

The BTO Magazine for Ringers and Nest Recorders



LIFECYCLE

SPRING 2021 ■ ISSUE 10

BREEDING SEASON RESULTS

PATCH RINGING

GARDEN NESTING TIPS

Corvids

Tips for catching these intelligent birds



Editorial

ISSUE 10 SPRING 2021



Welcome to the spring 2021 edition of *LifeCycle*. As this edition goes to press, it is still unclear what the impact of Covid-19 restrictions will be on this year's fieldwork. While we hope that the gradual easing of restrictions and the roll-out of the vaccine will allow more ringing and nest recording to take place than last year, we know that, for some, 2021 may be just as frustrating as 2020. Our thoughts remain with everyone who has been affected by Covid-19, directly or indirectly, over the past year.

In this edition, we bring you a summary of results from the 2020 breeding season, as well as an update on our Garden CES trial. Our feature articles cover techniques for catching corvids, finding Blackcap nests and, for those who have developed a heightened interest in the birds that can be monitored at home over the past year, tips for getting started with nest recording in your garden. If you are squeamish about 'creepy crawlies', you may wish to avoid the article on flat-flies on p26!

Thank you very much to everyone who has written or contributed to an article in this edition – as always, we welcome feedback and suggestions for content for future editions. Whatever ringing and nest-recording projects you are able to undertake this spring and summer, we would love to hear about them on the new BTO Forum (see p3 for more info). Stay safe!

Ruth Walker & Lee Barber

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LIFECYCLE

THE BTO MAGAZINE FOR RINGERS AND NEST RECORDERS

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NEWS FROM RINGING & NEST RECORDING

PAPER OR DIGITAL?

Until now, while ringers could specify at permit renewal time whether to receive *LifeCycle* on paper or read it digitally, it has not been possible for nest recorders to opt out of receiving *LifeCycle* on paper. Thanks to improvements in the NRS database, this is now possible. If you would prefer not to receive a paper copy of the magazine, please email the team at nrs@bto.org to request that this change is made to your account. If you are a ringer and your preference has changed since renewing your permit, please email ringing@bto.org to request the change is made to your account.

LESWO ARE IN TROUBLE

Now in its seventh year, LesserSpotNet works with volunteers to collect data to try to understand why Lesser Spotted Woodpeckers are declining. This spring, Ken and Linda Smith want to hear about places with displaying birds and are offering to help people monitor nest outcomes. Since 2015 they have increased annual Nest Record totals from one or two to around a dozen and have monitored 73 nests so far. Full details of the project, including information and guidance, can be found on their website at www.woodpecker-network.org.uk or on Twitter @LesserSpotNet



White Stork with solar GPS tag, by Renate Herz

GRANTS FOR NEW RINGERS

For many years, thanks to the generosity of an individual ringer and money collected in memory of Mark Fletcher, grants of up to £200 have been awarded to trainee ringers or C-permit holders (who have held permits for no more than three years and who are on a low income or are not currently in paid work) to enable them to continue ringing. The funds have helped numerous ringers, mostly by providing nets and ringing equipment. The money in this fund has now been almost completely allocated, so no new applications are being taken at present. If anyone would like to make a donation to enable the scheme to continue, please contact Ruth Walker: ruth.walker@bto.org

can be found in the Ringing and NRS sections of the BTO website.

BIO-LOGGING INITIATIVE

The Covid-19 Bio-Logging Initiative investigates global wildlife responses to altered levels of human activity during the Covid-19 pandemic (see www.bio-logging.net). This community-driven project uses animal tracking ('bio-logging') data collected before, during and after Covid-19 lockdown to advance our understanding of human-wildlife interactions and inform global conservation efforts (see recent article: doi.org/10.1038/s41559-020-1237-z).

If you wish to contribute tracking data to collaborative analyses (all taxa and localities welcome), please get in touch by emailing us at covid19.biologging.initiative@gmail.com or register online (forms.gle/t8MnG2R54TDuV3qo6).

BTO FORUMS

In case anyone missed the emails at the end of last year, BTO has launched a new forum to replace the now-defunct Yahoo Groups. There is now a new Ringing Scheme forum (which replaces the Yahoo BTORingers' and CES forums) and a Nest Recording forum (to replace the Yahoo NRS forum). Ringers will be able to view both the Ringing Scheme and Nest Recording forums; however, the Ringing Scheme forum is restricted to current permit holders only. To access the forums, first log in to your My BTO account then visit <https://forum.bto.org> Full instructions on accessing the forums

YOUNG BIRD OBS VOLUNTEERS FUND

Young ornithologists (priority is given for those aged 21 or under) who wish to visit one of the accredited British and Irish Bird Observatories are able to apply for a grant of up to £200 from the Young Bird Observatory Volunteers programme. Grants cover travel and accommodation, but not food. The closing date for this year's applications has been extended to 30 June. For more details, see the BTO website: www.bto.org/young-fund

Lesser Spotted Woodpecker, by Richard Jacobs





Puffins, by Ruth Walker

Covid-19 restrictions meant that the majority of seabird RAS projects either were unable to operate in 2020, or the number of visits to colonies was lower than normal. Consequently, trends for 2020 could be calculated only for gull species.

2020: a year like no other ...

At the start of 2020, few ringers or nest recorders could have predicted the impact that Covid-19 would have on their fieldwork. There will be few readers, if any, who were able to carry out all their usual projects without at least some delays or disruption. While for many 2020 was a complete non-starter, many projects were able to go ahead and in this article we bring you the results from some of those.

The number of standard CES and RAS projects that were able to operate in 2020 was much reduced from the numbers in a 'normal' year. Of 132 active CE sites, 72 ran, with 55% of submissions coming in via DemOn. Where CES ringing was possible, national lockdowns prevented most sites from completing their first, and sometimes second, visits at the start of May; however, the programs that calculate the CES trends are able to compensate for missed visits, so this should not have affected the results. We were delighted with the uptake for the trial of Garden CES last year; however, as these results are not yet comparable with standard CES, they are discussed in a separate article on pages 14 and 15.

Of 200 active RAS projects, 147 were able to run; 58% of submissions were received via DemOn. The high number of RAS projects that ran is, in part, indicative of the numbers that operate in ringers' gardens. While most of the RAS analyses could be undertaken, there were 15 species that we were unable to produce results for, either because no projects ran last year, some ran but with effort much reduced from normal, or because not enough active

projects ran to produce comparable data. The species group hardest hit by Covid restrictions was seabirds; many projects are located on remote islands or require teams to operate safely and for most this wasn't possible last year.

While many nest recorders were able to get out post-lockdown, few were able to monitor early nesting attempts, leading to data being heavily biased towards the second half of the breeding season. As a result, NRS trends were not produced this year, although the data should still feed into the long-term trends presented in the annual BirdTrends report. There was more positive news for the revamped Nesting Neighbours survey, with the number of participants taking part and the number of records received in 2020 both being higher than its predecessor, Nest Box Challenge, had managed since 2010. The Nesting Neighbours data have been processed, but as it is the first year these data have been analysed in this way, we are scrutinising the results to check they are comparable with the NRS trends. We are very pleased to note increases in the number of records for open-nesting species though. Early results show that the records will boost

Table 1. National and regional CES results for 2020. 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 (2015–19) are also reported for 2020, 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					
	1985–2020	2020 vs 2015–19			1985–2020	2020 vs 2015–19	1985–2020	2020 vs 2015–19				
	National	North	East	West			National	North	East	West		
Chiffchaff	↑↑↑	21	41	23	2	↑	15	↓	-4	1	-6	-7
Willow Warbler	↓↓↓	14	11	42	-2	↓	-1	↓↓↓	-11	-9	-54	-22
Blackcap	↑↑↑	39	23	49	32	↑↑	-15	↓	-13	0	-26	2
Garden Warbler	↓↓	12	71	-20	25	↓	-25	↓↓↓	-16	-31	-11	-12
Lesser Whitethroat*	↓↓↓	25	-	37	2	↓↓↓	-78	↓	-11	0	22	-14
Whitethroat	↓↓↓	17	57	6	25	↑	-20	↓↓	-6	-14	-8	-12
Sedge Warbler	↓↓↓	-8	15	19	-23	↑	20	↓↓	-7	-8	-14	-5
Reed Warbler	↓	-3	-26	-2	-2	↑	13	↑↑	-3	-2	-14	4
Tits												
Blue Tit	↑	61	44	54	83	↑	-14	↓↓↓	-55	-57	-51	-59
Great Tit	↑↑↑	20	5	13	58	↓	-20	↓↓	-39	-48	-35	-39
Willow Tit*	↓↓↓	-60	-16	-	-	-	-	↓↓↓	1	-9	-	-
Long-tailed Tit	↑	-4	-33	0	13	↓	-27	↓	-19	22	112	-13
Other residents												
Cetti's Warbler*	↑↑↑	169	-	144	187	-	-	↓↓	-20	-	-37	59
Treecreeper*	↑↑	23	84	-3	-2	-	-	↓	-25	-25	-	-43
Wren	↑↑	0	5	-1	-2	↑	11	↓	-4	-18	15	-4
Blackbird	↓	7	24	0	5	↓	-35	↓	-17	-1	-1	-43
Song Thrush	↓	3	58	-7	-16	↑	63	↓	-34	-28	-7	-74
Robin	↑↑	19	34	19	5	↓	42	↓	-11	-24	-11	10
Dunnock	↓	20	50	19	6	↑	26	↓	-19	-28	-19	-17
Chaffinch	↓↓	-34	-25	-62	-40	↓	11	↑↑↑	11	11	2	-16
Bullfinch	↓	37	89	-17	-7	↓	52	↑↑	-27	-42	2	-13
Greenfinch	↓↓	-31	-82	14	-61	↑	-	↓↓↓	8	-53	25	-17
Goldfinch	↑↑↑	16	15	-5	48	-	-	↓↓	-27	-73	31	-66
Reed Bunting	↓↓↓	15	-10	18	16	↑	-9	↓↓↓	-23	-5	-12	-39

submissions for five species; Blue and Great Tit, Robin, Blackbird and House Sparrow, and these data will feed into the long-term NRS trends once verified.

We are, as ever, incredibly grateful to all the ringers and nest recorders who were able to undertake any fieldwork in the difficult circumstances of 2020.

Winter 2019/20 was generally mild but unsettled, with particularly wet and stormy weather in February. It was classified as the fifth mildest winter since 1884 and the fifth wettest since 1862. By contrast, spring was much drier and sunnier than average, with

April being especially warm (provisionally the fifth warmest April since 1884), while summer was wet and unsettled with cooler spells, particularly in July.

MIGRANT PASSERINES

Migrant abundance and survival

Results from CES show that migrant species fared well in 2020. While no migrant species recorded a decrease in abundance in 2020, the abundance of four species, Chiffchaff, Willow Warbler, Blackcap and Whitethroat was significantly higher than the five-year mean (2015–19, Table 1). The



Whitethroat was one of the winners in 2020, being recorded in high numbers across CE sites.

results for Willow Warbler were largely driven by increases in the east, while the other three species recorded increases in two of the three regions (Table 1).

The largest increases were recorded for the short-distance migrants Chiffchaff (21%) and Blackcap (39%), both of which were found to be more abundant than in any previous year since CES began in 1983. Neither species displayed significant increases in adult overwinter survival but Chiffchaff did experience a particularly productive breeding season in 2019, which may help to explain the 2020 figures. It is possible that higher juvenile survival contributed to the positive results for both species, and for the long-distance migrants Willow Warbler and Whitethroat, neither of which exhibited above-average productivity in 2019 or overwinter survival, but this is a very challenging aspect of life history to measure. Young birds tend to disperse from the sites in which they were raised and are therefore less likely to be recaptured than adult birds, which generally return to the same breeding grounds each year. Survival rates therefore cannot be estimated if the probability of recapturing surviving individuals is too low.

Chiffchaff and Blackcap remain the only migrant warblers to show long-term (1983–2020) increases in abundance; with the other migrants exhibiting long-term declines of between 23% (Reed Warbler) and 88% (Willow Warbler).

There were mixed results for the migrant species monitored through RAS in 2020. The apparent survival rate from 2019 and 2020 declined for both House Martin and Sand Martin, with only a slight decline for Sand Martin and more pronounced decline for House Martin. By contrast, the survival rate for Swallow increased for the second year running. Despite regular fluctuations, the long-term trends for Sand Martin and Swallow are stable, while the House Martin trend shows a slight decline. There are no longer any active RAS projects on Swifts. The results for Pied Flycatcher showed no change in the apparent survival rate and the long-term trend remains stable for this well-monitored species. There were contrasting results for Whinchat and Wood Warbler, with the former recording a decline and the latter a slight increase; both long-term trends are relatively stable. While all Tree Pipit projects were able to run in 2020, the programs struggled to calculate an accurate trend; therefore the results are not reported here. None of the active RAS projects on Wheatear ran in 2020, so no trend was calculated for this species.

Migrant productivity

2020 was another average breeding season for migrant species monitored through CES. The only species to record a significant change in fortunes compared to the five-year mean (2015–19) was Blackcap, which exhibited a significant decrease in productivity of 13% (Table 1), seemingly driven by results in the east. As Blackcap numbers have risen consistently over the past decade (eight of the 10 most abundant years for this species have occurred in the last decade), it is possible that increased competition for resources has led to reduced breeding success.

The long-term (1983–2020) productivity trends for migrant warblers show declines of between 13% and 60% for all species except Reed Warbler, which is increasing by 28%.

RESIDENT SPECIES

Resident abundance and survival

For most resident species, 2020 was a much more positive year than 2019 in terms of abundance (Table 1), with six species exhibiting significant increases and only two displaying significant decreases with respect to the five-year mean (2015–19). The largest increases were observed for Cetti's Warbler, Blue Tit and Bullfinch, all of which, along with Treecreeper and Goldfinch, were recorded in greater numbers than in any previous CES season; numbers of Great Tit, Robin and Dunnock were also above average. For Bullfinch, significantly higher rates of adult overwinter survival may have increased numbers; in contrast, the greater abundance of Blue Tit, Robin and Dunnock was more likely to be associated with juvenile recruitment as all three recorded above-average breeding success in 2019. The mechanism for the increase in Cetti's Warbler and Great Tit numbers is less clear, although all species may have benefited from higher juvenile survival over the preceding mild winter.

Chaffinch and Greenfinch continue to decline significantly and numbers recorded through CES in 2020 were the lowest on record for both species. These results mirror the trends generated by BBS, which show alarming declines for both species since the late 2000s or early 2010s, thought to be related to the prevalence of trichomonosis.

RAS trends were not calculated for Dipper, Hawfinch or Twite in 2020, but data from projects on most other resident species were able to contribute to the trends. The survival trends for Bearded Tit, House Sparrow, Jackdaw and Mute Swan showed an increase, while those for Siskin, Stonechat, Tree Sparrow and Starling decreased. Linnets exhibited neither an increase nor a decrease, although the long-term trend (2003–20) shows a slight increase. The Bearded Tit increase helped to offset the large decline seen in 2019. Since 2010, the results for this species have shown a pattern of three consecutive increases followed by a large decline. It will be interesting to see whether this is the start of another series of three successful years. The long-term trend (2001–20) for House Sparrow indicates a welcome

increase in the survival rate for this species. Although fluctuating, the long-term trends for Jackdaw and Mute Swan are relatively stable; there are now four active projects contributing to the Mute Swan trend.

The number of new projects on Starling continues to rise, and it has now equalled Pied Flycatcher as the most-studied species. There are currently 21 active projects, although only 14 have been running long enough to contribute to the trends. Despite small declines in the past two seasons, the long-term trend shows a steady increase in the survival rate. The Stonechat survival rate is now at its lowest point since monitoring began in 2002, with the long-term trend showing a slight decrease. The long-term trends for Siskin and Tree Sparrow are stable and decreasing, respectively.

