State of the UK Barn Owl population – 2020

‘A poor year in most areas, and very bad in some.’

Results from independent groups collated by the Barn Owl Trust

Conserving the Barn Owl and its Environment

Photo: Les Foster

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Contributing Groups

Barn Owl Trust
Brandon Ringing Group
Broxton Barn Owl Group
Bucks Owl & Raptor Group
Derbyshire Ornithological Society
East Cleveland Nest Box Network Project
East Riding Barn Owl Conservation Group
Garry Steele
Glamorgan Barn Owl Group
Gloucestershire Raptor Monitoring Group
Lewis Raptor & Owl Group
Manchester Raptor Group
Middle Thames Ringing Group
North Dorset – Conservation Action
North West Norfolk Ringing Group
Philip Hanmer - Nat. Hist. Soc. of Northumbria Hancock Mus. R.G.
Powys – Species Habitat Protection Group
Scottish Raptor Study Group
Shropshire Barn Owl Group
Staffordshire Barn Owl Action Group
Stour Valley Wildlife Action Group
Suffolk Community Barn Owl Project
Sussex Ornithological Society - Barrie Watson
Sussex Ornithological Society - Graham Roberts
Thornham Owl Project
Ulster Wildlife
Vale of Belvoir Barn Owl Conservation Group
West Berkshire Countryside Society Barn Owl Group
West Cornwall Ringing Group

Introduction

2020 was an extremely challenging year in so many ways and, not least, it was very problematic for projects that annually monitor flora or fauna. Nonetheless, the Barn Owl nesting occupancy reported here is based on 888 active nest sites, which is still over half the number usually contributed in previous years. Where possible, we have incorporated results on brood size even if an estimate of nesting occupancy was not available. A full list is presented on Page 2 and the last page provides links to groups' own webpages (where available). As ever, we are greatly indebted to all the project members who were involved in obtaining or collating their results.

By way of updates, this year's report includes two seasons of results from the East Cleveland Nest Box Network Project, a new contributor led by the Tees Valley Wildlife Trust. We also now have two seasons of results from Conservation Action, in North Dorset, and from the Derbyshire Ornithological Society. We look forward to next year, when all three of these projects will have accumulated enough monitoring years to be included in the results table! Sadly, 2020 is the final year for the Essex Barn Owl Conservation Project, who have contributed to the State of the UK Barn Owl Population reports since 2016. We extend our gratitude to Emma Ormond and John More for all their work.

The Barn Owl belongs to a group of 20 species that are recognised as farmland birds by the Department of Environment, Food and Rural Affairs (DEFRA). When taken collectively, nineteen of these species suffered a greater decline than most UK birds (down 5% and 57% since 2013 and 1970, respectively: DEFRA 2020). However, the Barn Owl was not included in these recent DEFRA indicators of how farmland birds are faring, because of the difficulty in obtaining an annual abundance index. The task of finding and checking Barn Owl nests is essential to effectively monitor its population and many will testify that therein lies the challenge. Ultimately, the people doing their utmost to monitor the nest sites reported on here are creating an opportunity for an annual insight into the population of a well-loved but elusive species.

Owlets in the Vale of Belvoir, Leicestershire. Photo: Don Pritchett

Definition of terms used in tables and text

Start year used - The year when the monitoring represented in this report was started.

Sites checked - The number of potential nest sites that were checked (inspected).

Nesting - The number of sites where nesting actually occurred (one or more eggs laid).

% nesting (Nesting Occupancy) - The percentage of sites checked where nesting occurred.

Average of All Previous Years (*AAPY)* - A mean value calculated from the figures for each year from the effective start year, up to and including 2019.

% change from AAPY (under Nesting Occupancy) - The percentage change between the proportion of sites occupied in 2020 and the mean proportion of sites occupied in all previous years:

$$100 \times \frac{((2020\ Nesting \div 2020\ Sites\ checked) - (AAPY\ Nesting \div AAPY\ Sites\ checked))}{(AAPY\ Nesting \div AAPY\ Sites\ checked)}$$

Numerical change from AAPY - The difference between 2020 and AAPY in the number of sites where nesting occurred (2020 Nesting – AAPY Nesting).

Brood size - The number of live young counted at any time between hatching and fledging.

Mean brood size - The total number of owlets, divided by the total number of broods. This excludes: 1) sites were there was no nesting, and 2) nests where there were no live young.

% change from AAPY (under Mean Brood Size) - The percentage change in mean brood size between 2020 and the AAPY.

$$100 \times \frac{(2020\ Mean\ brood\ size - AAPY\ Mean\ brood\ size)}{(AAPY\ Mean\ brood\ size)}$$

E - Estimated.
Please note that apparent discrepancies in calculations of change from AAPY are due to rounding table values to whole numbers

*Unusual Exclusions

The following projects that were in the 2019 results table were unable to contribute any results for 2020 because of disrupted monitoring due to the Covid-19 outbreak: Essex Wildlife Trust, Isle of Wight, Jersey Barn Owl Conservation, Powys Species Habitat Protection Group, and Cam Valley Wildlife Group (Somerset).

For a further four projects, the figures used to calculate the percentage change in nesting occupancy from AAPY were unavailable, or were excluded from the totals given in the summary row of the results table for reasons given below. Again, this was due to disruptions caused by the pandemic:

1. Bucks Owl and Raptor Group. Nesting occupancy figures were excluded from the summary row because monitoring prioritised sites that had been used regularly for breeding in previous years. Furthermore, nesting occupancy was estimated based on boxes occupied by adults with good weights in March.

2. Cheshire Barn Owl Groups. No measure of nesting occupancy is included in the results table because there was no estimate of how many sites were checked.

3. Barn Owl Trust. No measure of nesting occupancy is included in the results table because most sites were not checked. Brood size was obtained from nine active sites that were checked during limited monitoring, rescue work, or via nest-cameras.

4. Barn Owl Study Group/Sussex Ornithological Society – Dr Barrie Watson. Nesting occupancy figures are omitted following recommendations that are detailed in the contributors' comments.

5. Sussex Ornithological Society – Graham Roberts. Nesting occupancy figures were excluded from totals because Covid-19 restrictions led only to the most productive sites being monitored.

Caveats

1. The figures provided in the table are accurate (unless marked ‘E’). However, methodological variation between groups means that they can only provide indications of what happened to the population as a whole (in terms of nesting occupancy and brood sizes).

2. Anomalies can arise due to year-to-year changes in numbers of ‘Sites Checked’, affecting comparisons both in terms of the ‘Average of All Previous Years’ and ‘Numerical Change’. This is because the editors have not imposed criteria for the inclusion/exclusion of individual sites.

3. The way in which potential nest sites are counted varies between groups and, to a lesser extent, may sometimes vary between years.

