RAS Newsletter





This is the sixth edition of the RAS Newsletter, the newsletter for the British Trust for Ornithology's Retrapping Adults for Survival (RAS) Project. If you require further copies, then please contact Dawn Balmer at The Nunnery.

Number 6

March 2004



The Retrapping Adults for Survival Project (RAS) continues to be well supported by ringers throughout Britain and Ireland. So far, 111 datasets covering 43 species have been received for the 2003 season. Following a review of the RAS Project in early 2003, which gave clearer guidance to ringers on the number of adults and retraps required to achieve a successful study, a small number of studies dropped out of the project. These were largely

studies that were catching quite low numbers of adults which had little opportunity to increase the number of birds caught. It is pleasing to see that many studies now carry out nest recording, which adds greatly to the value of the study. An article on page 10 gives more information about the Nest Record Scheme. Also in this issue are articles on Tree Sparrows, Marsh Tits, Wheatears and Stonechats.

RAS in 2003 - update

By early March a total of 111 datasets had been received. Forty-three species were covered, including a new study on Wood Warbler in Somerset. The studies on House Sparrows are working out very well. In some of these studies the House Sparrows have been colour-ringed and this has helped increase the 'retrap' rate greatly.

The table below lists the species and number of studies that were received for the 2003 season by early March 2004.

Manx Shearwater Puffinus puffinus	1
Storm Petrel Hydrobates pelagicus	3
Shag Phalacrocorax aristotelis	1
Eider Somateria mollissima	4
Little Ringed Plover Charadrius dubius	1
Ringed Plover Charadrius hiaticula	1
Dunlin Calidris alpina	1
Common Sandpiper Actitis hypoleucos	2
Kittiwake Rissa tridactyla	2
Arctic Tern Sterna paradisaea	1
Guillemot Uria aalge	1
Razorbill Alca torda	1
Tawny Owl Strix aluco	1
Swift Apus apus	2
Sand Martin Riparia riparia	11
Swallow Hirundo rustica	5
House Martin Delichon urbicum	4
Tree Pipit Anthus trivialis	1
Dipper Cinclus cinclus	2
Dunnock Prunella modularis	1
Robin Erithacus rubecula	1
Whinchat Saxicola rubetra	1

Stonechat Saxicola torquatus	1
Wheatear Oenanthe oenanthe	2
Blackbird Turdus merula	2
Song Thrush Turdus philomelos	1
Sedge Warbler Acro. schoenobaenus	3
Reed Warbler Acro. scirpaceus	4
Whitethroat Sylvia communis	4
Wood Warbler Phylloscopus sibilatrix	1
Willow Warbler Phylloscopus trochilus	s 1
Goldcrest Regulus regulus	1
Pied Flycatcher Ficedula hypoleuca	18
Bearded Tit Panurus biarnicus	1
Marsh Tit Parus palustris	1
Blue Tit Parus ceruleus	1
Great Tit Parus major	2
House Sparrow Passer domesticus	4
Tree Sparrow Passer montanus	2
Chaffinch Fringilla coelebs	3
Siskin Carduelis spinus	1
Linnet Carduelis cannabina	1
Reed Bunting Emberiza schoeniclus	1



Catching Marsh Tits for RAS

Having moved to South Cumbria in 2001, one of the first places I explored was Roudsea Wood and Mosses National Nature Reserve - some 388 hectares of mixed woodland with large areas of sploshy bits in the gullies. What struck me most was that as I progressed into the wood, there seemed to be a new Marsh Tit 'pitchewing' at me every few steps. The wood seemed to have 'RAS' written all over it. So by getting enlisted as a 'vol' with English Nature, registering a colour-ringing project and then enlisting the help of Barrow ringer Ken Hindmarch, all was set.

The idea was to catch and colour ring as many Marsh Tits as possible at feeding stations in the wood during the first winter, and then simply go out and look for them in April. Easy. It all worked like a dream. By Christmas we had colour ringed 25, and by 1 April the total was almost 50. In one amazing session in February we caught 13 birds. Retraps between stations showed that many birds evidently wandered around the wood during the winter, but whenever a new feeding station was set up, new birds were always caught. It seems that some may be partially territorial in winter and it paid to move the feeding stations around.

So, the first suitable weekend in April, it was out with the binoculars. Territories were easy to find with males singing in the as-yet unsprouted canopy, and it was reassuringly easy



Photograph by Jim Fowler



to find the birds. But what was disappointing was that colour-ringed birds were hard to find. It seemed that we had caught a smaller proportion of the local population than we thought - a high proportion of sighted birds were not ringed.

