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1994 Barn Owl Survey of Cornwall

A joint project by the Barn Owl Trust
and the Cornwall Bird Watching and Preservation Society



by
KEITH GRANT, DEREK LORD and DAVID RAMSDEN



Cornwall Bird-Watching
and Preservation Society

**1994 BARN OWL SURVEY OF CORNWALL - A JOINT PROJECT BY
THE BARN OWL TRUST AND THE CORNWALL BIRD WATCHING AND PRESERVATION
SOCIETY**

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INTRODUCTION

The major decline of the Barn Owl *Tyto alba alba* (Scopoli) in Britain since the early part of the 20th Century is well known, however the evidence for this is largely anecdotal (Taylor 1994). Percival (1991) discussed the decline in detail citing factors such as the loss of foraging habitat due to agricultural intensification, loss of nesting sites, pesticides, road mortality and climatic change.

A national Barn Owl survey in 1932 estimated the Cornish population to be in the region of 342 pairs (Blaker 1934). The Hawk Trust survey during 1983-85 produced an estimate of 269 pairs and identified west Cornwall as the only area of mainland Britain where numbers may have actually increased since the 1932 survey (Shawyer 1987). Between 1932 and 1985 the population may have increased by 20% in west Cornwall and decreased by 39% in east Cornwall. However, Percival (1992) states that, on a national scale, *"there is no satisfactory quantitative information available to identify how large the decline has been and whether it is still continuing"*. In other words the methods used to produce population estimates in both the 1932 and the 1983-85 surveys were unsatisfactory. In spite of their limitations these surveys gave a good indication of Barn Owl distribution and to a lesser extent relative abundance. In both 1932 and 1985 the species was well distributed across most of the county, and in 1985 the birds were apparently much more numerous in west Cornwall than in the east.

The New Atlas of Breeding Birds in Britain and Ireland (Gibbons *et al* 1993) contains the most recent published information available and suggests that during the period 1988-91 the Barn Owl was still quite well distributed in west Cornwall but shows a distinct lack of records of Barn Owls in east Cornwall. The North Cornwall Barn Owl Project (NCDC 1989) gives 31 roost sites for north Cornwall for the period September 1986 to August 1988; it also cites 22 breeding sites for 1987 and 13 sites for 1988. The CBWPS Recorder for Cornwall has received an average of only 14 records of breeding Barn Owls per year during the years 1989-1993.

AIMS

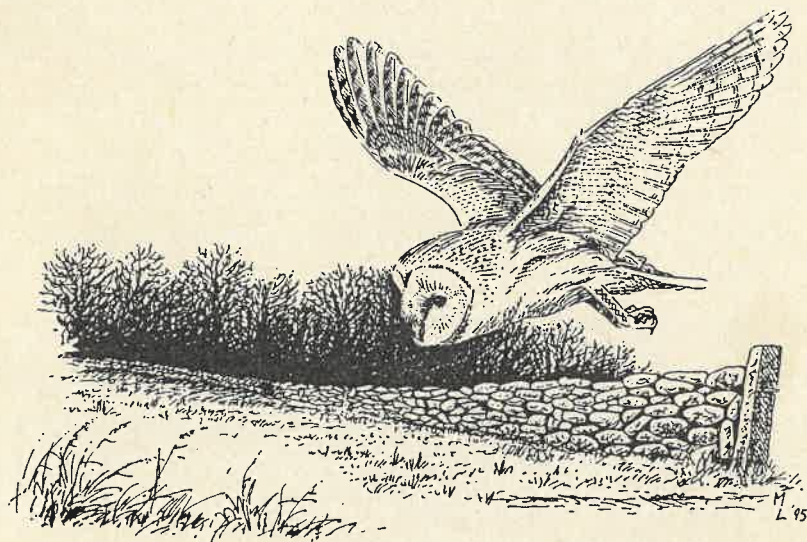
During 1994, the BOT and the CBWPS jointly organised a Barn Owl survey of the county of Cornwall, the aims being :-

- a) to establish the number and distribution of known sites where breeding or roosting occurred during 1994,
- b) to analyse the types of breeding and roosting sites used.

