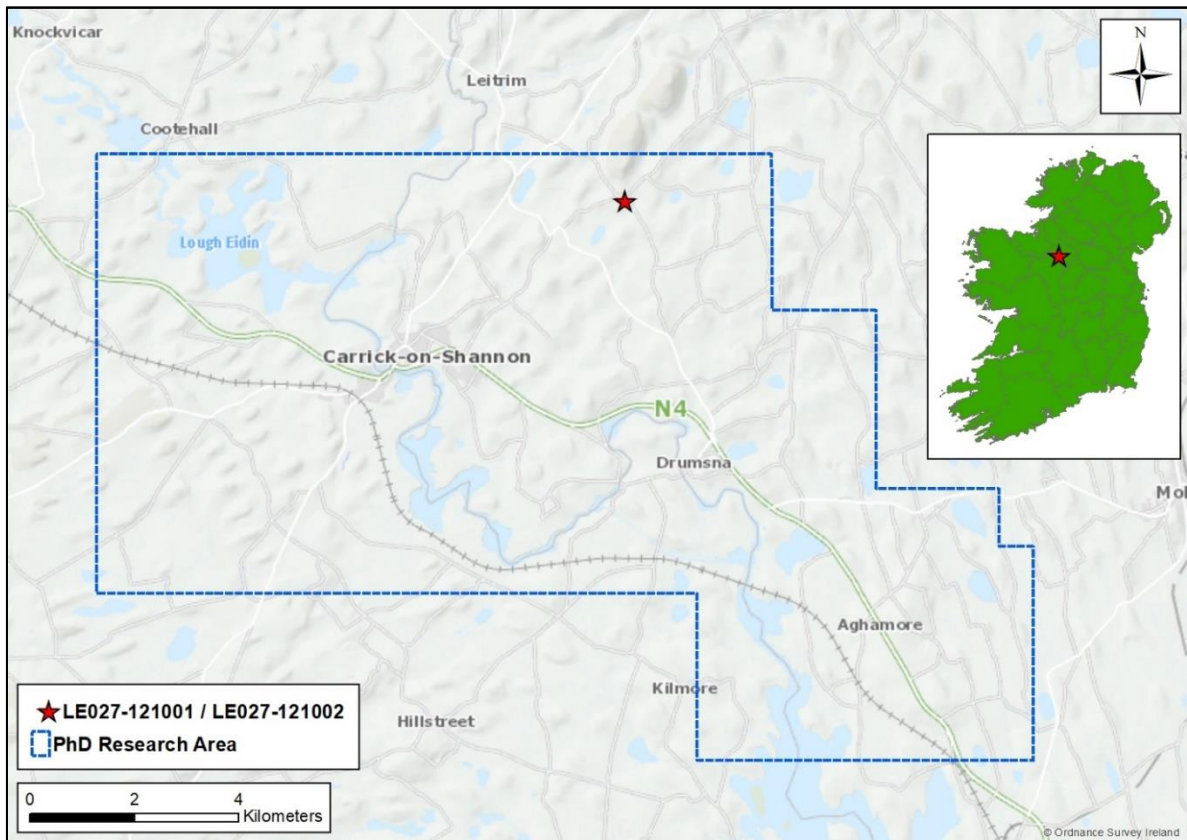


Figure 1: Survey Location (with PhD Research area) (source: OSi MapGenie, with additions)

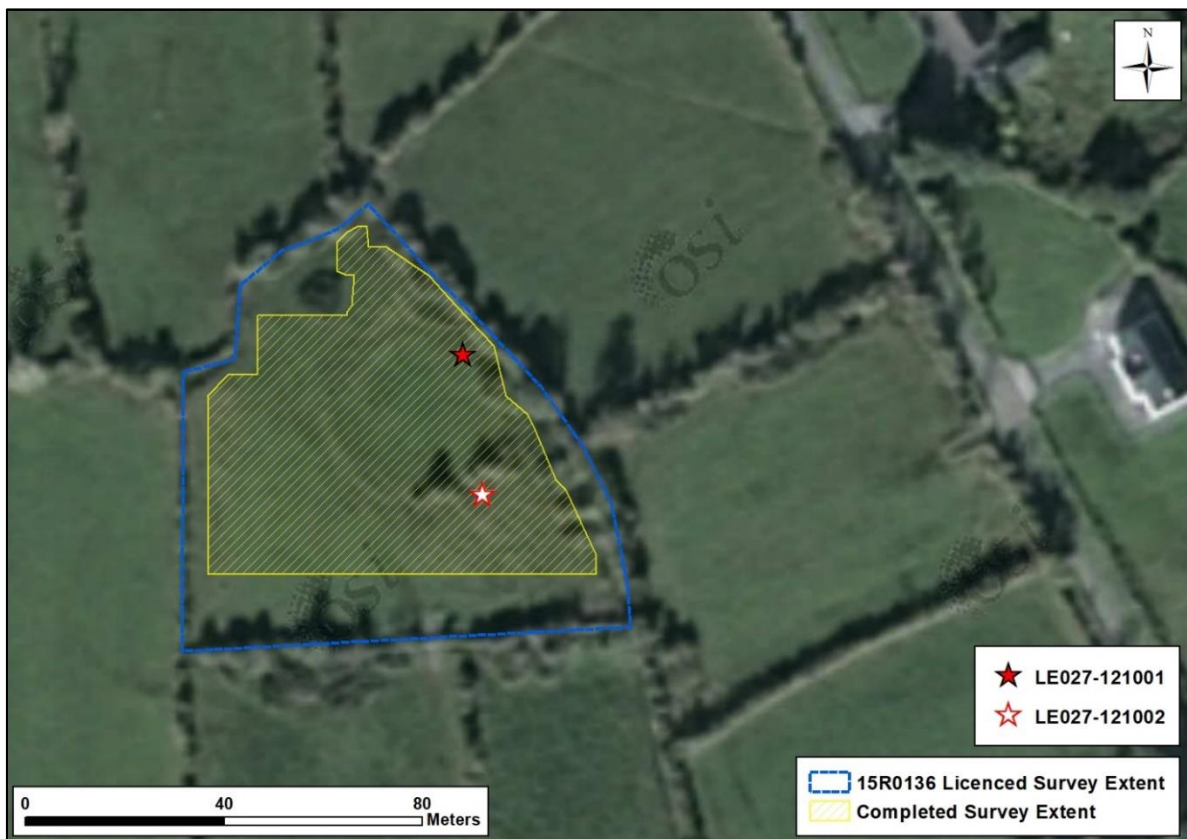


Figure 2: Survey Extent on satellite image

(source: OSi MapGenie, with additions)



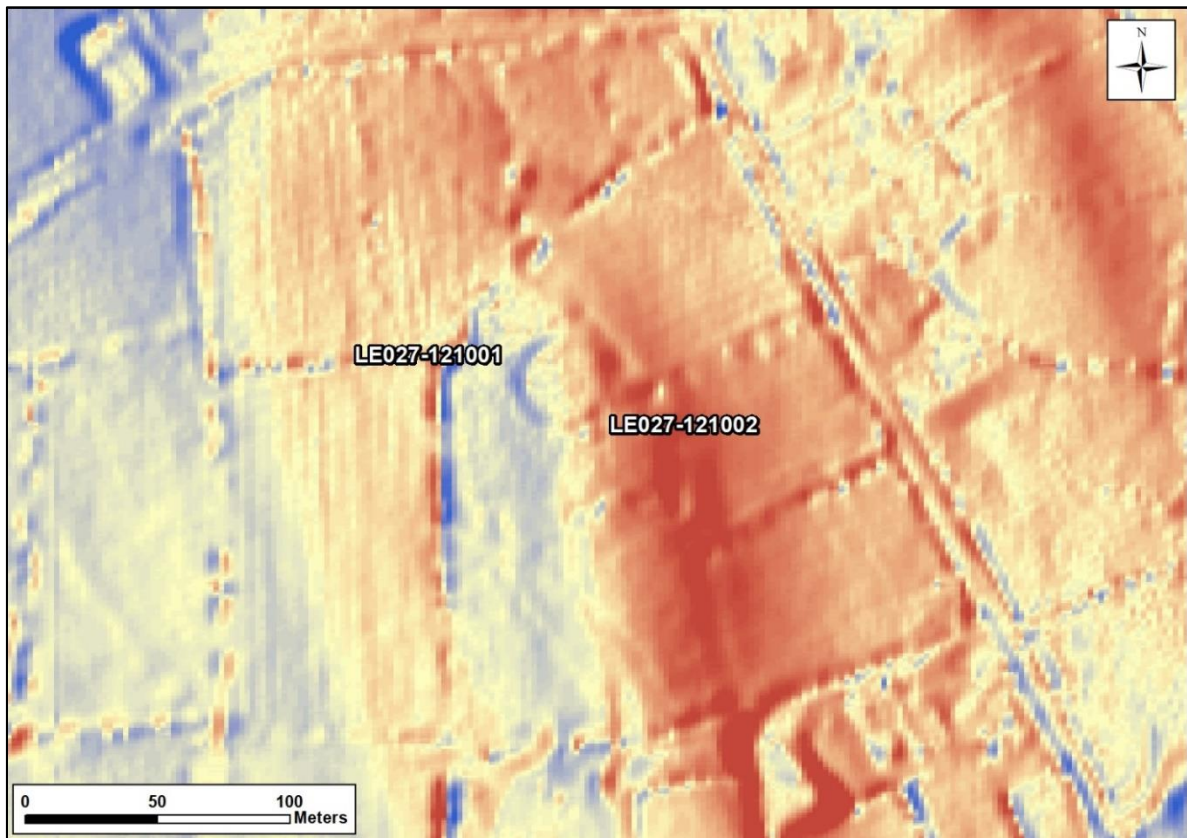


Figure 3: Lidar hillshaded image of LE027-121001 / 002

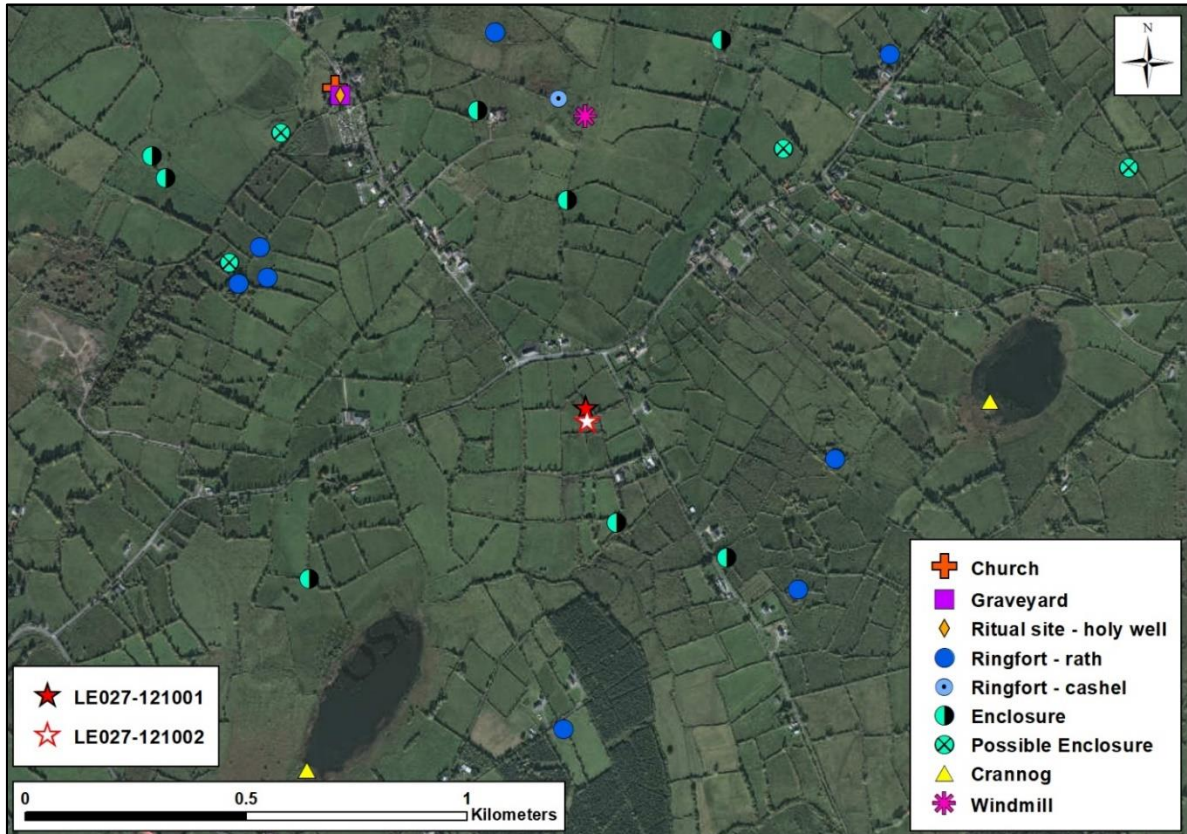


Figure 4: LE027-001 / 002 and environs on satellite image (source: OSi MapGenie, with additions)



Figure 5: Greyscale image of earth resistance results overlain on satellite image

(source: OSi MapGenie, with additions)



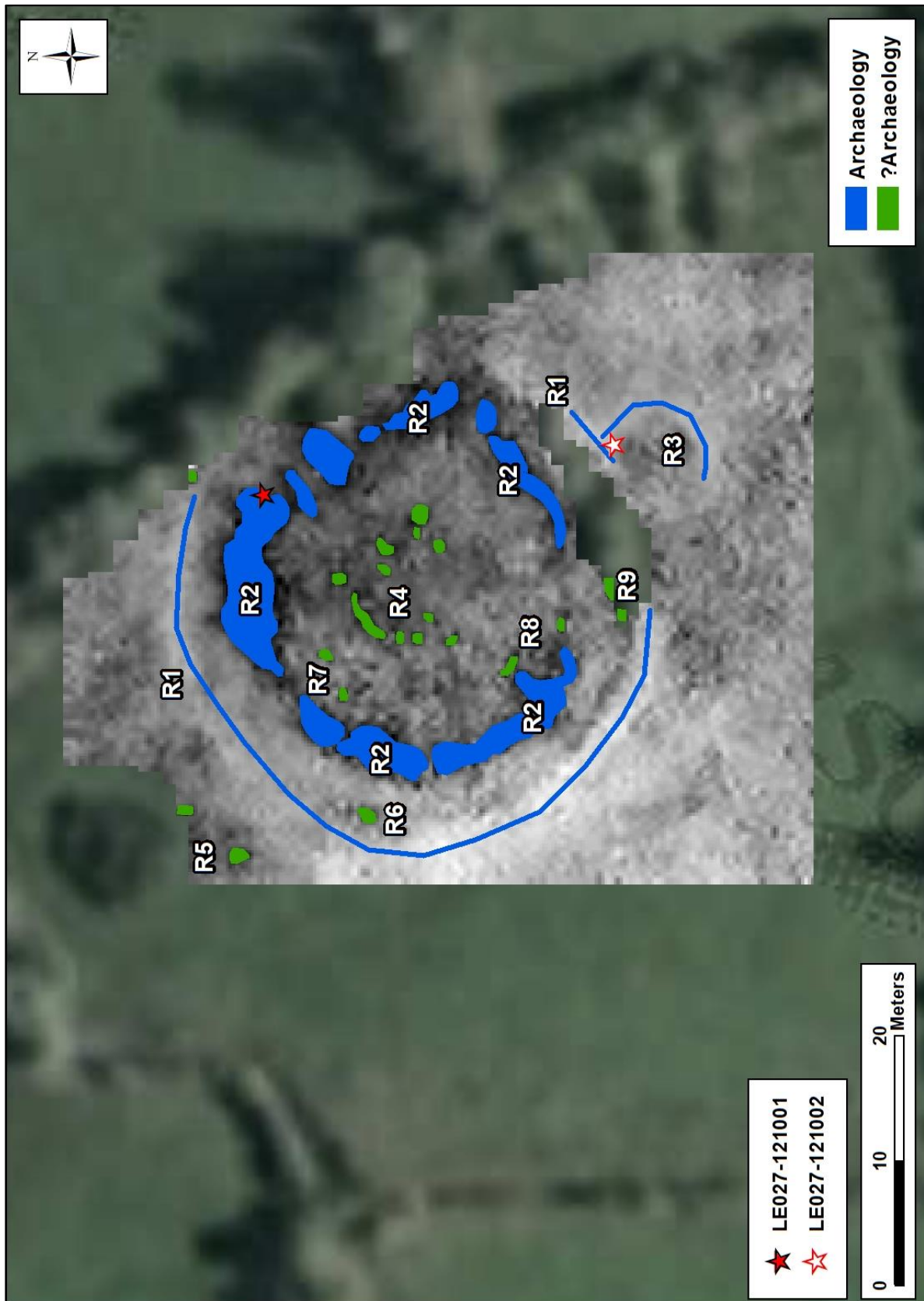


Figure 6: Greyscale image with digitised earth resistance anomalies

(source: OSi MapGenie, with additions)



Figure 7: Greyscale image of magnetometry results overlain on satellite image  
(source: OSi MapGenie, with additions)

