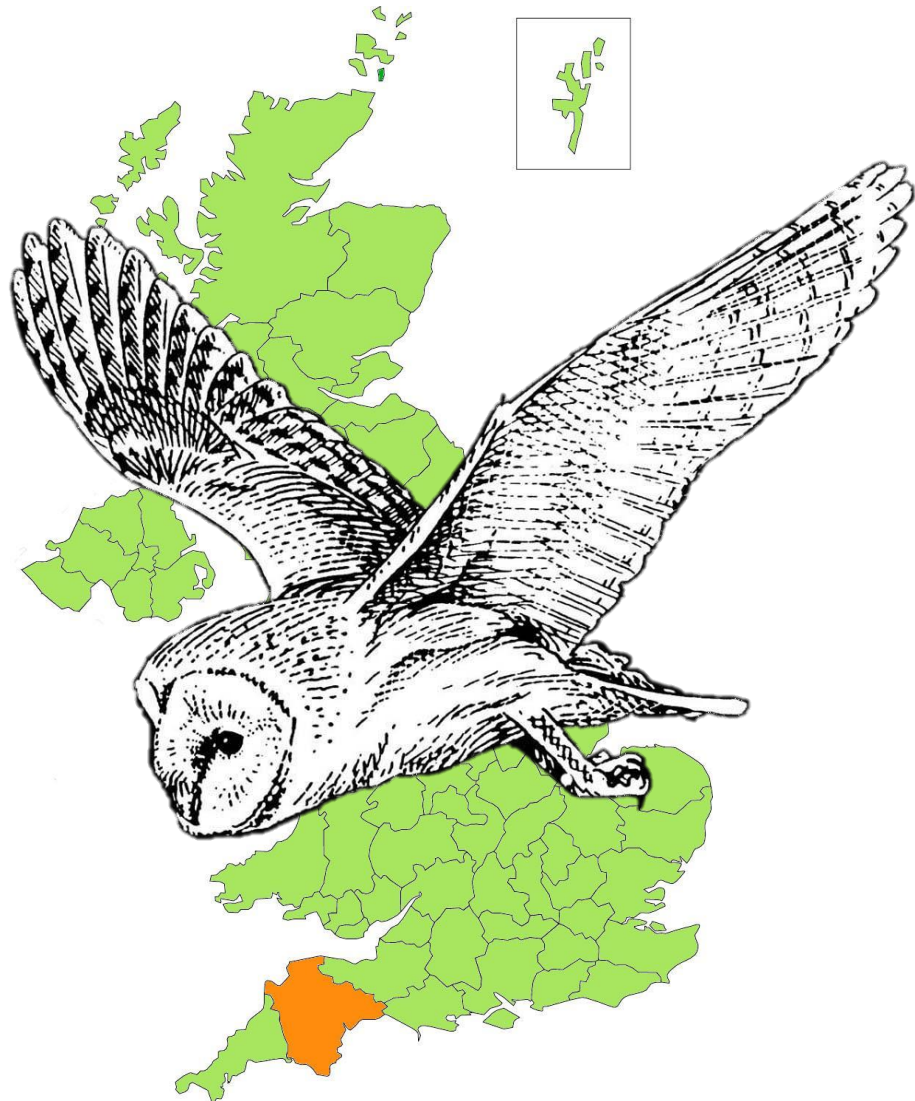




# 2013 Devon Barn Owl Survey Report

Results from a county-wide survey by the Barn Owl Trust,  
with the Devon Bird Watching and Preservation Society



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## 1. Background to the survey

### 1.1 Introduction

The Barn Owl (*Tyto alba*), an iconic species of the UK countryside and biodiversity indicator, appears to have undergone a significant decline in population of approximately 69% in the last 70-80 years, chiefly attributable to agricultural intensification and mechanisation. However, this figure is based on two surveys, whose reliability has been challenged; the first by Blaker (1934), who estimated a population for England and Wales of 12,102 pairs, and subsequently by Shawyer (1987) whose estimate of 3,778 pairs was for the same area. Percival (1992) considers that there is insufficient data to quantify the extent of the decline, whilst Taylor (1994) states that the evidence for the decline is largely anecdotal. *Project Barn Owl*, the only reliable survey to date, estimated a UK population of c. 4000 pairs in 1995-97 (Toms *et al*, 2000). Nevertheless, as a consequence of this perceived decline, the Barn Owl is afforded the highest level of UK legal bird protection by virtue of its inclusion on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

The decline in Devon between the Blaker and Shawyer surveys was estimated at 66%, and similar to the 69% figure for England and Wales. Causes of decline across the UK include reductions in food supply (Cayford, 1992; Taylor, 1993, 1994), roost and nest site loss (Ramsden 1995) and major roads (Ramsden, 2003), and in this respect Devon is no exception. As such, and in an effort to address the decline, much conservation work has been undertaken, predominantly by the Barn Owl Trust (BOT) which is based in the county. Because the 1993 and 2003 Devon Barn Owl surveys involved the re-checking of all known Barn Owl sites reported to BOT between each survey, it is important to assess the amount and nature of BOT activities undertaken since 2003 that may have influenced the chances of sites being reported.

### 1.2 Barn Owl conservation in Devon since the 2003 survey



In 2006, the BOT launched its first major website. This would have led to a significant increase in awareness of the practical conservation work undertaken and consequently has almost certainly resulted in more sites being reported. Moreover, the number of enquiries has continued to grow steadily since 2003, particularly from those interested in providing a Barn Owl nestbox, often as a result of Barn Owls appearing at a site without one. There is little doubt that the probability of sites being reported has increased as a consequence.

In 2009, the BOT published 'Barn Owls and Rural Planning Applications; what needs to happen – a Guide for Planners' after an increasing number of incidences of site loss due to failures in the planning system. This was an attempt to provide best practice guidance to planners on how to mitigate the impact of developments at Barn Owl sites. Whether this has resulted in significantly more sites being reported to the BOT is unquantifiable but a small number of apparently historic Barn Owl sites that were previously unknown to the BOT have consequently been reported on the submission of a planning application.



Between 2009 and 2010 the BOT ran the 'Westmoor Barn Owl Scheme'. This was a dedicated nestbox erection and habitat management advice scheme in West Devon between Dartmoor and the Tamar, which involved the erection of 125 nestboxes and also included input on the dangers of rodenticide and water troughs. The scheme sought to reverse the 87.5% decline in nesting Barn Owls identified in the 'Westmoor' area between the 1993 and 2003 county surveys. It is unlikely that the scheme is responsible for a significant increase in reporting though some increase is inevitable.

In the spring of 2013 (the *survey year*) BOT's first UK survey website <http://www.barnowlsurvey.org.uk> was launched. This was promoted on BBC Springwatch, encouraging more than 2500 additional sightings from across the UK. A proportion of these were in Devon.

In summary, BOT activities since 2003 have almost certainly resulted in a greater chance of sites being reported. Therefore an increase in recorded sites may simply be a facet of increased reporting effort rather than an increase in the numbers of birds. Conversely, any decline in numbers may be hidden by an increase in reporting effort.

### 1.3 Aims



The main aims of the 2013 Devon Barn Owl Survey were as follows:

- a) To establish the number and distribution of known sites where breeding or roosting occurred during 2013.
- b) To recheck Barn Owl breeding and roosting sites recorded since the start of the 2003 Devon Barn Owl Survey (a ten-year period), and to analyse any trends.
- c) To check data coverage by interviewing landowners in areas where there were no records of Barn Owls (with follow-up searches where necessary).
- d) To estimate the county population level in 2013 and compare it with 2003.
- e) To determine the causes of any site loss observed (e.g. demolition, barn conversion, planning system failure).

## 2. Methods

### 2.1 Survey sites



The 2013 survey replicated the methods of the 2003 survey. This principally involved re-checking all sites where Barn Owls had been recorded during or since the 2003 survey. Records were reported to the BOT in the following circumstances;

- a) Intentionally given to the BOT by the public/landowners/farmers (sometimes in response to specific media appeals).
- b) Incidentally recorded in the course of general enquiries received by BOT.
- c) Via contact with other organisations/groups/individuals with an interest in Barn Owls/conservation/rural buildings.
- d) By BOT staff/volunteers in the course of general fieldwork, education events, county shows or research projects.

Barn Owl observations are typically recorded at 6-figure OS grid reference resolution giving a maximum inaccuracy of 100 metres.

Reports from members of the general public were always closely scrutinised by BOT staff using pertinent and selective questioning techniques in line with guidance (Barn Owl Trust, 2012; 103) in order to reduce the number of erroneous records from the results. Site visits were sometimes necessary to establish the veracity of the initial report.

In addition, a number of new sites were reported to surveyors during 2013 visits, and these were subsequently followed up. However, no physical searches for material evidence were conducted at sites with no previous occupation history (i.e. no cold searching).

As in the 2003 survey, Devon Bird Watching and Preservation Society (DBWPS) members were encouraged to submit Barn Owl observations. The British Trust for Ornithology (BTO) acted as liaison with all Devon ringers and holders of a Schedule 1 licence for Barn Owl in order to reduce duplication of effort and thereby minimise disturbance.

A ledger was created listing all Barn Owl nesting and roosting records since and including 2003. Duplicates were removed, leaving 1,346 sites to be checked.

