Tawny Owl and Barn Owl 1989

Title
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Description and Summary of Results
In the later 1980s there had been growing concerns over the status and possible declines of Barn Owl *Tyto alba* and Tawny Owl *Strix aluco*, and it was realised that none of the standard surveys (atlases, Common Birds Census and others) adequately addressed all the problems posed, largely because both species are predominantly nocturnal and not well recorded during surveys embracing all species. The atlases showed the distribution of both, but they essentially just collated what amounted to casual records.
There had been previous attempts at surveying Barn Owls notably by George Blaker in the 1930s, although this too simply collated casual records with no attempt at measuring effort or coverage. A more widescale survey was run by the Hawk Trust from 1982 to 1985 which suggested that numbers had declined greatly. In contrast numbers of Tawny Owl were thought to have remained fairly steady but this was also based largely on casual impressions rather than any formal surveys and counts. It was also known that the numbers of both species which actually bred each year were very variable, and very often had been correlated with the cycles of vole numbers. Hence there were few details about either species with which to compare numbers.
There were also concerns about the new generation of rodenticides being introduced. These were being used primarily against rats, and as both owls in the UK are thought to feed largely on voles they would probably not be very susceptible as long as the rodenticides were not placed out in the open countryside away from the confines of farm buildings. Other possibilities for the causes of the declines were changes in land use and therefore habitat availability, and weather especially snowfall and drought reducing food availability.
So, as part of a larger study on the populations and dynamics of both species which covered breeding performance, survival and dispersal, these done primarily with new analyses of existing BTO datasets, it was decided to run a survey to try to get some information on the current population size of both species. Because of their differing behaviour and ecology surveys of the two species had to be completely separate.
Despite several observers being asked to take part there was a very poor response to the survey of Barn Owls and too few useful counts were received to be able to do any useful analyses. Primarily it seemed that the suggested fieldwork methods (to find all pairs in a specified 10-km square) was too labour-intensive for observers to wish to do it. However all those who have tried to set up surveys of this species have (sometimes after several trials of other methods) resorted to this as the only sensible survey method but it seems that it is not suitable for a large scale survey without very careful planning.
The Tawny Owl is a much commoner and much more vocal species and therefore was potentially much easier to survey. A total of 2521 10-minute point counts were carried out in the autumn of 1989, covering 122 10-km squares. This amounted to 40% coverage of those asked for. Owls were recorded throughout Britain and differences were found

between both regions and habitats with the latter being the more important. Densities varied from 0.15 pairs per tetrad in urban habitats to 0.74 in woodland with adjacent farmland. There were also fewer birds in SW England compared to the Midlands and NW England although these differences were not very large.

Methods of Data Capture

Although the two surveys were part of the same project the methods used for each species were completely separate and different.

Barn Owl: After some trials which included trying out tape lures it was decided that the only way to get reliable information was to carry out intensive searches for nests (pairs) in sample survey areas and attempt to find all the breeding pairs within a defined area. A target of 25 10-km squares was set for this. Ideally they would have been randomly chosen but considerations of the potential observers who had often been studying the species in specific areas for some years, meant that these were often targeted instead. Hence observers were allowed to select their own study areas but it was emphasised that they should try to include areas of both high and low quality habitat.

Tawny Owl: Observers were asked to carry out point counts in the 10-km squares used for the Key Squares Survey of the 1988-1991 Breeding Atlas, thus giving a potential one in nine sample across the country. The aim was to carry out a ten-minute point count at, or as near as possible as access would allow to, the centre of each tetrad. Ideally counts would be carried out in all 25 tetrads of a 10-km square but a minimum of 15 was requested. The count was to be done within two hours after sunset between 15 August and 15 October and in reasonable weather conditions. All owls heard hooting were recorded and at the end of the count an assessment of how many pairs were present was made based on specified criteria. The habitat at each site was recorded using the BTO standard 'Crick' coding system.

Purpose of Data Capture

The aim of the overall project was to investigate existing data on nesting, survival and dispersal. Part of this was specific surveys of each species to establish a baseline of population numbers and to see how these differed between areas and habitats.

Geographic Coverage

Britain -- note that Tawny Owl does not occur in Ireland. 25 10-km squares were targeted for Barn Owl and a one in nine sample of 10-km squares over all of Britain for the Tawny Owl.

Temporal Coverage

Barn Owl -- the breeding season of 1989.

Tawny Owl -- autumn 1989 with surveys requested from 15 August to 15 October.

Other Interested parties
The project was run by the BTO Owls project and jointly funded by Ciba-Geigy, ICI, Shell and Sorex. The project also used data collected from several long-term surveys, many of them funded by the Nature Conservancy Council.

Organiser(s)
Steve Percival

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Publications
The main report of the project which includes the results of the surveys is:
Percival, S.M. 1990. Population trends in British Barn Owls, *Tyto alba*, and Tawny Owls, *Strix aluco*, in relation to environmental change. *BTO Research Report* no. 57: 1-129.
The results have not, however, been formally published elsewhere although results have been mentioned in some subsequent papers on the species.
The surveys were noticed in *BTO News* numbers 160, 162 and 177.

Available from NBN?
No.

Computer data -- location
BTO Windows network central area.

Computer data -- outline contents
Tawny Owl survey data (counts and habitat data) and several files relating to Nest Records and Ringing analyses.

Computer data -- description of contents
The data from the Tawny Owl survey are in 2 files:
to_visit.dat contains the count data
Cols 2-5 10-km square; 7-8 Day; 10-11 Month; 13 tetrad; 15-18 Start Time; 19-20 number hooting; 21-22 number calling; 23-24 number of pairs; 26-27 Primary Habitat code; 29-30 Secondary Habitat code (may be blank)
tosquare.dat contains the habitat data for the 10-km square (from top of recording form)
Cols 2-5 10-km square; 6-8 %Farmland (tilled); 9-11 %Farmland (grazed); 12-14 %Woodland (conifer); 15-17 %Woodland (deciduous); 18-20 %Moorland; 21-23 % Other; 25-ca 40 Identity of "other habitat" eg sea, urban, estuary
The files in the base directory are data files for the analysis of Nest Records and ringing data.

The files called visit88.data and visit89.dat may be atlas visits as they include Tawny, Barn and Long-eared Owls at least.
The file docudat.doc seems to be some output with a listing of agricultural statistics but unclear as to use.

Information held in BTO Archives

1 Transfer Case contains data and some analyses.

Notes on Access and Use

The Barn Owl is a Schedule 1 species and therefore access to locations of breeding records may be restricted.

Other information needed

Notes on Survey Design

Specific Issues for Analysis