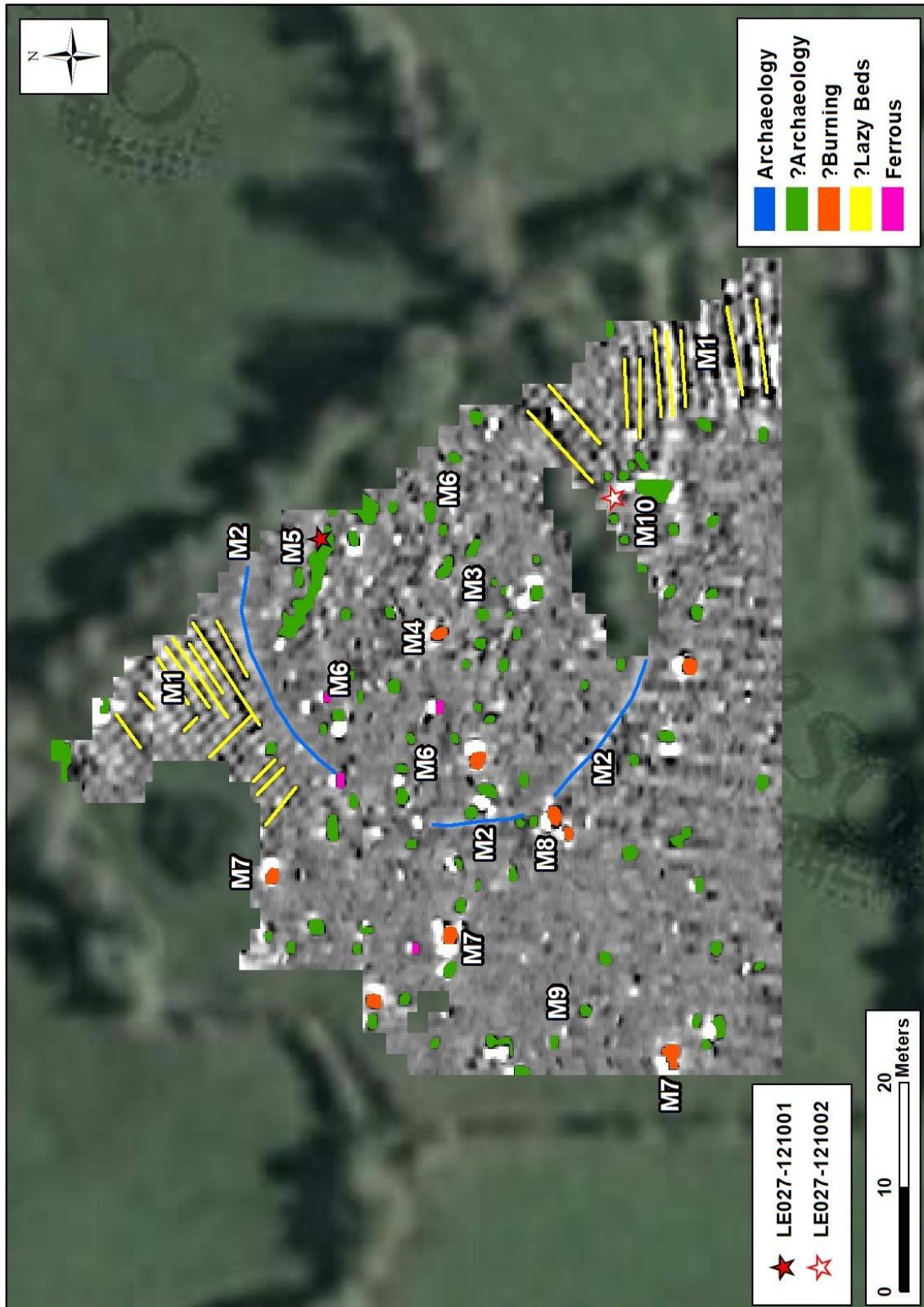


Figure 8: Greyscale image with digitised magnetometry results

(source: OSi MapGenie, with additions)



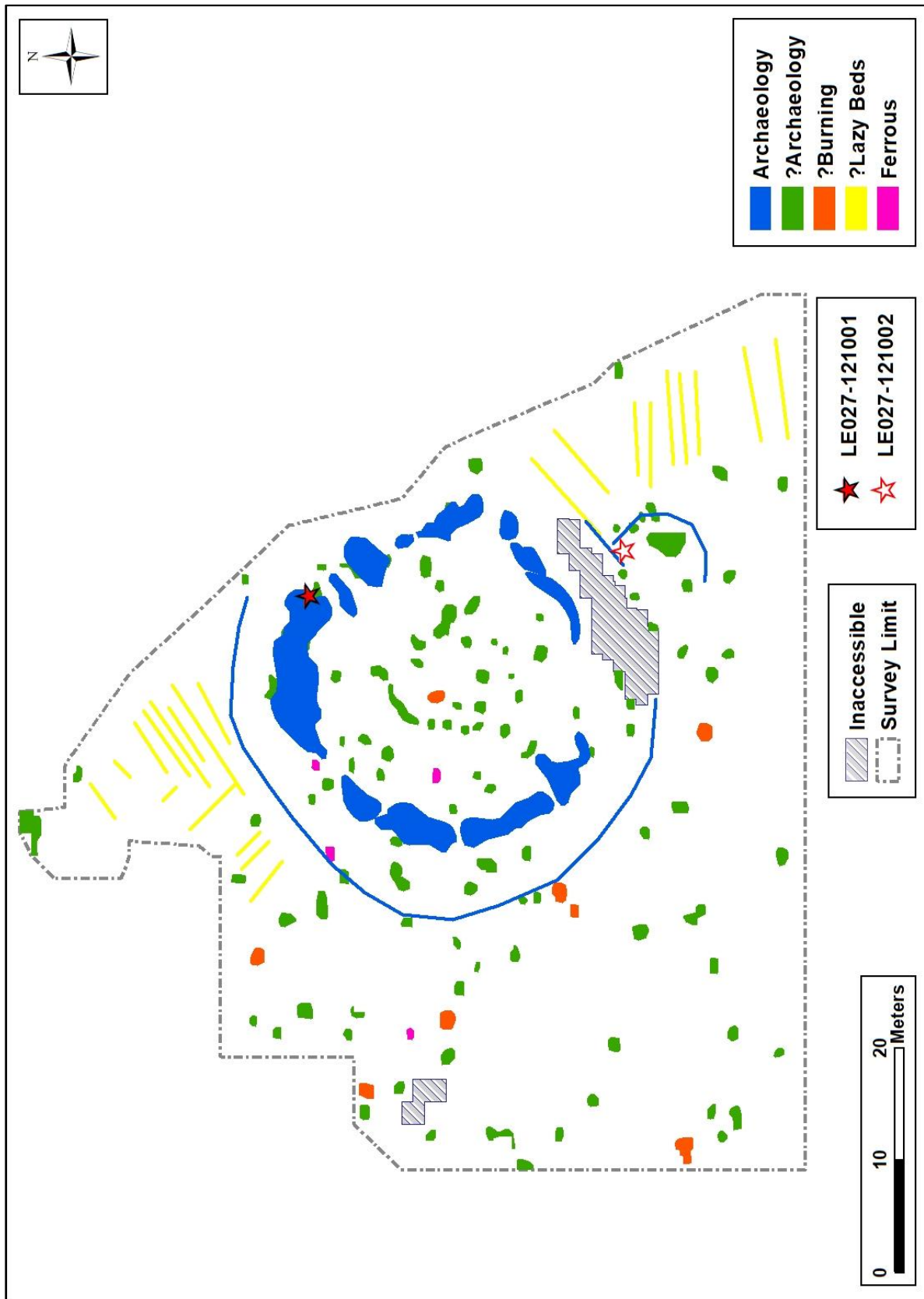


Figure 9: Earth Resistance & Magnetometry Results – Interpretative Plan



**Plate 1: LE027-121001: The northern extent of the rath – outer ditch and raised interior  
(facing east)**

*(Photo: P.Dodd)*



**Plate 2: LE027-121002: the 'House – Indeterminate Date' on the exterior of the southern  
'bank' (facing north)**

*(Photo: S. Curran)*





**Plate 3: View of Mong Hill to the north east of the rath (LE027-121001)**

*(Photo: S. Curran)*



**Plate 4: View of Kilmaddaroe Lough to the south west of the rath (LE027-121001)**

*(Photo: S. Curran)*





**Plate 5: Remaining portion of the 'bank' along the SSE of the rath (exterior)** (Photo: S. Curran)



**Plate 6: The 'bank' along the SSE of the raised interior of the rath (facing east)**  
(Photo: S. Curran)



# Geophysical Survey Report

**Site:** *Drumcleavry, Co. Roscommon*

**RMP:** RO011-058, RO011-187

**ITM:** 598646, 796743

**Licence:** 14R0116



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## Summary

This report details the results of geophysical survey undertaken within the immediate environs of the Doon of Drumsna (RMP: RO011-058) - classified as a 'Linear Earthwork'; also incorporating an enclosure - classified as 'Ringfort - Rath' (SMR: RO011-187) - in the townland of Drumcleavry, Co. Roscommon (Figure 1). The investigation was conducted in November 2014 and consisted of magnetic gradiometry. The survey has confirmed the extent of the enclosure visible on the lidar model and has identified a number of potential archaeological features.

## Survey Details

**Survey Licence Number:** 14R0116

**Survey Dates:** 1<sup>st</sup> - 5<sup>th</sup> November 2014

**Survey Team:** Susan Curran, Christine Melia, Arlene Coogan

**Planning Reference No.:** N/A

**Townland:** Drumcleavry **County:** Roscommon

**Barony:** Ballintober North **RMP No.:** RO011-058, RO011-187

**National Grid Reference:** **IG:** 198695, 296730 / **ITM:** 598646, 796743

**Geology:** Ballymore Limestone Formation; dark fine-grained limestone & shale<sup>1</sup>

**Quaternary Sediments:** Till derived from limestones<sup>2</sup>

**Soils:** Elton; Fine loamy drift with limestones<sup>3</sup>

**Survey Type:** Fluxgate Gradiometer **Instrument:** Bartington Grad 601-2

**Sample Interval:** 0.25m **Traverse Interval:** 1m

**Grid Size:** 20m x 20m **Method:** Parallel Traverse

**Area Surveyed:** approx. 2 hectares **Survey Direction:** North

**Licence Holder:** C  il  n    Drisceoil **Report Author:** Susan Curran

<sup>1</sup> www.gsi.ie – Bedrock Geology

<sup>2</sup> www.gsi.ie – Quaternary Sediments and Geomorphology mapviewer

<sup>3</sup> Irish National Soils Map, 1:250,000k, V1b (2014). Teagasc, Cranfield University. Jointly funded by the EPA STRIVE Research Programme 2007-2013 and Teagasc

# Contents

Summary & Survey Details.....	2
List of Figures.....	3
List of Plates.....	3
Project Background.....	4
Site Description.....	4
Survey Objectives.....	5
Methodology.....	6
The Results - Description and Interpretation.....	6
Discussion & Conclusion.....	8
Acknowledgements.....	8
References.....	9

## List of Figures

Figure 1:	Survey Location.....	10
Figure 2:	Survey Extent ( <i>licensed and completed</i> ).....	10
Figure 3:	Lidar hillshaded image of RO011-058 & RO011-187.....	11
Figure 4:	Lidar Slope Model of RO011-058 & RO011-187.....	11
Figure 5:	RO011-058 & RO011-187 and environs.....	12
Figure 6:	Excavations in the environs of RO011-058 & RO011-187.....	12
Figure 7:	Magnetometry Results.....	13
Figure 8:	Magnetometry Anomalies ( <i>digitised</i> ).....	14
Figure 9:	Lidar Anomalies ( <i>digitised</i> ).....	15
Figure 10:	Lidar Anomalies overlain on Historic 6 Inch map.....	16
Figure 11:	Interpretative Plan (Magnetometry & Lidar).....	17

## List of Plates

Cover:	The Enclosure - RO011-187	
Plate 1:	The enclosing ditch at RO011-187.....	18
Plate 2:	View to the north west from RO011-187.....	18
Plate 3:	The 'water feature'.....	19
Plate 4:	Close-up of the 'water feature'.....	19



## Project Background

The principal focus of the geophysical survey was an area immediately adjacent to the Doon of Drumsna (RO011-058), also comprising an enclosure (RO011-187) (Figure 2). The latter was discovered in 2012 over the course of lidar survey analysis undertaken by the author (Curran 2012) and was added to the Sites and Monuments Record in 2014, classified as 'Ringfort-Rath' (Figure 3).

The survey comprised magnetic gradiometry and was undertaken as part of the 'Black Pig's Dyke Regional Project' (Ó Drisceoil et al. 2014) which aims to trace the remains and extent of the linear earthwork known as the Black Pig's Dyke, segments of which occur as extensive banks and ditches scattered across the north midlands and south Ulster (Ó Drisceoil 2015, 1). The monument (classified as a 'linear earthwork') is known as the 'Doon of Drumsna' in Co. Roscommon.

The survey area also coincides with a PhD research project (funded by the Irish Research Council) which explores early medieval settlement in several case study areas in Ireland. The first of these case studies consists of a 140km<sup>2</sup> area of counties Leitrim and Roscommon, straddling the River Shannon and situated around Carrick-on-Shannon and environs. The research project utilises lidar and other remote sensing techniques to explore early medieval settlement patterns and the inter-relationship between associated monuments and status in early medieval Ireland.<sup>4</sup>

## Site Description

The site is located in the townland of Drumcleavry which is situated within the Civil Parish of Kilmore and the Barony of Ballintober North. The townland is located on a peninsula created by the route of the River Shannon close to Jamestown, Co. Roscommon. Its southern boundary with the townland of Lackagh is formed by the Doon of Drumsna (RO011-058), while the River Shannon forms its border on the east. There is no confirmed Irish name for the townland (Logainm.ie), although a suggested Irish form - 'Druim cliabhraigh' - which translates as 'ridge of the baskets' is noted by John O'Donovan in the Ordnance Survey Namebooks (ibid). However, the term 'clíabh' was also used to refer to bee-hives from about the 11<sup>th</sup> century (Kelly 1997, 110), and so its use within the townland name could even refer to former beekeeping practices in the area.

RO011-058, namely The Doon of Drumsna (Figure 4), consists of two parallel sets of banks and ditches, running approximately east-west across the base of the peninsula, effectively cutting off a loop of the River Shannon. The Jamestown Canal lies approx. 500m further south, providing an alternative access route to the Shannon loop. Two entrance features are visible along the ramparts - one to the east and

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<sup>4</sup> The lidar survey was commissioned by Leitrim County Council and Transport Infrastructure Ireland (then the National Roads Authority) and was flown as part of the consultation phases of the proposed N4 Carrick-on-Shannon to Dromod road scheme. Access to the dataset was kindly provided for M.A. and PhD research purposes.

the other just west of the centre (leading into the geophysical survey area). An earth resistance survey was undertaken at the more easterly entrance in 1990 and identified a possible post hole which may have held a central gatepost (Buckley et al. 1990, 51-53; Condit & Buckley 1998, 4).

RO011-187 is located approx. 90m north of the Doon, north west of the western entrance gap. This circular enclosure measures approx. 35m in diameter and is defined by a low scarp and external fosse (Plates 1 & 2). It is located on low-lying pasture between two drumlins, just north of a 'water feature' which is surrounded by trees (Plates 3 & 4). This is marked as a sub-rectangular feature on early cartographic sources, and is perhaps a result of quarrying, although its exact purpose (or cause) is unclear.

There are a number of recorded monuments within the immediate environs of the survey area (Figure 5), on both sides of the Doon, the majority of which (23) are classified as 'Ringfort-Rath' or 'Enclosure' on the RMP. Indeed, there are five raths (and one enclosure) within a 500m radius of the survey area, two of which (RO011-086 & RO011-087) are situated on a drumlin summit, overlooking the Doon of Drumsna. The ring-ditch situated approx. 400m north of RO011-187 is the only recorded monument of probable prehistoric date within its immediate environs. The remaining monuments are largely related to the historic town of Jamestown (LE031-082), e.g. the bastioned fort, town defences, and 17<sup>th</sup> century Franciscan Convent (Moore 2003, 181) which are all located within and around Jamestown on the Leitrim side of the Shannon (LE031-2005, LE031-082002 & LE031-082006 respectively).

Several excavations have taken place at and around the Doon of Drumsna and the survey area (Figure 6). Radiocarbon dating of samples taken from the base of one of the Doon ramparts in 1990 produced an Iron Age date (Lanting et al. 1991, 66). Three excavations along the western extent of the Doon in the townland of Ardanafrin failed to produce any archaeological remains (97E0347, 99E0029, 04E1301). Excavations were undertaken in the vicinity of the ring ditch (RO011-057001) in advance of the construction of two houses in 2005 (05E0386, 05E0394). The former did not reveal any evidence of archaeological activity (Read, 05E0386), however, the latter revealed a circular ditched enclosure (possibly prehistoric) and a small amount of cremated bone (Read, 05E0394).

## Survey Objectives

This survey was undertaken as part of two research projects: the first, investigating the Black Pig's Dyke in its various forms throughout the country; and the second, investigating early medieval settlement in the Carrick-on-Shannon area. The survey aimed to investigate the Doon of Drumsna (RO011-058), the newly discovered enclosure (RO011-187) and their immediate environment in order to identify any subsurface remains (e.g. house foundations, hearths, field boundaries, ditches etc.) that may help to advance our understanding of their potential date and function, and indeed any potential relationship

between the two monuments. Magnetic gradiometry was employed to help establish the nature and character of the monuments and their potential relationship with other monuments in the surrounding landscape.