## 2.2 Site search methods



A physical search for material evidence of occupation was conducted wherever possible. Where the original informant (often the site owner) was able to provide reliable and up-to-date information no verification was considered necessary. The vast majority of sites were visited by trained and licensed BOT staff, who searched the site for physical evidence of occupation; Barn Owls themselves, their pellets, droppings and feathers. All potential roost and nest places were also checked in all buildings that were accessible to Barn Owls unless they were too dangerous to enter or

site owners refused access permission. Evidence was identified and aged in line with guidelines in the Barn Owl Conservation Handbook (Barn Owl Trust, 2012).

## 2.3 Interview tetrads



Before any site survey visits were conducted, a distribution map of all sites was produced. From this map, empty tetrads (2km squares) were identified, and allocated to a discrete group of BOT volunteers known as *interviewers* using the following criteria;

- 1) No records of Barn Owl roosting or nesting between 2003 and 2013.
- 2) Landscape suitable (not predominantly urban, wooded or wetland).
- 3) Within an acceptable travelling distance of interviewers' homes.

Interviewers visited all potential Barn Owl sites within the tetrad and interviewed the occupiers following standard interview protocols and a dedicated recording form. Any necessary follow-up visits were conducted by BOT staff.

## 2.4 Data recorded

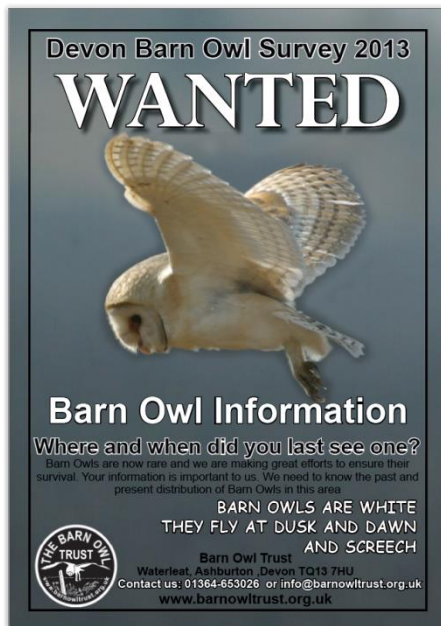


Each site was assigned a 'Barn Owl status' according to the following criteria;

- *Nesting*; one or more eggs or young seen, definite young heard calling for food night after night, definite adult(s) seen repeatedly carrying food into a suitable nest place, nestling (mesoptile) down and/or definite "ammonia" smell found with nest debris.
- *Roosting regularly*; 10 or more pellets dating from the survey year.

- *Roosting occasionally*; less than 10 pellets dating from the survey year.
- *Seen less than once a month/more than once a month/more than once a week*; no material evidence of occupation but birds had been seen in the survey year.
- *Absent*; no evidence of Barn Owls was found (or the evidence indicated occupation prior to 01/01/13 only).
- *No result*; where no access permission was gained, typically where the site owner could not be traced or did not respond to BOT contact.

## 2.5 Media appeal



A media appeal was launched requesting Barn Owl observations, with an article published in the Western Morning News in May 2013. Across the county posters were displayed in various locations and a request for sightings was made via the DBWPS to their members. Observations were recorded either through direct contact with BOT's office, BOT staff, or via the new BOT survey website <http://www.barnowlsurvey.org.uk>.

## 2.6 Data processing

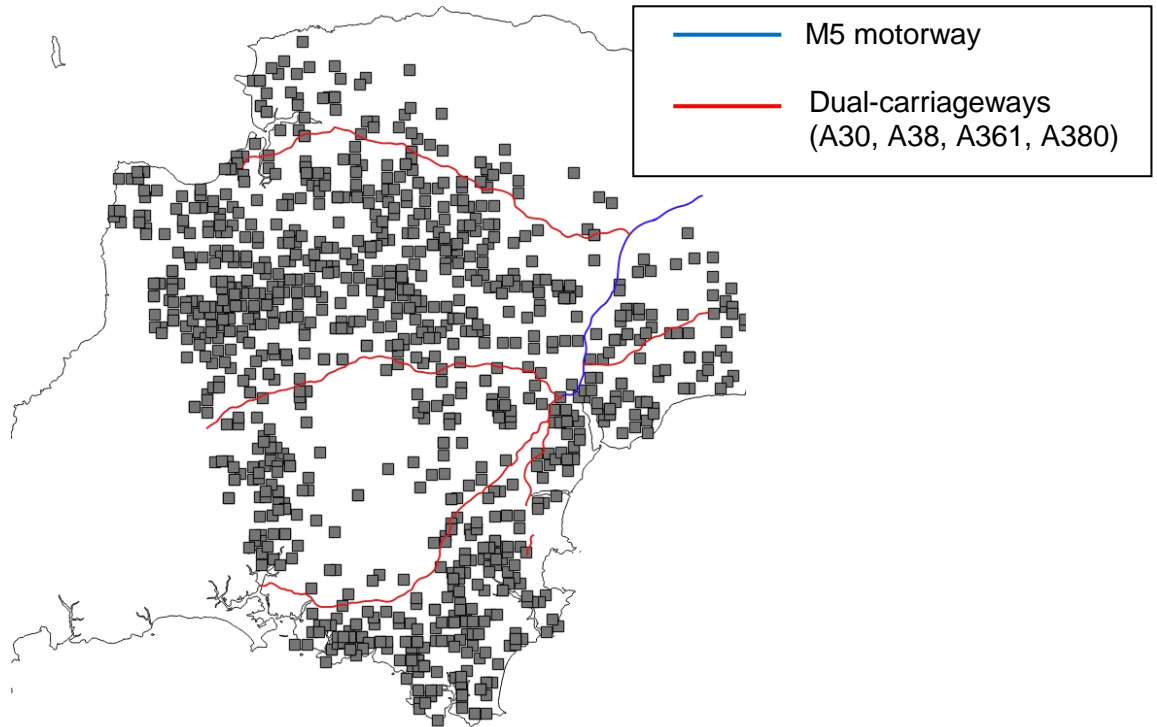


All data were manually entered onto the BOT off-line database (Microsoft Access™) from where the 2013 results were extracted. A distribution map at 2km resolution was created in D-Map™ showing interview tetrads (see 3.1 *Coverage achieved*, Map 2 below). The coverage (see 3.1 *Coverage achieved*, Map 1) and Main Results distribution maps (see 3.3 *Distribution*, Maps 3 and 4) were created in Quantum GIS (QGIS). The 6-figure grid references were converted to 1km resolution to downgrade resolution for the purposes of site confidentiality. Larger symbol sizes were selected for the QGIS maps to further respect site confidentiality.

### 3. Results

#### 3.1 Coverage achieved

Map 1 shows all 1km squares containing sites checked during the survey, including those where no material evidence of Barn Owl occupation was found.



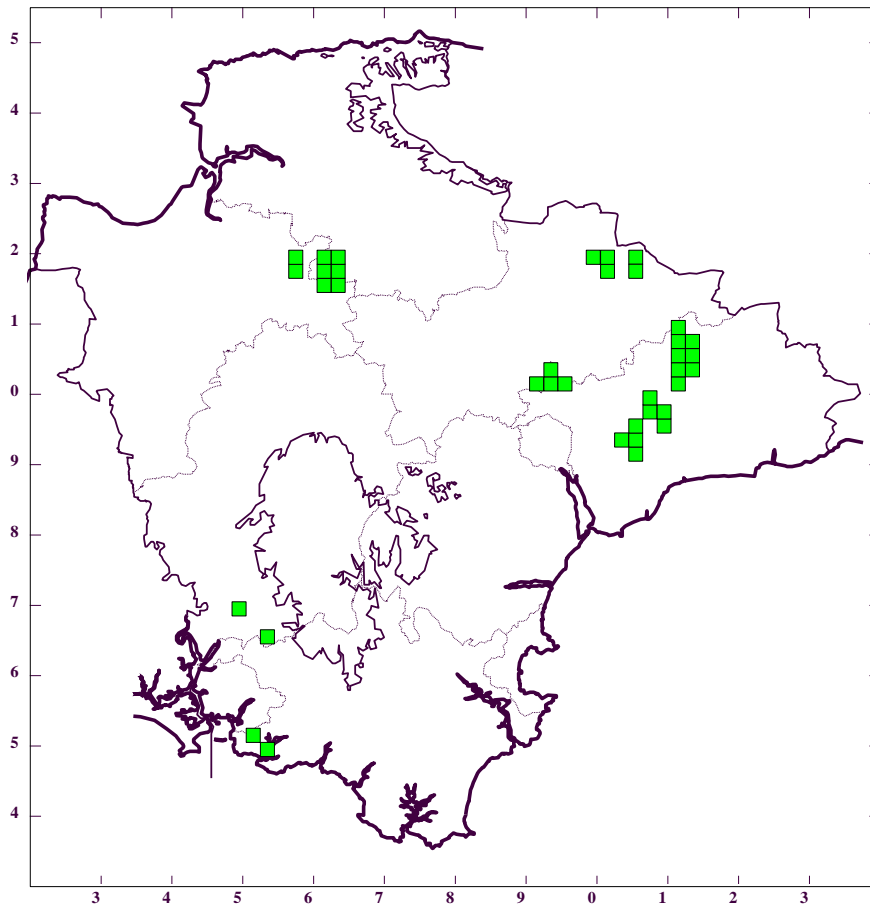
Map 1. Distribution of 1km squares containing one or more sites checked during the 2013 Devon Barn Owl Survey (includes squares where no material evidence of occupation was found).