4. The probability of individual sites being occupied varies tremendously. Some datasets include sites that may never have been occupied whilst others only include sites where pairs have nested previously.

5. The proportion of nest sites that were monitored varies between counties.

6. The vast majority of sites were checked by inspection to confirm/discount breeding, and determine brood size. However, some groups accepted reports from trusted/knowledgeable site owners, particularly where nest cavities were inaccessible.

7. At most sites, only one nest inspection was carried out. Chicks may have died before this nest inspection or may die between inspection and fledging. Some sites were visited more than once and figures given for brood size may have been derived from either one of these visits.

8. The calculation of all-years average varies between contributors according to how many years the project in question has been running.

9. One or two individual years may be omitted from datasets due to restrictions on farm visits such as in 1996 due to BSE and 2001 due to Foot and Mouth Disease.

With a little help, this owlet safely joined its two siblings in the nest after it was found on the floor of an isolated barn.
Photo: Mateo Ruiz

County / Group	Start year used	NESTING OCCUPANCY								MEAN BROOD SIZE			See notes
		2020			Average of All Previous Years (AAPY)			% Change from AAPY	Numerical change from AAPY	2020	AAPY	% Change from AAPY	
		Sites checked	Nesting	% Nesting	Sites checked	Nesting	% Nesting						
Berkshire - West Berkshire Countryside Society Barn Owl Group	2010	175	30	17	144	28	19	-10	2	1.8	2.9	-38.4	1
Berkshire (N) & Buckinghamshire (S) - Middle Thames Ringing Group	2015	59	7	12	109	23	21	-43	-16	1.3	2.6	-50.2	2
* Buckinghamshire - Bucks Owl & Raptor Group	2006	52	18	35	220	29	13	see unusual exceptions	-11	2.0	2.7	-25.5	3
* Cheshire Barn Owl Groups	2006	see unusual exceptions			1318	136	10	n/a	n/a	2.4	2.7	-12.1	4
Cornwall – West Cornwall Ringing Group	2011	106	59	56	52	29	56	-1	30	3.2	3.1	4.0	5
* Devon & Cornwall (E)- Barn Owl Trust	1993	see unusual exceptions			78	35	45	n/a	n/a	3.1	2.9	8.5	6
Galloway (W) - Scottish Raptor Study Group	2016	53	28	53	71	58	82	-36	-30	3.5	3.2	9.9	7
Glamorgan Barn Owl Group	2013	35	18	51	46	21	46	12	-3	2.4	3.3	-27.3	8
Gloucestershire Barn Owl Monitoring Programme	2014	117	6	5	83	19	23	-78	-13	2.3	2.6	-9.9	9

Table 1. RELATIVE CHANGE IN NESTING OCCUPANCY AND BROOD SIZE

County / Group	Start year used	NESTING OCCUPANCY								MEAN BROOD SIZE			See notes
		2020			Average of All Previous Years (AAPY)			% Change from AAPY	Numerical change from AAPY	2020	AAPY	% Change from AAPY	
		Sites checked	Nesting	% Nesting	Sites checked	Nesting	% Nesting						
Leicestershire - Vale of Belvoir Barn Owl Conservation Group (VBOC)	2007	231	10	4	153	27	17	-75	-17	1.0	2.5	-59.5	10
Manchester Raptor Group	2010	124	51	41	78	28	36	14	23	3.2	2.7	19.4	11
Norfolk - NW Norfolk Ringing Group	2002	304	135	44	432	184	43	4	-49	1.4	2.2	-35.2	12
Northumberland (N) - Natural History Society of Northumbria Ringing Group - Philip Hanmer	2006	100	53	53	100	28	28	89	25	3.6	2.3	60.0	13
Shropshire Barn Owl Group	2002	195	69	35	205	40	20	80	29	2.5	2.8	-10.2	14
Staffordshire Barn Owl Action Group	2008	152	35	23	261	37	14	61	-2	3.0	3.1	-0.8	15
Suffolk Community Barn Owl Project, Thornham Owl Project, Suffolk Owl Sanctuary & others	2007	856	109	13	1173	213	18	-30	-104	2.1	2.2	-4.1	16
* Sussex - Barrie Watson	2007	see unusual exceptions			130	60	46	n/a	n/a	2.4	2.9	-17.4	17

Table 1. RELATIVE CHANGE IN NESTING OCCUPANCY AND BROOD SIZE – continued

County / Group	Start year used	NESTING OCCUPANCY								MEAN BROOD SIZE			See notes
		2020			Average of All Previous Years (AAPY)			% Change from AAPY	Numerical change from AAPY	2020	AAPY	% change from AAPY	
		Sites checked	Nesting	% Nesting	Sites checked	Nesting	% Nesting						
* Sussex (W) - Graham Roberts	2000	27	13	48	37	12	32	see unusual exceptions	1	2.1	3.0	-30.2	18
Ulster Wildlife	2016	96	5	5	90	3	3	70	2	3.0	2.7	9.5	19
Warwickshire - Stour Valley Wildlife Action Group/ S War. Barn Owl Survey/ Brandon Ringing Group	2011	119	3	3	276	53	19	-87	-50	2.3	3.0	-21.2	20
Wiltshire - Lewis Raptor & Owl Group	2017	232	112	48	359	164	46	5	-52	1.5	2.4	-38.7	21
Yorkshire - East Riding Barn Owl Conservation Group	2013	280	26	9	531	107	20	-54	-81	1.7	3.1	-44.4	22
Summary		grand total	grand total	% nesting	grand total	grand total	% nesting	% change	numerical change	mean	mean	% change	
		3234	756	23	4162	1063	26	-8	-307	2.4	2.8	-14.4	