Resident productivity

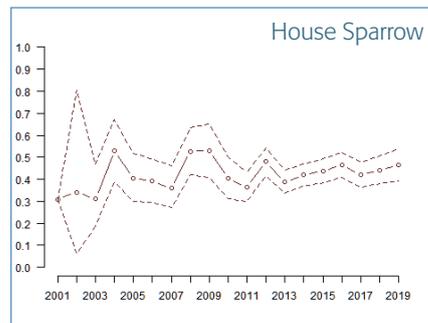
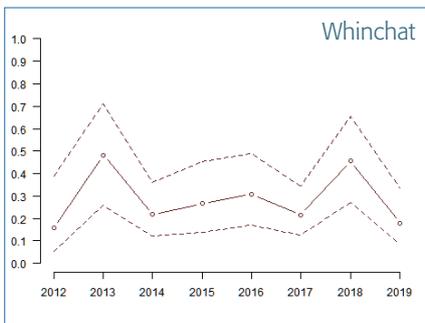
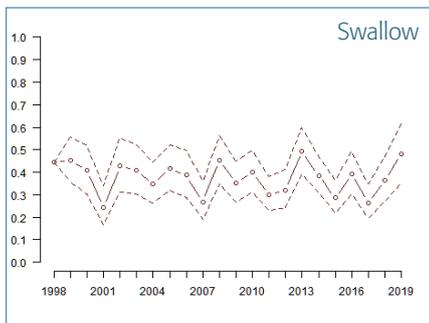
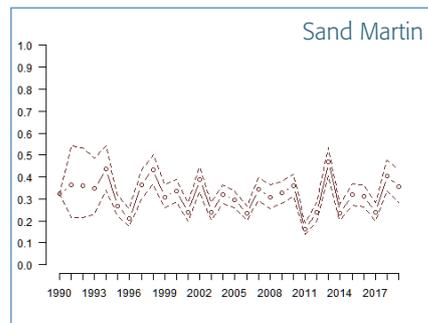
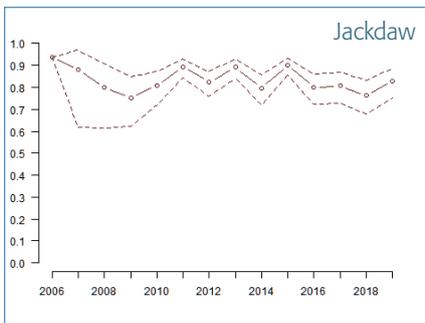
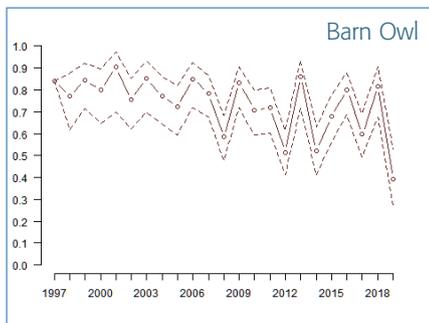
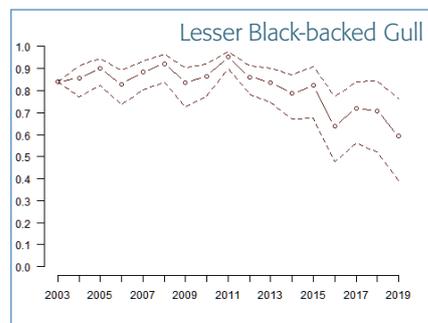
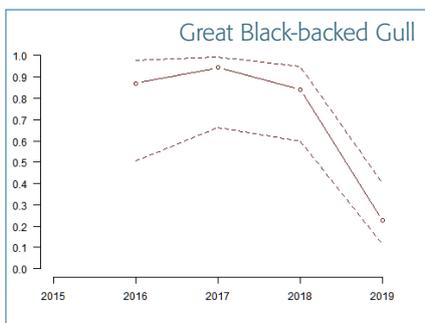
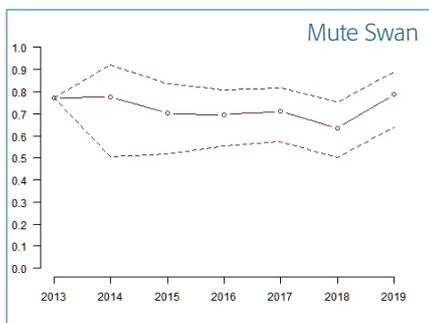
2020 proved to be a poor breeding season for resident species, with five species (Blue Tit, Great Tit, Song Thrush, Dunnock and Bullfinch) displaying below-average productivity and none registering significant increases (Table 1). The hardest-hit species were Blue and Great Tit, which exhibited 55% and 39% declines respectively; these declines were evident across all CES regions, resulting in the lowest productivity



Juvenile Great Tit, by Philip Croft/BTO

2020 was a poor year for Great Tits, with productivity estimates being the lowest on record.

Mute Swan, by Ruth Walker; Jackdaw, by Moss Taylor/BTO
Whinchat, by Edmund Fellowes/BTO



RAS survival trends. Survival is measured from the year indicated on the graph to the following year: i.e. the figure for 2019 is the survival rate from 2019 to 2020. The dotted lines show the upper and lower 95% confidence limits about the modelled estimate.

estimates since CES monitoring began. It is possible that the above-average abundance of four of these species during 2020 resulted in increased competition for resources between pairs, reducing fledging success. Alternatively, the results may be due to phenological disjunction, the warm April temperatures advancing the emergence of caterpillars to a greater degree than it advanced egg laying, resulting in mismatches and reduced food availability at the nestling stage.

OWLS AND RAPTORS

All active owl RAS projects ran in 2020, but the species exhibited mixed fortunes. Following a year where the apparent survival rate for Barn Owl was almost at its highest point in the series, the species exhibited a steep decline between 2019 and 2020. While this trend features regular fluctuations, it is showing a long-term decline and the survival rate is now at its lowest point since monitoring began in the mid-1990s. Little Owl fared better, with an increase in the survival rate between 2019 and 2020, although the long-term trend (2006–20) still shows a gradual decline. The Tawny Owl results showed neither an increase nor a decline in the survival rate between 2019 and 2020 and the long-term trend (2006–20) is also relatively stable. It should be noted that, as both the Little Owl and Tawny Owl trends are derived from a single project, the results may not be indicative of the national picture for either of these species.

The only raptor species monitored through RAS is Peregrine. While some fieldwork was carried out on this species in 2020, it was far less than normal due

to Covid restrictions. The extremely steep decrease in the survival rate for this usually relatively stable population is therefore likely to reflect the reduced effort rather than a genuine decline.

SEABIRDS AND WATERBIRDS

It was not possible to produce RAS trends for Arctic Tern, Eider, Guillemot, Kittiwake, Puffin, Razorbill, Shag or Storm Petrel in 2020. The only trends that could be produced were for the gull species: Black-headed Gull, Great Black-backed Gull, Herring Gull and Lesser Black-backed Gull. Of these, the only species not to record a decline in the survival rate during 2020 was Black-headed Gull, which exhibited a very slight increase, although the long-term trend (2009–20) for this species shows a slight decrease.

The largest decline in survival from 2019 and 2020 was recorded for Great Black-backed Gull, with less severe declines for the other two large gull species. The Great Black-backed Gull project has only been running for a few years, so it will be interesting to see whether this decline will level off in future years or whether this is the start of a long-term decline for this population. The long-term trend for Herring Gull showed only a shallow decline prior to the inclusion of this year's results. The long-term trend for Lesser Black-backed Gull was stable until the early 2010s, since when the survival rate has steadily declined; although three projects contribute to the long-term trends, only one is still active. Results in the last couple of seasons are therefore likely to reflect changes in that single population rather than across Britain & Ireland as a whole.

Further results from the 2020 season can be viewed on the BirdTrends website: www.bto.org/birdtrends

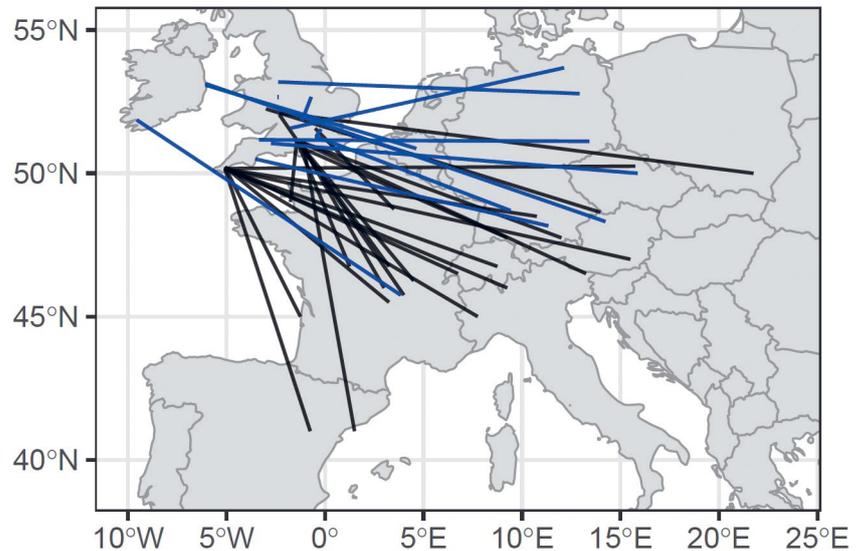
The full suite of RAS results can be found at www.bto.org/ras-results



Little Owl, by Tom Streater/BTO;
Lesser Black-backed Gull, by Edmund Fellowes/BTO

The origins of our wintering Blackcaps

Blackcap is an iconic species among migration researchers and ringers alike. Nearly three decades ago, pioneering migration research by German scientists showed that Blackcaps from central Europe migrated northwest in autumn to winter in Britain and Ireland, instead of their more traditional Western Mediterranean wintering grounds. In the process, these scientists discovered that the genetic control of migration could be inherited and that a novel migration direction could become established within a small number of generations. In this article Benjamin Van Doren, Robbie Phillips and Greg Conway highlight more-recent research into Blackcap movements.



Movements of British and Irish wintering Blackcaps as revealed by ring recoveries (blue) and geolocator records from this study (black).

For many of us, Blackcap is the dominant species in our autumn catches or one of the few increasing migrant species at our Constant Effort Sites. Even more amazing is their growing success as a winter visitor; as the Bird Atlas shows, they are becoming a numerous and well-established feature of our winter avifauna throughout Britain and Ireland.

Despite the many thousands of Blackcaps ringed across Europe annually, there are relatively few recoveries to link breeding and wintering areas, mainly because the majority are ringed at migration sites. Consequently, there are even fewer recoveries to identify the breeding areas of those that winter in Britain and Ireland. The dozen recoveries that do exist show some interesting patterns. The majority, as expected, originate from around southern and eastern Germany, but singles from France and Belgium are surprising; even more surprising are the three ‘residents’ from Britain that were re-encountered in winter (blue lines on the map).

In order to discover where our wintering birds breed, we have turned to geolocators. These provide a useful, lightweight tracking solution and have

been used successfully on a variety of small passerines; however, tracked birds must still be retrapped to recover the data, so much effort has to be invested in relocation and recapture.

As part of a wider research project to understand the genetic control of migration, as well as the breeding origin and winter ecology of our Blackcaps, almost 800 wintering Blackcaps have been individually colour-ringed across Britain and Ireland, and 134 of these fitted with geolocators since January 2017. Despite expected low winter return rates, indicated by analysis of ringing data, around 25% were found in subsequent years by the ringing team and vigilant Garden BirdWatchers. As of this writing, 30 geolocators have been retrieved and their data analysed, including six retrieved so far this winter.

The data from 24 geolocators (black lines on the map) show that the majority of wintering Blackcaps originate from France, some migrating relatively short distances to Britain. More remarkable is the wider spread of breeding locations, from northern Spain across to eastern Poland.

As yet, we have not tracked any resident birds, suggesting residency is still a rare behaviour among

Blackcaps breeding in Britain. The strong collaboration between ringers, birdwatchers and scientists has demonstrated the clear benefits of working together.

Please check all wintering Blackcaps for colour rings and report to: blackcap@bto.org

SCIENTIFIC PUBLICATIONS

The scientific paper reporting the full Blackcap tracking results across the European migratory divide, as well as the winter tracking, can be found here: doi.org/10.1098/rspb.2020.1339 Further results from a detailed study of Blackcap winter ecology and movements in Britain will be reported after publication later this year.

ACKNOWLEDGEMENTS

This work would not have been possible without the help of the numerous Garden BirdWatchers, BTO ringers and observers, in particular Ellie Ness, Glynne Evans, Graham Roberts, Stuart Brown and Gordon Kirk. Also, funding and collaborative support provided by staff and colleagues at Oxford University, Exeter University and the Max Planck Institute, Ploen, Germany.



Corvids are remarkably intelligent birds, with very good memories - making them tricky to catch!

Catching corvids

Catching good numbers of corvids is something of a skill that needs to be constantly refined and adapted. Corvids are clever birds and are adept at problem solving. To catch corvids repeatedly requires a place where they habitually come to food or baiting an area and attracting them to a specific location. Here, Martin Hughes, Ian Hunter, Sean Kingston, Guillam McIvor, Lowell Mills and Mark Stanley share their knowledge of how to catch these intelligent birds.

The idea of a ladder trap is a fairly simple one. To enter the trap, the birds have to drop down through the ladder section, which they do with their wings closed. They then struggle to get out the way they came in, as their need to flap stops them from reaching the ladder. Fitting the underside with plank 'skirts' makes it even more difficult to reach the ladder and stops almost all of the birds getting out. Some experienced Jackdaws can get back out through the ladder section, while Magpies with their tiny wings and remarkable craftiness can do it easily. Using 30 cm x 30 cm ladder squares also allows crows to enter the trap, but can make it easier for birds to escape. Ladder traps can be constructed with a separate section, with a door, in which to isolate birds for catching or a catching box as in Heligoland traps.

Chicken wire mesh can be abrasive to birds' feathers so c. 4 cm nylon netting can be used instead, with steel mesh to reinforce the lower part of the panels to prevent foxes ripping the netting and entering the trap. If making your own trap, it is a good idea to use wire or mesh that has holes big enough for finches and tits to escape through, to

prevent them being in the trap at the same time as corvids; this should also allow them to escape if a Sparrowhawk enters the trap.

Building the traps in panels so they can be taken down and relocated easily means you can be flexible as to where they are deployed. This is especially useful as the level of success that you might enjoy can vary greatly with even just a small change in location. Jackdaw communities will often have specific trees that they like to loaf in, and targeting areas that seem to be social hubs can be particularly effective. If traps are sited in a permanent location, a concrete floor will make cleaning uneaten bait easier.

LOCATION AND TIMING

The trap can be located almost anywhere, but it helps to have a place where the birds can sit and look at it before approaching. Even locations tucked right in under the trees can be successful, and on sunny summer days these sites benefit from shading which will stop the birds from getting heat stressed when in the trap. Farmyards close to barns where cattle are fed can also be very successful sites. The more corvids there are, the more comfortable the

birds are and the more likely they will be to enter the trap. Corvids are quite the opposite of most birds, in that they are generally uncatchable using bait in the winter months and it is not worth trying then. Instead, it is during the breeding season (April to late July) that they lose their neophobia and will more readily take risks when foraging.

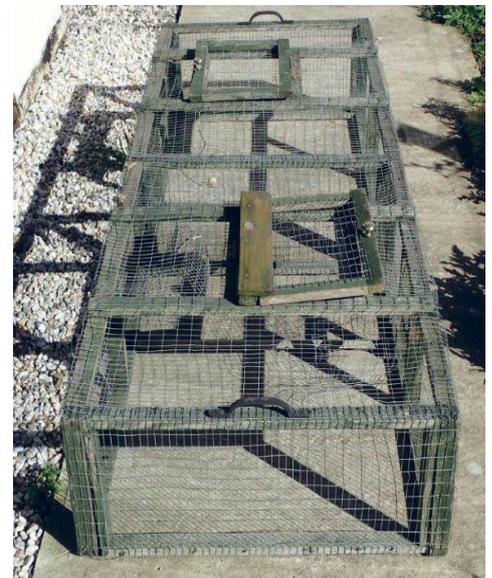
BAIT

Ladder traps will benefit from regular baiting, initially with all the roof panels removed so that birds can get used to going in and out to take food. Jackdaws have catholic tastes and will seek out and consume all manner of food; however, they do seem to have preferences in food type, the location in which to obtain it and the accessibility of the food itself. Successful baits include porridge oats, soaked wheat, grated cheese, and white bread. Bread isn't ideal for birds, but it does help to make a very obvious visual statement that draws their attention. Once you have regular visitors to the bait you may want to use it only on days when you want to catch. Building a food trough can help you to keep the base of the trap quite clean, especially in the early days when you are trying to generate regular visitors and may not have many takers for the food. Remember to put water as well as food in the trap.