Of the 1070 sites where results were obtained, 109 were reported to either surveyors or interviewers during the survey. Table 1 divides site coverage by local authority. Across all authorities, nearly 80% of all sites were checked and/or a result was obtained.

Local Authority	No. of sites	Result	No result	% coverage
East Devon	140	109	31	77.85
Exeter	9	6	3	66.6
Mid Devon	165	125	40	75.7
North Devon	189	143	46	75.7
Plymouth	2	1	1	50.00
South Hams	228	195	33	85.5
Teignbridge	103	92	11	89.3
Torbay	8	6	2	75.0
Torridge	327	245	82	74.9
West Devon	175	148	27	84.6
<b>Total</b>	<b>1346</b>	<b>1070</b>	<b>276</b>	<b>79.5</b>

Table 1. Number of sites by Local Authority, showing number and proportion of those where a result was obtained against those with no result.





Map 2. Distribution of tetrads ( $n=37$ ) where survey interviews were conducted (at all farmsteads and other potential Barn Owl sites) during the 2013 Devon Barn Owl Survey.

A total of 37 tetrads (148 sq km) were selected and distributed between 8 interviewers. In total, 23 observations were recorded from 15 of the 37 tetrads. These included only two nesting and four roosting observations. Although interviewers may have missed some potential roost/nest sites, or been deliberately misled by landowners, there is no reason to think that the number of such instances was significant.

Status	No. of observations	% with evidence
Nest	2	8.7
Regular roost	3	13.04
Occasional roost	1	4.35
Seen >once/week	2	8.7
Seen >once/month	3	13.04
Seen <once/month	11	47.83
Dead/injured	1	4.35
<b>TOTAL</b>	<b>23</b>	<b>100</b>

Table 2. Observations recorded in interview survey tetrads ( $n=37$ ).

### 3.2 MAIN RESULTS - Site occupation

Table 3 shows the number of sites found to be occupied by nesting or roosting (only) Barn Owls in 2003 and in 2013. The most notable figure was a dramatic fall (-65.3%) in nesting occupancy. The reasons for

this are discussed below (see 4.5.2). Results for roosting birds were similar to 2003, with an overall +16.9% change in roosting in 2013. The number of sites where no Barn Owl evidence was recorded showed a +22.8% change (Table 4).

Unlike national surveys which often concentrate solely on the number of nesting pairs (e.g. *State of the UK Barn Owl Population 2013*), BOT county surveys also record sites where birds are roosting but not nesting. This unique dataset allows for closer scrutiny of site occupation and is discussed in 4.6 below.

Site Status	2003 survey results		2013 survey results	
Number of sites checked/reported	1176		1070	
Nest	281		89	
Regular roost	223	348	236	370
Occasional roost	125		134	
Absent	547		611	

Table 3. The number and status of previously occupied Barn Owl nest and/or roost sites checked in 2003 and 2013 in the county of Devon.

Site Status	2003 survey results		2013 survey results		% change
Nest	23.9%		8.3%		-65.3%
Regular roost	19.0%	29.6%	22.1%	34.6%	+16.9%
Occasional roost	10.6%		12.5%		
Absent	46.5%		57.1%		+22.8%

Table 4. The status of previously occupied Barn Owl nest and/or roost sites checked in 2003 and 2013 in the county of Devon as a proportion of the total number of sites checked in each survey.

### 3.3 Site loss/development

Some sites that previously held Barn Owls had either fallen into dereliction and disrepair, or been demolished or converted. Chart 1 below shows the total number of sites lost/changed since 2003 and the cause. Of all sites checked ( $n=1070$ ), over 10% (119) had undergone change, the vast majority of which (77) had been converted to a non-agricultural use.

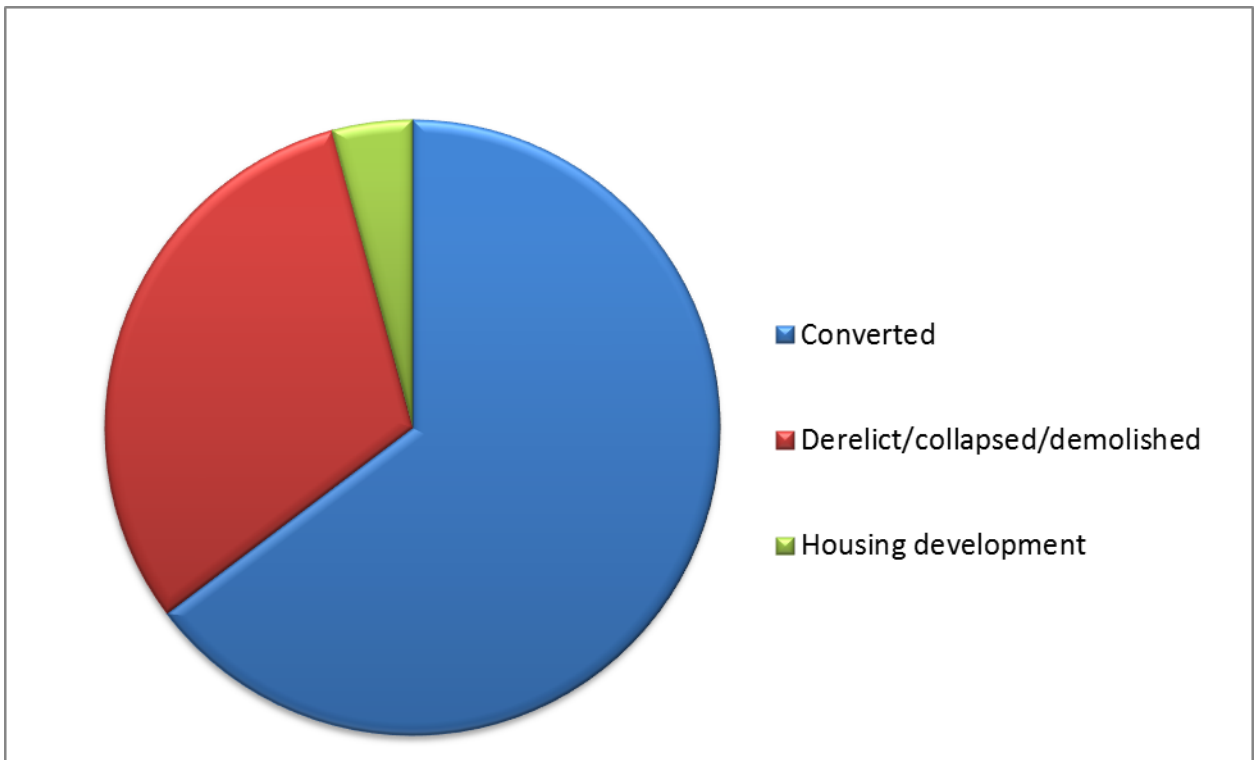


Chart 1. Cause of loss or change of occupied Barn Owl sites in Devon between 2003 and 2013 ( $n=119$ ).

Of those former Barn Owl sites which had undergone conversion, 39% were converted with a permanent accessible nesting space for Barn Owls incorporated into the fabric of the building (permanent provision). However, at few sites the access hole had been blocked so only 35% were accessible (to owls) at the time of the survey.

