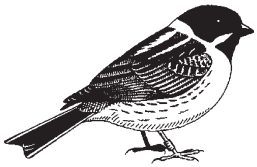
RAS Newsletter



This is the fifth 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 5 April 2003

The RAS Project was well supported in 2002 with 107 datasets received to date, covering 42 species. The majority of the species monitored are passerines but there are a small number of studies on seabirds, waders and other non-passerines. Pied Flycatcher (18 studies), Sand Martin (15) and Swallow (7) are the most popular species. Most studies come from England (71) but ringers in Scotland carried out 27 studies with smaller numbers from Ireland (5) and Wales (3).

M S Wood

House Martins and Sand Martins for RAS

In this edition of the RAS Newsletter we focus on catching techniques for House Martin and Sand Martin. We have a number of established studies on House Martins, and long-term ringers Sandy Hill and Roger Peart (pages 3 and 4) describe how they go about their RAS studies. Sand Martin is a popular species amongst RAS ringers because good numbers of birds can be trapped during a small number of visits. Views on the best and safest catching methods for Sand Martin have been pooled in an article on page 6.

News Items

Welcome Rob

Many of you will be aware that Chris Wernham moved from BTO HQ to take up a new role at the BTO office in Stirling. Chris was responsible for overseeing the development of RAS, as well as the CES Scheme and a number of other ringing projects. We thank Chris for her support and guidance and wish her well at the BTO office in Stirling. Chris is currently on maternity leave, looking after baby Craig. Dr Rob Robinson has taken over the role of Senior Population Biologist (Ringing) and will oversee the running of the RAS Project. Rob has worked at the BTO for four years and is a keen ringer; he is particularly interested in farmland birds and waders.

Nest traps for Pied Flycatchers

In RAS Newsletter Number Three (March 2001) there were several articles on catching techniques for Pied Flycatchers, using a variety of selective and non-selective traps. It was also stated "Traps are left on the box for up to 10 minutes if chicks are small or the weather is poor, longer for larger chicks on a warm day (up to a maximum of 40 minutes)". Concern has been expressed that leaving a trap for up to 40 minutes is unacceptable. A questionnaire was sent to all regular Pied Flycatcher ringers asking for their comments. The Ringing Committee discussed the use of nest traps at their meeting at the end of March and the new guidelines are given on page 5.

Some lengths.....

RAS ringers go to! David Grieve from Strathclyde recently registered his Sand Martin colony as a RAS study, and as well as the usual sketch map of the site, David also provided a 'Sand Martins' eye-view' of the RAS area, taken from a hot air balloon. He added that he also wanted an aerial view of his CES site but the balloon blew in the wrong direction! David suggested it should be a future requirement of all new sites! I think not.

Email group

We have recently set up an email group for RAS ringers using the well-established Yahoo Groups website. The idea of the email group is to encourage discussion and the exchange of ideas related to RAS studies. Joining the group is straightforward; just send an email to rasforum-subscribe@yahoogroups.co.uk and include your name and permit number in the email. You will need to join Yahoo Groups if you are not already a member. Membership of the group will be restricted to ringers. In order to reduce the amount of unwanted emails, the group will be moderated.

Contributions for *RAS Newsletter* Number 6

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.

Barn Owls

The Barn Owl Monitoring Programme (BOMP) began in 2001 with the aim of keeping a track of our Barn Owl population. So far over 700 sites are monitored as part of the scheme. The scheme includes both nest recording and ringing of chicks and adults for monitoring purposes. We would like to encourage existing RAS ringers of Barn Owls to contribute to BOMP, both through ringing and nest recording, if they don't do so already.

We will also be treating BOMP sites as 'honorary' RAS studies, so all adults newly ringed from 2003 as part of this scheme will qualify for the standard RAS refund. Anyone else who is interested in taking part in BOMP should contact Peter Beaven at BTO HQ (email: peter.beaven@bto.org).

Catching House Martins
by Sandy Hill

Steve Carter

House Martins make a suitable species for a RAS study because it is possible to catch good numbers of breeding adults and to retrap them due to their high level of site fidelity. There are two possible target areas; one is a large colony at a single site, where mist nets can be used and the second is the more common type of colony, where the nests are scattered or are in small groups throughout a whole village. Better still - a cluster of adjacent villages to see if some birds change from one colony to another from one year to the next. The second method is laborious and time consuming, and should be avoided at all costs! However, being retired with time on my hands and of unsound mind, I selected the latter!