However, by placing a small feeder containing black sunflower seeds close to where unringed birds were recorded, and returning just a few days later, the birds were easily caught. At one site, I had seen an unmarked pair with an apparently competing male; three days later all three were safely bagged within a few minutes of setting the mist net.

This strategy was extremely effective. The seeds appeared to attract Marsh Tits specifically - the other tits didn't seem to be really interested by then. By setting two or three feeders in adjacent territories, it was common to catch four or even six birds in a session. By the end of the RAS period, we had ringed (or resighted from the winter ringing) a total of 49 adults. A few '3's were added towards the end, and two broods of four should boost numbers for next season. Whether the 49 marked during the 2003 season will be sufficient to generate the ideal number of 25+ recaptures in 2004 remains to be seen, but we feel we are at least off to a good start and have learned some good tricks.

Jim Fowler

Some practical advice for Wheatear and Stonechat RAS studies

This article is not intended to be a comprehensive analysis of our results, but is a summary of our experiences of carrying out RAS studies on Wheatear and Stonechat. We hope that other ringers can benefit from our experiences.

We have been ringing Wheatear pulli at Clee Hill in Shropshire for the past 18 years, and for the last six years have been contributing to the RAS Project. The Stonechat RAS study is just four years old. The populations of each species are similar; 30 to 40 nests are located in the study area each year. We are lucky to have an area of 250 hectares in which both species breed. The area consists of active and old quarry workings, reclaimed upland pasture interspersed with large gorse patches.

Time commitment

These two species fit together well for study purposes. The first round of Stonechat nests are just fledging as the Wheatear start to take food to their nests. It does become a little hectic about mid June when the second Stonechat broods are ready, so we do tend to miss some repeat clutches. To do the project justice, every weekend from early April until the end of June, plus the spring weeks holiday is spent 'on The Hill'. Even then, we find it necessary to have the odd mid-week day holiday.

Stonechat

We have found that Stonechats are very site faithful, generally nesting within 20 metres of the previous year's nest. During early April, the birds have usually established territories, and we visit each old site and park up for 30 minutes or so. The males usually make an appearance within this time, and are easily spotted on top of the bushes. We also look for their favourite perches; high vegetation liberally covered with droppings and often find that the nest is usually within 10 or 20 metres of these. Unless the female is spotted, which gives the opportunity to follow her back to the nest, the area is logged and revisited every seven days, until birds are seen carrying food to the nest. It is usually necessary to remain in the vehicle until the nest is located. The nest is marked with a coloured plastic tie enabling the distance of second and third broods to be determined. The plastic tie should be visible to the ringer and it is important that it is a sufficient distance from the nest not to affect the feeding adults, or to attract attention to the nest from other people or predators. By leaving the tie in place until the following year we can also record the distance of nests in subsequent years.

The majority of our birds nest in gorse, with less than 10% favouring bracken. We have noticed that the bracken nesters always use bracken to nest in subsequent years.

The pulli are best ringed early, between six and eight days after hatching. After this, they have a tendency to crawl off the nest if disturbed. To find repeat broods, we visit the same nest area 28 days after fledging, and at subsequent seven-day intervals.

Chardonneret traps baited with mealworms



D A Thelwell

are the best way to catch the adults. We pin the worms to a cork tile in the bottom of the trap. This prevents them escaping and tends to make them wriggle a lot. It is advisable to put a cross piece on the trigger as the birds have a knack of dropping down the side of the trigger for a free feed. The Chardonneret traps can be placed in the tops of the gorse by favoured perches and are easily observed from a distance. The traps need to be secure so they will not fall out of the bush when birds are caught. Spring traps also work well, but are difficult to view if placed on the ground.

The adults have all been colour-ringed to enable identification without repeat captures. This is essential as the birds seem to remember the traps from previous years, and colour-ringed adults are very trap shy. We have invested in compact spotting scopes, which are ideal to fix on the car windows, to enable colour rings to be viewed. (A word of warning...be careful where you point your scope, we were once suddenly surrounded by a SWAT team who thought we were aiming rocket launchers at the Clee Radar Station!).

Wheatear

Wheatear nests are much easier to locate. Not only is the same area used each year, but often, the same nest. This is a trait which still puzzles us. We can understand returning adults or pulli using the same nest, but often two completely new adults use the nest. Perhaps they use the local 'Wheatear Estate Agency'!