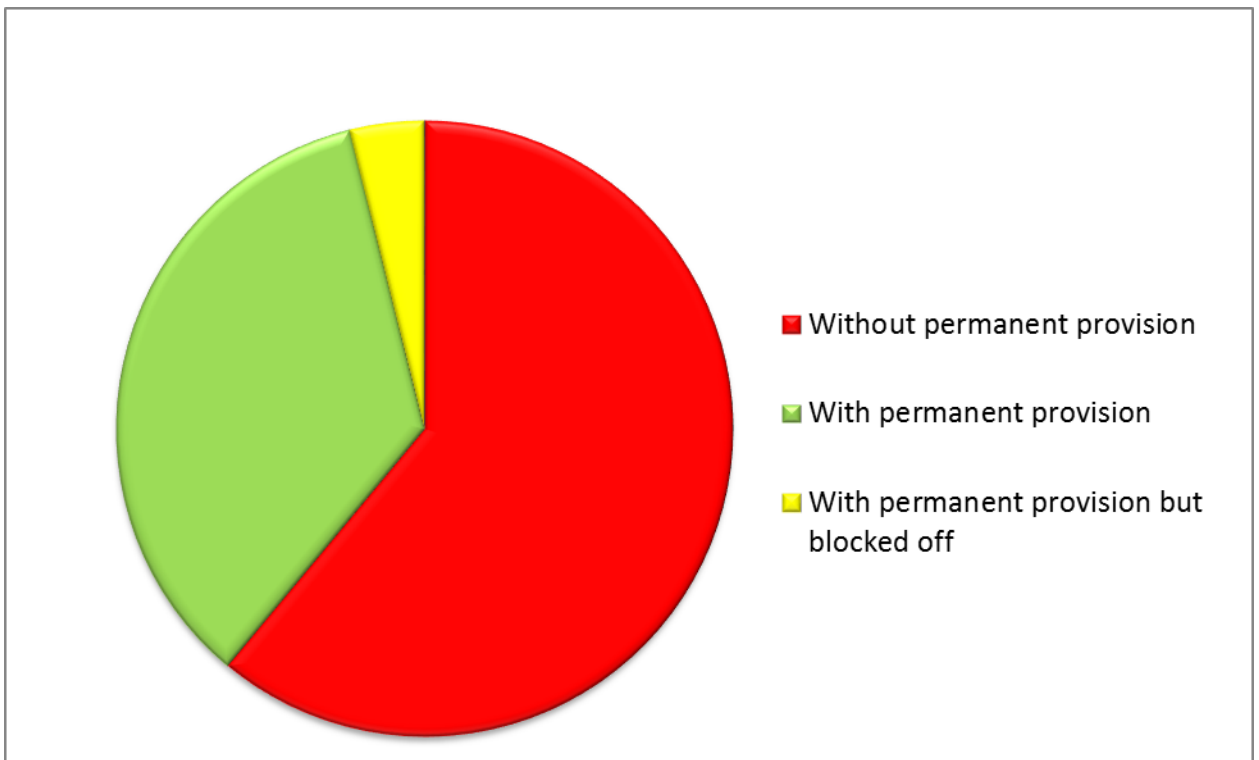


Chart 2. Provision for Barn Owls at converted Barn Owl sites in Devon between 2003 and 2013 ( $n=77$ ).

Barn Owls were recorded as absent (ABSE) from nearly 80% of those sites that had undergone change (Chart 3 below). Conversions without permanent provision accounted for 50% of all absences from sites that had changed.

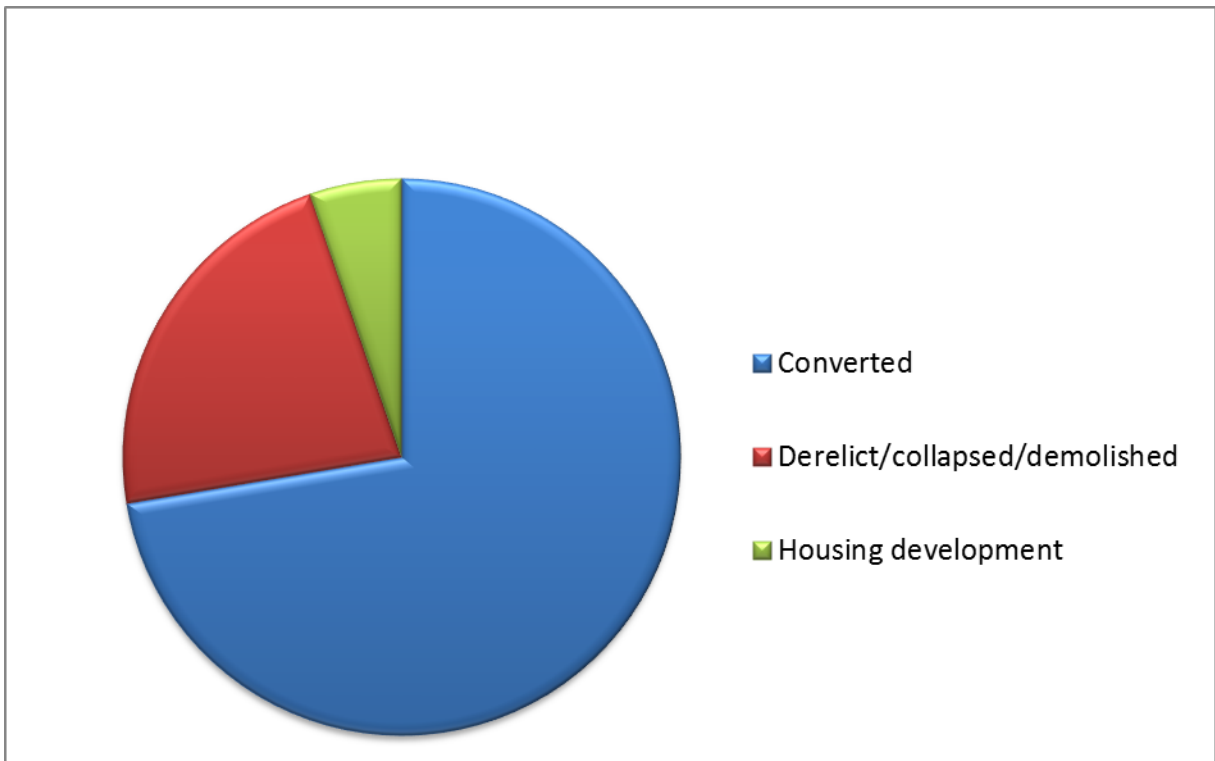


Chart 3. Type of change that had occurred (at changed sites) where Barn Owls were recorded as absent during the 2013 Devon Barn Owl Survey ( $n=94$ ).

Barn Owls were absent from 26% of sites where permanent provision had been made (Chart 4).

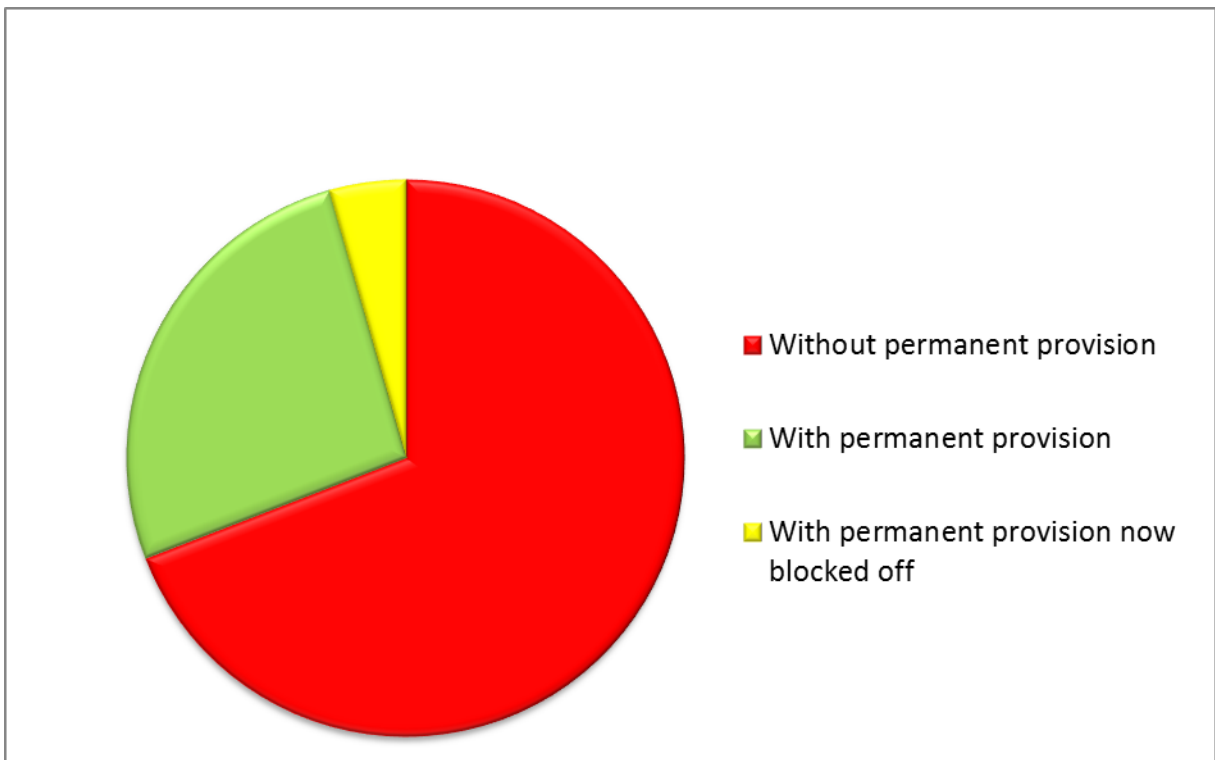


Chart 4. Provision for Barn Owls at Barn Owl sites in Devon (converted since 01/01/03) where Barn Owls were recorded as absent in 2013 ( $n=68$ ).

At sites where Barn Owls were still present (Chart 5), 64% were buildings which had fallen into dereliction/disrepair whilst 36% were conversions where permanent provision had been made.