For seven consecutive years before the RAS project started, I caught House Martins at a group of about 20 villages in Lincolnshire, and described it in an article for the Lincolnshire Bird Report (in press). The main areas of study were fidelity (breeding site, pair and nest), life span, survival/mortality rates and number of broods. I have now done the same in Norfolk for the past five years as a RAS project, with a cluster of five villages.

The results in both areas have indicated that the annual return rate can be as low as 25%. For the findings of such projects to have any value it is essential that the sample of birds caught is representative of the population being studied. In each area I calculated the total adult annual population as being double the number of occupied nests. Each year the sample has been more than 43% of this total, and this I consider to be representative. There was a gradual decrease overall in the number of occupied nests in both areas.

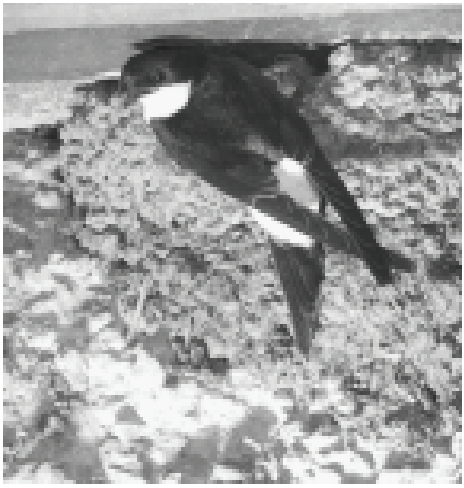
To catch the birds, I use a homemade 'butterfly' net on extendable rods (see page 5). Since the chicks stick their heads out of the nest to be fed ten days after hatching, the ideal catching time is when the adults, both sexes, go right into the nests to feed the young. Towards the end of the season the best time is in the evening when the birds go into the nests to roost; they can sometimes be induced to exit by playing the alarm call on tape (only if you have a specific endorsement on your permit - Eds). The advantages of this approach are that the individual nest, or group of nests, can be recorded against each bird, that movements between colonies can be noted and that dawn operations are not necessary. The main disadvantages for the lone ringer are few birds per hour of effort, few birds per car mile and the considerable effort of handling the GBP (Great British Public). Most people are pleasant and some are actually interested when one is requesting permission to catch 'their' birds, but there are always those self-opinionated few whose attitude ranges from rudeness to outright refusal to mild non-cooperation, and who have no real interest in the birds at all!

However, partly because the method is so laborious, there is a greater chance of becoming aware of other aspects of a House Martins life. For example, when a brood of four or five chicks is nearly full grown, and the weather is very hot, I have noted that the adults do not roost in the nest. Just where they do roost, of course, is still one of the great ornithological mysteries of our time! The operation is hard work for the lone ringer but easier and quicker if done by a group. Without doubt, making a study of a single species is a hugely rewarding pastime, and much to be recommended.

Catching House Martins
by Roger Peart

I have two methods for catching House Martins that I use on my RAS study site in Dorset. Neither method is original, both are based upon articles in editions of Ringers' Bulletin some twenty years ago. Which of the two methods I use depends upon the nature of the colony site.

My RAS study site is at Canford, an independent boarding and day school near Wimborne Minster. There have been House Martins there for many years and certainly a lot longer than the twenty-three years that I have been on the staff. In recent years there have regularly been between 50 and 70 active nests in the colony. The largest concentration of nests is on the school Assembly Hall, a long (about 30 m) single storey building with a steep pitched roof, the eaves of which are deeply recessed with a gutter level of just under 6 m. Surprisingly, although there have been modern buildings put up in the last ten years very near to this Hall there has been no attempt by the birds to colonise them, which is fortunate as some of the new roof lines would defy any attempt to get at House Martin nests! The remaining nests of the colony are on other more established buildings nearby: a flat-roofed teaching block with eaves at about 20 m; two 1970s staff houses and the main school building, a large Victorian 'mansion'.