Wheatear pulli can be ringed safely up to fledging age, as when ringed they will scurry back into the nest hole if posted at the entrance (assuming the nest hole has no chance of erosion). However, they will scramble off the nest when approached after nine or ten days, and head for the back of the nesting chamber. So, unless you have very long, thin, and entirely flexible arms, it is best to ring at about seven or eight days old. Wheatears will tolerate a fair amount of disturbance and it is possible to remove a few rocks to gain access to the nest. Some caution should be exercised: only do this with pulli over seven or eight days, don't do it if there is a likelihood of a cave in, ensure the birds can access the nest when you have finished, and ensure the entrance is small enough to keep out predators. Once we visited a nest shortly after a badger had dug the entire nest out of the bank. Luckily, the six young, nine days old, were all cowering at the back of a huge hole in the bank. We collected up the remains of the nest, rebuilt the entire site, even to the extent of building a heavy stone wall at the front with a small access hole. Within an hour the adults

had returned to feeding duties and the young subsequently fledged.



Spring t r a p s baited with mealworms work well for

trapping adults, but it seems impossible to retrap adult birds in subsequent years, hence colour-ringing is essential. Use non fading 'Darvic' rings on this species. Celluloid colour rings fade badly and become brittle, eventually falling off. I guess its all the ultra-violet light in the hot Moroccan sun!

One third of our birds choose to nest inside a working quarry where access to nests is difficult. These birds travel out to feeding areas and can be readily caught in spring traps placed at the base of fence posts near the feeding areas. If no posts are available, it is worth putting a few in place, they make tempting viewpoints for the birds.

We hope these notes persuade others to target these two species, as we are sure they will find it very rewarding. We are currently obtaining 50% Stonechat, and 65% Wheatear retraps/resightings each year. Last year we retrapped a Wheatear we ringed in the same spot nine years previously, establishing a new longevity record for this species.

We hope to publish detailed findings of our Wheatear studies in the future.

Dave Fulton

Chelmarsh Ringing Group

News Items

Email group

The RAS email forum proved to be a great success last summer. Just under 80 ringers subscribe to the forum. Many RAS ringers found it interesting to exchange information on catching techniques. The number of emails ranged from 1-20 per month during the summer months.

To subscribe to the RAS Forum please send a blank email to: rasforum-subscribe@ yahoogroups.co.uk

If you want to be able to change the way you receive messages (daily summary, one message at a time) or view previous messages on the web then you will need to become a member of Yahoo Groups. To join Yahoo Groups visit the website http://uk.groups.yahoo.com and click on the links to register.

Contributions for *RAS Newsletter* Number 7

We welcome articles about your RAS study, particularly notes on novel catching techniques and safe practice. Also, line drawings are sought to liven up the newsletter.

Colour-ringing

If you wish to use colour rings as part of your RAS studies please ensure that the study is registered with the Ringing Unit. Please ask for an application form from the Ringing Unit and send your proposal to Jez Blackburn, carefully outlining your reasons for colour ringing. As with all colour ringing projects, proposals will be accepted on merit only and avoiding duplication with other projects. There is no charge for colour-ringing projects if they are a part of RAS.

CD/Tape Luring

If you intend to use a CD or tape lure at any time of the year please make sure that you have a CD/tape lure endorsement on your ringing permit. You may need to seek special permission from the Licensing Officer to use CD/tape lure during the breeding season (see Ringers' Manual 2001, page 72). Please contact Jez Blackburn in the Ringing Unit for further details.

Sandy Hill

It is with great sadness that we report the death of L.A. Hill, better known as Sandy, who died in late January 2004, aged 82. Sandy took part in the RAS Project from its inception in 1998 working on House Martins in the village of Worstead in Norfolk. Sandy caught between 150-200 adults annually - an incredible effort for a ringer working alone. Carrying ladders around finally got the better of him and he retired from House Martin ringing and RAS following the 2002 season. Sandy wrote about catching House Martins in the last issue of the RAS Newsletter (No. 5). Prior to studying House Martins in Norfolk, Sandy had a sevenyear project around Grantham in Lincolnshire and produced a newsletter annually which he distributed to the local residents. Sandy's interest in House Martins often took him abroad where he was keen to catch birds on their migration and investigate the timing of moult and so with his broad knowledge of House Martins he was the obvious choice for writing the species account in the Migration Atlas. Sandy started ringing in the mid-1970s and attended Swanwick regularly.