## Methodology

- 1) An area of approx. 2 hectares - comprising RO011-187 and the area adjacent to RO011-058 - was surveyed.
- 2) The survey grid, comprising a series of 20mx20m grid panels, was located and tied into the Irish National Grid using a Trimble GPS in conjunction with a VRS Now correction service.
- 3) Magnetic Gradiometry was undertaken using a Bartington Grad 01 DL601 dual sensor fluxgate gradiometer. Data were recorded using parallel traverses at a traverse interval of 1m and a sample interval of 0.25m (4 points per metre along each traverse). A total of 55 grids were surveyed using this technique.
- 4) All data were processed using Geoscan Research Geoplot version 3/4 software.

Magnetometry Processing Steps: Zero Mean Traverse, Low Pass Filter, Interpolate Y x 2, Clip  $\pm 3$

## The Results – Description and Interpretation (Figures 7 - 11)<sup>5</sup>

Overall the weather conditions were dry during the survey, although the ground itself was quite wet which impacted on accessibility in places. Some areas were very churned up (by farm machinery / animals etc.) and were also unsuitable for survey, in particular the field to the east, close to the Doon's western entrance which unfortunately restricted data collection in this area.

The magnetometry results show a negative magnetic anomaly of circular plan (M12) which corresponds with the location of the enclosure ditch visible on the lidar surface (L1). There are a number of positive magnetic anomalies found within and along the ditch feature, which may be related to the ditch. They may represent the existence of pits, some of which may contain burnt material. The interior of the enclosure is dominated by a large spread of magnetic disturbance (M13). Measuring approx. 17m x 10m, it covers an area from the approximate centre of the enclosure to the east. It consists of a mix of positive and negative anomalies, but does not form a coherent feature or structure. A similar anomaly (M14) is located approx. 12.5m south of the enclosure, covering an area of approx. 11.5 x 13.5m.

Two linear negative magnetic anomalies (M11) run approximately north west - south east, abutting the northern limits of the enclosure. This is also visible as a continuous ditched feature on the lidar surface (L2) and corresponds to the location of a former field boundary which is depicted on early cartographic sources (Figure 10). The lidar survey also identified three additional former field boundaries running approx. south west - north east (L3) which correspond to field boundaries marked on the 6inch map.

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<sup>5</sup> Magnetometry: Figures 7, 8; Lidar: Figures 9, 10; Interpretative Plan: Figure 11

There are multiple anomalies with very high dipolar responses (M5, M6, M10, M15), indicative of modern magnetic disturbance, probably near-surface ferrous metal. The positive magnetic anomaly located at the southern extent of the survey area (M16) is most likely associated with the ditched field boundaries in this area.

A number of linear anomalies (M1) in the northern corner of the survey area have positive magnetic responses and are most likely the result of ploughing. They run north west to south east which appears to be in contradiction to several linear anomalies visible on the lidar surface which run north east to south west and cover the top half of the field (see Figure 9). These linear features are not visible on the magnetometry results, although they may be partially represented by two parallel linear anomalies (M4). There is a cluster of positive magnetic anomalies in this part of the survey area (e.g. M2), including multiple dipolar and high magnetic anomalies (e.g. M3) which may represent the presence of ferrous and/or burnt material. Unfortunately these anomalies do not appear to form any coherent feature(s), and while some of them may be archaeological in origin, their proximity to the modern dwellings (the oldest of which was constructed between 2000 and 2005) means that any remains here may have been impacted and/or obscured by the construction.

Multiple dipolar and strong positive magnetic anomalies are visible throughout the survey area, indicating the presence of ferrous material and/or pits, some of which may contain burnt material. A number of these anomalies are arranged in an arc formation (M9), approx. 16m to the north west of the enclosure. This may represent the partial remains of a sub-circular structure. A similar distribution is found approx. 16.5m to the north east of the enclosure (M8), although given the dipolar responses, these could be more recent in origin.

There are several responses indicative of burning (e.g. M7), some of which may correspond to hearth or possible kiln features, given the strength of the anomalies.

The area closest to the Doon entrance contains several magnetic anomalies, although the potential features lack the clarity necessary to interpret more fully. Several dipolar anomalies are present (e.g. M18), intermingled with strong magnetic responses (e.g. M19). As above, these possible features may be representative of buried archaeological features, such as pits, while others may relate to modern ferrous deposits. A series of three strong positive magnetic anomalies (M17) in the north east of this section, close to the field boundary, run approximately north-south. The features are approx. 3m wide and may represent individual pits, or perhaps form part of a larger ditch feature which is now incomplete.

## Discussion & Conclusion

The geophysical survey has revealed a number of potential archaeological features, in addition to confirming the extent of the enclosing ditch of RO011-187 which was originally identified through lidar analysis. Although the enclosure is classified as a 'Ringfort-Rath', only the enclosing ditch is visible on the magnetometry survey and there is no indication of an associated bank. While there are numerous positive magnetic features within and around the ditch, it is not possible to determine whether they relate to an additional enclosing feature such as a palisade or wall, or whether they constitute individual pits. The results indicate the presence of potential features within the enclosure, although it is not possible to determine their form or extent given the disturbed nature of the magnetic response.

The area closest to the Doon's more westerly entrance has produced a number of potential archaeological features, some of which may relate to the Doon itself, or activities associated with it.

Without excavation and scientific dating, the exact nature of the enclosure and the area surrounding the Doon cannot be determined with absolute certainty. Likewise, not all archaeological remains may have been picked up by the geophysical survey.

## Acknowledgements

I would like to thank the landowners for facilitating the research on their land. Sincere thanks to C  il  n    Drisceoil and Steve Davis for their support and insight into the Black Pig's Dyke Project. Many thanks to both the Discovery Programme and UCD School of Archaeology for the use of their equipment and their continued support. Special thanks to Christine and Arlene for their excellent work during the survey.



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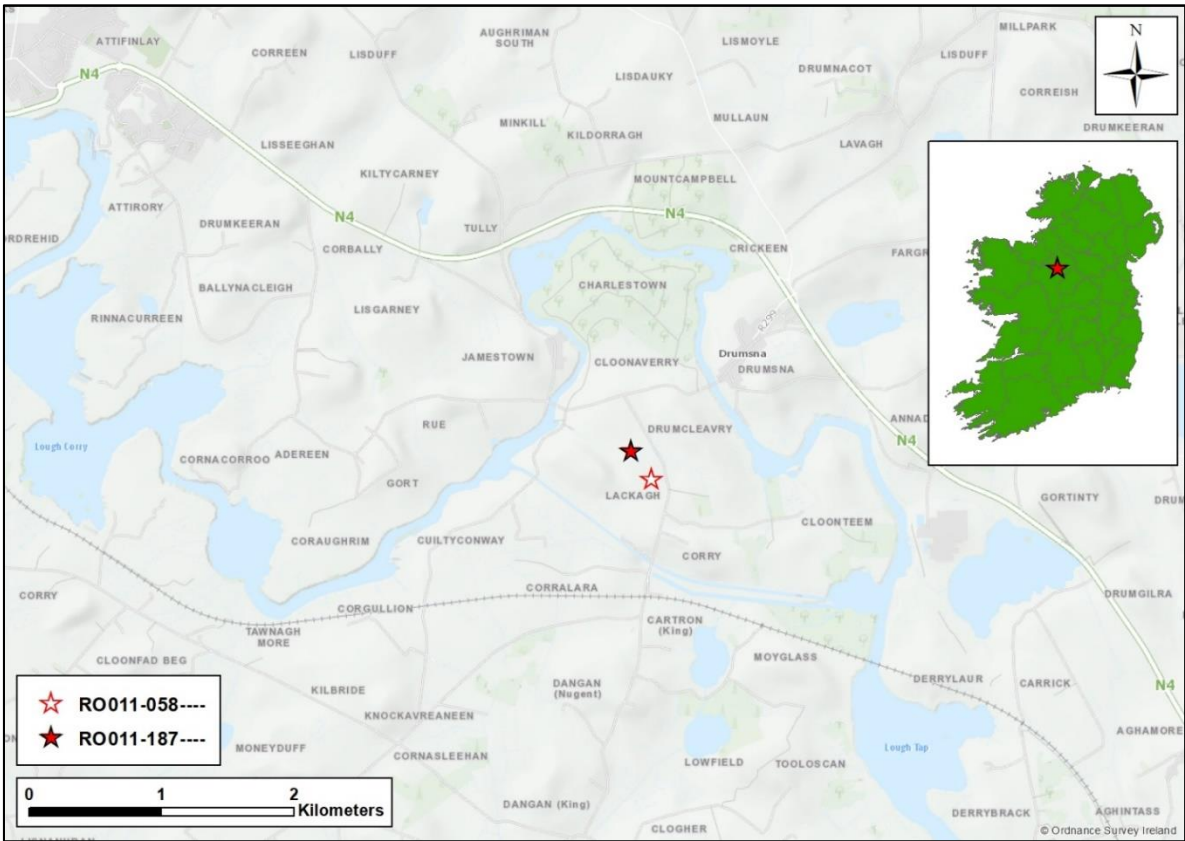
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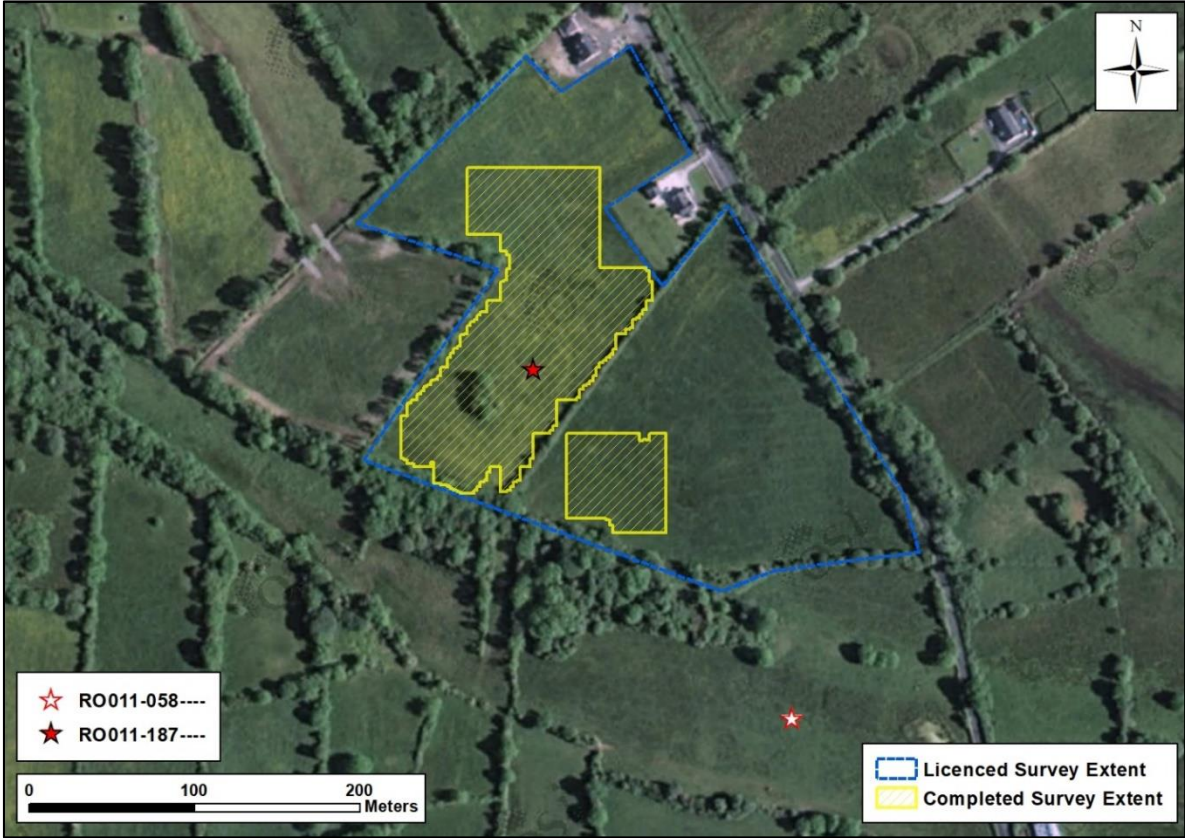
<http://gis.teagasc.ie/soils/soilguide.php>

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### Figure 1: Survey Location

(source: OSi MapGenie, with additions)



### Figure 2: Survey Extent on satellite image

(source: OSi MapGenie, with additions)