Table 1. RELATIVE CHANGE IN NESTING OCCUPANCY AND BROOD SIZE - continued

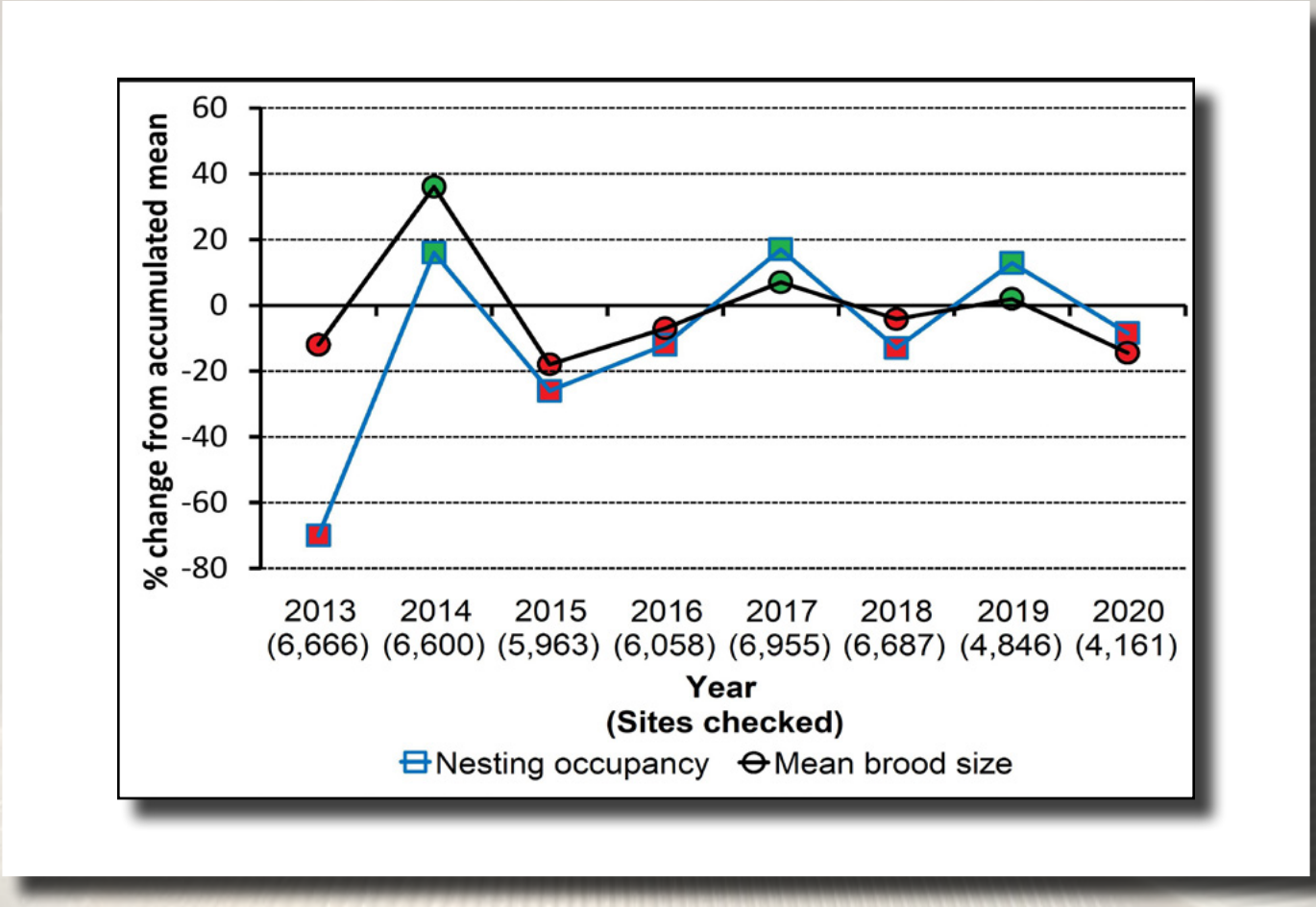


Figure 1. *Variation in UK summary figures for Barn Owl nesting occupancy (squares) and brood size (circles) from 2013 to 2020. The vertical axis shows percentage change in summary figures relative to the accumulating mean of all previous years. Red and green points represent negative and positive changes, respectively. 'Sites checked' refers to the sample size for calculations of percentage change in nesting occupancy. Interestingly, nesting occupancy and brood size are positively correlated over the eight years (Spearman's Rho = 0.76, P = 0.04).*

General Summary

Barn Owl nesting occupancy in 2020 was 8.5% less than the average of all previous years, making it a poor year for prospecting adults, but by no means dismal. Given the lockdown disruptions of 2020, it seems reasonable to ask: How reliable is our estimate of nesting occupancy? For it to be comparable with previous years, the sites checked during 2020 should have been representative of the ones usually visited. However, it seems plausible that some bias in favour of reliable sites might have crept in during 2020, albeit unintentionally. After all, given that time available for field work was curtailed, it would have been sensible to try and make the most of it. If reliable sites were selected, this could have artificially inflated the nesting occupancy, meaning that the rather low 25.5% might actually be an overestimate.

Brood size, on the other hand, should be less susceptible than nesting occupancy to bias stemming from selective monitoring. The dip of 14.4% in average brood size is the second most negative change in brood size observed to date in the State of the UK Barn Owl Population reports, suggesting that 2020 contributed considerably fewer new recruits than a normal breeding period should. Although large broods of eight and nine were recorded in Northumberland and Staffordshire, respectively, other nests were found to have failed at the egg stage in Gloucestershire, Shropshire, Derbyshire, and the Tees Valley. The general decrease is more extreme in brood size than in nesting occupancy. This is unusual because as Figure 1 shows, although brood size and nesting occupancy have had similar patterns, fluctuations in brood size have nearly always been more moderate.

In terms of weather, 2020 figures from the Met Office show that 10 out of 12 months were warmer than usual, sometimes markedly so, and that rainfall went from one extreme to another over the course of the season. Although the 2019/2020 winter was fairly mild, February was the wettest on record since 1862, which must have left some female owls struggling to reach breeding condition (Dadem et al. 2011). March was slightly warm and fairly dry, so conditions in certain areas must have been quite favourable for courtship.

Photo: Philip Hanmer

As the season progressed the rainfall deficit became much more acute in April (40% of average) and May (47%) and, in combination with markedly high temperatures, this must have inhibited the emerging spring vegetation. Given the dependence of Field Voles on fresh growth, it seems likely that poor prey delivery rates contributed to compromised incubation or starving Barn Owl nestlings. In June the pendulum swung, but too far, and owlets would have been growing and fledging in very wet conditions right through to September. In conclusion, a clear message came from groups in north Berkshire/south Buckinghamshire, Leicestershire, north Norfolk, Shropshire, Suffolk, Warwickshire and Yorkshire: 2020 was a very bad year, and in some cases the worst recorded so far.

