

The BTO Magazine for Ringers and Nest Recorders



LIFECYCLE

WINTER 2020 ■ ISSUE 9

FORMING A NESTING GROUP ■ BREEDING SEASON RESULTS ■ MONITORING CROSSBILLS



MOORHEN
An accessible, yet overlooked, species

Editorial

ISSUE 9 WINTER 2020



Welcome to the 2020 edition of *LifeCycle*. It won't have gone unnoticed that we didn't publish any editions of the magazine in 2019 and for that we apologise. We are now back on track and should revert to publishing the normal two editions from 2021. Please do get in touch if you have any suggestions for content or have a story to share. In this edition we look back to the 2019 breeding season and bring you a summary of last year's NRS, CES and

RAS results. Our feature articles offer advice on building a nest-recording community, explain what has happened to the nests some of you have supplied to researchers over the years, and provide insights and advice on Crossbill, Twite and Moorhen monitoring.

2020 has been a strange year for all of us, with ringing and nest recording among the many areas of life impacted by the Covid-19 restrictions. Most BTO staff continue to work from home and we thank you for adapting your means of communication with us at this time. We are also hugely grateful for the support shown by you all in following the guidelines relating to ringing and nest recording activities that have changed so often over the past few months. Our thoughts continue to be with anyone impacted, directly or indirectly, by Covid-19.

We are sorry that we won't be able to meet up with those of you who would normally have attended a conference this autumn, but hope we are able to rectify that next year. Stay safe and enjoy what ringing and nesting activities you are able to do over the coming months.

Ruth Walker & Lee Barber

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LIFECYCLE

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NEWS FROM RINGING & NEST RECORDING

WINTER BLACKCAP STUDY UPDATE

This ongoing study, coordinated by researchers at BTO and at Oxford University, aims to provide a better understanding of wintering behaviour, movements, and breeding origins of Blackcaps wintering in Britain and Ireland, as we still know surprisingly little about these birds.

A key component of this project is a long-term colour-ringing effort to help monitor the potential effects of climate change and evolution of this novel migration strategy.

After a third winter of intensive fieldwork, an impressive total of 628 wintering Blackcap has now been marked by a network of 60 ringers operating across Britain and Ireland. The colour ringing is allowing us to build a detailed understanding of garden and feeder use throughout the winter, as well as revealing some interesting movements, both within and between winters.

Geolocators have been fitted to a total of 134 individuals during the last three winters to track migration routes and identify breeding locations. Twenty-four geolocators have been successfully retrieved and we are eagerly awaiting the return of more this winter. Most of the birds carrying geolocators have colour rings containing combinations with Metal & Red or Metal & Yellow. Last winter, one of these birds was relocated at a feeder by a diligent observer 30 km away from its original tagging location, leading to the retrieval of valuable data. Please keep an eye out for colour-ringed blackcaps and immediately report any you observe to Greg Conway. The team has a number of publications in preparation and further details will be released once these are published.

We are keen to enlist the help of more ringers, so if you have a site where you can catch and re-sight wintering Blackcap, we can supply recording details and colour rings. Please contact: Greg Conway (blackcap@bto.org) or Benjamin Van Doren (vandoren@cornell.edu).



Colour-ringed Blackcap, by Benjamin Van Doren

All records of colour-marked birds from the project are invaluable, so please look carefully at any wintering Blackcaps that you see.

BIRD CLASSIFICATION UPDATES

We have recently updated our online species tables in line with version 10.2 of the IOC World Bird List. Most of the changes relate to non-British species (notably hummingbirds, babblers, bulbuls and tanagers). IPMR users need to be aware that the lookup tables in this standalone application will not reflect these updates so, if any of you are lucky enough to catch any of the species listed below, you will not be able to submit the record through IPMR and will need to use DemOn. It is also worth noting that DemOn also has other new features and fields not available in IPMR, which allow you to add more information to your records, such as the Breeding Condition of the bird (see the full DemOn Manual for more details). Now may be the perfect time to migrate.

- Cory's Shearwater – split into Cory's and Scopoli's.
- Black-eared Wheatear – split two ways (Eastern and Western).
- Subalpine Warbler – split three ways (Eastern, Western and Moltoni's).
- Orphean Warbler – split into Eastern and Western.
- Greenish Warbler and Two-barred Greenish Warbler (*plumbeitarsus*, now split).

- Isabelline Shrike – now split into Daurian and Turkestan Shrike.
- Southern Grey Shrike – this no longer exists as a species. Most of the subspecies previously assigned to Southern Grey Shrike are now back within Great Grey Shrike (including *pallidirostris* – the “Steppe” Grey Shrike). Only the Iberian Grey Shrike *Lanius meridionalis* is now considered a separate species in its own right.

RED SIXTY SEVEN

A creative collaboration, involving BTO, RSPB and the Probable Bird Society, launched earlier this year. Titled ‘Red Sixty Seven’, the project seeks to raise awareness of declining birds and to secure additional funds for scientists to carry out important research; work that should help to address the causes of decline. The project takes its name from the UK Red List of Birds of Conservation Concern, which currently contains 67 species. An artwork has been produced for each species, together with a written piece by some of the UK's leading writers, from Ann Cleeves and Patrick Barkham to Mark Cocker and Adam Nicolson. The artworks have been sold to raise funds, but a book combining the artwork and texts is still available. Find out more at <http://bit.ly/Red-sixty-seven>



Long-tailed Tit, by Edmund Fellowes / BTO

Long-tailed Tit was one of the species that profitted from good breeding conditions in 2019.

Bouncing back from the Beast

As ringers and nest recorders started to prepare for their monitoring efforts in 2019, they must have been hoping that the mild winter would lead to a better year than 2018, when the 'Beast from the East' delayed the start of breeding season for many species. In this article, Ruth Walker, Lee Barber and Carl Barimore chart the ups and downs of the 2019 breeding season, including reference to the 2018 results which we were unable to bring you last year.

The number of nest records received in 2019 was 41,553, which was higher than the figure for 2018 (39,710) but considerably lower than the figures for the few seasons prior to 2018. The drop in records over the past couple of years is most likely a result of fewer new recorders, a consequence of reduced promotion of the scheme. The number of CES projects running in 2019 was 134, two fewer than in 2018, while the number of active RAS projects was 197, six more than in 2018. Data from 51% of CES projects and 53% of RAS projects were submitted via DemOn in 2019, up from 36% and 38% respectively in 2018.

The commitment to the schemes shown by all nest recorders and CES/RAS ringers is unwavering and we thank you all for the time and effort you put into collecting these important data.

In complete contrast to the winter of 2017/18, when the country was gripped by the 'Beast from the East' in late February and early March, winter 2018/19 was milder than average, with February 2019 being the second warmest since records began in 1910. Overall, 2019 was a warmer- and wetter-

than-average year with several heavy-rainfall events, particularly in early spring and early summer, and numerous flooding events towards the end of the summer. Spring was quite unsettled, with some periods of cold and wet weather but, overall, it was warmer than average, largely due to a very warm spell over Easter that saw temperatures exceeding 20°C. The summer began a little cooler than average, but late June and most of July and August were warm; a new maximum UK temperature record of 38.7°C was set in late July 2019. Despite a dry and sunny spell in mid-September, the autumn was generally unsettled.

MIGRANT PASSERINES

Migrant abundance and survival

CES results indicate that after a poor year in 2018, some migrant warblers bounced back in 2019, with significant increases in abundance when compared to the five-year mean (2014–18, Table 1) for short-distance migrants Chiffchaff and Blackcap, as well as Whitethroat. The increase in abundance was particularly high for Blackcap, at 40%, resulting in this species being recorded in greater numbers in 2019 than in any

Table 1. National and regional† CES results for 2019. For long-term trends, ↑ indicates an increase of <25%, ↑↑ of 25–50% and ↑↑↑ of >50%, while ↓ indicates a decrease of <25%, ↓↓ of 25–50% and ↓↓↓ of >50%. Percentage changes from the five-year means (2014–18) are also reported for 2019, with significant decreases shown in red and significant increases in blue. ‘*’ denotes a small sample size. † Sample sizes are currently not large enough to allow regional survival trends to be produced. See CES website for map of regions.

Migrants	ADULT ABUNDANCE				ADULT SURVIVAL		PRODUCTIVITY					
	1985–2019	2019 vs 2014–18			1985–2019	2019 vs 2014–18	1985–2019	2019 vs 2014–18				
		National	North	East				West	National	North	East	West
Chiffchaff	↑↑↑	9	20	5	3	↑	27	↓	27	24	26	31
Willow Warbler	↓↓↓	0	-2	1	7	↓	17	↓↓	-4	-9	18	-18
Blackcap	↑↑↑	40	35	37	49	↑↑	8	↓	-5	-5	-2	-12
Garden Warbler	↓↓	10	1	4	28	↓	35	↓↓↓	-31	-57	-23	-39
Lesser Whitethroat*	↓↓↓	-1	34	-2	-8	↓	150	↓	-1	-33	10	-22
Whitethroat	↓↓	15	-4	21	9	↑	0	↓↓	-10	2	-15	6
Sedge Warbler	↓↓↓	-16	-7	-4	-32	↑	12	↓↓↓	3	-3	-3	23
Reed Warbler	↓	-12	16	-12	-13	↑	1	↑↑	9	-15	10	11
Tits												
Blue Tit	↑	15	-9	21	22	↑	-23	↓↓↓	32	41	44	4
Great Tit	↑↑	17	-6	26	24	↑	-6	↓↓	8	30	4	-1
Willow Tit*	↓↓↓	-34	-32	-	-	-	-	↓↓↓	-2	1	-	-
Long-tailed Tit	↑	16	29	13	15	↑	36	↓	28	31	43	2
Other residents												
Cetti’s Warbler*	↑↑↑	-8	-	-5	-18	-	-	↓↓	30	-	32	33
Treecreeper*	↑↑	18	37	-14	-17	-	-	↓	-1	3	-10	17
Wren	↑↑	-4	-12	-5	1	↑	-15	↓	10	0	15	14
Blackbird	↓	-21	-24	-14	-23	↑	16	↓	-2	6	-13	9
Song Thrush	↓	-10	0	-2	-29	↑	16	↓	13	-18	11	43
Robin	↑↑	-13	-29	-13	2	↓	5	↓	29	42	38	7
Dunnock	↓	-22	-23	-21	-23	↑	13	↓	41	36	35	61
Chaffinch	↓↓	-39	-33	-57	-33	↓	-9	↑↑↑	93	104	111	6
Bullfinch	↓↓	-2	25	-13	-17	↓	25	↑↑	13	1	32	21
Greenfinch	↓	-33	-63	-29	-28	↑↑	-	↓↓	37	-49	64	43
Goldfinch	↑↑↑	7	-18	20	19	-	-	↓↓	-3	22	-5	-17
Reed Bunting	↓↓↓	-18	0	-21	-18	↑	10	↓↓↓	57	-3	98	43

previous year since CES monitoring began in 1983. Blackcap numbers increased significantly across all regions in 2019, while Chiffchaff numbers were only significantly higher in the north. The increase in Whitethroat abundance appears to have been driven by results in the east, the only region to show a significant increase.

Chiffchaff and Blackcap are also the only migrant species to show long-term (1983–2019) increases in abundance; the trends for both species show increases of more than 50%. Although Blackcaps have increasingly been observed wintering in Britain due to

milder winter climates (see page 3), these have been shown to be from German, Austrian and French breeding populations rather than being British-breeding birds. Long-term survival trends for Chiffchaff and Blackcap are also positive; however, as long-term productivity trends are declining, the increase in abundance is likely to be a result of improved overwinter survival of adult birds on their traditional wintering grounds in Iberia and North Africa.

Only Sedge and Reed Warbler exhibited significant declines in abundance in 2019 compared to the five-year mean, an



Redstart and Pied Flycatcher, by Edmund Fellowes / BTO

improvement on 2018 when six migrant species exhibited significant declines. In 2018, fewer Willow Warbler, Garden Warbler, Whitethroat and Sedge Warbler were recorded than in any previous season; the number of Sedge Warblers and Willow Warblers was only marginally improved in 2019 with both species recording their second lowest total since CES began. In 2019, none of the migrant species monitored through CES recorded a significant increase or decrease in adult survival rates compared to the five-year mean. Sedge Warbler and Reed Warbler both recorded significant increases in productivity in 2018; the decrease in abundance in 2019 therefore suggests poor recruitment of juveniles into the population. All long-distance migrants continued to exhibit long-term declines in abundance.

Most migrant passerines monitored through RAS also fared better in 2019 than in 2018. The apparent survival rates for Swallow and Sand Martin have always fluctuated, but Swallow survival has alternated between annual increases and decreases over the past five seasons, with 2019 showing an increase for both species; the long-term trend for both is stable.

House Martin survival rates have increased steadily since 2015 and are now higher than they have been since 2011. By contrast, Swift survival rates have continued to crash, despite the inclusion of a new site to the analysis in 2019; apparent survival rates have dropped from approximately 90% in 2012 to below 20%. BirdTrack data show that the reporting rate for Swift once again fell below the historical average in 2019, while BBS data show a steep decline in Swift numbers since monitoring began

in 1994, potentially attributed to a loss of nesting sites. Pied Flycatcher, Tree Pipit and Whinchat survival rates all showed small increases between 2018 and 2019, although the trends for all remain relatively stable over the long term. Wheatear and Wood Warbler fared less well in 2019, with both exhibiting a decline in apparent survival rate.

Migrant productivity

NRS data suggest that, after an average year in 2018, most migrant birds started to breed earlier in 2019. Laying dates for five species – Sand Martin, Willow Warbler, Blackcap, Pied Flycatcher and Redstart – were significantly earlier (between four and seven days earlier) than the five-year mean (2014–2018, Table 2) in 2019. Sand Martin exhibited a 17% increase in brood size, but both egg and young stage survival were significantly reduced, the only species to record significant decreases at these stages; these results did not lead to a significant change in fledglings per breeding attempt (FPBA) however. Clutch size was significantly higher for four migrant species (Willow Warbler, Whitethroat, Pied Flycatcher and Redstart), although the only migrant species to record an increase in FPBA was Chiffchaff, which showed a 31% increase. No migrant species exhibited a significant delay in breeding or a significant decline in FPBA in 2019.

Following an extremely good breeding season for migrant species monitored through CES in 2018, results indicate that 2019 was an average season for most, with only two migrant species (Chiffchaff and Reed Warbler) recording a significant increase in productivity and one (Garden Warbler) recording a significant decrease.

Table 2. Laying dates and breeding success calculated from 2019 NRS data. Laying dates are given as the number of days **earlier** or **later** than the five-year mean (2014–18); productivity figures represent a percentage change relative to the five-year mean. Statistically significant 'positive' and 'negative' changes are highlighted in **blue** and **red** respectively. '*' denotes small sample size (<25 records).