METHODS

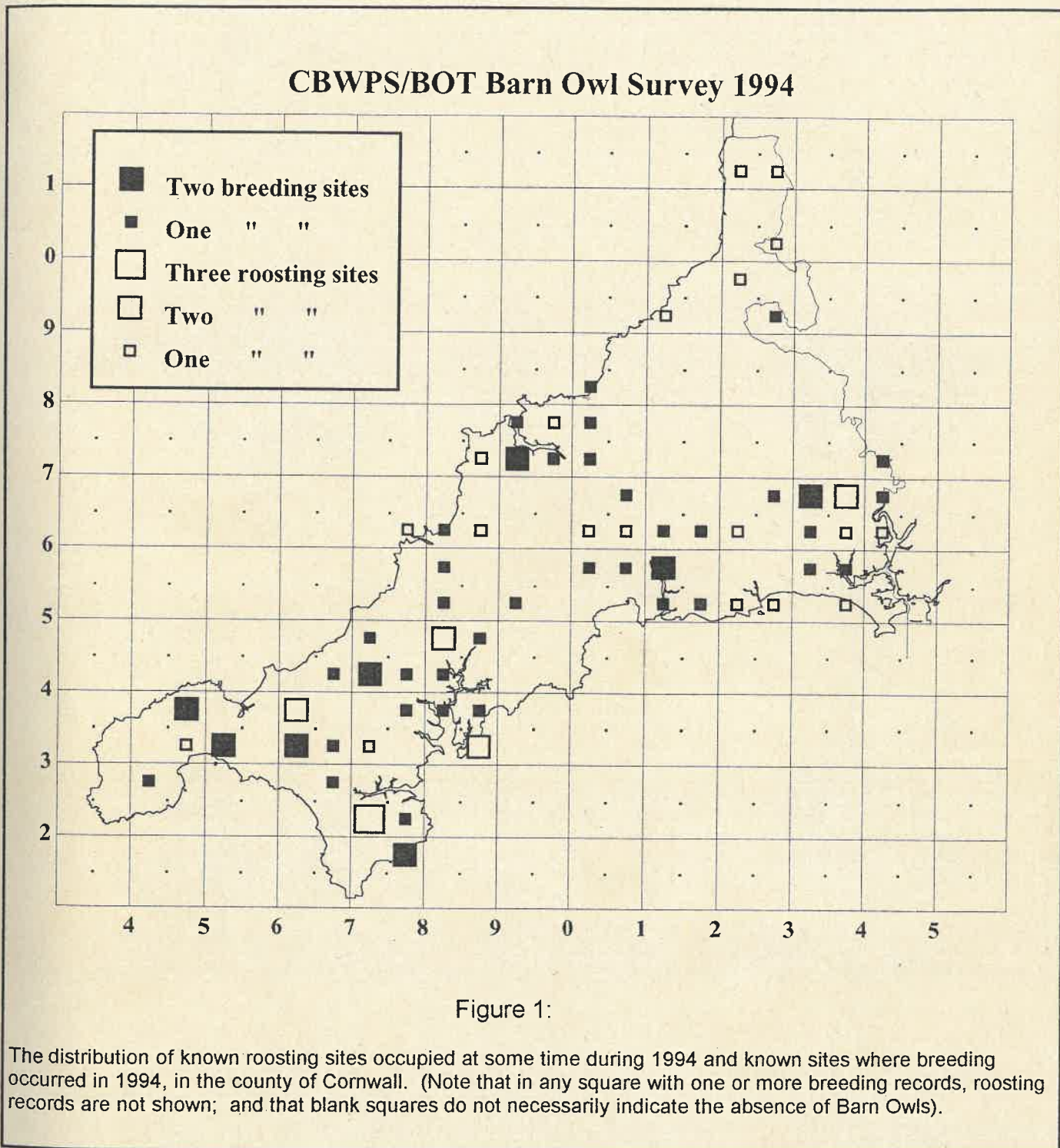
Rather than intensively searching sample areas, our methods relied very heavily on existing random site records held by both BOT and CBWPS, together with publicity for the survey and requests for information circulated widely through the media and the literature of the various conservation bodies in the county. Derek Lord put a great deal of effort into obtaining good media coverage with limited success. Posters appealing for Barn Owl information were displayed across the county and BBC Radio Cornwall were cooperative. Cornwall FWAG were also particularly helpful in distributing survey literature to their 280 members. Responses were handled by Derek Lord (CBWPS) and David Ramsden (BOT) and information was entered on to standard recording cards (see Appendix A). The card requested as much detailed information as possible including exact grid reference of the location, the owner's or tenant's name if known, evidence of breeding or roosting, when the birds were last seen, a description of the site and its surrounding habitat and an indication if the site was under threat of destruction, conversion, or undue disturbance. The survey only required information on current roosting or breeding sites; we did not follow up or record lone sightings of individual birds. We were mindful of the Wildlife and Countryside Act 1981 and the fact that the Barn Owl was (and is) on Schedule One. Advice to field workers was given and instructions that, if they did not hold a Schedule One licence, they withdrew from any building or hollow tree as soon as any evidence of breeding was found (see Appendix B). The survey covered the whole year, and evidence of breeding didn't necessarily require eggs or young to be seen. Adults ferrying food back to the nest site and the characteristic food-begging call of young birds can both be used as indicators of breeding without actually inspecting the nesting place. Talking to the farmer or landowner often provided information, and finding a used nesting scrape with broken egg shells or lots of chick down also provided evidence after the breeding season. Thus, not all accepted records were confirmed by an experienced field worker. Five volunteer fieldworkers distributed around the county held Schedule One licences as a back-up to non-licensed workers.

