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Subalpine Warblers

Red-flanked Bluetails

Bernard Tucker Memorial Lecture



British Birds

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Front-cover photograph: Male Subalpine Warbler *Sylvia cantillans*
(alt. Western Subalpine Warbler *S. inornata*), Ávila, Castile and León, Spain, May 2011. Roger Tidman/FLPA

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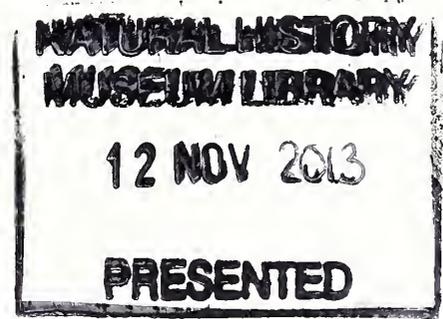
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British Birds

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The Subalpine Warbler used to be a relatively straightforward rarity for British birders. Over the past couple of decades, the more obvious examples of 'Eastern Subalpine Warbler' and, latterly, 'Moltoni's Warbler' have been sifted out by sharp-eyed observers. In this month's *BB*, however, Lars Svensson sets out the case for a three-way split; assuming that BOURC follows these recommendations, it means that all vagrant Subalpine Warblers will suddenly need a lot more care. Sound recordings and photographs from every angle might be the minimum requirement for anything other than a 'classic' male if the record is not to become mired in 'either/or' land. Two decades ago that would have seemed an impossible level of detail but now it seems well within the bounds of possibility.

The paper on ageing and sexing of Red-flanked Bluetails, from workers at one of Sweden's top observatories, is another contribution that we might not have expected to see in *BB* 20 years ago. Red-flanked Bluetail was an extraordinary rarity in 1993, as the massive twitch for the bird at Winspit, on the Dorset coast, in the late autumn of that year showed. Now, despite the stats in last month's BBRC report showing that 2012 was a poor year, this bird is a feasible target on the east coast in autumn.

The last of the main papers in this issue, last year's Bernard Tucker lecture, shows what can be done by combining ringing with other fieldwork in a well-planned study of a single site rather than a particular species or group. Chris du Feu gives a flavour of just some of the results of 30-odd years of work in one small wood in the East Midlands. It's another issue of *BB* that emphasises the diversity of ways in which we can enjoy birds.

Roger Riddington



British Birds aims to: ❖ provide an up-to-date magazine for everyone interested in the birds of the Western Palearctic; ❖ publish a range of material on behaviour, conservation, distribution, ecology, identification, movements, status and taxonomy as well as the latest ornithological news and book reviews; ❖ maintain its position as the journal of record; and ❖ interpret scientific research on birds in an easily accessible way.

Thinking big

The 'Big Idea' was one of those crazy dreams that are usually dismissed instantly, either as impossible, totally impractical or simply downright mad! The dream was to combine two not-so-adjacent nature reserves and add a considerable area of the surrounding farmland, thus multiplying the original area almost eight-fold to recreate a significant extent of wet fenland. The initial response of most people was either that the visionaries had delusions of grandeur or, more prosaically, to ask where all the money might come from?

In the mid 1990s, the Big Idea was first mooted by Adrian Colston, then Director of Operations at the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire, who was much influenced by the major restoration project to create the Dutch 'mega reserve' of Oostvaardersplassen. He managed to persuade the Wildlife Trust to take the Big Idea seriously, and the Great Fen Project (as it is now known) was born. Adrian moved on, but the seeds had been sown and the Great Fen Project was developing a life of its own. The initial doubters, myself included, have been shown that it is indeed a grand idea and is far from delusionary!

The Great Fen Project (see www.greatfen.org.uk), at the western edge of the Fens in Cambridgeshire, is big thinking for both the present and the future. It takes the two important National Nature Reserves, Woodwalton Fen (208 ha) and Holme Fen (266 ha), as its nuclei, and hopes to draw its eventual boundaries far beyond these, to make a total area of 3,700 ha (37 square kilometres). As one of the largest nature restoration projects in the country, it is both inevitable and, of course, essential that a number of bodies are involved, all with different roles but all co-operating in the overall scheme. These bodies include, as might be expected, Natural England and the Wildlife Trust; and, less immediately obviously, though just as important, the Environment Agency, Huntingdonshire District Council and the Middle Level Commissioners, the last being responsible,

inter alia, for flood protection in the area.

The two nuclei reserves represent almost the last remaining remnants of how the fenlands would have been before the major drainage of the area commenced in the early seventeenth century, though even these have been modified by the hand of man. Woodwalton Fen is an absolute delight – a substantial area of woodland, meres, open damp grassland, reedbeds and waterways – while footpaths provide good access. To the first-time visitor it is completely unexpected, lying hidden in the vast, flat expanse of the largely featureless fenland. The reserve boasts a regular list of about 170 bird species, including Marsh Harrier *Circus aeruginosus*, Hobby *Falco subbuteo*, and all the expected reedbed and damp-woodland warbler species, together with more than 400 species of flowering plants.

The other reserve is Holme Fen, owned by Natural England, which includes the largest Silver Birch *Betula pendula* woodland in lowland Britain, areas of heath grassland and a small fragment of raised bog, the most southeasterly in England. Although most of this area of the Fens was drained successfully by the 1850s, Holme Fen proved difficult to drain completely so that it became a nature reserve almost by default. Part of it includes the lowest area in Britain, 2.75 m below sea level.

The site of the largest of the former meres of the ancient fenland, Whittlesey Mere, lies at the north end of the Great Fen Project area. With the drainage of this Mere, as recently as 1851, went the Swallowtail *Papilio machaon* and the English race of the Large Copper *Lycaena dispar* butterfly, along with many species of the local flora. The nineteenth-century naturalist Charles Rothschild was aware of these losses to our natural heritage. Seeing the speed with which drainage was transforming the Fens to arable farmland, and with it the loss of the natural fenland wildlife, he purchased Wicken Fen in 1899 – which he subsequently presented to the National Trust – and later, in 1910, he purchased Woodwalton Fen, which became a

reserve in 1919. Rothschild built a bungalow – on stilts to avoid flooding – to use as a base for his scientific work at Woodwalton Fen. It is still being used, and it provides a memorial and a direct connection to a far-sighted naturalist to whom we owe a considerable debt, not just for the preservation of Woodwalton Fen but as a pioneer of nature reserves in Britain.

With the drainage of the fenlands came the ‘shrinkage’ of the local peat soils; consolidation, oxidation and deflation all combined to result in a significant lowering of the general ground surface. Ground lowering measured at the Holme Post, which was installed in 1850 to record the anticipated shrinkage, is in excess of 4 m. Ground lowering is evident to the visitor at Woodwalton Fen, where the reduced extent of shrinkage at the reserve has resulted in it being significantly higher than the surrounding farmland; this height difference makes the reserve more difficult to keep wet.

This problem provides an excellent example of earlier co-operation between two of the Great Fen partners, when, some 40 years ago, a scheme was developed to prevent water leaking from Woodwalton Fen to the surrounding, lower-lying farmland. The perimeter of the Fen was sealed with an impervious clay cut-off, dug down through the remaining peat to the underlying clay, which stopped the majority of the leakage. In return for carrying out this work, the Middle Level Commissioners were allowed to store floodwater in the reserve, thus simultaneously keeping the reserve wet while preventing the flooding of the surrounding farmland. Unfortunately it now appears that floodwater storage may be having a deleterious effect on the reserve, and this problem must be addressed, perhaps using other, less sensitive areas within the Great Fen Project area for the storage of floodwater.

The Great Fen has truly caught the public’s imagination. In 2008, a record-breaking grant of £7.2m from the Heritage Lottery Fund, together with matching funding from a large number of other donors, enabled the purchase of a large estate

in the north of the Great Fen area. As a result of these and other grants and donations the present-day statistics are impressive: the partners now own 55.5% of the project area, and by the end of 2013 41% (1,519 hectares) will be managed for conservation. Not there yet, but at this rate it will not be long!

These are the hard facts, but what is equally encouraging is what is being achieved on a broader front under the umbrella of nature conservation. The Royal Institute of British Architects held a competition to design the Great Fen Visitor Centre, their second most successful competition ever, with 201 entries, and now fundraising is underway to construct the winning design. Education has for some time been an important element of the Wildlife Trust’s work, with much co-operation with local schools, and the Great Fen Project is continuing and extending this. There is a strong volunteer base, helping with such activities as fundraising and guided walks, while volunteer rangers assist visitors at weekends. The local economy is being developed with the assistance of the local authority, improving the tourist infrastructure, commissioning footpaths, cycle routes, and offering local business opportunities.

Although the project has not been without some controversy – the main criticism being that it will potentially drown high-quality arable land – the result is that the Great Fen Project is rapidly developing into a landscape-scale nature reserve. Within its boundaries visitors will find a landscape comparable to the ancient fenland. With good luck and good management its sheer size will allow space for wildlife to develop, and to attract such potential breeding species as Common Crane *Grus grus*. Surely it will prove to be an exciting area for nature, enjoyed by both the local community and all who love wide open spaces, and will come to be seen as a flagship landscape-scale reserve and a fitting memorial to those pioneering nineteenth-century naturalists who started the nature conservation movement.

Richard Chandler

What do you think? Join the debate at www.britishbirds.co.uk/category/editorials

News and comment

Compiled by Adrian Pitches

Opinions expressed in this feature are not necessarily those of *British Birds*

New species of owl discovered in Oman

In another groundbreaking piece of research by *The Sound Approach* team, a new *Strix* owl has been identified, not on a remote Indonesian island but in the Middle East. The team has described its findings in *Dutch Birding*, where it gives the new taxon the name Omani Owl *Strix omanensis*.

In late March this year, Magnus Robb and René Pop spent seven nights studying Pallid Scops Owls *Otus brucei* at Al Jabal Al Akhdar, the central part of the Al Hajar Mountains in northern Oman. Having located the Scops Owls in a dry wadi, they spent several nights recording their calls. But one night, MR detected through his headphones a totally different owl call that sounded unlike that of any other Palearctic owl species.

He likened its four hoots to the opening bars of the famous wedding march from Richard Wagner's opera *Lohengrin*. (The new species could indeed have been called 'Here Comes The Bride' Owl!) The compound structure of its hooting suggested a *Strix* owl but one with a voice even deeper than Ural Owl *S. uralensis*.

On their final night in Oman, MR and RP made good-quality recordings of the *Strix* owl calls but failed to see the bird before they had to leave for the airport. Within a month, MR was back in Oman and back in the wadi for another week of nocturnal vigils, this time with Arnoud van den

Berg. On their fifth night, playback of the *Strix* call finally lured the mystery owl into their torch beams.

It had the shape of a *Strix* owl, lacking ear tufts and appearing slightly smaller-headed than a Tawny Owl *S. aluco*. Since it was facing them, only its face and underparts could be seen, which looked rather featureless except for the presence of a dark breast band, and AvdB noted obvious longitudinal stripes. Both observers were convinced that this was not the other Middle Eastern desert *Strix*, Hume's Owl *S. butleri* (which occurs in southern Oman), and the capture of good-quality images became the next priority. But this had to wait for a *third* expedition to the Omani desert, in late May, when AvdB returned with Cecilia Bosman. By this time even night-time temperatures were exceeding 40°C!

It took a further week of playback and climbing up the lower walls of the wadi before AvdB obtained the first photograph. He subsequently obtained an excellent series of perched and flight shots of the mystery owl. He and CB returned to Oman again in July to obtain further photographic and audio evidence.

Sonograms of the owl's calls were clearly different from all Hume's Owl recordings. The team then searched all available museum collections for specimens of their 'Omani Owl' but could find none. There were no *Strix* specimens at all in the museum in Muscat, Oman, and only three specimens of Hume's Owl in the NHM at Tring. All three differed in the tones of their upperparts but all three showed horizontal bars on the underparts, a feature not shown by the Omani owls.

The team concluded: 'Vocalisations and plumage characteristics demonstrate that the owls sound-recorded and photographed in the Al Hajar Mountains of Oman represent a new species, which we propose to name *Strix*



Arnoud van den Berg

381. Omani Owl *Strix omanensis*, northern Oman, May 2013.

omanensis, Omani Owl.

This is the first 'non-cryptic' bird species to be discovered in the Western Palearctic (using the

widely recognised modern definition of the WP to include the Arabian Peninsula) for 40 years, the last being Algerian Nuthatch *Sitta ledanti* in 1973.

Record season for Bald Ibises in Morocco

The largest fully wild population of the Critically Endangered Bald Ibis *Geronticus eremita* has had its second most successful breeding season on record, with the number of breeding pairs at its highest since surveys began in the 1980s. The colonies at Souss-Massa National Park and nearby Tamri, in southwest Morocco, fledged 148 young, bringing the total population at the end of the breeding season to 443 birds.

Once widespread in North Africa and Europe, the Northern Bald Ibis survives in two disjunct populations. Well to the east of the Moroccan birds is the semi-captive population at Birecik in Turkey, and south of that a tiny remnant population at Palmyra, Syria.

Management and conservation of the Moroccan population is supervised by SEO/BirdLife (BirdLife in Spain) in conjunction with the High Commission for Water, Forests and Desertification Control and GREPOM (BirdLife in Morocco).

The Tamri colony commenced breeding in early February. In contrast to 2012, when breeding at Tamri failed completely, possibly because of low rainfall, 60 pairs fledged 71 young. In Souss Massa National Park breeding did not begin until the first week of March. One subcolony of six pairs was prevented from nesting by disturbance from a

Lanner Falcon *Falco biarmicus*, which flew so regularly over the nest ledge that the birds abandoned it. The remaining 53 pairs produced 77 fledglings.



BirdLife International

382. Adult and juvenile Bald Ibis *Geronticus eremita*, Morocco.

The success may be due partly to better weather, including 200 mm of rainfall between September 2012 and April 2013, which improved prey availability.

'Our monitoring shows that the Northern Bald Ibis population at Souss-Massa contains the largest number of breeding pairs recorded since conservation of this species began in 1993, and certainly since the first surveys of the species in the early 1980s,' said SEO/BirdLife's Jorge Fernández Orueta. 'Only in 2004 was the number of fledged young higher, and if it were not for the territorial behaviour of the Lanner Falcon, this year would probably have exceeded it.'

Red-backed Shrikes nest on Dartmoor again

Closer to home it's been another successful breeding season for the Red-backed Shrikes *Lanius collurio* that first colonised Dartmoor in 2010, as a pair fledged two young.

Kevin Rylands from the RSPB said: 'This is now the fourth year the shrikes have returned to Dartmoor, but they failed to breed successfully last year, probably due to the awful weather. A lone male visited the previous breeding site in May this year but failed to find a mate. Fortunately, a pair was found at a new site in June and this bodes well for the future of the species on Dartmoor.'

Red-backed Shrikes were driven to extinction in

the UK at the end of the last century and egg-collecting remains a major threat. Wildlife Crime Officer PC Josh Marshall, of Devon and Cornwall Police, has been directly involved in the protection scheme since the birds first bred on Dartmoor in 2010. He explained: 'As in previous years, we used a combination of volunteers, staff and sophisticated wildlife surveillance equipment as part of site protection and monitoring. Although it's been hard work, the efforts have been rewarded with two youngsters fledged. We are particularly grateful to the volunteers involved and to Devon Birds for funding some of the cameras used on site.'

2,000 Saker chicks reared in artificial nests

An extraordinary 2,000 Saker *Falco cherrug* chicks have hatched in 2013 as a result of an artificial nesting programme in Mongolia. The project, which is run by the Environment Agency of Abu Dhabi (EAD) in partnership with Mongolia's Ministry of Nature, Environment and Tourism, was launched in 2010 with the aim of increasing the wild Saker population.

EAD, on behalf of the UAE Government, signed an agreement with the Mongolian Government to build 5,000 artificial nests in the Mongolian steppes to increase the world's population of Sakers, which, of course, has suffered significantly because of the demand for falconers' birds fuelled by oil-rich Middle Eastern states.

Indeed, this project is an acknowledgment that, for the past 20 years, the UAE has been the main destination for thousands of falcons caught and sold illegally for hefty sums on the black market. (Neigh-

bouring Kazakhstan is estimated to lose up to 1,000 Sakers per year to Middle Eastern falconers.)

EAD reported that 3,700 chicks have been hatched since the project was first launched.

This year the project has also addressed the problem of Sakers being electrocuted by power lines by adding insulation covers near nest-sites.

Razan Khalifa Al Mubarak, Secretary General of EAD, said: 'This initiative was introduced to promote sustainable breeding practices and to provide birds with safe and secure breeding environments in a bid to boost global population numbers. I am happy to report that we have also built up the capabilities of local biologists and have incorporated an educational programme in schools in Mongolia, as well as two schools in Abu Dhabi.'

Middle East Falcon Research Group
www.savethesaker.com

RSPB has a new (TV presenter) President

RSPB members have elected BBC TV presenter Miranda Krestovnikoff as the Society's new President. She follows in the footsteps of fellow TV star Kate Humble, who was elected in October 2009 and who also followed another TV presenter, Julian Pettifer.

Ms Krestovnikoff is best known for her appearances on *The One Show* and as one of the original *Coast* team members on BBC2.

In her new role, Ms Krestovnikoff aims to increase support for the RSPB. She wants to celebrate British wildlife and raise awareness of the

wildlife we have on our doorstep. In particular she wants to enthuse children about nature, and help adults learn how to enthuse their children.

Mike Clarke, RSPB Chief Executive, said: 'The start of Miranda's RSPB Presidency comes at a time when nature is facing huge challenges. To meet these challenges we need to grow support for nature by inspiring more people to enjoy it, care about it and save it. Miranda brings a natural ability to enthuse others about nature and we are pleased to welcome her as our new President.'

In praise of... *The Sound Approach*

To find one previously undescribed species within the boundaries of the Western Palearctic may be regarded as fortunate; to discover *two* within the space of five years is nothing short of miraculous, as Oscar Wilde might have observed.

These are the achievements of the Anglo-Dutch collective *The Sound Approach*, whose mission is to turn birdwatchers into 'bird listeners'. The formidable sound-recording talents of Mark Constantine, Marcus Robb and Arnoud van den Berg are backed up by the expertise of identification consultants Killian Mullarney, Dick Forsman and René Pop. The team has produced some of the most innovative bird books of recent years (for

example, *The Sound Approach to Birding* and *Petrels Night and Day*) and along the way described Monteiro's Storm-petrel *Oceanodroma monteiroi* from the Azores (previously a 'cryptic' population of Madeiran Storm-petrel *O. castro*) and now the Omani Owl. In addition, AvdB played a decisive role in the 2009 rediscovery of Turkish Brown Fish Owl *Bubo zeylonensis semenowi*, which may yet prove to be another new species. As the team modestly observes: 'For us to have been involved in such events twice in five years suggests that there is still much to discover in the WP, especially during the night...'