Species	Laying date (days)	Clutch size (%)	Brood size (%)	Egg-stage survival (%)	Chick-stage survival (%)	Fledglings produced (%)
Migrants						
Sand Martin	-4.2	-0.2	17.0	-10.4	-7.0	-2.5
Swallow	-1.5	-0.2	-0.8	1.4	-3.2	-2.6
Chiffchaff	-2.8	-0.9	-0.3	7.7	22.2	31.1
Willow Warbler	-4.7	6.2	4.2	-4.3	14.2	13.8
Blackcap	-7.0	2.3	1.3	1.5	-14.6	-12.2
Reed Warbler	0.6	-0.2	-1.3	-3.7	-4.8	-9.5
Spotted Flycatcher	0.2	2.8	1.2	1.5	-6.9	-4.4
Pied Flycatcher	-4.3	3.9	3.9	1.1	-0.4	4.7
Redstart	-5.2	4.1	2.3	2.9	-3.5	1.5
Tits						
Blue Tit	-5.7	6.3	8.1	1.0	6.0	15.7
Great Tit	-6.3	8.3	9.8	1.1	2.5	13.9
Long-tailed Tit	-8.6	5.9	-0.4	4.4	3.3	7.5
Other resident passerines						
Jackdaw	0.0	7.1	3.5	-0.2	6.8	10.3
Nuthatch	-2.3	-3.4	0.0	-2.0	2.4	0.4
Wren	-3.4	1.9	-2.4	-3.9	-14.4	-19.8
Starling	-2.0	-1.7	3.3	0.9	5.6	10.1
Dipper	-1.1	0.4	-2.2	2.5	-3.8	-3.6
Blackbird	-4.5	-3.0	-3.4	1.8	-3.7	-5.2
Song Thrush	-4.7	-1.6	-1.0	15.9	-4.3	9.9
Robin	1.0	-1.0	-5.1	-6.0	2.8	-8.2
Stonechat	-4.5	1.8	3.2	-9.5	-2.6	-9.0
Dunnock	0.5	2.7	1.0	4.6	5.8	11.8
House Sparrow	-1.5	1.4	-1.5	-1.2	-5.7	-8.2
Tree Sparrow	-4.1	-0.3	2.2	0.9	-0.2	2.9
Grey Wagtail	-0.3	-0.5	-3.5	4.6	10.8	11.8
Pied Wagtail	-1.7	-1.7	-2.6	0.6	0.8	-1.2
Chaffinch	-3.6	-1.7	-3.8	-6.2	6.3	-4.0
Linnet	-2.3	0.6	-0.9	15.8	2.9	18.1
Resident non-passerines						
Stock Dove	11.0	-0.6	0.7	6.1	2.6	9.7
Woodpigeon	1.0	5.6	-0.4	2.9	-12.9	-10.7
Owls and raptors						
Barn Owl	9.2	1.1	2.7	1.3	0.5	4.6
Little Owl	1.9*	-1.2	-1.0	-3.7*	7.5	2.4
Tawny Owl	2.4*	-11.1	-6.4	-3.0	0.8	-8.5
Kestrel	-3.6	3.6	6.3	2.8	-0.1	9.1
Waterbirds						
Moorhen	3.2	0.9	-1.1	8.7	7.1*	15.1
Coot	-5.4	-7.5	7.2	-4.6	0.4	2.7



The increase in productivity for Chiffchaff, which was seen across all regions, is unsurprising given the 31% increase in FPBA recorded for this species. For Reed Warbler, which was recorded in significantly reduced numbers on CE sites in 2019, it is possible that the increase in productivity (fuelled particularly by results in the east) was the result of density-dependant factors, where fewer birds competing for resources results in greater breeding success. It is worth noting, however, that Reed Warbler is the only migrant monitored by CES to be exhibiting a long-term increase in productivity. The poor productivity for Garden Warbler was apparent across all regions, with the decrease being particularly large (57%) in the north. Long-term productivity trends show a decline of over 50% for this species.

RESIDENT SPECIES

Resident abundance and survival

Most resident species fared little better in 2019 than they did in 2018, with only Blue Tit, Great Tit and Long-tailed Tit abundance higher when compared to the five-year mean (2014–18, Table 1). Blue Tit and Great Tit numbers were particularly high in the east and west of the UK, while the Long-tailed Tit increase was driven by results in the north. Blue Tit was the only species to exhibit a significant decrease in adult survival rate in 2019, suggesting high juvenile recruitment to the breeding population was the cause of the increase in abundance. Both Blue Tit and Great

Tit had good breeding seasons in 2018, so presumably a high number of the birds hatched in 2018 survived to breed in 2019. The long-term trends (1983–2019) for all three species are increasing.

2019 was a poor year for most other resident species, with significant declines in abundance noted for six species: Blackbird, Robin, Dunnock, Chaffinch, Greenfinch and Reed Bunting. For Blackbird, Dunnock and Chaffinch, significant declines were evident across all regions, while for the other species, declines were driven by results in just one or two regions. Numbers of all these species, except Robin, were the lowest on record since CES monitoring began and all, again except for Robin, are exhibiting long-term declines in abundance. As none of these six species experienced a significant decline in adult survival rates between 2018 and 2019, the declines are likely to be a result of poor juvenile recruitment.

For the resident species monitored through RAS, 2019 was a mixed year. Following three consecutive increases in the apparent survival rate for Bearded Tit, resulting in the trend being at its highest point, a sharp decrease in 2019 left the survival rate at its lowest point since monitoring began in 2001. The survival rates for Dipper, House Sparrow, Linnet, Siskin, Stonechat and Tree Sparrow all bounced back after a poor season in 2018; the long-term trends remain stable for all species except Tree Sparrow, which is showing a decline, although this appears to have levelled off in recent years. There are now 12 projects contributing to the Starling trend; the long-term trend for this species is positive and another increase in the survival rate in 2019 saw it reach its highest point since monitoring began in 2004. Results for Hawfinch, Jackdaw, Mute Swan and Twite were less positive, with all showing declines in survival in 2019; the long-term trends for the four species are relatively stable, however, which is encouraging.

Resident productivity

Results from NRS suggest a number of resident species bred earlier than usual in 2019 when compared to the five-year mean (2014–2018, Table 2). Laying dates for Blue Tit, Great Tit and Long-tailed

Tit were between six and nine days earlier than average. This early start to the season appears to have benefitted Blue Tit and Great Tit in particular, as both recorded significant increases in clutch size, brood size, egg-stage survival and FPBA (Blue Tit also recorded a significant increase in young-stage survival). Nuthatch, Blackbird, Song Thrush and Tree Sparrow also significantly advanced their laying dates, by between two and five days; however, the only other species to record a significant increase in FPBA in 2019 was Starling. None of the resident species monitored through NRS

exhibited a significant delay in the timing of breeding or a significant decline in FPBA.

CES data show that 2019 was generally a good breeding season for residents, with six species exhibiting significant increases in productivity when compared to the five-year mean. Although both Blue Tit and Long-tailed Tit recorded significant increases in productivity, fuelled by results in the north and east, the long-term productivity trends (1983–2019, Table 1) for both are declining, considerably so for Blue Tit (-50%). Productivity rates for Robin, Dunnock, Chaffinch and Reed Bunting all



Fig 1. RAS survival trends. Survival is measured from the year indicated on the graph to the following year i.e. the figure for 2018 is the survival rate from 2018 to 2019. The dotted lines show the upper and lower 95% confidence limits about the modelled estimate.



RAS data for Herring Gull and Great Black-backed Gull were analysed for the first time in 2019.

increased in 2019, potentially as a result of density-dependent factors, given that the numbers of adults for all four species was significantly reduced in 2019. Chaffinch productivity was higher in 2019 than in any previous year and Chaffinch is one of only two residents monitored through CES to show a long-term increase in productivity (the other being Bullfinch). Although the long-term trend shows a 74% increase in productivity for Chaffinch, juvenile survival must be poor as the number of adult birds is still declining in the long term. There were no significant declines in productivity among resident species in 2019.

OWLS AND RAPTORS

Of the three owl species monitored through RAS, only Barn Owl survival rates increased in 2019. The survival rates for Barn Owl fluctuate quite sharply on an annual or biennial basis and are now close to being at their highest point in the cycle; the long-term trend shows a slight decline since monitoring began in 1997. Little Owl and Tawny Owl survival rates both declined for the second consecutive year. Although the long-term trend for Tawny Owl is relatively stable, the trend for Little Owl shows a gradual decline; it should be noted that as these trends are both calculated from single projects, they may not reflect the national

picture for these species. The only raptor monitored through RAS is Peregrine, whose long-term trend has been reasonably stable over the past decade.

NRS data suggest that 2019 was an average year compared to the five-year mean for owls and raptors. Although there were significant increases and decreases in clutch and brood size for some species, these did not lead to any significant changes in FPBA. Laying dates were also typical, with no significant changes recorded.

SEABIRDS AND WATERBIRDS

In 2018, the apparent survival rate trends for the majority of seabird species monitored through RAS showed declines; the picture was more mixed in 2019. Results show a decline in the apparent survival rate for Arctic Tern; however, the confidence limits around the trend are large so this result should be viewed with some caution. Survival rates for Kittiwake and Storm Petrel both increased in 2019. The increase was small for Kittiwake but maintains the long-term increase evident in this species.

Following a long period of decline, the more-recent trend for Storm Petrel shows an increase. Puffin, Razorbill and Guillemot survival rates all declined in 2019. For Razorbill, the decline was slight, adding to the small long-term decline for this species. By contrast, for Puffin and Guillemot the extremely steep declines seen diverge from long-term trends that had previously shown only shallow declines; it is possible that these are an artefact of the analyses rather than a genuine decline.

Data for two seabird species, Herring Gull and Great Black-backed Gull, were analysed for the first time in 2019. Historical data going back to 2012 were provided for Herring Gull, with the results indicating a slight decline in survival rate for this species. The trend for Great Black-backed Gull appears stable; however, as the project has only been running for a few years, it is too early to define a long-term trend. Although Lesser Black-backed Gull survival rates increased in 2019 for the second year in a row, the long-term trend shows a decline since 2011. No significant changes were recorded for any parameter measured by NRS for Moorhen or Coot.

Further results from the 2019 season can be viewed on the BirdTrends website: www.bto.org/birdtrends

The full suite of 2019 RAS results can be found at www.bto.org/ras-results



Moorhen on nest, by Edmund Fellowes / BTO; Inset: Moorhen nest with eggs, by Moss Taylor / BTO

Care should be taken not to confuse Moorhen nests with Coot nests; Coot nests are bigger and deeper and may be found further out in deeper water.

Monitoring Moorhen

As one of our most recognisable and sedentary species, it is perhaps surprising that Moorhen is not better studied by ringers and nest recorders; BTO currently only receives c.300–400 ringing records and c.250–300 nest records each year. In this article Phil Belman, Tony and Sophie Crease, Anthony Roberts and the nest recorders at Chew Valley Ringing Station share their knowledge of this accessible, yet overlooked, species.

Moorhens have a long laying season, extending from early April to the end of July (exceptionally, March to September). They are a multi-brooded species, so many of the later nests are likely to be second or third nesting attempts. As a result, recently fledged young can be visible from April through into October.

Most Moorhen nests are placed in aquatic vegetation (ranging from very dense to sparse) in water less than a metre deep. In some locations, birds prefer to nest in vegetation of up to 1 m in height on the water's edge, but elsewhere nests have been found quite a distance from the water's edge. Moorhens may also nest in bushes or trees, most but not all, over water. In dense vegetation, nests can be hard to spot as some may have woven tents of reeds over the cup.

NESTING

Moorhen nests can be located by watching the birds return, by cold searching or by flushing birds whilst walking around the edge of a water body. Moorhens are prone to intraspecific egg parasitism, which can lead to some very large clutches. On one contributor's site, two nests were located

10–15 metres apart, but one nest contained only one egg, whilst the other held 13, with two distinct base colours visible. Whether one female became confused as to which was her nest due to their proximity, or whether this was deliberate egg dumping is unknown. Moorhens have also been found to be unable to recognize their own eggs, so will happily incubate eggs of other species among their own (Ueda, Uchida & Matsuda, 1993).

Because this is a nidifugous species, it can be difficult to follow the progress of chicks after they have left the nest. Chicks often hide in vegetation, and on sites with multiple pairs it is almost impossible to assign a family party to a particular nest once they are mobile. If you lose track of the chicks post fledging, the best NRS codes to use are 'LB' (Left Before fledging) and 'OU' (Outcome Unknown). For more on nest recording nidifugous species, see *LifeCycle* issue 5, page 24.

British & Irish Moorhens are sedentary (they are joined in the autumn and winter by birds from north-west Europe) and are generally site faithful, breeding in the same area year after year. Although their adult

REFERENCE

Ueda, K., Uchida, H., Matsuda, T. (1993). Egg-dumping by the Moorhen, *Gallinula chloropus*, in Japan. *Japanese Journal of Ornithology* 42: 21–25.

Moorhen (and Coot) trapping, by Anthony Roberts



Walk-in traps set below bird feeders can attract both Moorhens and Coots.

survival rate is approximately 62%, and the oldest known bird was over 11 years old when it was shot, they typically only live for three years; this means that the turnover of individuals on a site can be quite high.

CATCHING MOORHEN

There are a variety of methods that can be used successfully to catch Moorhens. It is possible to catch them with a hand net, lured with bread, but the more traditional way is to use traps. Moorhens are quite easy to catch using various cage traps: drop-door, drop traps, walk-in traps and funnel traps. The larger funnel traps can produce multiple catches. Small potter traps can also be effective but require pegging down as the birds are strong and can flip the traps over. Moorhens are competitive social learners so if you catch one in a trap and can leave it for a while so others see it, you will often find another in the same trap soon after. Moorhens appear not to learn from experience though and are rather food

TOP TIPS

Pillow cases make ideal bird bags. They can either be weighed using a pesola or by sitting the bird bag inside a Tupperware container on a set of kitchen scales.

orientated so the same birds will go back into the trap multiple times.

Traps should be positioned, unset, at the edge of a water body or in shallow water and baited for several days before use. During autumn and winter, Moorhens have been observed leaving reed bed edges at dusk and venturing into traps in more open ground. Traps should be checked regularly as Moorhens can be quite vicious and will attack and harm other birds if left too long. Another reason to check traps regularly is that predators, such as Stoats, can find their way into some traps. If using a large trap, try placing logs inside to provide perches for the birds; this also gives them something to hide behind.

Moorhens will eat most foods, but duck food (wheat and corn mix) works particularly well as bait; they are also attracted to mealworms. One contributor noted that if there are large numbers of froglets present on site, the birds will ignore the baited traps in favour of these, therefore proving much harder to catch. Another effective method is to place a trap beneath bird feeders, particularly where sunflower seeds in husks are being used.

If making traps, it is best to avoid using wire netting as this can damage birds' beaks; however, weldmesh seems less problematic. Adapting bird cages and cat or dog carriers works particularly well as the wire is covered in a plastic coating. Alternatively, traps could be made by using softer material netting (whoosh or drag-net type) stretched over a metal frame.

OTHER CATCHING METHODS

Moorhens rarely fly into mist nets when they are erected normally, and even if a bird does fly in, it is an expert at escaping. However Moorhens can easily be caught in mist nets by using the following technique. Find an area of grass or similar on which they are feeding, and ideally running down to a pool or stream. Note the direction in which they escape if pressured. Put a single-shelf net, with the bottom shelf string on the ground, between their escape route and the water, and when the birds are feeding, walk or run towards the birds (ideally with two or three people). The birds normally run away, which is their preferred option,

but even if they fly, this is close to ground level and they will fly into the single-shelf net. The catch can be markedly improved, either by bending the net at right angles around a stake at its mid-point, or by using two nets at right angles. The latter is less effective as it is remarkable how many birds escape at the junction of the two nets. A 36 metre (120 feet) net bent around a pole is the most-effective method. This method also works for Coots.

Moorhen can be caught outside of the breeding season by wading in rivers at night and dazzling them. Moorhens roost low in bankside vegetation, or on overhanging branches, and are fairly easy to dazzle. There are, however, health and safety issues to consider when working in rivers at night in winter, particularly if working alone.

Birds can also be caught if you come across them while they are away from water. Like Coots, they sometimes walk and hide rather than run or fly. In snow, they can be caught by following their tracks under vegetation, such as brambles, where they have simply crouched under a stem.

Another very effective catching method is whoosh nets. These do not have to be disguised as birds appear to be quite happy walking over the net lying on the ground. Catching rates are improved enormously by using two whoosh nets facing each other and firing together. The nets can either be placed where Moorhens are known to be feeding on grass or other vegetation, or where they can be baited.

AGEING AND SEXING

The colour of the facial shield/disc is a key age indicator, being brown in juveniles and progressing to bright red in adults. Adults also have a small patch of red at the top of their legs and a white bib. After post-juvenile moult, the bill is still a much duller red and yellow than an adult and the legs are a duller green. The head, nape and chin are not such a pure ash-grey as in adults; the chin is a light grey. This is quite variable however, especially the brightness of the bill, which develops more quickly in some individuals than others.

