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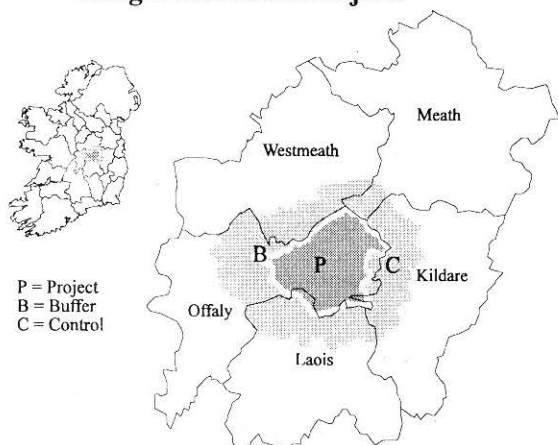
# East Offaly Badger Research Project (EOP): Interim Report for the Period, January 1989 to December 1994

L.A. Dolan, J.A. Eves and D. Bray

## Introduction

The East Offaly Badger Research Project (EOP) was continued during 1994. The objective of this observational study is to monitor and analyse the effect of the intensive control of a tuberculous badger population on the tuberculin testing outcome in the associated cattle herds. These data are compared with the data from the cattle herds in a surrounding control area in which there is no badger control programme (Fig. 1).

**Figure 1. The Project, Buffer and Control Areas of the East Offaly Badger Research Project.**



## Results

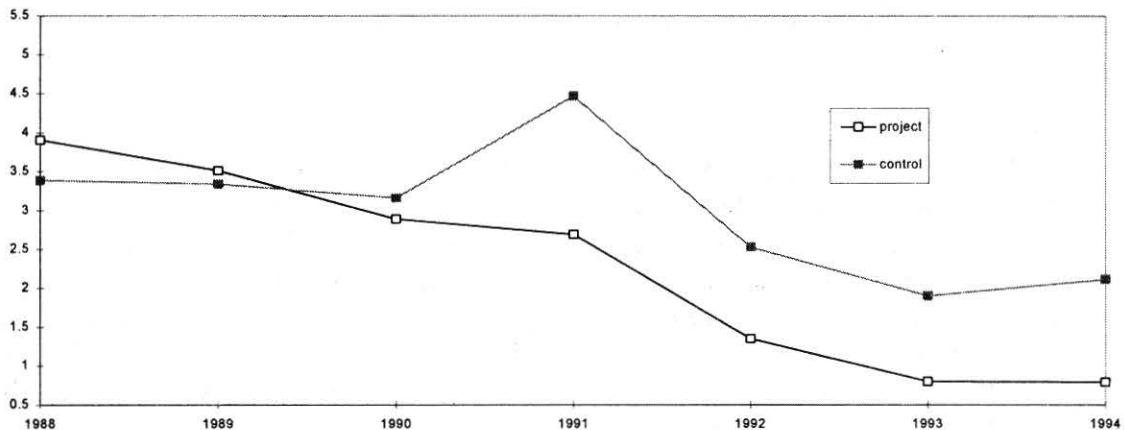
The badger trapping programme continued during 1994 and the results are presented in Table 1. The proportion of badgers trapped in the Buffer Zone initially was 16%. This figure doubled in 1990 and continued to increase in the subsequent years to reach 56% in 1994 (Table 2). In recent years most of the remaining badgers were trapped towards the periphery of the Project Area. The tuberculin testing data for the Project and Control Areas are given in Table 3.

These figures differ somewhat from those given in the earlier interim reports for years up to 1991. The differences arose as a result of errors of definition in the computer generation of cumulative statistics for different area blocks within the different counties. This difficulty was overcome by putting an individual identifier on computer for each herd in the three areas. The final validation of herd allocation was completed with the aid of digitised maps and Geographical Information Systems Technology (GIS). The corrected figures show little change from the outcome previously reported. The statistical analysis presented previously and in this report were carried out on data for the individual herds that were retrieved from the National Computer System master tapes (Williams & O'Mairtin, 1994).