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Subalpine Warbler variation and taxonomy

Lars Svensson



Richard Johnson

Abstract The current knowledge of variation within the Subalpine Warbler complex is summarised. A new morphological character, regarding differences in the tail pattern, is described here, which will help in the diagnosis of taxa away from the breeding grounds. This new character is central to the proposal of a three-way split of the complex: Western Subalpine Warbler *Sylvia inornata*, Moltoni's Warbler *S. subalpina* and Eastern Subalpine Warbler *S. cantillans* (see Svensson 2013). Based on current knowledge of morphological characters and confirmed by genetic sampling, it is established that the first British record of Moltoni's Warbler was a male on St Kilda, Outer Hebrides, on 13th June 1894.

The Subalpine Warbler *Sylvia cantillans* as traditionally constituted breeds across much of the Mediterranean region, from Iberia and Morocco in the west to western Turkey and northwest Libya in the east, including southern France, large parts of Italy and southeast Europe (e.g. Shirihai *et al.* 2001). Four subspecies are generally recognised, with the nomenclature of most current handbooks and checklists giving us nominate *cantillans* (Iberia, France, the northwest corner of Italy and, after an apparent gap in

the distribution, in central and south Italy), *inornata* (Morocco, northern Algeria, Tunisia, northwest Libya), *albistriata* (the northeast corner of Italy, Balkans including Greece, southern Bulgaria, western Turkey) and *subalpina* (often referred to as *moltonii*, but see below; in Mallorca, Corsica, Sardinia and much of the north Italian mainland). The taxonomic status of all these populations will be discussed below. Hereafter, when the taxon names *inornata*, *albistriata* and *subalpina* are used alone they refer to the

mentioned breeding ranges, whereas the name *cantillans* is generally replaced by either 'western *cantillans*' (mainly Iberia and France) or 'eastern *cantillans*' (central and south Italy).

Moltoni's Warbler is different

It is now well established that the taxon *subalpina*, usually called Moltoni's Warbler, is quite distinct. Orlando (1937, 1939) noted this in Sardinia, and gave a quite detailed account of Moltoni's Warbler and the known variation among Italian taxa. Based on studies in the Balearics, Gabriel Gargallo (1994) reported the different male plumage and call note of Moltoni's Warbler. Shirihai *et*

al. (2001) treated Moltoni's Warbler as a distinct subspecies and suggested that it could warrant allospecies status (they were unaware of its parapatric breeding range with eastern *cantillans*) based on male plumage, its different moult strategy, phenology (later arrival in spring), call and a 3.7% difference in the mitochondrial-DNA cytochrome-*b* gene. Mattia Brambilla and colleagues (2008b, 2010) confirmed that Moltoni's Warbler differs substantially in the mitochondrial cytochrome-*b* gene. Moltoni's Warbler is known to breed sympatrically with Subalpine Warbler (eastern *cantillans*) in northern Italy, apparently without mixing (Brambilla *et al.* 2008a), which is the strongest evidence for

Moltoni's being a species in its own right.

Moltoni's Warbler differs in male plumage by being paler and more buff-pink below, not rusty-orange or brick-red. The pink colour is also more uniform across the throat, breast, belly and flanks, with lower areas of the underparts being only subtly paler than the throat and breast (and lacking the clear contrast between the darker chest and whitish belly and pale flanks seen in eastern *cantillans* and *albistriata*). The underparts coloration in male Moltoni's Warbler is closest to one of 'Vinaceous-Buff', 'Vinaceous-Fawn' or 'Avellaneous' in plate XL of Ridgway (1912) – see plate 383 – (or



Lars Svensson © Natural History Museum, Tring

383. A male Moltoni's Warbler *Sylvia subalpina* next to plate XL in Ridgway (1912), showing that the underparts colour in this species is closest to some combination of 'Vinaceous' ('Vinaceous-Buff' or 'Vinaceous-Fawn') or to 'Avellaneous'.

‘Vinaceous’ in plate XXVII – not shown), but in everyday English would best be described as buffish-pink, salmon-pink or ‘old rose’.

The call of Moltoni’s Warbler differs clearly from that of all other Subalpine Warbler populations, being a brief metallic or buzzing, dry trill, *zerrr* or *trrrt*, recalling Wren *Troglodytes troglodytes* or (perhaps) Long-tailed Tit *Aegithalos caudatus*. The call of both western *cantillans* and *inornata* is a monosyllabic, short, dry clicking *tec* or *tett*, rather like Lesser Whitethroat *S. curruca*. The call of eastern *cantillans* is very similar but slightly fuller *chep* or *trep*, almost like the call of Red-necked Phalarope *Phalaropus lobatus* or Radde’s Warbler *Phylloscopus schwarzi* (pers. obs.). The call of *albistriata* is similar to that of eastern *cantillans* but is usually (though not invariably) quickly doubled, *te-ret* or *che’rep*. See also published sonograms of the different calls (Gargallo 1994; Shirihai *et al.* 2001).

The song of Moltoni’s Warbler is also different. With practice it is possible to hear it as faster, slightly higher-pitched and more insect-like; it is buzzing or scratchy and hard in tone and it may even vaguely recall the song of European Serin *Serinus serinus*, a comparison that does not readily come to mind when listening to song of western *cantillans*, which more closely resembles that of Linnet *Carduelis cannabina* (with its slightly slower pace, frequent insertion of the *tett* call and more clear and varied structure). The buzzing call is also frequently incorporated within the song of Moltoni’s.

In addition to differences in morphology and vocalisations there is genetic evidence that Moltoni’s is different. Brambilla *et al.* (2008b) showed that Moltoni’s Warbler differs from western *cantillans* by 4.3%, and from *albistriata* by 4.4% in the mitochondrial cytochrome-*b* gene. Interestingly, the greatest genetic difference, 5.0%, was found when Moltoni’s Warbler was compared with eastern *cantillans*. This level of reciprocal genetic divergence between taxa is strongly suggestive of reproductive isolation or a long period of isolation, consistent with separate species status, although there are no firm rules for this. Nonetheless, a difference of 4–5% is a strong indication of separation at the species level, and taken together with

other consistent and diagnosable differences in morphology, vocalisations or behaviour it strengthens the argument considerably (though note that so far only mitochondrial DNA has been analysed).

Initial problems with the Moltoni’s split

Three factors caused initial doubts over the splitting of Moltoni’s Warbler from the remaining Subalpine Warbler forms, even though the arguments in favour were in many respects convincing.

First was an assumption (now known to be false) that all mainland Italian breeders were *cantillans*. For example, in June 1998, I noted ‘Subalpine Warblers’ in Tuscany (south of Sienna) calling with a Wren-like trill; I concluded (wrongly as it turned out) that there was variation in the call types of *cantillans* (whether western or eastern). Soon after, Festari *et al.* (2002) drew attention to the fact that Moltoni’s Warbler was *not* confined to the large islands in the western Mediterranean Sea (part of the Balearics, Corsica and Sardinia) but bred also in the north Italian mainland. In 1998, I was also unaware of an earlier published report of this fact (Cova 1976). More recently, Brambilla *et al.* (2006) described an ambitious mapping project covering much of mainland Italy (676 sites visited), mainly during 2000–04, which firmly established that Moltoni’s Warbler is widespread in Tuscany and Emilia Romagna and also in parts of Piedmont, Lombardy and coastal Liguria.

Second, published photographs, including those in Shirihai *et al.* (2001), appeared to show a much wider morphological variation in the male plumage of both Moltoni’s Warbler and *cantillans* than was reassuring, contradicting written claims in the same book. In particular, pl. 68: 4 is confusing, claiming to show an adult male Moltoni’s yet the bird resembles a western *cantillans*. Others which are almost as puzzling are pl. 62: 3 (a first-summer male *cantillans* being pale and salmon-pink like a Moltoni’s) and pl. 67: 3 (first-summer male *albistriata* with poorly developed brick-red throat that resembles Moltoni’s). An initial search of museum specimens seemed to confirm this large variation.

Third, it seemed that splitting Moltoni’s

Warbler left the remainder of the Subalpine Warbler complex in a less than perfect order. Brambilla *et al.* (2008b) noted that what was left when Moltoni's Warbler and *albistriata* were removed, in other words the subspecies *cantillans* in a broad sense, was polyphyletic and formed two distinct clades – one in Spain and France (western *cantillans*) and one in southern Italy (eastern *cantillans*) – and postulated that 'a further subdivision into two branches... representing two different (allo)species, could be expected.' Support for such a split was deemed insufficient based on the data available, and the question was left unresolved – in spite of the fact that these two populations (of *cantillans*) differed genetically by as much as 3.7%, almost on the same level as Moltoni's Warbler differed from either.

The first concern soon proved unfounded. There is apparently no variation in call types. Moltoni's Warbler and *cantillans* (western or eastern) call differently, and do so consistently. The birds encountered in Tuscany giving a trilling call were simply Moltoni's Warbler, not *cantillans*; I just did not examine the male well enough to realise this.

The second issue, the seemingly large variation in the male plumage of Moltoni's Warbler, was set to rest by more careful examination of all available specimens of Moltoni's Warblers in several museum collections (table

1), plus some limited but useful fieldwork in Mallorca, and Emilia Romagna and Campania, Italy, together with local workers (see acknowledgments). These studies provided a sample of 43 males of Moltoni's Warbler in 2CY spring plumage or older, which showed clearly that it is possible to recognise this form by the colour of its underparts – invariably salmon-pink, usually slightly paler and more uniform. The darkness of the colour can vary somewhat, a few males being a little more deeply saturated than others, but the colour shade invariably lacks any orange and is quite consistent and possible to distinguish after some practice. The darkest birds are closer to pale *albistriata* than to *cantillans*, owing to the absence of any orange element in the red (*albistriata* averaging slightly darker, more brick-red, and less orange).

Some of the variation evident from study specimens in museum collections proved to be due to misidentifications, seemingly often caused by reliance on locality rather than morphology. A few were quite obvious, while others were proven wrong in a targeted test of 16 selected specimens which were DNA sampled using the cytochrome-*b* gene by Martin Irestedt.

Once these labels had been corrected, a much more consistent pattern in terms of plumage colours emerged (e.g. plate 384). The apparently large variation in the plates in

Table 1. Number of specimens of the various taxa within the Subalpine Warbler complex examined. Nomenclature follows Svensson (2013). NHM = Natural History Museum, Tring; AMNH = American Museum of Natural History, New York, USA; MNHN = Muséum National d'Histoire Naturelle, Paris, France; NRM = Naturhistoriska Riksmuseet, Stockholm, Sverige; NBC = Naturalis Biodiversity Center, Leiden, Netherlands (incl. collections previously kept in Amsterdam); ZFMK = Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany; ZMC = Zoologisk Museum, Copenhagen, Denmark.

	<i>inornata</i>		<i>iberiae</i> (Iberia, France)		<i>subalpina</i>		<i>cantillans</i> (C & S Italy)		<i>albistriata</i>	
NHM	11	8	23	8	9	2	2	1	25	19
AMNH	15	4	5	1	12	11	2	0	29	5
MNHN	8	4	8	2	7	0	0	0	16	3
NRM	2	1	0	1	4	3	0	0	11	4
NBC	1	0	4	3	11	3	3	0	5	2
ZFMK	1	1	0	0	3	3	0	0	2	0
ZMC	1	0	1	0	0	0	3	1	4	1
Live birds	0	0	0	0	7	2	8	1	0	0
Totals	39	18	41	15	53	24	18	3	92	34

Total no. of ♂♂ 243, of ♀♀ 94, grand total 337.



Lars Svensson © Natural History Museum, Tring

384. Misidentifications of museum specimens can alter the perception of normal variation within any one taxon of the Subalpine Warbler complex. This photo shows a series at NHM, Tring, meant to represent Moltoni's Warbler *S. subalpina* and implying extensive variation in darkness and colour shade. When the DNA of the two birds at the left-hand end (Formentera, Balearics, 19th April 1914, NHM 1914.8.31.38, and Bordighera, N Italy, 9th April 1872, NHM 1875.5.5.41, both with rather dark and orange-tinged red underparts) was sequenced, they proved to be Western Subalpine Warblers *S. inornata*. The remaining birds in the series are true Moltoni's Warblers and show less variation.

Shirihai *et al.* (2001) may be at least partly due to reproductive shortcomings or in some cases an unusual bird. In pl. 68: 4, I suspected a misidentification, but G. Gargallo, the photographer, assured me that this bird was a genuine Moltoni's Warbler, a dark-pigmented one but with correct pinkish hue when handled. Nonetheless, the outcome in the printed book is misleading. The caption tries to convince the reader that the colour of the underparts of this bird fits a desired pattern ('note lack of pure orange pigmentation'), yet the red on throat and breast of this bird appears distinctly orange-tinted.

Vaurie (1954) did not recognise Moltoni's Warbler because he felt that the underpart coloration of males was too variable, rendering Moltoni's insufficiently distinct. It seems obvious that his view was caused by several misidentified specimens in museums, identifications which he did not challenge, or by migrants collected within the ranges of

other taxa in the complex and hence wrongly labelled.

In terms of the third issue, the genetic data presented in Brambilla *et al.* (2008b) seemed robust. There is obviously considerable genetic distance between Moltoni's Warbler and all remaining populations of the Subalpine Warbler, but also substantial difference between western and eastern *cantillans*. Only between eastern *cantillans* and *albistriata* is the distance less obvious (1.7%).

The logical solution to this situation was first hinted at by Brambilla *et al.* (2008b) and later (independently) by Hadoram Shirihai (pers. comm. 2011): to split Moltoni's Warbler from the remaining Subalpine Warbler forms, but also to divide the latter in two. Thus Western Subalpine Warbler would be western *cantillans* and *inornata*, whereas Eastern Subalpine Warbler would be *albistriata* and eastern *cantillans*. This arrangement will be discussed in more detail below.



385. Male plumages of the three species of the Subalpine Warbler complex. – **a.** Western Subalpine Warbler *Sylvia inornata*. Note rufous-orange colour of much of the underparts, and that the flanks are nearly as dark as throat and breast. All three are of the European subspecies *iberiae*. – **b.** Moltoni's Warbler *S. subalpina*. Note buffish-pink ('old rose') colour of much of underparts and very little contrast between flanks and throat/breast. – **c.** Eastern Subalpine Warbler *S. cantillans*. Note slightly darker and more brick-red colour of throat and upper breast compared with Western Subalpine Warbler, and clearly paler flanks that create a contrast between darker chest and paler belly. White submoustachial stripes are often broader and more prominent than in the other two species. The two left-hand birds are of subsp. *albistriata* from the Balkans, whereas the right-hand bird is of subsp. *cantillans* from Sicily.

The logic of three species

Although more fieldwork remains to be done, particularly in northern Italy, the logic of a three-way split of the Subalpine Warbler complex is already compelling based on available data. The degree of genetic difference has already been mentioned; see Brambilla *et al.* (2008b) for details. The haplotype network recovered in their study (p. 465, fig. 2) shows three major clades, not two, and what Brambilla *et al.* call 'southern *cantillans*' (defined here as eastern *cantillans*) was linked genetically with *albistriata* of the Balkans and Turkey, not with western *cantillans* of France and Spain.

The plumage patterns concur with the genetic evidence. In Western Subalpine Warbler the throat, breast and flanks (and sometimes even upper belly) are more uniformly dark red-orange ('Russet' or 'Tawny' in Ridgway 1912, pls. XIV and XV, respectively), on average slightly more yellowish and with less contrast between breast and flanks compared with Eastern Subalpine Warbler, in particular compared to subsp. *albistriata* (plate 385).

Tail pattern differs too (see pp. 660–663), with Western Subalpine Warbler having a short and square white tip on one or a few outer tail feathers inside the outermost. The tail in *albistriata* has a narrow, often long and pointed, white wedge on the inner web of the penultimate feather (T5), and sometimes also similar but shorter wedges on one or two adjacent feathers next to this. Interestingly, eastern *cantillans* has the same (or at least very similar) plumage to that of *albistriata* both regarding underpart coloration (males) and tail pattern (both sexes). The slight and average plumage differences between these two will be treated below and are at subspecies level. Morphologically, eastern *cantillans* groups clearly with *albistriata*, not with Western Subalpine Warbler. This finding

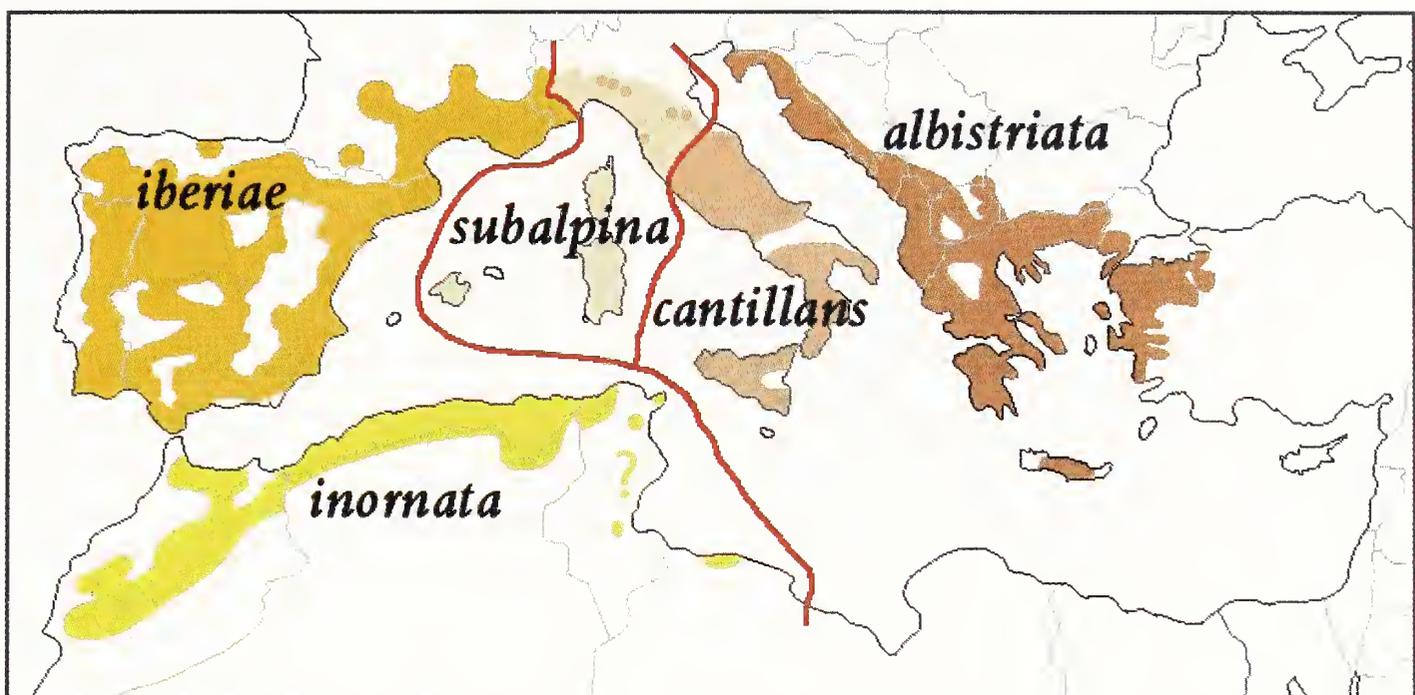


Fig. 1. Map showing the approximate ranges of the three species in the Subalpine Warbler complex. The five taxa are shown in different colour shades. Note that *cantillans* overlaps with *subalpina* in northern Italy, with dots signifying localities with sympatry. Breeding range in Tunisia south of the northwest corner is scant or irregular, but probably poorly known. Based on Brambilla *et al.* 2006, Shirihi & Svensson in prep. and other available maps and range statements in the literature.

provides the elements for diagnosis, which were lacking to Brambilla *et al.* (2008b) and allows a more robust split of the eastern group from the western one.