The majority of adults can be sexed by a combination of wing length and tarsus and toe measurement. However, about

20% of birds show an overlap between these biometrics. A wing length of >181 mm and a tarsus and toe of >124 mm indicate a male and <174 mm / < 123 mm a female. The width of the facial shield at the top is another useful indication in the adults (broad for a male and narrow for a female); most juveniles have a narrow shield throughout their first year.

RAS AND COLOUR RINGING

Currently, there is only one RAS on Moorhen, which ran for the first time in 2019; birds are being colour ringed for this study. As with all species, colour ringing Moorhen can be very effective if a dedicated project is carried out and ringers are able and willing to put in the time and commitment to generate resightings. As some people are able to read metal rings on Moorhen in the field, colour ringing isn't always the most appropriate option though, so the decision to use colour rings should always be considered carefully.

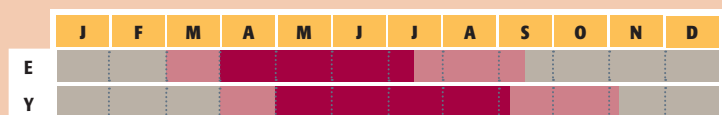
MOVEMENTS

This is a species that seems to move around at night during migration and probably for feeding (both detectable now by NocMig audio recorders) but the species also shows local display flights near the nest site, which are vocal in nature. It is the strangest bird to hear calling and doing circuits over a meadow on a summer's night!

Moorhen: nest-recording profile

Resident. Any fresh water with emergent or edge vegetation – rural or urban, wooded or open – from tiny garden ponds to large lakes, including ditches, streams, canals, rivers, wet meadows, marshes, bogs, even near sea; up to 600 m in Scotland, though not moorland streams. Solitary to loosely social. **Site** In shallows among water plants, trailing branches or flood debris, or on adjacent wet or dry ground in tussock, or hidden under brambles. Sometimes up in thick shrub or hedge or, occasionally to 8 m in old tree nest of crow or pigeon. **Nest** Solid platform of dead water plants (or, later, green stems) with cup of same or finer materials, often also lined dead leaves; surrounding plants sometimes pulled over as canopy. Most material brought by male, incorporated by female. Whole sometimes stands 50–75 cm high and may be built up further if water level rises.

Broods: 2–3. **Eggs:** 5–8. **Incubation:** 19–21 days. **Hatching to fledging:** 6–7 weeks.



Nest finding tips: Nests can be well hidden in dense aquatic vegetation (like Water Rail), but most are easily visible, some fully exposed on sprigs or clumps in open water. Adult may scatter away noisily with *kur-ruck* call, or dive and swim under water into weeds where only bill and crown then show.

Conferences round-up

Regional conferences provide a fantastic opportunity for ringers and nest recorders to hear first-hand about projects in their area as well as to meet other local volunteers (when circumstances allow these to happen face-to-face again). We are delighted that as well as the annual BTO conference in December, there are now regular demographic conferences in Ireland, Scotland and Wales. In this article, the organisers of the Irish, Scottish and Welsh conferences provide a snapshot of their most recent events.



Welsh Ringing & Nest Recording Conference attendees, by Kelvin Jones / BTO

Attendees at the Welsh Ringing & Nest Recording Conference engrossed in a talk.

IRISH RINGERS' CONFERENCE

There have been several informal one day ringing conferences tagged on to the University College Cork Ornithology Conference, held every five years. In 2017, a Committee was formed to organise more regular, standalone, Irish Ringers' Conferences, the first of which was a two-day event held at Cabragh Wetlands Reserve in Tipperary, 30 November – 1 December 2019. Over 70 ringers attended (about half of the ringers in Ireland), surely helped by the fact that National Parks and Wildlife Service (NPWS) of the Department of Culture, Heritage and the Gaeltacht kindly funded the event.

The conference included a great variety of project talks, including two on Lesser Black-backed Gulls; Katherine Booth Jones' project in Belfast and Sam Bayley and Brian Burke's projects on Cape Clear and Lough Ree; Susan Doyle and Kendrew Colhoun's research into the changing fortunes of Barnacle Geese; and Ash Bennison on satellite tracking breeding seabirds on the Saltees. Helen Boland spoke about wader and tern studies in Dublin Bay whilst Steve Newton discussed Roseate Tern studies on Rockabill. Richard Donaghey and

Steve Wing gave talks on the histories of Copeland and Cape Clear Bird Observatories. An overview of the longest running CES in Ireland was given by Alex Copland, and James O'Neill gave a talk about how to catch Woodcock.

Lee Barber gave a talk on some of the recent changes within BTO and the changes to the permit system. Jane Lenahan of the Health Products Regulatory Authority gave a talk on their responsibilities and sampling requirements, providing clarification on licensing issues within the Republic of Ireland; Alyn Walsh (NPWS) followed, speaking on what his department needs from ringers.

A series of workshops included one-to-ones on using DemOn, alternative trapping techniques, open floor discussions on facilitating better communication, training and experience across the island, and developing multi-ringer projects for Irish birds.

Thanks so much to all the speakers; NPWS for the funding and specific support of the Birds Unit; BTO for providing support, advice and staff to attend; and Cabragh Wetlands for a great venue. Getting so many Irish

ringers in one place was fantastic and the many discussions outside the talks and workshops were great for the overall community.

Conference Committee – Sam Bayley, Alex Copland, Richard Donaghey and Alan Lauder

SCOTTISH RINGERS' CONFERENCE

The 45th SRC in mid-November 2019, was organised by Lothian Ringing Group (LRG). Around 150 people attended over the weekend at the Carrbridge Hotel, which has become the regular venue for the conference in recent years. A number of attendees made it up on the Friday night to start the regular catch-ups and were greeted by the open log fire in the entrance hall, a place where the traditional stovies were served later in the evening.

The conference got off to a shaky start as the first speakers had a puncture on the way up to Carrbridge, but in true SRC tradition, some slight re-ordering and the show went on! After the usual greetings, introductions and house-keeping, there was a great mix of talks on Saturday morning and then again in the late afternoon. The morning talks focused around Black Grouse in Perthshire, Peregrines and

Golden Eagles in southern Scotland and Sparrowhawks in Edinburgh. The afternoon focused on seabirds, covering tracking studies of Arctic Skuas, post-fledging Gannets and Puffins. As always the early afternoon was free to allow time for walking, birdwatching, group meetings, or just general chat in and around the hotel. Most were out seeking to take in the local sights, even just in the woods across the road from the hotel where the chances of seeing Crested Tits are always high. A short BTO update was followed by dinner and then an evening in the bar, and the atmosphere was great. One of the mountaineering clubs had sole use of the lounge and, as a result, the bar was packed with ringers (great for selling tickets for Sunday's raffle) and the networking and banter were excellent. The usual uptake on the 'Trade Winds' beer, leading to a shortage halfway into the evening, was only to be expected!

The Sunday morning sessions were more varied, with Lapwings in Angus, migration of Icelandic Redwings, nesting in Blue Tits and a video of seabird ringing by one of the LRG team on Ascension Island. The final talk on Sunday, by the Lothian Bird Recorder, about the records of ringed terns by birdwatchers really demonstrated the important links between ringers and birders. There was the usual array of great prizes for the raffle including a boat trip around Bass Rock and paintings by recognised wildlife artists, reflecting lots of hard work in gathering these by LRG members and significant contributions from all the groups attending, as well as individuals and the generosity of many local companies and organisations in Lothian.

A highlight of the conference was the presentation of the Jubilee medal to Colin Corse (Orkney Ringing Group) for his outstanding contributions to Ringing and Regional Network Committees.

Overall, the conference gained acclaim from the BTO in setting the gold standard for such events (that may inspire future formats for BTO's

Swanwick conference), the fascinating and inspiring presentations, valuable networking and the overwhelming sense of common purpose.

William Edmond & Andy Coates

WELSH RINGING & NEST RECORDING CONFERENCE

On the last Saturday of February, the Welsh Ringing and Nest Recording Conference was held at the Elan valley Hotel in mid-Wales. Despite the forecast of some potentially bad weather on the way home we had an excellent turnout of over 60 from across Wales and even some ringers who cross Offa's Dyke to ring in Wales.

Proceedings were opened by Mike Sherman on the Wheatear RAS run on the Presellis, followed by Paddy Jenks on his Pembrokeshire Kestrel project. Paddy appealed for other regular Kestrel ringers to make contact to expand his colour ringing scheme on this fast declining species. Due to extenuating circumstances we had a vacant slot to fill at short notice, for which Giles Peplar stepped in to fill the void and told us youngsters about training and paperwork in the early 60s when he trained. An eye opener...

The Honorary Wales officer John Lloyd then gave us a most entertaining talk about his 49 year career as a nest recorder, and what it takes to become a nest recorder. John has probably submitted more nest record cards

than any other nest recorder in Wales (9,279 nest records up to 2019). The inspirational Dr Steph Tyler then told us about 40 years of Dippers. Despite having been an avid Dipper ringer for a number of years I learnt a lot, especially that the parents will often clear the nests after the last chick has fledged (so beware that 'empty' nests may have been successful!).

Katharine Bowgen and Lee Barber started the afternoon session with updates from BTO Cymru's activities, HQ and from the recent trainers' meeting. Graham Austin took some DemOn questions and after the conference ended connected up the laptop to do some one-to-one troubleshooting. Henry Cook then spoke on the NE Wales Little Tern project, with a big thanks to David Norman and Merseyside Ringing Group who have been ringing at Gronant for over 35 years.

An unintentional thread that ran through the conference was colour ringing. Kelvin Jones finished off with a question and answer session on how to maximise colour ring sightings by engaging with birders and photographers. Feedback from the attendees was excellent and sufficient time was available during the day for the vitally important networking. Thanks to the Elan Valley Hotel for hosting us.

Kelvin Jones



Participants at the Irish Ringers' Conference, by Alex Copland

Chew Valley RS Theory Course

Chew Valley Ringing Station undertook its first theory training course in November 2019. The idea for a theory-only course arose out of the Group's main summer courses in which various talks and practical sessions are held on two of the afternoons. These are always well received and it was suggested that the Group could expand the subjects on offer and run a day-long workshop as a trial aimed at local ringers. Course organiser Mike Bailey and attendee Alexia Michaelides sum up the day.



Course attendee learning about moult, by Mike Bailey

Learning how to take a primary moult score by examining wings.

Once we had decided to hold the course BTO kindly sent out an advert to those ringers in nearby counties, generating an immediate response requesting more details. The course was attended by 15 ringers; three A- and seven C-permit holders and five trainees. Although it was only one day (09:00–17:00), and there were no ringing preparations involved, it inevitably took some time and effort to prepare the presentations, equipment and materials. The fee for the course was £25 and we were able to keep that cost low by using our own building, rather than hiring a village hall, and by asking the participants to bring their own packed lunches; we provided drinks throughout the day.

COURSE CONTENT

The day included a variety of seminars on different topics, including the science behind ringing, ageing and sexing criteria, and how to handle larger birds. Participants were asked to choose six topics from a list of 17 (including DemOn, wing formulae, moult, project ringing, holding and ringing larger birds, ageing and sexing, setting up colour-ringing and nest-box projects, other trapping methods,

repairing mist nets, social media, ringing health & safety, developments in tracking birds, site permissions, Schedule 1 and licensing) which was sent in advance. On the day, a schedule informed participants which of the six topic sessions they would be attending and the timings for the course. Two of the sessions were attended by all course participants and the other four by smaller groups, depending on the choices that participants had made during the registration process. Each session lasted for 50 minutes, which allowed for drink breaks and a smooth changeover between sessions.

FEEDBACK FROM ALEXIA

The course content was really informative. The speakers, experienced ringers from the local area, were engaging and explained their topics clearly and precisely. As an early career ringer it allowed me to engage in areas of ringing that I have not experienced yet, such as the handling of larger birds and other trapping methods such as spring traps and whoosh netting. I found it useful that, although the course was a theory course, there were elements of practical ringing, with the opportunity to practice the fitting of

larger rings, wing formulae, primary moult scores and a demonstration of how a whoosh net works. These allowed for a visualisation of the ringing theory being discussed. The only downside was that participants couldn't attend everything on offer. An alternative would be to have fewer topics offered and the chance for every participant to attend each talk. I would definitely recommend the day to other ringers as I felt that it allowed for the discussion of topics that might not necessarily be covered during ringing training and the ability to learn from other ringers who offered their own experiences. I would attend a similar course in the future, if different content was offered.

FEEDBACK FROM MIKE

Feedback from the questionnaires was very positive and we would certainly like to give it another go if there is enough interest. We found it was particularly beneficial to have a mix of ringers attending the course as experienced ringers were able to contribute comments and observations to the discussions. Another time we'd like to develop the idea of giving participants the chance to give 15–20 minute talks as well.



Male Crossbill feeding young, by Andrew Dixon

The male will feed the chicks for the first 10 days and after this period both parents will search for food. Chicks excrete over the rim of the nest, and the nest rim becomes stained white.

A Crossbill season in Devon

In this article, Mark Lawrence outlines the fieldwork he carried out with Marcus Betteridge, Paul Haffield, Josh Marshall, Mark Penney and Jim Shortridge during the 2019 Crossbill breeding season, when the Sitka Spruce was masting in South Devon. Their sample of nests found may shine some light on the complexities of the Crossbill's breeding season and the importance of timing, weather and availability of conifer seeds within these forests.

As a nest recorder, in the depths of winter I yearn for the coming breeding season and eagerly look forward to the spring and all the early-nesting birds that will surely follow. Walking the coastal paths in mid-February, searching for that early Raven; visiting those old familiar sites, their secrets unveiled many years ago, scanning the cliff and finding that old friend with its new mass of sticks is a rewarding sight. Whether your first nest of the season is a Raven or maybe a Stock Dove, Tawny Owl, Robin, Blackbird, Grey Heron or Coot, one thing is guaranteed – every year you will be able to go out and find their nests in the same old spots; old holes, ponds, bramble or hedges.

But there is one species that does not give you this guarantee. Many years could pass before they breed again in their chosen habitats. Only when certain conditions are favourable will they attempt to breed, so every year we enter these habitats hoping that nature's chemistry will provide the ideal environment for the Common Crossbill.

FOOD AVAILABILITY

The Crossbill is a nomadic species and opportunistic breeder. It will search widely

for a forest that holds a good food source and will breed when that food source becomes available. Crossbills feed mainly on conifer seeds, but different species produce cones at different times of the year, so depending on what species of tree is producing cones, the Crossbill can nest in any month. Scots Pine open later than spruce, providing a food supply lasting into July, bridging the gap between successful spruce crops and sometimes allowing the Crossbill to breed into May or June. Larch cones form in May and open from late summer; in years of good crops this allows Crossbills to breed into September or October (Newton, 1972).

Sitka Spruce masts in periods of between one and six years, and studies suggest coning in Britain is episodic with one mast year (occasionally two) followed by a period of poor cone production, in some cases lasting four years. Masting and synchrony of coning over large areas are thought to be evolved strategies. Numbers of seed-eaters are thought to fluctuate in response to food availability with the seed-eaters becoming satiated in mast years and never reaching high enough densities to consume all of

THANKS

We would like to thank the Forestry Commission for allowing us access to Haldon forest to conduct this survey.

Typical Crossbill breeding habitat, by Andrew Dixon



A typical Crossbill breeding habitat. Crossbills can easily be watched when building and take no notice of observers located close by.

MASTING SEASONS

In the forests of Devon we have studied breeding Crossbills whenever the Sitka Spruce has masted: 2012, 2015, 2018 and 2019. Sitka Spruce seeds remain at their highest levels from November to March (Dixon & Haffield 2013) so the Crossbill will nest early, with a peak egg-laying period in February. We begin looking for Crossbills in January, and our earliest record for a nest containing recently hatched young was one found at a Dartmoor location on 24 January 2015.

the seeds, thus leaving some available to germinate (Fenner, 1991).