The methodology and recording form used was compatible with that of the 1993 Devon Barn Owl Survey (Grant *et al* 1994). BOT volunteers rechecked 92 Barn Owl sites known by the Trust and CBWPS members checked known sites in their own home areas.



RESULTS

Distribution of breeding and roosting sites recorded during the 1994 survey:



Overall 51 breeding sites and 60 roosting sites were recorded during the survey, and of the roosting sites 30 were found in 5km squares where no breeding was recorded (see Fig. 1). With a few exceptions, the species appeared to be quite well distributed within the county. Surprisingly however, there were few records in central Cornwall (the three 10km squares south of Wadebridge), in north Cornwall, and none in the Bodmin Moor area.

Fig.2 : Breeding Sites Chosen

Sample Size : n = 51

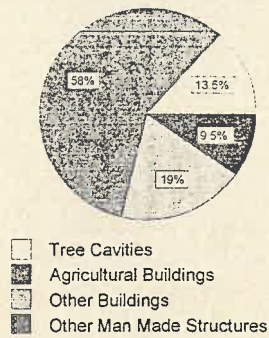


Fig.3 : Roosting Sites Chosen

Sample Size : n = 60

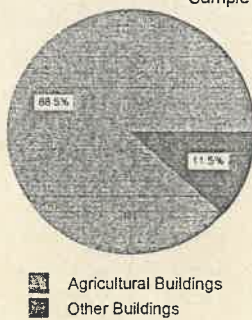


Fig.4 : Type Of Agricultural Building Chosen For Breeding

Sample Size : n = 26

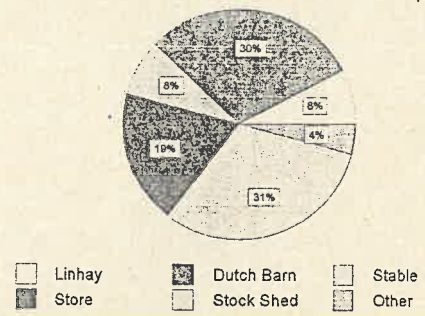


Fig.5 : Type Of Agricultural Building Chosen For Roosting

Sample Size : n = 45

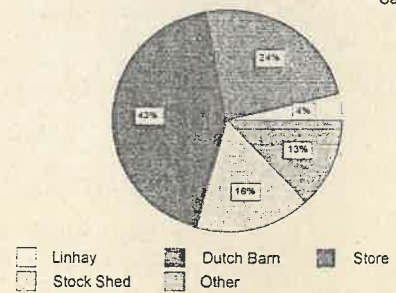


Fig.6 : Buildings In Use: Breeding Sites

Sample Size : n = 34

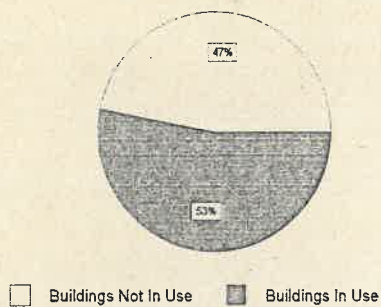


Fig.8 : Position Of Nests

Sample Size : n = 37

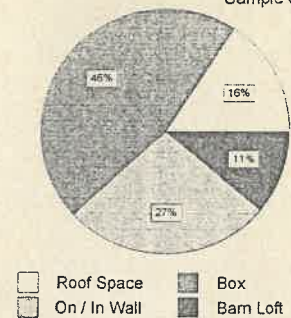


Fig.7 : Buildings In Use: Roosting Sites

Sample Size : n = 53

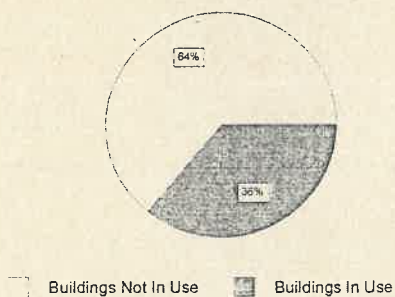
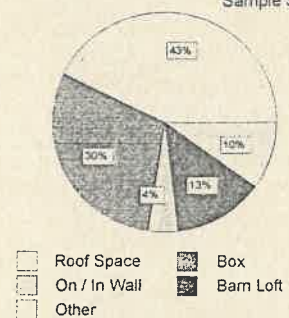


Fig.9 : Position Of Roost

Sample Size : n = 23



RESULTS (cont.)

Analysis of Site Details