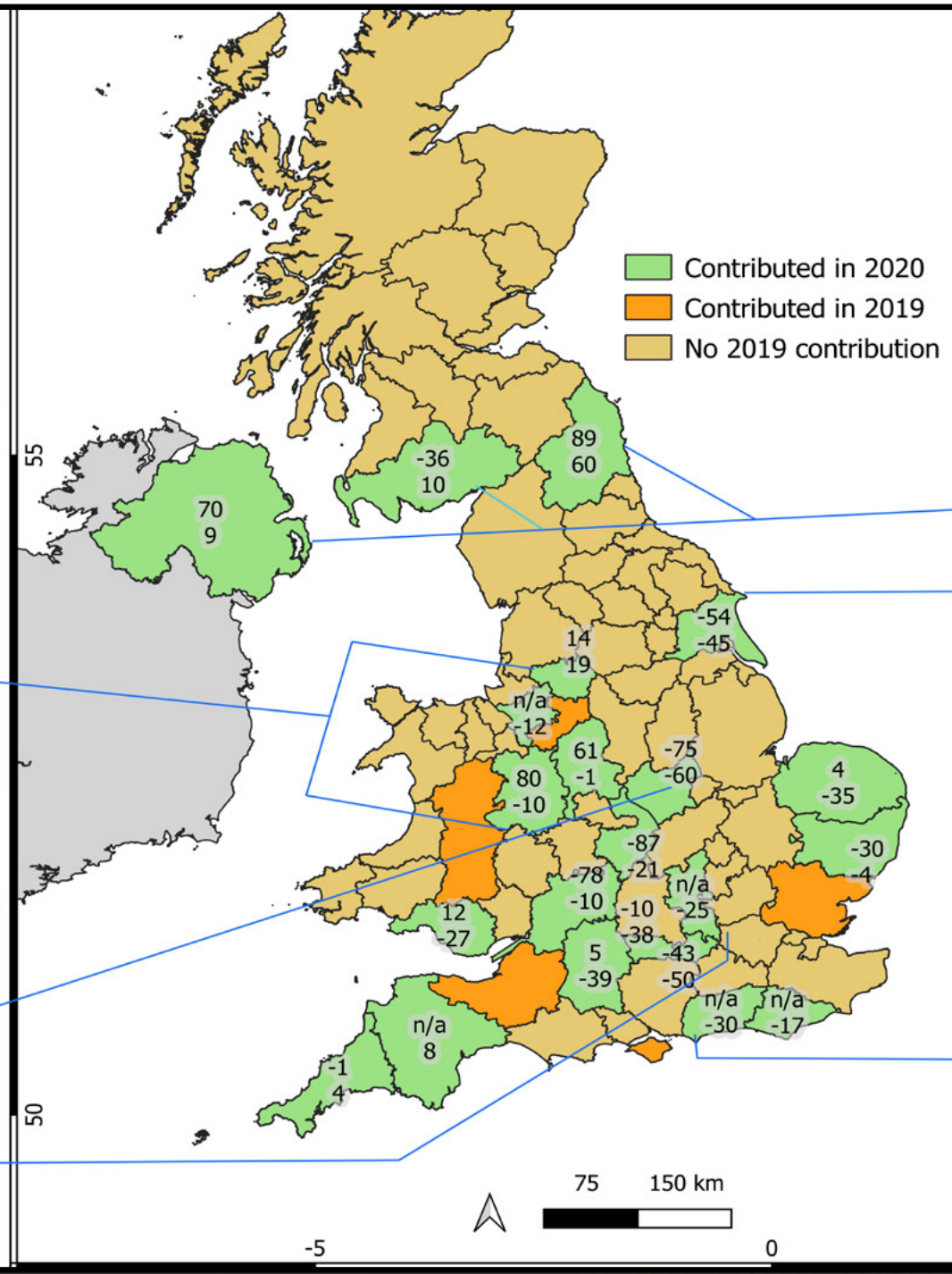
2020 REGIONAL ROUND UP FOR THE STATE OF THE UK BARN OWL POPULATION

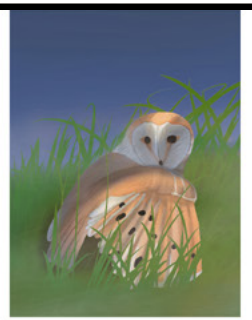
Shaded-in counties indicate the general location of contributing projects and do not imply that sites were monitored across the whole county.

The figures shown for counties are the percentage change from the average of all previous years and indicate whether the 2020 results were above or below previous results for that county. The top figure is Nesting Occupancy and the bottom figure is Average Brood Size.

Mid-west – Mixed.
Greater Manchester, Staffordshire and Shropshire all showed positive nesting occupancy rates, which suggest that the conditions in early spring were right for the onset of courtship and egg-laying. However, particularly in Shropshire and West Cheshire, losses during incubation and brooding must have seriously depleted brood size, which was poor with the exception of Manchester.

Central England, South Wales and the Southwest – The worst of all.
Nesting occupancy was generally down in this large area and modestly positive results in Wiltshire and Glamorgan were the only exceptions. In particular, Leicestershire, Warwickshire and Gloucestershire formed a continuous belt of extremely poor results. Regarding brood size, Cornwall and Devon were the only areas to produce positive comparisons, with lower-than-average values from Leicestershire south to Berkshire and west to Glamorgan.





The North – Fairly good.
Nesting occupancy rates were higher than usual in Ulster and Northumberland and the percentage change in brood size was consistently positive across Ulster, Galloway and Northumberland.

Eastern seaboard – Very poor.
A slightly positive change in nesting occupancy for Norfolk was outweighed by marked drops in Suffolk and East Yorkshire. Also, brood size was consistently down across these three counties and in Sussex, where no estimates for nesting occupancy were available.

Created by the Barn Owl Trust using QGIS: QGIS Development Team, 2020 QGIS Geographic Information System. Open Source Geospatial Foundation Project. http://qgis.osgeo.org. We are very grateful to all the groups that contributed their results and to Vlad Stroe for the Barn Owl art work.

2020 Contributor's Notes/Comments

1. Berkshire - West Berkshire Countryside Society Barn Owl Group - John Dellow
2020 was a disappointing year. In the last 10 years, only 2013 and 2018 were worse. We only found 1 attempted second brood but this failed. Only 17.1% of our boxes supported successful breeding. This was particularly disappointing as we hope to do better with site selection as we gain experience. Our largest brood size was 4 fledged chicks. This was only achieved at one site with the mean figure being 1.8 chicks per brood. This indicates that the lack of food at the right time was the main reason that it was such a poor season.
Note: The "brood size" statistic is based on the number of birds believed to have fledged. Unhatched eggs and chick losses before fledging have not been counted. This is consistent with previous years.

2. Berkshire (N) and Buckinghamshire (S) - Middle Thames Ringing Group - Carl Hunter Roach
The prolonged rains in February followed by a very dry spring limited the vole population this year, which in turn restricted Barn Owl breeding.

Despite the "social distancing" restrictions imposed due to Covid-19, we were able to monitor around half of the boxes in our RAS area. Only 7 boxes had nest attempts, one of which was probably a re-laying attempt after a failed first clutch. A total of only 4 chicks fledged from the 3 successful nests - the lowest productivity seen so far over our 7 year project. A further 9 boxes were occupied by non-breeding pairs or singles. At the 5 nest attempts where egg-laying dates could be determined, the first egg dates were: April 18 & 22, May 12, 15 & 20, fairly typical timings given that the last date probably relates to a replacement clutch. Nest attempts were distributed across South Buckinghamshire (6), and East Berkshire (1).
*Editors' note: You can read the full MTRG 2020 Barn Owl report by following **this link**.*

3. Buckinghamshire - Bucks Owl & Raptor Group - Lynne Lambert
Prior to lockdown in March, we found 18 boxes occupied by adults that were at quite good weights. However, only five broods were ringed when we checked again, in late June. Adults that were weighed later in the season were upwards of 400 grams, giving hope that the 2021 season will be better (dependant on this winter, of course).