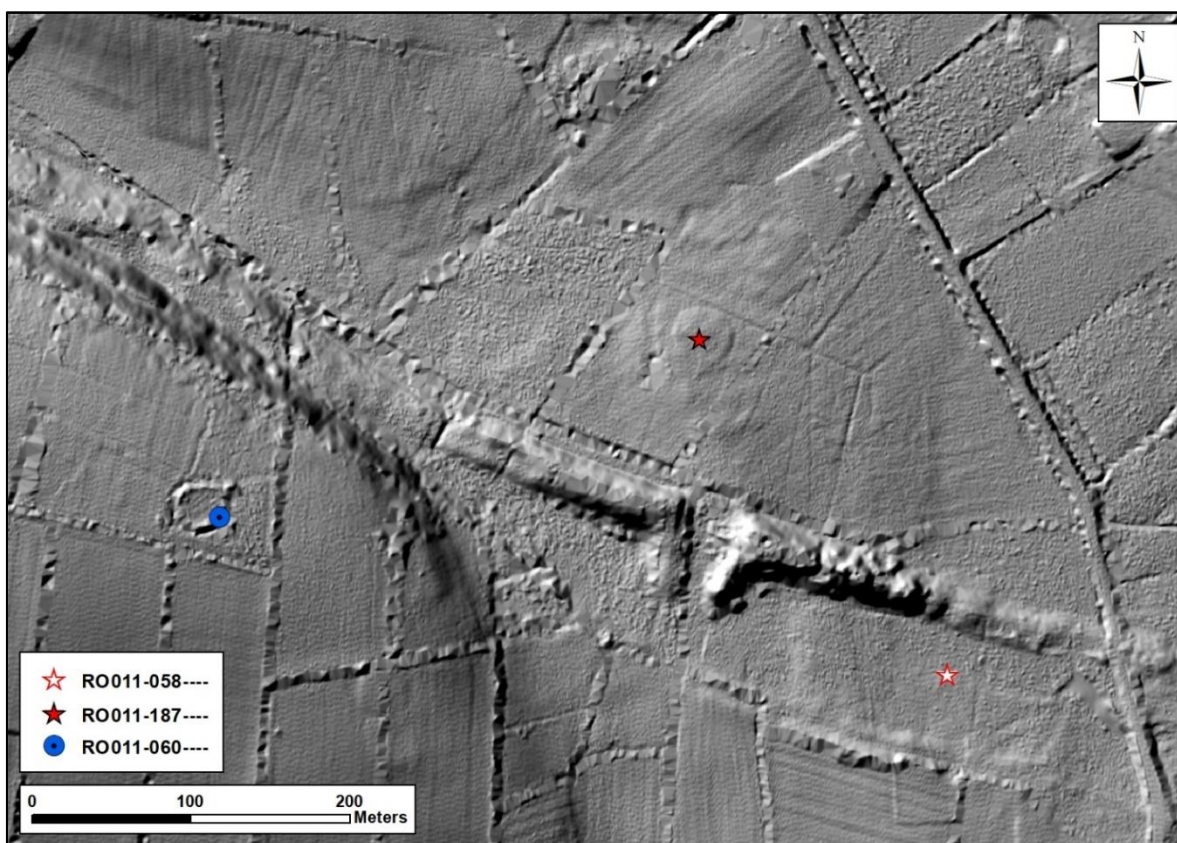


Figure 3: Lidar hillshaded image of RO011-058, RO011-187

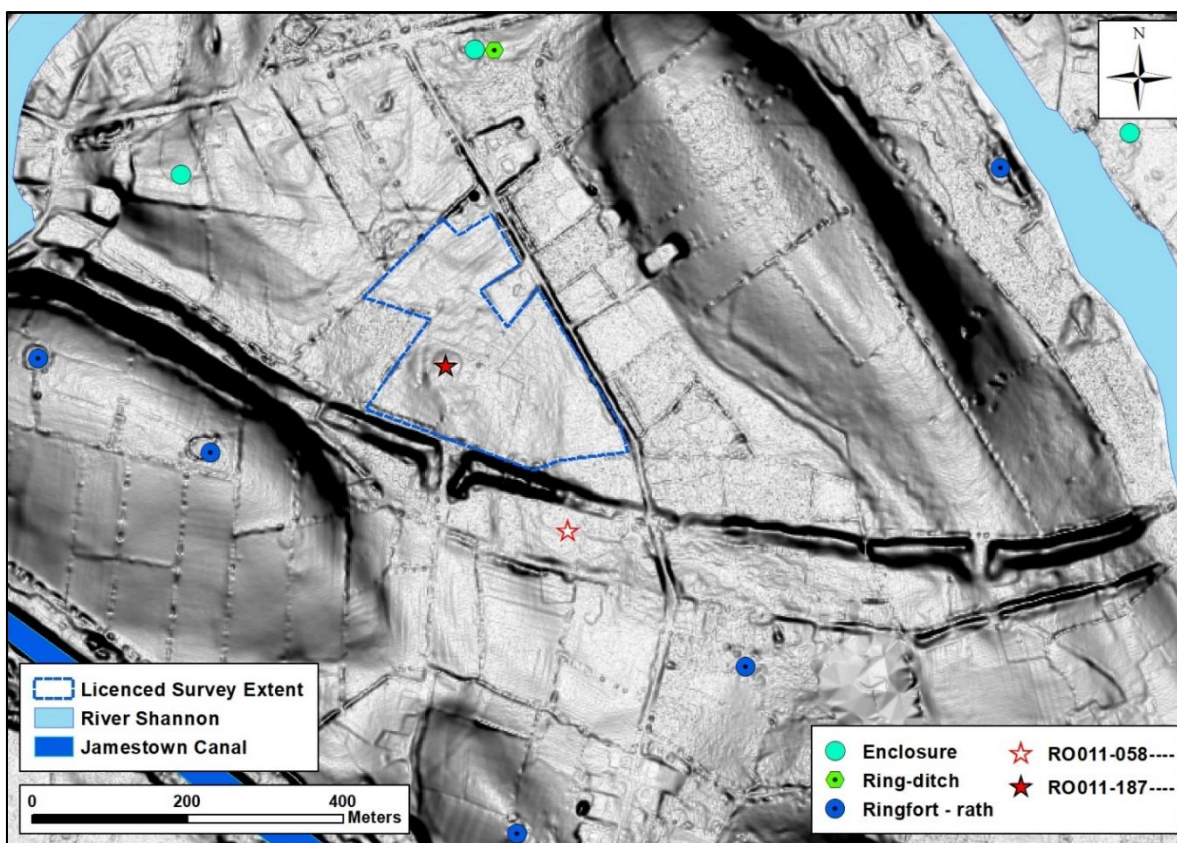


Figure 4: Lidar Slope Model of The Doon of Drumsna (RO011-058) and environs



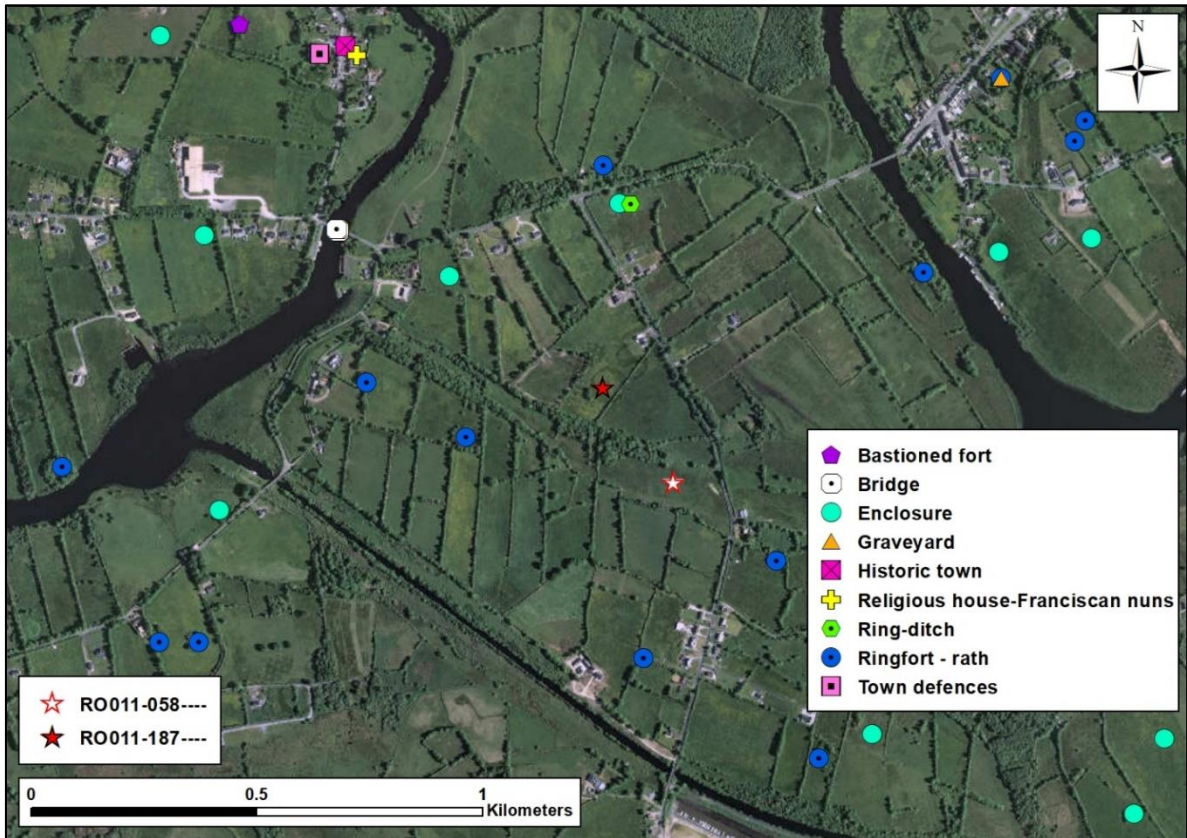


Figure 5: RO011-058 / 187 and environs on satellite image

(source: OSi MapGenie, with additions)

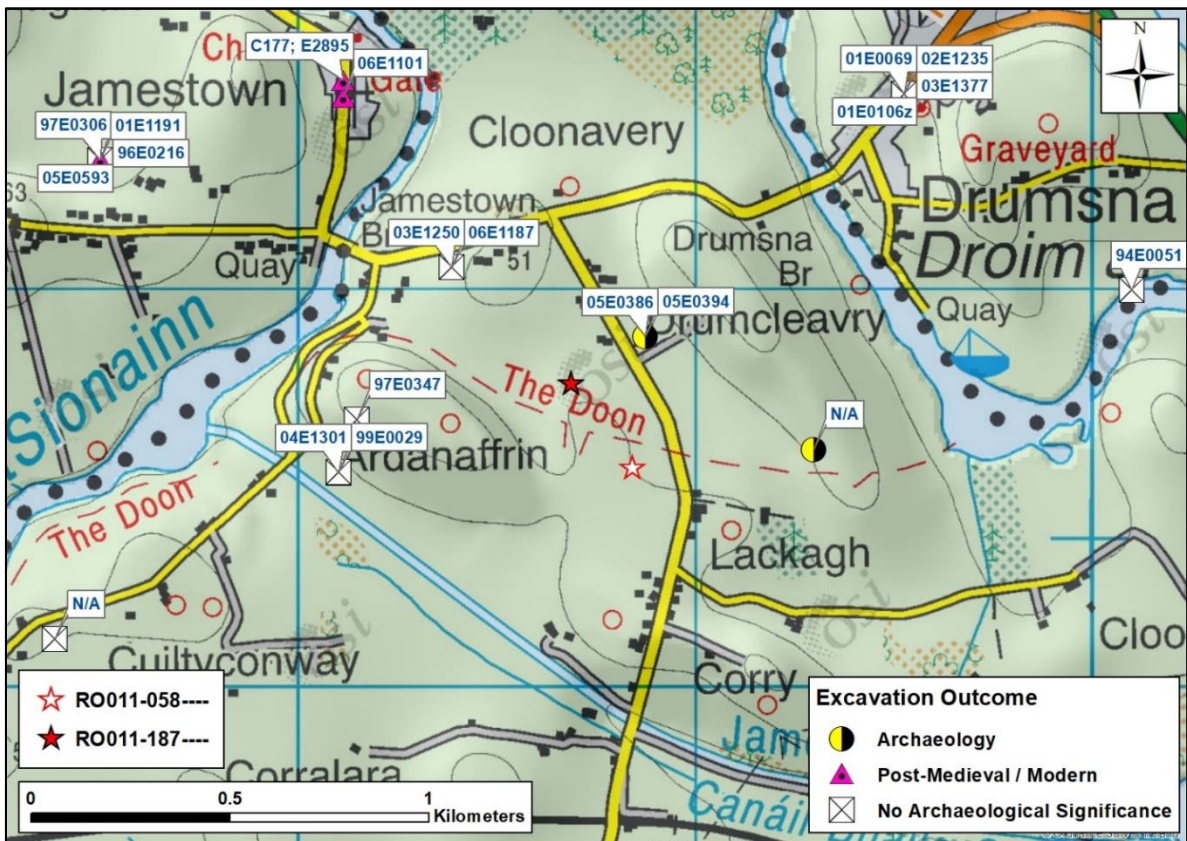


Figure 6: Excavations on Discovery HS Map

(source: Excavations.ie &amp; OSi MapGenie, with additions)



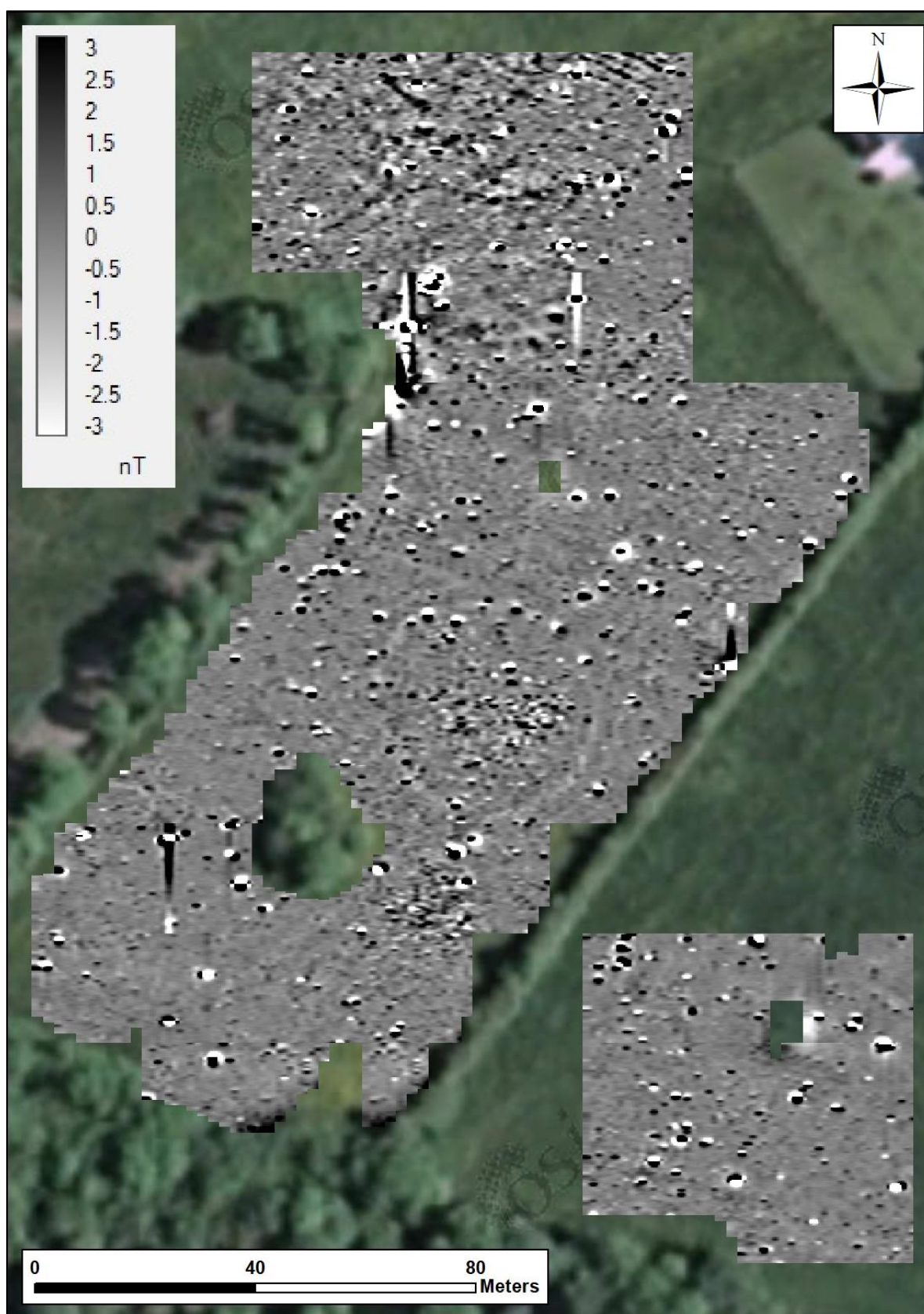


Figure 7: Greyscale image of magnetometry results overlain on satellite image

(source: OSi MapGenie, with additions)



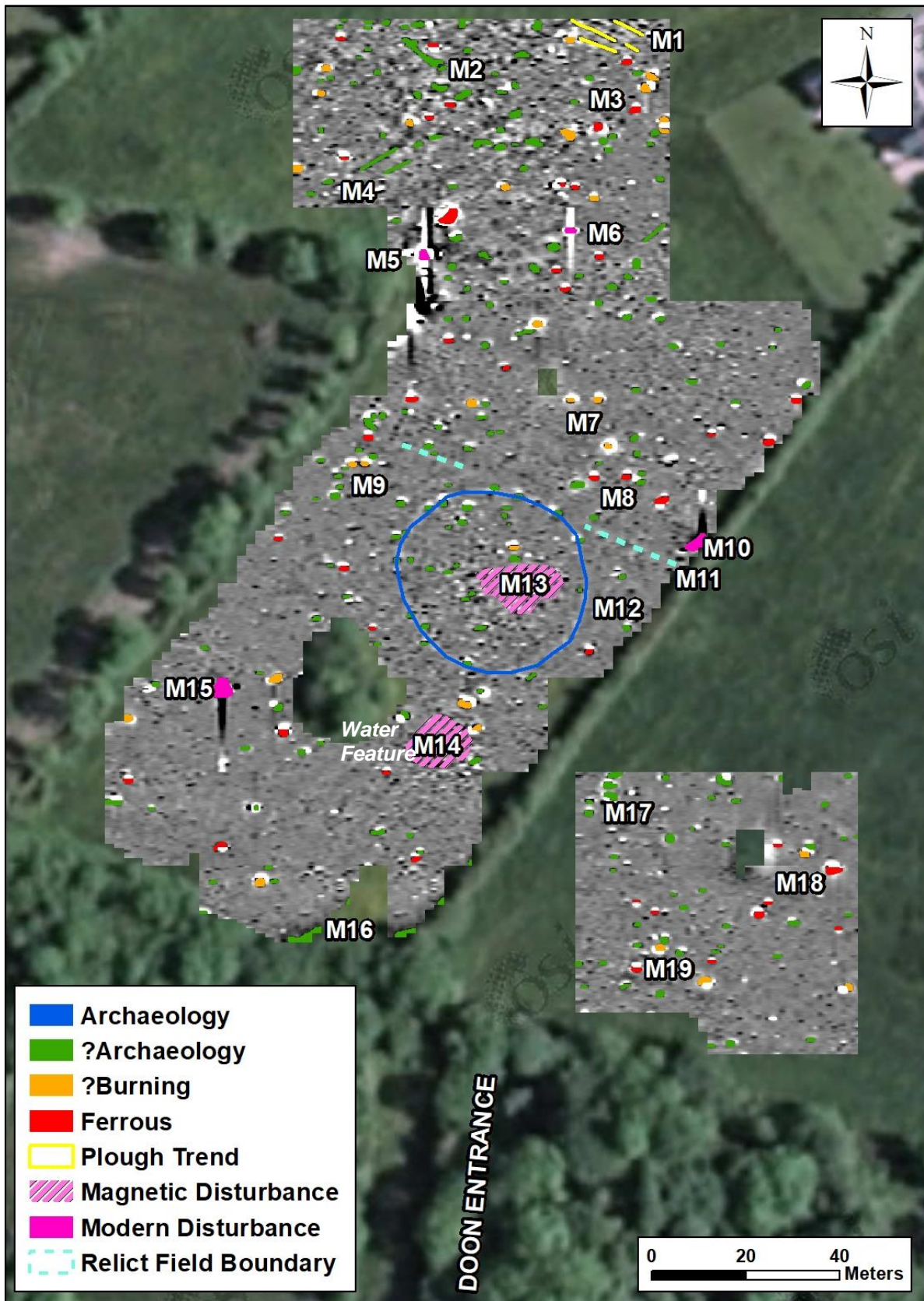


Figure 8: Greyscale image of magnetometry results with digitised anomalies

(source: OSi MapGenie, with additions)