M S Wood

The first catching method I use only on the Assembly Hall. It was suggested in an article by Errol Newman and Steve Barton in Ringers' Bulletin (Vol 6 No 2). During the late afternoon of the day before my catching session I erect two 18 m mist nets against the long sides of the building where the nests are located. Although the nets are shorter than the length of the building most of the nests are towards one end and only two or three are beyond where the nets reach. I use 6 m bamboos, which give just enough height for the nets to go up to the eves. I furl them securely at about head height and leave them overnight. I should point out that I never begin catching before July when the school is on holiday - it would not do to put up nets with guys etc when all the pupils are in residence!! At dawn the next morning I very quietly unfurl the nets and raise them until the top comes just to gutter height. Guying the bamboos, which is done the night before, is fairly crucial as the tops of 6 m poles can be quite thin and are liable to bend causing the middle of the net to sag considerably. I usually have the poles leaning backwards to keep the top string tight (the bottom shelf of the net is above head height and need not be too tight) and I put a third 'inward' guy on the bottom of the pole to hold it from slipping. Once the net is in position it is a matter of waiting until the birds which have normally roosted in the nests overnight decide to emerge, and this can be anything up to an hour after first light. If by this time they still seem to be 'lying in' I usually encourage them to get up with some gentle tapping on the eaves or guttering. In this 'waiting' period

I sometimes go off to the other buildings to try method two, which I will describe shortly. Once I think that all the birds have been caught that are going to emerge, I carefully lower the nets on the bamboos to within reach and extract all the birds ready for ringing. The one disadvantage of the mist net method as far as RAS is concerned is that one cannot associate individual birds with specific nests. This can be overcome by the second method.

This was essentially described by John Taylor and Ken Smith in Ringers' Bulletin (Vol 6 No 3). A loop of thick but pliable wire is formed, an old section of mist net is threaded onto it and the bottom of the netting tied in a knot to create a large 'butterfly' net. The diameter of the loop can vary to suit circumstances but I use one of about 30-38 cm. The two ends of the wire are twisted together and bent downwards and inserted into the top of a bamboo pole, the length of which depends on the height of the nests one wants to reach. I use a 4.5 m pole. The net can be put up by hand to cover the nest and usually when one does so any adult birds within pop out and are caught quite easily. They tend not to become too entangled in the netting and are relatively easy to extract. I have caught up to three birds at a time from an individual nest - two adults and a juvenile. This is an ideal method for RAS as you know exactly which birds are using which nests. I use this on the other buildings in my colony and also at the Assembly Hall when I don't want to go to the trouble of putting up the mist nets.

The original article suggested using this method at dusk when the birds are returning to roost, but I am rather wary of disturbing them then in case they fail to return later to roost and any second brood eggs might thus become chilled overnight (Sandy catches House Martins at dusk but only late in the season - ed). Some mornings I find that there are fewer birds roosting in the nests than usual and I have been coming to the conclusion that adults roost on the wing more often when the weather is fine and the sky is clear. I have no hard evidence for that but next year I shall try to catch, by both methods, on mornings when the night sky has been overcast.

New guidelines for catching adult Pied Flycatchers in nestboxes

- Passive traps triggered by the bird entering the box
  Passive traps should not be left unsupervised for more than 15 minutes. They should only be used on one nestbox for one session of a maximum of 40 minutes (checked at least every 15 minutes) on any one day. Note that the maximum time of 40 minutes relates to good conditions (fine weather, thriving mid-aged brood) and will need to be reduced in other circumstances.

- Active traps triggered by the ringer
  Active traps allow the ringer to target a particular bird. As long as the non-target bird is returning regularly to the nest and provisioning the brood, active traps may be left set for up to an hour. If the target bird has not been caught in this time it is likely that it is being dissuaded from returning to the box by the trap and the attempt should be abandoned.

- Trapping of adults should not be undertaken at nests containing newly hatched young as the young may be subject to chilling.

Note
Adult females may be taken off eggs during incubation, preferably during the second half of incubation.
Ringing Committee

Sand Martin Ringing

Sand Martin is a popular choice amongst RAS ringers because good numbers of birds can be caught in a small number of visits. Here experienced RAS ringers Graham Elliott, Steve Hales, Phil Ireland, Tom Dougall and Alan Robinson provide some guidelines for ringing Sand Martins at colonies.