The evidence thus suggests that the Subalpine Warbler should be treated as three different species. The ensuing ranges are shown on the map (fig. 1), based on information available in Brambilla *et al.* (2006) and in several of the references cited in this paper.

Nomenclature

There are a number of controversial issues regarding the nomenclature of the Subalpine Warbler complex once it is split into three species. These have been addressed elsewhere (Svensson 2013), but a summary here may be helpful. Moltoni's Warbler, named after a renowned Italian ornithologist, has been known alternatively as *subalpina* and *moltonii*. The latter name, given by Orlando (1937), seems practical at first sight, being the same as the English name. However, there are nomenclature rules to follow and, as Baccetti *et al.* (2007) pointed out, the older *subalpina* is valid and has priority.

In Temminck's plate 6, no. 2 (Temminck 1820a; see fig. 2, overleaf), a painting of what appears to be a male *subalpina* (on the plate marked as 'female', but this is questionable) shows an adult bird with lead-grey crown and mantle and well-marked white tips to the tail

feathers but with pink, not orange-red, underparts. Temminck stated clearly that the bird on that plate shows the type specimen, sent to him by Bonelli and that it was the only known specimen at the time. There can be no doubt that Temminck's plate refers to this taxon and not to *cantillans*. The Temminck type specimen was described (1820b) as having 'a beautiful vinaceous colour' below. The adjective used (Fr. 'vineuse', vinaceous) is exactly the same as Ridgway (1912) used for such a pink colour (plate 383). All other Subalpine Warbler populations in male plumage have a more orange-brown or reddish colour and thus it seems very likely that Temminck was struck by the unusual and attractive pink colour of the male Moltoni's Warbler when he described *subalpina*.

With a split also of the remainder of the Subalpine Warbler complex into Western and Eastern Subalpine Warblers, the scientific names of both need to be revisited. It is questionable which form Pallas's (1764) name *cantillans* referred to, since Pallas gave the type locality as 'Italy' and the original type specimens, a male and a female, are long since lost (*fide* Baccetti *et al.* 2007, and requests to relevant museums). Both Western and Eastern Subalpine Warblers breed in Italy, but the former is comparatively rare (perhaps only 100–200 pairs), occurring in a small area of Liguria and Piedmont near the



Fig. 2. Temminck's rendering of Moltoni's Warbler *Sylvia subalpina* ('Bec-fin subalpin') in his 'Planches coloriées' (Temminck 1820a). The bird appeared in plate 6 and is captioned by Temminck as 'female', although the amount of lead-grey on head and mantle and pink below seem to indicate a male. It is stated to be in spring plumage, and the fresh plumage with brown-edged wing-feathers then fits Moltoni's Warbler best; Moltoni's frequently has a complete winter moult, while the two other species have a complete post-breeding moult. Elsewhere, Temminck (1820b) stated that this depicts the only specimen he had access to at the time, so the plate obviously depicts the lost type. The pink colour on a spring bird supports the identification as Moltoni's, and the tail pattern (with square white tips on several of the outermost feathers) eliminates Eastern Subalpine Warbler (see main text).

French border, whereas the latter is widespread and common in large parts of central and southern Italy, including Sicily, so it is highly likely that Pallas was referring to Eastern Subalpine Warbler. For clarity I have thus designated a neotype collected on northwest Sicily, which restricts the type locality (Svensson 2013); this means that the Eastern Subalpine Warbler becomes *Sylvia cantillans* (Pallas 1764).

Since the Eastern Subalpine Warblers breeding in the Balkans and Turkey are subtly but consistently larger than Italian breeders, and since the brick-red throat and breast of males is on average a little colder and darker, the lead-grey upperparts are darker, the call is slightly different and there are some differences in mtDNA, these groups merit separate subspecies status. The name *albistriata* (C. L. Brehm, 1855) has long been in use for the birds breeding in the Balkans and Turkey and no change is required; the full name of this subspecies becomes *Sylvia cantillans albistriata*. The lectotype from Brehm's collection is kept

in AMNH, New York.

Finally, the nomenclature of the Western Subalpine Warbler also needs to be adjusted. There is apparently no genetic study of the complex that includes the North African subspecies *inornata*, but both morphology and vocalisations strongly indicate a close relationship between *inornata* and breeders in Iberia and France. These two are therefore best seen as subspecies of the same species. With the name *cantillans* now given to the Eastern Subalpine Warbler, no scientific name is available for the west European breeders of Western Subalpine Warbler. The name for the species thus becomes *Sylvia inornata* Tschusi, 1906; for breeders in Iberia and France, I pro-

posed the new name *iberiae* and designated a holotype for it, an adult male collected in Madrid (Svensson 2013). The complex can thus be summarised as follows:

Western Subalpine Warbler

Sylvia inornata (Tschusi 1906)

S. i. inornata (Tschusi 1906, N Tunisia). Breeds in Morocco, N Algeria, Tunisia, locally in northwest Libya. Differs from European breeders only in its slightly warmer, more yellow-tinged colours below in both sexes, appreciable only when series are compared. Breeders in southern Iberia tend towards this subspecies in being slightly more yellowish-red, but differences slight and best kept included in nominate. Status: resident or makes local movements only.

S. inornata iberiae (Svensson 2013, Madrid). Iberia, S France, parts of Liguria and Piedmont. Returns rather early in spring, usually from late March to mid April. Winters S Morocco, C and S Algeria and presumably from Senegal and Mauritania east to Niger.

Moltoni's Warbler

Sylvia subalpina (Temminck 1820)

Monotypic ('Italy, near Turin'; *vide* Bonelli, in Temminck & Laugier 1820b). Mallorca and Cabrera in Balearics, Corsica, Sardinia, Emilia Romagna, Tuscany and parts of Piedmont, Lombardy and coastal Liguria. Returns late in spring, usually mid April to mid May, probably due to, unlike other taxa, extensive pre-breeding moult in late winter. Presumed winter range is in W Sahel, recorded in N Nigeria and N Cameroon and on migration in southern Algeria; winter range probably extends at least to northern Nigeria and Niger. On migration common in N Algeria, Tunisia and S Italy.

Eastern Subalpine Warbler

Sylvia cantillans (Pallas 1764)

S. c. cantillans (Pallas 1764, 'Italy' (but later restricted to 'Ficuzza, Sicily' (Svensson 2013)). Sicily, Campania, Puglia and north to at least Umbria and Marche but probably sparsely and also locally in Tuscany and Emilia Romagna. Returns in spring from mid March to mid April. Presumably winters in W Sahel but details poorly known owing to difficulty of separating the two subspecies away from breeding range.

S. cantillans albistriata (C. L. Brehm 1855, 'Egypt' [migrant]). Trieste, S Slovenia, Croatia and much of Balkans, Greece, S Bulgaria, W Turkey. There is an isolated possible breeding record from SW Romania (Weber 1994). Differs from *cantillans* by slightly larger size and longer wing (but tail similar, thus proportionately marginally shorter); in male plumage slightly darker and 'colder' brick-red throat and upper breast (*cantillans* very slightly more orange-red in direct comparison of series) and darker lead-grey from crown to mantle (*cantillans* a little paler and more neutral grey). In addition there are differences in call (see above) and in mtDNA (Brambilla *et al.* 2008b). For migration habits and winter range see also preceding subspecies; *albistriata* is known through collected specimens to winter in Niger, Nigeria and Chad and to winter or migrate as far west as C Morocco (Mansour, High Atlas, 28th March, DNA tested) and in S and C Algeria. Claimed by Misonne (1974) to winter in large numbers in SW Egypt near Libyan and



Lars Svensson © NHM, Tring

386. Two adult male Eastern Subalpine Warblers *Sylvia c. cantillans* collected in Sicily, the right-hand specimen being the neotype of this taxon, collected in Ficuzza, northwest Sicily, on 23rd May 1906 (the date visible on the label is given incorrectly as 'March').

Sudanese borders, but not substantiated. Some reports of winter records in Sudan are presumed to refer to 'French Sudan' (= Niger), but genuine records (NB risk of confusion with Ménétries's Warbler *S. mystacea*) are probably restricted to northwest corner of Sudan. Nikolaus (1987) reported only four records from Sudan, all in the northwest (and no specimens exist in larger museums from S Egypt or Sudan). Passes through N Algeria, Tunisia, Libya, N and C Egypt and Levant in spring and to a lesser extent through the east of this region in autumn. Birds are also known to pass through SE France in spring (Brambilla *et al.* 2012).



387. Typical tail pattern of Eastern Subalpine Warbler *Sylvia cantillans albistriata* (all examples from the Balkans). Note narrow white wedge inside shaft of penultimate feather (T5), present in adults of both sexes and often also in first-years (d). The size and number of wedges on the outer tail feathers varies somewhat individually, some having quite a small wedge on T5 only (a), others a very extensive wedge on T5 and smaller wedges also on T4 and T3 (e). Juveniles and first-winters with retained outer tail feathers have either a diffuse hint of a wedge or none at all.

– a. adult ♀ Durazzo, Albania, 9th April 1935, NHM 1949W.1.12062; very small wedges, still narrow and pointed in shape. – b. adult ♂ Mostar, Bosnia-Herzegovina, 21st April 1929, NHM 1949W.1.12070; deep and narrow wedges on T5 (note that both T6 feathers are more or less hidden). – c. adult ♀ Durazzo, 10th April 1931, NHM 1941.5.30.5969; typical adult appearance. – d. first-summer ♀ Durazzo, 9th July 1930, NHM 1941.5.30.4698; typical first-summer pattern with broad but poorly marked wedge sullied greyish. – e. adult Cattaro, Dalmatia, Croatia, 4th April 1901, MNHN 1960.1060; extreme amount of white in outertail. All photographs by the author with permission from NHM, Tring (a–d), and MNHN, Paris (e).

Differences in the tail pattern

During work on a forthcoming handbook (Shirihai & Svensson in prep.), I examined series of all subspecies of the Subalpine Warbler complex in various museums. While doing so, I discovered an important plumage difference, present in both sexes, between (i) Western Subalpine Warbler and Moltoni's Warbler – both of which have a small and more or less square white tip to the second-outermost tail feather, or T5 – and (ii) Eastern Subalpine Warbler (both *cantillans* and *albistriata*) – which has a long, narrow and pointed white wedge inside the shaft of T5. The white wedge of Eastern is invariably present in adults and in first-year birds that have replaced the juvenile T5, and some have even a smaller white wedge on T4 (or on both T3 and T4). In juveniles and first-years that have not yet moulted any outer tail feathers, such wedges are less distinct and can be completely missing – although in many young birds there is already a well-developed or at least diffuse wedge or hint of a paler oblong patch or stripe inside the shaft of T5.

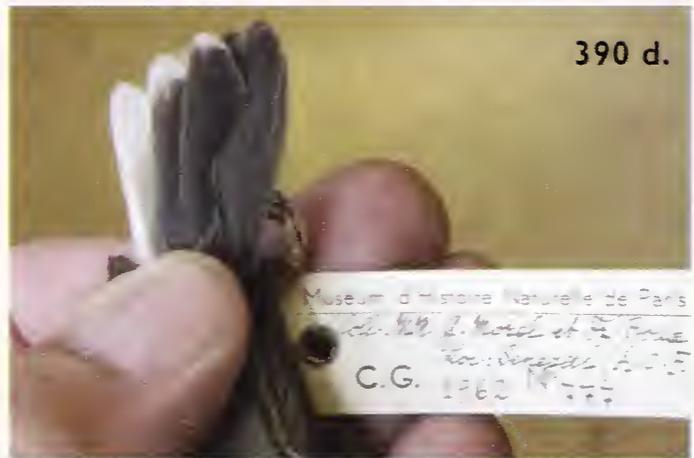
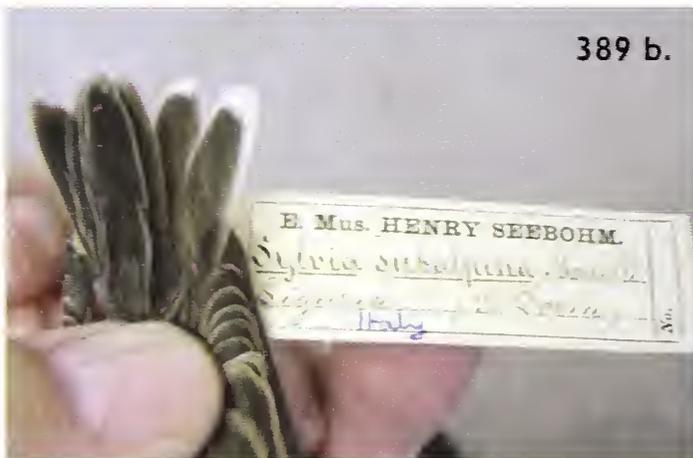
388. Typical tail pattern of Eastern Subalpine Warbler *Sylvia cantillans cantillans* (all examples from S Italy). Note same pattern as in *albistriata* (plate 387) with narrow white wedge on T5, sometimes on both T5 and T4. – **a.** first-summer ♂ Ficuzza, Sicily, 23rd May 1906, NHM 1909.11.18.50 (neotype of this taxon). – **b.** adult ♂ Palermo, Sicily, May 1870, NHM 1907.12.20.627. – **c.** adult ♂ Palermo, 14th April 1939, AMNH 708854. – **d.** first-summer ♀ Conza, Avellino, Campania, 2nd May 2012, live bird. – **e.** adult ♂ Bari, Puglia, 10th April 1884, MCZR (Rome) 10596. Photographs a–d by the author, a–c with permission from NHM, Tring, d by AMNH, New York. Picture e by Andrea Corso with permission from Museo Civico di Zoologia, Rome.

The description of the tail pattern in Shirihai *et al.* (2001) (fig. 9, p. 379), intended to refer to all taxa, shows a typical pattern for Eastern Subalpine Warbler but is wrong for Western Subalpine and Moltoni's. The two tail-pattern types and their moderate variations are shown here with a series of photographs in plates 387–390. Note that it is crucial to age any bird first before examining the tail pattern. In spring, the unmoulted outer tail feathers of first-summer birds will be worn and bleached juvenile ones and are likely to show no wedges or at least less developed wedges that are not distinct and not pure white.

This plumage character should prove useful when separating trapped migrants in spring and autumn, although it will not help to discriminate female Western Subalpine and Moltoni's Warblers. Brambilla *et al.* (2012) noted broad-front migration in spring of most subspecies, with *albistriata* occurring as far west as France, and used mitochondrial DNA to discriminate between *iberiae* (French breeders) and nominate *cantillans* (southern Italian breeders), whereas of course the examination of the tail-feather pattern will provide a much cheaper and faster method for diagnosis.

Occasionally the tail pattern may be less typical or even ambiguous. A few examples of less typical variations are shown in plate 391. It is prudent to check both sides of the tail before forming an opinion on any less typical birds, and the underpart coloration of males should also be factored in. Luckily, atypical birds seem to be very rare.

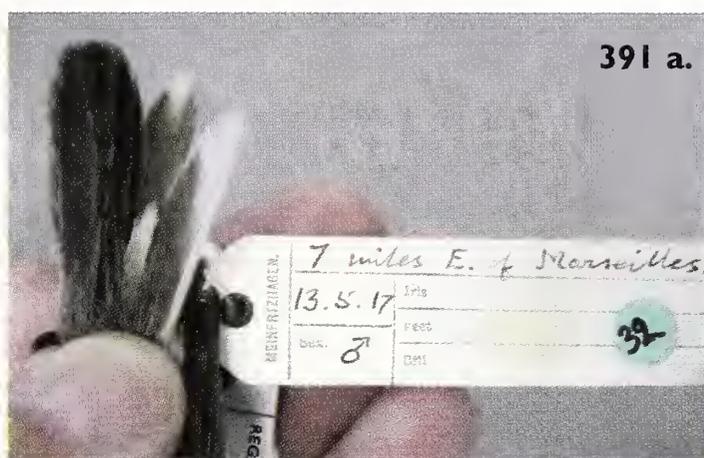




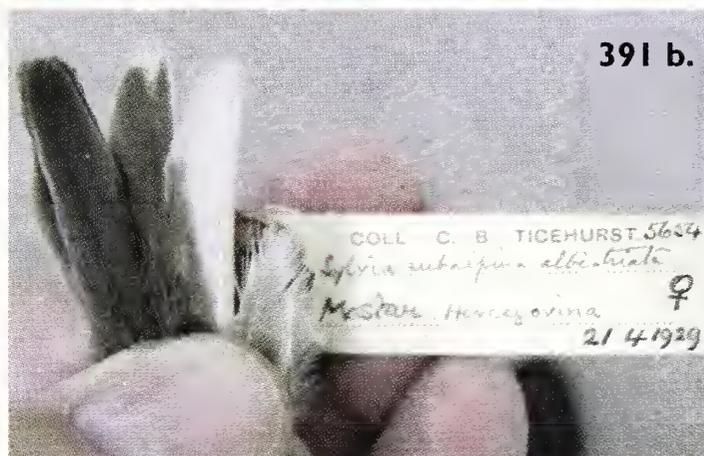
389. Typical tail pattern of Moltoni's Warbler *Sylvia subalpina*. Note small and basically square white tip (less often bluntly wedge-shaped tip, as in **c**) to T5, present in adults of both sexes and often also in first-year birds. Note also less extensive white on T6 compared with both Western and Eastern Subalpine Warblers, often with white restricted to edges and tip (but variable and some overlap in this character). Ageing in spring of Moltoni's Warbler often difficult owing to typically more extensive pre-breeding moult than in related taxa. – **a.** ♂ Genoa, Italy, no date, NHM 1886.7.8.236. – **b.** ♂ Liguria, Italy, summer, NHM 1898.9.1.151. – **c.** ♂ Serra d'Alfàbia, Mallorca, 3rd June 2011, live. – **d.** ♂ Tunis, 24th April, NHM 1939.12.9.745 (labelled 'inornata' presumably based on locality, but species established by DNA). – **e.** first-summer ♂ St Kilda, Outer Hebrides, 13th June 1894, NHM 1901.1.4.1. All photographs by the author with permission from NHM, Tring (a, b, d, e).