Trapping Guide

RAS ringers are in an ideal position to help with the next edition of the Trapping Guide. Dave Okill is editing the guide and is looking for volunteer ringers to write about the different trapping methods they are using, especially the less common ones. He is looking for 'top tips', photos and drawings of trap designs. If you can help with the guide please send your information direct to Dave at - david.okill@sepa.org.uk or write to him at Heilinabretta, Cauldhame, Trondra, Shetland, ZE1 OXL.

Catching Tree Sparrows

Tree Sparrows are a popular species with ringers and sixteen colour-ringing projects are currently registed with the Ringing Unit. Tree Sparrows also make a good study species for RAS, although considerable thought must be given to the timing of catching adult birds.

Catching adults

Adult Tree Sparrows can be ringed during the breeding season at feeding stations away from the nest sites. There is a high risk of desertion if they are ringed at or very near the nest; do not take adults off the nest at egg or chick stage.

Outside the breeding season is perhaps the easiest time to catch Tree Sparrows. Ringers find it best to introduce an element of surprise; try to move net positions around and only ring each site occasionally. Tree Sparrows sometimes roost communally and often go in high, but they leave low and quite late in the morning, so there are good opportunities for catching birds leaving roosts if they roost low enough.

Ringing chicks

Ringing chicks in nest boxes is safe but needs some caution. Always approach the box in an obvious way; make some noise and don't surprise them in the box. Gently tap the side before opening. Nearly all adult birds will have heard you coming and left long before you get there, but a few will hang on, particularly when on eggs. If the bird is still in (often difficult to see - use a torch before sticking your hand in) DO NOT touch the bird as it may well desert. Instead just close the lid carefully and leave. This mostly applies when the bird is on eggs, but sometimes with young chicks as well. Also be careful of big chicks, as they tend to explode. Chicks in small broods may grow very quickly and may explode at an earlier date. The best time to ring the chicks is when they are between 8 and 10 days old. Once they are over 12 days

old they are very jumpy and may fledge early. Tree Sparrows fledge at around 15 days.

Colour-ringing

Colour-ringing can be a useful tool for RAS studies, but only if sufficient time can be allocated for resighting birds. Catching and colour-ringing full-grown birds outside the breeding season and resighting during the breeding season is perhaps the best approach. Birds will need to be individually marked and therefore require three colour rings of at least seven colours to provide an adequate number of combinations.

Site and year marking of chicks is good if you want to look at dispersal but any colourringing of Tree Sparrows is quite a low return exercise, especially for looking at movements away from the colony. The study at Rutland Water ringed about 1,000 Tree Sparrows in two years (mostly pulli) and know of about six that have moved elsewhere! However, individual marking is providing them with very good data on survival and recruitment.

It can be difficult to read the colour-ring combinations on Tree Sparrows because they tend to sit quite low on their legs, with their feathers covering much of their legs. It is generally easier to read colour rings when they feed on a vertical feeders since they stand up more.

Thanks to Geoff Carr, Simon Evans, Rob Field, Geoff Myers, Matt Prior and Chris Wilson for providing this information.



Studies of tits in Northern Ireland

Ken Perry has been studying the breeding biology and ecology of populations of Blue, Great and Coal Tits on the Coleraine campus of the University of Ulster over the last three years (2001-03) and at three associated rural woodland sites located within an 8km radius. Ken has also been catching and colour-ringing adult tits on the Coleraine campus since 2001 and submits his ringing records to the RAS Project.

In autumn 2000, a total of 313 nest boxes were put up on the Coleraine campus and later 30 boxes were erected at each of the three rural sites (Beardiville Wood, Castleroe Wood and The Pass). Between April 2001 and July 2003 at Coleraine, and in 2003 breeding season at the three satellite sites a total of 250 pairs of Blue Tit, 151 pairs of Great Tit and 25 pairs of Coal Tit made use of the boxes. At Coleraine the breeding density for Blue Tits ranged from 0.55-0.71 pair per ha, for Great Tit from 0.25-0.51, and for Coal Tit from 0.06 to 0.08. Some Coal Tits were found to be using natural sites and are not included in the breeding density above so this is likely to be an underestimate. These densities compare well with previous studies in Ireland but are low compared to the long-running Wytham Wood study in Oxfordshire where the mean density per ha for Blue Tit was 2.5.

Ken visited the nest boxes about four times during the breeding season and collected information on clutch size, brood size and fledging success for each of the three species. The results for Blue Tit are shown in Table 1 and are compared with previous studies at Stranmillis campus (Belfast) and Wytham Wood.