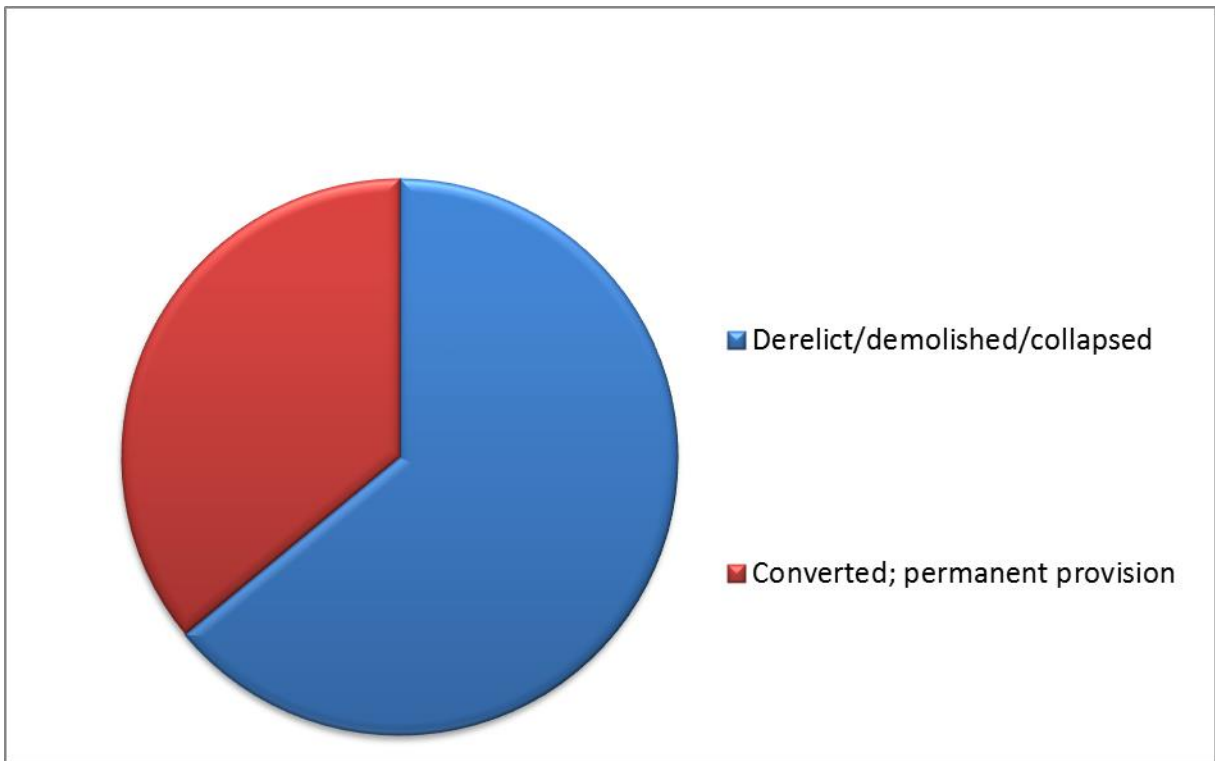
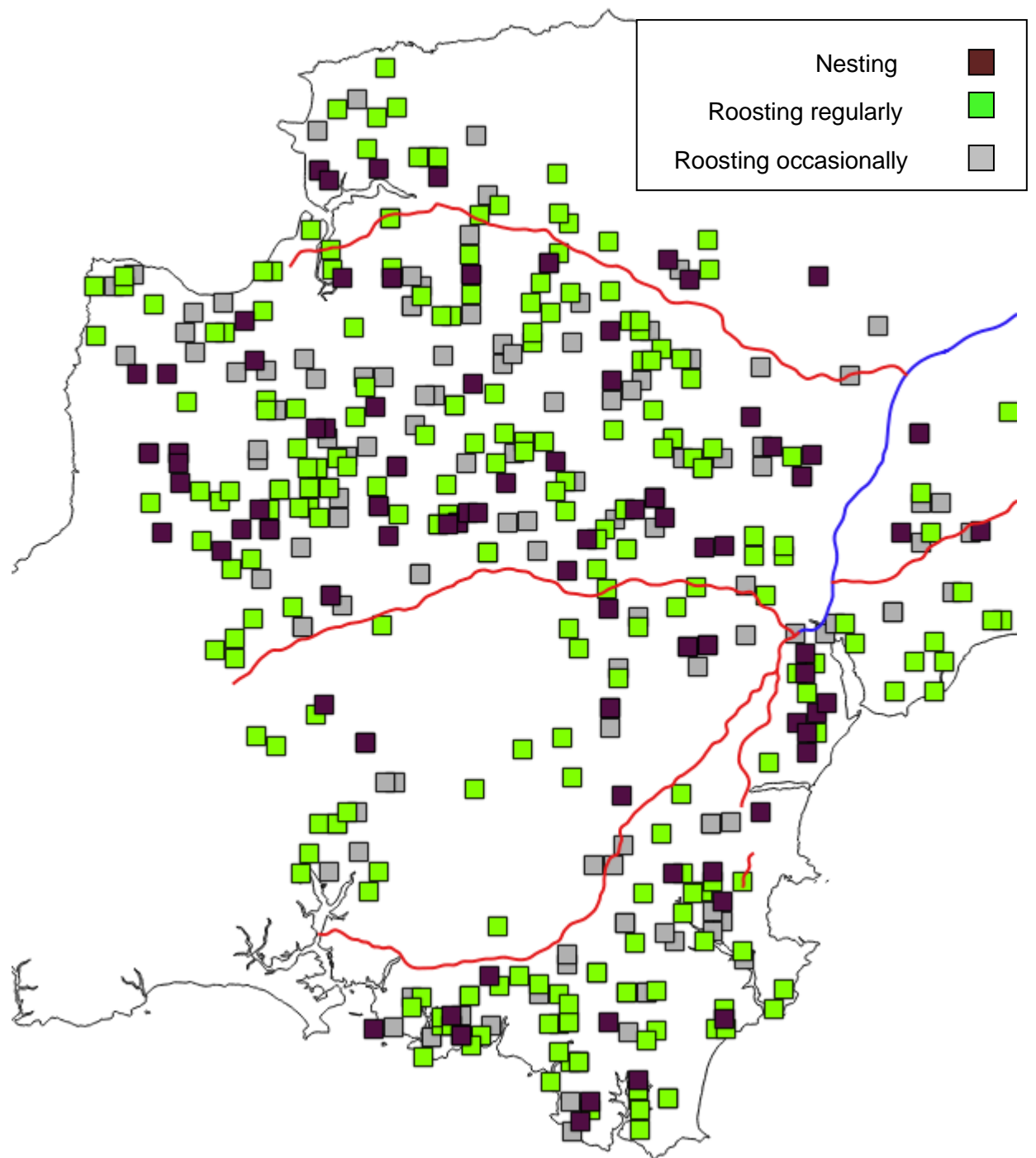


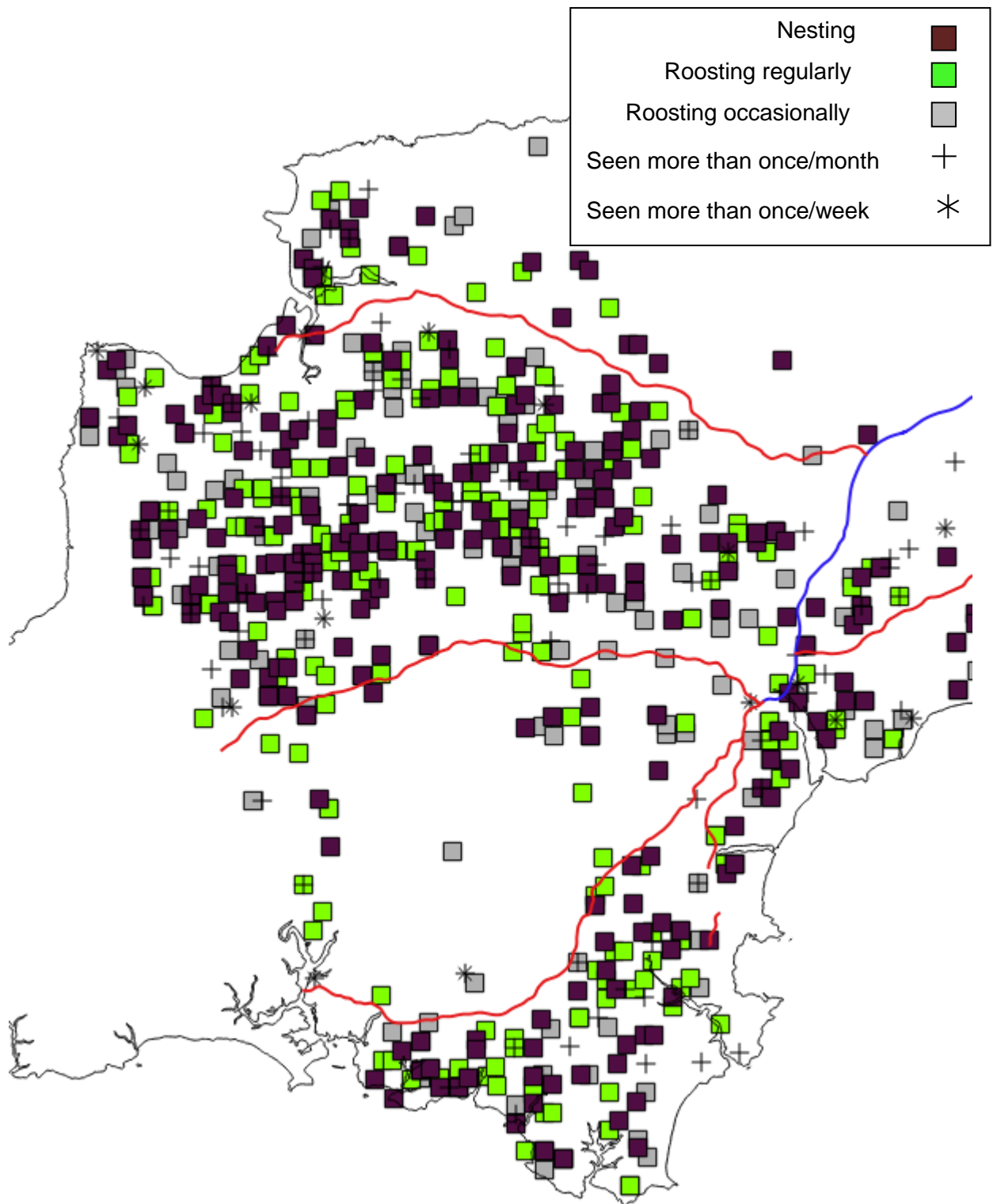
Chart 5. All sites lost/changed since 2003 where Barn Owls were recorded as present (NES/RRE/ROC) in 2013 ( $n=25$ ).