Immigration and cone production are major factors influencing Crossbills breeding in the UK. Crossbills are irruptive migrants and, periodically, large numbers seeking areas of seed abundance arrive in the UK, mainly in June and July, from the boreal regions of the continent (Newton, 2006). If they find sufficient cones in the forest many will remain and breed the following spring (Marquiss, 2012). In years when Sitka Spruce cones are abundant, the scale of any Crossbill population increase will depend on the number of immigrants, and when the Sitka cone crop is low, Crossbills will leave to seek conifer seeds elsewhere (Summer, 1999).

In 2019, our efforts were concentrated on the Forest of Haldon, near Exeter. As we had had a masting the previous year we didn't expect to find any cones on the trees but were surprised to see a reasonable cone crop this winter. We began our fieldwork on 14 January and it was concluded on 7 March. During this time we found 10 nests. Although the later nests should have taken our nest recording into early April, the weather conditions appeared to have a severe impact on the birds' ability to breed successfully that year.

EARLY NESTS

Nest 1 was found at the building stage on 14 January. It was the best beginning to any nesting season one could ever hope

for; walking down into the forest we soon picked up a pair of Crossbills feeding on the Sitka cones. As we observed them, they flew to a tree behind us, copulated and the female then began, or continued, to build a nest in the same tree. On 28 January, this nest had three eggs and, when last checked on 23 February, the nest contained one chick approximately 12 days old (FS). Although further visits were made, no further activity was seen.

Nests 2 and 3 were found on the same day. Nest 2 was completed by 24 January, and then for whatever reason, the female dismantled the nest and built it in another tree. With the repeat nest found, the tree was climbed on 5 February and contained four eggs. The nest was under observation on the 22 February and the behaviour of the pair suggested that the nest was still active and contained small young. No further activity was observed at this nest.

Nest 4 was being built on 30 January and the nest was completed by 6 February; the female was incubating a clutch of eggs on 10 February. The next nest visit was on 25 February, when the male was observed feeding the female at the nest, who in turn fed the young within the nest. But by the last visit on 4 March we observed no activity at this nest. The young at this stage would have been around 10 days old. This nest had been built around five feet out on a long Sitka branch, and we noticed that the branch was swaying extensively in the high winds. The day before, the winds would have been much worse due to a storm and we feared that the young could have been thrown from the nest. Alternatively, the young may have been predated or deserted. Regardless of how, this nest failed.

MIDDLE NESTS

Nest 5: This pair was observed building a nest on 4 February but when the nest was first inspected on 19 February, it appeared to be half built and then deserted.

Nest 6: We first climbed to this nest on 5 February, when it contained one egg and was wet due to the rain. The second visit on 13 February revealed two deserted eggs.

Nest 7: The female was seen with nest material on 3 February. The tree was climbed on 17 February and the nest

was empty but lined. No further activity was observed at this nest to indicate that nesting was taking place. The tree was last climbed on 10 March and we didn't find any evidence of breeding. Incidentally when this nest was found, extensive forest work was being undertaken in the immediate area and the nesting tree was marked for felling. When we informed the Forestry Commission of the nest location, they took immediate action and cordoned off a 100 m exclusion zone around the nesting tree.

Nest 8: We found this nest after watching a pair fly into a tree and we could see the nest from the ground. We thought at the time that the birds were building, so we decided to leave it for a few weeks, but now suspect that the nest could well have contained young when it was found. When we climbed to the nest on 10 March we noticed that there were mounds of excrement at both ends of the nest. With this evidence we strongly believe that the nest contained young at some stage, probably around 17 February. If so, this nest could well have contained eggs in January.

LATER NESTS

Nest 9: Our penultimate nest we called the squirrel, because only a squirrel would be able to get to it! The nest was on one of the lowest branches of the tree (about nine metres up), which is unusual for Crossbill, who tend to nest higher up in the canopy. The female was observed building on 19 February but subsequent visits failed to find any activity at this nest when incubation should have commenced.

Nest 10: Our last nest was found on 19 February and although a clutch of three eggs was laid, and incubation had commenced by 27 February, the eggs had been deserted by 7 March.

As you can see, it was only the earlier nests that managed to get to the young stage and one of these nests was known to have failed. Of the remaining two early nests, we were uncertain whether any young fledged or not. Crossbill nests are difficult to monitor; most nests are built high in trees and only accessible to skilled climbers. When the eggs hatch, most observations are carried out from below the tree. If no activity is seen, then we will sometimes



Female at the nest, by Paul Haffield

Crossbills incubate for a period of 13–14 days.

climb to the empty nest. Even then we may not have the answers as once Crossbills leave the nest they can be very difficult to locate. We didn't see any further activity at these nests despite many hours of observations.

It seems our second wave of nest builders were affected by the above-average temperatures observed across Britain in February 2019; bad news for the Crossbills. Cones begin shedding their seeds in the winter and, as time progresses, fewer seeds are available for Crossbills to feed on, hence Crossbills need to breed early when exploiting the Sitka Spruce cone food source. The longer the weather stays cool and damp, the longer the seeds will remain in their cones, but if there is a prolonged warm and dry period, then the tree's strategy for survival is to open their cones and shed the seeds (Andrew Dixon pers comm). Analysing our nesting data from last season, we strongly believe that this happened at our study site in Devon, and pairs attempting to breed later failed because the Sitka cone crop availability dropped quickly in response to the warm weather in February.

WHERE NEXT?

Birds breeding in Devon one year could well breed in France the next and then maybe Russia the year after. There is still a great deal to be learnt about Crossbill breeding behaviour and only time-absorbing, painstaking fieldwork will find some of the answers. One thing is for sure though, whenever the Sitka Spruce is masting in Devon, and the conditions are suitable for Crossbills to breed, we will never miss the opportunity to monitor them.

REFERENCES

- Dixon, A. & Haffield, P.J. (2013). Seed availability and timing of breeding of Common Crossbill *Loxia curvirostra* at Sitka Spruce *Picea sitchensis* dominated forestry plantations. *Ardea* 101: 33–38.
- Broome, A., Hendry, S. & Peace, A. (2007). Annual and spatial variation in coning shown by the Forest Condition Monitoring programme data for Norway spruce, Sitka spruce and Scots pine in Britain. *Forestry* 80: 17–28.
- Fenner, M. (1991). Irregular seed crops in forest trees. *AGRIS* 85: 166–172.
- Marquiss, M. & Rae, R. (1994). Seasonal trends in abundance, diet and breeding of common crossbill (*Loxia curvirostra*) in an area of mixed species conifer plantations following the 1990 crossbill eruption. *Forestry* 67: 31–47.
- Summers, R.W. (1999). Numerical response by crossbills *Loxia* spp. to annual fluctuations in cone crop. *Ornis Fennica* 76: 141–144.



Twite has been on the Birds of Conservation Concern Red List since 1996.

Monitoring Twite in the UK & beyond

The most recent survey of English Twite, published by the RSPB in 2018, compared a 1999 census to one carried out in 2013 and reported a decline of 72% (to approximately 164 pairs). Today there could be fewer than 100 pairs. In this article, Jamie Dunning discusses the monitoring work being carried out on the Twite that still breed in England.

At one time Twite populations were probably fairly numerous, and well-connected, across Eurasia. During the late Pleistocene, when much of the Eurasian landmass was a homogenous, mammoth-grazed steppe, carved out by retreating glaciers, the climate was mild and the range of the Twite was probably continuous from what is now central Asia into modern Europe. Then, following a new period of glacial advancement, Twite found themselves marooned in what refugia habitat remained. It was this period of great global change which resulted in the distribution we see today; two core population centres, one in central Asia – from Asia Minor, the Himalayan steppe and the Qinghai/Tibetan plateau – and another along Western Europe's Atlantic seaboard.

Twenty-two thousand years later and the Western group finds itself once again separated by loss of otherwise continuous habitat. Where their ancestors lost ground to advancing ice sheets, today's Twite contend with intensification of upland and coastal farming, development and disturbance. What populations remain in Western Europe are not only isolated

from their Asian cousins but also, to some degree, from each other. This fragmentation could, in time, affect the extent by which these small populations are able to recover from continued decline, as between-group recruitment is reduced (monitoring is particularly important here). As a consequence, by the time the Birds of Conservation Concern lists were published in 1996, Twite was added directly to the Red List and stayed there through three subsequent reassessments. Although this article focusses on the Twite which still breed in England, the species also holds on in small pockets across Western Europe.

POPULATION DECLINES

A decade of habitat restoration in the uplands appears to have so far failed to halt declines, and emerging evidence points to reduced survival in those English birds which winter on the coast (away from the feeding stations), suggesting a reduction in winter food availability. Twite once bred from the Pennines in the north-west as far south as the East Midlands, and then in small numbers on the moorlands of the south-west. They were probably always

REFERENCES

- Dunning, J., Finch, T., Davison, A. & Durrant, K.L. (2020). Population-specific migratory strategies of Twite *Linaria flavirostris* in Western Europe. *Ibis* **162**: 273–278.
- Wilkinson, N.I., Eaton, M.A., Colhoun, K. & Drewitt, A.L. (2018). The population status of breeding Twite *Linaria flavirostris* in the UK in 2013. *Bird Study* **65**: 174–188.

partial migrants, with a component of the population staying near the breeding grounds on winter arable crops, whilst others went to the coast in search of *Salicornia* beds and mild weather. Today, the majority of England's Twite are migratory and colour ringing has helped to better visualise the limits between these fragmented groups.

COLOUR RINGING

With that in mind, we began individually colour ringing Twite in 2013 (following on from two previous studies which cohort-marked birds) under the supervision of Steve Christmas and Mick Pearson; from there, we began to connect with others around Britain, Ireland and continental Europe who were doing similar. At first, we focussed on the core English breeding range in the Pennines, but shortly after expanded to cover an apparently isolated population holding on in north-east Derbyshire, near Dove Holes.

The topography of the breeding range means that all of 'our' birds have been caught with whoosh nets at baited feeding stations (with the exception of three accidentally caught in a mist net set for Meadow Pipit). Away from the hills however, they can be caught with mist nets and (apparently) sound lures. The feeding stations are manned by volunteers, who also record the presence of colour-ringed birds (thanks in particular to Tim Walker, Peter Welch and George Hudson).

RECOVERIES

To better understand the movements of British Twite within Europe, in 2017 we looked at movements within the European population as a whole. Using Euring data, we found that there was essentially no overlap between British and continental Twite during the non-breeding season (when most Twite move away from their breeding grounds). Furthermore, within Britain (there were not enough data to include birds from Ireland), breeding Twite used different non-breeding areas to one another, whereas the continental breeders used similar areas during the non-breeding season.

Although the reason for these findings is difficult to untangle, it does seem that there

is a marked east-west split in Britain and Ireland, with the Irish, Scottish and Welsh birds generally wintering along the west coast, and the English birds in a small area of the east, roughly between the Humber and The Thames – this was also reflected in ringing data from the Twite Network and resightings from hundreds of birders braving our windswept mud flats.

Back in England we shortly found that although both of our identified groups mix freely over the winter, as confirmed through colour-ring resightings, they faithfully return to either the Pennines or Derbyshire to breed, with no detectable recruitment between the two groups. Once, the two were probably connected, through breeding at Edale, Bleaklow and the Saddleworth moors, but their disappearance from these hills probably draws yet another narrow fault line between two extant groups – possibly further fragmenting the already disparate English populations.

MONITORING

We are now interested in how these 'fault lines' influence ecology (such as survival and recruitment). In 2020, alongside our standard monitoring, we looked at individual survival within the Derbyshire group and found a considerable pressure on juvenile survival over winter (in collaboration with Ismini Gkourtsouli & Julia Schroeder at Imperial College London – more to follow). Our ringing efforts have so far concentrated on the breeding grounds, where Twite are reliant on supplementary feeding stations during the summer months, but we also hope to collect data on winter site usage through collaborations with bird observatories and ringing groups on the coast. In addition, we have recently used the Twite Network to gather information on the changing distribution of Twite on the west coast, between North Wales and the Inner Hebrides (per Dave Wood, RSPB).

The successful conservation of Twite probably requires a multi-faceted approach and group-specific conservation action. For that, it is essential to connect the small amateur projects, like ours in England, with those elsewhere in order to monitor this previously under-recorded species.



Twite, by Peter Welch

SUPPORT

If you can contribute to the Twite network, either through ringing or the resighting of colour-marked Twite, or by volunteering for the Twite recovery project, do contact me on jamiedunning8@googlemail.com or, Katie on Katrina.Aspin@rspb.org.uk

THANKS

I'd like to take this opportunity to thank (again!) the RSPB, BTO, CEMEX, *British Birds*, the numerous bird clubs (particularly the Derbyshire Ornithological Society, Hope Valley and the Calderdale Bird Club) and personal donations, for their continued support which keep our project going.

Obituaries



JOHN MCMEEKING (1929–2019)

With the passing of John we have lost a great friend with remarkable powers of leadership, inspiration, vision and influence.

John began ringing in his teens under the guidance of the school biology teacher and held his ringing permit until his death, 75 years later. He was very active as a BTO member throughout his adult life – county representative, Chairman, Tucker Medallist and more. He was Chair of the Ringing Committee at a particularly important time, which saw publication of the rewritten *Ringers' Manual*, the initiation of the CES scheme, and he was a driving force behind the annual Ringers' Conference.

John gave freely of his time and experience to help other ringers. Many will remember being ferried to and from The Wash for wader ringing with WWRG; or ringing at Sand Martin colonies during the national project; or Canada Goose round-ups which he organised; or ringing with him in the early hours in Treswell Wood. John was always a leader and guide but also an approachable member of the team. Scores, perhaps hundreds, of ringers have been helped or directly influenced by him. In addition to fieldwork, John's influence was felt at

the Ringers' Conferences in which he took a leading (but sometimes unseen) role. One prominent ringer said of him '*He was a great friend and mentor to me, although I only saw him at the conferences.*' I am sure he is not alone in that sentiment.

When the Nottinghamshire Wildlife Trust (of which John was a leading and founding figure) bought Treswell Wood at the end of 1972, John immediately began a ringing project to 'see what was there' in the hope that, perhaps, a paper might come out of it. By 1978 he had established a year-round constant effort operation in the wood. It was this, together with Bob Spencer's operation at Marsworth Reservoir and Mike Boddy's at Theddlethorpe, that formed the trial CES sites. The scheme was opened nationally in 1983 and has been emulated in other European countries and North America – quite a legacy.

Although John always kept a keen interest in BTO and ringing in general, the Treswell Wood work gradually absorbed more of his ringing time. Over the years he established a secure core of people (ringers and others) which eventually became the Treswell Wood IPM Group – ringing, nest boxes, territory mapping, habitat recording and more. John's last visit to the wood, just before his illness became apparent, was in October 2018 by which time he had been present at about 1,500 mist-netting visits to the wood.

The number of birds he personally processed in the wood was modest because he was keen to encourage younger ringers. He took as great a pleasure in helping them process birds as he did in ringing the birds himself. As for the species, Treswell Wood is not noted for its rarities and John was happier with the retrap Dunnock with a good history than with a less common species ringed but never seen again. John believed we should be recording what was there, not what was rare. And the 'paper' John hoped for? There have been a number including collaborative studies with students and academics

across Europe. John's 46-year systematic data set has a great deal of value and will continue to grow and be used.

John's connections with BTO, with ringing and with ringers were many and long-lasting. Many of you will know of other aspects of John's life which have not been mentioned. John leaves behind a trail of ornithological work and he will be greatly missed. But his hand will be seen in many more works which people inspired and encouraged by him have done, are, and will be doing. In turn they will be leading others in John's trail.

This obituary was prepared by Chris du Feu and John Clark



TED COWLEY (1936–2019)

Ted Cowley died in Dumfries on 29 May 2019 at the age of 83. Ted was a member of BTO for over 50 years, a ringer, nest recorder and a Regional Representative for North Nottinghamshire. He was also a regular at the BTO Conference at Swanwick.