390. Typical tail pattern of Western Subalpine Warbler *Sylvia inornata*, **a–c** of subsp. *iberiae* (Iberia, France), **d** and **e** of *inornata* (NW Africa). Note usually small and basically square white tip to T5 in adults of both sexes and often also in first-years. If anything, Western Subalpine has on average more white on T6 than Moltoni's Warbler but is similar to Eastern Subalpine. White tips on T5 and T4 average slightly more extensive in *inornata* than in *iberiae*, but much overlap. – **a.** adult ♂ Chamonix, France, 5th April 2000, MNHN 2000.2027. – **b.** adult ♂ Madrid, 24th May 1931, NHM 1934.1.1.249. – **c.** adult ♂ Coto Doñana, Spain, 13th March 1910, NHM 1934.1.1.4755. – **d.** adult ♂ Senegal, 11th September 1958, MNHN 1962.777. – **e.** first-summer(?) ♂ Azrou, Lesser Atlas, Morocco, 10th May 1919, NHM 1919.12.11.167. Photographs **a–d** by the author, **e** by Mark Adams with permission from MNHN, Paris (a, d) and NHM, Tring (b, c, e).

391. Extreme variation and problem birds in terms of the tail-pattern character. – **a.** Presumed *iberiae* adult ♂ near Marseilles, SE France, 13th May 1917, NHM 1965M 14021. T5 has small wedge rather than square tip, although the wedge is blunt and rather diffuse. Flanks dark rufous-orange with little difference from colour of chest, thus supporting the identification as *iberiae* rather than migrant *albistriata*. – **b.** ♀ *albistriata* Mostar, Bosnia-Herzegovina, 21st April 1929, NHM 1941.5.30.4617. Very similar to previous, with small wedge on T5, but wing of 65.5 mm in a female excludes other taxa. – **c.** ad ♀ Durazzo, Albania, 10th April 1935, NHM 1949W.1.12063. On locality this should be *albistriata*, but tail pattern strongly indicates either *subalpina* or *iberiae*. Should be DNA sequenced. – **d.** Presumed first-summer ♀ *albistriata*, Durazzo, 11th April 1931, NHM 1949W.1.12060. Very poorly developed, vaguely paler stripe inside shaft of left T5 only, and on right side of tail newly moulted T5 has no wedge. A very difficult bird, but wing length of 63 mm for a first-year ♀ supports identification as *albistriata*. – **e.** first-summer ♂ *subalpina* Italy, spring, NHM 1843.12.1.10. Pinkish underparts, so surely a *subalpina*. Maximum development of a whitish wedge on T5 to be seen in this species. All photographs by the author © NHM, Tring.



391 a.



391 b.



391 c.



391 d.



391 e.

Other differences between the taxa

There are only slight differences in structure and size among the three proposed species, or the five taxa in the complex (table 2). Eastern Subalpine Warbler averages slightly larger and longer-winged than the other two species (*albistriata* in turn slightly larger than *cantillans*), and has a slightly longer tarsus. Western Subalpine Warbler has a slightly shorter and blunter wing than the other two species, although the difference from Moltoni's Warbler is subtle. The outermost short primary (P1) is on average 1.0–1.5 mm longer than the tip of the longest primary-covert in Western Subalpine, equal to the longest primary-covert in Moltoni's and 0.5–1.0 mm shorter in Eastern Subalpine Warbler. The primary projection, expressed as the distance between wing-tip and either the innermost primary (P10) or outermost secondary (S1) is larger in Eastern than Western Subalpine Warbler, while Moltoni's Warbler is intermediate (table 2). There is overlap between all measurements, but extreme measurements can often support an identification, especially if several are used in combination.

The characteristic pink-buff colour of the underparts of male Moltoni's Warbler has already been mentioned. Males of the

remaining taxa are more similar, but slight average differences can be found. Male *iberiae* is reddish-orange, *inornata* more yellowish-orange, *albistriata* colder and rather dark brick-red, and *cantillans* very similar to *albistriata* or a shade warmer orange-red, tending towards *iberiae*. Single birds can rarely be told on colour alone (except for Moltoni's Warbler). It is often easier to use the presence or absence of a contrast between throat and chest against whitish belly. All Eastern Subalpine Warblers have this contrast, although it is somewhat variable in prominence and on average most obvious in *albistriata*.

The yellowish tinge to the underparts of male *inornata*, noticeable when series are compared with series of *iberiae*, is also present in females. This difference in colour is the main reason for recognising this subspecies. In all other respects, it is similar to *cantillans*, although a closer study of genetics and vocalisations remains to be performed.

Adult male Eastern Subalpine Warblers have, on average, a broader and more prominent white submoustachial compared with the typically narrower submoustachial of both Western Subalpine and Moltoni's Warbler. There is individual variation, however, and paying too much attention to the prominence of the white stripe can lead

Table 2. Biometrics of the various taxa within the Subalpine Warbler complex. Nomenclature follows Svensson (2013). Mean values in mm. (n) = sample size; wing, range = variation within sample; T/W×100 = tail/wing ratio; bill (S) = bill length to skull; P1±PC = tip of short outermost primary (P1) in relation to tip of longest primary-covert (PC); P1<P2 = distance between tip of P1 and P2 on folded wing; P10<wt = tip of innermost primary (P10) to tip of wing (wt); S1<wt = tip of outermost secondary (S1) to tip of wing (wt); white on T5 = length of white (whitish) narrow wedge or square tip on inner web of penultimate tail feather (T5). All measurements taken according to Svensson (1992).

		(n)	wing	wing, range	tail	T/W ×100	tarsus	bill (S)	P1±PC	P1 <P2	P10 <wt	S1 <wt	white on T5
<i>inornata</i>	♂	39	59.7	56.0–63.0	52.9	88.6	18.6	12.0	+1.2	31.8	10.4	11.9	2.6
	♀	18	59.3	57.0–62.5	52.8	89.0	18.7	12.0	+1.3	31.7	10.4	12.1	1.8
<i>iberiae</i>	♂	41	58.9	55.0–62.0	52.8	89.6	18.6	11.8	+1.1	31.3	10.5	11.9	2.6
	♀	15	58.9	56.0–63.0	52.1	88.5	18.4	12.0	+0.9	31.3	10.8	12.5	1.5
<i>subalpina</i>	♂	53	60.9	58.0–64.0	52.2	85.7	18.6	12.2	0.0	33.5	12.1	14.0	3.4
	♀	24	60.9	58.0–64.0	52.3	85.9	18.6	12.1	0.0	33.4	11.2	13.6	2.0
<i>cantillans</i>	♂	18	60.9	58.0–65.5	53.4	87.7	19.2	12.5	-0.6	34.1	11.4	12.9	9.9
	♀	3	61.8	61.0–62.5	55.2	89.3	19.1	12.8	+0.8	34.2	10.8	13.7	14.3
<i>albistriata</i>	♂	92	63.2	59.0–68.0	54.0	85.4	19.1	12.7	-0.9	36.3	13.0	14.5	15.9
	♀	34	62.5	58.5–66.5	53.8	86.1	19.1	12.8	-0.2	35.7	11.9	14.4	12.0



Lars Svensson © NBC, Leiden

392. An initially problematic bird from Beni-Abbès, Algeria, 15 February 1951 (NBC 46.346), thought to be a dark Moltoni's Warbler *Sylvia subalpina* owing to lack of white wedges on T5, but which DNA showed to be Eastern Subalpine Warbler *S. cantillans albistriata*. See text and plate 393 for comments.

to the wrong conclusion. Male *albistriata* averages slightly darker lead-grey on the crown, nape and mantle than nominate *cantillans*, which at times can be helpful. Compared with *albistriata* male *iberiae* is similarly dark or even a fraction darker grey on average (B. Small pers. comm.).

There is a moult difference separating Moltoni's Warbler from the rest (Gargallo 1994; Shirihai *et al.* 2001). While Western and Eastern Subalpine Warblers all have a complete post-breeding moult in late summer and no wing moult in late winter (exceptionally, odd feathers may be replaced), Moltoni's Warbler has a quite variable moult strategy displaying almost every variation thinkable. The post-breeding moult in Moltoni's may be absent, partial or complete before autumn migration; most commonly it is limited to some tertials and odd secondaries. A majority perform a complete or near-complete wing moult in late winter, and Moltoni's returns to the breeding grounds with a much fresher

wing than the other taxa in the complex, or displays a mixture of new and old remiges. Note that some Moltoni's moult only a proportion of the wing feathers in winter, and a few replace no remiges at all, then moulting in late summer instead.



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393. Same specimen as in plate 392. A closer look at the tail pattern reveals that both T5 feathers (but most visible on the left-hand side as viewed here) show a small white wedge, sullied greyish as is often the case in juvenile feathers.



394. An interesting adult female collected in late summer in S Greece (Peloponnesus, 22nd August 1960; NBC 29.590), its tail pattern lacking a white wedge on T5 in adult plumage ruling out Eastern Subalpine Warbler *Sylvia cantillans*. DNA sequencing revealed it to be a Western Subalpine Warbler *S. inornata iberiae*, offering a valuable reminder that morphology often is a more useful guide than locality.

DNA sampling

Martin Irestedt sequenced a short fragment of the cytochrome-*b* gene from 16 birds which I selected for various reasons. Several of the tested identities confirmed my previous identifications based on morphology and these will not be commented on further. In a few other cases the results are interesting and worth reporting. Two rather dark males in NHM, Tring, labelled as Moltoni's Warbler or at least sorted in the tray with others labelled as that, presumably based on locality, proved to be *iberiae* (plate 384). Another male from Italy (NHM 1846.7.16.134), which was difficult to identify because of poor condition, also turned out to be *iberiae*, a reminder that Italy as a locality is not neces-

sarily a guarantee that we are dealing with either Moltoni's or Eastern Subalpine Warbler; Western Subalpine is a regular (though less common) migrant through Italy too (apart from being a breeder in the extreme northwest).

Two birds in Naturalis Biodiversity Centre, Leiden, were problematic. One first-summer spring male from Beni-Abbès, Algeria, 15th February 1951 (NBC 46.346, plate 392), was suspected to be a slightly atypical Moltoni's owing to lack of obvious white wedges on T5 and underparts coloration that was thought to be 'perhaps possible' for that species, although on the dark and brownish side. The DNA analysis showed it to be *albistriata*, and on closer examination

the underparts colours fitted well with that (contrast between chest and belly, brick-red rather than salmon-pink), and on the right side of the tail (plate 393) the retained juvenile T5 has a hint of a narrow paler wedge – over-



395. The first record in Britain of Moltoni's Warbler *Sylvia subalpina* (NHM 1901.1.4.1), a first-summer male found by J. S. Elliott on 13th June 1894 on St Kilda, Outer Hebrides. Note the typical salmon-pink colour over much of the underparts. See also plate 389e.

looked initially.

The other difficult bird in Leiden was an adult female from Peloponnesus, Greece, on 22nd August 1960 (NBC 29.590, plate 394). This had square white tips to the outer tail feathers and, considering the locality and date, I suspected it to be a slightly displaced Moltoni's rather than Western Subalpine Warbler. But DNA showed clearly that it was the latter, another reminder that identification based on locality and date is less reliable than that using morphology.

New knowledge applied

If the recommendations presented here are accepted, the need to apply them to national lists is the next step. Which of all the historical records of 'Subalpine Warbler' in a broad sense within any defined region refer to each of the three proposed species? I offer some preliminary and personal thoughts only, since detailed analysis by the various national committees must follow. Following a search through picture galleries on various websites, I am convinced that both Western and Eastern Subalpine Warblers are rather frequent visitors to countries north and north-west of their breeding ranges, so the following concentrates on Moltoni's Warbler outside its range.

The oldest British record of Subalpine Warbler is from St Kilda, Outer Hebrides, on 13th June 1894. This first-summer male is kept at NHM (plate 395) and is clearly a Moltoni's Warbler, obvious at first sight by the pinkish coloration of the underparts. Others (G. Gargallo, A. Corso) have independently made the same assumption before me. Since it would be the first national record, I asked Martin Irestedt to sequence the cytochrome-*b* gene; its identity as Moltoni's Warbler was confirmed.

A male Moltoni's Warbler on 1st–11th June 2009 on Unst, Shetland, was a rather dark-throated bird (judging from the images available) but it was both calling and singing, and the identification is beyond doubt. There may be several more British records; the two mentioned serve as examples only.

There is a record of an apparent Moltoni's Warbler in Sweden, at Utklippan on 29th May 2003. The underparts coloration, evident from photographs, seems to fit only

this species. Another very probable Moltoni's was found in Norway at Støyle, Sandsøya, on 24th May 2012.

Apart from these few spring records of apparent Moltoni's Warbler in northern Europe, there are several claimed from autumn and winter. When I first studied these (e.g. Burnham Overy, Norfolk, 2nd–5th October 2007; Helgoland, Germany, October 2009; Skagen, Denmark, 9th December 1999; Getterön, Sweden, 28th September 2002), I felt that all looked good for Moltoni's Warbler, but what worried me was that so many had turned up in autumn. I think there is a serious risk that adult males of both Western and Eastern Subalpine Warbler can have underparts that are pale and pinkish-buff and which resemble Moltoni's Warbler, owing to the effect of paler tips to the fresh autumn plumage. At the very least, observers should be wary of judging the underparts coloration of males in autumn and winter and, on present knowledge, I refrain from having a firm opinion on these.

The plumages of adult males of the Subalpine Warbler complex in autumn have rarely been documented, and a search on the internet and requests to various individuals have yielded only scant results. The variation is most likely not well known yet. If, in Shirihai *et al.* (2001), plate 65: 1 (adult autumn male *iberiae*) is compared with plate 66: 5 (adult autumn male *subalpina*), it becomes clear that autumn identification will be extremely difficult, or even impossible. I should reiterate that these are my personal views based on scanning various websites; national rarities committees may well be better able to assess these records using fuller material available to them.

Acknowledgments

I owe thanks to several people for help and advice in regard to this paper. Martin Irestedt kindly sequenced the DNA from 16 selected specimens, the results of which were invaluable to my full understanding of the variation within the complex. Gabriel Gargallo, a pioneer in recognising Moltoni's Warbler as distinct, offered helpful advice and insight into Subalpine Warbler variation. Andrea Corso put me into contact with various Italian ornithologists and checked the tail-pattern characters described in the collection in Rome. Mattia Brambilla and Severino Vitulano supplied productive discussions and inspiration through their research, and took me to a ringing site south of Bologna, where one each of Moltoni's and Eastern

Subalpine Warblers were trapped by Ariele Magnani and Mario Bonora, confirming sympatry of these two taxa. Mattia Brambilla and Martin Collinson read an early draft of this paper and offered valuable suggestions for improvements. Rosario Balestrieri and his colleagues in Campania (Conza, Avellino) trapped several Italian Eastern Subalpine Warblers which I could study in May 2012. José Luis Copete arranged for me to meet Josep R. Sunyer in Mallorca, who helped trap several Moltoni's Warblers in 2011. Copete was also helpful when discussing various references and the map. Nicola Baccetti, Peter H. Barthel, Pierre-André Crochet, Edward Dickinson, Steven Gregory, Alison Harding, Kees Roselaar, Francisco Welter-Schultes and Frank Steinheimer all gave knowledgeable advice on nomenclature or helped with old references. Magnus Ullman provided assistance with the range map. As always I received much help and assistance in museums and I particularly thank Mark Adams, NHM, Tring; Renate van den Elzen, ZFMK, Bonn; Sylke Frahnert, ZMB, Berlin; Ulf Johansson, NRM, Stockholm; Jan Bolding Kristensen, ZMC, Copenhagen; Steven van der Mije, NBC, Leiden; Paul Sweet, AMNH, New York; and Claire Voisin, MNHN, Paris. Others who helped in various ways were David Bigas, Gerald Driessens, Eelco Kruidenier, Pierfranco Micheloni, David Pearson, Ferran López Sanz and Maria Cabau Vias. Apart from the editor's helpful improvements of the manuscript, I owe thanks to Brian Small, who offered some useful remarks. Last but not least I thank Hadoram Shirihai, who shares my passion and interest in avian taxonomy and identification and who steered me into 'thinking a three-way split', and who is an inspiration to all those who study *Sylvia* warblers.

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Lars Svensson became interested in ringing and bird identification at an early age. He wrote his first pocketbook for ringers in 1964, the Swedish prototype for the more well-known *Identification Guide to European Passerines* (4th edn. 1992). After training as a book editor and book designer at the Institute for Graphic Arts in Stockholm, he worked as a publishing editor for a living, while pursuing his ornithological interests in his spare time. He was editor for *Vår Fågelvärld* in the 70s, founded the Swedish Rarities Committee (and was its chairman for 15 years), and wrote many identification papers. He is the lead author of the *Collins Bird Guide*, which has now appeared in 20 countries. Recently he has spent a substantial amount of time in museum collections checking out all named Western Palearctic passerine taxa for a forthcoming handbook on that area in collaboration with Hadoram Shirihai.