### 3.4 Distribution

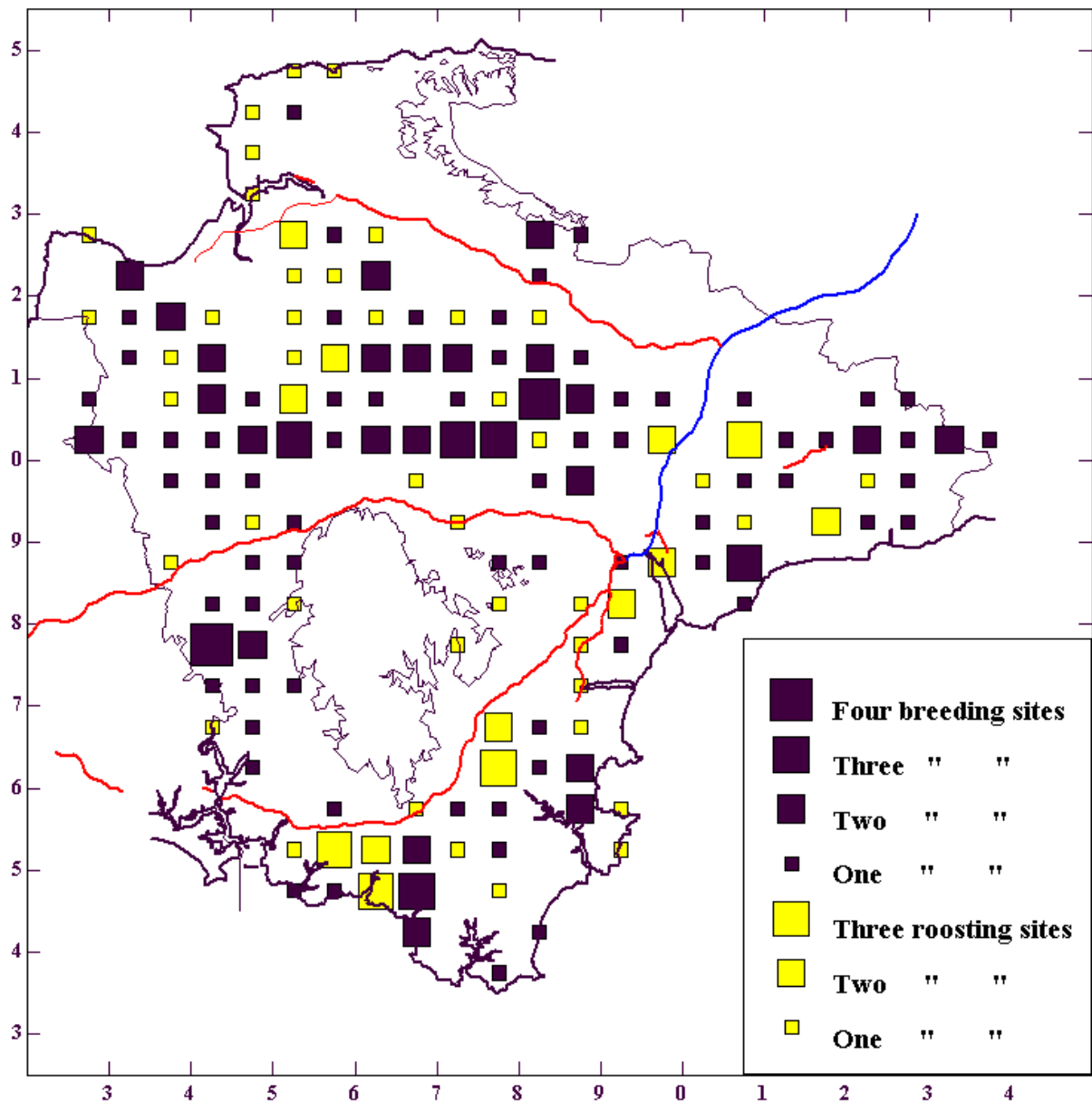
Results show that Barn Owls are still fairly widespread across much of the county, with the exception of a few areas. The high moors of Dartmoor and Exmoor again showed few records. West Devon and western Dartmoor showed a 42% increase in records in comparison with the 2003 survey despite 2013 being a very poor year overall, probably as a result of the Westmoor Barn Owl scheme implemented in this area in 2009 and 2010. As with the 1993 and 2003 surveys, a very wide corridor along the M5 is completely lacking in records of roosting or nesting Barn Owls as is that part of Teignbridge where the A38 and A380 dual carriageways are in close proximity. All other major dual carriageways (and similar) such as the A361 North Devon Link Road, A38, and A30 showed a paucity of records (as discussed in 4.4 below).



Map 3. **MAIN 2013 RESULTS MAP:** the distribution of Barn Owls as recorded during the 2013 Devon Barn Owl Survey (1km squares). There were no regular sightings in the main nesting season (March – August inc.).



Map 4. 2003 Map for comparison: the distribution of Barn Owls as recorded during the 2003 Devon Barn Owl Survey (1km squares), including regular sightings in the main nesting season (March – August inc.) for comparison.



Map 5. 1993 Map for comparison: the distribution of Barn Owls as recorded in the 1993 Devon Barn Owl Survey (5km squares).

#### 4. Discussion

##### 4.1 BOT data recording/survey methodology

The BOT has been recording Barn Owl observations in Devon since 1985 and it is the resulting dataset, currently standing at over 15,000 observations, that has made the county surveys possible. Indeed, the three Devon surveys are by far the largest county censuses of Barn Owl sites in the UK to date, as far as is known.

The census methodology is not best suited to providing a reliable county population estimate because there is no systematic attempt at quantifying presence or absence from semi-randomly selected areas, i.e. no cold searching. Nevertheless, an evaluation of coverage can help validate such an estimate. However, there is no reason to think that records were geographically biased. Therefore the distribution maps in hand do provide a reliable insight into the species relative abundance.



## 4.2 Coverage achieved

Barn Owls are a notoriously difficult species to survey and despite the work of the BOT there is bound to be some under-recording of Barn Owl sites. However, based on the following factors it is considered that coverage during the survey was good;

- 1) The majority of Barn Owl sites reported to the BOT since the 2003 survey had been recorded previously (*pers. obs.*);
- 2) Of the total number of sites where a result was obtained, over 90% were on the original ledger;
- 3) Barn Owls were recorded nesting in only 2 of the 37 interview tetrads (5.4%).

## 4.3 Numbers found and county population estimate

In 2003 the Devon Barn Owl population was estimated at 350-470 pairs. Assuming that coverage has remained similar to the 2003 survey where a figure of 60-80% was assumed, **the Devon Barn Owl population in 2013 is estimated at 110-150 pairs.**

This equates to a population density of 0.42-0.57 pairs per 5km square, based on a total of 260 x 5km squares for Devon (excluding predominantly urban areas, land over 300m asl and squares with more than 50% outside the county). This equates to 1.7-2.3 pairs per 10km square, much lower than the 5.3-7.0 pairs per 10km square estimated for the 2003 survey.

## 4.4 Distribution

Although the species appears to be widely distributed across much of the county, there is once again a paucity of records from the uplands of Dartmoor, Exmoor and the Blackdowns. Possible explanations include relatively poor habitat, more extreme weather, lack of roost and nest sites, fewer observers, or a combination thereof.

Recent research using BOT data has shown that Barn Owl nest sites do not follow a random altitudinal distribution, rather that the majority of nest sites are found below 150m in the south west (Batey, 2013). However, with some nest sites historically having been found at much higher elevations (*pers. obs.*), and with a general trend upwards in recent decades as a result of presumed climate change (Goodfellow, 1966; Batey, 2013) any proposed conservation projects should be carefully designed with this in mind.

The impact of major roads on local Barn Owl populations has been extensively studied (Marti & Wagner 1985; Pearce, 1986; Ehresman *et al.*, 1988; Percival, 1991, Illner, 1992; De Bruijn, 1994; Toms, 1996; Shawyer & Dixon, 1999; Fajardo, 2001; Ramsden, 2003). Indeed, Ramsden (2003) investigated Barn Owl distribution along a length of the M5 in Devon between Exeter and Cullompton, concluding that the UK Barn Owl population could experience severe depletion within 2.5km of a major road, and some depletion between 2.5 and 8km either side of a major road. Indeed, the current survey shows an absence of any Barn Owl records from much of the M5 corridor as was the case in previous surveys. In fact, only one record was collected within 5km of the M5 from a stretch north of Exeter to where the motorway joins Somerset.