4. Cheshire Barn Owl Groups - Dr John Wild
Brood size is from West Cheshire only, and comprises 28 nests.

5. West Cornwall - West Cornwall Ringing Group
The project continues to grow and for the first time we have data from over 100 boxes, which is a great achievement. The occupancy rate continues to be relatively low, but we hope that previously unoccupied boxes will be taken up by new pairs as the years go by. Of the boxes monitored, clutch sizes appeared to be slightly down on previous years, but the subsequent brood sizes didn't necessarily reflect this. The figure of 3.2 hides a much more complicated story though. It was apparent as the season progressed that brood sizes were decreasing, although this is always hard to measure. However, we think that lower brood sizes later in the season were due to the period of very unsettled weather, with plenty of rain. This makes feeding very difficult for adults which obviously has knock-on effects for chicks. We hope to be able to place cameras

in numerous boxes over the winter (watch this space on that), which will give us much better data over the coming years.
Editors' note: You can read the full West Cornwall Ringing Group 2020 Barn Owl update by following ***this link.***

6. Devon & Cornwall (E) - Barn Owl Trust
Due to Covid restrictions and the desire to keep our staff, volunteers, and landowners safe, we were unable to undertake our usual Barn Owl monitoring this year. However, we did record a small sample of nine broods, and these were of a reasonable size. Field vole activity was noticeable in rough grassland, but the very dry spring meant that some patches of Barn Owl foraging habitat became worryingly parched.

7. Galloway (W) - Scottish Raptor Study Group - Geoff & Jean Sheppard
We were unable to start fieldwork until late June, when we found that breeding had been early at some sites. Although some birds were almost fledged, we only failed to catch and ring the pulli at one site. Generally, brood sizes were better than in 2019 and we also had three second broods, which is not common for us this far north.

8. Glamorgan Barn Owl Group - Steve Thomas
This year our Barn Owl population showed typical resilience to the usual challenges of adverse weather and a scarcity of good foraging habitat. Failed nest sites were replaced both by the discovery and creation of new active nest sites resulting in an overall improvement in the number of active sites from 2019. A matter of concern however is the apparent drop in brood size from 3.4 in 2019 to 2.4 this year, let us hope this is not an emerging trend.

Covid did curtail our activities at various points throughout the year resulting in fewer sites checked however we still managed to increase the number of our nest boxes by 15%. As always we are hugely grateful to the farmers and landowners who allow us access to their land to maintain nest sites.

9. Gloucestershire Barn Owl Monitoring Programme - Gordon Kirk
In stark contrast to 2019's bumper year, 2020 was a very poor year for Barn Owls in Gloucestershire. Although many sites held adult pairs, only six breeding attempts were found and three of these were subsequently deserted at the egg stage. Of the three that hatched young, all lost at least one chick before fledging. Many thanks to our Barn Owl monitors this year: Rich Harris (Southam Owl Group), Anna Field, Andy Lewis, Mervyn Greening & Steve Palmer.

10. Leicestershire - Vale of Belvoir Barn Owl Conservation Group - Bill Glancy & Don Pritchett
Overall, with the lockdowns, limited field work and the very wet weather in spring and summer, this has been one of our most disappointing years. Numbers are well down on last year with a larger number of nests that were checked having limited or no Barn Owl occupancy. Resulting in the reduced number of active nests and low brood sizes. One nest had a pair but they failed to breed following two successful years, we assume the female did not reach breeding weight. Further checks carried out later in the season did not show any improvement in overall Barn Owl numbers.

11. Manchester Raptor Group - Judith Smith

The average brood size is based on 37 sites where the number of young was counted reliably. A further 16 young were seen at 12 sites where only a minimum number of young was definitely known. This was due to various reasons e.g., livestock under box, frail roof, box/cavity too high, late info from owner or refusal of owner to allow access but happy to give info. Smaller broods this year cf. 2019, which was an exceptional year for us (3.75 av. in 2019), and only 2 second broods instead of at least 9 last year. One of the 2 is a regular double-brooder due to supplementary feeding but deserted first clutch. Of note was a box where a pair of Kestrels laid 4 eggs in the entrance tunnel of the box, whilst the BOs fledged 4 young. The Kestrels failed with 1 egg left at the time of ringing. It must have been a squeeze getting past the Kestrels! Only 1 farm where refused entry due to Covid fears but this lady is awkward at the best of times.

12. North-West Norfolk Ringing Group - John Middleton

Poor occupancy and although many pairs bred, 15 clutches failed and although some pairs hatched young some or all of their chicks died of starvation. One of the worst years I have known.

13. Northumberland (N) - Natural History Society of Northumbria Ringing Group - Philip Hanmer

This study of around 100 sites in North Northumberland outside the National Park indicates that this was the best breeding season since 2017, and second best since 2006. Numbers were well above the long-term average of only 30% occupancy; with 53 pairs trying to nest (51 successfully i.e. 51%). The weather was good in the winter and the exceptionally warm spring led to pairs nesting in March & April with most eggs laid right at the start of April. The summer started well but did become unsettled and eventually wet; mitigating against many late broods occurring.

The average number of eggs laid per clutch was 4.5 although one ‘8’ was recorded as well as five ‘6’s’. The average number of owlets fledged was 3.2 although one pair did raise eight! 168 owlets were ringed/fledged.

Tawny Owls did not take over any ‘Barn Owl boxes’ but had a reasonably good year ‘swopping’ boxes with our rare breeding Goldeneye ducks. The relaxing of the lock-down occurred only just in time for these owls & ducks to be monitored this year; indeed, it is possible some were missed.

A large brood of eight owlets was ringed in Northumberland
Photo: Philip Hanmer

14. Shropshire Barn Owl Group - Glenn Bishton & John Lightfoot
As expected, 2020 was a trough year, following peak years, and down on 2019. However, it was not as bad as some previous years. 195 nestboxes and natural sites were monitored, of which 55 sites produced 139 chicks, an average of 2.5.

Of those chicks, 27 were found dead in the nest or missing, presumed predated or consumed by their parents, on a second visit. An additional 6 nestboxes contained barn owl pairs which failed at the egg stage or did not attempt to breed and one adult was present in another 14 nestboxes, some with failed eggs. No second broods were recorded. Data is included from four successful breeding sites monitored by the Upper Onny Community Wildlife Group (UOCWG).