Figures 2 - 9 show these results in the form of pie charts. For this purpose breeding records and roosting records were analysed separately (in order to detect any differences) and are shown together for visual comparison. Because most forms were not completely filled in, the sample size for each set of data varies. For this reason the sample size (n) is given with each pie chart.

Out of a total of 51 breeding records where the site type was reported, 13.5% were tree cavities. Species used included Sycamore, Elm, Oak and Ash. Most breeding sites recorded were agricultural buildings and the vast majority were traditional barns rather than modern ones. Interestingly, over half of these sites were in human use as well (see Fig. 6). There were only seven recorded cases of breeding in modern "Dutch" type barns. Out of these the nest position was reported in five - nestboxes were used in every case. In fact nestboxes were used in 46% of breeding sites and 30% of roosting sites (see figs 8 and 9). Some of the more unusual structures used were a viaduct, an old mine chimney, several churches and a hole in a causeway wall (see Fig. 2).

DISCUSSION

Barn Owl Distribution and Population Density

Information on the past distribution of Barn Owls in Cornwall is available from various sources, the national surveys in 1932 (Blaker) and 1983-85 (Shawyer) and the New Atlas 1988-91 (Gibbons *et al*). In 1932 the species was apparently resident in good numbers throughout the county, even on Bodmin Moor. By 1985 the birds seem to have disappeared from much of North Cornwall District and population density in the eastern half of the county (which includes the north) was reckoned to be much lower than in the western half. Shawyer (1987) estimated that in 1983-85 there were 10 pairs per 10km square in west Cornwall compared to 6.2 in the east and that the birds were more evenly distributed in the west. The New Atlas of Breeding Birds (1988-91) showed a marked lack of records for east Cornwall.