Further comments on the ageing and sexing of the Red-flanked Bluetail

Magnus Hellström and Gabriel Norevik

The recent increase in the numbers of Red-flanked Bluetails *Tarsiger cyanurus* reaching western Europe has led to discussions on published criteria for ageing and sexing of the species. Here, we present our observations of birds handled at Beidaihe Bird Observatory, in Hebei province, China, in spring 2011 and both spring and autumn 2012. This is supplemented by data from the bird observatories at Ottenby and Stora Fjäderägg (in Sweden) and by observations of Red-flanked Bluetails in the field in south-central Siberia, northeast China and Sweden.

The recent increase in Europe

The dramatic increase in sightings of Red-flanked Bluetails in western Europe matches the trend shown by the Finnish breeding population, where the number of known territories rose from single figures between the 1950s and 1980s, to tens in the 1990s, then

to several hundred since 2000, peaking in 2012 when c. 570 territories were found (Rajasärkkä 2010 and *in litt.*). The actual population size is now estimated to be some 6,000 territories. It seems a reasonable assumption that many of the recent records in western Europe are of birds from the western part of the breeding range.

Moult

Adult birds (2CY+) undergo a complete post-breeding moult during late summer. Cramp (1988) raised the possibility that moult occurs after autumn migration, but the adults we handled during September and October were freshly moulted with no older feathers retained, so we agree with Svensson (1992) that the moult is completed before migration. Juveniles undergo a partial post-juvenile moult during late summer, which includes body contour feathers, lesser,



Magnus Hellström

396. Red-flanked Bluetail, adult male, autumn. Beidaihe, China, September 2012.

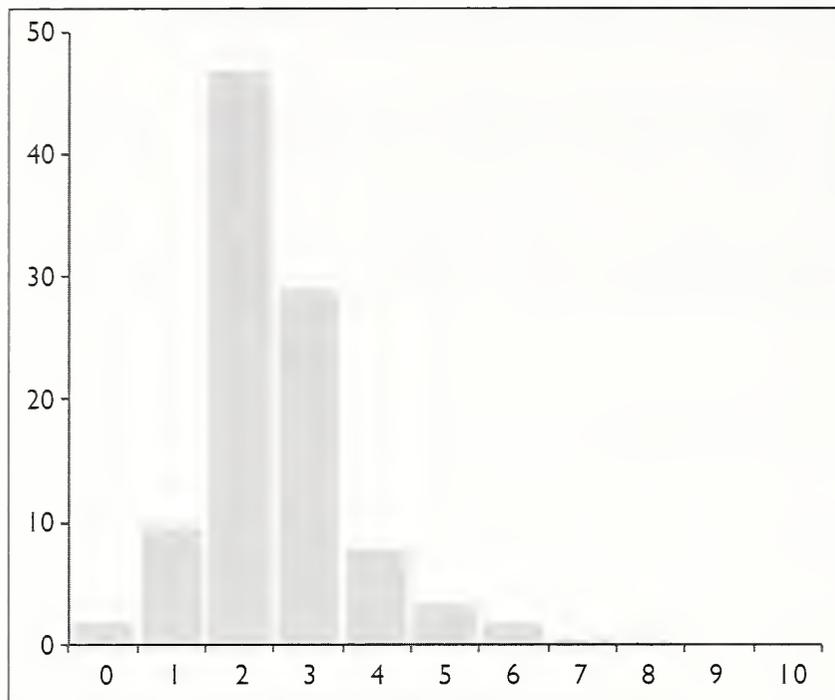


Fig. 1. Number of greater coverts included in the post-juvenile moult of Red-flanked Bluetails *Tarsiger cyanurus*, shown as a percentage of first-winter/first-summer individuals examined (n=474).

median and (generally) some greater coverts. A few individuals may also replace one or more tertials (c. 1.5% of the birds in our sample, n=266; up to three tertials replaced) or rectrices (c. 1.0%, n=397; up to nine rectrices replaced). The extent of moult in the

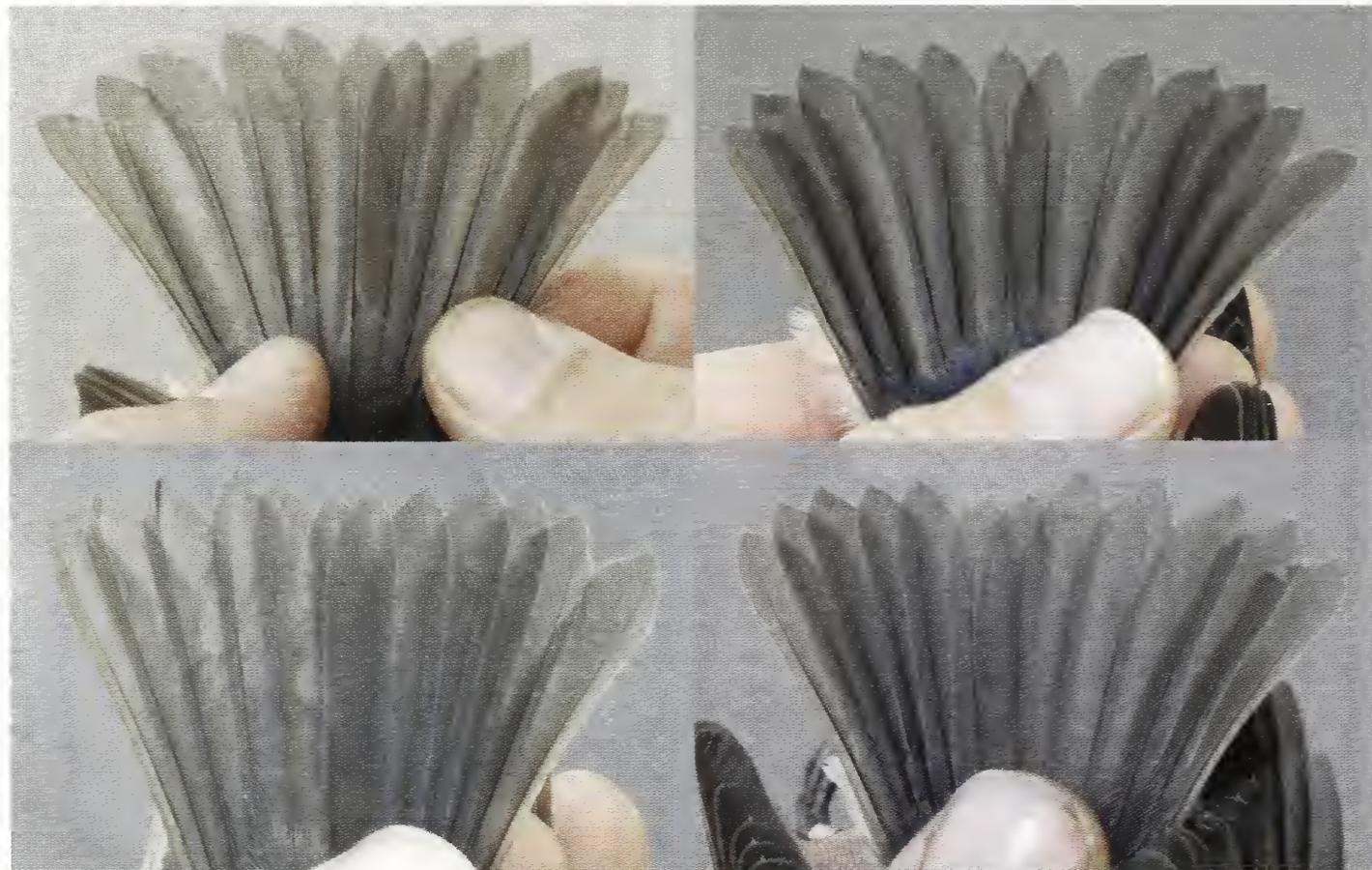
greater coverts is shown in fig. 1. No bird of any age class has a pre-breeding moult so these feathers are retained during spring migration and throughout the breeding season.

Ageing

Ageing Red-flanked Bluetails is, with some basic knowledge and experience, quite straightforward, with critical characters found in the wing, and supporting characters often in the tail and the inside of the upper mandible. In addition, there are average differences between the age classes in iris colour (slightly warmer, more rusty brown in adults), but the results are somewhat ambiguous, and this needs further testing.

Tail feathers

The shape of the rectrices was suggested by Leader (2009) as the most reliable criterion for ageing: birds with broader and more rounded tips to the rectrices were adults,



Gabriel Norevik

397. Comparison of the shape of the rectrices in four autumn Red-flanked Bluetails. Upper left and lower left: first-winter birds (both probable females) with unmoulted juvenile rectrices. Upper right and lower right: adult females. Although the adults have (very) slightly broader and more rounded tips to the tail feathers than the first-winters, such differences in shape are not safe to use for ageing since individual variation is large. Note also the rather protruding and slightly curved tip to the feathers of the two lower birds, which is shown by some individuals of both age classes and both sexes. Beidaihe, China. September and October 2012.

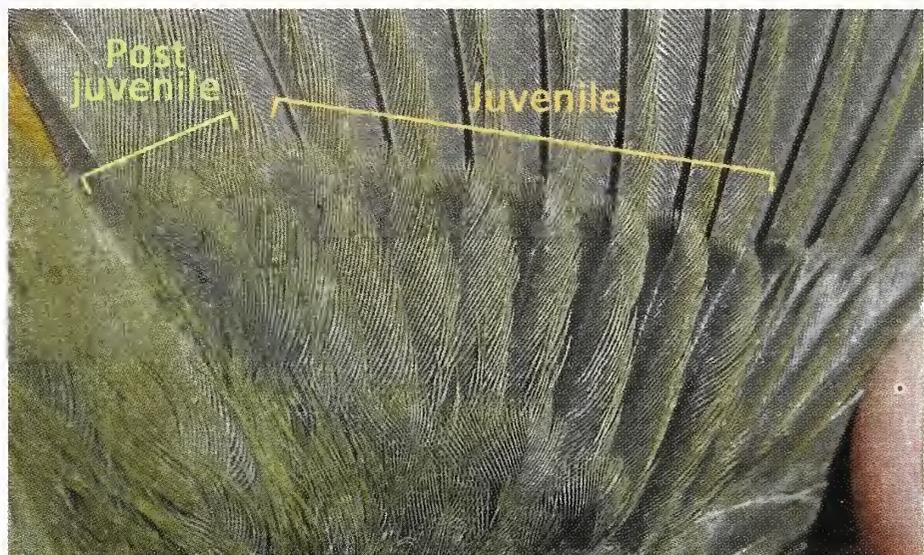
those with narrower and more pointed tips were first-years. We agree that there is an average difference as described, but we found that the shape of the rectrices is variable in both age classes with a degree of overlap that makes this feature surprisingly difficult to use for ageing. Only those individuals showing the most broad and rounded (or narrow and pointed) rectrices can be aged safely using this criterion alone. Furthermore, the possibility that a first-winter/first-summer bird may have included the tail (or part of it) in the post-juvenile moult (or replaced it after accidental loss) should be borne in mind.

More important than the shape is a general difference in feather quality and texture between the age classes in both spring and autumn. In adults, the rectrices typically appear generally darker and less worn, with more gloss and seemingly have a 'higher density' than those of first-years, which may be apparent to experienced ringers. In summary, the shape and texture of the rectrices may be useful for ageing many individuals but they are of secondary importance compared with the information found in the wing.

Wing

The juvenile wing has a rather rusty overall hue, not only in the edges of the remiges (as some adult birds show), but also in the edges of the juvenile greater and primary coverts. In the post-juvenile moult, the lesser, median and a number of greater coverts are replaced by adult-type feathers, creating a moult contrast with the retained juvenile feathers. This contrast may be subtle (roughly comparable with that shown by first-winter female Common Redstarts *Phoenicurus phoenicurus*), but with practice it is extremely useful for ageing

since adults (after their complete post-breeding moult) lack this contrast. Adult-type greater coverts show brownish-olive edges, concolorous with the scapulars, lesser and median coverts, whereas the edges of any remaining juvenile greater and primary coverts have a more vivid rusty hue (see plates 398 & 400). In some first-years (probably most often males), the new adult-type coverts may show a pale bluish-grey hue, which makes the contrast easier to see. Since there is no winter moult, this moult-contrast char-



Magnus Hellström

398. A typical first-winter Red-flanked Bluetail showing moult contrast, with seven retained juvenile outer greater coverts and three adult-type innermost greater coverts that were replaced during the post-juvenile moult (the innermost is hidden under the scapulars). Note the rusty edges of the juvenile greater and primary coverts, compared with the adult-type olive lesser, median and innermost greater coverts and scapulars. Beidaihe, China, September 2012.



Magnus Hellström

399. A typical adult female Red-flanked Bluetail in autumn, showing a freshly moulted and homogenous wing lacking moult contrast. Note the brownish-olive edges to all greater and primary coverts, concolorous with the lesser and median coverts, and the scapulars. Note also that the tips to the greater coverts are somewhat paler and more rusty, commonly seen in adults (and is often more distinct than shown by this individual). Beidaihe, China, September 2012.

Magnus Hellström



400. First-winter Red-flanked Bluetail (logged as probable male based upon the colour of tail, uppertail-coverts and intensity of the flank colour). Note the rusty panel created by the edges of the retained juvenile greater and primary coverts, which contrasts with the more olive colour seen in the replaced, post-juvenile lesser and median coverts, scapulars and mantle. Beidaihe, China, September 2012.

acter remains valid in spring, when heavily worn juvenile feathers may further emphasise the contrast. The extent of this moult is variable and the contrast often occurs on the inner part of the arm; sometimes it is necessary to lift the scapulars to find it (in other words it is not always evident in the field). Duivendijk (2011) stated that most juveniles do not replace any greater coverts in the post-

juvenile moult; this is not the case, but may appear so from field views alone. In our sample, c. 76% of the birds examined had replaced two or three greater coverts; just 1.7% of the birds examined had not replaced any greater coverts, but in such cases the panel of rusty juvenile greater and primary coverts still showed contrast with the moulted brownish-olive median and lesser coverts and

Magnus Hellström



401. Adult female Red-flanked Bluetail in autumn. Note the lack of colour contrast in the wing, the olive edges of the adult-type greater and primary coverts being concolorous with the surrounding feather groups. The perception of colours in feathers of the Red-flanked Bluetail is greatly affected by lighting conditions, and assessment should be made only under favourable light conditions. Beidaihe, China, September 2012.

Table 1. The colour and pattern of the inside of the upper mandible in Red-flanked Bluetails *Tarsiger cyanurus* at Beidaihe, China, autumn 2012.

category colour/pattern	sample size	number first-winter	number adult	percentage first-winter	percentage adult
A	143	142 (99.3%)	1 (0.7%)	46.9%	3.7%
B	86	85 (98.8%)	1 (1.2%)	28.1%	3.7%
C	18	14 (77.8%)	4 (22.2%)	4.6%	14.8%
D	61	51 (83.6%)	10 (16.4%)	16.8%	37.0%
E	22	11 (50.0%)	11 (50.0%)	3.6%	40.8%
total	330	303	27	100.0%	100.0%

scapulars. As with the rectrices, the adult wing shows a better feather quality and texture compared with that of the juvenile wing (both coverts and remiges), which may be a useful character for ageing birds in the hand.

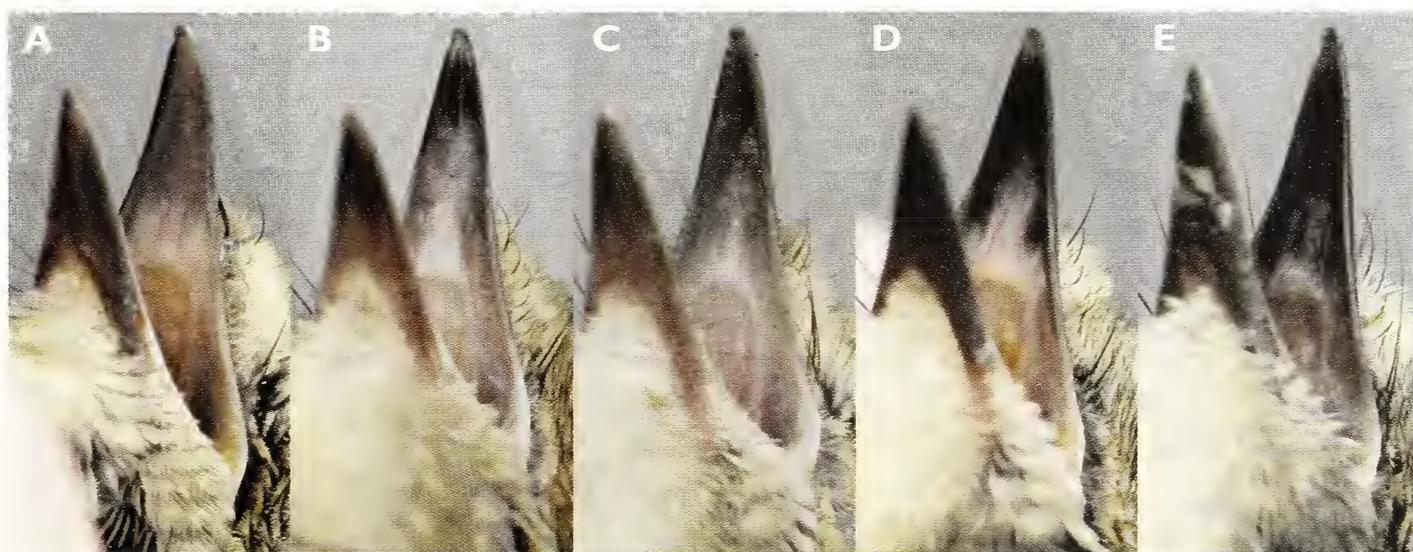
Many fresh individuals show variably distinct pale spots at the tips of the greater coverts (and sometimes also the tertials). Although indicative of juvenile feathers, the presence of pale spots is not straightforward as a tool for ageing as they may also occur in adult feathers (though less commonly). Adults with pale spots often have the entire feather tip slightly more rusty than usual, but still show a brownish-olive edge to the feather. Truly pale and distinct spots to the greater coverts and tertials are not particularly common in either of the age classes, and may perhaps be found in juvenile feathers only.