Early morning is the most likely time to catch but, in the peak season when the birds have mid-sized chicks and are visiting the open trap regularly to feed, then you can be guaranteed success at almost any time of day. In general, the difficult thing is attracting your first bird. Scatter bait such as porridge oats liberally on the ladder to encourage birds to congregate at the trap entrance. Once you get one in, others will follow, and you can often find a mix of crows, Rooks, Jackdaws and Magpies together as they are attracted by heterospecifics.

CAUTION

Care needs to be taken in the peak breeding season (mid-May to late June). Check the trap regularly or, even better, keep eyes on it at all times, or you might find you have caught more birds than you can easily



Small corvid trap, by Ian Hunter

Corvids can also be caught in smaller traps (c. 2 x 1 m, but only c. 50 cm high), split into two sections, each with a hinged door on top for access, and a funnel entrance.

process. Having too many in together presents a risk of a crush developing; juveniles are particularly at risk should this happen. Having spare planks handy to block the ladder allows you to leave a few birds in for a 'second take' and is a good way of ensuring you don't become overrun.

Females are smaller and more nimble than males, so don't just take the easy birds first (big males) if you trap at a time of year when they may have eggs or young that are sensitive to cold. Check for brood patch when you get hold of the birds (Jackdaws don't engorge but just go bald between the legs, while males retain some spots of fluff) and process females first. Jackdaws are highly synchronous in their laying (>90% of birds in one Cornish population currently lay between 10 April and 20 April), so between this time and mid-May you should be particularly careful about your trapping effort. Most females will stay on the nest and be fed by the males, but some do nip out to grab a quick meal for themselves and it is very possible that they will go to the trap if they are used to foraging there; make sure these are processed and released as soon as possible. At the end of June, adults will become more reluctant to go into the ladder trap, but at this time the juveniles

MEMORY

Corvids remember the faces of people they have had bad experiences with, so are likely to be wary of you or scold you in subsequent encounters. You may also end up with a noisy mob above you when extracting birds, which might attract more attention than you want, especially in more urban settings. An alarming flock of a few hundred birds overhead is a good way of keeping almost all birds away for a week or more.

start foraging for themselves and will begin to dominate your catch. Some adults will follow their young in but, by July, most of the catch will be juveniles and even they will become reluctant by mid-July.

OTHER CATCHING TECHNIQUES

Adult corvids can also be caught by using remote-control trap doors on nest boxes once the young are at least FS stage. If catching both adults, try to catch the male first as they are harder to catch later in the nesting attempt. Leaving a few days between catching the male and female ensures that if a parent takes time to return to their parental duties the chicks still receive consistent rations from the other.

If corvids regularly feed in barns where livestock are fed, they can also be caught in large-mesh mist nets placed over a partially-opened door; however, they quickly learn not to enter the barn when they see the net and this applies almost as much to new birds as to retraps. A bird caught in the net alerts the others to its presence, so to have any hope of catching more birds they must be extracted immediately. Corvids are adept at quickly climbing out of nets regardless of how tangled they seem to be, so competent extractors are required. Mist netting in barns only works when the birds are looking for easy food; once the young have fledged they preferentially all forage in the fields.

Potter traps placed below well-stocked feeders also work, particularly for naive birds, with the spillage from the feeders acting as bait. Leaving them in situ, but wired open, all year round habituates the birds to them. Some Jackdaws understand how the door operates and try to open it, on occasions successfully, particularly if left for any length of time. The birds also learn how the release mechanism works and are very reluctant to enter when they're set. Altering the trigger and putting in additional levers and blocks help to disguise a set trap.

A large (e.g. 8 m x 4 m), baited whoosh net also works to catch Rooks. If enough are milling about then other species come to investigate, so crows, Jackdaws and Magpies are often caught. Corvids can get tongued quite easily in the netting, so a good grip on the bird and a bit of care with the final stage of extraction is needed.

RAS AND COLOUR RINGING

Jackdaws are long lived and highly sedentary, rarely moving far other than as part of post-juvenile dispersal, making them an ideal RAS species. They can become very wary of individual people though, resulting in them flying off as soon as that individual is spotted, which can make recapturing them tricky. Colour ringing removes the need to recapture individuals, but Jackdaws do progressively destroy colour rings, either removing them completely or rendering them illegible. Catching Jackdaws is a real challenge, but endlessly fascinating as they are very intelligent and have real character.

Finding Magpie nests

Magpie nests are easiest to find early in spring when adults are constructing or repairing their domes in often still-bare hedges and trees. Note, however, that even substantial domes in spring can prove to be well-built nests from previous seasons, since abandoned, so seeing adult activity around nests is useful, as is determining whether the bird is adding to it or ripping out sticks for another nest! Nests may be found later in spring by 'watching back' birds with full crops and by cold searching directly underneath favourite trees such as blackthorn. For their body size, Magpies build one of the largest nests of all British birds; however, once the foliage advances it is amazing the extent to which nests are lost from view. Marking locations of nest trees is just as important for guiding future visits as with smaller open nests.



Magpie nest, by Lowell Mills

Road embankments are the easiest areas to monitor Magpie nests, as they use easy-to-access trees such as aspen and maple, although lay-bys are essential to park and work safely. From late February onwards, the locations of domes, with adult birds perched around them, can be noted through the trees. On a recce visit using the lay-bys, nest trees should be marked with tape or similar, as nests can lie unused for weeks once built. The first round of nest checks can be in early April. Early experiments using a camera on a pole to check contents were often foiled by how the nest entrance was oriented, so it is better to climb to nests using a telescopic ladder. Once there, a mobile phone set to video recording works best for viewing the nest if the entrance hole is angled away. Once the young are past FS there should be no visits until after the nest is expected to have been vacated.

Lowell Mills



Mist netting, by Lee Barber

Feedback was received from the majority of participants via a questionnaire after the season and was almost entirely positive. 36% of respondents operated in large gardens (450+ m²), 39% in medium-sized gardens (100–450 m²) and 17% in small ones (<100 m²).

Serendipity in the suburbs

While data generated by ringing has made a huge contribution to our understanding of bird movements, providing a springboard for the diverse range of recent tagging initiatives that provide much greater detail, the focus of the Ringing Scheme has increasingly shifted towards demographic outputs. In this article, we bring you the results of the 2020 trial of Garden CES.

Generation of survival information is particularly key, helping to either implicate or rule out fluctuations in mortality rates as drivers of observed changes in bird numbers. For some larger species, this can be achieved through reports of dead recoveries submitted by the general public, but for smaller birds, recaptures by ringers provide the best data source. To interpret recapture records, it is necessary to account for effort invested in encountering individuals, either by recording it or, ideally, by holding it constant from season to season. The latter approach has been taken by participants in the Constant Effort Sites (CES) scheme for almost 40 years, with visits made during each of a dozen 10- or 11-day windows spanning the period from May to August. CES provides information on the survival rates of over 20 resident and migrant songbirds, including a number of declining species, and the structured nature of the initiative means that abundance and breeding success, the latter measured as the ratio of juveniles to adults

encountered, can be meaningfully compared between years.

THE BIRTH OF GARDEN CES

One drawback of CES is the limited range of habitats covered, comprising mainly reedbed, scrub or woodland habitats, where mist netting is relatively straightforward. Urban and suburban habitats, which also potentially fit the bill, have been largely ignored, an unfortunate omission given the large numbers of birds that gardens support and the very different environment that they present in terms of food availability, temperature and predator suites. BTO have been keen to trial structured garden ringing for some time and the restrictions on operations imposed as a result of the Covid-19 pandemic presented a very serendipitous opportunity. Funding has traditionally been a barrier but, by simply extending the existing CES protocols to this new habitat, we were able to minimise additional data collation and analytical costs; the only major difference between garden CES

and standard CES is that the provision of food is permitted in the former, given that this is a fundamental characteristic of the garden environment.

PARTICIPATION IN 2020

The response exceeded our expectations, with 115 gardens signing up (79% in England, 1% Northern Ireland, 6% in Republic of Ireland, 8% in Scotland and 6% in Wales). A total of 87 participants had submitted data by the deadline for analysis, an impressive 83% via DemOn; equally encouragingly, 71 participants were, to the best of our knowledge, newcomers to CES.

We appreciate that the lack of alternative options may well have played a part in the high rate of uptake but it is worth noting that the majority persisted as Covid restrictions were progressively relaxed, with 95% of sites completing at least 75% of visits. The reduced numbers and species range makes it an ideal project for those with less experience or confidence, such as newly qualified C-permit holders, and the lack of travel and permission

requirements may make it more appealing to more experienced ringers with limited time.

PILOT RESULTS

Data received by the time of writing relates to 21,347 individuals from 57 species encountered across 961 Garden CES sessions, creating a total of 24,933 capture events. On average, slightly fewer birds were caught on each Garden CES site than under Standard CES in 2020 (median site total of 287 and 312 captures respectively). Of the 19 species exceeding 200 encounters, seven are not caught in sufficient numbers on Standard CES to enable production of trends (House Sparrow, Siskin, Coal Tit, Starling, Tree Sparrow, Nuthatch and Great Spotted Woodpecker) and a further five were better represented in the Garden CES data set, including Chaffinch, Goldfinch and Greenfinch.

It is obviously not possible to generate survival rates from a single season of data, but estimates will be calculated once the 2021 data are available. Productivity, in the form of juvenile:adult ratios, could be calculated, however, and results from Garden CES were similar to those of Standard CES in 2020; in fact, those for Blackbird, Blue Tit, Dunnock and Great Tit were almost identical. There was less agreement for the finches, with Garden CES productivity higher for Chaffinch and Greenfinch and lower for Bullfinch. Care must be taken in interpreting absolute differences, however, particularly given the potential influence of supplementary food; it is the comparison of annual variation within each CES type that will be of greatest interest.

FUTURE PLANS

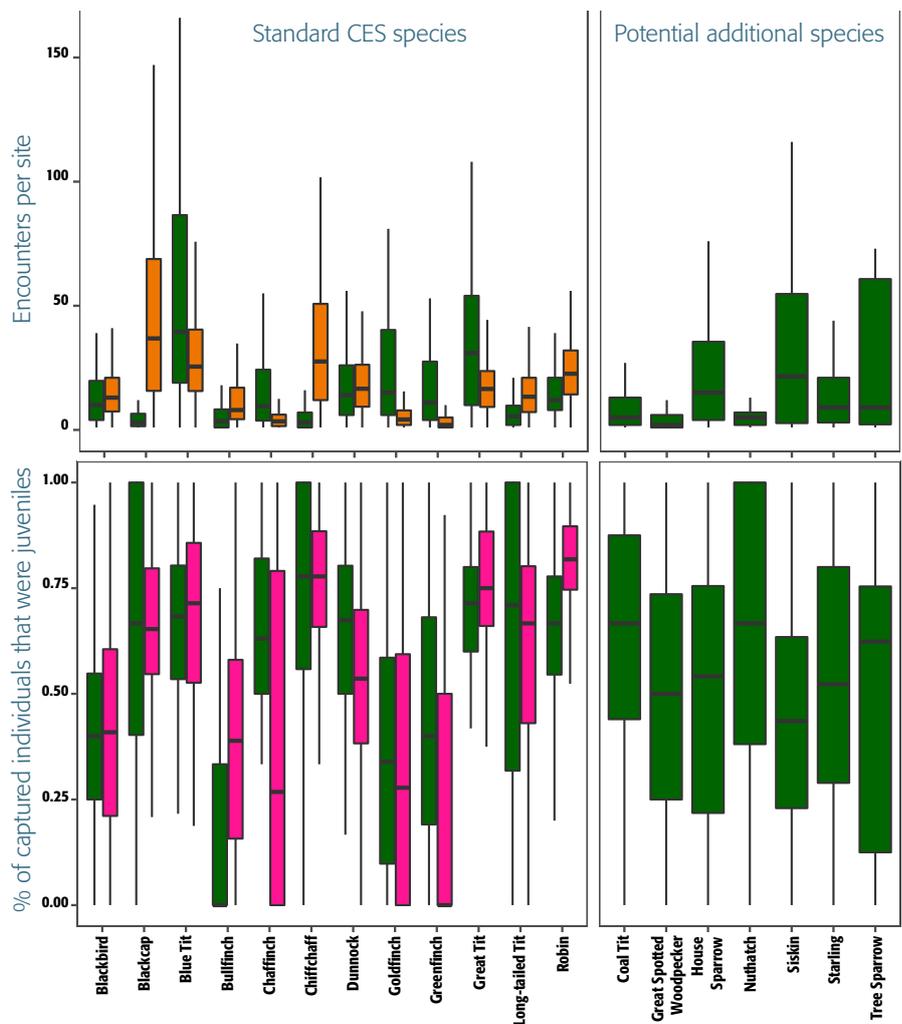
We are extremely pleased with the outputs from the first year of Garden CES and hugely grateful to all those who contributed. The future success of the project relies on sufficient numbers of gardens being monitored and, crucially, for a good number of sites to operate for at least five years, as per

Standard CES. We appreciate that 2020 was an unusual year in terms of the lack of competition from other ringing activities, so a lot hinges on the number of Garden CE sites that elect to run in 2021; if coverage is equally impressive during what we very much hope will be a more typical breeding season, it will greatly strengthen the potential for this to become a long-term project.

Many readers will be aware of the second partially garden-focused ringing pilot launched in 2020, which aimed to encourage more structured ringing during the winter period; monitoring

of the same sites for both Garden CES and the Winter Ringing pilot opens up further possibilities to explore the potential contribution of garden ringing to population monitoring.

We are very much looking forward to seeing this summer's results. How many individuals caught last year will be re-encountered? Will catches be higher or lower, and will these be the same as on Standard CES? There is only one way to find out; if you are running a CE site, whether in your garden or in a more traditional site, we wish you all the best for the 2021 season.



Top: Species encounter rates at Garden CES (2020; green) and Standard CES (mean 2015–19, orange). Bottom: The proportion of 2020 captures involving juveniles at Standard (pink) and Garden (green) CE sites. The top and bottom of the box for each species relates to the 75th and 25th percentile respectively; the bold horizontal line within each represents the median value and the vertical line indicates the range.



Aerial view of Rye Meads, by Rye Meads Ringing Group

Rye Meads from the air, showing the variety of habitats on the site.

The rewards of patch birding

It's something that thrills you anew each time you experience it. The glint of the rising sun on water, the rustle of reeds, the mechanical croak of Gadwalls, the scratchy rhythm of Reed Warblers, even the clamour of a Black-headed Gull colony. Many birders know and treasure their local patch, familiar with all its birds and yet always hopeful of something out of the ordinary. So it is with ringers too, as Roger Emmens of the Rye Meads Ringing Group explains.

Rye Meads Ringing Group is one of the longest-established ringing groups, being in our 62nd year of operation at Rye Meads in Hertfordshire. I am privileged to have been a member for more than half that time, and it has been a constant pleasure.

The group was founded in 1960 to ring and study the birds on the then newly established sewage treatment works, which had a large series of settlement lagoons nestled on the flood plain of the River Lea. From new lagoons with bare banks to today's reedbeds, scrub and wet meadows, half now leased to the RSPB for its Rye Meads reserve, with an area of Herts and Middlesex Wildlife Trust (HMWT) reserve, as well as the still very much operational sewage works, the site has changed hugely over that sixty years. And we've been there to record it all.

This isn't just about ringing birds. Of course that's an enjoyable and valuable pastime in itself, but it's only the beginning of the process. The unique value of a group like RMRG is the focus on a specific site, showing the value of combining ringing, nest recording, breeding surveys and general observations to demonstrate changes in the

site and its value to different groups of birds, as well as wider population shifts.

THEN AND NOW

When I started with RMRG in the 1980s, we were regularly ringing our local breeding species such as Turtle Dove, Tree Sparrow, Willow Tit, Willow Warbler and Lesser Redpoll. We could catch winter flocks of Corn Buntings and Linnets, and spring passage of Greenfinches would yield a few hundred captures. Sadly, all no more; it's been nineteen years since we even recorded a passing Willow Tit.

But on the other hand we'd rarely see any raptors other than the occasional Kestrel, certainly not the seven now regularly seen. We'd never had any Little Egrets or Great White Egrets, Cetti's Warbler was an exotic rarity and Gadwall was an uncommon visitor.