He will be remembered for his outstanding work on Sand Martins. He began studying their breeding behaviour in the quarries of North Notts in 1965 and subsequently published a number of scientific papers.

In 1971 he started experimenting with artificial breeding sites for Sand Martin and piloted various prototypes. This interest would lead to another major contribution from him in the conservation of his beloved bird. In 1982 he was awarded the BTO's prestigious Sparrow & Boddy Prize in recognition of a *Bird Study* paper on the species.

In 1992 Ted, and his new partner Joan, moved to Scotland and settled not far from Kirkcudbright. The house came with a small piece of wetland which Ted deemed ideal for an artificial Sand Martin site. Ted perfected a model and by 1996 he had attracted 120 pairs with 194 broods; he continued to study the behaviour of the Sand Martins at his site until a few days before his death and, with cameras installed, was able to post numerous videos on YouTube.

In May 2000 he founded The Sand Martin Trust (SMT), a registered Scottish Charity with his partner Joan and myself as fellow trustees. In 2009, *Sand Martin Artificial Breeding Sites* was published. This guide, the fruit of his years of work, was distributed free to every Wildlife Trust in the UK and available to individuals on request. It was also sent to wildlife organisations elsewhere across Europe.

Living in Galloway, Ted acquired an excellent knowledge of local birding sites and in 2007 he published *Accessible Birdwatching in Galloway*. The book was prompted by Joan's daughter who was a GB Paralympian Wheelchair Basketball player. All proceeds went to The Sand Martin Trust. On his death, a decision by the SMT trustees was made to close the charity. As stipulated by Ted, in such an eventuality, all proceeds and data were donated to BTO.

Ted was a dedicated ornithologist who ringed almost 20,000 birds and shared his knowledge widely, a warm and much-loved family man, and a great companion in the field. He will be sorely missed by all who knew him.

**This obituary was prepared by
John Perry**



CLIVE MINTON (1934–2019)

Clive was always interested in birds, and got hooked on bird ringing while at Oundle School. Then, while on holiday in Northumberland, he caught a Sanderling under his coat and his passion for waders began.

He was a dynamic, inventive ringer at a time when ringers were learning how to catch many species. As well as having a 'hunter mentality' enabling him to think like a bird, he was a people person, able to lead teams and inspire others.

While studying at Cambridge, Clive worked out how to mist-net waders at Wisbech sewage farm and realised that different methods were needed to catch the massive flocks on The Wash. He first persuaded Peter Scott to lend the Wildfowl Trust's rocket net but, after a few very successful catches, he decided something more manageable was needed and so, using his training in metallurgy, adapted an American technique to make the first cannon nets. His basic design has changed relatively little as he got it right first time! To fund these first cannon nets Clive formed the Wash Wader Ringing Group in 1967, which he led until he emigrated to Australia in 1978. By the time he had left, the group had ringed over 130,000 waders!

There was always a reason for his studies – and he published so much of what he learnt. On The Wash he first wanted to find out where our birds came from and went to, then to understand their weight cycles and, when The Wash was under threat from a plan to develop it as a freshwater reservoir, he focused the group's effort on showing how many birds pass through the estuary. He was also a great supporter of BTO; in 1975 he was awarded the Bernard Tucker Medal for outstanding service to the Trust. He was the prime mover in setting up the Wader Study Group, (now the International Wader Study Group), encouraging the development of wader studies throughout the UK and elsewhere. Ringing totals in Australia started to go up as soon as he arrived there!

Clive was not only interested in waders; he set up long-term studies of herons at Gailey Reservoir in Staffordshire and swans across the West Midlands, as well as many other passerine ringing projects.

Many ringers who were ringing before Clive left for Australia will have their own memories of him; always affectionate, but also crazy and able to inspire. Pity the ringer who was sent to swim across a saltmarsh creek to get the birds to move on the other side – when it was snowing, or the one who jumped into a lake to catch swans, but then realised he couldn't swim! Luckily Clive could, and got the hapless individual and the two swans to the bank safely.

Clive always lived life to the full and had a major global reach inspiring and training students from around the world. He leaves his wife and soulmate Pat, and two sons Roger and Nigel, as well as a host of senior conservationists who are where they are because of his enthusiasm and encouragement. They are testament to him, his infectious enthusiasm, and his ability to motivate without them quite realising what was happening.

**This obituary was prepared by
Nigel and Jacquie Clark**

Obituary



JOHN BROOK (1938–2020)

During my first week at BTO in 2005, a large biscuit tin arrived that contained over a thousand nest records. I flicked through species ranging from Goosander to Curlew and Willow Warbler, saw the current year plus code 'BRC' on every card and was amazed and inspired. This was my introduction to John E.A. Brook who, from 1975 to 2015, sent 40,004 cards to the Nest Record Scheme. John died this February aged 82.

Though his cards were often accompanied by a letter, and sometimes photos or a newspaper cutting (he was adept at getting his volunteer work into the local media), by 2008 Dave Leech and I still had not met John and so that May we travelled to Stratford-upon-Avon. After introducing us to his wife Jill and inviting us into their home, which was decorated with trophies and evidence of interests pursued with as much gusto as his nesting (his passion for horse racing culminated in owning a thoroughbred for several years), John took us to some of his local patches. Dave and I were new nesters, eager to learn and John delivered. He showed me the first Whitethroat nest I ever saw; five fresh eggs two feet up in a nettle bed. He stressed that a nesting stick must not be so heavy as to put you off tapping regularly and then proved it by turning up several new nests even as we walked.

An electrical contractor by trade, John got into nest finding through his father. He began sending cards to the BTO in 1975 and soon led a small group of recorders including the late Reg Cooke, with whom John was co-recipient of the Bernard Tucker Medal for outstanding service to the Trust in 2007 (the photo shows John being presented with his medal by Barbara Young, then BTO President). Most remarkable was the breadth of their efforts; in a single year the group would submit cards for over 90 species including many waders, wildfowl and songbirds, yet they also monitored over 700 nest boxes annually and several seabird colonies.

With John's passing the Scheme has lost one of its greatest contributors, as well as a friend and mentor, and the BTO has lost a lifelong supporter.
Carl Barimore

Jenni & Winkler 2nd edition – review

The first edition of *Moult and Ageing of European Passerines* was published in 1994 after 16 years of collecting data from 140,000 birds captured at ringing stations in Switzerland and elsewhere in Europe, along with specimens held at several European museums of natural history. High quality colour photographs, illustrating different moult stages for 58 species of European passerine, accompanied a detailed guide to understanding the function of moult, different moult strategies and how the quality of different feather generations can be used to age live birds. Needless to say, before the book sold out it was in high demand and it remains so in the second-hand market today.

The long-awaited second edition, coming with a more contemporary style, builds from this already high bar, not only by incorporating data on moult from another 40,000 birds but also by adding another 16 new species accounts; of which Carrion Crow,

Magpie, Starling, Waxwing, Dipper and Grasshopper Warbler may be of most relevance to British & Irish ringers.

The introductory sections in part one have been updated and rewritten to incorporate much new material, drawing on the findings of field observations and research carried out over the quarter of a century that has passed since the publication of the first edition. A new chapter has been added covering terminology and methods in moult research.

For species covered by both editions an additional 42 photographs of open wings have been added and, along with those provided for the new species accounts, the total is an impressive 597. Unlike in the poor first-edition reprint the photos in the second edition have been digitally scanned from the original slides and are of excellent quality. Some users may feel that the reproduction of some images is dark but the authors point out that absolute colours are not

as important as the relative difference across the same wing.

It is clear from its large format and restricted set of species that this guide is not intended to replace the ageing and sexing field guides already widely used, such as Svensson (1992), but instead aims to explain, through an understanding of the moult process, how feather generations can be recognised and used to deduce age from plumage. The colour photographs support this aim by replacing textual descriptions of colour and quality with visual illustration.

This excellent guide clearly distils decades worth of personal ringing data and that alone makes it an excellent reference for those not already fortunate enough to own the first edition. For those who have started ringing more recently, or seek to further a deeper interest in passerine moult, then this outstanding book comes highly recommended. **Justin Walker**



Song Thrush with nesting material, by Edmund Fellowes / BTO

Song Thrush nests were among those found by the Group in its first nest-recording season.

Building a nest-recording community

Nest recording is an immensely rewarding pastime. It is thrilling to discover and monitor a nest, knowing that your data are contributing to our understanding of breeding success. It can, at times, be a lonely experience though, especially when starting out and struggling to find nests. Here, Wayne Morris and Daniel Jenkins-Jones outline the joys of coming together with like-minded folk, and discovering the benefits of working within a nest-recording group.

Both keen birders and involved in a number of BTO surveys, like many of our age, we had done some nesting in our youth, but we thought that the Nest Record Scheme (NRS) did not have the profile that some other surveys have and we wanted to find out more.

Each year, BTO offers a number of nest recording training weekends, where participants learn nest finding techniques along with monitoring nests safely using guidelines found in the NRS Code of Conduct. We attended a course in Thetford, and learned how to cold-search for Linnets in gorse and how off-nest calls and the behaviour of Willow Warblers and Chiffchaffs lead to their nests. We found delicate Blackcap nests beneath ivy leaves, Jackdaws in tree cavities, beautifully built Long-tailed Tit nests in a variety of vegetation, Whitethroat nests, a Woodlark nest (under licence) located by triangulation and walkie-talkies, and many more.

Finding nests of our own was a highlight, but we enjoyed chatting with like-minded people all interested in learning new skills and in discovering more about the secret lives of our common birds.

ON OUR OWN

Back home and keen to put our newly-learned skills into practice, a few local sites were identified and with the *Field Guide to Monitoring Nests* at hand, we soon found nests of our own, including Blackbird, Song Thrush, Chiffchaff, Willow Warbler, Wood Warbler and Robin. It wasn't all plain sailing however, and we certainly had our share of barren days, with Stonechats and Meadow Pipits in particular evading us. It was all too easy to attempt to cover too much ground and too many species at once. That was a lesson learned the hard way.

IMPORTANT INDIVIDUALS

With another full season completed, and keen to understand what other nest recorders were up to in our county and how active they were, BTO kindly shared some local NRS data for our county of Glamorgan. We were immediately struck by how few recorders were active and the number of seemingly common and priority species that were either not, or infrequently, recorded. In Glamorgan, NRS is clearly dependent upon a relatively small band of very dedicated individuals, and we are sure

REFERENCES

Ferguson-Lees J., Castell, R. and Leech D. (2011). *A Field Guide to Monitoring Nests*. BTO, Thetford.



Participants on one of BTO's nest recording courses establishing the location of a nest from having watched the bird back.

that other regions have a similar situation. Nest recording may not be for everyone, but given how much we enjoyed it, surely others would too, if only they had the opportunity to test the water and have further encouragement and support?

STRENGTH IN NUMBERS

Reliance on a small number of individuals raises concerns about resilience – the Scheme needs more participants. In Glamorgan, a number of nest recorders are either casual, submitting a few records each year, or have submitted records in just a few years only. We wondered how these nest recorders could be encouraged to become more active and whether we could recruit new participants to the Scheme.

BTO coordinates a national list of experienced nest-recording mentors who are available to provide advice and training. Mentors can help new NRS participants get started, give training to existing nest recorders on monitoring certain species, and demonstrate nest recording to those wanting to find out more about the survey.

Contacting a mentor is a great way to begin or learn new nest recording skills, especially for those unable to attend formal BTO courses. Are there other options though, for the new nest recorder?

TASTER DAYS

If you are new to nest recording you can learn a lot about how to find and safely monitor nests of various species from books and articles, but nothing beats first-hand experience in the field with other recorders. This is how we learnt to find our first nests and it gave us the leg up we needed.

With no claims to be nest-finding experts, but with the experience of two full seasons, we knew how to monitor nests safely and record their contents from discovery to completion. We had enough knowledge to share and were keen to encourage others to get involved.

Two became three when we teamed up with another local NRS newcomer, Trevor Fletcher and, after discussion with BTO, we ran our first Nest Recording Taster Day. If we could show people birds' nests, which contained eggs or chicks, and give some tips about how to find them, we might just provide the spark that ignites an individual's fascination with nest recording – especially if it is a self-found nest.

Participants were recruited via social media and our local bird club's newsletter, and during an initial indoor session we introduced the NRS Code of Conduct and some basic nest-finding techniques, followed by six hours nest recording in the field, revisiting nests found earlier in the week. Best of all, the participants found some new nests themselves, either by watching birds back to their nests or, on one occasion, a Blackbird on four eggs was found by gently tapping suitable habitat with a hazel stick, flushing the sitting bird.

Finding these nests and recording their contents generated a lot of excitement. For the participants, it proved that they could quickly learn to find their own nests, and for us as leaders it was great to be able to show that the tips we had shared with everybody actually work.

Another short indoor session concluded the day, sharing information on how to plan nest visits and what information to gather at the nest: egg or chick counts, nest location and habitat, chick feather growth stage and nest outcome.

We highly recommend that other nest recorders host similar events in their own regions to build up the numbers of

local recorders. You do not need years of experience behind you to introduce others to a fascinating aspect of birding and help NRS to get more records; you will enjoy every minute of it.

LEARNING TOGETHER

Knowing that the early days as a nest recorder can be difficult, it was important to ensure encouragement and support were on hand. Together with Trevor Fletcher, we decided to establish a nest recording group, Fledgemore. The group meets regularly, in the field and socially, which has ensured that we continue to learn from each other and become more focussed in our efforts.

We now target specific species or a limited number of sites, rather than attempt to cover too much. This, along with our WhatsApp group and the NRS Yahoo Group, enables us to compare progress, learn what species are actively nesting and pass on tips and frustrations of yet another missed Meadow Pipit. A little healthy competition has, without doubt, also raised the number of nests monitored each season.

Has this been worthwhile and have the number of nest records grown in our region? We are pleased to see that they have. Moreover, as a group we are recording more nests each year, and have been able to

take on a sizeable Pied Flycatcher nest box scheme that would not have been possible if we were not working as a team. By focussing on a few species, the group has been able to make an impact on some under-recorded species.

In his first year of nest recording, one of our Taster-Day participants recorded 24 Linnet nests, the same number submitted across the whole of Wales in the previous year. The group has monitored almost all the Coot nests submitted to NRS in Wales in the last few years. After starting as novice nests recorders, some participants from our three Taster Days have joined us, and we are now a group of nine, submitting hundreds of nest records each year.

CONCLUSION

Nest recording plays an important role in our understanding of bird populations. Spending time in the field watching the breeding behaviour of birds and discovering nests is a greatly enjoyable and rewarding pastime. It is not always easy however, especially when starting out. Combining our efforts with others has proved as beneficial to us as to our new nest-recording friends. We have learned new skills together and, undoubtedly, been spurred on to find more and more nests

THANKS

Our thanks go to Carl Barimore, Dave Leech and Mike Toms at BTO for lighting the fire and to our Fledgemore Nest Recording Group colleagues and all those who post on the NRS Yahoo Group for keeping it burning.

FLEDGEMORE
NEST RECORDING GROUP



Linnet and Coot nests, by Mike Toms / BTO

Linnet (left) and Coot (right) nests. Two of the species for which the Group, or those they have trained, submit the majority of nest records for Wales.



Valentine, one of the BTO-tagged Cuckoos, by Neil Collarade / BTO

Fitting devices, such as this satellite tag, provides information that furthers our understanding of many aspects of bird biology, including migration, foraging, diving and flight behaviour, habitat use, energetics, survival and dispersal.

Tracking tag effects

BTO's work on Cuckoos and other Afro-Palaeartic migrants provides an excellent example of the ways in which tracking devices have revolutionised our knowledge of bird migration. Such devices have now been used for more than 50 years and have greatly improved our understanding in many areas of ecology. In this article, Stephen Baillie, Graham Geen and Rob Robinson examine what effects they have on the birds that carry them.

