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Geophysical Survey at the Upper Lake, Glendalough, Co. Wicklow
Introduction

The UCD School of Archaeology in collaboration with archaeological geophysical consultant Ian Elliott carried out geophysical survey at the Upper Lake, Glendalough in 2009 and 2010. This has allowed us to identify previously unknown archaeological features beneath the ground surface.

Results

The overall results are shown in the figure. Our survey was divided into three main areas: the lawns surrounding the caher (Area A), the meadows near the ‘church’ (Area B) and the area of the Hotel (Area C).

Area A (The “caher”): the geophysics in this area shows a range of features relating to agriculture and possible pathways. Field boundaries and the possible evidence of agricultural ridges are found throughout the survey, often trending NNW-SSE or N-S which probably indicates at least two phases of agriculture. Our excavations (see Newsletter 3) have demonstrated how extensive the impact of recent agriculture has been on this landscape. Some possible pathways were identified to the south of the caher and particularly to the southeast which was a particular focus for our subsequent excavations. No strong geophysical responses were immediately associated with the caher, which may support suggestions that the structure is not of significant antiquity.

Outline of Methods

We used two main forms of geophysical survey at the Upper Lake at Glendalough: earth resistance and magnetometry.

Earth resistance survey measures the resistance of the soil to an electric current, in effect measuring the moisture content of the soil. This will be affected by the presence of stones or different soil types – so structural features or buried ditches appear as variations in the resistance data. These variations are often called ‘anomalies’.

Magnetometer survey looks at very subtle variations in the magnetic properties of the soil. This can identify different soil deposits which may relate to structural features such as ditches, areas of burning and of course, metals.

Both types of survey take place within a grid system which is fixed to the national grid, allowing us to confidently identify the location of anomalies. Not all anomalies are archaeologically important: some relate to modern rubbish while others may relate to natural geological features. The yellow dots on the interpretation of the survey indicate the ‘noise’ provided by ferrous materials.
Interpretative map based on the 2009–10 earth resistance and magnetometry surveys of Areas A, B & C.
Area B (The “church”): this area surrounds a small rectangular structure, sometimes described as a church. The building is likely to be recent in age, as it does not appear on nineteenth century Ordnance Survey maps, although a more irregular enclosure, described as a graveyard, does. This enclosure shows well on the survey (and indeed can be traced on the surface today) although there is no evidence of graves on the geophysical survey, possibly because of a high degree of disturbance. Our geophysical survey casts doubt on the antiquity of this so-called ‘church’. Immediately north of the river a strong geophysical response indicates the presence of buildings. These are shown on the Ordnance Survey 1908 map and are likely to be outbuildings associated with Grants Lake Hotel. It is possible that the ‘church’ is partly constructed from the remains of these buildings and contains well-dressed granite blocks.
Area C (The “hotel”): This area focused on the location of Grants Lake Hotel, which closed down in the early twentieth century. The geophysical survey has a close correlation to the 1908 Ordnance Survey map, showing foundation trenches, tumble or possible paving, and paths.

Discussion
The geophysical survey has revealed a range of potential archaeological features. In places the high correspondence of the geophysical survey and the 1908 map is very notable. It is interesting to note that the survey has not revealed dramatic new large scale features in this inviting, open area of the Upper Valley. Instead, the survey demonstrates the impact of agricultural practices as well as more subtle, small scale features. These have formed the basis for our excavations in the area from 2010 to the present (see Newsletter 2).

Acknowledgments
We are very grateful to the OPW for funding this geophysical survey and to NPWS for access. Survey was carried out in 2009 and 2010 by students of the UCD School of Archaeology under the direction of Ian Elliot of Irish Geophysical and Archaeological Surveys.
Further Reading


Further information

The geophysical surveys discussed here were undertaken in Lugduff townland, Upper Lake, Glendalough, Co. Wicklow under license number 09R157 (2009) and Ministerial Consent E4431 (2012).

### Site S.M.R. No. Classification ITM Reference (E, N) Irish Grid Reference (E, N)

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Further detail on archaeological sites in the Glendalough Valley can be found on the Archaeological Survey Database at www.archaeology.ie. Glendalough Valley forms part of the Wicklow Mountains National Park under the management of the National Parks and Wildlife Service.

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