## 4.5 Possible reasons behind population change

### 4.5.1 Impact of failures in the planning system



Barn Owls have been using man-made structures ever since Man started modifying the landscape to live and work. Traditional agricultural buildings have been available to the species for hundreds of years and there's no doubt that some have been used historically by generations of Barn Owls, accommodating hundreds of birds over the years. However, the relatively modern phenomenon of converting such buildings to dwellings has created both an opportunity and a threat.

Best practice advice for enhancing barn conversion developments for Barn Owls has been championed by the BOT for many years and involves building a permanent, accessible nest/roost space for Barn Owls within the roof void of a finished development. If this is not done then sites can be lost, not only to the owls resident at the time of the development but to future generations of birds. Site loss associated with barn conversions has been identified as one of the limiting factors in population recovery (Ramsden, 1995).

The usual procedure in the barn conversion process prior to 2013 was for the applicant to make a planning application to the Local Planning Authority (LPA). This was almost always accompanied by a wildlife survey, which should have included a desk survey (for all historical records of Barn Owls) and a physical search for material evidence of protected species. A report should have detailed the species present and made recommendations to mitigate the impact of works and, in some cases, enhance the finished development for those same protected species. Barn Owl sites should therefore have been maintained provided that the wildlife survey/report was adequate and the LPA aware of its obligations.

Two major changes occurred in the planning system between the 2003 and 2013 surveys, which should have had a bearing on the conservation of Barn Owl sites;

- 1) The Natural Environment and Rural Communities Act (2006) places a statutory biodiversity duty on local and public authorities to have regard to the purpose of conserving biodiversity. This is defined as restoring or enhancing a population or habitat.
- 2) The National Planning Policy Framework (2012) is a material consideration in planning decisions in England. One of the dimensions in achieving sustainable development is for the planning system to adopt an environmental role. As such, protecting and enhancing the environment by minimising impacts and providing net gains in biodiversity is a key component. Indeed, the following seems to leave no doubt as to its position in this regard;

*"If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused"*

*"Opportunities to incorporate biodiversity in and around developments should be encouraged"* (118., p. 27)

In the ten years between the surveys, some sites that had previously recorded Barn Owl occupation had inevitably been lost, either through dereliction, demolition or conversion. Of the 77 sites that had been converted 47 appeared to have had no permanent accessible space for Barn Owls created in the roof

void. This is contrary to best practice. Unfortunately, such cases were often the result of poor surveys by ecological consultants, or bad planning decisions by Case Officers or Planning Committees. A number of individual Case Studies outlining these failures are included in Appendix 1.

#### 4.5.2 Impact of severe weather in early 2013



The mean 2012/2013 winter temperature for the UK was 0.4°C below average at 3.3°C. February 2013 was 0.9°C below and the coldest of the winter months at 2.8°C. Rainfall was also slightly above the average for the season (Met Office, no date<sup>1</sup>). Spring temperatures were 1.7°C below the long-term mean. Indeed, March was colder than the preceding December to February, the coldest since 1962 and the fifth coldest since 1910. April was also colder across much of the UK. After significant snowfall in the latter half of January, more snow occurred in some areas in late March and early April (Met Office, no date<sup>2</sup>).

Barn Owl productivity appears to be influenced by winter weather, with colder, wetter, winters impacting productivity. Nesting occupancy rates tend to be lower, first egg laid date later, clutch size smaller and nesting success generally reduced (Dadam *et al*, 2011). Nesting occupancy in England and Scotland also appears to be influenced by the extent of winter snow cover as a result of increased mortality, specifically a reduction in juvenile survival (Shawyer, 1987; Altwegg *et al*, 2003, 2005).

The 280% increase in Barn Owl mortality (nationally) recorded by the BTO in March 2013 no doubt resulted in some sites losing their Barn Owls, thereby contributing not only to a 22.8% increase in absence but also to the notable 65.3% decrease in nesting. However the absence of adult birds from nest sites (at nesting time) does not necessarily mean that those birds are dead. It could very well reflect reduced bodily condition rather than a decline in the population as a whole. In other words, fewer pairs may have nested, not because they were dead, but because they did not attain breeding condition due to the increased demands of maintaining body temperature in colder conditions (Hornfeldt, 1994).

Given the 22.8% increase in sites without Barn Owls and the 65% reduction sites with nesting, if many of the adult birds had indeed survived and were roosting elsewhere in their home range, a large increase in the proportion of sites with roosting (only) should have been recorded. The fact that there was only modest increase (16.9%) in sites where birds were roosting(only) provides evidence that a high proportion of the birds were not simply roosting elsewhere but were in fact dead.

#### 4.6 Nest site occupancy

The decrease in nesting compared with the 2003 survey was almost certainly as a result of the weather in early 2013, as discussed above. Indeed, most Barn Owl groups reported similar reductions in mean nesting occupancy rates in 2013, which ranged from an estimated 24% decrease on the Isle of Wight to the complete absence of nesting adults in the Pang Valley, Berkshire and the Lower Derwent Valley, Yorkshire (Barn Owl Trust, 2014). Rather than this simply being the result of a low point in the small mammal cycle, the extent of which may vary regionally, the UK-wide decrease suggested that the cold weather was indeed the cause.

In 2013, Barn Owl workers across the UK reported that many nest sites were empty and at many of these there was no sign of the non-breeders roosting. Many drew the conclusion that the absent birds were dead and this view was supported by the 280% increase in March mortality reported by the BTO.

However, late breeding by some pairs in 2013 and exceptionally high levels of breeding occupancy in 2014 suggested that good numbers of adults must have survived spring 2013 and, rather than being dead, they were simply roosting away from their nest sites. BOT's unique roosting-only dataset did indeed show an increase in sites where roosting-only was recorded. However, these increases were much smaller than would have been expected if most adult birds had survived through spring 2013.

## 5. Summary

The 2013 survey replicated the methodology of previous surveys. This involved the checking of all Barn Owl sites reported to BOT during and since the 2003 survey. A total of 1070 results were obtained, and surveys conducted in semi-randomly selected areas suggest that overall coverage was reasonable. Only 8.3% of sites had nesting, 34.6% had roosting whilst 57.1% showed no evidence of Barn Owl occupation. Based on these results **the Devon Barn Owl population in 2013 is estimated at 110-150 pairs.**

There can be little doubt that the decrease in records of breeding Barn Owls is largely attributable to extremely cold weather in the spring of 2013. Although disappointing, such fluctuations in the population are to some extent an entirely natural phenomenon. However, the frequency of extreme weather events has increased dramatically in recent years due to climate change (IPCC, 2012) and it remains to be seen whether, on balance, this will work for or against Barn Owls in the UK in future. Perhaps more worrying is the ongoing loss of traditional Barn Owl sites through conversion. Sadly, and despite policy being in place to ensure protected species interests are given full consideration, a significant proportion of Barn Owl sites that were converted in the period 2003-2013 did not include built-in owl provision, and are now lost to Barn Owls forever. This represents a significant failure in the planning system.

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# Appendix 1

## Planning system failures; case histories

Site	Barn Owl evidence during pre-development on-site Barn Owl survey	Site survey report recommendation	Historical Barn Owl site occupation	Outcome of planning application
1.	<i>"About 10 old Barn Owl pellets seen in the upper floor, almost completely disintegrated. Upper floor not fully searched, likely more old pellets were present."</i>	<i>"...long-term provision of a permanent nesting site will need to be included within the development. The provision of an external barn owl nest box is not considered to be an adequate alternative..."</i>	Nesting 1995-2003; regular roost March 2004 then informant left site.	Torridge District Council.  LPA failed to condition Barn Owl provision despite requiring mitigation and enhancement works for bat spp. A Barn Owl nest box was noted on a tree nearby the finished development during the 2013 survey visit.  Converted with no permanent provision.
2.	<i>"The presence of ceiling boards within the chapel limited the effectiveness of the Initial Bat and Barn Owl Survey, preventing access to the areas above"</i>  <i>"Approximately 30 owl pellets were found on the floor and on stored furniture. No concentrations of pellets and nest debris were found"</i>  <i>"No barn owl field signs were found and the building was assessed as being of negligible potential to support barn owls"</i>	<i>"Due to the presence of approximately 30 pellets it can be concluded that a large owl uses the outbuilding for occasional roosting or feeding. It is likely that these pellets are indicative of barn owl presence; however as no additional field signs, such as feathers, were present and therefore it is not possible to definitely conclude that the pellets were from barn owl. The absence of nest debris and higher concentrations of pellets indicates that the site is not used for breeding"</i>  <i>"The location of the chapel by a fast section of a well used B road leads the surveyor not to recommend provision of roosting areas within the conversion or associated garaging due to the risk of traffic collisions"</i>	Regular roost 2008, confirmed by BOT.	Mid Devon District Council.  LPA failed to condition Barn Owl provision, despite the survey being incomplete (roof space not checked) and the surveyor unable to identify and age Barn Owl pellets (not a <i>suitably qualified person</i> ). Proximity to 'B' road is not a valid reason for not incorporating Barn Owl provision.  Converted with no permanent provision.
3.	Unit D; <i>"A small number of . . . Barn Owl (Tyto alba) droppings were identified in this area"</i>  Unit E; <i>"A significant number of fresh Barn Owl pellets and droppings were found on the floor indicating recent regular use of the building by one or possibly two Barn Owls"</i>	<i>"...there was significant fresh evidence that Barn Owls have used Units D and E as a roost and possibly as a nest site, although no nest site was found. Two Barn Owl boxes should be erected well in advance of any proposed works; these will need to be close to the buildings to be converted, either on poles or in trees close by. A permanent Barn Owl nest/roost box should be incorporated into the gable wall/roof area of Units E and F as they are converted. Further information can be</i>	Regular roost 2009	North Devon District Council.  Design and Access statement includes; <i>"With regard to the owls it is proposed to erect a barn owl nest box at high level on the south gable of the main barn, Unit E"</i> .  Condition 4 states; <i>"(4) The development hereby approved shall be carried out having strict regard to the 'Comment and Recommendations' section of the</i>