Upper mandible

In several chats, the inside of the upper mandible darkens with age. Most of the Red-flanked Bluetails in our sample were exam-

ined for differences in the colour of the inside of the upper mandible. Individual variation is quite pronounced and this character requires further study. In addition, as suggested originally by Roni Väisänen *in litt.*, we found a slight difference between the sexes, with a somewhat darker pattern in males. We classified autumn birds ($n=330$) according to the scale shown in plate 402 (categories A–E), and then aged each bird independently, in terms of the criteria for the wing and tail described above. The findings are shown in table 1. In short, there is complete overlap, since both age classes were found in all five categories, but the following points are worth noting:

- Virtually all birds with pattern A or B (a pale interior to the upper mandible or a pale interior with diffuse darker edges) were first-winters.
- Proportionately, very few first-winters showed pattern E (a dark inside to the upper mandible). However, owing to the much higher numbers of first-winter birds



Gabriel Norevik

402. The five categories (A–E) used to classify the colour and pattern of the inside of the upper mandible in Red-flanked Bluetails in autumn. A = entirely pale, B = pale with diffusely darker edges, C = intermediate, D = dark with pale centre, E = entirely dark. All birds photographed in Beidaihe, China, during early autumn migration 2012.

trapped at Beidaihe (which is probably analogous to the situation for vagrants to western Europe in autumn), we caught just as many category E first-winter birds as adults (11 each).

These data should be interpreted with care since the number of birds (especially adults) is rather low, and this character should be used with caution and as a supporting feature only.

Do ‘dull-morph’ males exist?

Adult male Red-flanked Bluetails show considerable variation in the extent of blue in the body contour feathering and remiges. In terms of the remiges, individuals vary without any discernible geographical pattern since adult males with blue or olive (or a mixture of both) outer vanes to primaries and secondaries seem to be found all over the breeding range. Variation in the colour of the body feathers is less well understood.

Cramp (1988) states that: ‘In some areas, many adult males are dull morph, apparently retaining female-like plumage throughout life, and bright morph adult males are rare’, a

statement attributed to Ali & Ripley (1973). The latter contained remarks on males displaying a female-type plumage under the headings of ‘Kashmir Redflanked Bush Robin *Erithacus cyanurus pallidor*’ and ‘Eastern Redflanked Bush Robin *Erithacus cyanurus rufilatus*’.

Following taxonomic review, the southern group of bluetails breeding in the Himalayas and western China is now treated as a distinct species, the Himalayan Bluetail *Tarsiger rufilatus*, with the taxa *rufilatus* and *pallidor* becoming races of that species. This leaves northern, migratory Red-flanked Bluetail as a monotypic species. The effect of this revision may be to temper or invalidate some statements made by authors writing prior to the general acceptance of that taxonomic revision. Regarding *pallidor*, Ali & Ripley comment that: ‘In Kashmir blue males [are] noted as being the exception’, which in turn is directly based on the statement by Davidson (1898) after his visit in Kashmir: ‘In most of the pairs of *Ianthia* [= *Tarsiger*] we saw, both sexes were in the brown plumage, and it was decidedly the exception to find a male in the

handsome blue plumage.’ In the case of *rufilatus*, Ali & Ripley stated that: ‘Only a small percentage of breeding males are in blue plumage, most of them being in brown plumage.’ Ali & Ripley made no mention of male Red-flanked Bluetails (*sensu stricto*) in female-type plumage. Consequently, the above statement from Cramp (1988) is in fact valid for the Himalayan Bluetail, and we have found no reference claiming male dimorphism in the Red-flanked Bluetail.

The existence of a dull-morph male in the Red-flanked Bluetail was questioned by Leader (2009), who suggested that it may relate to confusion with first-year males that breed in a female-type plumage. Although this may be true in part, we believe that the situation is more complicated, with intriguing variation still to be



Bo Petersson

403. Adult (3CY+) Red-flanked Bluetail. Most likely a dull male owing to the extensive bright blue lesser coverts (not fully visible here), a faint blue wash in the greater coverts, a few bright blue feathers in the side of the crown, slight bluish-grey cast in the sides of the neck and in the lower mantle, and bright blue uppertail-coverts. Beidaihe, China, April 2012.

explained. During spring migration at Beidaihe, we have handled some interesting individuals including an adult (3CY+), most probably male, showing a dull plumage except for bright blue in the lesser coverts (see plate 403). This individual had a mixture of olive feathers and olive feathers with a (very) slight bluish-grey hue in the sides of the throat, neck and in the lower mantle. The feather bases were olive-grey, and this bird would not turn blue with wear. Furthermore, the suggestion of a dull-morph male in the Red-flanked Bluetail could be a plausible explanation for the situation in the area around the southern parts of Lake Baikal, where blue males are rarely seen during the breeding period (local ornithologists Sergey Pysjanov and Igor Fefelov pers. comm.; pers. obs.).

Sexing

Sexing adult (2CY+ autumn and 3CY+ spring) Red-flanked Bluetails is more or less straightforward. Difficulties often arise when attempting to sex first-year birds, however, so establishing the correct age is an essential first step.

Adults

From 2CY autumn onwards, the sexes are generally distinguishable since males will have developed their brightly coloured plumage (see plate 396), although the blue may be partly and variably concealed by brownish-olive fringes while fresh. Note that adult females may, exceptionally, show bright blue pigmentation in the lesser coverts (and according to Leader (2009) also in the scapulars). But in the case of the only such female we have handled, this blue pigmentation was confined to a single lesser covert.

If we acknowledge that dull adult males do exist (whether as a

morph or just individual variation), sexing of adult birds obviously becomes more complicated. As in the younger age classes (see below), the colour of the tail and uppertail-coverts combined with flank colour and wing length should provide guidance for most (but note that the colour scales shown below are not designed for adults).

Of the 41 adults measured in autumn, the wing length of 44% fell within the overlap range of 78–80 mm, while the remaining 56% were measured as 75–77 mm (females) or 81–85 mm (males; table 2).

First-years

In first-winter and first-summer plumage, males and females are very similar, and many individuals should be left unsexed. However, like Leader (2009) and Cramp (1988), we found that, on average, males show a more intense and deeper blue in the rectrices and uppertail-coverts than females. Combined with wing length, blue in the plumage (away from the tail/rump) and flank colour (on average brighter orange in males) allows many individuals to be sexed correctly. Our classification of the colour intensity of the tail, uppertail-coverts and the flanks was established with reference to the examples in images plates 405 & 406.

If present at all, blue feathering (away from tail/rump) in first-year birds is confined to post-juvenile coverts and the scapulars. In its weakest form, it is visible as a pale bluish-grey



Gabriel Norevik

404. A typical Red-flanked Bluetail showing bright blue pigmentation in a lesser covert. Left: single feathers showing blue pigmentation can easily be overlooked, and may need to be searched for. In this photo the feather is visible close to the centre of the image. In addition, note the typical gloss in the feather centre of most of the coverts, which sometimes (especially in photographs) appears confusingly bluish. Right: a closer look at the feather reveals several very small bright blue pigmentation elements. Beidaihe, China, September and October 2012.

Table 2. Wing length of adult Red-flanked Bluetails *Tarsiger cyanurus*, Beidaihe, China, autumn 2012.

Sex	sample size	mean wing length (mm)	SD	minimum	maximum
male	22	81.3	1.9	78	85
female	19	77.9	1.5	75	80

Table 3. Wing lengths in three categories of first-winter Red-flanked Bluetails *Tarsiger cyanurus* at Beidaihe, China, autumn 2012.

Tail, uppertail-covert and flanks	sample size	mean wing length	SD	minimum	maximum
male	95	79.5	1.6	76	83
indeterminate	101	78.7	2.1	75	83
female	47	77.2	1.3	74	79

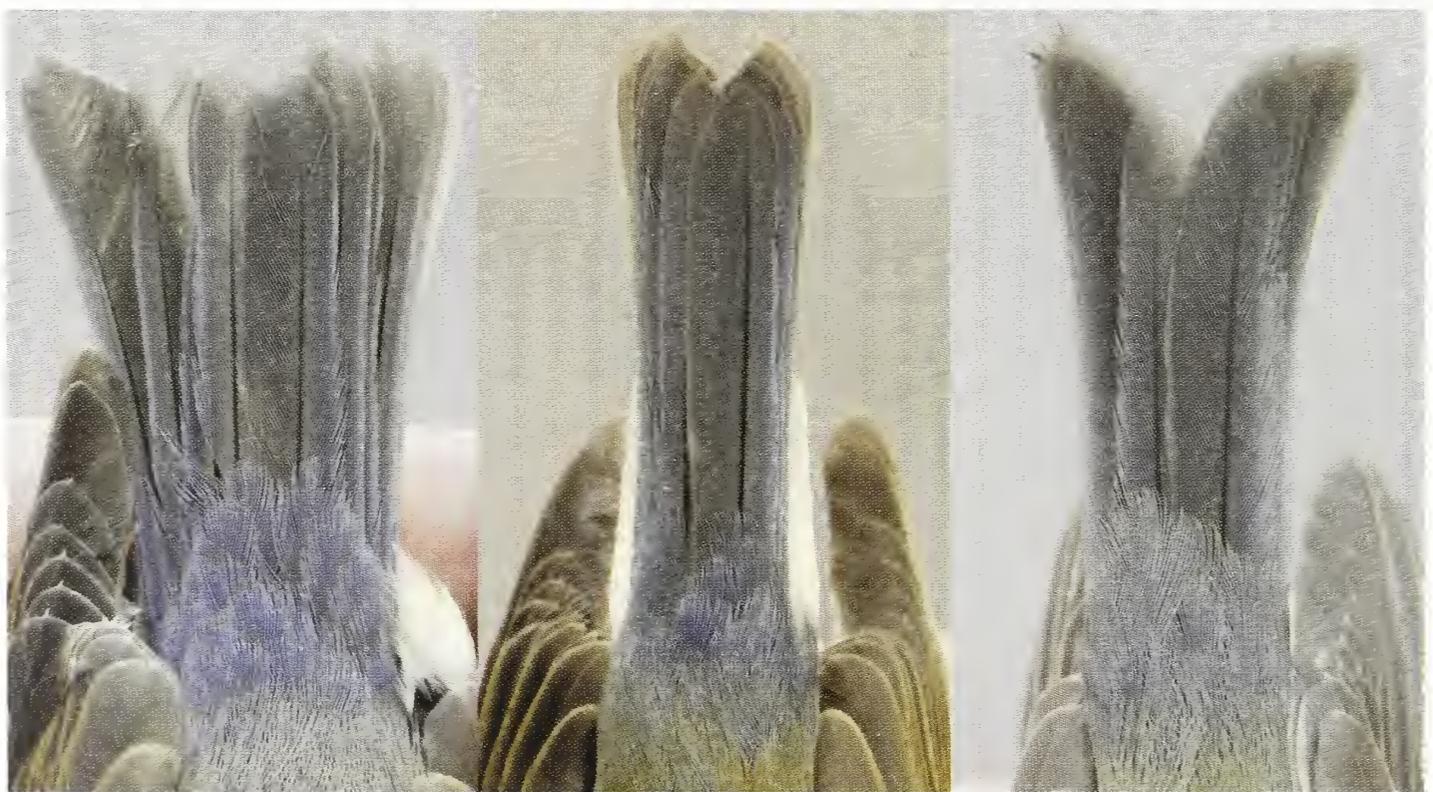
tiny bright blue granules of varying size. In our sample, such bright blue feathers were present in c. 30% (n=131) of the first-winter males (some individuals showing several blue lesser coverts, creating small patches of blue), but in only c. 1% (n=97) of the first-winter females (just one individual, showing bright blue pigmentation in a single lesser covert).

hue covering most of the feathers involved. If present on the adult-type greater coverts, it often appears as weak parallel bands crossing the feathers. This faint hue is seen regularly in both sexes (more uncommonly in females) but should not be mistaken for the normal gloss that occurs in all Red-flanked Bluetails in the feather centre of the wing-coverts (see plate 404). In many individuals, the blue pigmentation is a notably brighter, clear and almost luminescent blue. In such cases it is often confined to single feathers. A close look at such feathers often reveals that the blue is deposited irregularly on the feather, often appearing as

Assessment of the flanks is sometimes hampered by variation in the coloration of the orange patch, but individuals with an atypical flank patch were generally logged as intermediates. The size of the patch varies considerably, averaging larger in males, but there is extensive overlap, so our classification focused primarily on the intensity of the colour rather than its extent. It should be stressed that the true sex of these individuals is unknown, but the scale was constructed with the variation shown by adult individuals (of known sex) in mind.

Birds showing a combination of male-

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405. The three categories used for logging the colour of the tail and uppertail-coverts in first-winter Red-flanked Bluetails. Left: minimum intensity of blue required for a male-type. Centre: indeterminate. Right: maximum intensity of blue required for a female-type. Beidaihe, China, September and October 2012.

type rectrices and uppertail-coverts, male-type flank colour and with (at least) a pale bluish-grey hue present somewhere in the wing-coverts accounted for c. 40% of first-winter birds ($n=243$) examined, and the average wing length was 79.5 mm. Birds showing female-type rectrices and uppertail-coverts, female-type flank colour and a plumage entirely lacking even the faintest hint of a bluish hue made up c. 20% of all first-winter birds, and had an average wing length of 77.2 mm. We believe that birds meeting these criteria can be assigned to the respective sex, while others should be left unsexed unless wing length provides strong support (81 mm or higher for males, 75 mm or below for females; table 3). Note that juvenile wings are c. 1.0–1.5 mm shorter than adult wings. In future studies we hope to test these criteria in sexed first-winter birds using genetic analysis.

Acknowledgments

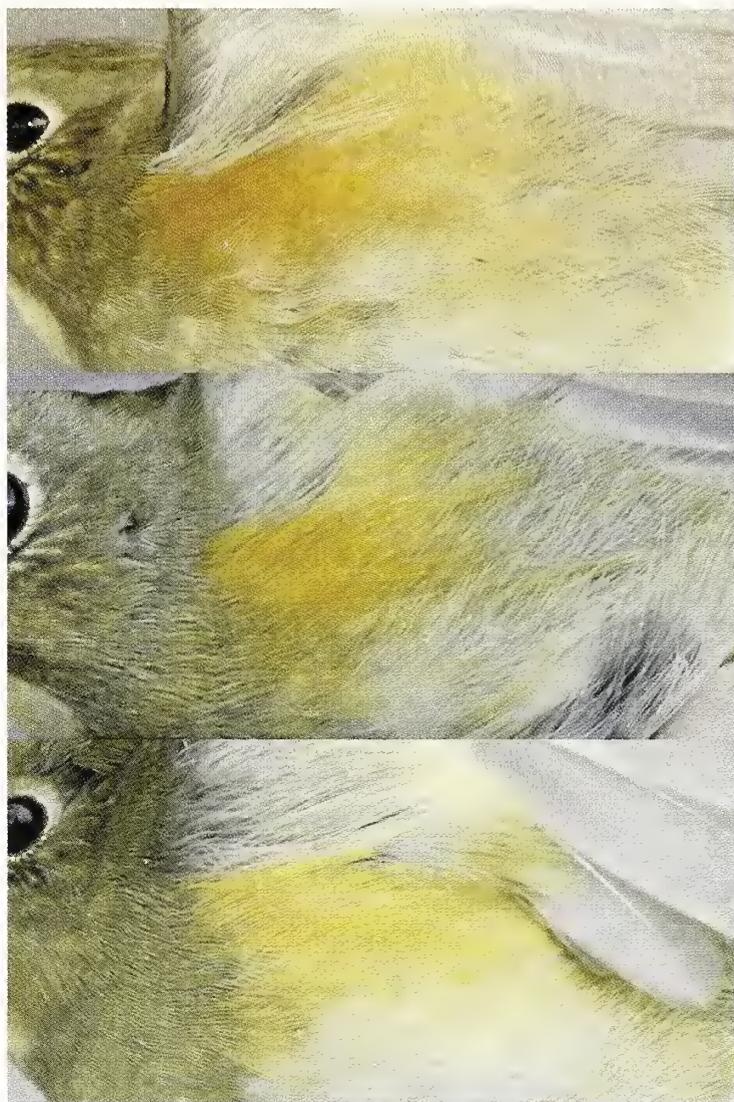
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406. The three categories used for logging the colour of the orange flanks in first-winter Red-flanked Bluetails. Upper: minimum intensity of orange required for a male-type. Centre: indeterminate. Bottom: maximum intensity of orange required for a female-type. Beidaihe, China, September and October 2012.

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Treswell Wood: 40 years of integrated population monitoring

Chris du Feu

Abstract This paper describes a 40-year study of a single site, Treswell Wood, in Nottinghamshire. Although the study has been, primarily, of birds, efforts have been made to record other wildlife and environmental data too. Here, the methods are outlined and some of the results described. This project, which is a single-site Integrated Population Monitoring study, illustrates some of the advantages of concentrating effort on a single site over a long time period.

Integrated population monitoring (IPM) was described by Baillie (1990) and followed Raymond O'Connor's pioneering work on the Great Tit *Parus major* (O'Connor 1980). O'Connor aimed to develop a model that would explain the changes in demographic parameters, such as survival and productivity, in terms of various influences on them, such as weather, other species and other environmental factors. The BTO now has a major IPM programme for many species that uses national data from a variety of sources –

including ringing, nest recording, the Breeding Bird Survey and environmental data. The operation in Treswell Wood is a single-site IPM study and the way in which separate aspects of the monitoring programme contribute is illustrated in fig. 1.