A family of owls, showing a very clear distinction between the female (left) and the male (right). Photo: Philip Hanmer

15. Staffordshire Barn Owl Action Group - Roger Lycett
The restrictions introduced by the UK government to combat the covid-19 pandemic severely impacted on the ability to monitor the state of the Barn Owl population in Staffordshire during 2020. It was not possible to visit all sites known to have been productive in previous years. Consequently, the results are probably not indicative of the true Barn Owl population in Staffordshire in 2020. Only 152 sites were monitored compared with 310 in 2019. Monitoring resulted in 24 active nesting sites producing 73 owlets with a mean average of 3.04.

One area of the county which has been more thoroughly monitored by a father and son team was South Staffordshire. This area of the county has only been targeted in more recent years and not previously recorded many breeding sites. Of the 70 sites visited, none were found to have young and only 5 roosts identified this year.

Once again, the Staffordshire Moorlands appears to have been productive with 16 breeding pairs producing 56 owlets with a mean average of 3.5. One nest box with a camera monitoring activity revealed 9 owlets. These were subsequently ringed aged 5 to 6 weeks, and all appeared to have successfully fledged. Brood sizes at another 8 sites contained between 3 and 5 owlets.
Another 7 breeding pairs at other locations in the county produced 17 owlets.

16. Suffolk Community Barn Owl Project - Mike Crawford & Steve Piotrowski
2020 was the worst year since we began in 2006! This is mainly due to the drought in May which severely affected the Vole population, as a result of which many chicks perished. With this and the lack of boxes checked because of Covid, it has been a very poor year. We certainly hope 2021 will be much better.

17. Sussex Ornithological Society Barn Owl Study Group - Dr Barrie Watson
We had so many different boxes checked by so many different people last season that I really cannot claim anything consistent with previous years.
Editors' note: Dr Barrie Watson will be retiring from his role at the Barn Owl Study Group. We are very grateful to him for his contributions to this report since it began, in 2013, and wish him all the best in the coming years. We are very happy to have Terry Hallahan as our new contact in the Group.

18. Sussex (W) - Sussex Ornithological Society - Graham Roberts
Due to covid, we were unable to monitor all nest boxes so targeted the more productive ones. Brood sizes were small, ranging from 1-4 chicks (one brood of one, 7 broods of 2 chicks & one brood of 4 chicks). One nest failed when young were about 4 weeks old. The outcome was unknown from 3 nests with eggs.

19. Ulster Wildlife - Katy Bell
In 2020 we monitored five active nest sites; two of these unfortunately failed so we had three successful nests. These were at the same sites as 2019 but the pair at Ards moved over to Mount Stewart; although they still used their previous farm to roost. All chicks born in 2020 were in nest boxes on trees. We believe that there was also a late second brood at the Crumlin site which brings the total number of known fledged chicks to 12. We were able to ring chicks at these three nests sites during the summer; four chicks at Mount Stewart (three of which fledged), four at Crumlin (first brood) and three at Strangford. This was carried out by BTO licenced ringers and enables us to find out vital information.

With the help of our volunteers we hope that these nests will continue to thrive and new nests will be established in 2021 and beyond.

20. Warwickshire - Stour Valley Wildlife Action Group, South Warwickshire Barn Owl Survey, and Brandon Ringing Group - Paul Leadbeater
The poorest season for breeding birds in the 8 years of checking SVWAG boxes (10 non-breeding pairs and 11 single birds also recorded).

21. Wiltshire - Lewis Raptor & Owl Group - Major Nigel Lewis
Of the 565 Barn Owl nest boxes only 232 were checked, 41%. A difficult season.
Editors' note: Although the Lewis Raptor & Owl Group have been collecting results since 2005, the 2020 results are compared to the average of 2017 to 2019 because it provides a more consistent reference.

22. Yorkshire - East Riding Barn Owl Conservation Group - Rob Salter
I found 2020 my worst ever year for Barn Owl breeding success due to the very low vole population. I visited around 90% of my nest boxes. It was so poor I only ringed about 33 young. Next year looks really good for Barn Owls. As the summer has gone on the vole population has increased significantly with a few late broods recorded.
Editors' note: These results now include averages of all previous year values calculated from 2013 onwards, rather than estimates.

Further Comments from Contributors

We include some news and comments from previous contributors that add to the general impression we can get from the 2020 breeding period.

Lincolnshire - Gary Steele

Although he has not been able to contribute since 2017, Gary is hoping to be able to monitor his sites in 2021. He also aims to erect over 30 boxes in a 10-mile radius around Lincoln, funded by the Lincoln Area Group of the Lincoln Wildlife Trust. He was informed by a fellow Barn Owl worker in Lincolnshire that they considered 2020 one of the least successful Barn Owl breeding seasons ever. He recorded a brood size of just 2, compared to 2.66 in 2019, but this was based on just four active sites. Gary's comments were:

"Local to me during late winter /early spring 2020 I receive reports of a number of dead Barn Owls, variously found by box site owners + member of the public. I submitted four of these corpses to the CES's National Birds of Prey Monitoring Scheme for analysis, and in all cases the cause of death was determined to be starvation. Probably the result of inclement weather conditions at the time, a higher than usual mortality of adult birds then may have contributed to the absence of adult birds and a reduction in breeding efforts in 2020 in a number of cases. Some secondary breeding attempts by Barn Owls did take place".

Powys Species Habitat Protection Group - Jonathan Sloan

Jonathon provided the following comment: "Due to lockdown restrictions up until the 11th of July, only a few sites were visited at the optimum time. This left a shortfall of probably 80% of our sites not visited until after these restrictions were lifted. Even where we believed birds had bred, the chicks had already fledged, although at some of the upland sites the fledglings were flying around the barns. However, any idea of overall results would be unreliable/speculative."

Extra Observations from other Groups and Projects

North Dorset – Conservation Action - Alan Masterton

Following on from 60% nesting occupancy based on 40 nestboxes in 2019, in 2020 Conservation Action report a relatively poor year: Nesting occupancy was down to 38% based on 64 nestboxes. Brood size gave a similar comparison with 3.2 in 2019 dropping to 2.2 in 2020. Alan had the following comment:
"More sites checked, less boxes occupied which was not surprising after the wet winter. Voles definitely down in numbers hence the smaller broods. Hopefully the owls and all of us will have a better 2021!"

Derbyshire – Richard Winspear - Derbyshire Ornithological Society

52 of the 69 sites checked in 2019 were checked again, but with some new nestboxes installed the total for 2020 was 75. Based on these, the nesting occupancy of 17% was much lower than the 26% recorded in 2019. There was one double brood, although all three owlets from the first attempt died. The nesting attempt failed at the egg stage at two sites and at two other sites chicks hatched but there were no survivors. Brood size based on the remaining nine sites was 2.44, compared to 3.33 in 2019.