That's the point about a local patch. It changes. We know every inch of our 97 or so hectares. The habitat here needs constant maintenance – another job the ringing group does its share of, together with the RSPB and HMWT volunteers and staff – and conditions vary from year to year, so it's

not just the national population fluctuations that affect us. Observing and recording these changes is part of the fascination, and when you have sixty years of ringing data and observations, there are plenty of ways to analyse the changes.

Perhaps one of the most important activities RMRG undertakes is our annual breeding survey. We cover the whole site, mapping singing males and counting territories, to ensure that we can see year by year how our local populations are changing. We've got a pretty good idea how our local birds are faring, and can compare this with the national data reported in BTO surveys, so we know if any local effects are taking place. In the process we also conduct much of our nest finding and recording, and that supports the especially valuable type of ringing, that of chicks. And it also dovetails with our Constant Effort Site ringing to help measure breeding success.

USING OUR DATA

And what do you do with all those data? Well, you don't just assume that some scientist at BTO HQ will use it for some sort of national study, you try to use it yourself to see what's going on with your own birds. We produce a report every three years, and over the lifetime of our group we've published in our reports some eighty papers on widely varying topics, from Greenfinch weight variation, to pullus Sedge Warbler departure dates, to wintering Chiffchaff patterns, to changes in wing lengths in Willow Warblers, to the status of our wintering Water Pipits.

But we don't just look at our birdlife. Through the varied interests of our members over the years, we've studied the wildflowers, butterflies, moths, bugs, molluscs and bats of Rye Meads, amongst others. You don't have to be a chiroptophile to be interested to learn that there are ten species of bat regularly using Rye Meads airspace.

That's the point of being part of a patch ringing group. You develop a proprietorial interest in all of the natural history of your patch. You want to know how it all works together. For example, casual observation revealed that the clumps of Fat Hen that spring up on disturbed ground on the water margins are favoured food for some ducks,



Sedge Warbler, by Jan Swan

This Sedge Warbler, caught in July 2019, was the 250,000th bird ringed by the Rye Meads Ringing Group.

so we try to keep these clumps going instead of 'tidying up' our water margin net sites.

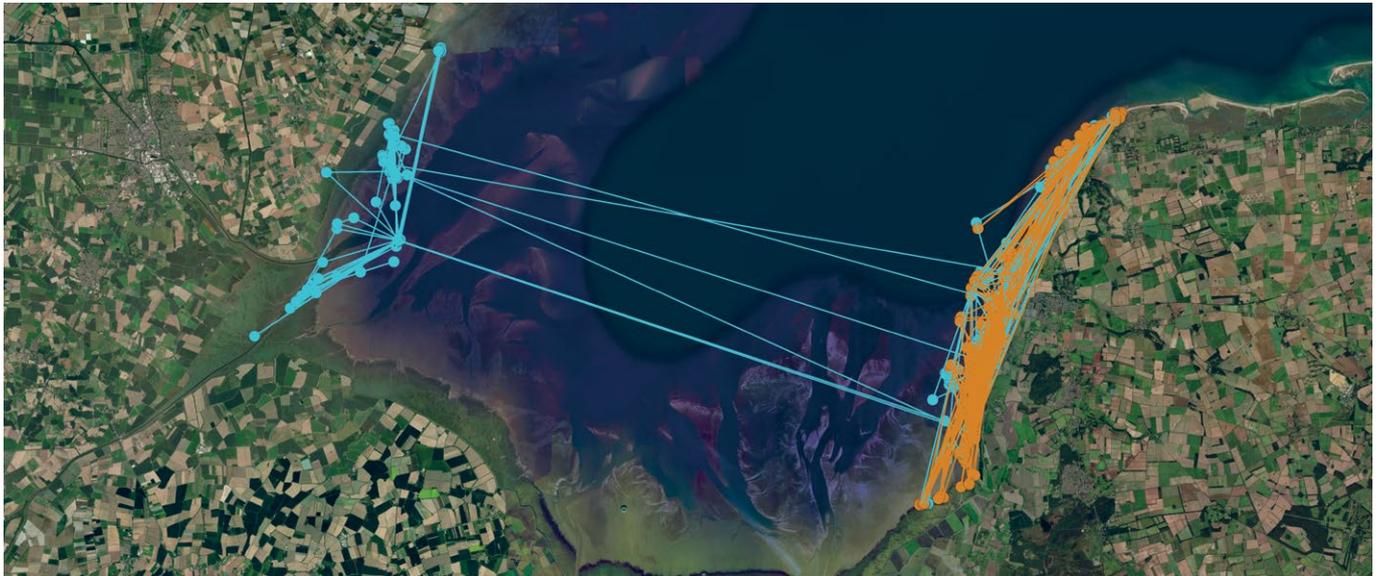
SO MANY QUESTIONS

Why do Linnets no longer breed on site when they still breed nearby? Is it the habitat? If so what about it has changed? Are there certain insects or seeds that they require that for some reason no longer occur here? Or, why did Black-necked Grebes breed here successfully for one year and not thereafter? Are we perhaps not managing water levels in the right way, or is it something else? And another thing: why do some years give us large Swallow roosts in our autumn reedbeds, and other years yield just penny numbers? It doesn't seem to be related to national breeding successes, but if it's weather conditions, what exactly is the determining factor?

There are always questions when you study your patch, and one of the pleasurable activities of the group is to sit over a mug of tea after the fieldwork is finished and chew the fat about unanswered questions like these, to see if anyone can come up with a theory and a way to test it.

So as we head into an increasingly uncertain future, with climate change, pesticide impacts and pollution all increasing pressures on bird populations, it remains as worthwhile as ever to keep monitoring the birds on our patch.

We ring 4–5,000 birds of 65–70 species and record over 130 species annually. If you are interested in the work of Rye Meads Ringing Group and would like to be a part of it, we would welcome ringers of any level of experience, or keen birders who are considering becoming ringers or are just keen to help with everything else. Contact us through our website at rmrg.org.uk



Map showing the movements of two tagged Oystercatchers, basemap © ESRI

Fed by four rivers, The Wash is one of Britain’s largest estuarine systems. Seven of 10 tagged Oystercatchers stayed on the Norfolk side of The Wash, as the orange bird in the map did, two crossed to Lincolnshire, while the tenth bird went on holiday to Grimsby!

Where in the mud?

The Wash is a special place, home to a rich range of wildlife. In excess of half a million birds visit each year, either passing through on migration or spending the winter feeding on its extensive mudflats. It also supports a wide variety of human activities, from tourism to fisheries. As Rob Robinson explains, understanding where and how the birds use this vast larder is critical to designing effective ways of managing the estuary and its resources sustainably.

In the winter, around 20,000 Oystercatchers feed on cockles and mussels in beds around The Wash; beds which also support commercial harvesting. There is clearly a need to manage the beds such that both birds and harvesting can thrive. But how do we know which beds the birds use? The very thing that makes The Wash special, its size (30,000 ha of tidal mudflats), makes following individual birds using traditional methods extremely difficult.

Recent advances in electronics provide new opportunities for gathering such information. Now lightweight tags are able to obtain high-resolution GPS fixes and even send these via the mobile-phone network direct to our computers. So it was that six hardy ringers gathered early on a cold December day to set a cannon-net on the beach. A prolonged wait then ensued... Eventually the tide came in and the birds arranged themselves in the right location for the net to be fired.

Ten of the birds caught were fitted with solar-charging tags that weigh only 9 g but which are capable of recording

the bird’s location several times a day, tracking their movements as they follow the tide out to feed. Far from foraging willy-nilly across The Wash, we have found that birds favour particular areas. All birds were tagged near Heacham on the east (Norfolk) coast and most (7/10) stayed firmly on this side of The Wash, as the orange bird in the figure did. Only two ventured, like the blue bird, over to particular areas on the Lincolnshire side for a few days from time to time. And the tenth bird? It went on ‘holiday’ to the mudflats near Grimsby, where it stayed for a month before returning to Norfolk – every project throws up a surprise!

These data will help us construct a much better picture of how Oystercatchers use The Wash in winter, evidence that Natural England will use to improve their management advice. As part of this, researchers at Bournemouth University have created a ‘bird-food model’ that assesses how many cockles and mussels the birds need to eat to survive the winter. Currently the model assumes birds can

forage freely throughout The Wash, but this clearly seems not to be the case. Fisheries managers already restrict the shellfish harvests to cater for bird food requirements and to prevent disturbance during periods of severe weather. The information gathered from this project enables a more realistic assessment of these requirements and will help guide sustainable management of the shellfish stocks, ensuring The Wash continues to support the many birds that visit each year.

We are very grateful to Natural England and Eastern Inshore Fisheries and Conservation Authority for funding and Wash Wader Ringing Group for help with fieldwork.



Oystercatcher with GPS tag, by Sam Franks



Dunmuck eggs, by Allan Rustell; Starling and Robin eggs, by Richard Castell; Song Thrush eggs, by Daves Scott; Blue Tit and Great Tit eggs, by Hazel McCambridge; Goldfinch eggs, by Keith Johnson; Blackbird eggs, by Lee Barber

Top row, left to right: Dunnock, Starling, Song Thrush and Blue Tit nests. Bottom row, left to right: Robin, Goldfinch, Blackbird and Great Tit nests.

An introduction to garden nesting

The lockdown of 2020, continuing into 2021, means that many of us have been spending a great deal more time at home, which can be both a blessing and a curse. If you are lucky enough to have your own garden then you are probably spending more time observing and enjoying watching the birds that share your space. In this article, Hazel McCambridge outlines the value of nest monitoring in your garden and how to get started.

Since 1939 BTO volunteers have been monitoring nests for the Nest Record Scheme (NRS), collecting millions of records on nesting birds in Britain and Ireland. Dedicated nest recorders spend time in every habitat you can think of, observing the behaviour of wild birds to uncover their nesting locations. The vast majority of records are from the countryside, with very few from urban and suburban habitats. Taking some time to monitor the nests in your garden could provide some valuable insights, allowing us to compare urban nesters to those in more 'natural' habitats.

As long as it is occupied, a nest box makes locating a nest simple. Data for cavity-nesting birds breeding in boxes are just as useful as those from 'open' nests in shrubs and bushes, so records of both are welcomed. Open-nest finding can feel daunting and challenging, particularly if 'cold searching', though for a large part it comes down to taking the time to watch the behaviour of the birds you come across and allowing them to lead you back to their nest. Many behaviours can be easily observed, such as carrying nesting material

and food, which can help to narrow down the nest's location. Taking time observing and pinpointing the activities allows you to carefully discover the nest and make the required observations. If you know the general location of a nest, but the bird's behaviour hasn't pinpointed it for you, you can firmly tap the vegetation to flush the sitting adult to help locate the nest. Nest finding is definitely easier at the start of the season before foliage has grown and filled in!

For most species, eggs are laid daily and once the final egg is laid incubation will begin, allowing you to calculate the timing of your nest visits. Once you have a full clutch count you can calculate the best dates to visit to record hatching, growth stages and fledging.

It must be noted that some species are particularly sensitive at certain stages of nesting and caution should be taken for all open-nesting species when young are near fledging, as they can erupt from the nest before being ready to fledge properly. Before taking part in nest recording you should read *The Nest Record Scheme Handbook* and familiarise yourself with the NRS Code of Conduct.

THE LAW

Looking into nests of species not on Schedule 1 of the Wildlife & Countryside Act (1981) (see www.bto.org/s1-list) is not illegal and does not therefore require a licence in England, Scotland or Wales. A licence is required in Northern Ireland and the Republic of Ireland, however; please contact nrs@bto.org for more details. There is a wealth of evidence to suggest that careful monitoring has no impact on the outcome of the nesting attempt, as long as the NRS Code of Conduct (www.bto.org/nrs-coc) is adhered to.

Collared Dove on nest, by Amy Lewis/BTO



Gardens tend to offer a more limited number of nest site options, which can make nest searching quite easy, and the variety of species using gardens is also reduced, which can make nest identification less of a challenge. If in doubt about the nest's species, watching the adult return gives a clear answer. Here we will take a look at what to look out for in more urban and suburban settings.

Whether you are checking nest boxes or looking out for open-nesting species, other than Collared Doves, which can be found nesting almost year round, there doesn't tend to be much nesting activity taking place until March, when the warmth and sounds of spring fill the air and birds start nesting in earnest. Gardens can remain busy with activity until the end of June, after which activity declines through to the end of October.

Collared Doves build, in the loosest sense of the word, a simple pile of sticks to place their one or two eggs upon. Their nests are generally easy to spot, especially when they are balanced on your satellite dish or the fork in a small tree. If they are better hidden in dense ivy, the female can give away the location during the building stage while they collect sticks in the mornings. While in the wider countryside, **Woodpigeons** tend to nest later in the season to take advantage of seed production, they will nest much earlier in gardens. From February you might see wing clapping, copulation and nest building taking place.

Like Collared Doves their nesting attempts can continue long into the autumn, with two or three broods in a year.

Robin is typically the first songbird to lay and can be a challenging nest to find, due to the variety of locations the species will consider. Despite the wariness of the adults, if you are careful you can watch them carrying material back to the nest. The mossy cup is itself small and quite neat but the dead leaves that typically surround it can give the game away. If you notice a dead leaf stranded out of place it may well lead you to a Robin nest. There is a higher risk of desertion at building and laying stage so it is advised to take extra care at this time and only approach the nest to count eggs when the female is off the nest.

One of the most common garden nesters is **Blackbird**, which will raise two or three broods a year; with their first attempts in late March or early April. They build a sturdy cup of grass, leaves and mud, often in evergreen shrubs or ivy. **Song Thrushes** build similar nests in the same locations; the distinguishing feature is the smooth, wood-chip-like lining of mud topped with chewed pulp, and their brighter blue eggs, covered in pronounced black specks. Both of these species will sit tight on the nest, so they can be tapped off to help locate them.

Wrens tend to be easy to watch back to their nests when carrying materials and food, though the nests can be very well hidden and difficult to access. They build a dome of dry leaves, moss and grass. The male will build multiple nests for the female to choose from and she will then line her selection with feathers. It is still worth noting the unlined nests in case they are used by other females or in later nesting attempts. Wren have a higher risk of desertion at the laying stage and risk of eruption at fledging time, so extra care should be taken.

Female **Dunnocks** often breed with two or more males but, depending on the gender ratio in a population and the overlap of territories, the species can also be monogamous, polygynous or polygynandrous. This can make it a little more tricky to pinpoint nest locations! The well-concealed nests are easier to find earlier in the season and watching for adults

More information about nest finding techniques and recording can be found in Ferguson-Lees, J., Castell, R. & Leech, D. (2011) *A Field Guide to Monitoring Nests*. BTO, Thetford.

carrying food and faecal sacs is a giveaway. Cold searching the densest bushes in the garden is a good way of finding this species. The nests are small yet substantial and the bright blue, unmarked eggs and the 'frown-faced' young help with identification.

While you may observe **Blue and Great Tits** prospecting your nest boxes in March, the cavity-nesting season begins in earnest in April. Both species take well to nest boxes though they can use other cavities too. Alarm calls are a giveaway to a local nest and they are good species to watch back.

Early in the season **Starlings** can be witnessed singing outside nesting holes, and later they can be spotted carrying nesting material. They often nest in cavities under eaves, in high tree holes or in nest boxes. They will accumulate enough straw, grass, twigs and feathers to fill their selected cavity.

House Sparrows nest colonially and as anyone with House Sparrows in their garden will know these colonies are easy to spot! It is recommended that nest boxes are put up in a group, with space between each box, rather than using terraces (see page 28). It should be noted that House Sparrows have a higher risk of desertion during egg laying, so caution should be taken when checking nests.

April is also the month when finches start to nest in trees or shrubs several metres from the ground. The **Goldfinch** builds a dainty nest usually consisting of wool, plant down and cobwebs to give a soft fluffy appearance. Listen out for singing, which is most intense during the building stage, and if you find a first nesting attempt keep a lookout for their second attempt later in the season, which is likely to be nearby.