Rob Hume

Timing of visits

The best time for ringing Sand Martins at a colony is from mid/late June to early August, with the best catches coming in early to mid-July. By mid-June most colonies are well established and birds are feeding young in the nest but few have fledged young. Ringers should be aware when most birds have finished laying before trapping at a site, whether it is earlier or later than the traditional time so they can work out the safest time to visit and avoid causing desertion. Don't assume that catches can be made at the same time each year as laying dates can vary depending on weather. Females often start laying a second brood, often with a new mate, when their first brood is fledging. Ringing after the first brood has been reared and the second clutches have been initiated is likely to be the least disturbing time.

Morning or evening?

Both morning and evenings are suitable for catching Sand Martins at colonies. For morning visits most ringers arrive prior to dawn and have the nets set ready to catch the adults as they leave their holes. Once birds start leaving the colony many will fly straight into the net and it is possible to catch many of the birds from the colony in the first hour or so. Ringing in the morning also means that if you have a good catch there is plenty of time for extracting and processing as light conditions are improving and the temperature is rising - although one has to be aware of frosts (even in June) and early morning chilling mists. Some ringers do catch in the evening and this has advantages in not requiring early rising (especially if there was a CES session the day before! – Steve Hales). Those that ring in the evening generally start in the early evening (from 1800 hrs). Timing is critical to ensure the nets are taken down early enough to allow the birds to return to their holes before dark.

Setting nets

Ideally nets should be placed approximately 1 m out from the cliff parallel to the face. Generally 12 m nets do not catch the breeze so much as 18 m nets, so might catch better. Birds quickly adapt to the presence of ringers close to the colony. Be wary about the length of nets erected – if the colony is large then it is easily possible to get swamped with birds. When operating at a large colony it is essential that at least two ringers are present; one person to extract and one to ring. The amount of netting used will depend on the

number of ringers available to help. In sand it can often be very difficult to set guys for the net poles. In order to keep the nets set properly and taut, try suspending the net by using two large crocodile clips on the pole, under the loops of the top string and again under the second string. Be aware of loose substrate when setting nets.

Duration

How long the nets are left may depend on how close the net is to the holes, which is often determined by geography. If the net is very close to the face (and birds cannot freely enter and leave the holes), the net should not be left for more than 30 minutes to one hour but if there is space for birds to get in and out of holes then the net can be left in place for longer, up to two hours.

A useful measure of when it is time to leave the colony is when birds that were ringed during the session start to be retrapped. Initially, most birds are trapped leaving their holes but eventually birds ringed earlier in the session start to return to the colony and always approach their holes from below bringing them straight into the net again. On windy or sunny mornings the number of birds caught is much reduced with the flock flying around overhead attempting to approach the colony but pulling back in front of the net at the last minute. At a large, spread-out colony it may be possible to move the net to a different section of the colony after 30 minutes.

Ringing birds

When extracting Sand Martins from the nets it is safe to bag two, or even three, birds in the same bag, if the bags are big enough and the catch is large. When ringing at colonies, most ringers only ring, age and sex birds and usually don't measure wing or weight, this again is dictated by the size of the catch and the need to release birds quickly and to minimise disturbance. If the ringing team is large enough it may be possible to process a sample of the birds. Sexing of adults in July is fairly straightforward; they have classic BP and CP characteristics. Recording of the presence and absence of brood patches is encouraged so that the timing of the breeding season can be investigated.

Number of visits for RAS?

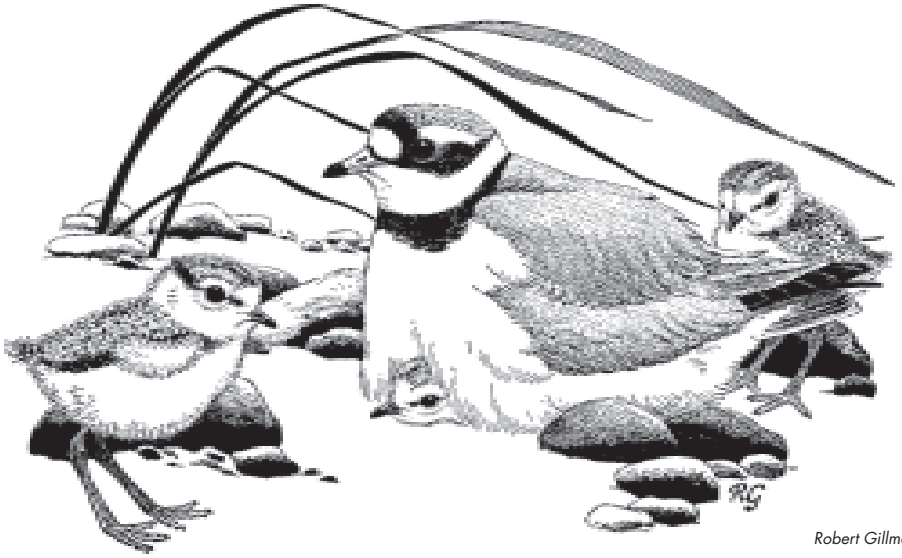
Three visits a year, with at least two weeks between visits is recommended. This should allow a sufficient number of birds to be caught whilst minimising disturbance at the colony. The first visit catches mainly adults, the second visit catches both adults and young and the third visits traps late breeders and some birds that may well have bred elsewhere.