The clutch size of Blue Tits in a rural environment (Coleraine mean 6.9 eggs) was slightly less than in a nearby urban population (Stranmillis mean 7.1 eggs). However, both these studies in Ireland show smaller clutch sizes than studies at Wytham Wood (mean 11.0 eggs in oak woodland and 8.8 eggs in gardens).

This study gives an example of what can be achieved by monitoring nests whilst also taking part in the RAS Project. Simple nest record information can be compared with populations elsewhere in Britain and Ireland and produce interesting results.

Reference

Perry, K. (2003). Breeding density, clutch size and fledging success in a rural population of titmice in Northern Ireland. *Irish Birds* 7, 201–212.

Table 1. Blue Tit clutch size and number of fledglings

Location	Mean Clutch size	Mean no of nests	No of fledglings
	4.0	5.0	01/
Coleraine	0.9	5.3	216
Castleroe Wood	6.2	5.6	16
Beardiville Wood	6.3	5.6	11
The Pass	7.7	7.6	10
Stranmillis (Belfast)	7.1	4.3	94
Wytham Wood (oak)	11.0		121
Wytham Wood (gardens	6) 8.8		58

Unbelievable Blackbirds!

We joined the RAS scheme in 1998 and describe our Blackbird study based in our garden in Thetford, Norfolk.

A commonly held view is that an average suburban garden might be expected to support a single pair of Blackbirds. This would mean that with a little bit of feeding one might attract in a few neighbouring adults and hopefully catch the RAS target of 20-40 adults through a breeding season. Our study area is typified by properties with above average sized gardens, with a mixture of mature trees, shrubs and lawns, on very free draining Breckland sandy soil. Territory mapping has shown a singing male in almost every garden and not infrequently two males singing from either end of a house roof. The RAS results indicate that the number of breeding Blackbirds is increasing and a number of reasons may help to explain this. Winter feeding in our garden (with c.1,000lbs of apples, etc.) may have helped winter survival and a adjacent new development on the site of pine woodland has created more habitat suitable for Blackbirds.

Adult Blackbirds were first targeted for ringing in 1997 (with a whoosh net) and from 1998 breeding adults have been colour-ringed. The back garden is roughly 20m square and birds are caught using mist nets, a whoosh net and a specially constructed pull string trap. In the breeding season adult Blackbirds are attracted to the garden with mealworms, and ground food (pinhead oats/flaked maize/cut maize in a ratio of 2:1:1) and the



occasional fruitcake. Mist nets have proved to be ineffective at catching experienced resident birds. Most birds are caught with a whoosh net, which allows unringed birds to be selectively caught. Colour-ringing has proved essential, as half the records are resightings of previously marked birds.

Adult birds, in breeding condition, are recorded from late-March to mid-June and each year the number recorded has gone up and up. There has been a big increase between 1997 and 2003, and the number of 3Js (perhaps suggesting local birds) has also shown a remarkable increase.

	Number Adults	ringed 3J
1007		
1997	29	33
1998	53	36
1999	70	58
2000	74	67
2001	107	76
2002	114	89
2003	154	97

From observing colour-ringed birds it appears that birds will regularly fly up to 250m to the garden, presumably crossing several other Blackbird territories in the process. While feeding, the adult Blackbirds appear not to be territorial, apparently feeding happily alongside each other (up to six at a time).

Jeff and Allison Kew

Ed comment:

This study shows how suburban gardens can be used for RAS and produce surprises. We hope to carry out an analysis of adult survival rates using this study in the near future and it will be interesting to see if the high level of feeding has influenced the survival rate. Previous studies have estimated adult annual survival based on recoveries at 67% (Baillie & McCulloch 1993).

Add value to your RAS study – complete a Nest Record card

Taking part in the BTO's Nest Record Scheme is just one way you can add value to your RAS study. Some RAS species are particularly well suited to nest recording, for example Eider, Ringed Plover, Pied Flycatcher, Whinchat, Wheatear, Reed Warbler, Swallow and Dipper, and many RAS ringers already send in details with their RAS returns. Obviously, nest details of some species, eg Sand Martin, House Martin cannot easily be recorded (unless you are lucky enough to have an artificial Sand Martin colony!).

Why collect nest records?