There is no doubt that the species is under recorded as intensive searches (particularly here in Cornwall where there are numerous farm buildings and trees) are extremely time consuming. The distribution map (Fig. 1) should therefore be viewed with caution; it only reflects the presence of owls, not their absence. This makes the estimation of the total population very difficult. But given the random nature of the data collection in this survey and relatively little bias caused by local observer effort, it is likely that the distribution recorded is quite representative. Similarly relative population density between different parts of the county is not likely to be heavily biased as no squares were thoroughly searched. Whilst Barn Owls were more evenly distributed in the western half of Cornwall there is little evidence that the population density was greater there in 1994.

The 1993 Devon Barn Owl Survey showed that one of the best areas for Barn Owls in Devon is the north-west. Therefore it is surprising that there was only one breeding record in the adjacent area of north-east Cornwall. This matter warrants further investigation in the near future.

Individual Barn Owls are known to show considerable site fidelity (the chances of an established adult moving to a different site are extremely slim). Barn Owls as a species also show a preference for certain

sites, often using the same sites for many generations. It is particularly disappointing that out of ninety two BOT sites (dating from 1985 to 1993) rechecked, 32% were found to be unoccupied in 1994. During the survey year, two five kilometer squares in west Cornwall were intensively searched as part of a different project (Project Barn Owl). One contained two breeding sites and a roosting site, the other, only two roosting sites (M.Toms pers.comm.).

Excluding those border or coastal squares with less than 50% within the county, there are 139 5km squares in Cornwall which may be suitable for Barn Owls. Of these, birds were recorded in 58 (plus 9 fractional border squares). The average number of breeding sites recorded per breeding square was 1.19. Similarly, the average number of roosting sites recorded per roosting square (ignoring those where breeding was recorded) was 1.25. This of course takes no account of squares which may contain no Barn Owls. Absence can only be proven by intensive searches such as those undertaken for the pilot year of Project Barn Owl (see above). The results from those two 5km squares combined is 1.00 breeding sites and 1.50 roosting sites per square. If the average number of breeding sites per square for the whole county was 1.10 then the population would be approximately 153 pairs. It is likely therefore, that the county population level may be in the region of 100 to 200 pairs. However, it must be stressed that the methods used in this current study were not designed to produce a reliable total population estimate.

Types of roosting and breeding sites used.

Of 51 breeding sites recorded in this survey only 13.5% were trees, compared to 24% of 96 sites recorded during the 1983-85 survey. This may be attributable to the continuing demise of dead elm trees which was witnessed between 1990 and 1994 (D.Ramsden pers. obs.). It is also likely that tree sites are under recorded as a survey of this nature is unlikely to pick up these more hidden sites. All of the roosting sites recorded and 77% of breeding sites were buildings (see Figs. 2 and 3) and of these the vast majority were traditional agricultural buildings (see Figs. 4 and 5).

Interestingly, more than half of the buildings where breeding was recorded were in human use rather than disused or derelict. This shows an apparent indifference by the birds as to whether or not people are also using the site. However "in use" could mean that a farmer visits the site daily, or, only uses the site seasonally. In south-west Scotland Taylor (1994) found that owls bred in nine out of eleven boxes placed in disused sheds but that out of ten boxes placed in sheds used for lambing none were used. However he goes on to say that where he found owls in places where they could remain concealed they seemed able to tolerate considerable noise and human activity. This final point may explain why roosting birds were found more frequently during the survey in buildings not in human use since roosting often occurs in more open situations where birds are more likely to be disturbed. It may also explain why purpose made owl boxes are so popular with Barn Owls.

Most buildings used by Barn Owls had stone or cob walls with a slate or corrugated roof. Modern "dutch" type barns were used for nesting only where a nestbox was provided. The same result was found in the Devon Barn Owl Survey (Grant *et al* 1994). The BOT Barn Conversion Research Project carried out in Devon and Cornwall found no positive site selection behavior in the species - the birds simply used whatever sites were available (Ramsden 1995).

Whilst isolated sites are the least likely to be reported, nest boxes erected specifically for Barn Owls are probably the most likely. Almost half of all the breeding records were nestbox sites (see Fig. 8). This represents a success for all those people who have made the effort to erect boxes. As old hollow trees and old barns disappear and given the unsuitability of modern barns it is highly likely that Barn Owls will become increasingly dependent upon the provision of nesting boxes.