The tuberculin testing data showed that at the end of 1994, there had been a decrease of 80% in the APT (reactor animals per 1,000 animal tests) in the Project Area compared to the 1988 figure. In the same period the APT for the Control Area initially showed little difference before increasing sharply in 1991 and then decreasing to 38% below the 1988 figure in 1994 (Fig. 2).

The change in the percentage of total reactors showed a greater decrease in the Control Area than the APT figures might suggest. This difference occurred as a result of the amount of the total testing undertaken, which was related to the distribution of the test reactors (Table 3).

**Figure 2. The APT values for the Project and Control Areas, 1988 - 1994.**



**Table 1. The number of badgers trapped and the number found to be tuberculous in the Project Area and Buffer Zone of the EOP from 1989 to 1994, inclusive.**

Year	Project Area	Buffer Zone	Total
1989	700 94 (13) *	137 25 (18)	837 119 (14)
1990	197 24 (12)	103 3 (3)	300 27 (9)
1991	117 13 (11)	74 8 (11)	191 21 (11)
1992	108 7 (6)	72 2 (3)	180 9 (5)
1993	63 8 (13)	51 2 (4)	114 10 (9)
1994	50 3 (6)	63 2 (3)	113 5 (4)
Total	1235 149 (12)	500 42 (8)	1735 191 (11)

( ) \* number and percentage of badgers found to be tuberculous on gross post-mortem examination

**Table 2. The proportion of the badgers snared in the Buffer Zone, by year.**

Year	'89	'90	'91	'92	'93	'94
%	16	34	39	40	45	56

### Discussion

The APT figure for the Project Area has reduced further in 1994 to 0.79, while the APT in the Control Area has increased by 10% to 2.11. The APT for the Control Area was 1.7 times greater than the figure for the Project Area in 1991 and has risen to 2.7 times in 1994. An analysis of the tuberculin testing data between the Project and Control Areas, from 1982 to 1992, showed that there was a statistically significant difference in the risk of a herd breakdown between the two areas in 1991 and 1992, the lesser rate being in the Project Area. This had not occurred in any of the previous years (Williams and O'Mairtin, 1994). There was no statistical difference in 1993 or 1994, probably because the number of restricted herds was too small.

The numbers of reactors were also analysed for herds undergoing a breakdown. From 1991 to 1994 significant differences between the mean number of reactors occurred in each year, the lesser number having occurred in the Project Area. Furthermore, the magnitude of these differences increased each year.

An analysis of data undertaken during 1993 using Geographical Information System technology (G.I.S.) demonstrated that there was a statistically significant association between the distance to setts where tuberculous badgers were captured and herd breakdowns (Dolan, Hammond, Eves, Griffin, Martin and Collins, in press).

The fact that such a high proportion of the badgers have been snared in the buffer zone would appear to confirm that immigration of badgers is occurring on a regular basis. Consequently, the badger control programme undertaken in the Project Area has also diluted the badger population in the Control Area. A recent study of badger control conducted in an area of South West England also concluded that badger control had a significant effect on the level of tuberculosis in the associated cattle (Clifton-Hadley *et al*, 1995).

**Table 3. The number of tuberculin reactors, APT and % change, by year, in the Project and Control Areas of the EOP**

Year	Area	No. of Reactors/year	APT/year
1988	Project	326	3.91
1989		362	3.51
1990		299	2.89
1991		194	2.69
1992		89	1.35
1993		54	0.80
1994		54	0.79 (-80)
1988	Control	910	3.39
1989		982	3.34
1990		904	3.16
1991		979	4.47
1992		594	2.53
1993		404	1.90
1994		443 (-51)	2.11 (-38)

\*Reactor animals per 1,000 animal tests.  
( ) % change from 1988 figure.

### References

Williams, D.H. and O'Mairtin, D. (1994). East Offaly Badger Research Project, 1982-1992. University College Dublin. Internal Report.

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