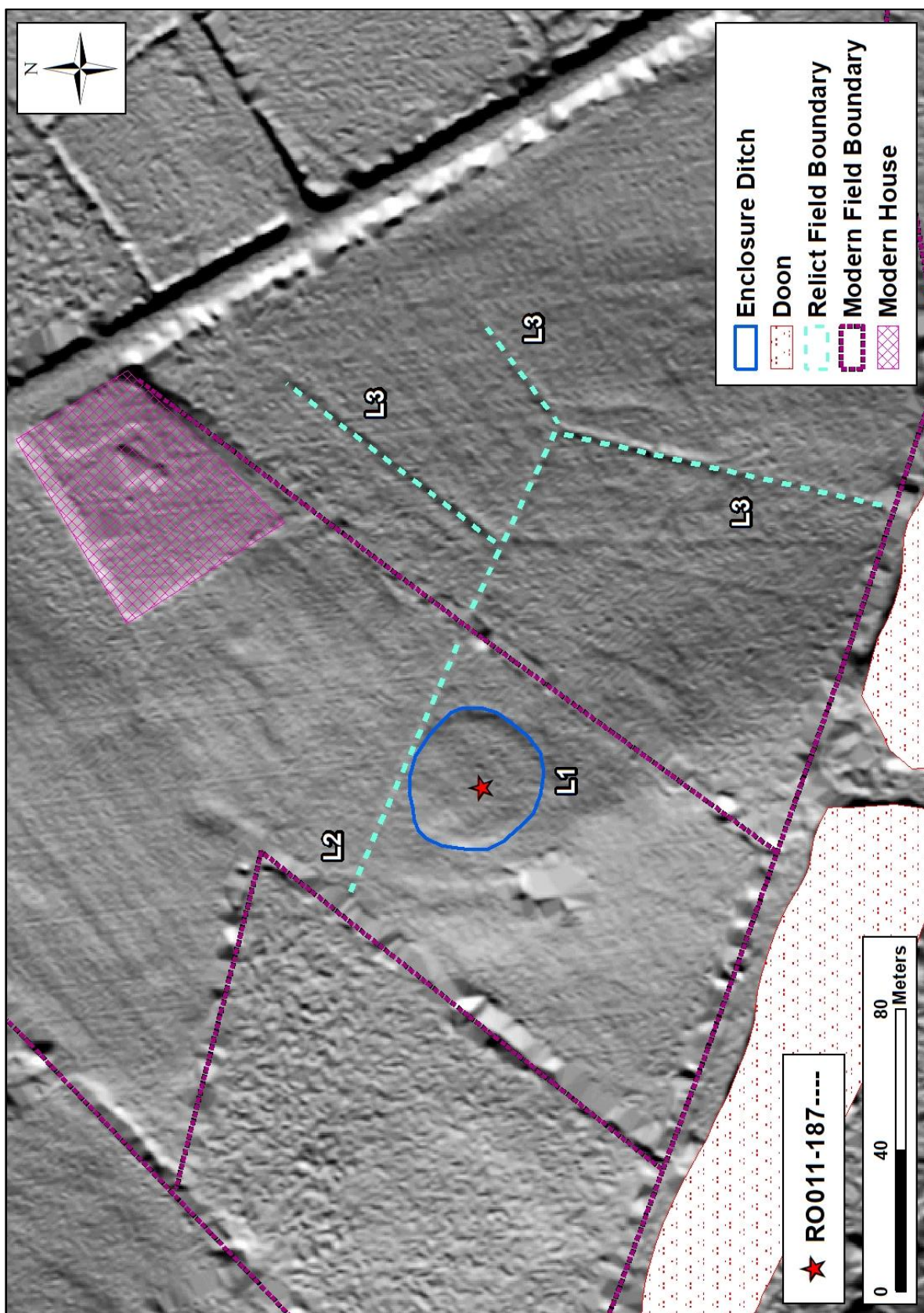


Figure 9: Digitised Lidar Anomalies

342



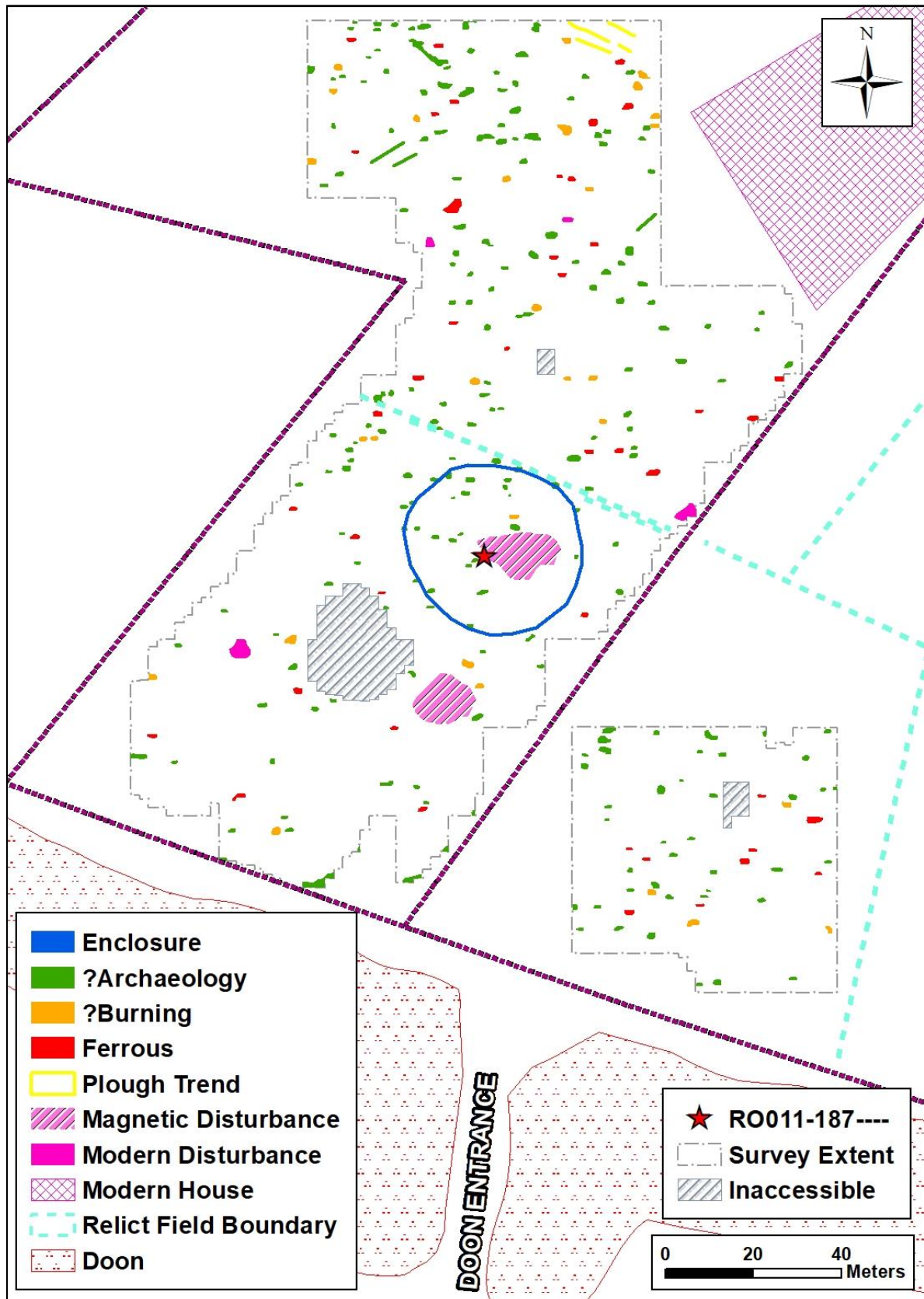


Figure 11: Interpretative Plan (Magnetometry &amp; Lidar)





**Plate 1: The north western quadrant of the ditch enclosing RO011-187 (*facing south west*)**  
(Photo: S. Curran)



**Plate 2: View from RO011-187 (*facing north west*)**  
(Photo: S. Curran)





**Plate 3: The 'water feature' (facing south east)**

*(Photo: S. Curran)*



**Plate 4: The 'water feature' (close up)**

*(Photo: C. Melia)*



# Geophysical Survey Report

***Site: Port, Co. Leitrim***

**RMP: LE027-066 / LE027-067**

**ITM: 595632, 803321**

**Licence: 15R0080**



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## Summary

This report details the results of geophysical survey undertaken at the site of two enclosures – classified as ‘Ringfort-Rath’ (RMP: LE027-066 & LE027-067) – in the townland of Port, Co. Leitrim. Both raths are described as bivallate, although the banks and ditches are more prominent and in better condition at the larger of the two monuments (LE027-066). The investigation was conducted in 2015/2016 and consisted of magnetic gradiometry and earth resistance, comprising the area within and surrounding both enclosures. The survey has identified several features both within and adjacent to the enclosures which may correspond to structures relating to the inhabitation of the raths in the early medieval period.

## Survey Details

**Survey Licence Number:** 15R0080 (*ext. 2016*)

**Survey Dates:** July / August 2015; May / June 2016

**Survey Team:** Susan Curran, Karen Dempsey, Martin Duffy, Olivia O’Rourke

**Planning Reference No.:** N/A

<b>Townland:</b>	Port	<b>County:</b>	Leitrim
<b>Barony:</b>	Leitrim	<b>RMP No.:</b>	LE027-066 / LE027-067
<b>National Grid Reference:</b>	<b>IG:</b> 195680, 303309 / <b>ITM:</b> 595632, 803321		

**Geology:** Bricklieve Limestone Formation, Bioclastic cherty limestone<sup>1</sup>

**Quaternary Sediments:** Till derived from limestones<sup>2</sup>

**Soils:** Fine loamy drift with limestones<sup>3</sup>

<b>Survey Type (1):</b>	<b>Fluxgate Gradiometer</b>	<b>Instrument:</b>	Bartington Grad 601-2
<b>Sample Interval:</b>	0.25m	<b>Traverse Interval:</b>	0.5m
<b>Grid Size:</b>	20m x 20m	<b>Method:</b>	Parallel Traverse
<b>Area Surveyed:</b>	approx. 1.65 hectares	<b>Survey Direction:</b>	East
<b>Survey Type (2):</b>	<b>Earth Resistance</b>	<b>Instrument:</b>	Geoscan RM85 Resistance
Meter		<b>Traverse Interval:</b>	0.5m
<b>Sample Interval:</b>	0.5m	<b>Method:</b>	ZigZag Traverse
<b>Array:</b>	Single / Parallel Twin	<b>Survey Direction:</b>	North
<b>Grid Size:</b>	20m x 20m		
<b>Area Surveyed:</b>	approx. 1.25 hectares		
<b>Licence Holder:</b>	<b>Susan Curran</b>	<b>Report Author:</b>	<b>Susan Curran</b>

<sup>1</sup> www.gsi.ie – Bedrock Geology

<sup>2</sup> www.gsi.ie – Quaternary Sediments and Geomorphology mapviewer

<sup>3</sup> www.teagasc.ie – Soils Guide

# Contents

Summary & Survey Details.....	2
List of Figures.....	3
List of Plates.....	4
Project Background.....	5
Site Description.....	5
Survey Objectives.....	6
Methodology.....	7
The Results – Description and Interpretation.....	7
Discussion & Conclusion.....	9
Acknowledgements.....	9
References.....	10

## *List of Figures*

Figure 1: Survey location.....	11
Figure 2: Survey extent ( <i>licensed and completed</i> ).....	11
Figure 3: Satellite image of LE027-066 & LE027-067.....	12
Figure 4: 25inch Map showing LE027-066 & LE027-067 and environs.....	12
Figure 5: Lidar hillshaded image of LE027-066 & LE027-067.....	13
Figure 6: Recorded monuments within the vicinity of Port.....	13
Figure 7: Excavations within the vicinity of Port.....	14
Figure 8: Linear anomalies & field drain visible on satellite image.....	14
Figure 9: Magnetometry Results.....	15
Figure 10: Magnetometry Anomalies ( <i>digitised</i> ).....	16
Figure 11: Earth Resistance Results.....	17
Figure 12: Earth Resistance Anomalies ( <i>digitised</i> ).....	18
Figure 13: Earth Resistance & Magnetometry Results: Combined Interpretative Plot.....	19



## List of Plates

Cover:	The remains of LE027-067 (facing west)	
Plate 1:	View of LE027-067 from LE027-066.....	20
Plate 2:	View to the east from LE027-067.....	20
Plate 3:	Enclosing features at LE027-066.....	21
Plate 4:	Interior of LE027-066.....	21
Plate 5:	Surveying the interior of LE027-066.....	22
Plate 6:	Surviving section of bank at LE027-067.....	22
Plate 7:	Levelled eastern section of LE027-067.....	23
Plate 8:	Surveying to the north-east of LE027-067.....	23

## Project Background

The principal focus of the geophysical survey was the area within and surrounding the remains of the two bivallate raths (RMP: LE027-066 & LE027-067) (Figures 1 & 2). The survey sought to identify any sub-surface remains which may point to the existence of internal structures or features, and/or any potential field boundaries or connection between the two monuments.

The survey - comprising magnetic gradiometry and earth resistance - forms part of a PhD research project (funded by the Irish Research Council) which explores early medieval settlement in three case study areas in Ireland. The first of these case studies consists of a 140km<sup>2</sup> area of counties Leitrim and Roscommon, straddling the River Shannon and situated around Carrick-on-Shannon and environs. The research project utilises lidar and other remote sensing techniques to explore early medieval settlement patterns and the inter-relationship between associated monuments and status in early medieval Ireland. The original lidar analysis was undertaken in 2012 as part of the author's MA Thesis (Curran 2012).

## Site Description

The site is located in the townland of Port which is situated within the Civil Parish of Kiltoghert and the Barony of Leitrim. The townland is situated along the banks of the River Shannon with Carrickevy Lough to the north-east and Bran Lough approx. 600m to the south-east (Figure 3). The raths are located on the east-facing slope of a drumlin and are just 25m apart (Plate 1). There are excellent views to the east, as far as Sheemore (Plate 2), but views in other directions are impeded by vegetation. The townland name translates as 'port, bank or fort' (logainm.ie), and any of these would be apt given its location and the monuments associated with it.

The larger (and more striking) of the two monuments (LE027-066) is situated on the crest of the drumlin and its impressive banks and ditches are still largely extant (Plate 3). The interior is overgrown with mature trees and brambles, although it is possible to move relatively freely within (Plates 4 & 5). The enclosure measures approx. 36m in maximum internal diameter and up to 65m in overall diameter. Causeways were recorded across two entrances on the east and south-east; these may be original entrances (Casey 1991).

LE027-067 lies a little further downslope and does not enjoy the same high level of preservation as its neighbour. The bank is most intact on the southern, western, and northern sides (Plate 6) - the eastern portion appears to have been levelled which has also affected the interior (Plates 7 & 8). It measures approx. 25m in maximum internal diameter and just over 50m in overall diameter.

An old road, no longer in use, runs SSW-NNE approx. 160m to the west of the raths. The road is marked on early cartographic sources (Figures 4 & 5) and is likely to have been a coach road associated with Bianconi's network of coaches (Frank Whitney pers. comm.), namely the Dublin-Sligo route which had a stop in Carrick-on-Shannon (Leitrim Tourism).

There are a number of recorded monuments<sup>4</sup> within the vicinity (Figure 6), although the site of 'Port Shan Castle' (LE027-065) is the only other recorded monument within the townland; very little remains of it today. A second 16<sup>th</sup> century castle lies approx. 1.3km north of Port, in Leitrim Village. This tower house was built by the O'Rourkes in AD 1540 (Moore 2003, 204) and is evidence of activity within the Port region during this period. Further medieval / post-medieval remains in the form of a portion of the Lough Allen canal (RO007-063001) and a rectangular enclosure which contains a possible house site (RO007-056001 & RO007-056002 respectively) are within a 1km radius west of the Shannon. A second rectangular enclosure (LE027-068) is located approx. 500m east of Port, in the townland of Carrickey. There are only a small number of prehistoric monuments within the vicinity: a standing stone (LE027-058) lies approx. 1km north while a possible fulacht fiadh (RO007-101001) was excavated approx. 1.2km to the north-west of the site and across the River Shannon, in the townland of Cloonfad, Co. Roscommon (Read 2007). The remainder of the monuments within the environs of Port are most likely early medieval in date, indicating the high level of activity in the area during this period. A crannóg is located along the eastern shores of Carrickey Lough, approx. 700m from Port, with a second crannóg approx. 1km to the north-west in Lough Naseer. Of the 29 other recorded monuments within a radius of approx. 1km, 25 of them are classified as raths, while – given their shape and dimensions - the two enclosures are also likely to constitute the remains of early medieval raths. A possible ecclesiastical site is located approx. 900m to the south-east in Drumheckil townland. While the extant church remains are likely to be more recent in date, it may be located on the site of an earlier Christian foundation (Monasticon Hibernicum). A holy well known as 'Toberreendoney Well' is recorded in Fawn townland, less than 1km to the north-east, perhaps also indicating the presence of an early Christian foundation.

Ten excavations (including monitoring and testing) have taken place in the vicinity of Port (Figure 7), although only one produced archaeological evidence. Located across the River Shannon, approx. 1.2km north-west of Port, this excavation at Cloonfad, Co. Roscommon, produced evidence of a fulacht fiadh and several pits and cut features or pits (Read 2007).

## Survey Objectives

This survey was undertaken as part of a wider research project investigating early medieval settlement in the Carrick-on-Shannon area. The survey aimed to investigate the bivallate raths (LE027-066 & LE027-067) and their immediate environment in order to identify any subsurface remains (e.g. house foundations, hearths, field boundaries etc.) that may help to advance our understanding of their potential date and function, in addition to identifying any potential relationship between them. Multiple geophysical survey techniques (magnetic gradiometry and earth resistance) were employed to help establish the nature and character of the site and its potential relationship with other early medieval monuments in the surrounding landscape.