SUMMARY

The Barn Owl is still fairly well distributed in Cornwall with eight well dispersed 5km squares holding two or more breeding pairs. However few records were reported from North Cornwall, Bodmin Moor and the area south of Wadebridge. In total, 51 breeding sites and a further 60 roosting sites were known to be occupied in 1994. Little evidence was found for a greater abundance in west Cornwall as was previously thought to exist. The experience of the few dedicated fieldworkers in the county indicates that occupied sites were (are) being lost through the demise of old hollow trees and old buildings.

The county population level in 1994 was certainly not less than 51 breeding pairs and was probably in the range of 100 to 200 pairs which is very low. The occupied sites recorded were mainly traditional agricultural buildings and/or nest boxes.

The future of Cornwall's remaining Barn Owls depends to a large extent on national and European farming policy. Schemes such as long-term set-aside and new tree plantations can be very beneficial and will hopefully expand. The provision of nestboxes has helped the Barn Owl in Cornwall. As old barns and hollow trees disappear, it is essential that more nest boxes are provided, particularly in modern farm buildings. There is hope and a lot yet to be done.

ACKNOWLEDGMENTS

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APPENDIX A

1994 - CORNWALL BARN OWL SURVEY A Joint by The Barn Owl Trust (Tel: 0364-653026) and Project Cornwall Bird Watching & Preservation Society					
Description of Site: (please circle or specify as necessary)					
BUILDING: used disused TYPE OF BUILDING: agricultural domestic industrial church dovecote other AGRICULTURAL TYPE: dutch stables storage stock shed linhay other WALLS: brick stone cob wood corrugated other ROOF: tile slate thatch wood corrugated other POSITION OF NEST: in/on bales box barn loft roof space on/in wall other	TREE: species specify KILN, CAVE, TUNNEL etc:				
Description of Area: (please circle one or more)					
pasture cereal mixed water meadow young conif. young decid. other					
Location: Place name: Nearest town: Name of owner or tenant:	O S Grid Reference: For office use only		Date last seen:		
Further Information (please circle or specify as necessary)					
Evidence of roosting at site: birds seen pellets feathers other					
Evidence of breeding at site: eggs/yg seen adults carrying food other					
Any other details:					
Is site under threat (eg. barn falling down, barn conversion, vandalism etc) ?					
Your name: Tel No:					
Address:					
Please post this form directly to: The Barn Owl Trust, Waterleat, Ashburton, TQ13 7HU or CBWPS, Old Farmhouse, Pentireglaze, St Minver, Wadebridge, PL27 6QY					Tel: 0364-653026

APPENDIX B

BARN OWL GUIDELINES

- All census workers are reminded that, under the Wildlife and Countryside Act 1981, it is illegal to visit the nest, or wilfully disturb breeding Barn Owls, or their dependant young (even if fledged), without a Schedule 1 licence.
- To detect or confirm roosting birds, it is recommended that workers visit possible sites in buildings or trees before March or after September, but repeated visits to occupied sites may cause birds to desert the site.
- During the breeding season (April to Sept), do not visit a known breeding site without the required licence. A brief inspection, from the entrance of a likely barn, does not contravene the legislation but the observer must retreat on sighting an adult or young Barn Owl, or otherwise confirming their presence by fresh pellets or pellets etc.

DO NOT CLIMB UP TO PROBABLE NESTS

- In order to avoid unnecessary disturbance to sites by field workers, including Schedule 1 licence holders, please liaise for the purposes of this survey with either:
David Ramsden, Barn Owl Trust, Waterleat, Ashburton, TQ13 7HU.
(0364-653026) or
Derek Lord, CBWPS, Old Farmhouse, Pentireglaze, St Minver,
Wadebridge, PL27 6QY.

DO NOT ENTER ON TO LAND OR INTO BUILDINGS WITHOUT
THE PERMISSION OF THE OWNER OR HIS/HER AGENT.

Please return completed forms as soon as possible, and in any case no
later than 31st December 1994.