Treswell Wood, in northeast Nottinghamshire, comprises 47 ha of ancient woodland that had been under coppice management for at least a thousand years until the system fell into disuse some time after the First World War. In the late 1960s, much of the

commercially valuable Pedunculate Oak *Quercus robur* was removed. Happily for the wood, the removal began near the only entrance to the wood and, by the time that the southern part was ready to be cropped, the rides had deteriorated to such an extent that further logging was impossible. It was then to be sold to the Economic Forestry Group, which planned to clear-fell everything and

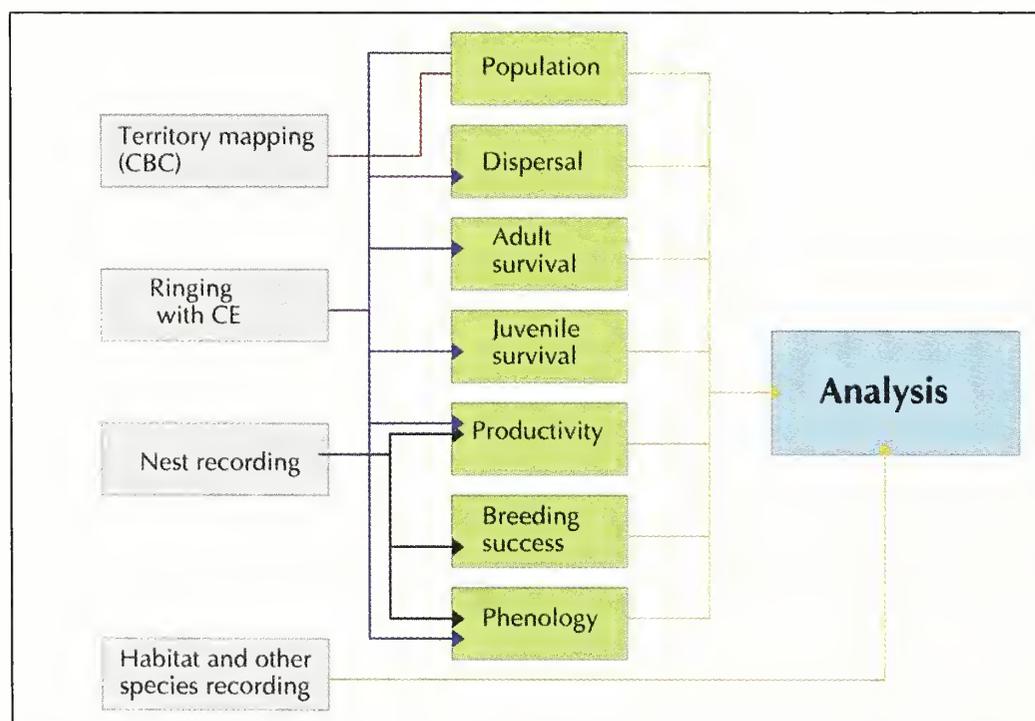


Fig. 1. The components of the integrated population monitoring system.



Chris du Feu

407. Hazel *Corylus avellana* coppice at Treswell Wood, April 2011.

replant with conifers. The infant Nottinghamshire Trust for Nature Conservation (now the Nottinghamshire Wildlife Trust) managed to prevent this sale and purchase the wood. Treswell Wood was the Trust's first large woodland reserve. John McMeeking, a prominent figure in the Trust (and later a BTO Bernard Tucker medallist), proposed that a ringing operation should begin immediately, to document the birdlife in this new reserve, and his first ringing visit to the wood was on 17th December 1972. The following spring, Margaret Price organised a Common Birds Census, which has continued every year since then. A few nestboxes were installed in the early years but in 1979 a major systematic nestbox programme was initiated, which has also continued to the present day. By 1978, John had established a systematic rotation of netting sites within the wood; these have been used since then as the internal, year-round, constant-effort ringing operation. The Trust restarted coppicing in 1975 and a record of coppicing operations has been maintained, so that the age of coppice regrowth at every point in every year is documented.

The woodland is dominated by Ash *Fraxinus excelsior* standards with Hazel *Corylus avellana* understorey (plate 407); the proportion of Oak increases, from north to south, from zero to around 40% of the mature trees.

Scattered throughout are small numbers of a variety of other native species including a few remaining English Elms *Ulmus procera* and some Wild Service-trees *Sorbus torminalis*. Some of the traditional coppice compartments are left untouched, others have a seven- or 20-year coppice rotation.

The coppicing programme has been extremely successful. In the early days it was carried out by volunteers, while in recent years contractors have paid the Trust for the wood which they coppice themselves. One aim now is to make the wood a model of productivity working in harmony with conservation. Coppice products include timber for furniture frames, charcoal, hazel rods for wattle fencing, firewood, brash faggots for traditional pottery firing and even dead birch bark for model-railway scenic material. The coppicing has resulted, as hoped, in reinvigoration of the ground flora. The large areas of Wood Anemones *Anemone nemorosa* in the spring are testament to the success of the work. The wood is also home to some species that point to the ancient origin of the wood. These include Herb-Paris *Paris quadrifolia*, the Speckled Bush Cricket *Leptophyes punctatissima* and the Tree Slug *Lehmanna marginata* (which, in the relatively dry East Midlands, is generally restricted to large, ancient woodland).

Methodology

Ringling

One of John McMeeking's first steps was to superimpose a grid on the woodland map – a curious 63-m grid (70 yards in those imperial days), which divided the wood into one-acre squares. Every net location on every visit, and therefore every bird capture, is associated with a grid square. This has enabled the study of within-wood movements of birds. The one-acre grid has proved remarkably good for studying the birds: in the years with densest breeding populations, Wren *Troglodytes troglodytes* territories are about one acre in area. Typically, there are about 50 ringing visits to the wood each year, mostly at weekends. A normal visit begins with erection of the ten standard-site nets, followed by more nets according to weather and manpower available. In contrast to many ringing sites, there are a high number of recapture events – the number of re-encounter events is approximately equal to the total number of first-ringing encounters – and the object is to record what birds are there rather than to ring as many birds as possible.

The constant-effort cycle was in operation by 1978, at the time when the BTO was thinking about a national constant-effort monitoring programme. Together with work

by Mike Boddy at Theddlethorpe Dunes, in Lincolnshire, the Treswell Wood study was instrumental in the development of the BTO scheme.

Common Birds Census

In 1973, the late Margaret Price organised the first CBC at Treswell, covering two-thirds of the wood. Those observations were submitted to the BTO to contribute to the national scheme. In 1976, the CBC team had increased sufficiently to cover the whole wood, and the Treswell CBC has continued annually since. After the national CBC was superseded by the Breeding Bird Survey, the BTO agreed to continue supporting this site because of the long time series coupled with ringing and nest recording on the same site – which is now seen as its first IPM site. Fig. 2 shows, as an example, the recorded territories of the sadly declining Song Thrush *Turdus philomelos* in two different years. We have asked ourselves whether we should continue with the CBC operation, now that it has been overtaken nationally by the BBS, and the answer is a clear 'yes'. Assessing territory numbers gives an estimate of population that is quite independent of data from ringing operations. This independence has vital uses, as will be seen later.

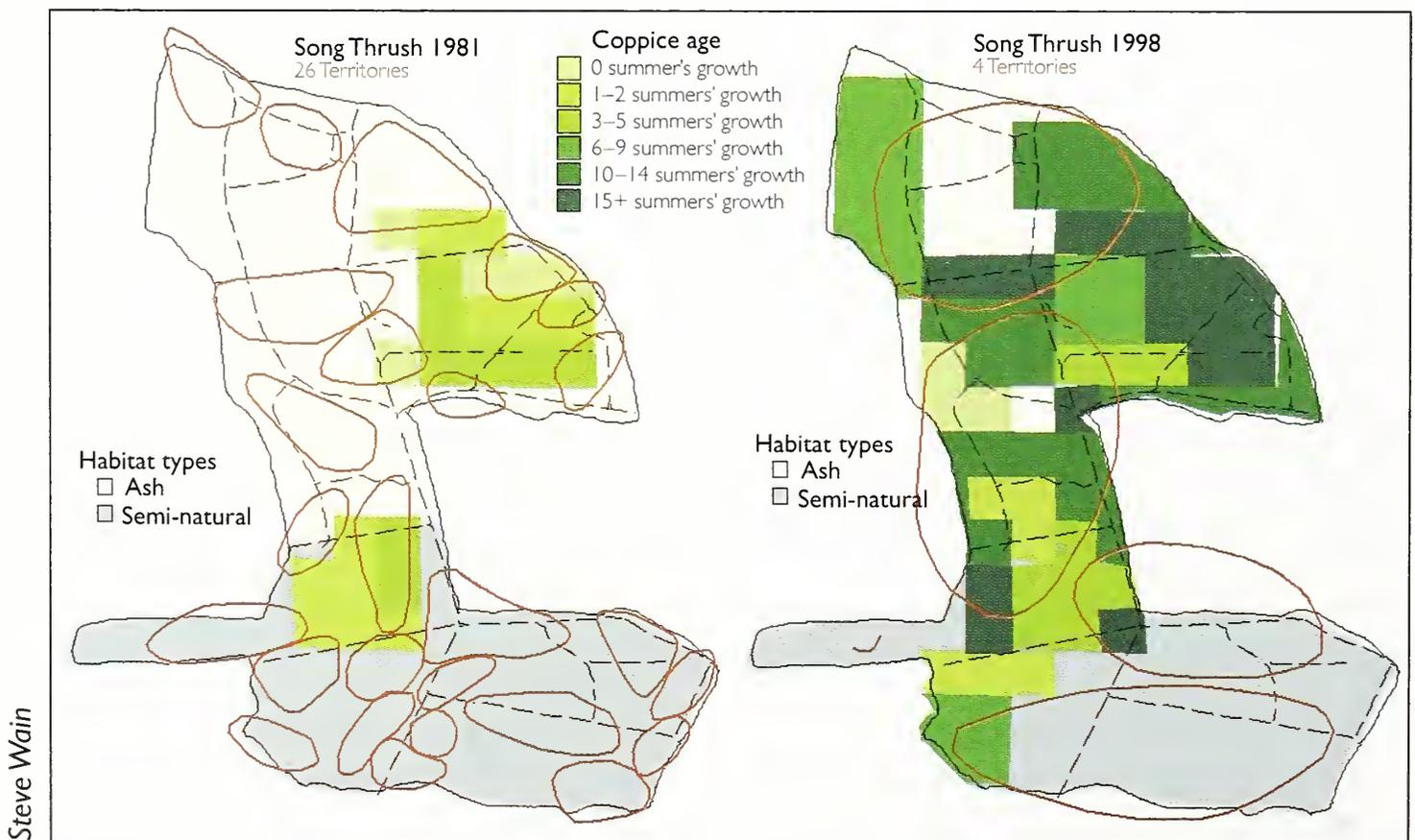


Fig. 2. Song Thrush *Turdus philomelos* territories in Treswell Wood recorded by CBC observers in 1981 and 1998.

Nestboxes

In 1979, around 100 nestboxes were erected – mostly for tits but also a few open-fronted boxes and large boxes. One aim was to provide hole-nesting sites for tits in a wood now losing potential nest-sites through coppicing. These boxes have been inspected, generally weekly, throughout the breeding season since then. All nests are recorded, the data submitted to the BTO Nest Record Scheme and the nestlings ringed. Nottinghamshire Wildlife Trust policy is not to allow active searching for open nests, but those found casually during other operations can be recorded and nestlings ringed. The number of boxes has now increased and they are spread through most of the wood. In addition to providing a means of recording nesting progress and ringing nestlings, nestboxes provide a semi-natural laboratory for some experiments related to breeding birds, including an examination of foraging distances for nesting material (fig. 3) together with studies into nest construction and insulative properties by Lincoln University. Boxes are also a useful focus for recording some non-bird species, including the 13th British record of *Gnathoncus buyssoni* – a small predatory beetle.

Habitat recording

Habitats change particularly rapidly in a coppiced woodland. Fortunately the Trust maintained a record of where coppicing had taken place in each year. This record has now been computerised, at the resolution of the ‘McMeeking grid’. This means that every capture of a bird and every nest record can be associated with a particular age of coppice regrowth (fig. 4). We have computerised written notes of weather for each mist-netting visit, although for analyses relating bird demographics to weather we have used data from various local long-term weather records, which are more suitable for statistical analyses.

Other species

Ringers also record other species where possible. Some of this recording has been casual or opportunistic, and some reasonably systematic. From these it is possible to extract phenological details (e.g. annual first Brimstone *Gonepteryx rhamni* sightings) or abundance data (e.g. Early-purple Orchid *Orchis mascula* spikes in some large, long-established patches). Of particular note are records of the rarely seen Magpie Ink Cap

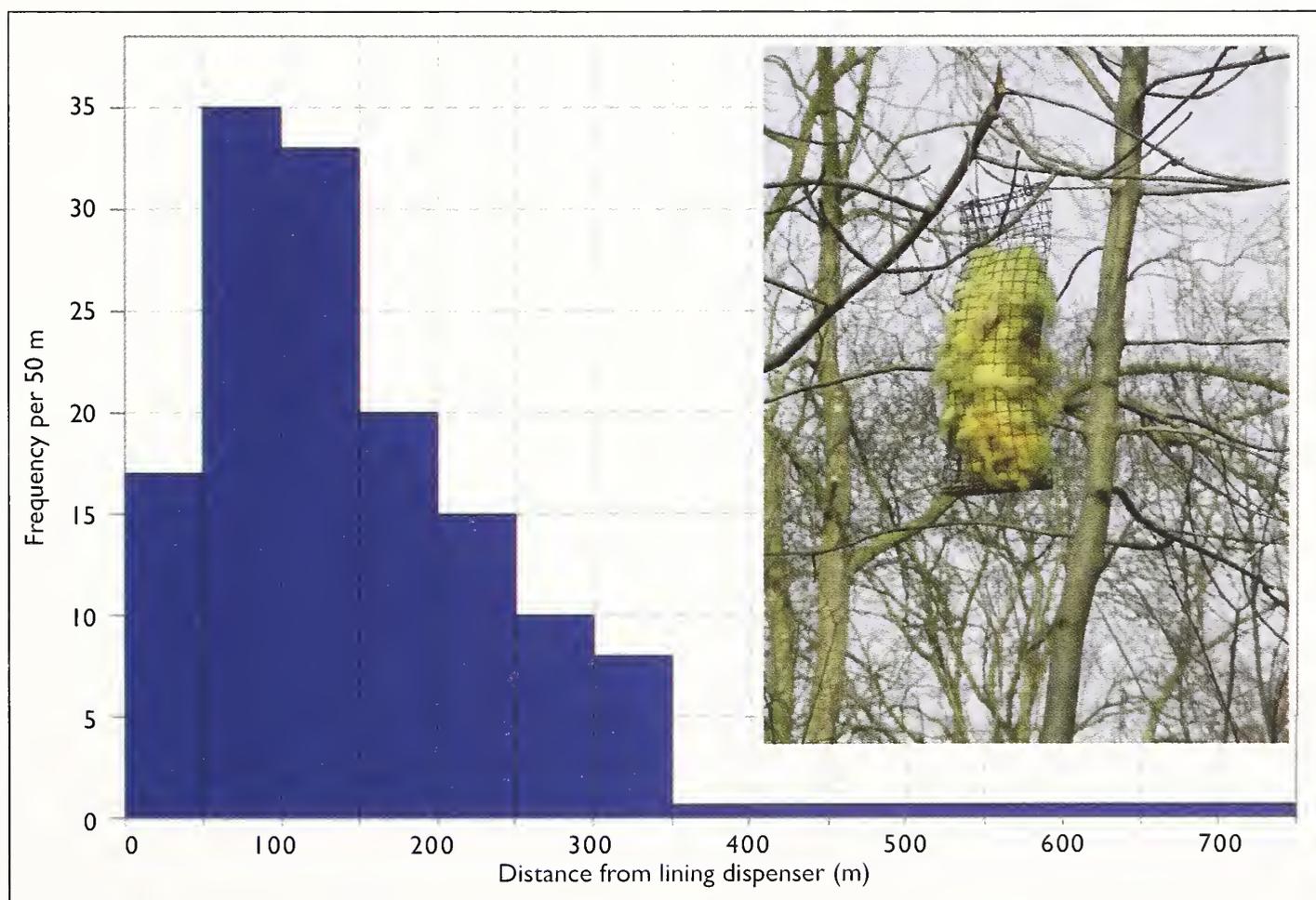


Fig. 3. A hanging nest-lining material dispenser and the distribution of the distances that Great Tits *Parus major* carried material from dispenser to nest.

	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	
S																S
R			12	13												R
Q			12	13				19	19							Q
P			12	13				18	18	18						P
O			12	13				23	24	25	18					O
N			13	13	21	21	21	12	12	23	23	23				N
M					5	5	20	12	12	24	24	3	18			M
L					6	19	19	10	10	10	5	3	18			L
K					6	6	5	22	19	19	19	19	18			K
J					17	17	5	16	20							J
I					17	0	2	16	20							I
H					17	17	8	9	20							H
G					18	1	2	3	4							G
F					18	1	9	9	22							F
E					7	7	7	1								E
D					15	2	2									D
C					15	15										C
B																B
A																A



Chris du Feu

Fig. 4. Coppice age at Treswell in summer 2004. White squares are uncoppiced, grey squares are outside the wood, other squares show the number of years since coppicing.

Coprinus picaceus (fifth in county; plate 408), the curious Worm Slug *Boettgerilla pallens* (third in the county) and the documentation of colonisation (or recolonisation) of the wood by the Hornet *Vespa crabro*.



Chris du Feu

408. Magpie Ink Cap *Coprinus picaceus*, Treswell Wood, October 2010.

Outputs of the study

When I first became involved I asked John what his aim was. He answered that he hoped ‘a paper might come out of it’. That hope has been more than fulfilled, with several papers having been published, some entirely based on work within the wood and some with the Treswell Wood data being included as part of much wider studies. Perhaps it is best, first, to dwell on some of our internal reflections.

The record of recaptures is excellent for developing humility in ringers. The ringer who believes he has never mis-aged or mis-sexed a bird is one who has either never handled a recaptured bird or never examined recapture histories of birds. We always have the ‘bible’ handy – a printed list of recapture histories of all birds encountered during the previous year. When a difficult bird is encountered, it is possible to consult this to confirm (or not) the diagnosis of age or sex. Where there is an apparent conflict, the bird, still in the hand, can be re-examined. That is usually an instructive experience – even for experienced ringers. The record of recaptures of Great Spotted Woodpeckers *Dendrocopos major* has been particularly useful. Our record includes a good number of photographs and notes of birds of known age –

many having been first ringed as unmistakable red-headed juveniles. It is quite clear that, after the post-juvenile moult, any Great Spotted Woodpecker that has no remaining juvenile greater, median or lesser coverts has to remain unaged (fig. 5). The moult, in both adult and juveniles, of primary coverts seems so haphazard and unpredictable that no reliance can be placed on them at all in terms of determining age. Efforts to explain to these birds that they need to behave in accordance with the published ageing and sexing criteria seem to fall on deaf ears. On the other hand, we have been able to describe a new criterion for separating Willow *Poecile montana* and Marsh Tits *P. palustris* (du Feu & du Feu 1996; fig. 6) and this now appears in the *BTO Ringers' Manual*. We have also published more information about ageing Wrens (Ward & du Feu 2006; fig. 7)

John McMeeking's recording of the details of moult has always been meticulous. This long series of moult data has revealed changes in the extent of post-juvenile moult. For example, in the early years relatively few juvenile Great Tits moulted their tail feathers. With time, this proportion has increased so that now almost all moult these feathers, including late-fledging birds (fig. 8). Of particular note is that juvenile Great Tits seem to initiate tail moult early in the post-juvenile

moult, rather than leaving it until later, when it is clear whether the resources and time remaining before the autumn are sufficient to undergo this extended moult. In addition, we have recorded such tail moult in 16 other passerine species. This is obviously of interest in relation to phenological changes resulting from climate change. Another, less obvious, implication is for ringers' ageing of birds. In several species, the shape of the tail feathers has been an important feature in identifying the age of a bird. If a juvenile moults its tail feathers, the new feathers will be of adult type making a first-year bird indistinguishable from adults after the autumn moult.