		<i>obtained from the Barn Owl Trust"</i>		<i>Ecological Survey Report"</i>  Converted with no permanent provision or external nestbox.
4.	Regular roost in 2005, possible nest site at the rear in hole on top of cob wall.	<i>Condition 10 states; "(10) Prior to any work commencing on site, a detailed survey of the building(s) to be converted, other structural features and the surrounding landscape in and around the site including adjoining trees, hedgerows and foraging areas shall be undertaken by a suitable qualified ecological consultant in order to establish the presence of bats and any other protected species. Results of the survey, along with a detailed schedule of works to protect and/or enhance the habitat and/or roosting areas of any identified species, along with a programme of works which minimises disturbance to the said species shall be submitted and approved in writing by the Local Planning Authority. Work on the conversion scheme hereby approved shall thereafter only be carried out in accordance with the agreed programme/timescale of works"</i>	Seen in February 2003 and 2004, regular roost (and possible nest at time of survey in 2005)	North Devon District Council.  Converted with no permanent provision.
5.	<i>Design and Access Statement states; "As the existing roofs to the buildings to be demolished are vaulted no space for a suitable habitat exists, as such the need for a full wildlife and survey report is not required in this instance"</i>	No wildlife survey requested by the Local Planning Authority so none conducted.	Nesting 2009-2012  Barn Owl Trust informed by two independent neighbours of nesting in the chimney of this renovation.	North Devon District Council.  Renovated with no permanent provision and chimney fitted with cowl.
6.	<i>"Characteristic white splat marks from barn owls were present beneath the various roof joists, and approximately 15-18 pellets were recorded. Pellets were of mixed age, some &gt; 18 months old but other still quite black in colour and as recent as 2 months old"</i>	<i>"A repeat survey should be carried out approx.. 2 months and again 2 weeks before commencement of works to ensure that nesting activity has not begun. An alternative suitable roost location for barn owls should be identified and confirmed within the development plans. The need to accommodate bats within the roof of the barn may limit available space for the owls but consideration can be given to the use of other buildings at the farm and/or the provision of nestboxes (Barn Owl Trust approved design)"</i>	Regular roost 2007-2008	South Hams District Council.  Condition 10; wildlife tower <i>"The wildlife building shall be completed prior to the occupation of the holiday barn."</i>  The tower was not complete (so no suitable Barn Owl space finished) in April 2013 despite holiday makers in the finished development.



7.	<p>Survey conducted in 2006. <i>“Two old barn owl pellets were found in the attic. Barn owls have access through a hole in the cob below the eaves on the northern side of the house, although their use of the farmhouse is considered to be very low.</i></p> <p><i>Lots of barn owl pellets were found in the barn, both fresh and old, mainly after rafters. Two owls were also present roosting on the dividing wall, although they flew out of the barn when disturbed. The owner stated that there has been a barn owl in the barn for at least the last three years, since he has owned the property and that a pair has been observed roosting in the barn since August/September 2005.</i></p> <p><i>The only place considered suitable for nesting is on the tops of walls. There were no signs of previous nesting within the barn, eg. pellet debris, feathers, particularly mesoptile down or fluff of nestlings and droppings on the tops of walls.</i></p> <p><i>It is considered that within recent years, at least, the barn has been used regularly for roosting but not for nesting. However, with the recent presence of a pair of barn owls it is possible that the owls will attempt to nest in the barn this year given the chance”</i></p>	<p><i>“It is considered that the barn is an historic roost site but that there is no evidence to suggest that it has been used for nesting. However, with the recent presence of a pair of barn owls, a future nesting attempt could be made.</i></p> <p><i>It is normal practice for planning authorities to request alternative provisions for roosting/nesting barn owls. A nestbox has already been erected in a nearby tree but has shown no evidence of use, although the owls are known to roost in the tree. Whilst they have access to the barn they are unlikely to use the box provided. Ideally provision should be made within the barn for barn owls, although this may be difficult as the proposal includes a vaulted ceiling and no space in the attic for owls. A false dormer on the roof of the barn would offer a good potential roost or nest site, although it is felt by the owner that the planning authority may not want the existing character of the roof changed. It was considered to extend the hip of the existing roof to provide a 400mm overhang and erect a box under the eaves. However this will place the box directly above the main area of human traffic to and from the barn and the farmhouse. This close level of disturbance may result in the barn owls not using the box. An alternative would be to provide another box of a different design and aspect in the tree, such as the hawk and Owl Trust A frame tree box. This will give the owls another choice and improve the chances of successfully providing a suitable alternative roost. This should be situated above the existing box and with the access facing away from the proposed construction site and prevailing wind direction.</i></p>	<p>Nesting 2002 (in barn); nesting 2012 (in treebox)</p>	<p>Torrige District Council.</p> <p>No condition made for any Barn Owl mitigation or enhancement.</p> <p>Converted with no permanent provision.</p>
8.	<p>Wildlife survey not available on-line.</p>	<p>A letter from the architect/agent responsible for the application addresses a query from English nature, and states; <i>“New bat and barn owl roosts to be incorporated within the detailed design”</i>.</p>	<p>Occasional roost 2001; nesting 2005.</p>	<p>North Devon District Council.</p> <p>Condition (17): <i>“A scheme of ecological mitigation works, to specifically include a plan to incorporate the provision of new bat and barn own roost sites</i></p>

		<p>The 'Statement in Support of Planning and Listed Building Application' states; <i>"Retention of landscape to support barn owls and other existing fauna and incorporation of barn owl nesting boxes and bat access into new buildings and the retention of open buildings for parking etc. for bat and owl use"</i>.</p> <p>A letter from English Nature to the local authority states; <i>"English Nature advise the planning authority that the following should be included as a condition of any planning permission;</i></p> <p>▪ <i>Prior to the commencement of any work, the planning authority should have received and agreed in writing a plan to incorporate the provision of new bat and barn owl roost sites within the conversion"</i>.</p>		<p><i>within the proposed conversions shall be carried out in accordance with the recommendation set out in Sections 6 and 7 of the Ecological Assessment prepared on behalf of the applicants and the Section entitled 'Landscape/Ecology' of the Supporting Statement submitted by the applicant's agents and received by the Local Planning Authority. The scheme shall be submitted and approved in writing by the Local Planning Authority prior to the commencement of any works on site and the development shall thereafter be carried out in accordance with the approved scheme of mitigation"</i></p> <p>Converted with no permanent provision..</p>
9.	No wildlife survey available on-line.	No wildlife survey available on-line.	Nesting 2007	<p>North Devon District Council.</p> <p>Condition 9 states; <i>"(9) Prior to any work commencing on site, a detailed survey of the building(s) to be converted, other structural features and the surrounding landscape in and around the site including adjoining trees, hedgerows and foraging areas shall be undertaken by a suitable qualified ecological consultant in order to establish the presence of bats or any other protected species. Results of the survey, along with a detailed schedule of works to protect and/or enhance the habitat and/or roosting areas of any identified species, along with a programme of works which minimises disturbance to the said species shall be submitted to and approved in writing by the Local Planning Authority. Work on the conversion scheme hereby approved shall thereafter only be carried out in accordance with these agreed works and in accordance with the agreed programme/timescale of works"</i>.</p> <p>Converted with no permanent provision.</p>
10.	No wildlife survey available on-line.	No wildlife survey available on-line.	Nesting 1992, 1993, 2002, 2004	Mid Devon District Council.

				<p>Condition 16 states; <i>“16. No work associated with the carrying out of the development hereby permitted shall take place to the outside or inside of the application building between the beginning of March and the end of August or, if outside of this period, whilst there is any barn owl building a nest or on a nest at the application building or until any young thereof have become fully dependent”</i></p> <p>Condition 17 states; <i>“17. No work associated with the carrying out of the development hereby permitted shall take place to the outside or inside of the application building until an owl hole and nesting box facility has been provided within or on the application building in accordance with specific details as to the construction and location of such required works within, or on, the building which shall previously have been submitted to and approved in writing by the Local Planning Authority. Following the provision of such required works, these facilities to assist the continued Barn Owl occupation of this site shall be so retained, unless agreed otherwise in writing by the Local Planning Authority”</i></p> <p>Converted with no permanent provision.</p>
11.	September 2010; <i>“No signs of barn owl were observed in the barns”</i>	No Barn Owl recommendations.	Nesting 1993, 1996, 1999, 2003, 2004	<p>Mid Devon District Council.</p> <p>Condition 4 requires the recommendations contained in the wildlife survey report, which are bat enhancements.</p> <p>Converted with no permanent provision.</p>