SCOTTISH BADGER DISTRIBUTION SURVEY

PROJECT SUMMARY

The Eurasian badger (*Meles meles)* is an iconic species, one of the UK's largest surviving native land mammals. Until recently, knowledge of the distribution and density of this elusive species in Scotland was incomplete and based largely on research carried out a number of years ago. In 2006, the charity Scottish Badgers set up a project to conduct the largest and most comprehensive badger survey ever attempted in Scotland. The project was funded by the Heritage Lottery Fund, Scottish Government and Scottish Natural Heritage. Approximately 600 trained volunteers were involved in the project, along with a team of statisticians, government advisors and badger experts.

THE AIM OF THE PROJECT

The aim of the survey was to provide an up-to-date estimate of badger main sett density and distribution and to provide information on the habitats in which badgers are present in Scotland. The survey was intended to act as a baseline from which future changes could be measured through repeat surveys every five to ten years.

THE SCOPE OF THE STUDY

The geographical scope of the survey included mainland Scotland, but excluded the islands (except for the Isle of Arran where badgers are known to be present). Certain areas of mainland Scotland were excluded from the sample of survey sites on the grounds of having known unfavourable habitat or because they were impractical to survey for reasons of safety or accessibility. A random sample of 1000 1-km squares was produced, broken down by region and by habitat type.

SURVEY METHODS

Data were collected using a network of trained volunteer surveyors, using established field survey techniques. Survey work was conducted during two main survey periods: September 2007 to May 2008 and September 2008 to May 2009.

Data were collected on the presence or absence of badger setts and signs, the habitats contained within the 1-km survey squares and any evidence of human disturbance to badger setts.

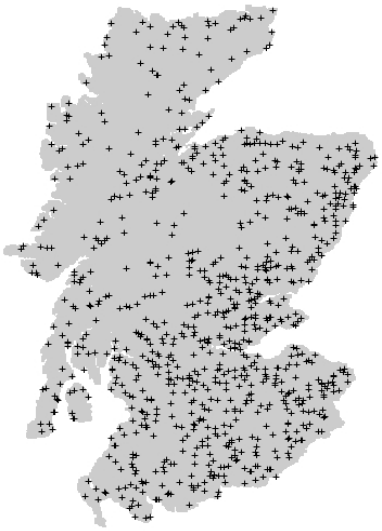

Figure One. Map showing the geographical distribution of the 877 squares that were surveyed.

SURVEY WORK COMPLETED

A total of 877 survey sites were surveyed. This represented a return rate of over 90% on all survey work allocated to volunteers. Returns were monitored throughout the project to ensure that adequate coverage was achieved for each region and habitat, and to ensure that no significant gaps occurred within each geographical region.

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RESULTS OBTAINED

Of the 877 squares surveyed, 585 squares (66.7%) were found to have no badger records of any kind, 4 squares recorded only a disused main sett, and the remaining 288 squares (32.8%) showed some evidence of current badger activity.

Of the 288 squares, 136 squares (15.5%) contained an active badger main sett, and 224 squares (25.5%) contained an active badger sett of some kind, with the remaining 64 squares containing badger signs but no actual setts.

Access issues were encountered in approximately 3% of sites surveyed, with the majority of access restrictions encountered deemed reasonable. Evidence of human disturbance to badger setts was recorded in approximately 2% of sites surveyed.

ANALYSIS AND ESTIMATES

Data collected were used to provide national estimates for the number of badger main setts and for the percentage of 1-km squares containing badger activity.

The results suggest that there are between 7300 and 11200 badger main setts in Scotland. It is estimated that approximately 7.1-10.4% of 1-km squares in Scotland contain at least one main sett, that approximately 12.7-17.2% of squares contain at least one active sett of some kind and that approximately 17.2-23.2% of squares contain some form of current badger activity.

The highest estimated densities were found in sites dominated by arable land, intensive grassland or deciduous woodland, with moderately high densities estimated in urban areas. Densities were estimated to be much lower in coniferous woodland, natural grassland and acid grassland. The lowest estimated densities of all were in heather and bog habitats.

In contrast, when considering the actual habitat on which the setts were directly found (and not the dominant habitat of the survey site), 60% were either wholly within deciduous or coniferous woodland, and only 9% were located wholly within arable land or improved grassland. Almost half of all setts were located in woodland areas but lay within squares for which the dominant habitat type for the survey sites was either arable or intensive grassland.

The highest estimated densities were found in Borders and Lothian, with moderately high estimated densities in Fife, Grampian and Dumfries and Galloway. Estimated densities in Central region, Highland region and Tayside were much lower, with intermediate estimated densities in Strathclyde.

Statistical models were used to investigate the relationship between badger activity within a 1x1km square and the environmental characteristics of that square. The results preliminarily indicated that the proportional land cover of deciduous woodland, arable land and improved grassland were key factors in contributing to the likelihood of the 1-km square containing badger activity.

There was some evidence for a negative relationship between average altitude (or height) of the 1-km square and the presence of a badger main sett, and for a positive relationship between unevenness of ground in the 1-km square (or how undulating the ground was) and the presence of any type of badger sett.

CONCLUSIONS

The results indicate a healthy but moderate badger population in Scotland, which appears to have increased since previous studies, a trend also apparent in the UK badger population. It is hoped that the survey will be repeated every five to ten years to measure changes in the Scottish badger population.

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