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<sup>4</sup> As per the Sites and Monuments Record: [www.archaeology.ie](http://www.archaeology.ie)

## Methodology

- 1) An area of approx. 2 hectares - comprising LE027-066, LE027-067 and the immediate surrounding area - was surveyed. The interior of LE027-066 was surveyed using earth resistance only as the area was unsuitable and largely inaccessible for magnetometer survey due to the number of trees, brambles, and bushes growing here.
- 2) The survey grid, comprising a series of 20mx20m grid panels, was located and tied into the Irish National Grid using a Trimble GPS in conjunction with a VRS Now correction service.
- 3) Magnetic Gradiometry was undertaken using a Bartington Grad 01 DL601 dual sensor fluxgate gradiometer. Data were recorded using parallel traverses at a traverse interval of 0.5m and a sample interval of 0.25m (4 points per metre along each traverse). A total of 45 grids were surveyed using this technique.
- 4) More limited earth resistance survey was undertaken using a Geoscan RM85 Resistance Meter. Data were recorded using zigzag traverses at a traverse interval of 0.5m and a sample interval of 0.5m. A total of 32 grids were surveyed using this technique.
- 5) All data were processed using Geoscan Research Geoplot version 4 software.
  - a. Earth Resistance Processing Steps: Despiking, Edge Match, Interpolate Y, Interpolate X
  - b. Magnetometry Processing Steps: Zero Mean Traverse, Low Pass Filter, Interpolate Y, Clip

## The Results – Description and Interpretation *(Figures 8-13)*

The magnetometry survey was undertaken within and around the remains of the less well preserved rath - LE027-067, although part of the interior was inaccessible as it was extremely wet and boggy. Unfortunately the trees and vegetation growing on and within LE027-066 made it impossible to access its interior with the magnetometer so this area was surveyed solely using earth resistance. The magnetometry results are very disturbed - possibly as the field underwent ploughing in the 1940s (Frank Whitney pers. comm.) - and therefore lack clarity regarding the identification of potential archaeological features. A multitude of linear anomalies (e.g. M1) are visible throughout the survey area, particularly to the east which coincides with the base of the slope, possibly also representative of colluvium. They run in multiple directions and are likely to be the result of modern disturbance, potentially ploughing. Two linear negative anomalies (M2) run approx. N-S and are also visible on aerial imagery (Figure 8). Three more substantial linear features which are made up of both positive and negative anomalies (M3, M4) are indicative of the presence of probable sub-surface field drains. M3 corresponds to R2 on the earth resistance survey and is visible on aerial imagery (Figure 8).

There are several areas which produced ferrous responses, with M5 being the most significant. However, given the magnitude of its response and its proximity to a pylon, it is likely to be modern in origin. There are a small number of instances of possible burning (e.g. M7, M8), however, they do not appear to be part of any archaeological features or structures and thus their archaeological potential cannot be confirmed.



A large number of positive anomalies are featured throughout the results and may be pits, although many of them may be natural features. The results hint at the presence of two sub-rectangular features formed by several positive anomalies which make up M6, although the level of disturbance makes it difficult to confirm this with a high degree of certainty. The more northerly of these potential features measures approx. 38m x 12m, while the other measures approx. 40m x 20m; they could represent the remains of possible field boundaries. A number of positive anomalies (M9) are located in an area between the two raths - from the north-east of LE027-066 to the west of LE027-067. They form two sides of an arc approx. 5m apart and may represent a ditched causeway, possibly part of a feature linking the raths. A small area of burning (M8) forms part of this possible feature. A positive anomaly (M10) forming two sides of a possible sub-rectangular feature is located approx. 8m south-east of the original location of the enclosing features of LE027-067. This may be a similar feature to that represented by R6.

In addition to the field drain (R2), there are a number of high resistance anomalies which may relate to modern disturbance rather than archaeological remains. The north-eastern portion of the study area produced two large areas of high resistance (R1) which are likely indicative of the presence of a considerable amount of stone at the base of the slope, close to the modern wall and former road (pre-R280). Two isolated high resistance anomalies (R7) are likely to correspond to naturally occurring rocks or large stones beneath the surface. R8 consists of a curving high resistance anomaly and three individual high resistance anomalies which may be part of an archaeological feature, although they are very close to the field boundary and may relate to modern activity.

A curving high resistance anomaly (R3) corresponds with the location of the enclosing bank of LE027-067, indicating that it is likely to have a significant amount of stone in its makeup. The response is considerably stronger in the south-western quadrant where the bank is still intact, although a weaker high resistance response is also identifiable in the south, south-eastern and eastern sections. A concentric low-resistance anomaly (R4) runs outside of R3 from south to east and probably represents the remains of the rath's outer ditch. There are substantial high resistance anomalies (R9) covering almost the whole of the western interior of the rath, although they do not form a coherent feature or structure. It is possible that at least some of the anomalies constitute the remains of a stone-built structure or structures. A small number of discrete high resistance anomalies (R5) are visible crossing the bank and ditch features to the south, possibly the location of naturally occurring individual stones. However, their linear nature (approx. north-south) suggests that they may possibly have a more deliberate placement, potentially marking the location of an original entrance. This would place the entrance in a similar location to that of LE027-066 (i.e. south-east quadrant). Unfortunately this portion of the rath has been significantly altered in modern times and there is no further evidence that might support the presence of an entrance at this location.

The interior of LE027-066 also produced several high resistance anomalies, although the large number of trees and bushes within this area may have impacted the clarity of the results given the amount of

roots present. A semi-circular high resistance feature (R12) is located in the approximate centre of the monument and indicates the presence of a stone feature. Additional high resistance anomalies (R10, R11, R13) within the interior are suggestive of further stone-built remains, possibly similar to those within the neighbouring rath, albeit again, there is no coherent shape which could provide an indication of their nature. The high resistance anomaly (R14) along a short portion of the southern bank of the rath is indicative of its stone composition.

### **Discussion & Conclusion**

The geophysical survey has revealed a number of potential archaeological features, in addition to confirming the extent of the enclosing bank and ditch of LE027-067 which has experienced considerable disturbance on its south, south-eastern and eastern sides. While the RMP description suggests that this is a bivallate rath (Moore 2003, 118), there is no evidence from the geophysical survey (or the lidar survey) to support this. Both analyses point to the presence of a single bank and ditch enclosure, although clearly the modern disturbance to the monument may have impacted upon the survival of a second enclosing feature.

The survey results point to the presence of structures and/or buildings within the interiors of both raths, although they lack sufficient clarity to identify the exact nature of these features. With a diameter of approx. 4.5m, the semi-circular structure (R12) within LE027-066 is possibly too small to represent the remains of an early medieval house structure, particularly one within a high status bivallate rath. While house sizes ranged from approx. 4m to 10m, the average diameter was approx. 6m, with the higher status population living in the larger examples (Lynn 1994, 91). However, as excavations at Deer Park Farms, Co. Antrim demonstrated (McDowell & Lynn 2011, 85-118), many houses had a circular annexe attached to them, forming a figure-of-eight, hence the semi-circular structure here could potentially represent an annexe to a larger structure. It is also possible that the abundance of high resistance responses point to the existence of a souterrain within one or both of the raths; a souterrain was discovered close to the site in the 1930s (LE027-131), although the exact location is not known (Moore 2003, 118). The two partial sub-rectangular structures (M10, R6) are located approx. 8m and 22m respectively from the enclosing ditch of LE027-067 and it is unclear whether one, both, or neither of them were associated with the rath.

Without excavation and scientific dating, the nature of features revealed through the geophysical survey cannot be determined with absolute certainty, but it is likely that at least some of those found within the raths relate to the period of their use. Likewise, it is not possible to ascertain whether both raths were in use contemporaneously.

### **Acknowledgements**

I would like to especially thank Frank Whitney and his family for facilitating the research on their land, and additionally for the background information they provided over the course of several discussions. I am indebted to TII and Leitrim County Council for the use of the lidar survey dataset in my research.

Many thanks to both the Discovery Programme and UCD School of Archaeology for the use of their equipment and their continued support. Special thanks to the survey volunteers for their excellent work during the survey, especially to Karen Dempsey for her invaluable help in tackling the interior of the larger rath.

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<https://www.excavations.ie/>

Accessed 29/01/2018, 14:05pm

Geological Survey of Ireland

<https://www.gsi.ie/Publications+and+Data/Digital+Data/Available+Digital+Data.htm>

Accessed 06/02/2017, 10:14am

Leitrim Tourism

<http://leitrimtourism.com/products/bush-hotel/>

Accessed 29/01/2018, 15:30pm

Logainm.ie

<https://www.logainm.ie/en/29303>

Accessed 25/01/2018, 19:05pm

Monasticon Hibernicum

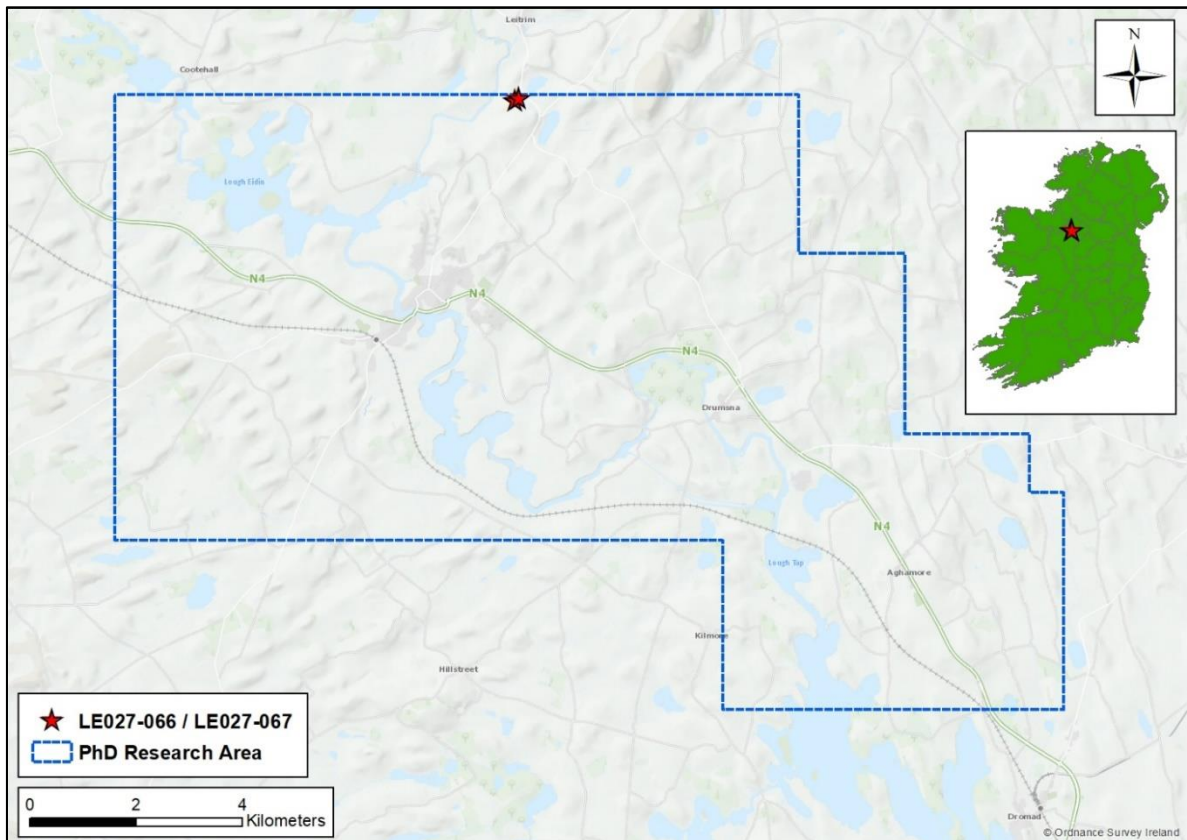
<https://monasticon.celt.dias.ie/showrecord.php?id=4963>

Accessed 26/01/2018, 15:40pm

Teagasc

<http://gis.teagasc.ie/soils/soilguide.php>

Accessed 06/02/2017, 11:58am



**Figure 1: Survey Location (with PhD Research area)** (source: OSi MapGenie, with additions)



**Figure 2: Survey Extent on satellite image** (source: OSi MapGenie, with additions)





Figure 3: Satellite image of LE027-066 & LE027-067 (source: OSi MapGenie, with additions)

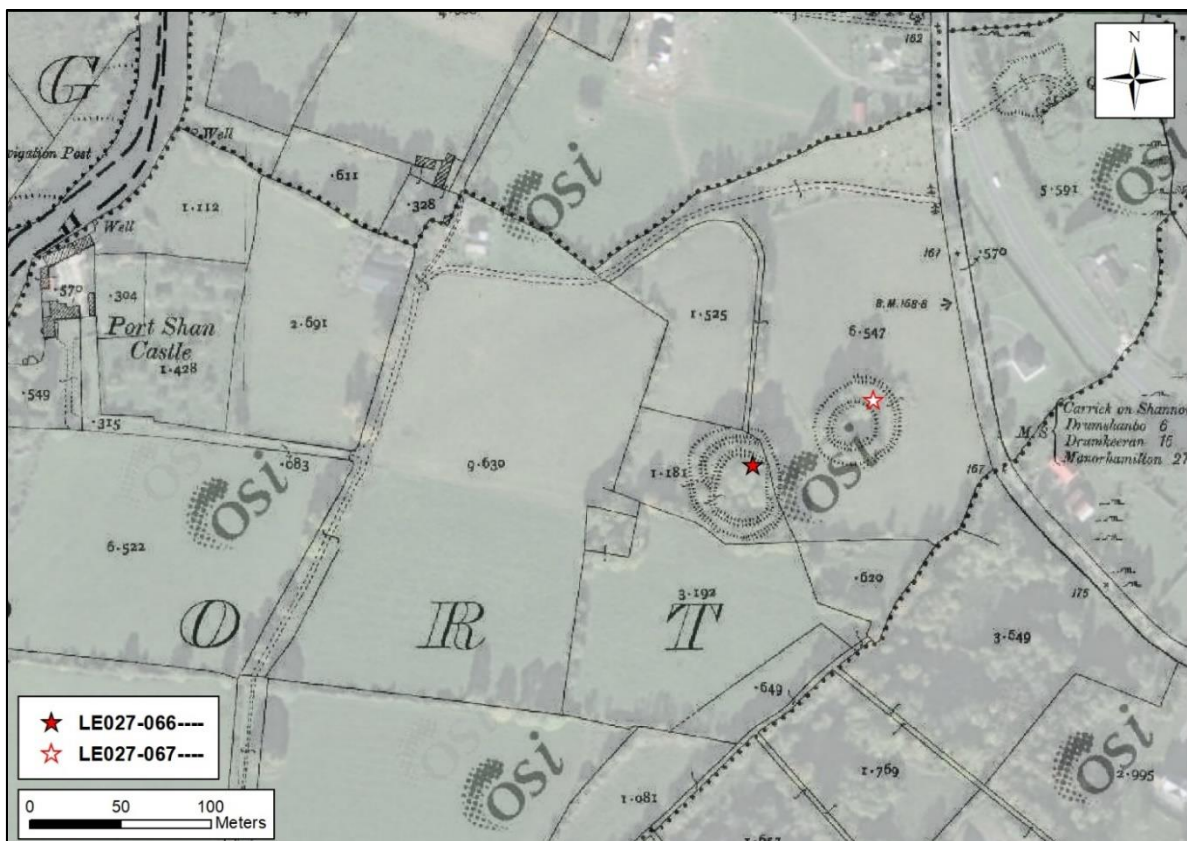


Figure 4: 25inch Map showing the raths and surrounding area (source: OSi MapGenie, with additions)