REFERENCES

- Brlík, V, Koleček, J, Burgess, M, et al. (2019). Weak effects of geolocators on small birds: a meta-analysis controlled for phylogeny and publication bias. *Journal of Animal Ecology* **89**: 207–220.
- Geen, G.R., Robinson, R.A., Baillie, S.R. (2019). Effects of tracking devices on individual birds – a review of the evidence. *Journal of Avian Biology*, doi.org/10.1111/jav.01823

We undertook a near comprehensive review of studies published between 1968, when the first radio-tracking studies started to appear, and the end of 2017. Our aim was not just to document the growth and range of tracking studies, but also to assess the effects that tracking devices may have on individual birds. For obvious ethical reasons, but also to provide robust scientific results, it is essential that any effects of such devices are minimised, and that the presence of effects should be properly monitored. In total we looked at 3,453 papers, a feat that took over four years to complete!

It comes as no surprise that the number of tracking studies has increased exponentially, from only one or two publications per year in the 1960s, to around 300 papers per year today, an average increase of 4.4% per year. The earliest studies involved simple radio transmitters, followed by the introduction of data loggers in the 1970s and satellite tags in the late 1980s. Technologies have expanded further since the turn of the century, with the widespread application of geolocators and devices that link to the GPS or GSM (mobile phone) networks.

The priority given to different ecological questions, and the technologies needed to address them, varies between bird groups. For waterbirds, the main study topics have been migration, habitat use and survival, while for seabirds there is a huge emphasis on understanding their foraging behaviour at sea, reflecting the need for this information in relation to the planning of marine developments such as wind farms. For land birds, migration and habitat use have been the most frequent study topics, followed by survival. Over the last 15 years, developing technologies have revealed the migration routes of long-distance migrants in ever-increasing detail and this trend continues.

Of the papers we examined, 1,560 provided information on whether or not effects were observed and out of these studies 38% actually recorded effects. It is important to emphasise here that we looked at all types of effects, ranging from increases in preening behaviour in the hours following the fitting of harnesses all the way through to (fortunately rare) direct observations of mortality, or reduced return rates of marked birds. The scope of

our study was global, so some studies were subject to less strict regulatory regimes than those operated in Britain & Ireland through BTO. The good news is that there has been a consistent long-term reduction in the proportion of studies reporting effects, from around 69% in the 1980s through to 24% in 2017. However this still leaves a substantial number of studies that are recording some effects (either small or large), and emphasises the need for continued vigilance.

Many aspects of device design and attachment method need to be considered when identifying the protocols that are appropriate for any particular study. While many studies can now rely on existing, well-tested techniques, ongoing device developments and extensions to species not previously studied mean that continued evaluation of techniques and the situations in which they can be used is important. While much of this work is specific to particular devices, attachment methods and species, one over-arching question is what relative device mass is appropriate. While it will almost always be the case that lighter is safer, there are clearly crucial trade-offs between device mass and the potential value of the information obtained. The battery powering the tag is often the heaviest component; while a longer battery life allows more information to be recorded, it will also increase the weight of the tag.

Our approach allowed us to take account of the widest possible range of literature, but with the disadvantage that many of the papers we reviewed only contained very basic information on whether and what effects were observed. A very valuable and complementary approach is to undertake formal statistical analyses based only on studies that provide quantitative data on effects. There have now been several such meta-analyses published, and they all indicate that effects do occur and suggest how they might be mitigated. For example, a recently published study on the effects of geolocators (Brlík et al., 2019) was able to analyse data from 122 studies of small birds involving a total of 7,800 tagged individuals and 17,800 birds from control groups. They found a weak effect of geolocators on survival and that effects



Tagged Curlew, by Rachel Taylor / BTO

Curlew with ring-mounted geolocator.

were greater with increasing device mass as a proportion of body weight and with elastic harnesses. Related to this, tagging effects were larger on smaller species.

This geolocator study, and other recently published reviews and meta-analyses, clearly demonstrate the importance of properly monitoring the possible effects of devices on tagged birds, and wherever possible of having a control group of untagged birds to help measure any effects on the demography and behaviour of the marked individuals. Rather worryingly we found that the proportion of studies with control groups has declined substantially for both radio transmitters and satellite transmitters.

Along with the authors of other related reviews we strongly recommend that published papers based on tracking should include robust information that will allow any effects of devices to be evaluated and that, wherever possible, studies should include control groups. Within Britain & Ireland, BTO's Special Methods Technical Panel does an excellent job of promoting high standards in tracking studies and to ensure best practice. Our review and other recent studies provide strong support for their approach by demonstrating that while current tracking technologies are relatively safe, there is a need for continued vigilance, particularly where new species or developments of existing techniques are involved. We anticipate that tracking will continue to revolutionise our understanding of avian ecology, and that we will continue to promote their safe use by evaluating and minimising effects on individual birds.

DEVICE MASS

Another recent review found little long-term reduction in percentage device mass; instead researchers are applying tracking techniques to increasingly smaller species. Our results indicate that while lighter devices are always to be preferred from a bird welfare viewpoint, even the smallest devices representing less than 0.5 percent of body mass may still be associated with some effects.



Chaffinch and Hawfinch nests, by Charles Deeming

A Chaffinch nest (left) showing the clearly defined cup lining and the more substantial outer nest walls of moss and grass. The outer walls of a Hawfinch nest (right) are dominated by woody stems with lichens and the cup lining is mainly roots.

Nests inside out

Over the past few years, research at the University of Lincoln has sought to better understand how songbird nests function as places for incubation. To achieve this, researchers have relied heavily on the generous cooperation of nest recorders who have monitored nests and then carefully collected, packed and posted them to the University. In this article, Charles Deeming, Adrian Goodman and Lucia Biddle report on what they have been doing with the nests.

CONSTRUCTION

Nest construction behaviour is not random and the birds seem to have an ability to select materials for key roles in different parts of the nest. We think that this involves the beak feeling the materials but further research is needed. We can now predict how we think that these species should build their nests, which can be tested by observation or experiment.

Bird nests are complex bio-engineered structures that can have a range of roles, but all are constructed during reproduction so that they can be used for incubation. Nest structures range from simple scrapes on the ground through to the complex woven nests produced by weaverbirds, and sizes range from the tiny nests of hummingbirds to colossal platforms constructed by birds of prey over many years. Research has shown that nest building is not a fixed behaviour and the same species can vary its nests between locations, often according to prevailing climatic conditions. Bird nests are very familiar but, although structure and location are often species-specific, it is remarkable how little we know about how nests are constructed and how they can fulfil their different roles.

The research team at the University of Lincoln has been involved with projects that have formed part of several undergraduate dissertation projects, an MSc and a PhD research programme. Nests studied were built by finches, thrushes, warblers, wagtails, pipits, Old World flycatchers and Dunnock. We have focussed on three main areas of study: the mechanical properties of nest

materials, the thermal properties of nests, and the hydrological properties of whole nests, all of which have been supported by work that deconstructed the nests to quantify their composition. As a result, over the past three to four years, we have doubled the number of species for which data are available for nest composition (it is still only 30 species worldwide). Such data are useful because they will allow us to start to investigate how nest complexity evolved; they have already proved invaluable in enhancing our understanding of how nests function. We have published much of this work already with a few papers still in the pipeline – if you are interested in reading these please get in touch. In meantime, we summarise our findings below.

NEST STRUCTURE

For most songbirds, the nest's structure has to support the clutch and the sitting parent during incubation. Working with 'twiggy' nests of Bullfinches and Hawfinches, as well as nests of four breeding species of thrush, mechanical testing revealed the sophistication of the structures that birds can create. Bullfinches nest out on tree

limbs and generally lack support from below, so the nest base has thicker, more rigid and stronger twigs than the sides of the nest. The materials in the cup lining are thin and flexible. Contrast this with the Hawfinch, which nests on more substantial boughs next to the tree's trunk. Here the thickest, most rigid and stronger twigs are round the sides because the nest is well supported from below. In thrushes, the materials found in base and side walls are comparable and effectively act as scaffolding for the nest as the internal mud cup is built and then lined.

INSULATION

Incubation is going to use up a lot of energy – the sitting bird not only needs to keep the eggs warm but also has to maintain its own body temperature. Anything that potentially reduces this energetic cost will be adaptive and so developing a better understanding of the insulation of nests has been a research priority. Using temperature loggers and infrared thermography we have investigated nests from a wide range of passerines. Generally, the degree of insulation offered by nest walls is very similar in most species and not correlated with nest size. Other studies have shown that air movement reduces nest insulation in all species. We have also shown that air trapped within the nest walls can, like a fluffed-up duvet, be a useful form of insulation. On-going research is examining which of the materials found in the nest walls most effectively contribute to the insulation of the whole structure.

WATER RETENTION

We have been the first to test the effects of simulated rain on nest function. Sprinkling water over a nest so that it runs through the walls showed that bigger nests absorb a lot more water, but at least 80% of the water simply drains away. The twig nests of Hawfinches retain very little water and dry out very quickly. The same effect is achieved by the mainly grass nests of Blackcaps. The materials in the walls are important, so the amounts of moss, grass and leaves are crucial in determining how much water is absorbed, but it is the amounts of moss that determine the time it takes the nest to dry out. Experiments also showed that



Blackcap nests (left) are a relatively simple woven structure of grasses that can be seen through. Attached to reeds by arthropod silk, Reed Warbler nests (right) are a tightly woven bowl made from grass.

Blackcap and Reed Warbler nests, by Charles Deeming

simulated rainfall decreased the insulating properties of the wall materials. It will be interesting to see how nest site affects these characteristics; are more-exposed nests more likely to be free-draining?

FURTHER RESEARCH

Inevitably all research projects throw up more questions than answers. Almost every species constructs a quite distinctive nest in terms of structure and composition but how has this variety evolved? We also don't really understand what factors drive variability in nest construction behaviour. Is selection of materials simply opportunistic, or do individual birds have preferences? Many songbirds rear their chicks in the nest so does this key function mean that nest characteristics need to change over time? Materials will help camouflage the nest but may also act as signals to partners – can birds recognise 'good quality' nests (although we are unsure how to define this)? Do other nest materials help control microbes or biting invertebrates?

We have begun to document the complexity of nest construction and function but, to date, we have studied very few species. The future directions of nest research may need us to repeat our studies for new species but we can also develop more sophisticated techniques to model nest function. More crucially, our improved understanding of nest function, secured over the past few years by studies of nests in the lab, can allow us to expand our research into wild situations. It is hoped that future research will continue to be supported by interested individuals who are willing to monitor this important scientific resource.

THANKS

We are very grateful for the efforts of all the nest recorders who have supplied the nests that have enabled us to carry out this research. We continue to need nests of the following species:

- Any warbler species.
- Any finch, especially: Bullfinch, Hawfinch, Redpoll, Crossbill, Twite, Siskin, Greenfinch.
- Any wagtail and pipit, especially: Tree Pipit and Rock Pipit.
- Any old-world flycatchers, especially: Nightingale, Redstart, Wheatear.

For further details and instructions for collecting, packaging and posting nests, please email nrs@bto.org

INTRODUCING YOUR NEW RIN MEMBER



SAM BAYLEY

From the first time I experienced bird ringing under the supervision of Reg Lanaway at Plumpton Agricultural College I knew it was something I wanted to get involved in, but it was a fair few years before a training opportunity presented itself. I started ringing in 2005 under the tutorage of Anthony Beasley of the Hersham Ringing Group and Wes Attridge in the Sussex and Surrey borderlands whilst working as a Countryside Warden in West Sussex. I then took up a position with the National Trust at Leith Hill in Surrey in 2010, where I was able to set up a couple of ringing sites focussing on heathland and woodland species, and projects on breeding Firecrest and Siskin. Getting my training endorsement in 2013 meant that this became my training ground for developing new trainees, and I still feel that training is very much a joint learning experience.

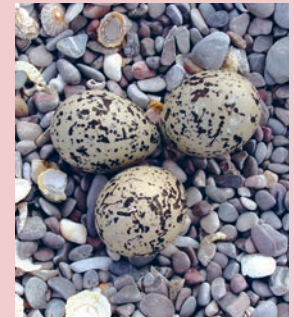
During my time in the UK I was involved in a number of projects, such as becoming a Schedule 1 accredited agent

for Barn Owls, participating in a Grey Heron colour ringing project and a riverine woodland CES. Over the years, I have spent a lot of time with various BTO ringers, but have also been lucky enough to get some global ringing experience with conservation and training projects in The Gambia, South Africa, Singapore, Bangladesh, Spain, Finland and, most recently, Canada.

In 2016 I moved to Cork, Ireland, and ran Cape Clear Bird Observatory for two years, then moving on to University College Cork as a Research Assistant. I have made my permanent home here in Ireland, setting up the first Cape Clear Ringing Course, a colour ringing project on Lesser Black-backed Gulls, two CES sites, becoming a committee member of the Irish Ringers' Conference, and training a number of new ringers. It has been a long time since an Irish-based ringer was voted onto Ringing Committee, so I am looking forward to championing communication from across the Irish Sea.

Nest Record Scheme participants who monitored over 100 active nesting attempts in 2019

Catrina Young 1,270; Robert Danson 1,062; Fledgmore Nest Recording Group 919; Merseyside Ringing Group 854; Arden Ringing Group 786; North Wiltshire Ringing Group 688; Sorby Breck Ringing Group 686; Thetford Forest Ringing Group 616; Bowden, Ball and Sheppard 543; East Kent Wildlife Group 534; East Dales Ringing Group 491; Thomas Dewdney 488; Colin Gibson 421; Kevin Briggs 394; Denise Wawman 392; John Bell 381; John Hyde 372; Jonathan Groom 362; Noel Fenwick & Julie Fenwick 360; Gwent Wildlife Trust 349; Jonathan Lingard 337; Rockingham Forest Ringing Group 330; Lawrence, Penney et al 319; John Lloyd 310; Nagshead RSPB Reserve 305; Richard Reeves 294; Chew Valley Ringing Station 291; South Nottinghamshire Ringing Group 290; Bob Swann & Rob Swann 282; Bristol Naturalists Society 281; Nigel Lewis 269; Stephen Carter 264; South Manchester Ringing Group 260; Shropshire Ringing Group 260; David Coker 257; Paul Fenwick 256; Wessex Ringing Group 255; Peter Roe 253; Ron Louch & Dave Thompson 252; Lancaster & District Birdwatching Society 251; Rutland Water Ringing Group 237; Lothian Ringing Group 226; West Cornwall Ringing Group 225; John Lawton Roberts 221; David Oliver 220; William Haines 220; Robert Batty 219; Watchtree Ringing Group 212; Northumbria Ringing Group 208; Stephen Inglis 204; Ronald Turkington 202; Shiant's Auk Ringing Group 199; Huddleston & Jackson Ringing Partnership 197; North West Norfolk Ringing Group 193; Geoff Myers 189; Short, Williams & Thomas 183; Barry Caudwell 182; Tony Davis 181; Mike Russell 174; Simon Cox 168; Jeremy Gates 166; Newbury Ringing Group 165; John Mycock 162; Peter Rose 160; Stanford Ringing Group 159; Pitsford Reservoir 159; Lyndon Jeffery 156; Calf of Man Bird Observatory 156; Birklands Ringing Group 156; Peter Johnson 153; Robert Daw 149; Derek Spooner 148; Laura Hunn 146; Paul Slater 140; Chris Dee 139; Robbie Phillips 139; George Candelin 137; Lee Barber 137; Jim Hodson & M Hodson 137; Geoff Pearce 136; Philip Hanmer 135; Treswell Wood IPM Group 134; Rye Meads Ringing Group 134; Christine Flint 133; Ian Spence & Anne Brenchley 131; Mark Lucas 128; Simon Dudhill 128; Waveney Ringing Group 124; Gower Ringing Group 124; Hugh Insley 123; Coquet Island RSPB Reserve 122; John Roberts 118; Mid Wales Ringing Group 117; Stephanie Tyler 115; Craig Emms 114; Rob Hubble 114; Adam Homer 113; Stephen Hewitt 113; Jan Pritchard 112; Isle of Wight Ringing Group 111; Flamborough Bird Observatory 111; Jo Everitt 109; Allan Dawes 108; Daniel Eva 108; Montgomeryshire Wildlife Trust 107; Roger Peart 105; Mid Lincolnshire Ringing Group 104; Garry Barker 103; Robin Husbands 103; Pang Valley Barn Owl Group 101; Gary Pitt 100.