East Cleveland Nest Box Network Project - Tees Valley Wildlife Trust

In September 2020 Kate Bartram contacted us on behalf of the project, which is supported by the Tees Ringing Group and receives funding from the Tees Valley Community Fund. When we analysed their two years of results, we found that nesting occupancy was very similar in 2019 (42%) and 2020 (40%). However, the brood size based on ringed birds was down, with 2.5 and 2.0 in 2019 and 2020, respectively. Kate provides the following overview of the East Cleveland Nest Box Project:

East Cleveland is the small rural area (170 km2) that lies between the northern edge of the North York Moors National Park and the coast. The Nest Box Network project commenced in 2019 with 12 months funding from Heritage Lottery Fund and Northumbrian Water. With the collaboration of experienced owl workers Colin and Chris Gibson (no relation) and multiple landowners it aims to boost Barn Owl numbers by increasing the number of breeding sites using internal and external nest boxes and to improve knowledge of Barn Owl diet and small mammal distributions based on owl pellet analysis.

The network was built up from an existing number of 18 Barn Owl boxes. Over the past two and half years with the fantastic support and help of over 50 landowners we have added 83 boxes to the network and found three natural nest sites. One box has been stolen.

In 2019 there were 26 active sites. A total of 115 eggs were counted. Chicks were reared to fledging at 20 sites. Six sites failed for various reasons: one had infertile eggs, two had deserted eggs, one was predated by squirrels, at one the chicks died due to bad weather and at another the chicks were deserted. In total 66 chicks were ringed. Boxes were occupied by other species: five had Jackdaws, two had Stock Doves and two had Tawny Owls. A further 16 boxes had no occupancy and 10 had signs of owls roosting but were not used for breeding.

In 2020, after expansion in the number of nest sites, there were 41 active sites. A total of 180 eggs were counted and chicks were successfully reared to fledging at 32 sites. Nine sites failed and at two sites a clutch of eggs was laid but did not hatch, followed by a second clutch which also didn’t hatch. At three sites eggs did not hatch but, when checking the boxes, an adult owl was seen. The eggs were scattered around the bottom of the box and it did not seem as if much of an attempt had been made to incubate them. Three sites had cold eggs and sadly at one site the nest appeared to have been disturbed when horses were introduced to the barn. A total of 83 chicks were ringed. There was a week of bad weather at the peak of the breeding season and this is believed to have caused a reduction in the number of chicks per box. At several sites we started with six chicks but after the wet weather the brood size was reduced to two or three. At one box, where the first clutch failed during bad weather, a second clutch was laid and hatched. Boxes were again occupied by other species: two had Kestrels, two had Stock Doves, two had Tawny Owls, nine had Jackdaws, and one had a Squirrel’s drey.

Previous Years: 1995 to 2020

1995-2009

The only reliable estimate of Barn Owl numbers in the UK was c. 4,000 pairs in the period 1995-97 (Project Barn Owl Report, 2000) and there is some evidence that numbers increased in the period 1997-2009 particularly in eastern England. Additionally, the BTO Bird Atlas 2007-11 showed a northerly range expansion since the previous 1993 atlas. These increases were probably the result of a general climate warming in the period 1989-2009 and the erection of numerous nestboxes in, for example, parts of The Fens and East Anglia. It is quite probable that in 2009 the UK Barn Owl population level was substantially greater than 4,000 pairs.

2009-2012

There can be little doubt that the unusually severe winters of 2009/10 and 2010/11 reduced total population size although 'before and after' population levels will never be known. In spite of these setbacks, additional data submitted to the authors suggest that 2012, with the hottest March since 1997, was quite a reasonable year. For example, the Suffolk Community Barn Owl Project which monitored a staggering 1,191 boxes in 2012 recorded 319 nests which, at the time, was the highest number since monitoring started in 2007. However, in some parts such as SW Scotland (Geoff Sheppard pers. com.) and Cumbria (Ian Armstrong pers. com.) 2012 was a very poor year and in Devon widespread nestling mortality resulted in the average brood size dropping from 3.68 to 2.75 during the wettest June since 1766.

2013

Given that 2012 was a relatively good year (overall) and winter '12/'13 was much less severe than the preceding three, Barn Owl numbers at the start of 2013 were probably quite reasonable (probably lower than in 2009 but possibly still higher than 1995-97). March 2013 was the coldest since 1962 and during that month the number of dead Barn Owls reported to the BTO was 280% above normal.
Without exception, every monitoring scheme that contributed data reported a high proportion of nest sites with no signs of occupation and Major Nigel Lewis's comment summed it up very well: "the worst year in the 30 years I have been owling in Wiltshire".

The State of the UK Barn Owl Population 2013 showed that nesting occupancy in 2013 was an estimated 72% below the all-years average and mean brood size (2.63) was down by 12% (based on information provided by 26 data contributors who between them checked an estimated 6,344 potential nest sites).

The widespread absence of adults from annual nest sites and exceptionally high mortality recorded by the BTO suggested that the missing birds were dead. Conversely, the exceptionally high nesting occupancy the following year suggested that the missing birds had been simply roosting away from their nest sites. Fortunately, the UK's largest county-wide survey was carried out that same year and this entailed the rechecking of all known roost sites as well as nest sites. If the birds were alive and roosting elsewhere, the big drop in nesting occupancy should have been mirrored by a similar or bigger increase in roost occupancy (bigger because of birds roosting singly). In the event this was not the case. The 2013 Devon Barn Owl Survey report, based on the checking of 1,070 sites, showed a 65% drop in nesting occupancy and an increase in roost occupancy of only 16.9%. These figures support the view that a high proportion of the missing birds were not simply roosting elsewhere but were in fact dead.

This begs the question “where did all the Barn Owls come from that nested in 2014?” They must have been a combination of those that survived 2013 and young birds produced very late in 2013 who were all probably helped by the fact that winter-spring 2013-14 was so mild that Field Voles were even breeding in mid-winter (see State of the UK Barn Owl Population 2013).

2014

With a mild winter followed by an early spring and a long and pleasant summer, 2014 turned out to be the warmest year ever recorded - according to the National Climatic Data Centre. Great weather happened to coincide with a peak year for small mammals and Barn Owls had a very productive year in many areas. Berkshire, Lincolnshire, Shropshire and Warwickshire did particularly well with nesting occupancy 71 to 193% above normal (UK average +16%). Brood sizes were phenomenal in many areas with records broken in Suffolk and Wiltshire. Broods in Somerset were, on average, 84% bigger than normal (UK average +35%).

Sadly, 2014 was not an amazing year everywhere. Brood sizes in parts of SW Scotland, east Wales and the Isle of Wight bucked the trend by being no higher than normal and the mean brood size of the biggest UK Barn Owl monitoring scheme in Lincolnshire (the Bowden and Ball Ringing Group) was only 13% above their all-years average (see State of the UK Barn Owl Population 2014).