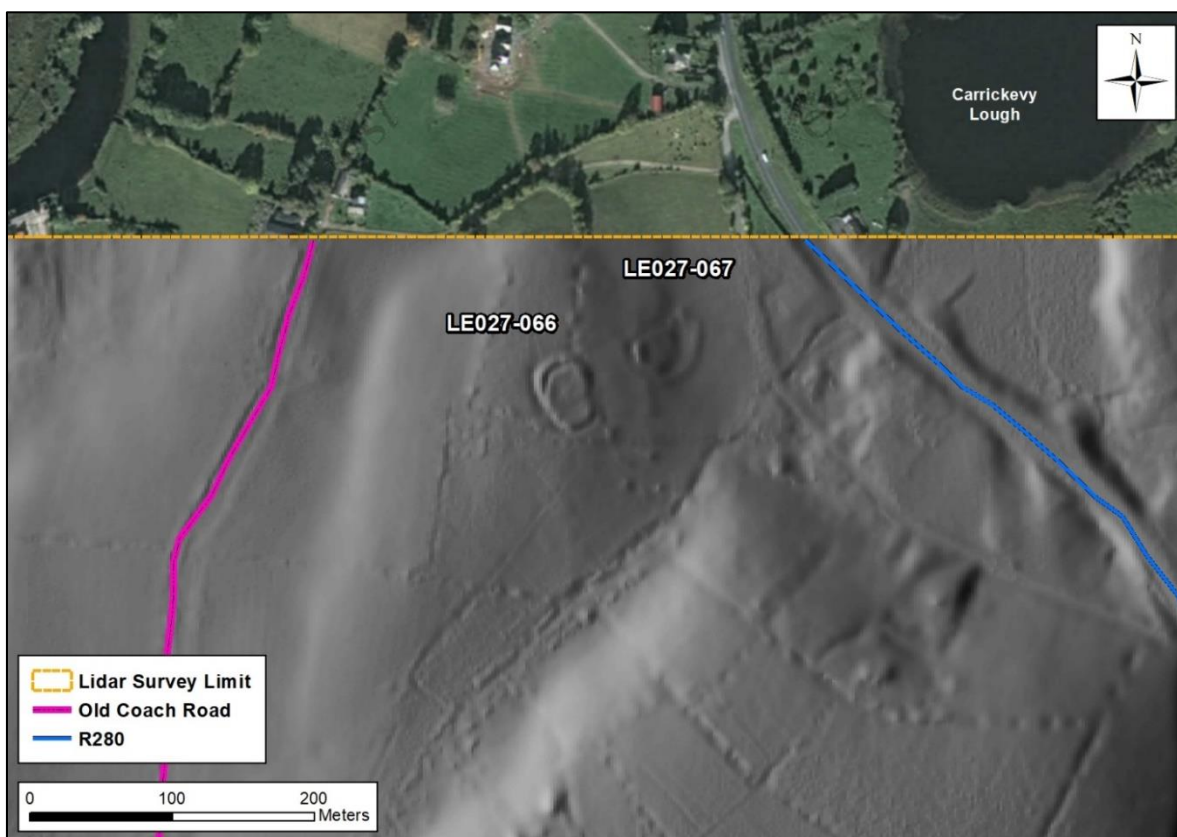


Figure 5: Lidar hillshaded image of LE027-066/067 on satellite image

(source: OSi MapGenie, with additions)

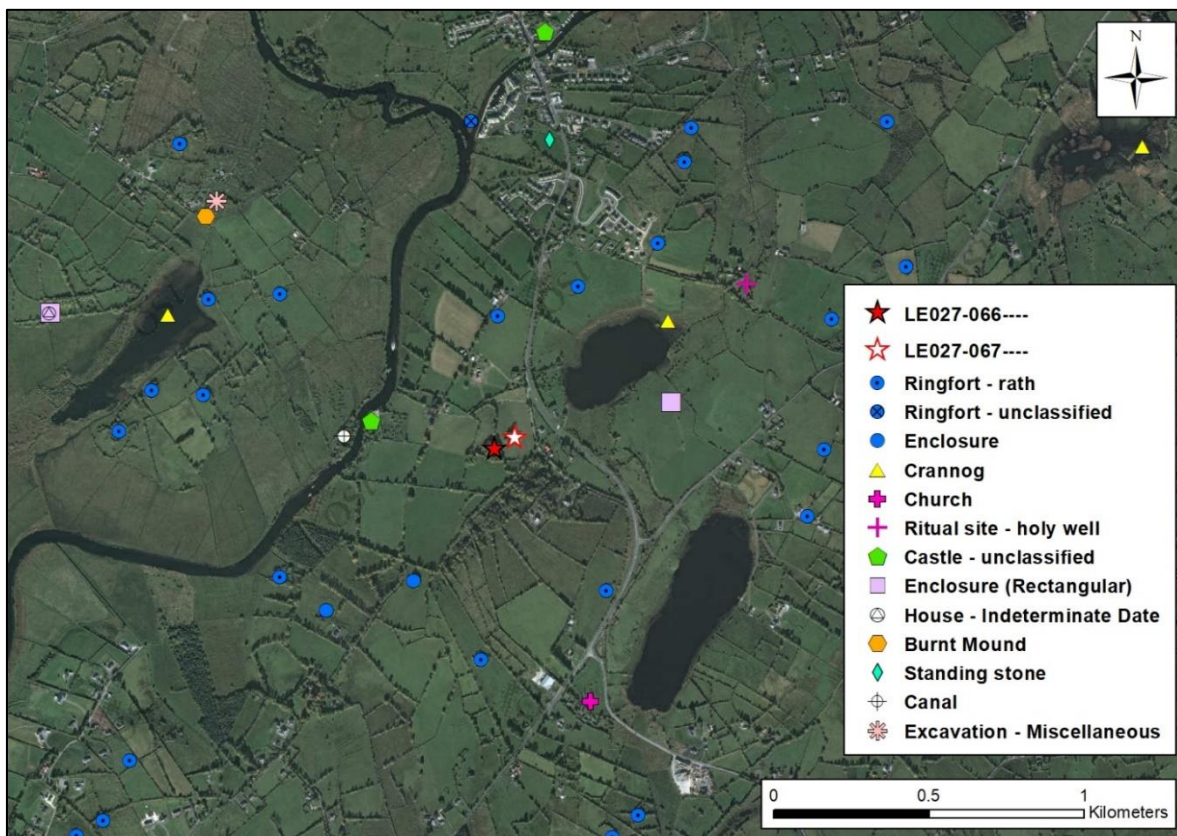


Figure 6: Recorded monuments on satellite image

(source: RMP & OSi MapGenie, with additions)





Figure 7: Excavations on satellite image (source: Excavations.ie & OSi MapGenie, with additions)



Figure 8: Linear Anomalies & Field Drain on satellite image

(source: OSi MapGenie, with additions)





Figure 9: Greyscale image of magnetometry results overlain on satellite image

(source: OSi MapGenie, with additions)





Figure 10: Greyscale image with digitised magnetometry anomalies

(source: OSi MapGenie, with additions)



**Figure 11: Greyscale image of earth resistance results overlain on satellite image**  
 (source: OSi MapGenie, with additions)



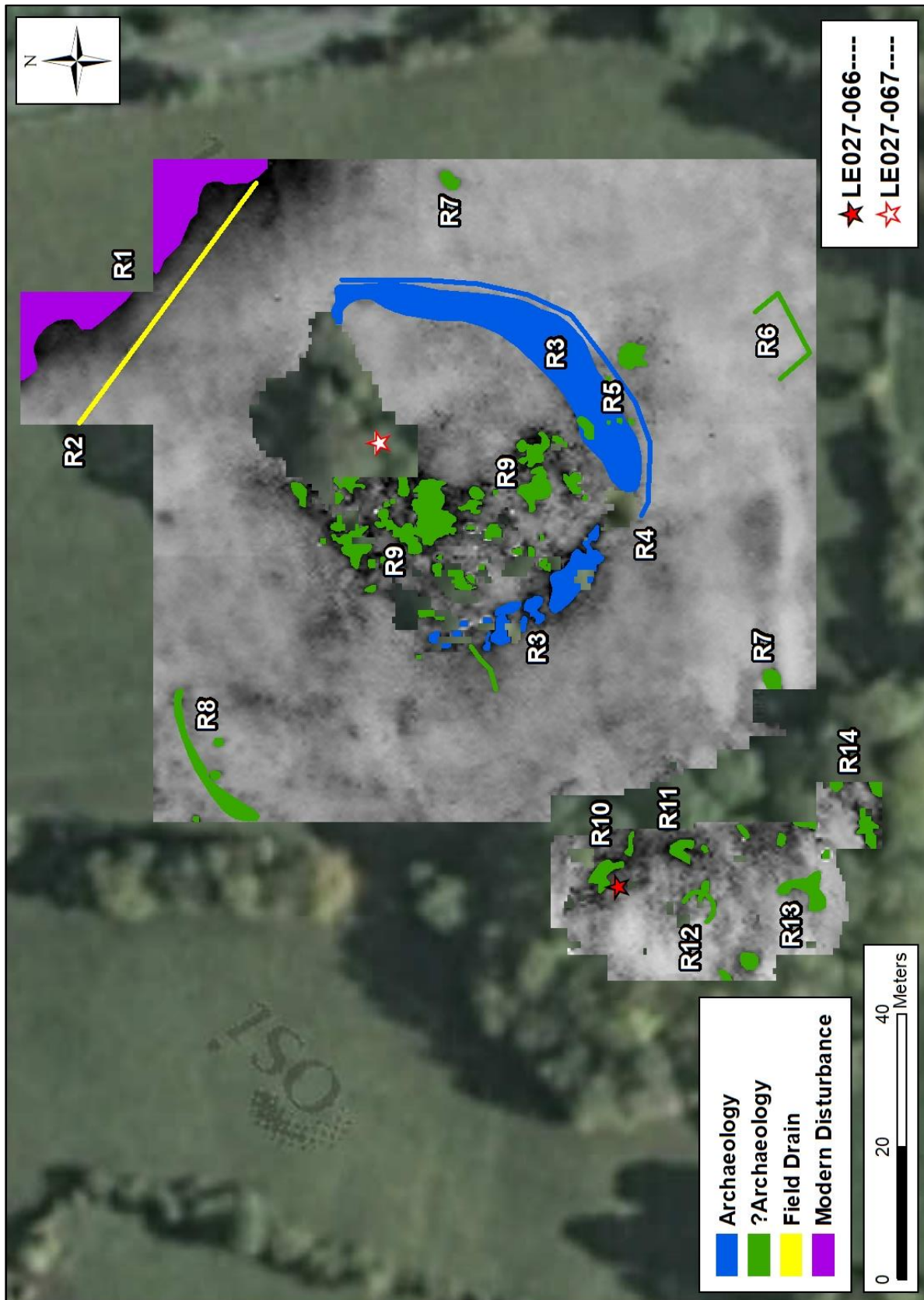


Figure 12: Greyscale image with digitised earth resistance anomalies

(source: OSi MapGenie, with additions)

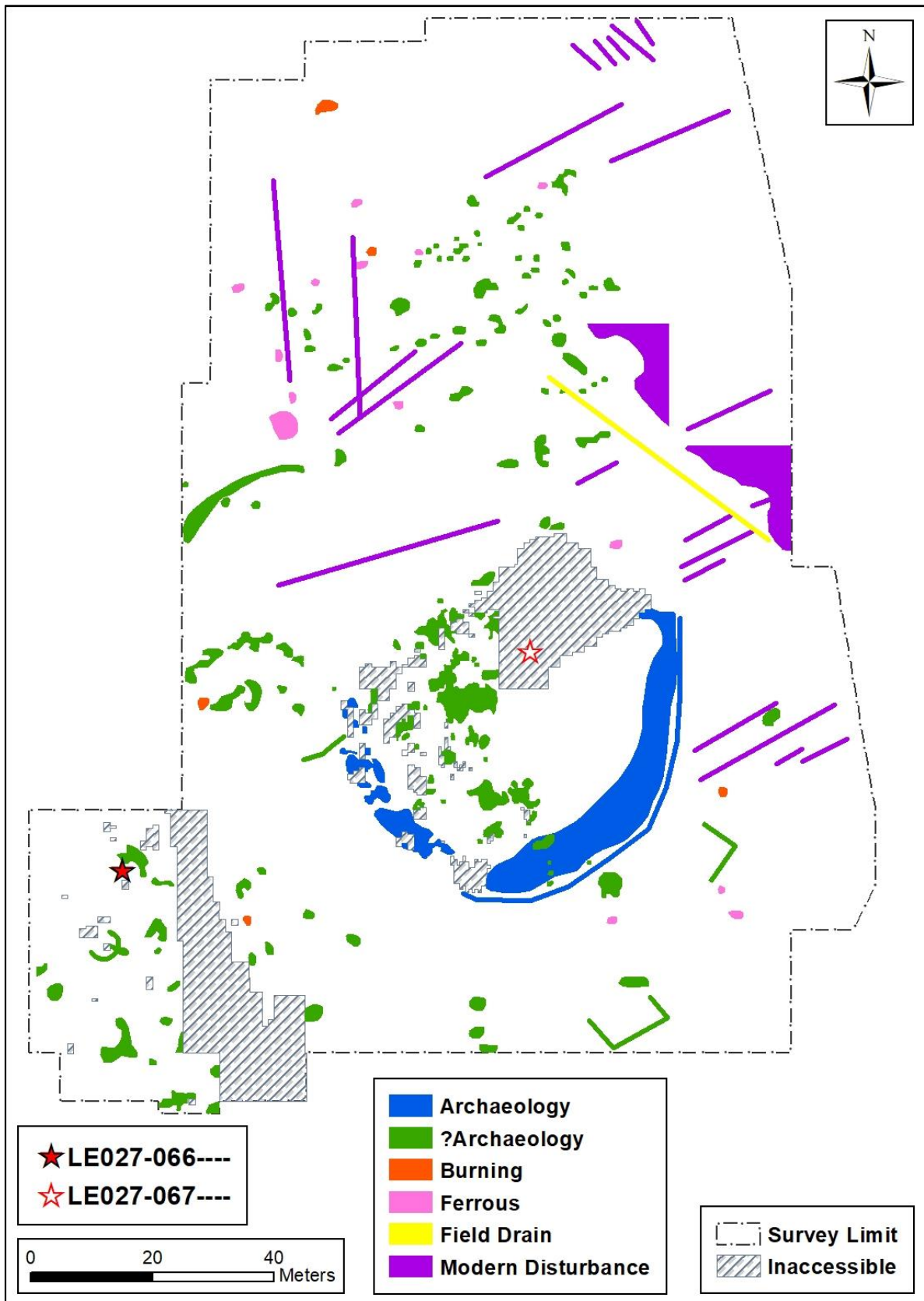


Figure 13: Earth Resistance & Magnetometry Results – Interpretative Plan





**Plate 1: View of LE027-067 from the outer ditch of LE027-066**

*(Photo: S. Curran)*



**Plate 2: View to the east from LE027-067 (Sheemore Hill)**

*(Photo: S. Curran)*





**Plate 3: Enclosing Features at LE027-066 (southern quadrant)**

*(Photo: S. Curran)*



**Plate 4: Interior of LE027-066**

*(Photo: S. Curran)*





**Plate 5: Surveying the interior of LE027-066**

*(Photo: S. Curran)*



**Plate 6: South-western section of LE027-067**

*(Photo: S. Curran)*





**Plate 7: Levelled eastern section of LE027-067**

*(Photo: S. Curran)*



**Plate 8: Surveying to the north-east of LE027-067**

*(Photo: O. O'Rourke)*



# Appendix 5

*Newly discovered monuments: Monaghan study area*

P_ID	NAT_GRID_E	NAT_GRID_N	CLASSDESC	TLAND_NAME	Period	Rating
MMO-118N	264455	332676	Enclosure	BALLYLECK	Early Medieval (Possible)	3
MMO-119N	265595	339066	Enclosure	SHEETTRIM (ed Bellanode)	Early Medieval (Possible)	2
MMO-121N	265536	337846	Enclosure	SHEETTRIM (ed Bellanode)	Early Medieval (Possible)	2
MMO-122N	264865	337920	Enclosure	TULLYVOGY	Early Medieval (Possible)	3
MMO-123N	264940	337824	Enclosure	TULLYVOGY	Early Medieval (Possible)	1
MMO-124N	265044	336637	Enclosure	CLONKEADY	Early Medieval (Possible)	1
MMO-125N	265570	333932	Enclosure	CORNECASSA DEMESNE	Early Medieval (Possible)	1
MMO-126N	265231	332683	Enclosure	GORTAKEEGHAN	Early Medieval (Possible)	2
MMO-127N	265531	328081	Enclosure	DRUMMUCK	Early Medieval (Possible)	1
MMO-129N	266352	330920	Enclosure	ARDAGHY KILL	Post-Medieval / Modern	1
MMO-130N	265999	333816	Enclosure	MULLAGHADUN	Early Medieval (Possible)	1
MMO-131N	270444	327794	Barrow (possible)	CORNACREEVE (ED Rackwallace)	Prehistoric	2
MMO-133N	270920	333535	Enclosure	FEEBANE	Early Medieval (Possible)	1
MTR-120N	263115	352642	Enclosure	KILLYHOMAN	Early Medieval (Possible)	1
MTR-121N	263087	350502	Enclosure	DRUMBIRN	Early Medieval (Possible)	1
MTR-122N	263450	348926	Enclosure	TIRERAN	Early Medieval (Possible)	1
MTR-123N	267003	348525	Enclosure	ELVEY	Early Medieval (Possible)	1
MTR-124N	268600	336495	Enclosure	EDEN ISLAND	Early Medieval (Possible)	2
MTR-125N	267946	349509	Enclosure	CAVANMORE	Early Medieval (Possible)	1
MTR-126N	269763	345648	Enclosure	DERNAHATTEN	Early Medieval (Possible)	2
MTR-127N	269120	344893	Enclosure	EMY	Early Medieval (Possible)	1
MTR-132N	274206	337758	Enclosure	ANNAREAGH SOUTH	Early Medieval (Possible)	1