Ringed Plover. By Hugh Insley / BTO



Ferland site, by Graham Austin / BTO

When you first look at your sites in DemOn, they will appear as multiple overlapping squares.

Organising your sites in DemOn

With the arrival of DemOn came the possibility of organising your ringing and nest recording sites to better represent the locations as they are on the ground. This offers a degree of personal satisfaction but, more importantly, enhances the quality and usefulness of your data, past and present, to your own projects, to conservationists and science. Here, Graham Austin provides some real-life examples to illustrate how you can tidy up your existing sites in DemOn.

DemOn allows you to define site boundaries and sub-sites (sub-areas, individual net-lines, point locations, nests or nest boxes) precisely. This is a giant leap forward from the location of a site being defined at best to somewhere within a given 1-km grid square with subsites somewhere (known only to yourself) within that site.

When you first view your sites in the DemOn map interface it can be quite eye-opening as to how imprecise the spatial information attached to your records has actually been. For those with a long commitment to ringing or nest recording, the maps based on the best information available to BTO can lead to what can only be described as a nightmare of overlapping squares of 1 km or greater, some of which appear to be duplicated, that has no doubt sent many running for the hills. Duplication of sites is primarily due to small discrepancies / tweaks over the years in site information received. Not previously being able to define site boundaries more precisely has also led to multiple locations being defined using the same grid reference.

You've always been able to use DemOn to submit ringing encounters and nest

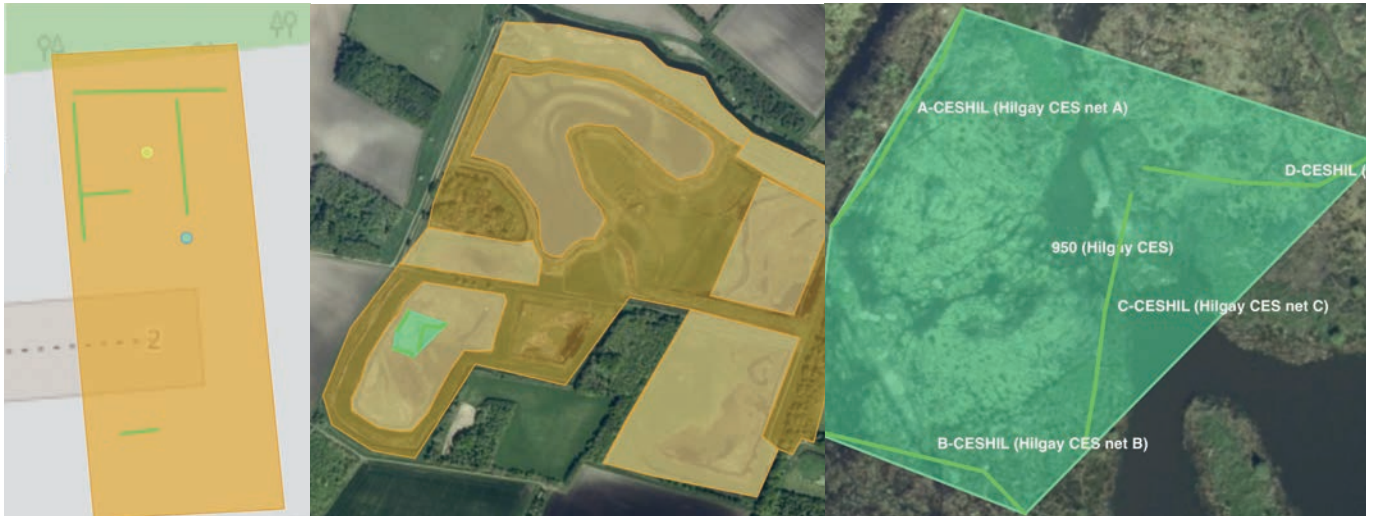
records, even if you left your sites as you found them, because IPMR place and subsite codes were used as defaults for DemOn location codes. Now though, DemOn contains tools that allow you to tidy up your sites. While still no small task for some, it is nonetheless a one-off task.

RINGING SITES

A ringing site can mean different things to different people. It may be that you have simply used a given 1-km square grid reference, maybe with an associated accuracy for any and all ringing activities within that square, or you may have used sub-site codes to distinguish between different ringing sites within it. It may be that your site has very precise boundaries within which you may have used subsite codes to define specific sub-areas, different nets or net-rides or the locations of traps. Pre-existing sites first appear in DemOn as a stack of 1 km squares – one General Site (GS; derived from the IPMR Place) and any number of Encounter Areas (EAs; derived from the various IPMR subsites). In DemOn however, you can define all of these locations precisely.

FURTHER INFO

The DemOn Manual (available under the DemOn Help menu) contains step-by-step guidance for using all the editing tools discussed in this article.



Left: Example 1 – garden site. Middle: Example 2 – ringing site with a CES (green) is a Wildlife Trust nature reserve comprised of waterbodies, multiple reedbeds and other habitat compartments. Right: Example 3 – close up of the CES site from example 2.

Example 1 above is a private garden and it goes without saying is not well represented by a stack of 1-km squares. The first job was to select each of the EAs in turn and use the ‘Change Location Type’ tool to make four of them into nets and one of them into a trap and, at the same time, define their exact positions by tracing them onto the map. There was also a duplicate EA to get rid of. Having used the ‘Change Location Type’ tool to turn that EA into a net, the ‘Remove Duplicates’ tool was then used to transfer all its associated captures to the version being retained before deleting it.

Having dealt with the ex-subsites, the ‘Edit Geometry’ tool was then used to redraw the original 1-km square to precisely match the garden boundary. Finally, a couple of extra nets and a nest box were added using the appropriate ‘Create Tool’ options. The overall garden (the GS), three nets and the trap, each a location in their own right, all belong to the garden’s location group.

Example 2 above is a ringing site used for opportunistic ringing, nest recording and a CES. This site first appeared in DemOn as a GS, derived from the IPMR Place, and had multiple EAs derived from subsites representing distinct habitat compartments or CES nets. As the site overlaps with several 1-km grid squares, an accuracy of ‘1’ had been used in IPMR and so the GS and associated EAs first

appeared as 3 x 3-km squares. DemOn had also automatically created a CES location group comprised of a catch-all and four EAs representing the four subsites against which historical CES captures had been submitted.

The first job was to deal with the CES (green polygon; example 3 above) by using ‘Change Location Type’ to convert the EAs into nets. Subsequently, the boundary of the CES catch-all was redefined using ‘Edit Geometry’. The next task was redefining the boundaries of the EAs representing distinct habitat/management compartments; they were left as EAs because within these there are no permanently established net-rides. After that, the true boundary of the GS was redefined using the ‘Edit Geometry tool’, a considerable improvement over the 3 x 3-km square. There were also some duplicate EAs to remove using the ‘Remove Duplicates’ tool. Finally, several new EAs were created using the appropriate ‘Create Tool’ option; these overlap with existing EAs but were flagged as being confidential, consequently only visible to selected group members, and available to record captures of sensitive species should there be any.

NEST-BOX SCHEMES

Example 4 (opposite) is a site where nests are monitored by a number of different ringers and nest recorders. The site first appeared in DemOn as a GS with no subsites listed in the location group (the original IPMR

NEST BOXES

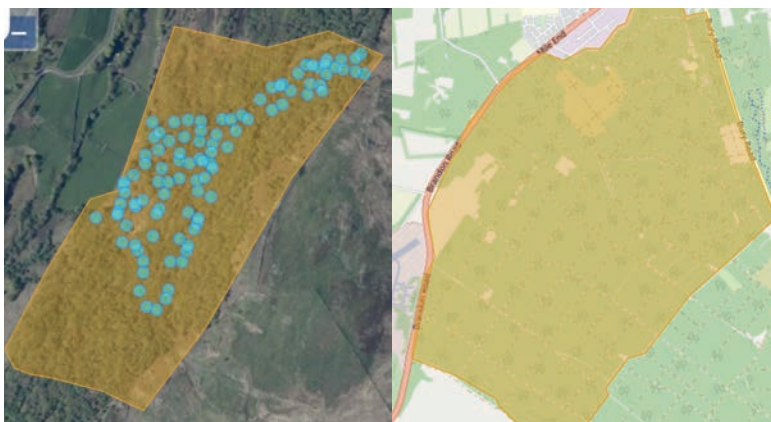
DemOn offers the ability to pinpoint the location of nest boxes and other nest sites that are occupied every year, such as raptor eyries, bridges, buildings and other artificial structures, with GPS accuracy, which when coupled with a descriptive name or comment can be very useful for collaborations between ringers and/or nest recorders.

place had no subsites), the box numbers having been recorded in a user own field. As this site had overlapped several 1-km grid squares and so been given an accuracy of '2' in IPMR, it first appeared as a 5 x 5-km square. The 'Edit Geometry' tool was used to redraw the boundary of the GS to follow the boundary of the reserve. The GS was still more extensive than the maximum allowable for recording nest records and ringing encounters, unless providing coordinates on the fly, but for fixed-position nest boxes it was more appropriate to create the nest boxes as nest sites based on GPS coordinates (10-figure OS or Lat/Long to at least six decimal places).

Creating all the new nest locations was a lengthy but one-off task, taking over an hour. The nest record defaults and habitat had previously been completed for the GS so, as the nest sites were created and added to the GS's location group, they picked up all the defaults from the GS; the defaults only needed editing for a few nest boxes. The location codes were made to match the nest box numbers to make it easier to identify each one. The 'Reporting Name' (under 'Ringing Defaults') was kept the same for all nest boxes, although the 'Name' (under 'Location Details') is descriptive, including box number and sometimes a landmark. Having created all the boxes, the 'Clone locations to another account' tool (under 'Advanced Tools') was used to copy the GS's location group in its entirety to both the other ringer and the nest recording group. This allows either ringer to use their own rings and link the pullus and adult captures to the nest records in the nest recording group account using the 'Link' functionality found in nest record and ringing data entry.

'PATCH' NEST RECORDING AND RINGING

DemOn gives you the ability to pinpoint nests and one-off ringing locations as 'unremembered' locations within a GS. This is done on-the-fly by using the 'Refine Location' option for the location field during data entry. These locations are only unremembered in the sense that they cannot be used again to record additional ringing encounters or to create another nest record. Encounters or nest records with refined

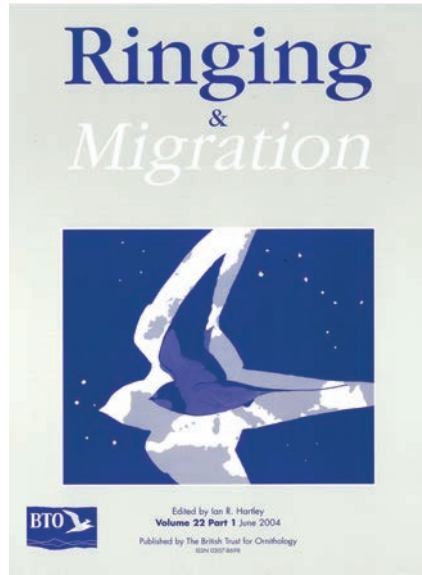
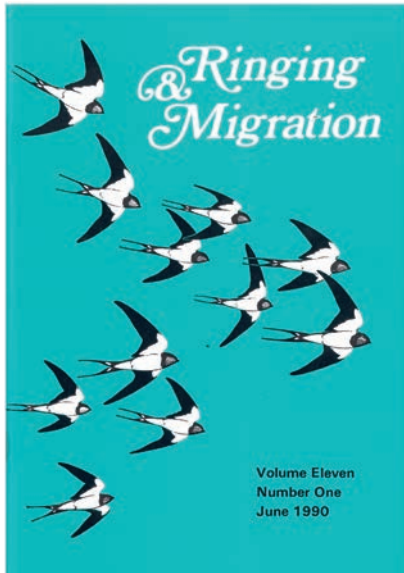


Left: Example 4 – an RSPB reserve with approximately 100 nest boxes. Right: Example 5 – a patch covering 12 square km.

locations show the GS as the location but, critically, with the pinpoint grid reference.

This is a large site, a patch covering 12 square km – this area is used for nest recording and for several studies involving the ringing of territorial birds, the latter including part coverage of a RAS. This site did not exist in IPMR as previously each 1-km square in this area was treated as a Place (20 in all).

The 'General Site' tool (under 'Create Tools') was used to create a new GS by tracing out the boundary of the forestry block. Because this is an extensive site (maximum diagonal dimension exceeds that of a 1-km square; >1.41 km) DemOn will not allow nest records or ringing encounters to be recorded without using the refine location option on-the-fly during data entry. This is ideal for pinpointing nests or captures of territorial birds by entering GPS coordinates during data entry. Permanent nest sites (e.g. nest boxes or natural raptor/owl nests), or regularly used ringing spots being added as EAs, nets, traps or nest sites, can still be included as components of the GS's location group. Together with the new GS, the 20 1-km square GSs derived from IPMR Places have been added to a Reporting location group in order to facilitate long term reporting. The 20 1-km squares were then archived using the 'Archive Tool' (under 'Advanced Tools') to prevent them being selected during data entry and to hide them in Map and List Views of Site Management. If needed they can be unarchived at any time.



Ringing & Migration has changed format a few times over the years. When Graham first read it, it was published 'in-house' at BTO and was approximately A5 in size. It is now published by Taylor & Francis and is available in paper and online.

R&M then and now

Graham Scott, the current Editor of *Ringing & Migration* (*R&M*), recently had occasion to look at the very first issue of *R&M* that he read, volume 11, number 1 (1990), which contained eight original papers. In this article, he considers how the affiliations and the geographic location of the journal's authors has changed over the years.

I was a relatively new trainee and my trainer had suggested that I start to read *R&M* so that I could develop a deeper understanding of the ways in which 'our' data could be used. My trainer at that time was Chris Redfern and I was training alongside Ian Hartley; I'm sure that none of us imagined that one day we might be asked to take a turn as editor of the journal! That volume included eight original papers; three on fat and body condition in migratory warblers and resident Dipper, one on the growth of Redshank chicks, two using ringing data to investigate the movements of migrating birds (Wandering Albatross on South Georgia and passerines passing through the Camargue) and one paper looking at the use of nest boxes by Pied Flycatchers. These papers were written by a combination of ringers with no declared academic affiliation and academics using ringing as a part of their research. The authors of six of the papers were based in the UK, one paper originated in France and one in what was then West Germany.

Fast forward to the most recently published issue of the journal on my desk and what has changed? Well the physical journal has grown from an A5 to A4 format and I am as likely to read the papers on my iPad as I am to take the journal from my bookshelf. Coincidentally, volume 33 issue 1 also included eight original papers; one on the ageing of nestling Reed Warblers, two on biometrics, one on the movements of Gannets and another on the use of stopover sites by migrating passerines, and three papers that focussed on techniques for data collection used in studies involving ringed birds (one on the use of celluloid rings, one looking at the value of camera traps for ring reading, and one on the use of data loggers). These papers were all written by ornithologists with an academic affiliation, from seven different countries. It would appear therefore that the journal has become more international, but that perhaps it has also become more 'academic'.

Intrigued by these perceived differences I have taken snapshots at

five-year intervals during the 44-year life of the journal and characterised each paper as being by a primary author who declares an affiliation as a professional ornithologist or as by someone who does not. The latter I have characterised as being an amateur ornithologist simply as a label, fully recognising the professionalism they bring to their ornithology. The graph confirms the anecdotal view of ringers and field ornithologists with whom I interact at the BTO conference that over time contributors to the journal are more likely to be professional ornithologists, and that *R&M* has shifted from having a home nations focus to being an international journal. Is this a good thing?