Other points

Personal safety! Beware of loose materials especially sand around the colony. It might also be possible to encourage quarry owners to assist with sculpturing the nesting face. At one RAS site in Dorset, English China Clay (now Imery's) initially made a 36 m long vertical nest cliff (north face works best) and about four metres high. This concentrated the birds and made mist-netting a lot easier and safer - especially if the design incorporates a ledge to walk along under the nesting cliff!

Richard Vaughan

RAS Review/Update



Robert Gillmor

Five years on: the RAS Review...

The RAS Project has now been running for five years, and we have been greatly encouraged by your response to this project - almost 150 of you have taken up the challenge of monitoring the survival of adult birds. But, with five years data collected, now is the time to pause and reflect on how the well the project is going and what its priorities should be in the future. We have been helped greatly in this regard by Steve Freeman's and Chris Wernham's analysis of the Pied Flycatcher studies (see next arcticle).

Over the last ten years the BTO has pioneered the development of Integrated Population Monitoring. By looking at survival, breeding success and population trends in this integrated way, we can get a much better idea of what causes population changes, to better inform conservation policies. RAS will form a key component of this by monitoring the survival of adult birds. However, this is the first time such a programme has been attempted at such a scale - which species will be suitable, the methods to catch them effectively and the numbers required, are much less clear. It was very much a case of try it and see! With five years data available, we are now in a much better position to answer some of these questions. There are two key questions we tried to address particularly - which species make the best RAS studies and just how many birds do you need to catch?

What species make good RAS studies?

So far, we have accepted RAS studies on all species that ringers have wanted to attempt. Some, however, have proved more challenging than others. So Pied Flycatcher (19 studies) and Sand Martin (12 studies) have been particularly popular, while species like Yellowhammer and Tree Pipit have proved very difficult to catch in sufficient numbers.

There are a number of factors that are necessary to get good estimates of survival from a RAS study. Firstly, one should be

able catch (and more importantly retrap or resight) good numbers of birds, more about this later! Secondly, a high degree of site fidelity, ie adults returning to the same area to breed each year, is needed. Survival studies of birds breeding in a restricted area, do not actually measure survival, but rather return rate, which is a combination of both survival and dispersal away from the study area. Thus, RAS studies are best focusing on species with limited dispersal between breeding seasons to most accurately monitor changes in survival. The main aim of RAS is to provide annual estimates of survival, this will only really be possible with several years worth of data, and ringers should aim to run RAS studies for at least five years.

To make the RAS Project as effective as possible, it is best concentrating efforts on a core range of species, with data available from multiple sites so that we can produce good estimates for each species. Initially, these species will be (with number of studies currently in brackets):

- Seabirds: Manx Shearwater (1), Eider (4), Kittiwake (2), Common (0) and Arctic (1) Terns.
- Waders; Ringed Plover (1), Common Sandpiper (2) and Oystercatcher (0).
- 'Hirundines': Sand Martin (12), House Martin (5), Swallow (7).
- Open ground nesters: Whinchat (2), Stonechat (1), Wheatear (2).
- Finches & Sparrows: House Sparrow (1), Tree Sparrow (2), Chaffinch (1), Linnet (4).
- Hole nesters: Starling (1), Pied Flycatcher (19), Dipper (2).
- Other Species: Ring Ousel (0).