Date	Time	Eggs		Pulli			
		Live	Dead	Live	Dead		
<input type="text" value="DD/MM/YYYY"/>	<input type="text"/>						
17/06/2018	00:00		2			NE	
31/05/2018	00:00		1	7		YR	FM
27/05/2018	00:00			7+		IP	AV
12/05/2018	00:00		9			WA	AN
28/04/2018	00:00		2			CO	CV
21/04/2018	00:00					N4	

Each record of a nesting attempt consists of at least one visit, and preferably several, on which the contents are recorded. To maximise the value of a record, well-timed visits which include counts of eggs and nestlings, along with a final outcome, allow breeding success to be determined.

Most of the species that start to nest in March are multibrooded, producing multiple clutches per year, and second attempts of Robins, thrushes and Dunnocks often appear in May. Finches and sparrows can continue to breed into August and September respectively, with some pigeon broods still in the nest in October. Finding an old nest later in the year gives a good indication of where to look the following year.

As well as NRS, BTO also has the Nesting Neighbours survey, which is available to more casual nest recorders. Please do not duplicate information by entering data into both surveys, as the data from both schemes are stored in the same location, but if you have friends or family with nest boxes you may like to point them towards taking part in Nesting Neighbours.

RESULTS

Annual trends in breeding success calculated using NRS data are reported in the BirdTrends Report (www.bto.org/birdtrends) for 90 species. The information obtained from the records includes laying date, clutch and brood sizes and nest failure rates, all of which are combined to produce an estimate of the number of fledglings produced during the average breeding attempt.

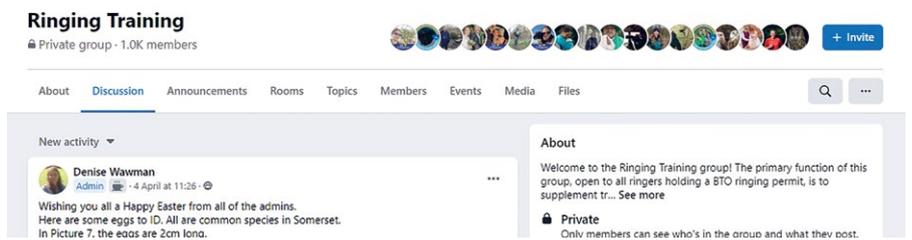
Dunnock chicks, by David Lambert;
Starling chicks, by Richard Castelli



If you are a ringer, then ringing pulli can provide valuable information about survival and dispersal of young birds, but please ensure you have the appropriate pulli-ringing endorsements on your permit.

Pandemic patience

Well, what a year this has been – the year like no other in any of our experiences. Home has become very familiar, and I'm very grateful to be in a wonderful rural location with a good garden and Pied Flycatchers just outside the back gate in the summer.



The Ringing Training Facebook Group has proved hugely popular with ringers of all permit categories over the past few months.

Covid-19 has had its effects on all of us. I know of several ringers and BTO members who have suffered seriously from it, and wish them well during their recoveries, which in some cases are taking many months. Hopefully the vaccination programme will eventually make the difference we need to resume our lives.

The fallout from the changes imposed by the pandemic had a major effect on BTO staff. Working from home, periods of furlough, and frequent changes in the restrictions imposed upon us all have made it a very busy and stressful time for the Ringing Office and other BTO staff. I want to add my thanks for all the work they have done to keep the show on the road. Staff have had many and long negotiations with the statutory conservation agencies over what might be permitted and when; with many differences emerging between the five countries and the Isle of Man. The briefings on restrictions could not have been clearer, and general operations have been kept going brilliantly well, so thanks and well done to all the staff involved.

From a ringers' perspective, there have been many frustrations for all of

us, but especially trainees who have in many cases not managed any ringing for a year now. We hope the option for a permit-fee holiday for trainees has been welcome for some, in a period when BTO's finances are under genuine strain. Similarly, it seemed inappropriate to think of raising fees or ring prices at a time like this.

Most welcome for trainees, I think, has been the arrival of the Ringing Training Facebook page, which now has 1031 members. This development sparked from discussions in RIN last spring, and we need to give huge thanks to Imogen Lloyd, our T-permit representative, and a small army of trainers, who have developed a brilliant resource. This has offered near-daily challenges in identification to trainees, occasional scenario questions about general ringing knowledge, and is even heading into video clips on skills and techniques. Well done and thanks to all who have contributed; the page is recommended viewing for every ringer!

RIN meetings have changed of course; they have gone online like so many others. Their timing has been affected, but we have had more frequent, shorter evening sessions to keep the vital business going. Training

was a key item at one of the recent meetings, and hopefully we'll be in a good position for positive development when life gets more normal. I offer many thanks to Tony Cross who has now completed his term as an elected representative, and welcome Louise Clewley as the new elected member. John Black and I agreed to serve a further year on RIN, given the Covid situation, but we will be looking for a new Chair and appointed member come the autumn.

Silver linings? Being unable to do many of the 'normal' CESs meant that around 100 ringers tried a garden CES. I caught twice as many birds as normal, but somehow Blue Tits and Chaffinches aren't quite the same as Blackcaps and Chiffchaffs. A number of us also trialled a winter ringing project in our gardens, and it will be interesting to see what can be gleaned from analysing these returns (there's an article on Garden CES in this *LifeCycle* issue too).

So here's hoping for a gradual return to normality during 2021, but for now we all still have to be patient, follow the restrictions and look forward to better times.

Ian Bainbridge, Chair of Ringing Committee

INTRODUCING YOUR NEW RIN MEMBER



LOUISE CLEWLEY

I am an A-permit holder for all species, with a cannon-netting and training endorsement (this is now an S permit). I started training to ring in 2009 on Salisbury Plain. Since then I have been involved in lots of ringing projects and met so many interesting and amazing people. I am an active ringer and have ringed/banded with groups in Africa, New Zealand, Sweden and North America.

I work for the Wildfowl & Wetlands Trust; previously at Welney as a warden and on Project Godwit, as the Reserve Manager at Martin Mere and I now work at Caerlaverock as the Centre and Reserve Manager. I mainly ring wildfowl and waders, but I have helped on several tagging projects including Pied Flycatchers, Nightingales, Black-tailed Godwits and Whooper and Bewick's Swans.

I was elected to RIN to start in 2021 and can't wait to begin. I have helped organise the Icklesham ringing course

for the last six years. I feel that there have been lots of positive discussions around improving training standards and opportunities in recent times and I look forward to working on this.

Areas that I think RIN can improve are the ringers-only pages on the BTO website; by using the expertise of the ringing community we can provide up-to-date resources that can be used for training and sharing knowledge. To do this we need better communication from across the ringing community to share ideas, knowledge gaps and opportunities.

Many ringers are unaware of the role of RIN within the scheme and what is achievable; sorry I won't be able to provide cheaper rings – I'm not a politician – but I will do my best to progress any reasonable suggestions. I am very approachable: please contact me with any ideas you'd like me to bring to the Ringing Committee.

Obituaries



TONY CREASE (1946–2021)

The most enduring legacy that Tony Crease has left us is Foxglove Covert Local Nature Reserve, tucked away in the Catterick Garrison estate, and now in its 26th year. It started as a secluded area of scrub where, recently returned from Germany, he could safely exercise his quarantined border collies. His remarkable vision, enterprise and energy has produced a wildlife haven with a diverse habitat of mature woodland, scrub, moorland and water, in lakes, ponds, dipping pools and streams. The field centre, with its education facilities,

wildlife museum and ringing room, is remarkable.

Tony ringed on the site from the beginning, with a prodigious use of mist nets and nest boxes. He embraced the CES scheme in 1993 and this continues today, with training an integral part. Out of this grew the Catterick Ringing Course which ran for 10 years until 2009. He arranged trainers from throughout the UK to train on a one-to-one ratio in a variety of habitats on the north-east military training area, with the addition of a cannon-and mist-net experience at Teesside, processing terns and waders. It was an astonishing enterprise, demonstrating Tony's leadership and organisational skills, which benefited a large cohort of trainees and trainers alike.

He was an engaging man who easily shared his warmth, enthusiasm and skill, and he showed a very personal interest in all of us who became involved. One trainee at the end of the

course captured the man by remarking, "*Tony seems to be able to make water flow uphill*".

He used friendship and persuasion to encourage the Royal Navy to sponsor Operation Auk, which started modestly as an annual seabird monitoring and ringing expedition to Cape Wrath. It developed into a characteristic mixture of science and *Boy's Own*, supported by nine attendees, two RIBs, their crew, a pair of canoes and accommodation in the observation post at Faraid Head.

Tony rallied the personnel and equipment and organised ringing expeditions throughout the north-east of England, as well as residential trips to Cyprus, Sweden and the Baltic island of Stora Fjäderägg. Sophie, his wife, joined his teams over the past eight years and will carry the mantle forward at Foxglove and elsewhere; she will have our full support to continue his astonishing legacy.

Prepared by Ian Grier



KEVIN WOODBRIDGE (1948–2020)

Kevin was born in London in 1948 and was schooled at the Royal Grammar in High Wycombe. An early interest in natural history led him to pond-dipping and fishing, but it was on Bardsey Island that his interest in birds developed. There he met the warden, George Evans, who became a formative influence, and experienced a Firecrest in the hand, was marooned by bad weather, missed Freshers' Week and came close to running out of food!

After reading medicine at Manchester he decided on a change of path so, in 1976, he became the Little Tern Warden at Gibraltar Point, where he underwent ringing training with Dick Lambert. After the terns went south, he headed north for general-practice training in the Outer Hebrides, from where a lucky tip-off saw him bound for interview on North Ronaldsay. The job was offered, and he started six weeks later, in February 1977, remaining the island's GP until 2011. Orkney matters became a way of life. He served on the North Ronaldsay Community Council and latterly as a Councillor for the North Isles ward of Orkney Islands Council. He also served as Clerk of the Sheep Court, auxiliary coastguard, and with the local fire team.

Seeing an opportunity to improve employment opportunities on the island, Kevin suggested developing a small-volume, high-value, mist-net-making industry. Enthusiastically taken up by the BTO, Chris Mead and Adrian Cawthorne visited in 1981 to train the islanders in net-making.

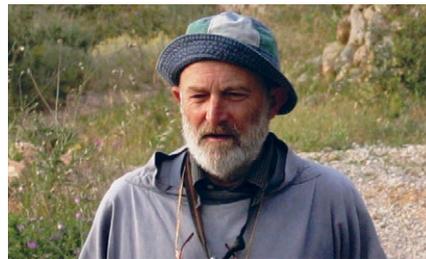
In 1987, Kevin founded the North Ronaldsay Bird Observatory, insisting on the highest standards for recording and record-keeping, whilst bringing

foresight, visitors and much-needed employment to the island, affectionately known as 'North Ron'. One of the early visitors to North Ronaldsay's new Observatory was Alison Duncan, who stayed on, becoming observatory warden a year later. Kevin and Alison later married and she has continued as warden and custodian of Kevin's ideals throughout.

Kevin was elected Chair at the Bird Observatories Council (BOC) AGM in 1994. Subsequent minutes reflected his continuing concern with standardised written recording protocols, computerisation of both today's and historical records, and their submission to BTO BirdTrack. Bardsey was the first Observatory to upload their entire sightings history to BirdTrack, and many others have now followed, which reflects the BOC's strong association with the BTO, which Kevin was always keen to foster.

Kevin died on 19 April 2020 after a short and unexpected illness. He is survived by his wife Alison and their children Heather and Gavin, and by his first wife Heinke Groth and their children Meike, Spike and Luke.

Prepared by Steve Stansfield



DAVE FLETCHER (1945–2021)

Dave Fletcher joined the South West Lancashire Ringing Group in 1974 and gained his C permit the following year. He became a very active ringer and was involved in a wide range of ringing and conservation activities in the area and further afield. He held a cannon-net licence from 1978 to 2002 and was secretary of the group for many years. Both trainees and permit holders benefited from his knowledge

and expertise and greatly enjoyed his company at ringing sessions, group meetings and conferences.

Dave ran multiple CES sites, including one at Woodvale, Formby, during 1984–2018, and one at Mere Sands Wood, a Lancashire Wildlife Trust reserve, where he also took part in ringing demonstrations and evening talks to raise funds for the Trust. In tribute to his work, one of the hides at Mere Sands Wood is to be named after him. His work on Banks Marsh NNR, on the Ribble, from the 1970s, included ringing terns, gulls, waders and ducks. His work was not restricted to fieldwork though. He wrote articles for SW Lancs RG reports on a wide variety of topics, and contributed maps and data analysis to the *Atlas of the Breeding Birds of Lancashire and North Merseyside, 1997–2000*. Dave also served on the Ringing Committee during 2013–16, offering his experience and thoughtful advice.

Dave was always interested in ringing further afield than south-west Lancashire, and in the 1970s and '80s he and Jan were regular visitors to Llangorse Lake, working with the ringers there, and spent several weekends in Wales helping with Dipper projects. Dave first visited Icklesham with his family in the late 1980s and in at least one year they spent their stay living in a horse-box that had been kitted out with a basic kitchen and beds. He soon caught the Icklesham bug and returned annually each autumn. In 2001 he answered an emergency appeal to help Phil Jones run the Icklesham project and he continued to spend the whole of each autumn at Icklesham until 2012. During this time he met and trained hundreds of ringers, both British and from abroad, and also helped to run the annual BTO ringing courses held at the site. One treasured memory was of Dave nonchalantly walking into the ringing hut one day with a Bittern under his arm.

In 2020 Dave and Jan completed a move to Tayside, to be nearer their daughters, Kathryn and Emma. Dave

was soon involved in several of the Tay RG projects; it is to everyone's loss that he did not have much longer to enjoy these new experiences.

Dave was a quiet man, but was one of those folk who are the absolute bedrock of the ringing community. Always willing to contribute, share, help and encourage, it is warming that so many ringers have acknowledged their debt of gratitude to him. It is only now, talking with his friends, that we realise what an important contribution he made to the study and conservation of birds, to the BTO and to the Ringing Scheme. **Prepared by Ian Bainbridge, Phil Jones and Ian Wolfenden**



BRIAN LITTLE (1936–2020)

Many ornithologists owe a debt of gratitude to Brian, who died after a long illness on 9 October 2020 aged 84. His boisterous enthusiasm inspired generations to perform survey work and bird ringing across much of Northumberland. Born in Newcastle, he lived his life on Tyneside. On leaving school he became a draughtsman with engineers C.A. Parsons. In the 1950s he trained for his ringing permit with Eric Ennion and completed his National Service with the RAF in Cyprus, where he ringed a lot of birds.

In the 1960s he discovered Kielder, a vast area of Forestry Commission land in west Northumberland, where he pioneered the monitoring of breeding raptors including Golden Eagle, Hen Harrier and Merlin. In 1962 he married Freda, and in that same year he obtained permission to build a Heligoland trap in a wood adjacent to the Northumberland coastal village of Low Hauxley. With the help of three

others, the trap was completed in 1963, and the Northumbria Ringing Group (NRG) was born. The landowner was so impressed that he donated the wood to the NRG. An annual gift of a pot of Northumberland heather honey had to be the ornithological bargain of all time!

Brian became Honorary President of the NRG and many of its current members, including ourselves, were trained by him. He was also an ornithology tutor and some students became involved in his long-term studies on Goosanders, Sparrowhawks, Kestrels, Merlins, Tawny Owls, Swallows and Pied Flycatchers.

In 1995 he was awarded the BTO's Bernard Tucker Medal and in 1996 he received the MBE for services to ornithological research. The MBE proved useful when giving evidence in a raptor persecution case. When challenged by a lawyer about his qualifications Brian showed the medal and said "*That shows I know what I'm talking about.*" The lawyer was silenced.

He was a popular speaker and on one occasion he caused great hilarity by stating that a mass mortality of Shags on the Farne Islands was caused by a minute orgasm! Malapropisms were a feature of his talks.

Brian was very much a supporter of the BTO and throughout his studies he received valued advice from Ian Newton. He co-authored the results of a wind-farm study he carried out in Blyth in the 1990s in '*Birds and Wind Farms*' and similarly in several papers on Merlins and Goosanders in *Bird Study, Ringing & Migration, The Migration Atlas, British Birds* and *Ibis*.

Brian was a great traveller, and some stories were legendary, but after Freda died in 1998 he was never the same. His mobility was adversely affected following a road accident in 2000 and trips to faraway places progressively came to a close. In 2013 the NRG celebrated its 50th anniversary and Brian proudly welcomed members and friends to a reunion in Newcastle.