The Nest Record Scheme (NRS) started life as the Hatching and Fledging Enquiry in 1939 on the initiative of James Fisher and Sir Julian Huxley. Sixty-five breeding seasons later, the NRS has grown to become one of the cornerstones of the Integrated Population Monitoring programme, together with the BTO/JNCC/RSPB Breeding Birds Survey and the Ringing Scheme.

Three factors have the potential to control the size of a population: productivity, survival and the movement of individuals to and from other populations. NRS and CES data allow us to explore variation in the first, while changes in the other two factors can be investigated using data collected by RAS, CES and general ringing.

What is a Nest Record?

Each nest record details a single breeding attempt at a nest. Participants are encouraged to make at least two visits to the nest during each nesting attempt, recording the date of each visit and the nest contents. Visiting the nest on more than a single occasion not only provides the observer with a greater insight into the nesting habits of the birds but, crucially, also allows important information about the survival of the nest to be collected. Standard codes are used to record the stage of development of the eggs and young, the activity of the parents and the outcome of the nesting attempt if this is known. It is important that each breeding attempt is monitored throughout the season, so second and third broods should also be recorded where possible. Guidelines are provided in the Nest Record Handbook. The Handbook also provides a "Code of Conduct", ensuring that visits made to the nest do not disrupt the breeding attempt in any way. The results of previous scientific studies have shown that regular visits can be made safely without having a detrimental impact on the outcome of the nest.

Records should be submitted using IPMR. A handy guide to computerising nest records data using IPMR has recently been written by Ian Spence, and can be downloaded from the BTO website (http://www.bto.org/ringing/ index.htm).

How do we use your records?

The most important types of information that we derive from nest records are: laying dates, clutch and brood sizes and nesting success. While recorders report clutch and brood sizes directly, laying dates must often be back-calculated using information such as hatching and fledging dates. Estimating nesting success is more complicated still, as the outcome of a breeding attempt is often not known. To overcome this problem, the failure rate of nests per day of observation is calculated for the egg and the nestling stages. Data from all nests that were visited more than once can be used in this process, regardless of whether the ultimate outcome of the attempt is known - it is enough to know whether or not the nest survived during the period it was under observation.

Information from nest recording contributes to producing trends in breeding

performance for c80 species each year. Productivity trends, together with trends in abundance from other BTO monitoring schemes, are published on the Internet in the Breeding Birds of the Wider Countryside Report (http://www.bto.org/birdtrends/).

How nest recording adds value to your RAS

RAS ringers will often know who the parents of a brood are because they will have been trapped and ringed as a part of RAS. By completing nest details for these 'known pairs' we can tie in breeding success and adult survival to specific birds. We often have other details about the birds too, such as wing and weight, so it would be possible to investigate whether nesting success is a function of the traits of the parents.

Many RAS ringers will usually have a good idea of when pairs lay repeat broods. Such information is invaluable because it is often difficult to collect otherwise.

NRS recorders contribute to a unique dataset that plays a key role in bird conservation in Britain and we would really welcome any records from RAS participants. If you would like to take part in the Nest Record Scheme or CNMP please contact the Nest Records Officer at nest.records@bto.org or write to BTO HQ.

Dave Leech and Dawn Balmer

The Constant Nest Monitoring Plots scheme has been developed to collect information about the number of breeding attempts that multi-brooded bird species, such as Swallow and Blackbird, make per season. Participants are asked to select a target species and a defined area in which they aim to record all breeding attempts made by that species throughout the potential nesting season. The methodology for recording nests is identical to that used for standard nest recording under the NRS.

Colour-ringing

Colour-ringing is becoming a popular tool for marking individuals as part of RAS and other long-term studies. Generally speaking there are two kinds of colour ring available for use on passerines: celluloid and Darvic. Celluloid rings are available in a wide range of colours but have a tendency to fade over time. Rings made of UV stable PVC (Darvic) are longer lasting and do not fade, so should be used on migrant species that spend the winter under the hot African sun.

When choosing colours, try to select strong bold colours. Pale colours such as lime green and light blue can fade over time and can be confused with white. Dark blue and dark green also cause problems as they can be very similar in the field. Many ringers find striped rings difficult to read in the field, although as you start to run out of combinations it might be necessary to introduce a striped ring.

Colour rings for passerines can be purchased from:

AC Hughes 1 High Street Hampton Hill Middlesex TW12 1NA www.achughes.com

Ecotone: www.ecotone.pl

For details on where to purchase larger colour rings, engravers and suppliers of glue please see Ringers' Manual or contact Jez Blackburn at BTO HQ.



Ken Perry

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