We would also like to encourage studies on Redshank, Swift, Wood Warbler and Twite, which are of particular conservation interest, but for which it may be difficult to find a sufficient number of sites. Ideally, we would like at least a small number of sites (about five) for each species, though more would be great, to enable us to monitor survival over a representative part of the species range.


Anon

Studies on other species will still be welcome, particularly where they complement existing schemes, such as of a CES species, eg Reed Warbler, in Scotland or Wales. However, such studies will be expected to generate particularly high quality data, or have been running for some time to qualify for inclusion in RAS.

How many birds are needed?

The key question, then, is how many birds are required. But this question is perhaps better asked as how many birds are retrapped (or resighted if colour-marked). This is because multiple sightings of individual birds are most valuable because we know they have survived for a particular period, from which we can calculate the survival rates. Even quite small changes in survival rate can have quite profound effects on population size, the population decline of Reed Bunting, for example, have been caused by changes in survival of around 10%, thus we need to be able to detect at least this degree of change to effectively understand population changes. Looking at the precision achieved by the Pied Flycatcher studies shows that the more individuals that are retrapped each year the better. We are likely to need retraps or resightings of around 25 birds each year to get reasonable estimates of survival from each study (see the separate article on this on page 10), though regional differences in survival patterns may complicate matters! The better the survival estimates we have, the more confident we can be about diagnosing causes of population change.

Pied Flycatcher RAS analysis: an update

Pied Flycatchers – what can we learn...

The recent analysis of the Pied Flycatcher RAS studies has told us quite a bit about the survival of Pied Flycatchers in different parts of the country (see BTO News 243: 4-5). But the analysis also reveals a pattern of more general interest. Because we have a number of studies that vary in the number of birds they catch and recatch, we can look at how effort affects the precision of our estimates of survival.

Survival of birds will vary from year to year for many reasons, such as weather, but when it changes consistently, even for a few years, this can have marked effects on population numbers. There has been quite a bit of research recently by staff at BTO HQ, using ringing data in particular, investigating the effects of survival on population numbers. This has shown that for many passerine species, changes in survival seem to be an important determinant of population trends. Even quite small changes in survival, of 5% or 10%, can impact on the population trend. With RAS we want to monitor changes in adult survival, but in order to detect such small changes we do need good numbers of birds in each study. And this is where the Pied Flycatcher analysis comes, just how many is a good number of birds?

The graph below shows how the accuracy of our survival estimates increases with the number of birds retrapped in each study each year. Clearly, the greater the number of retraps, the better the precision and the smaller the change in survival we can reliably detect. Fewer than 25 retraps and the precision gets much worse, but many more are needed to detect the sorts of changes likely to be important at the population level. This is why we ideally need about five sites for each species, each catching about 25 retraps annually, so that we can monitor national changes in survival accurately. The number of retraps is more important than simply the number of birds ringed as we know that these birds have survived. With a bird that has been caught just the once, we don't know whether it is still alive and on the study site (we just haven't seen it again), still alive, but moved elsewhere, or dead. It does mean though, that the ringing effort needed will vary between species, for a nestbox breeding species, such as the Pied Flycatcher, where retrap rates might be quite high, a catch of 50 birds each year will be sufficient to generate 25 retraps. For Sand Martins, however, where the retrap rate tends to be much lower, in excess of 100 birds may be required to achieve the same number of retraps.

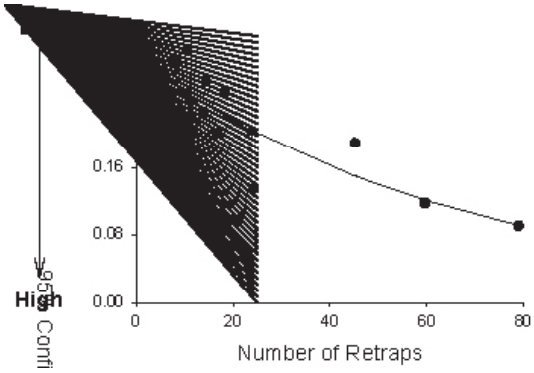


Figure 1. Effect of sampling effort on the average precision of annual survival estimates for Pied Flycatcher RAS studies.

Frequently asked questions

What is the recapture probability?

Survival rates are estimated from resightings of marked birds via statistical models known generically as 'Capture-Recapture Models'. An enormous range of such techniques have now been developed, many of which are statistically and computationally complex.