On his passing, tributes came from as far away as Australia and South

Africa. Perhaps the most appropriate came from a former work colleague: "*If ever there was an example of someone living life to the full, and on their own terms, it was Brian*". **Prepared by Bryan Galloway and Ian Kerr**



VAL JACKSON (1946–2020)

In late 2008, Val contacted me in her role as a volunteer co-ordinator at Gwent Wildlife Trust to report that BTO nest recorder Rodney Morris had erected 390 nest boxes across 13 Trust reserves and they wanted to set up a monitoring project to contribute data to the Nest Record Scheme. Within a few months, Val, husband Denis and Rodney had held several workshops, recruited 18 volunteers and come up with a plan to co-ordinate monitoring; that autumn 109 Blue Tit, Great Tit and Nuthatch records were submitted.

Over the following years Val expanded the project to include eight more reserves and cover 796 boxes and she laboured every season to keep in touch with volunteers, train new ones and distribute and chase up survey forms. To date the project has contributed over 3,100 records and it continues, thanks to new co-ordinator Paul Greenfield and 31 Gwent WT volunteers.

Val retired from the monitoring project after setting up an ecological consultancy with Denis. She was an accomplished musician, ecologist, natural historian, open-water SCUBA instructor and potholer. Val was also a dedicated BTO volunteer and Swanwick Conference regular; her generosity, warmth and charm will be much missed by many staff and volunteers. **Prepared by Carl Barimore**



Crataerina pallida on a Swift, by Darren E. Nicholls; Male *Stenepteryx hirundinis*, © Trustees of the Natural History Museum, London

Two different types of flat-fly; *Crataerina pallida* which is mostly associated with Swifts and *Stenepteryx hirundinis* which, as the name implies, is associated with hirundines (mostly House Martins).

Recording flat-flies

Have you ever had a flat-fly crawl out of your hair or clothing after ringing or nest recording and wanted to know more? If so, then this article by Denise Wawman, who runs the UK recording scheme for flat-flies, is for you.

REFERENCES

- Hutson, A.M. (1984) *Keds, Flat-flies and Bat-Flies: Diptera, Hippoboscidae and Nycteribiidae, Handbooks for the Identification of British Insects, Vol 10, Part 7*. Royal Entomological Society, London.
- Petersen, F.T., Damgaard, J. & Meier, R. (2007) DNA taxonomy: how many DNA sequences are needed for solving a taxonomic problem? The case of two parapatric species of Louse Flies (Diptera: Hippoboscidae: *Ornithomya* Latreille, 1802). *Arthropod Systematics & Phylogeny* **65**, 119–125.

All flat-flies (also known as louse-flies) are parasites on birds and belong to the family Hippoboscidae, which also contains the keds which are parasites on ruminants. Fast, silent flight allows them to approach a host undetected and their flattened body shape allows them to hide in the feathers and move close to the skin, making it more difficult for the host to remove them.

LIFE CYCLE

Flat-flies have an unusual life cycle. The female fly doesn't lay her eggs but raises one larva at a time inside her uterus, feeding it a secretion from a 'milk gland'. When it is mature, she releases it and it immediately starts to pupate, falling off the bird, to metamorphose, emerge and find a new host.

Both males and females survive by feeding on the blood of their hosts and need to feed within about five days of hatching to survive. Most species need to feed every few days, but usually feed daily. Do flat-flies bite humans? They will, but only if they are very hungry and can't find a bird.

Compared to other species of flies, adult flat-flies are long-lived. Some flat-flies can live for three to six months. Death usually

occurs either with the death of their host or because the host eats them. Those which narrowly escape may have damaged wings.

IDENTIFICATION

To identify the common species you will need a microscope or other means of obtaining at least x20 magnification, such as a camera capable of taking good macros. Not all flies found on birds are flat-flies, but if it's a flat-looking, two-winged fly found on a healthy bird away from a nest it is almost certainly a Hippoboscid. The species found on birds have bifid claws to help them cling to their hosts.

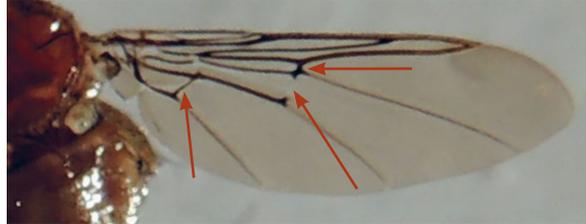
There are five species commonly found on birds in the UK and six others on the official UK list, with a seventh about to be added. Two UK species are fairly specific to a single bird species. Ringers of Swift pulli will have seen the distinctive *Crataerina pallida* which is rarely found on other species. Similar, but with narrower wings, *Stenepteryx hirundinis* (previously *Crataerina hirundinis*) is usually found on House Martins but may be found on other hirundines. The other three common UK species are in the genus *Ornithomya*. They

A rough guide to the common UK *Ornithomya*

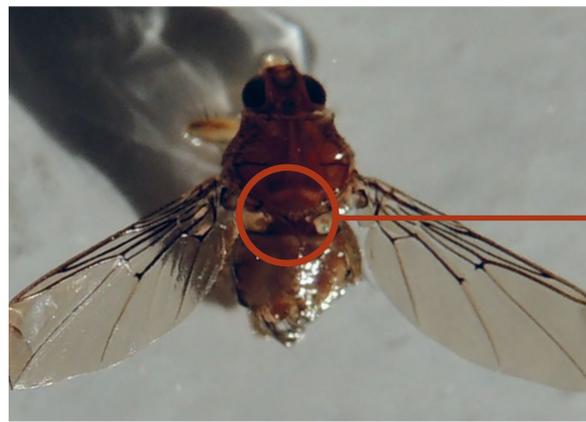
All images by Denise Wawman



All flat-flies found on UK birds have bifid claws.



Ornithomya have 3 cross-veins behind the radial vein. One vein is often not filled.



Scutellum
(close-ups below)



4 scutellar bristles usually *Ornithomya fringillina* (left). 6 scutellar bristles usually *O. chloropus* (right). *O. chloropus* is usually much darker than *O. fringillina*, and has dark markings on the gena (underside of the head beside the eyes) and thorax.

8–10 scutellar bristles, *O. avicularia*. This is the largest UK species in the genus, wing length over 5.5 mm. It usually has a pale head and thorax, although the example on the right is unusually dark.

are found on a range of avian hosts, of all sizes and families, including seabirds and waders, although they are most frequently recorded from small passerines, near passerines and raptors. The flat-flies of this genus all have small narrow antennae and three cross-veins posterior to the radial wing vein (see diagram above), although one of these veins often fails to fill with haemolymph or ‘insect blood’.

The *Ornithomya* can be sorted into the most likely species by the number and

arrangement of the larger bristles on the scutellum (the shield-shaped area at the back of the thorax), although the number of bristles may vary, and weak or missing bristles can cause confusion. The three common species have the larger bristles arranged in a line along the back of the scutellum. In the much rarer *Ornithomya biloba*, these bristles are not confined to a single row. Several features need to be examined to confirm the identification, which may include the presence of dark

FACEBOOK GROUP

There is a Facebook Group for the Project called 'Hippoboscidae UK' which anyone can join.

marks on the underside of the head and thorax, which are only seen in *Ornithomya chloropus*, wing length, the size of the eyes, the overall colouring, and the patterns made by the small hairs on the wing surface.

RECORDING

The most recent UK study of these species was in the early 1980s, with most work done in the 1950s and 1960s. There are few recent records, and the current UK ranges of the common species are not known.

In November 2020, I started the UK recording scheme for the Hippoboscidae, which is run jointly with the closely related Nycteribiidae or bat-flies, which are managed by Erica McAlister of the Natural History Museum, London. We welcome historical and current records. I am happy to identify any flat-flies and keds or verify the ID of rare species that are sent to me.

Species records can be entered via iRecord, ideally with clear photographs showing the main ID features of the fly

for verification, and a record of the host species in the comments section. In time, a new field for host species will be available if you navigate to iRecord from the recording scheme webpage, www.dipterists.org.uk/hippoboscidae-scheme/home. If you have a lot of records to enter, I can upload them from a spreadsheet.

MAPPING THE UK'S FLAT FLIES PROJECT

Following a successful pilot last year, 2021 sees an ambitious project to discover the state of the nation's flat-flies, in terms of both their geographical location and host-species distribution. Future work is planned to look at their possible role as vectors of avian disease.

Subject to availability, I will provide flat-fly collecting kits to ringers who want to collect flat-flies or keds. I'll ID them and send you the results. There are several species that are common on the Continent, but have never been recorded here, so you might find a UK first!

Marks 5 & 6 House Sparrow nest box

Long-term avid readers of *LifeCycle* may be aware that I have been experimenting with nest boxes for House Sparrows for some years, concluding that House Sparrows do not like terraces but prefer separate boxes, although gaps in walls and under the eaves are their favourite sites. I have been trying different designs to attempt to mimic these semi-natural sites and have now produced the Mark 5 and Mark 6 boxes.

The Mark 5 box design is regularly used by House Sparrows. It allows them space to build a messy nest at one end, with an entrance passageway for security. In addition, while monitoring boxes I have discovered that, even during the day in good weather, both parents roost in the box with the chicks, suggesting that the narrow passageway I put in the Mark 4 is unnecessary, and may even stop this behaviour. The Mark 5 box is like a shoe box with a shallow

sloping roof and a 32-mm hole at one end. I don't think the size is critical, but I used planks 150 mm (6 inches) wide to produce boxes about 280–300 mm (11–12 inches) wide, with a height of 150 mm (6 inches) at the front and about 180 mm (7 inches) at the back. The depth is the width of the planking you use plus the front and back.

The Mark 6 arose out of laziness. I was making nest boxes with a friend out of misshapen offcuts of wood. Because the saw was blunt, we decided to leave

the rough ends, rather than squaring-off the planks. This resulted in a box with a longer base at the end, with the entrance hole and a slight overhang like a veranda. Once it was put up, a pair arrived within days and successfully fledged the first brood of chicks to be raised at my friend's house.

I'd love to know if these designs work for anyone else, or if Exmoor House Sparrows have different preferences to those elsewhere.

Denise Wawman



Inside of House Sparrow box by Denise Wawman



Blackcap, by Edmund Fellowes/BTO

Blackcap is one of the few migrant warblers to be increasing in numbers, as shown by both the BTO/JNCC/RSPB Breeding Bird Survey and CES indices.

Notes on Blackcap nest monitoring

The Blackcap is now a common species across both Britain and Ireland and, since 1995, it has undergone an astonishing 1,540% increase in Northern Ireland (Harris et al. 2020). Stephen Hewitt finds it a fascinating and charismatic species to study, as he explains here.

Since 2017 I have monitored 51 Blackcap nests for the Nest Record Scheme, in both the south of England and my native Northern Ireland. When locating Blackcap nests, it is useful to map territories early in the season and focus on those where nesting habitat – usually bramble – is relatively limited and where visibility is better. In total, 43 of these 51 Blackcap nests have been in bramble, most lower than one metre above the ground, with a few as high as 1.6 m. Four nests were in nettles and/or cleavers, and one each were in hawthorn, gorse, snowberry and non-native rose.

Of the 51 nests, 10 were found after a slow search, usually in known territories, while 14 were found solely through tapping – again, however, usually in known territories. The other 27 nests were found through observation: watching the birds' behaviours and listening to their songs and calls. It is this third set of nests and observations that I'll focus on in this article.

BLACKCAP SONG

The beauty of the Blackcap song is well known. What is perhaps less well known is its variety, both within and between

individuals. Being alert to the subtleties of Blackcap song can sometimes help in the finding of nests and greatly increases the enjoyment of this species.

The *Birds of the Western Palearctic* (Cramp 1992) recognises three main types of Blackcap song. In reality I suspect that these are not definitive categories and there is likely some overlap.

- Full song is strident and given in regular phrases with chattering introductions and flute-like endings.
- Courtship song is excited, continuous and usually includes mimicry and/or discordant notes, akin to the whistling of a Starling. It is often given in the presence of a female and sounds manic compared to full song.
- Subsong is common; it is rambling, continuous and whispered, audible only at a few metres. Subsong often leads into full song or courtship song. Occasional female song reportedly sounds similar to the male's subsong.

Male Blackcaps have been noted to sing in numerous situations including while incubating (Howard 1907–14, Morganti 2013) and whilst brooding and carrying

MIMICRY

Mimicry is widespread in Blackcaps, especially during courtship song. Extraordinarily accurate imitations of Blackbird songs and calls are common; also heard are imitations of Song Thrush, Great Tit, Goldfinch, Willow Warbler, Sedge Warbler and others. Intriguingly, I've heard short snatches reminiscent of Nightingale in Blackcap song in Northern Ireland, where Nightingale does not occur. Anthony McGeehan has recorded similar (see e.g. www.xeno-canto.org/554174).

Blackcap chicks in the nest, by Stephen Hewitt



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food back to nestlings (Ingram 1922). They regularly sing whilst accompanying recently fledged young; however, some individuals seem to become much quieter once paired. Indeed, pairs can be very skulking, sneaking into nest sites entirely unseen and unheard, only to be spotted when they emerge swiftly and directly into nearby taller vegetation.

Blackcaps are also known to sing on their wintering grounds (Cramp 1992). There is an annual ‘frenzy of song’ in the woods of Co. Down in early March, before our wintering (continental European) Blackcaps depart and our breeding birds arrive (Greenwood 2016). I once heard a Blackcap in full song at Stoneleigh railway station in Surrey on 1 March 2019!

COCK’S NESTS

Blackcaps are typical among the *Sylvia* warblers in that the males build several rudimentary ‘cock’s nests’ in their territories, one of which the female usually chooses to complete. Up to seven cock’s nests have been recorded in a single Blackcap territory and a male has been observed continuing “to build useless platforms while the completion of the true nest was being undertaken by his mate” (Raines 1945). Finding cock’s nests can be frustrating for a nest recorder, as only a minority will be used for a nesting attempt; however, it is worth keeping an

eye on any that are found throughout the season. Cock’s nests are also used in display. At Lagan Meadows in south Belfast, I have seen a male Blackcap sitting horizontally on a cock’s nest with his head and tail clearly visible, singing a courtship song to a nearby female, bobbing his tail up and down as he sang. This particular nest was not used for eggs.

BUILDING AND CARRYING FOOD

Blackcaps can be watched nest-building and carrying food back to young, but I find only a minority of nests by those direct methods. Often the birds are too skulking and the vegetation is too dense for them to be watched back fully. Nevertheless, Blackcaps carrying food or material can give clues as to the nest’s general vicinity. Early in nest construction, they often carry long wisps of dry grass and can be quite conspicuous. When a female is seen carrying material she should be watched carefully, as the resultant nest is more likely to be the one that is eventually used.

BRIEF BURSTS OF SONG

Brief bursts of song, usually of no more than one phrase, or even a truncated phrase, can be a very useful indicator that there is an active Blackcap nest nearby. These brief bursts may be given at any stage of the nesting attempt. During breaks in nest construction they may be combined with flitting around the nest site and preening.

In May 2020, in Co. Armagh, I heard three such truncated song phrases given intermittently over the course of half an hour, by an unseen bird in an overgrown hedge. A single tap of vegetation at the source of the song flushed an incubating Blackcap. Interestingly, this particular nest was lined with purple twine (see photo opposite). Similarly, I once found a nest after hearing an incubating Blackcap give a single ‘tac’ call in apparent response to song from a neighbouring male.

When brief bursts of Blackcap song are heard it is well worth trying to locate the bird in question or pausing for a few minutes of observation. Sometimes you will be rewarded quite quickly by a male emerging directly from a nest site.

EMERGING FROM LOW VEGETATION

Subsong and/or courtship song given by unseen birds from low vegetation is also always worth investigating. If you can spot the birds, they may seem excited, with raised 'caps'. Any accompanying female may shiver her wings like a juvenile begging for food. Often a male, female, or pair will eventually emerge and examination of the spot could lead to discovery of a cock's nest, a true nest awaiting eggs or with an incomplete clutch. In fact, the point from which any Blackcap emerges from low vegetation, especially bramble, should be investigated, even if no prior vocalisations have been heard. At the nestling stage, you may catch a glimpse of a white faecal sac in the adult bird's bill as it flies away. You might also have been lucky enough to witness a changeover in incubation. Quietly watching an area of bramble, or walking carefully through it, can result in an adult Blackcap leaving a nest and fluttering low over the vegetation, injury-feigning.