2015

Overall, 2015 was a poor year for Barn Owls in the UK with nesting occupancy down by 26% and mean brood size down by 16%. Some quite extreme geographical variation occurred between regions, within regions and even within counties. Barn Owls in Lincolnshire experienced an even worse year than in 2013 with nesting occupancy 95% below the all-years average and mean brood size 41% down. In Mid Sussex nesting occupancy was 47% down but, in complete contrast, in West Sussex it was 16% up despite the fact that these areas are immediately adjacent and even overlap a little. Further north, where the Bisham BOG straddles the Berks/Bucks border, nesting occupancy was only 7% below average but the Bucks ORG reported it to be a disappointing 66% below. Given that winter 2014/15, and 2015 itself, were generally mild it is most unlikely that the poor results were due to the weather but due to a general lack of prey. It is well known that annual variations in small mammal abundance are not synchronised across the whole country and that certainly seems to have been the case in 2015.

2016

Sadly, 2016 was another poor year. Data received from 32 monitoring schemes shows that the number of nesting pairs in the UK was 12% below the all-years average and the average number of young in the nest was 7% below. Barn Owls had a poor to very poor year in SW and S England, Jersey, N Norfolk, parts of Lincs. and E Yorkshire, parts of Powys in Wales and West Galloway in Scotland. Conversely, Barn Owls in the west of England (from Cheshire down to Buckinghamshire), and in North Northumberland, Suffolk, and the Isle of Wight had a quite good to good year.

Globally, 2016 was once again the warmest year ever recorded. Here in the UK, winter 15/16 was the third warmest and seconded wettest recorded since 1910. With few exceptions, such as November flooding thanks to Storm Angus, long-duration extreme weather events were not a major feature of 2016. Therefore the observed temporal changes in nesting occupancy and brood sizes were probably more influenced by variations in small mammal abundance than by the weather.

2017
Overall 2017 was a better year. Nesting occupancy was 17% above average and mean brood size 6.6% above average. This positive result coincided with weather that was slightly warmer than average, with marginally lower rainfall. In particular, unusually warm weather prevailed between February and June, when Barn Owl nesting commences. In fact, the Met Office reports that the spring of 2017 “was the equal-warmest on record, with 2011.”

In Northumberland 64% of boxes had active nests in them, as opposed to the previous average of 25%. In the east of the country Norfolk had a notably high nesting occupancy, with 60%, and Suffolk also had a 51% increase on the average of all previous years. These areas also produced relatively higher brood sizes. Further west, Shropshire, Staffordshire and Warwickshire showed nesting occupancy that was 84%, 72% and 77% above average, respectively, and to the south Buckinghamshire reported 53% above average. Unsurprisingly, the trend was not without its exceptions. Poorer results came in from Galloway, Lincolnshire and Glamorgan, where nesting occupancy was 22%, 39% and 30% below average, respectively. Nesting occupancy and average brood size was also lower than average on the island of Jersey and the Isle of Wight.

2018
It was a generally poor year, with both below-average nesting occupancy (–13%) and brood size (–4.2%). Surprisingly good results from Shropshire (+78%) and Staffordshire (+65%) were swamped by negative reports from widespread groups, particularly northern and eastern England and south Wales. Notably poor nesting occupancy was recorded in Gloucestershire (39% below their average), Norfolk (–39%), Jersey (–40%), Suffolk (–29%), Warwickshire (–28%), and East Yorkshire (–28%).

Why did so many pairs not attempt to nest? In early 2018 an exceptionally cold easterly flow brought snow to many parts (the infamous ‘Beast from the East’), including a level of 57 cm in Gloucestershire on March the 4th. Just as relevant for the Barn Owls were the cold temperatures (down to –11 °C in Hampshire on February 28th) and prolonged periods of heavy rain and high winds in February and March. These adverse conditions must have impacted on preparation for egg-laying and influenced the low nesting occupancy.

Following on from this treacherous start to the breeding cycle, in 2018 the UK had the warmest and driest June on record since 1910. There was only 48% of the average rainfall across the nation and in some southern counties it was down to just 10%. This drought must have reduced the availability of fresh shoots to eat, imposing a negative effect on vole numbers, and consequences that moved up the food-chain at a period when Barn Owl nestlings should have been developing. Hence, an average brood size at 4.2% below previous records could also have been partly caused by the weather. Unfortunately, one of the worst results came from Staffordshire (–24.6%), effectively undermining the reasonable nesting occupancy established earlier in the year. Nonetheless, Essex, Shropshire, Powys, and West Sussex had higher than normal values for both nesting occupancy and brood size.

2019
This was a fairly good year, with nesting occupancy clearly above average and nesting occupancy marginally so. Regarding nesting occupancy, there was a wide range of results, from highly positive such as Gloucestershire (+101%), Shropshire (+94%), Buckinghamshire (+78%),

Berkshire (+43%), and Staffordshire (+71%), to fairly negative in Galloway (-41%), Leicestershire (-19%), Powys (-21%) and some areas of Sussex (-25%). In general, however, a fairly mild start to the year seems to have stimulated a fairly high rate of nesting attempts.

Brood size was especially good in Leicestershire (+34%), Manchester area (+45%), Northumberland (+37%) and Suffolk (+37%), but also reasonable in Gloucestershire (+12%), Buckinghamshire (9%), Shropshire (11%) and Somerset (11%). However, brood size was notably poor in West Berkshire (-11%), North Berkshire/South Buckinghamshire (-18%), Cheshire (-16%), north Norfolk (-32%), Sussex (-18% and -24%) and Wiltshire (-22%). An overall result of under 2% above average suggest that good nesting occupancy may not have realised its full potential in terms of fully fledged owlets joining the population.

Further Information

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Links

Berkshire	Middle Thames Ringing Group
	West Berkshire Countryside Society Barn Owl Group
Buckinghamshire	Buckinghamshire - Bucks Owl & Raptor Group
Cheshire	Broxton Barn Owl Group
Cornwall	West Cornwall Ringing Group
Devon	Barn Owl Trust
Derbyshire	Derbyshire Ornithological Society
Galloway	Scottish Raptor Study Group
Glamorgan	Glamorgan Barn Owl Group
Gloucestershire	Gloucestershire Raptor Monitoring Group
Lincolnshire	Lincolnshire – Gary Steele
Manchester	Manchester Raptor Group
Norfolk	NW Norfolk Ringing Group - John Middleton
Northern Ireland	Ulster Wildlife
Northumberland	Nat. Hist. Soc. of Northumbria Hancock Mus. R.G.
Powys	Powys Species Habitat Protection Group
Shropshire	Shropshire Barn Owl Group
Staffordshire	Staffordshire Barn Owl Action Group
Suffolk	Suffolk Community Barn Owl Project
Sussex	Sussex Ornithological Society

Photo: Phil Thorogood