At the simplest level, there are two types of parameter, or quantities of interest; the probability of a bird surviving from one year to the next, and the probability of its being caught if it does survive. Any birds' recapture history over the years can be expressed in terms of these quantities. The latter, the recapture probability, is rarely of direct interest, but has to be calculated in order to estimate the survival parameters correctly. This is because if a bird has not been caught it does not mean it has died, it might simply have evaded the ringer, or it may have bred in a slightly different place. Clearly those birds that have been caught have survived; we need to be able to estimate how many of those that are not caught have done so.

In most cases we are interested in estimating separate recapture and survival probabilities for each year. This is a 'classic' model in the literature, based on that of Jolly and Seber (described for example in Ecological Methodology, by CJ Krebs (Harper Collins)) and fitted using a computer program called MARK (see the paper by White & Burnham in Bird Study, Vol 43, S120-139). If some birds are not caught in a particular year, but caught in previous and succeeding years (ie they were not caught although they must have been alive since they were caught subsequently) the recapture probability will be less than 100% as a consequence. Such a bird may, of course, have been present and not caught or it may not have been in the area at all.

More complex models allow one to test for relationships between survival and weather conditions, or for differences between the sexes, for example, and may be explored in future work.

Steve Freeman

Chaffinches - request for help

I have been endeavoring to carry out a RAS study on Chaffinches and could do with some help. The population now is largely colour ringed. Last year I found many ringed birds on territory in my area but without colour rings. I have now started colour ringing all Chaffinches during my winter finch project to get round this problem since they are not easy to catch on territory. If anyone has any ideas on the following I would be very grateful. From limited observations male Chaffinches do not appear to feed young but do guard the territory both while the female is sitting and she is feeding young. Are there any behavioral clues that tell you roughly where the nest is (once you understand Willow Warblers they immediately tell you where the nest is within a metre or so!). Many male Chaffinches appear to hold territory in areas of the wood where there are no possible nesting sites (unless the nest is right at the top of a mature birch 15 m high). Are these non breeders or what? Do Chaffinches second brood? I find a tape of Chaffinch song will attract young birds from late August to Mid October but not after. Does a winter feeding flock contact call tape work in mid winter and if so how do you use with whoosh nets or mist nets and where can I get one? If anyone has other data on Chaffinch biology in general I would be pleased to hear about it. My email address is jamescobb@kingsbarns.fsnet.co.uk

Jim Cobb

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BTO
The Nunnery,
Thetford
Norfolk
IP24 2PU

Tel: 01842 750050
Fax: 01842 750030

Email:
dawn.balmer@bto.org

Editors:
Dawn Balmer & Rob Robinson

Desk Top Publishing:
Angela Rickard

Illustrations
Steve Carter
Robert Gillmor
Rob Hume
Richard Vaughan
M S Wood

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RAS Contacts

If you would like to get in contact with ringers working on the same species please use the contact names and addresses below or contact Dawn Balmer at BTO HQ for details.

Pied Flycatcher
Graham Austin, BTO, The Nunnery, Thetford, Norfolk IP24 2PU. Tel: 01842 750050. Email: graham.austin@bto.org

Swallow
Garth Lowe, Sunnymead, Old Storridge, Alfrick, Worcestershire WR6 5HT. Tel: 01886 833362. Email: garthlowe@beeb.net
Ian Rendall, 30 Cherry Road, Aberdeen AB16 5EP. Tel: 01224 485545. Email: ian@hirundine.fsnet.co.uk

Sand Martin
Phil Ireland, 27 Hainfield Drive, Solihull, West Midlands B91 2PL. Tel: 0121 7041168. Email: Phil_Ireland@bigfoot.com

House Martin
Sandy Hill, 8 Merlin Close, Hoveton, Norwich NR12 8DW. Tel: 01603 784871.

Wheatear & Stonechat
Dave Fulton, 6 Haxelwells Road, Hollywood Park, Highley, Shopshire, WV16 6DJ.
Email: Davebirder@aol.com

Common Sandpiper & Dipper
Tom Dougall, 62 (IF2) Leamington Terrace, Edinburgh EH10 4JL.
Email: gilltomer@hotmail.com

Tree Sparrows
Graham Scott, 13 Beverley Close, Cayton, Scarborough, North Yorkshire YO11 3SN.
Email: g.scott@hull.ac.uk