HEAD MOVEMENTS

On four occasions I have found active Blackcap nests after observing singing males peering down into vegetation towards nest sites. On these occasions the males were sitting several metres up on nearby perches. When looking down they made a distinctive movement of their heads, turning them to one side in a manner reminiscent of a confused puppy, or a Blackbird foraging on a lawn. Such a head movement from male Blackcaps peering towards nest sites might seem like a minor aspect of behaviour. It is possible that the singing males' attention was directed towards females at the nests, rather than the nests themselves. Nevertheless, the movement is obvious and distinctive and has allowed me to find nests very quickly after examining the positions at which the males were looking. In all instances the nests either were still under construction or had incomplete clutches.

FEMALE BEHAVIOUR

Close attention should also be paid to females at all stages; I have twice watched them return stealthily to nests after breaks in incubation. Females are usually very quiet around the nest, especially during

incubation; however, on two occasions, I have heard them giving loud repeated 'taac' calls in a rapid series close by nests, just when their eggs were due to begin hatching. These repeated calls could be a useful pointer to an active nest's location.

I hope that this small study shows how nest recorders can learn more about a familiar species. Even considering the associated bramble scratches, mosquito bites and occasional ticks, I have had several very satisfying seasons monitoring Blackcap nests and look forward to many more!

Blackcap: nest-recording profile

Mainly summer visitor. Mature broadleaf or mixed woodland with well-developed shrub layer; also copses, thickets, dense hedgerows with mature trees (cf. Garden Warbler). Solitary.

Site: Usually under 1 m in low cover, most commonly brambles with nettles growing through, or low branches of hedge or bush surrounded by tall herbage; also in snowberry, where usually higher (up to 2 m); sometimes in trailing ivy or creepers.

	J	F	M	A	M	J	J	A	S	O	N	D
Eggs												
Young												

Nest: Neat cup of grasses and some moss (cf Garden Warbler) woven around supporting stems as 'basket handles' which, with rim, are strengthened/decorated with spiders' webs (cf Garden Warbler); lined finer grasses, rootlets and hair. **Eggs:** Variably white or tinted buff, olive or pink, spotted, speckled or blotched (often sparsely) with buff, olive, brown, red-brown or purplish-red, and underlying grey; light mottling of darker pigment sometimes obscures ground colour (cf Garden Warbler). Laid daily; incubation from penultimate.

Broods: 2 (1-2), **Eggs:** 4-5 (2-6), **Incubation:** 11-12 (10-15) days, **Hatching to fledging:** 11-12 days.





Potter traps, baited and ready to operate, by Robin Ward

Remotely controlled Potter traps. The master solenoid and controls have been housed in the clear plastic box and under the inverted green plant tray.

Operating remotely

Establishing a population of colour-ringed birds for a RAS allows re-encounters to be accumulated from resightings, removing the challenge of recapture in subsequent years. In this article, Robin Ward shares his design for a remote-controlled Potter trap that he uses to catch Starlings in his garden.

Initially I began capturing and colour-ringing the local breeding population of Starlings visiting my garden using a remotely operated whoosh net. It was constructed following Charlie Sargent's design (see link in side bar). The system was easy and cheap to self-construct, whilst preventing further gouging of the back-door frame from the pull-cord release mechanism of the previous setup!

Prior to the fledging of the first broods in mid-May, I succeeded in capturing the majority of the local breeding Starling population visiting my garden (8 m x 18 m) in the rural village of Great Stukeley, Cambridgeshire. Consequently, it became increasingly difficult to take a whoosh net catch without capturing a high proportion of recently colour-ringed birds.

I previously considered following Denise Cooper-Kiddle's advice in switching over to using a number of Potter traps – Denise being another Starling RAS operator. However, it was now spring 2020 and I found myself working from home during the Covid-19 lockdown period, with the opportunity to respond, as and when, to captured birds in my garden. Moreover,

using Potter traps would reduce bird handling as the time taken to extract birds is minimal compared to a full whoosh net of birds. Recently caught adults are also less likely to re-enter Potter traps within days of initial capture.

In late April, I started using Potter traps instead, but adapted them using a remote, keyless, central door-locking mechanism, so that I triggered closure of the trap's door. This allowed the selective capture and timing of birds, including by species and whether individuals were already colour-ringed or not. An added bonus was the ability to capture both parent Starlings and their dependent fledglings when in the trap together, on a well-timed triggering of the trap door.

REMOTELY OPERATED POTTER TRAPS

The figures illustrate the remote, keyless, central door-locking mechanism used for a system with two Potter traps. For each door motor/actuator mounted on a Potter trap, a cable tie is put through and tied off in the 360 degrees swivel motor head (white part of the motor/actuator) together with a fencing staple. The cable tie is positioned

Charlie Sargent's remote whoosh net design can be viewed on his blog at: birdringers.blogspot.co.uk/2014/12/whoosh-net-now-operates-remotely.html

to hold the staple in place to support the weight of the trap's door. Two cable ties are put through the in-situ screw holes of the door motor/actuator and tied off to clamp it to the roof of the trap. Positioning is critical, as pulling the motor head into the motor/actuator (via the remote control) releases the trap's door.

To operate two or more Potter traps independently requires separate remote, keyless, central door-locking mechanism kits i.e. each trap has its own master solenoid/control which is connected to the door motor/actuator. One 12-volt car or leisure battery can serve two (or more) traps by merging the positive or negative wires from each master solenoid/control into a single positive and negative wire leading to the battery. An example of the wiring to do this for two traps using plug and socket terminal blocks is illustrated below.

RESIGHTING COLOUR-RINGED STARLINGS

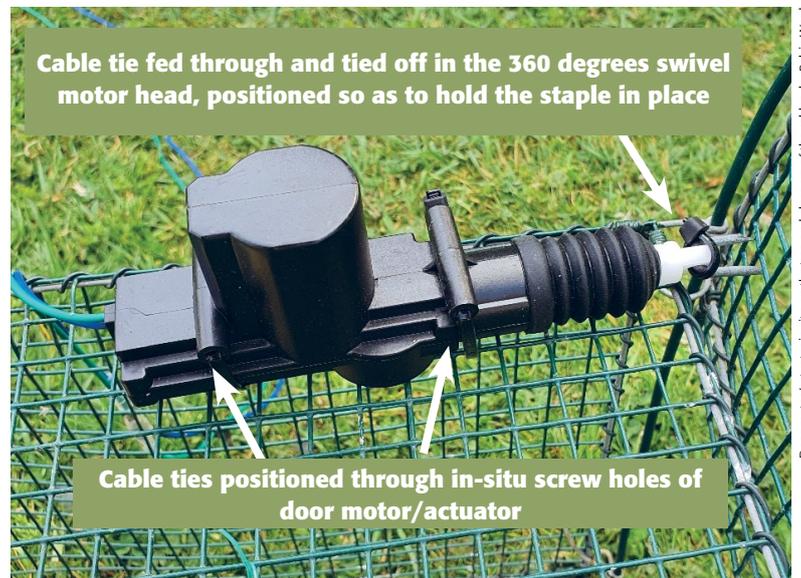
All Starlings colour-ringed for the RAS were marked with a single dark blue ring, engraved with a white, three-character alphanumeric code. The rings were 12 mm tall x 6 mm wide; however, the codes have proved challenging to read even through 10x40 binoculars when the birds are only eight metres away on the lawn feeding in and around the Potter traps.

I have now resolved this problem by digiscoping; identifying the colour-ringed birds via playback of the recorded video on a computer, often using slow playback. A Swarovski Optik STX 30-70x95 telescope with a VPA variable phone adapter and Samsung Galaxy Note 10 mobile phone were used. That is just one example of many combinations of telescope/binoculars and videoing by mobile phone that should allow alphanumeric codes to be read in the field.

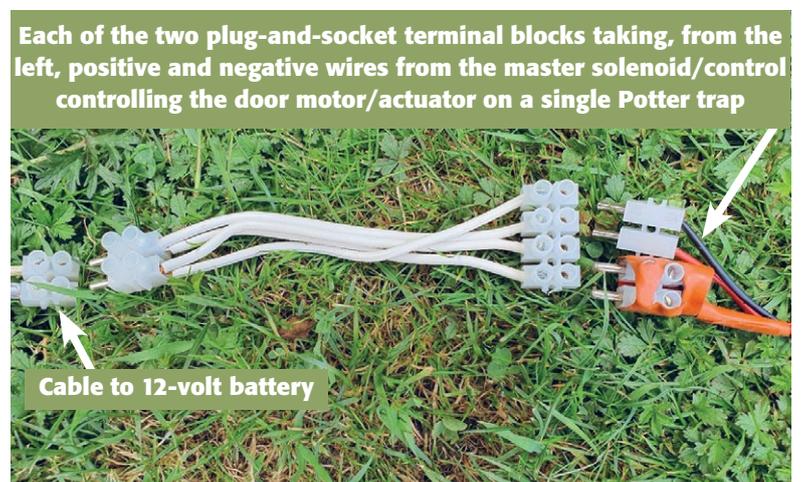
CONCLUDING REMARKS

The vast majority of adult Starlings observed visiting the garden were colour-ringed by the time of the first sighting of a juvenile on 16 May 2020. A total of 48 adult Starlings had been colour-ringed up to and including that date in 2020, with a further 13 colour-ringed birds from previous years resighted. Within one to two weeks of the synchronised fledging of the first broods,

there was a sudden loss of colour-ringed adult birds and an arrival of adults with no colour-rings; just five colour-ringed individuals were observed between 20 May and 31 May. Only a further three birds were colour-ringed of 73 adults captured in May after 17 May. This demonstrates a change in population that was not evident until the birds had been colour-ringed. Perhaps the focus of a Starling RAS should be on capturing and colour-ringing adults, and resightings, up to the synchronised fledging of the first broods?



Close-up of the door motor/actuator in place on the Potter trap



Example of the wiring for merging of the positive or negative wires from each of the master solenoid/controls of two Potter traps into a single positive and negative wire leading away to the 12-volt battery.



Little Ringed Plover chicks, by C. Pennock

A brood of four Little Ringed Plover chicks at 24–36 hours old. The biggest danger with this species is that a lone ringer could inadvertently tread on a squatting chick. These chicks were monitored with the appropriate Schedule 1 licence in place.

Tips for ringing wader chicks

In the summer of 2010, an article was published in *Ringers' Bulletin* entitled 'Wader chicks: tips for safe ringing' (vol 12, no. 7, p104–105, available on the ringers-only pages of the BTO website) which covered tips for 11 species. While the original article is still a very useful starting point, in this piece members of the East Dales Ringing Group provide additional comments and tips for safely and efficiently ringing wader chicks.

As a ringing group, we are fortunate to still have reasonable breeding populations in our study area of 10 of the wader species mentioned in the original article, and we have 25 years' worth of experience in ringing them. Generally, we find that ringing alone is far less productive than using a team of ringers and spotters and that efficient catching techniques are essential to help minimise disturbance and exposure to predators. Our preferred method is to have at least one, even two, spotters watching a brood and guiding a third ringer onto the chicks. For some species, such as Avocet, using radios to communicate between team members is essential.

Spotters need to be extremely good at marking where the chick has squatted or is hiding as guiding the ringer into the 'right area' in many cases is not good enough; radios or mobile phones are an absolute boon for this. We have ringers in the group who are best at one or the other task and making the most of their skills is imperative for a productive session. Often, we have used

one spotter for two 'runners', although for some species a 1:1 ratio is far more efficient. It is also advisable that the runner stays out of the spotter's line of sight to the chicks.

For all of these species, finding the nest at egg stage greatly enhances the chance of successfully ringing broods, as well as providing valuable nest record data, particularly for desperately under-recorded species such as Golden Plover, Snipe, Curlew and Common Sandpiper. The use of thermal imaging technology can help to locate chicks, but only when the ground is cool, such as at first light.

LAPWING

We agree with much of what the original article advises for this species, but would argue that one person trying to ring a whole brood, by constantly returning to the vehicle to wait to see where the next chick has been hiding, is causing continued disturbance to the whole site. We would advise that it is better to make only two attempts to locate chicks in a brood and ideally, to

have one spotter who guides the ringer in (via radio or mobile phone). There also comes a point where a ringer must judge that the distance involved in the initial search is too far from the vehicle and therefore not attempt to find the chick. It is amazing how the terrain can change once you are walking across a field, trying to stay on the line of sight towards a squatting chick; even big chicks usually squat until the last minute, occasionally even when they can fly.

OYSTERCATCHER

The chick in the photograph accompanying the original article is nearer three weeks old, not five or six days as stated. They are slow to grow, so we recommend ringing pulli when they are a minimum of two weeks old, ideally nearer three weeks – they will run but are not as fast as Redshank or Avocet! One adult usually marshals the chicks, whilst the other will fly off to forage and bring food back, so it is relatively easy to locate a family group. Be aware that with inland-breeding

Oystercatchers on islets, chicks can swim and dive, so be prepared for them to take avoiding action and if in any doubt, do not attempt to catch them.

REDSHANK

Redshank are extremely good runners, even at an early age and are very good at hiding, hence distance is a problem. If the brood or chick is more than 50 metres away, you are unlikely to find it without luck and a very good spotter. Chicks run at the first alarm call and often don't squat until they feel safe or, for smaller chicks, until you are almost on top of them. Big chicks can, and will, outrun you! Adults usually move a disturbed brood some distance, so when going back for a second attempt, they are often not where you expect them to be.

CURLEW

We agree with the advice that it is better to ring chicks from around three or four days old and this is another species where larger chicks are very fast when running. The adults are extremely attentive and alert parents and it is a lucky ringer who can work out where the chicks are and be on the move to find them before the adults sound the alarm! It is worth noting that as chicks grow, some broods can be split between the parents and chicks can forage a surprisingly long way from them.

COMMON SANDPIPER

We agree with all that is stated in the original article. Chicks rely on their camouflage, so care must be taken not to stand on any which are squatting. If using a spotter to watch the chicks, that person needs to be marking well, because some chicks will go under stones or the edges of stones and it is imperative to have them accurately pinpointed.

AVOCET

Whilst we agree with the statement that chicks shouldn't be ringed in their first week, we strongly recommend they should be a minimum of two

weeks old before ringing. They are quite independent of the adults from an early age, so if you are intending to ring a whole brood (e.g. three or four), there should be a spotter for each chick. They rarely squat but run remarkably fast and for a long distance and can also swim! Be aware that the adults could move a brood to an adjoining site after ringing, even crossing roads, therefore, it is wise to consider the habitat and surrounding area before trying to ring them.

SNIPE

The adults split the brood between them: therefore if trying to catch and ring chicks from underneath a brooding adult, you need to be very close because the chicks rapidly spread out and hide very quickly.

RINGED PLOVER

While we agree with what is written, the advice applies to the shoreline; inland, at gravel pits for example, it is recommended to ring them whilst still in the nest scrape (24–36 hours old). In this habitat, they are more contained, so locating a family group can be more straightforward should the chicks be older. Again, they can run fast and also rely heavily on their plumage for camouflage, so care must be taken not to stand on any hiding chicks.

LITTLE RINGED PLOVER

We feel that the statement “[chicks] seem to disappear at 10 days old or are able to fly” is misleading! Like all wader chicks, they do not mature until a month old and rely on their cryptic camouflage and alert parents. They are in the nest scrape until 36 hours old, after which they disperse and become much more difficult to find unless the ringer has assistance.

GOLDEN PLOVER

Looking for these chicks can be very frustrating; when the adult(s) alarm, the chicks hide or squat almost immediately and adults often spot you before you spot them! If the position of a chick isn't marked before it squats, once the

alarm is given it is better to retreat and wait (this, of course, is easiest from a vehicle). Once the adult(s) have stopped alarming, wait and watch; there is an 'all clear' call after which chicks will relax and show themselves. The spotter needs to be good and be able to talk the runner to within a couple of metres, as the camouflage works very well and only a few chicks panic and break cover at the last minute.