In the Editorial that appeared in the very first edition of *R&M* the inaugural editor, Colin Bibby, wrote that the aim of the journal was 'to publish original work by amateur ringers (and others working in related fields)'. He went on to explain that the contents of the journal would include 'conventional basic ringing studies on subjects such as

migration and population dynamics as well as those subjects conveniently studied by ringers such as moult, weights or field taxonomy. And although Bibby does refer to *R&M* as being 'the journal of the British ringer', he also states that the journal will be distributed to the 'European ringing centres' and makes no comment about the geographical area from which papers will be accepted. It appears therefore that the journal has always had an international outlook. This is as it should be and I see the increasingly international scope of the journal, in terms of both its readership and contributors, as being essential to the effective development and dissemination of our science.

This then could be seen as a measure of the continued success of the journal and in response to my earlier question then yes it is a good thing. But what about the perceived shift from amateur to professional contributions? From the graph it is apparent that throughout its history *R&M* has been a place favoured by both amateur and professional field ornithologists (in keeping with the founders' aims), but it does also appear that in recent times there has been a shift such that the proportion of papers contributed by amateur ornithologists has fallen. This is a concern and one that has been discussed at length by a number of editors and by the Ringing Committee. As the current editor of the journal I believe very strongly in the founding principle that the journal should be a place for the dissemination of the work of amateur ringers and would encourage anyone who would like to discuss the possibility that their work might be suitable for publication to contact me. I, and others upon whom I can call, are very happy to work with authors to support the development of their papers if needed.

My taking on the role of editor coincided with a re-imagining of the scope of *R&M* as a journal of field ornithology. Our published aims are to publish papers on all aspects of avian ecology, with a particular emphasis on the use of ringing, tracking and

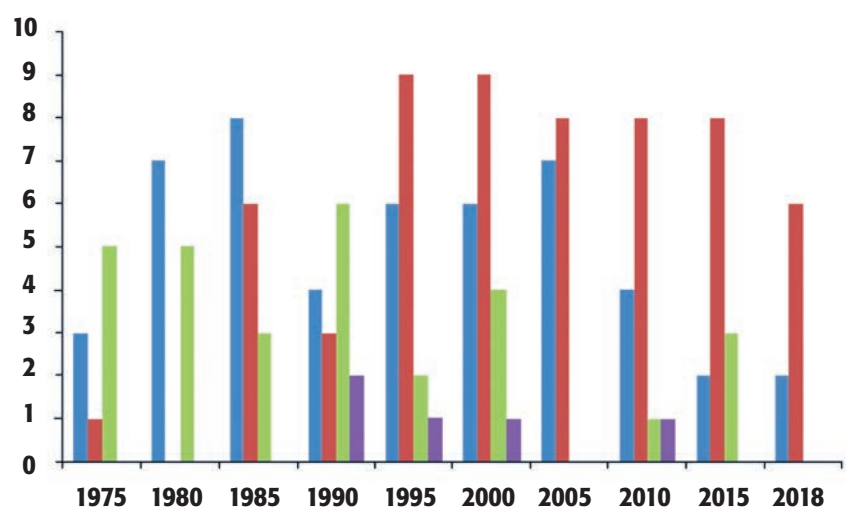
nest monitoring to improve our understanding of factors influencing survival, breeding success, migration and other movements. But we have been, and always will be, a place for the publication of papers detailing new methods for the ageing and sexing of birds and new techniques for the study of birds.

Whilst historically the majority of the papers published by amateur ornithologists have been focussed on ringing and data derived from ringed birds, we are very keen to publish papers based upon the systematic collection of data, or of observations made, by field ornithologists working as nest recorders and carrying out other survey work that does not necessarily involve ringed birds per se.

The growing fields of digital photo-recognition of individual birds, the recording of the nocturnal migration of birds, and systematic records of visible migration are all areas that may currently be under-researched. The focus of the journal remains those birds occurring in the Western Palearctic but it also welcomes papers from other

parts of the world that are relevant to studies of the avifauna of the Western Palearctic. In particular I would welcome papers from professional and amateur field ornithologists alike that include descriptions and evaluations of techniques that are used by ornithologists: methods for ageing and sexing both adult birds and chicks in the nest; papers that document the productivity and survivorship of birds as eggs, chicks and adults; analysis of data documenting or explaining the movements of birds and changes in their habitat use; and descriptions of understudied or unusual moults. But it is of course essential that all work submitted for publication is carried out ethically and within the legal and licensing constraints of the country in which it is undertaken.

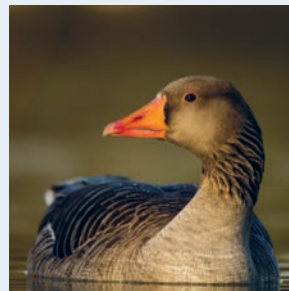
To paraphrase the closing words of Colin Bibby in the first *R&M* editorial it is hoped that the forth-coming issues contain something of interest to every enquiring field ornithologist, and all field ornithologists professional and amateur alike are encouraged to contribute their papers to the journal.



The graph shows the number of papers published in each year shown by country of origin, or residence, of the primary author at the time of publication (simply put, did the paper originate inside, or outside, of the UK). Blue = professional ornithologist based in the UK; Red = professional ornithologist based elsewhere; Green = amateur ornithologist based in the UK; Purple = amateur ornithologist based elsewhere.

Using your data

This feature highlights some of the scientific papers that have been produced using the data that you collect through the Ringing Scheme and the Nest Record Scheme.



Hawfinch, by Edmund Fellowes / BTO
Greylag Goose, by Tom Streater / BTO
Marsh Tit, by Liz Cutting / BTO

HAWFINCH BREEDING SUCCESS HIGHER THAN EXPECTED

The Hawfinch is one of several British woodland birds to have suffered a severe population decline, with *Bird Atlas 2007–11* data showing a 76% range reduction since the 1960s. One theory for the cause of the decline is an increase in nest predation. A collaborative study between the RSPB, ringers and nest recorders in north Wales and the Welsh Borders set out to test this theory by catching female Hawfinches at feeding sites, fitting them with radio-tags, and then tracking them back to their nests. Some of the 69 nests were monitored using cameras in order to identify predators or other causes of nest failure. Breeding success averaged 36%, which was higher than the 21% found in nests monitored by the Nest Record Scheme. Such low rates of success are fairly typical across Europe, even among thriving populations of Hawfinches, so were not considered to be the major underlying cause of the species' decline in Britain. Instead, this study suggests that drivers of the Hawfinch's decline are operating outside of the breeding season.

Kirby, W.B. et al. (2018). Nest survival, causes of failure and productivity of British Hawfinches *Coccothraustes coccothraustes*. *Bird Study* 65: 279–289.

USING CAMERA TRAPS TO RECORD COLOUR-MARKED GEESE

Many ringers are involved in colour-marking studies, and waterbirds are a popular subject. However, fitting a colour ring or a numbered ring is only the beginning, as it is the subsequent resightings that provide the valuable information on movements, survival, productivity and social behaviour. Collecting resighting data can be labour-intensive, with many studies relying on casual reports submitted by birders or other members of the public; these however, rarely provide systematic information. To help overcome this, ringers from the Wildfowl & Wetlands Trust and RSPCA installed four camera traps around a feeding site in Cumbria to collect resightings of Canada and Greylag Geese fitted with numbered colour rings or neck collars. Over 100 days of automatic observation, the cameras recorded 27,289 images, generating 1,176 resightings of 159 individuals that were manually identified and logged by checking through the images. In comparison, observers using telescopes logged 216 visual resightings over the same period during visits to check the cameras, and detected only five additional birds that were not identified on the camera images. The authors concluded that camera traps have great potential for collecting resighting data.

Brides, K. et al. (2018). The use of camera traps to identify individual colour-marked geese at a moulting site. *Ringing & Migration* 33: 19–22.

PLAYBACK FOR SURVEYING WOODLAND TITS

Small woodland birds can be difficult to survey, especially those that occur at low densities and can be hard to find. Where these species are rare or in decline, such as Willow Tit, Crested Tit or Marsh Tit, then knowing where and how many birds remain is essential for their conservation. Playback (playing recordings of call or song) can be useful for stimulating target birds to respond, but knowing what proportion of those present are detected, and how many remain silent, can be a problem. This study tested a playback survey method for Marsh Tits, based on two visits to woodland in early spring. By combining the survey with colour ringing it was possible to calculate the detection success at 96%, showing that the survey located almost all of the birds known to be present at the sites. For unringed birds, a simple protocol could estimate the number of territories, based on the locations of responding birds in the survey. The study outlines how the playback method is a simple, efficient and reliable survey method for Marsh Tits, with a similar method being adopted for the national Willow Tit survey, led by RSPB, in 2019–2020.

Broughton, R.K. et al. (2018). An efficient survey method for estimating populations of Marsh Tits *Poecile palustris*, a low-density woodland passerine. *Bird Study* 65: 299–305.

Noticeboard

ADVERTS

RECOVERY REQUEST

The new automated recovery process has brought fantastic benefits, including to the speed with which you receive your notifications. Sadly, it has also made it more difficult for us to identify the interesting stories about the birds you encounter, particularly unusual within-country movements. If you have any stories that might make fascinating reading in the recoveries section of the Ringing Report or on the DemogBlog, please tell us about them by emailing the details to Ruth Walker at ruth.walker@bto.org

RECYCLE YOUR OLD RING STRINGS

Many ringers may not be aware that you can recycle all sizes of plastic ring strings. You can do this, once you or your ringing group have a box full, by returning them either directly to Porzana, or to Anne Trehwitt in Ringing Sales here at BTO HQ.

POTTER TRAPS FOR SALE

Two sizes (12" & 16") also Chardonneret and other traps on request. Please contact John Mawer on 01652 628583 or via email johnmawer@hotmail.com



CONTACTS

Nest Record Scheme: nrs@bto.org
 Ringing Scheme: ringing@bto.org
 Constant Effort Sites: ces@bto.org
 Retrapping Adults for Survival: ras@bto.org
 Colour ringing: colour.ringing@bto.org
 Ringing data submissions: ringing.data@bto.org
 Licensing: ringing.licensing@bto.org
 Ringing sales: sales@bto.org

RINGING COMMITTEE 2020

The Ringing Committee (RIN) supervises the operation and development of both the Ringing Scheme and the Nest Record Scheme.

RIN meets twice a year, in spring and autumn. Agendas, non-confidential papers, minutes and members' contact details are available on the ringers-only pages of the website (www.bto.org/ringing-committee).

Members are happy to receive correspondence at any time throughout the year. Members can also be contacted through the RIN email address: rin@bto.org

Ian Bainbridge, Chair – Kirkcudbrightshire
Sam Bayley – Cork
John Black – Durham
Adrian Blackburn – Nottinghamshire
Tony Cross – Powys
Stephen Hunter – York
Paul Roper – Hertfordshire
Lucy Wright – Cambridgeshire
Alex Dodds – C-permit rep – Lincolnshire
Imogen Lloyd – T-permit rep – Yorkshire

Member bios can be found at: www.bto.org/rin

2020 CONFERENCES

5 December: BTO AGM, 3 pm. The AGM will be in hybrid form, that is by a restricted physical meeting at the Nunnery, shared with Members via Zoom. As Members will not be able to attend in person, it will be necessary to vote by proxy.

Additional events, including the Witherby lecture and a Q&A between Andy Clements and Juliet Vickery, will be held on 5 December. A ringers' meeting and a series of talks will take place in the preceding week. More details can be found on the BTO website

<https://www.bto.org/community/events/bto-conference-2020>

THE 2021 CES VISIT PERIODS

Visit	First Date		Last Date	No of Days
1	Thursday 29 April	to	Saturday 8 May	10
2	Sunday 9 May	to	Wednesday 19 May	11
3	Thursday 20 May	to	Saturday 29 May	10
4	Sunday 30 May	to	Wednesday 9 June	11
5	Thursday 10 June	to	Saturday 19 June	10
6	Sunday 20 June	to	Wednesday 30 June	11
7	Thursday 1 July	to	Saturday 10 July	10
8	Sunday 11 July	to	Wednesday 21 July	11
9	Thursday 22 July	to	Saturday 31 July	10
10	Sunday 1 August	to	Wednesday 11 August	11
11	Thursday 12 August	to	Saturday 21 August	10
12	Sunday 22 August	to	Wednesday 1 September	11

Monitoring priorities: Sparrowhawk

Although Sparrowhawk numbers across Europe have been stable since 1980, there has been a moderate decline in the UK in the past 10 years. Find out what you can do to help expand our knowledge of one of our smallest raptors.



Sparrowhawk, by Sarah Keilman / BTO

CURRENT KNOWLEDGE

Sparrowhawk numbers rose sharply between the 1970s and mid-1990s as they recovered from the population crash of the 1950s and 1960s, caused by the use of organochlorine pesticides and which saw them disappear from large areas of lowland Britain.

Following a ban in the use of these organochlorine pesticides hatching rates increased and breeding success improved, fuelling the recovery in Sparrowhawk numbers. The population trend stabilised in the 1990s but has since started to decline, with average brood sizes falling. CBC and BBS data show a 27% drop in abundance in the past decade. It has been suggested that this might be linked to the emergence of Finch Trichomonosis.

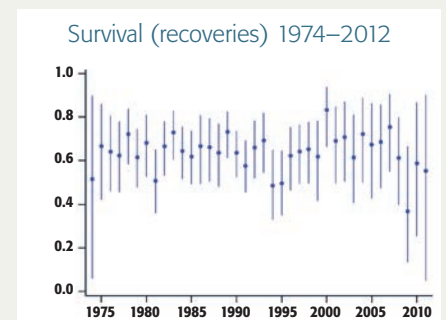
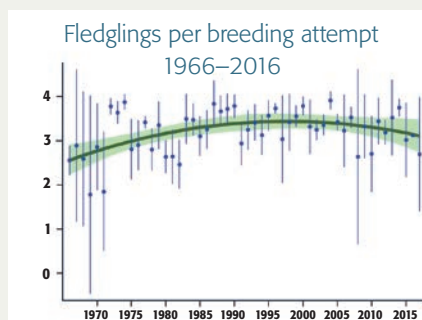
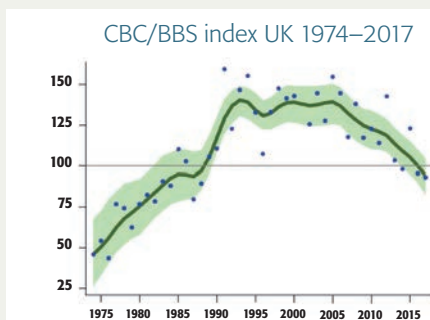
HOW CAN YOU HELP?

Nest recording

In the early 1990s, the number of Sparrowhawk nest records received was over 350 a year; in the past decade, the average number received each year has been just 59. For this reason, Sparrowhawk is a priority species for NRS. Sparrowhawk nests are usually located in a tree fork or close to the trunk on a horizontal bough, between 1.5 m and 35 m in height. They nest in conifers as well as oak, birch and hawthorn (under tree canopy), usually in mature woods and forests, but are increasingly found in more urban areas, such as parks and cemeteries, where mature lime trees are often used. They are single brooded; laying from mid-April to mid-July.

Ring in the breeding season

Although Sparrowhawk is a priority species for RAS, no one has yet registered a project on them. They are however, a species for which BTO produces survival trends from ring recoveries. Increasing the number of individuals ringed each year, both pulli and adults, would therefore provide an opportunity for further recoveries to inform these trends. From the mid-1970s to the mid-2000s, between 1,000 and 2,000 Sparrowhawks were ringed each year; numbers have exceeded 1,000 in only one year since, with just 665 individuals ringed in 2019. Additional ringing records would therefore be welcome.



Graphs shown are taken from the BTO/JNCC BirdTrends Report report (www.bto.org/birdtrends), where results from the Ringing Scheme and Nest Record Scheme are published annually.