# **Appendix 6**

## ***House size analysis***

*Compiled using the EMAP 'Gazetteer of Site Descriptions' (Kerr et al. 2010)*

County	Site	Rath Type	Rath Diameter (Internal)	House Size	Southern	Dating	Dating Type	Metal	Bone	Stone Artefacts	Pottery	Glass	Ironworking Evidence
Antrim	Ballyhenry 1	Univallate	30m	7m	-	N/A	N/A			2 pieces lignite	southern ware	3 beads	
Antrim	Ballymacash	Univallate	33.5m	8m	-	AD 1013-1264	C14	iron nail		upper stone rotary quern, broken saddle quern, whetstones	4000 sherds of pottery - mostly southern ware	2 beads	
Clare	Cahircalla More	Univallate	38m	6.3m	-	AD 975-1155; AD 534-655; AD 559-662; AD 674-874	C14	iron tool (chisel?), iron fragments, copper-alloy ring pin		possible bone- and hammer-stones, large perforated stones			iron slag
Cork	Darryl/Lisnagun	Univallate	35m	5.7m	3	AD 877-1001	C14	iron objects		jet bracelet fragments		blue glass bead	iron slag
Cork	Oldcourt	Univallate	23m	12m	1	N/A	N/A	bronze-coated iron bell, ferrule, 2 tanged knives, chisel, slotted & pointed objects, bronze ring, possible iron vessel escutcheon		shale bracelet fragments, polished stone bead, 2 stone hones, perforated stone disc		segmented blue glass bead	1 complete furnace bottom, fragments of 8 furnaces, roasted limonite (for ore), slag
Cork	Raheens II	Univallate	28m	5.6m	3	N/A	N/A						
Derry	Big Glebe	Raised	20m	7m	1	AD 653-1157	C14	2 bronze pins		quernstone	southern ware sherds		
Down	Ballyfounder	Raised	23m	5.4m	-	N/A	N/A	iron ploughshare fragment, chisel, door hinge, bronze pin	part of bone comb	4 quernstones	southern ware, E ware fragment		
Dublin	Barnageeragh	Univallate	22m	10m	1	8th - 10th century	Artefacts	copper alloy disc, metal, enamelled copper alloy brooch	decorated bone comb, bone pins	possible whetstones, possible stone mould, flint, worked stone			
Dublin	Glebe (Site 43)	Univallate	46m	8m	-	AD 543-832	C14	ringed pin fragments	bone pins (incl. zoomorphic), decorated bone scoop	spindle whorl, rotary quern		blue glass beads	iron slag
Galway	Mackney	Univallate	45m	5.4m	1	AD 771-1153	C14	3 iron knife blades, iron bar, iron 'tool'	2 bone toggles (undated)				bowl furnaces / smithing hearths
Galway	Rathmorrissey	Univallate	45m	4.7m	-	N/A	N/A	iron/copper alloy pin, iron knife blade, ferrous metal fragments					
Kerry	Dromthacker	Univallate	24m	7.5m	-	AD 433-637	C14			saddle quern fragments		bi-chrome glass bead, blue glass bead	ironworking material, iron slag
Kilkenny	Dunbell Big (5)	Univallate	42m	6m	-	AD 534-982	C14	iron barrel-lock key			coarse pottery		iron slag, furnace
Limerick	Newtown (A)	Univallate	30m	9m	-	AD 765-1295	C14	socketed iron implement		hone stone, flint scraper, flint blade	possible vase urn fragments	green glass bead with yellow paste herringbone decoration, dark blue glass bead, glass armlet fragment	
Limerick	Raheenamadra	Univallate	25m	6m-7m	1	AD 529-1027	C14	iron leather-scorer, bronze ring pin, bronze bucket-handle, bronze & iron objects	bone comb fragments, 3 bone spearpoints	6 whetstones			crucible
Mayo	Letterkeen	Univallate	26m	5.2m	1	N/A	N/A	bronze pin		2 quernstones, whetstone, jet bracelet fragments		2 blue glass beads, 1 white glass bead, blue-glass bracelet fragment	crucibles, intensive burning, burnt/glazed clays
Mayo	Lisackagh	Univallate	39.5m	4.6m	-	200 BC - AD181	Iron Age Timbers	bronze pin head, bronze fragments, 2 iron hooks, iron knife blade		lignite bracelet fragment		4 blue glass beads, yellow glass bead	iron slag, smelted iron nodules, iron smelting furnace pit



# **Appendix 7**

## ***Settlement-cemetery evidence***

Site Name	SMR	% Excavated	Licence	County	IG Easting	IG Northing	Burials	Chronology	Source
Ardsallagh 1			04E0421; A008/035; E3088	Meath	288482	263460	30	5th - 7th Century	Mapping Death
Augheraskea		33%	02E1229	Meath	291678	251668	187	7th - 9th Century	Seaver 2016, 163
Bettystown (Anchorage)	ME021-010		98E0072	Meath	315600	273200	61	5th - 6th Century	Mapping Death
Camlin	TN017-031	75%	E3580	Tipperary	213812	185724	153	7th - 10th Century	Seaver 2016, 65
Collierstown 1		100%	E3068	Meath	294743	258825	61	5th - 9th Century	Seaver 2016, 65
Colp West 1	ME021-011001	5%	E443	Meath	312240	274680	120	5th - 7th Century	Seaver 2016, 163
Faughart Lower		90%	A002/116	Louth	306434	311206	772	5th - 12th Century	Seaver 2016, 65
Johnstown		100%	02E0462	Meath	276871	240414	398	5th - 9th Century	Seaver 2016, 163
Killeany	LA023-012004	50	H015/061 / E2171	Laois	236838	187936	68	5th - 12th Century	Seaver 2016, 65
Knonth (M)	ME019-069	5%	02E0726	Meath	299840	273870	52	6th - 9th Century	Seaver 2016, 163
Mount Offaly	DU026-119	30%	98E0035	Dublin	323300	224200	1,362	5th - 12th Century	Seaver 2016, 65
Ninch 2		90%	98E0501text	Meath	316230	271950	92	6th - 7th Century	Seaver 2016, 163
Owenbrist		100%	E3770 / A045	Galway	142870	211898	79	7th - 10th Century	Seaver 2016, 65
Parknahown 5		50%	A015/24 / A015-60	Laois	234225	174183	425	5th - 12th Century	Seaver 2016, 65
Ranelagh/Coolteige	RO039-102	100%	15E0136	Roscommon	187183	266980	800	5th - 11th Century	Delaney & Ní Cheallacháin 2017, 2
Ratoath		80%	03E1781	Meath	301350	252150	56	5th - 9th Century	Seaver 2016, 163
Raystown	ME045-036	50%	03E1229; A011	Meath	304976	251474	133	5th - 9th Century	Seaver 2016, 65
Treanbaun		100	A024/27	Galway	169136	226170	31	7th - 12th Century	Seaver 2016, 65
Westereave	DU011-084		E466	Dublin	314016	247334	57	5th - 7th Century	Seaver 2016, 162

## **Appendix 8**

***Damaged or destroyed monuments 'recovered' by lidar analysis***

County	SMRS	CLASSDESC	TLAND_NAME	Survival (SMR)	Lidar Remains	Survival Description (SMR/NMS)
Leitrim	LE027-076----	Ringfort - rath	FARNAGH	Partial Destruction	Full circle visible	All that remains of this enclosure is a 15m length of earthen bank
Leitrim	LE027-077----	Ringfort - rath	FARNAGH	Barely Visible	Full circle visible	Though the site has been levelled its outline is still discernible
Leitrim	LE027-078----	Ringfort - rath	KILTOGHERT	Barely Visible	Full circle visible	Barely visible D-shaped enclosure
Leitrim	LE027-087----	Ringfort - rath	MONG	Barely Visible	Full circle visible	Barely visible subcircular earthen enclosure
Leitrim	LE027-088----	Ringfort - rath	MONG	Partial Destruction	Some traces visible	No trace exists at E and SE
Leitrim	LE027-090----	Ringfort - rath	KILTOGHERT	Barely Visible	Full circle visible	Very little of this monument survives
Leitrim	LE027-092----	Ringfort - unclassified	MONG	Non-Extant	Some traces visible	Destroyed
Leitrim	LE027-099----	Ringfort - rath	HARTLEY	Partial Destruction	Full circle visible	D-shaped enclosure
Leitrim	LE027-103----	Ringfort - rath	BALLYNAMONY	Non-Extant	Full circle visible	Gone
Leitrim	LE027-104----	Ringfort - rath	GRANGE	Partial Destruction	Full circle visible	Only the N and E sides of this enclosure remains
Leitrim	LE027-106----	Ringfort - rath	DRUMLUMMAN	Partial Destruction	Full circle visible	Destroyed in places
Leitrim	LE027-107----	Ringfort - rath	DRUMLUMMAN	Barely Visible	Full circle visible	Barely visible remains
Leitrim	LE027-113----	Enclosure	LISMAKEEGAN	Non-Extant	Some traces visible	Destroyed
Leitrim	LE027-114----	Enclosure	TONNAGH	Partial Destruction	Full circle visible	25m length of scarp
Leitrim	LE027-117----	Ringfort - rath	KILTOGHERT	Barely Visible	Full circle visible	Poorly preserved remains
Leitrim	LE027-124----	Ringfort - rath	KILTOGHERT	Barely Visible	Some traces visible	Poorly preserved remains
Leitrim	LE031-002----	Enclosure	LISNAGAT	Barely Visible	Full circle visible	Very faint circular enclosure
Leitrim	LE031-010----	Ringfort - rath	KEENAGHAN	No Visible Surface Remains	Full circle visible	Nothing of archaeological value can be seen
Leitrim	LE031-028----	Ringfort - rath	LISCALLYROAN	Barely Visible	Full circle visible	Barely visible
Leitrim	LE031-035----	Enclosure	AGHINTOBER	Partial Destruction	Full circle visible	Faint D-shaped platform
Leitrim	LE031-042----	Enclosure	BALLYNACLEIGH	Non-Extant	Some traces visible	Not extant
Leitrim	LE031-047----	Enclosure	KILTYCARNEY	Barely Visible	Some traces visible	Barely visible
Leitrim	LE031-049----	Enclosure	AUGHRIMAN SOUTH	Partial Destruction	Full circle visible	D-shaped
Leitrim	LE031-059----	Ringfort - rath	MINKILL	Partial Destruction	Some traces visible	D-shaped
Leitrim	LE031-067----	Ringfort - rath	LAVAGH	Partial Destruction	Full circle visible	D-shaped
Leitrim	LE031-069----	Enclosure	DRUMSNA	Barely Visible	Full circle visible	Very indistinct circular enclosure
Leitrim	LE031-078----	Enclosure	DRUMMAUNROE	Non-Extant	Full circle visible	Not extant
Leitrim	LE031-086----	Ringfort - rath	DRUMSNA	Non-Extant	Full circle visible	Not extant
Leitrim	LE031-088----	Enclosure	DRUMSNA	Barely Visible	Full circle visible	Barely visible enclosure
Leitrim	LE032-008----	Enclosure	MILLPARK	Non-Extant	Some traces visible	Levelled – circular raised area
Leitrim	LE032-019----	Enclosure	LAVAGH	Partial Destruction	Some traces visible	Site has been levelled. All that remains is a raised earthen platform
Leitrim	LE032-023----	Ringfort - rath	FARGRIM	Non-Extant	Some traces visible	Site has been levelled
Leitrim	LE032-026----	Ringfort - rath	CORREISH	Partial Destruction	Full circle visible	Partially levelled
Leitrim	LE032-027----	Enclosure	HEADFORD	Partial Destruction	Some traces visible	Almost completely levelled
Leitrim	LE032-035----	Enclosure	HEADFORD	Partial Destruction	Full circle visible	Site has been levelled. Only a slight rise remains



County	SMRS	CLASSDESC	TLAND_NAME	Survival (SMR)	Lidar Remains	Survival Description (SMR/NMS)
Leitrim	LE032-079----	Ringfort - unclassified	UMMERA	Non-Extant	Full circle visible	Non extant. Green field
Leitrim	LE035-004----	Ringfort - unclassified	MULLAGH	Non-Extant	Some traces visible	Site was destroyed about 25 years ago
Leitrim	LE035-014----	Ringfort - unclassified	DOORA	Non-Extant	Some traces visible	Site completely destroyed – ploughed out into a field
Monaghan	MO003-025----	Ringfort - rath	GORTICLEAVE	Partial Destruction	Full circle visible	Only west half survives
Monaghan	MO004-002----	Ringfort - rath	KILLYREAN UPPER	Non-Extant	Some traces visible	Identified by map / local story
Monaghan	MO004-003----	Ringfort - rath	MONMURRY	Non-Extant	Some traces visible	Levelled
Monaghan	MO006-007----	Ringfort - rath	PULLIS	Non-Extant	Full circle visible	Removed
Monaghan	MO006-008----	Ringfort - rath	DESERT	Non-Extant	Some traces visible	Completely disappeared
Monaghan	MO006-010----	Ringfort - rath	TULLYARD	Non-Extant	Some traces visible	All traces removed
Monaghan	MO006-011----	Ringfort - rath	DERRYHALLAGH	Non-Extant	Full circle visible	Completely demolished
Monaghan	MO006-024----	Enclosure	DRUMCAW	Partial Destruction	Some traces visible	Almost fully destroyed
Monaghan	MO007-005----	Ringfort - rath	CORRAGHDOWN	Non-Extant	Full circle visible	No trace
Monaghan	MO009-007----	Ringfort - rath	CLONKEADY	Partial Destruction	Some traces visible	Bulldozed
Monaghan	MO009-009----	Ringfort - rath	ENAGH	Partial Destruction	Full circle visible	Demolished
Monaghan	MO009-013----	Ringfort - unclassified	CRUMLIN	Non-Extant	Some traces visible	Bulldozed
Monaghan	MO009-034----	Ringfort - rath	NEWGROVE	Non-Extant	Some traces visible	Fully removed
Monaghan	MO009-053----	Ringfort - rath	TULLYCROMAN	Barely Visible	Full circle visible	Barely visible
Monaghan	MO010-019----	Ringfort - rath	CAVANCREEVY	No Visible Surface Remains	Some traces visible	Map only
Monaghan	MO014-004----	Ringfort - rath	CREEVE	Partial Destruction	Full circle visible	Bulldozed; partial remains
Monaghan	MO014-015----	Ringfort - rath	LEGNACREEVE	Non-Extant	Some traces visible	No trace
Roscommon	RO006-065----	Ringfort - rath	KNOCKNACARROW	Non-Extant	Full circle visible	The site was levelled eleven years ago in the course of farm development
Roscommon	RO006-172----	Enclosure	USNA	Barely Visible	Some traces visible	Barely discernible
Roscommon	RO007-062----	Ringfort - rath	ANNAGHBEG	Partial Destruction	Some traces visible	D-shaped enclosure
Roscommon	RO007-064----	Ringfort - unclassified	KNOCKNACARROW	No Visible Surface Remains	Some traces visible	No visible surface remains
Roscommon	RO007-066----	Ringfort - cashel	CLOONACARROW	Partial Destruction	Full circle visible	D-shaped; N, NW, SW sides of the site have been bulldozed recently
Roscommon	RO007-068----	Ringfort - rath	CLOONACARROW	Partial Destruction	Full circle visible	Some attempt has been made to level the site in the past
Roscommon	RO007-077----	Ringfort - unclassified	LAUGHIL	No Visible Surface Remains	Some traces visible	No visible surface remains
Roscommon	RO007-088----	Ringfort - rath	TUMNA	Partial Destruction	Some traces visible	Some attempt to level this site recently
Roscommon	RO010-083001-	Ringfort - rath	CANBO	Partial Destruction	Full circle visible	D-shaped ringfort
Roscommon	RO011-028----	Ringfort - rath	CORDREHID	Partial Destruction	Full circle visible	The E portion of bank and fosse are almost completely defaced
Roscommon	RO011-030----	Ringfort - rath	ARDLAVAGH	Partial Destruction	Some traces visible	The whole NW half of the enclosure has been covered by farm holdings
Roscommon	RO011-040----	Ringfort - rath	LODGE	Partial Destruction	Full circle visible	Western edge of the site is difficult to make out today

County	SMRS	CLASSDESC	TLAND_NAME	Survival (SMR)	Lidar Remains	Survival Description (SMR/NMS)
Roscommon	RO011-049----	Ringfort - rath	DANESFORT	Partial Destruction	Full circle visible	No visible surface remains of the whole western half
Roscommon	RO011-050----	Enclosure	DANESFORT	Partial Destruction	Some traces visible	Some attempt has been made to level the site in the past
Roscommon	RO011-057----	Enclosure	DRUMCLEAVRY	No Visible Surface Remains	Some traces visible	No visible surface remains
Roscommon	RO011-059----	Ringfort - rath	ARDANAFRRIN	Partial Destruction	Full circle visible	D-shaped ringfort
Roscommon	RO011-082----	Enclosure	CORRY	No Visible Surface Remains	Some traces visible	No visible surface remains
Roscommon	RO011-086----	Ringfort - rath	CUILTYCONWAY	Partial Destruction	Full circle visible	NE half
Roscommon	RO011-118----	Ringfort - rath	CLOONFAD BEG	Partial Destruction	Full circle visible	Some attempt has been made to level the site in the past.
Roscommon	RO011-127----	Ringfort - rath	TAWNAGH MORE	Partial Destruction	Full circle visible	Some attempt has been made to level the site in recent years
Roscommon	RO011-153----	Enclosure	CLOONAVERY	No Visible Surface Remains	Some traces visible	No visible surface remains
Roscommon	RO011-157----	Ringfort - rath	KILLUKIN	Partial Destruction	Full circle visible	No visible surface remains of the NE and E edges
Roscommon	RO012-014----	Ringfort - rath	TOOLOSCAN	Partial Destruction	Some traces visible	W, SW edges levelled at some stage in the past; whole NE side interfered with