SCHEDULE 1

Some of these species require a Schedule 1 (or equivalent) licence to disturb in the breeding season. Ringers should ensure they are familiar with which species are protected in the country in which they ring. The list of protected species can be found on the BTO website at: www.bto.org/our-science/projects/ringing/taking-part/protected-birds

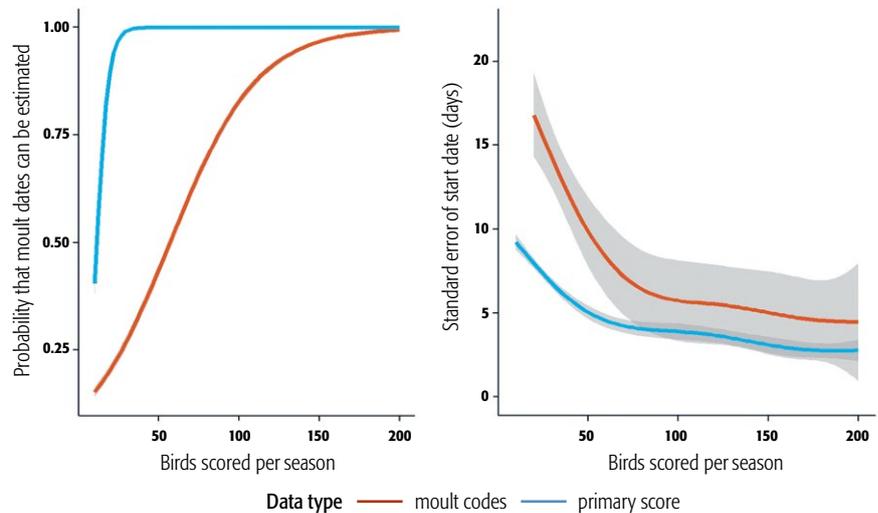


Curlew chick in the hand, by East Dales Ringing Group

Curlew chick in the hand. Waders are prone to leg cramp so, as shown in this image, birds should always be held in a grip that doesn't restrict their legs.

A feather at a time: moult recording

Most adult birds moult all their feathers once a year, which provides an energetic challenge on a par with reproduction and migration. Despite this, moult has been a neglected subject in ornithology and much remains to be learned about how it fits into the annual cycle of birds. In this article Philipp Boersch-Supan, the BTO's Ecological Statistician, highlights the value of recording scores of individual primary feathers.



Analyses of moult timing (phenology) based on primary scores require a much smaller sample size to yield useful results (left), and deliver date estimates with higher precision, particularly for small sample sizes (right).

Documentation of basic moult data such as the timing, location, sequence, and completeness of feather replacement is crucial for any attempt at unravelling the physiological and environmental causes of moult and how these might differ between species and regions. As changing climates alter birds' breeding and migration seasons, how is the timing of moult changing? Ringing records provide a critical source of information and we have been looking at how we can best make use of them. Specifically, we are interested in quantifying the variation in passerine moult timing and duration, and investigating potential environmental drivers thereof. Estimating the date when moult starts and how long it lasts in wild bird populations is challenging; usually the full progression cannot be observed in individuals. Rather, we have to infer moult timing across a population from snapshots of different individuals throughout the season that are usually only caught once.

RECORDING MOULT

One of our first insights from this project is that the way moult is recorded matters. The guidelines in the *Ringers' Manual* allow two types of moult

information. Moult codes consider moult progression across the entire bird in broad categories relevant to all ages, whereas primary scores track the progression of flight feather moult in more detail.

SIMULATION

To determine the relative value of these two approaches, we simulated moult in a large virtual population of adult birds. We then sampled this virtual flock as if we were catching them using different levels of effort (i.e. numbers of birds caught over the course of a season) and noted either the moult code ('O – old plumage', 'M – active main moult', 'N – new plumage following main moult') or the scores of the individual feathers for each (0–5). Finally, we used a statistical model to estimate moult timing for each sample. Because we know how moult progresses in our simulated population, we can assess how accurate our statistical estimates of moult commencement and duration are using the two recording methods.

Estimating moult dates and durations is sensitive to when birds are observed in their moult cycle. Ideally, records from a season cover birds in all stages of active moult as well as

those individuals that haven't started (code 'O', score 0) and those that have finished (code 'N', score 50). We found that this was particularly important when using moult codes alone.

RESULTS

On average, a much larger sample of birds with just a moult code is required for the phenology model to yield any results – 50 birds sampled randomly across the season offers only a 50:50 chance of successfully estimating moult start date and duration (see graph). Primary scores hold much more information, because wing moult progresses in a near-linear fashion in many passerines. A random sample of about 30 scored birds virtually guarantees reliable estimates of moult phenology. Further, when estimation succeeds, the estimated dates and duration are much more precise for a given sample size when using primary scores.

Samples larger than c. 50 individuals with primary scores yield standard errors smaller than about five days. For moult codes, a threefold larger sample is required to obtain the same level of precision. Although these numbers might seem small in a national context,



Coal Tit wing in primary moult.

by the time you start breaking the sample down by sex, habitat, location... every record becomes valuable. So, next time you are processing captured birds please consider recording a full set of primary scores, and remember, scores of pre- and post-moult birds are as important as those of actively moulting birds to understand the phenology of feather replacement.

REFERENCE

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The Biology of Moults in Birds – review

After having previously reviewed the second edition of *Moult and Ageing of European Passerines* by the same authors, it was with eager anticipation that I awaited publication of this new companion volume, *The Biology of Moults in Birds*. I was not disappointed.

Most ringers and birders will be familiar with using an understanding of the extent of moult in a species to age birds in the hand or field, and other reference works provide a basic introduction to moult for this particular purpose. *The Biology of Moults in Birds*, however, examines the intricacies of moult on a whole new level; I have not previously come across such a complete and systematic review of the biology of moult and the impact that this energy-intensive process has upon every stage of the avian lifecycle.

The book starts with a chapter looking at the numerous different functions of plumage, before moving on to maintenance and the necessity for renewal in chapter two. The third and most extensive chapter by far, delves into the physiological processes of moult, including the mechanics of feather growth, bodily adjustment and moult energetics, before discussing how moult is controlled. Within

these contexts the fourth and fifth chapters respectively review our current understanding of the effects of environmental conditions during moult, and how moult fits into and affects the avian annual cycle, including reproduction and migration. Every chapter may be read in isolation if preferred and all are organised into thematic sections, each of which usefully ends with a short summary.

Much of the book is academic in nature, although the authors have taken considerable care to make their synthesis of this understudied aspect of ornithology as accessible as possible. They have certainly succeeded in this respect, with the text being consistently and impressively engaging and informative, ably supported by many diagrams, charts and photographic figures. References to all studies cited whilst compiling the work are presented in one section, located next to a comprehensive index.

It should be noted that *The Biology of Moults in Birds* isn't an ageing guide and doesn't include species accounts; many examples do, however, serve to illustrate the myriad effects of moult on plumage and as a result, the complete annual cycle. Given the European

origin of the authors and many of the studies drawn upon, there is a bias towards this region, and whilst there is no specific coverage of moult in tropical resident species, for example, the mechanisms described will apply globally.

Unsurprisingly this detailed review of avian moult as a biological phenomenon comes highly commended. For those seeking a greater understanding of how and why birds moult, the wealth of knowledge distilled into this work is simply incredible, and unavailable elsewhere as a single volume.

Those with a research focus will be keen to learn of the many unstudied aspects of avian moult, as highlighted in the wealth of further opportunities presented in concluding remarks of each section. At the very least, perhaps we may all be inspired to submit accurate moult records wherever possible, facilitating further research into this fascinating and fundamental aspect of bird life.

Justin Walker

Jenni, L. & Winkler, R. (2020) *The Biology of Moults in Birds*. Helm, London.

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 or the Nest Record Scheme.



Reed Warbler, by Liz Cutting/BTO;
Golden Eagle, by Sarah Kelmar/BTO;
Long-tailed Tit, by Edmund Fellowes/BTO

REED WARBLERS LEAVING HOME

The systematic ringing effort that is structured within BTO ringing programmes, such as CES and RAS, makes them the gold standard for detecting and monitoring population trends from volunteer ringing. Using CES and RAS data collected over 17 years at Leighton Moss and Gosforth Nature Reserve, in northern England, John Wilson and colleagues looked at a lesser-known aspect of Reed Warbler migration, namely the birds' departure from the breeding sites. Analysing 22,266 handlings of adult and juvenile Reed Warblers, the team showed that departures in autumn were similar to the pattern at sites in southern England, with most adults leaving by mid-August. However, juveniles showed a double peak in numbers during late summer, with those young birds fledged from first broods peaking in mid-August, while the juveniles from second broods formed a peak towards the end of the month. Numbers then fell rapidly in September as they left on migration. The study is a good example of ringing groups using their long-term project data to build up the picture of migration behaviour across the country.

Wilson, J., Caletrio, J. & Redfern, C. (2019) The timing of departure of Reed Warblers from northern England. *Ringing & Migration* 34, 33–37.

GOLDEN EAGLE SLEEPING ARRANGEMENTS

For little-studied behaviours, such as roosting, important information can often be found with relatively small sample sizes. This is especially true when the observations are data-rich and contain lots of detailed information about a small number of birds, and these data are well worth publishing. This is the case in a study of the roosting behaviour of two adult male Golden Eagles in Argyll, which were fitted with solar-powered satellite tags that gave very detailed information on their movements. This revealed an unexpectedly large number of roost sites that each bird was using. One male used 120 different roosting sites over two years, and the other bird used at least 87 different sites in a single year. Sites were more often used on multiple nights during windy weather, which suggested that the birds were choosing reliably sheltered sites in these conditions; however, generally they avoided using the same place for long. With the massive increase in satellite tagging, other fascinating revelations of the behaviour of many species are surely waiting to be discovered and shared.

Ford, A., Taylor, J. & Jardine, D. (2019) Observations on the roosting behaviour of adult male Golden Eagles from satellite telemetry. *Ringing & Migration* 34, 38–44.

LONG-TAILED TITS BUILDING A PLASTIC NEST

Plastic pollution is a plague of the modern world. Birds are increasingly interacting with plastic debris, including many species integrating plastic materials into their nests, sometimes with tragic consequences. During the spring lockdown of 2020, during permitted daily exercise, Wayne Parry discovered the first case of a pair of Long-tailed Tits nest-building with plastic, with their nest being built mostly from plastic fibres. The nest was in scrub habitat on the fringe of Wigan, and the Long-tailed Tits had begun building in a bramble bush, as is typical in Britain. On the edge of the bush, someone had dumped an old, ripped cushion, and the Long-tailed Tits had used the bright white polyester stuffing instead of the usual moss to build the outer structure of their nest. The nest was abandoned before egg-laying, and was collected for the Hunterian Museum's national collection of nests at the University of Glasgow. The paper shows the value of documenting new behaviour in a rapidly changing world, and discusses how the birds may have been using the plastic for camouflage.

Broughton, R.K. & Parry, W. (2020) A Long-tailed Tit *Aegithalos caudatus* nest constructed from plastic fibres supports the theory of concealment by light reflectance. *Ringing & Migration*. doi: 10.1080/03078698.2019.1830518

Noticeboard

RINGING COMMITTEE 2021

RIN supervises the operation and development of both the Ringing and Nest Record Schemes. 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

COMMITTEE MEMBERS

Ian Bainbridge – Kirkcudbrightshire

Sam Bayley – Cork

John Black – Durham

Adrian Blackburn – Nottinghamshire

Louise Clewley – Dumfries & Galloway

Stephen Hunter – York

Paul Roper – Hertfordshire

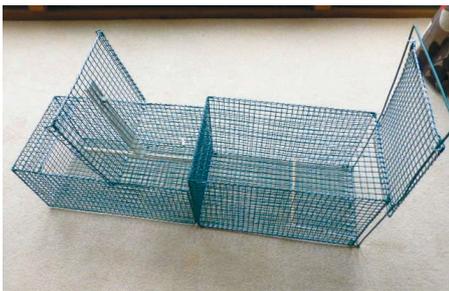
Lucy Wright – Cambridgeshire

Alex Dodds – C-permit rep – Lincs

Imogen Lloyd – T-permit rep – Yorks

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

2021 TRAINING COURSES

Further details of ringing courses for current ringers can be found on the ringers-only pages of the BTO website.

Further details of bird identification and survey techniques training courses run by the BTO can be found on the Events pages of the BTO website at: www.bto.org/news-events

Provisional ringing course dates

All courses are provisional and subject to Covid-19 restrictions in place at the time.

5–8 August: Chew Valley RS Ringing Course, **NE Somerset** / Contact: Michael Rowan to register interest

10–13 September: Gower Ringing Course, **Swansea** / Contact: Kelvin Jones to register interest

23 October: Chew Valley RS Theory Course, **NE Somerset** / Contact: Mike Bailey to register interest

CONFERENCES

12–14 November: Scottish Ringers' Conference, Carrbridge, Inverness-shire

Please note this is provisional – a decision as to whether this goes ahead will be taken in late summer and will be based on Covid-19 restrictions in place at the time.

December: BTO Annual Conference

The annual BTO conference will again be held virtually. Dates and details to follow.

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: House Sparrow

Numbers of the once-ubiquitous House Sparrow suffered a rapid decline in the UK between the 1970s and 1990s, resulting in the species being red listed in the Birds of Conservation Concern. Find out what you can do to help.



House Sparrow, by John Harding/BTO

CURRENT KNOWLEDGE

House Sparrow numbers underwent a rapid decline between the 1970s and 1990s and, while numbers have remained relatively stable since, they remain on the red list. The causes of decline appear to differ in rural and urban habitats. Evidence suggests that a lack of resources caused by agricultural intensification and tidier farmyards has resulted in reduced survival rates across farmland habitats. Drivers of the even sharper declines in urban areas are less clear but predation by cats and Sparrowhawks, lack of nest sites, loss of food supplies, pollution and disease have all been suggested.

HOW CAN YOU HELP?

Erect nest boxes

The loss of suitable nest cavities is one possible driver of House Sparrow

declines, so providing artificial nest sites can help (see page 28). Nest boxes (with a 32-mm entrance hole) should be placed 2–3 metres off the ground (or higher if there is a risk of disturbance), ideally with the entrance facing north-east and sheltered from the prevailing weather. As House Sparrows are colonial breeders, consider placing multiple boxes in close proximity.

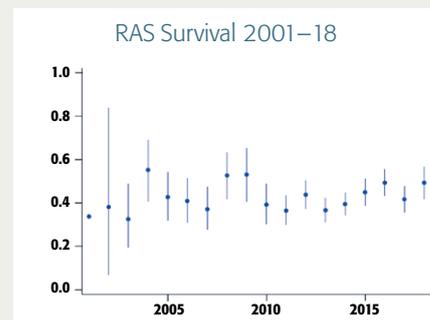
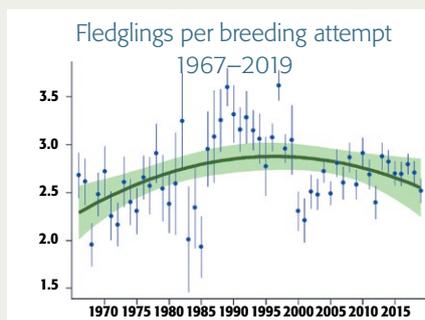
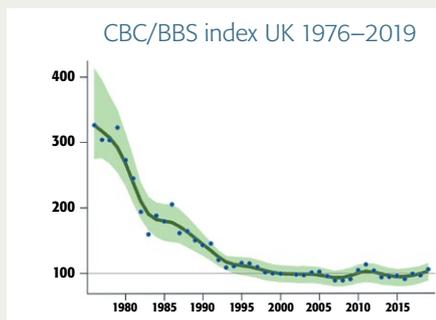
Nest recording and pulli ringing

NRS currently receives c. 500 nest records a year. The species is multi-brooded and egg laying typically starts in mid-April and continues until late July. As a sedentary species, activity can usually be seen around colonies year round. They are easy to watch while nest building and feeding young but can be prone to desertion at the egg-laying stage, so care should be taken

when monitoring this species. Birds of known age and location provide vital information about recruitment and post-fledging dispersal, so the ringing of chicks is particularly valuable.

Start a RAS

Although there are currently 19 House Sparrow RAS projects, more from across Britain & Ireland would help to improve spatial coverage. House Sparrows are renowned for being net and trap shy, disappearing the minute ringing equipment appears! For this reason, it is best to use colour marks and gather re-encounters via resightings rather than recaptures; neighbours can also be encouraged to look out for colour-marked birds. PIT tags are another option, allowing birds to be identified at feeders or nest boxes, but this is obviously a more costly option.



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