The analysis of post-juvenile moult uses

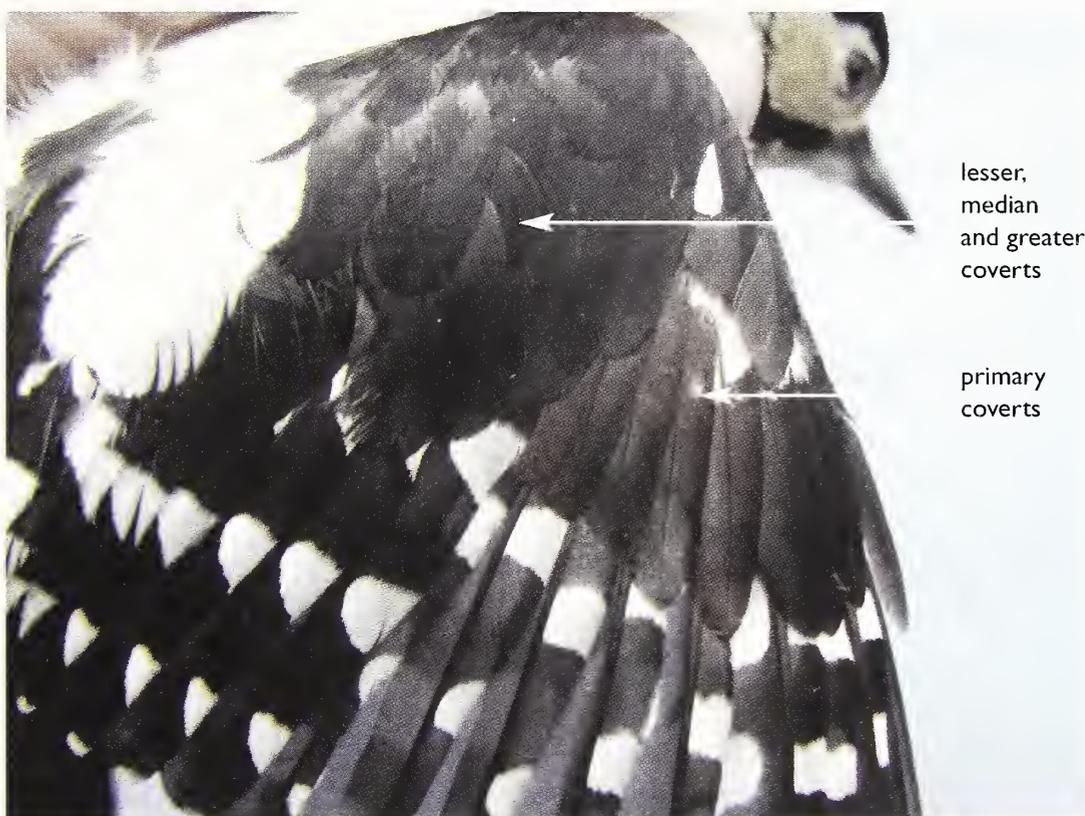


Fig. 5. Ageing Great Spotted Woodpeckers *Dendrocopos major*. Juvenile Great Spotted Woodpeckers moult their primaries during their first moult, which begins while they are still in the nest. The primary coverts are not necessarily moulted at the same time as the corresponding primary feather. After the annual (post-breeding/post-juvenile) moult both adults and juveniles will have new primaries and may have moulted anything from none to all of the primary coverts. Thus any contrast between primary coverts and the other coverts cannot be used to indicate the bird's age. This is different from a typical passerine, where it is often possible to recognise birds fledged in one year right through until the post-breeding moult in their second year of life by the contrast between the (unmoulted) juvenile primary coverts and the replaced, adult-type ones. During the post-juvenile moult, Great Spotted Woodpeckers replace some, possibly all, of the lesser, median and greater coverts. If they are all moulted, it is impossible to separate first-year from older birds (since both may have retained some or all of the previous generation of primary coverts). Some juveniles, perhaps a greater proportion in some years than others, will moult only some of the lesser/median/greater coverts, unlike any adults, so it is safe to age those birds as first-years. All others, such as the one illustrated, must be recorded as unaged.

John Clark

Richard du Feu © NHM, Tring

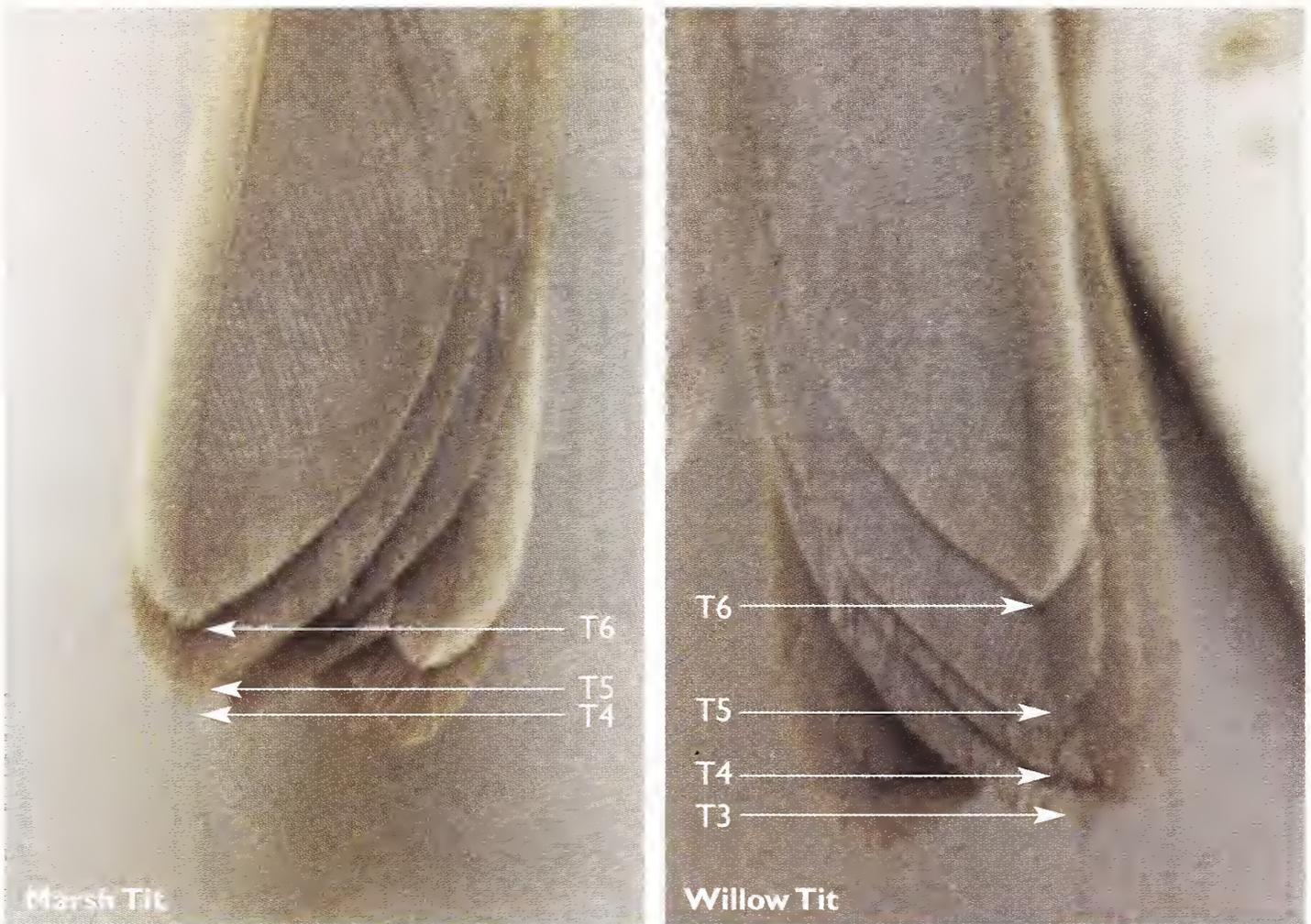


Fig. 6. Separating Marsh *Poecile palustris* and Willow Tits *P. montana* in the hand. This should be used in conjunction with other characters but is generally more reliable and easier to use than other means (such as glossiness of cap or size of bib). The tail should be arranged with feathers in line and viewed from underneath. In Marsh Tits, the outermost tail feather (T6) is shorter than T5, and T4 is sometimes just visible. In the Willow Tit, T6 is shorter than T5, which in turn is *clearly shorter* than T4, while T3 is often visible beyond T4 as the longest tail feather.

data from mist-netting captures only. However, many of the Great Tits we have captured in moult have been ringed as nestlings, which allows us to relate aspects such as brood size, hatching date, wing length, number of breeding pairs and

weather to the timing and extent of an individual's moult. These relationships are now the subject of a study at Nottingham University. Without the consistent recording of nests and of territory mapping, such detailed studies would be impossible.

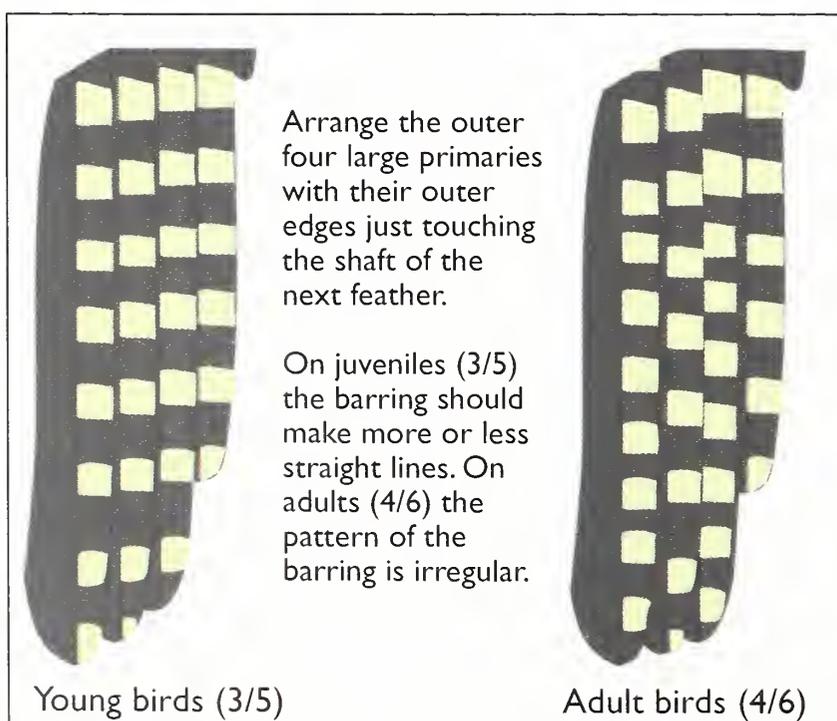


Fig. 7. Ageing Wrens *Troglodytes troglodytes*.

The long time series of nest records also shows the changing timing of nesting. The three most commonly nesting tit species – Blue *Cyanistes caeruleus*, Great and Coal *Periparus ater* – show a trend of advances in nesting time – now some two weeks earlier than 30 years ago (fig. 9). In addition to our own analyses, we have been able to contribute our dataset to some pan-European studies into the effects of climate change on nesting times (e.g. Visser *et al.* 2003).

The national BTO CES began in 1983 and Treswell Wood has been a contributory site since then. At first, it was a matter of faith that the

CES captures were a valid basis on which to calculate productivity and survival. In 1991 we published a paper demonstrating that, for some species at least, the captures of juveniles did indeed reflect juvenile abundance (du Feu & McMeeking 1991). This relied on knowing both the numbers of individuals captured in Constant Effort nets and also the number of juveniles known to have fledged from boxes. The value of CES as a tool for monitoring productivity and survival has been recognised and, since then, several European countries have begun CES-type monitoring schemes www.euring.org/research/ces_in_europe/index.html

The 1991 paper was also presented as evidence to a

conference in USA organised by the US Fish & Wildlife Service. The result of this conference was the institution of the North American constant effort system, MAPS (Monitoring Avian Productivity and Survivorship) www.birdpop.org/maps.htm

Populations of small birds can fluctuate wildly, with crashes in cold winters followed by rapid recovery over a period of only 2–3 years. In species such as the Wren, these dramatic between-year, weather-driven population changes can mask other, smaller influences on survival. In 1995, we looked at Wren capture numbers (Peach *et al.* 1995).

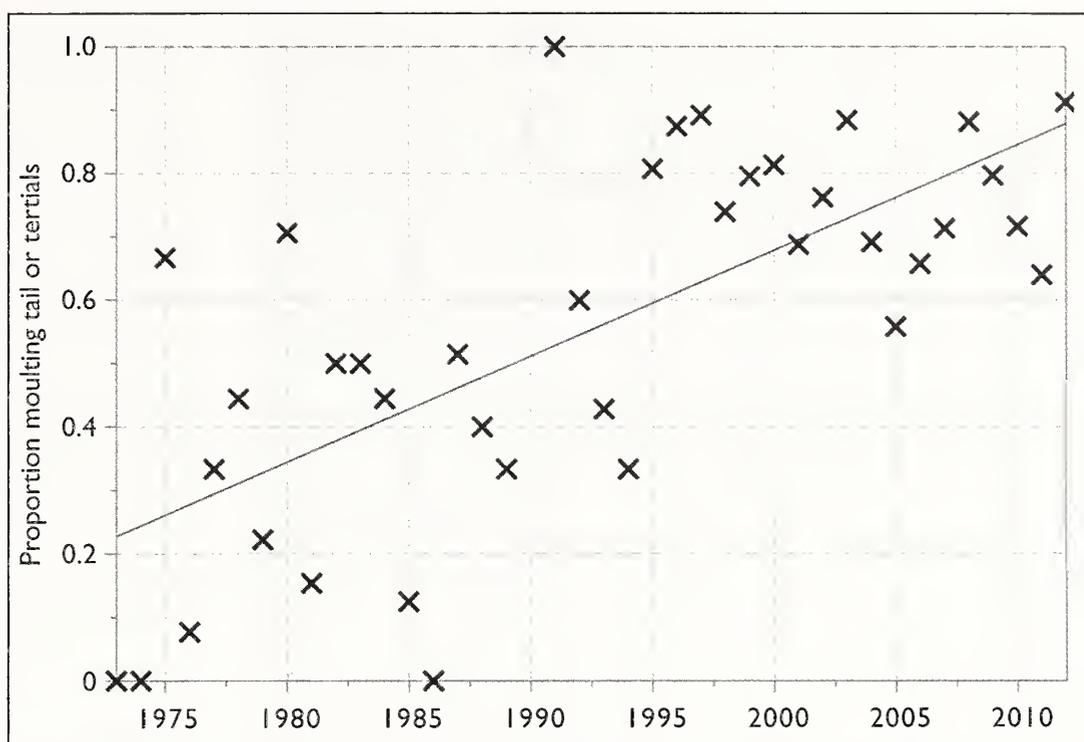


Fig. 8. The proportion of juvenile Great Tits *Parus major* moulting tail feathers in the Treswell Wood study.

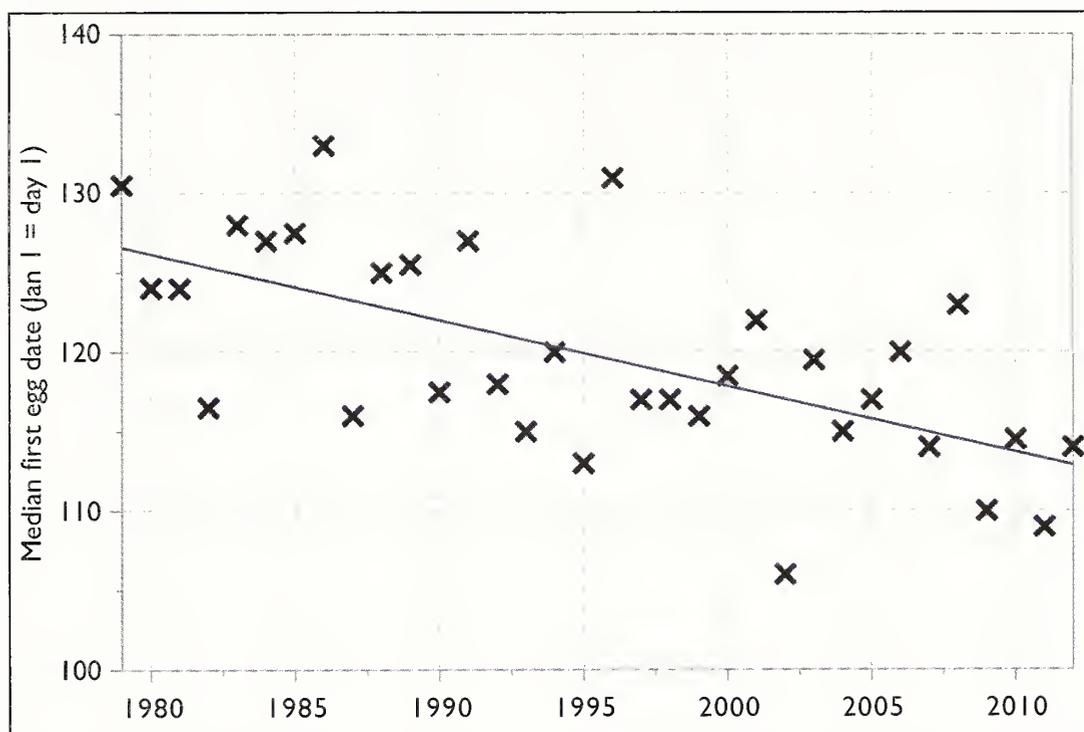


Fig. 9. The advancement of laying dates of Great Tits *Parus major* nesting in Treswell Wood.

There was a clear weather-related effect, survival being strongly correlated with the severity of the winter. However, once winter weather had been controlled for, there was significant evidence of density-dependent survival. This was the first time that density-dependent survival had been demonstrated in this small, volatile species. Furthermore, there is evidence that productivity is also dependent on population size (fig. 10). In the same study, a similar analysis was carried out on Treecreepers *Certhia familiaris*. The Treecreeper, although like the Wren in being largely dependent on live invertebrate food,

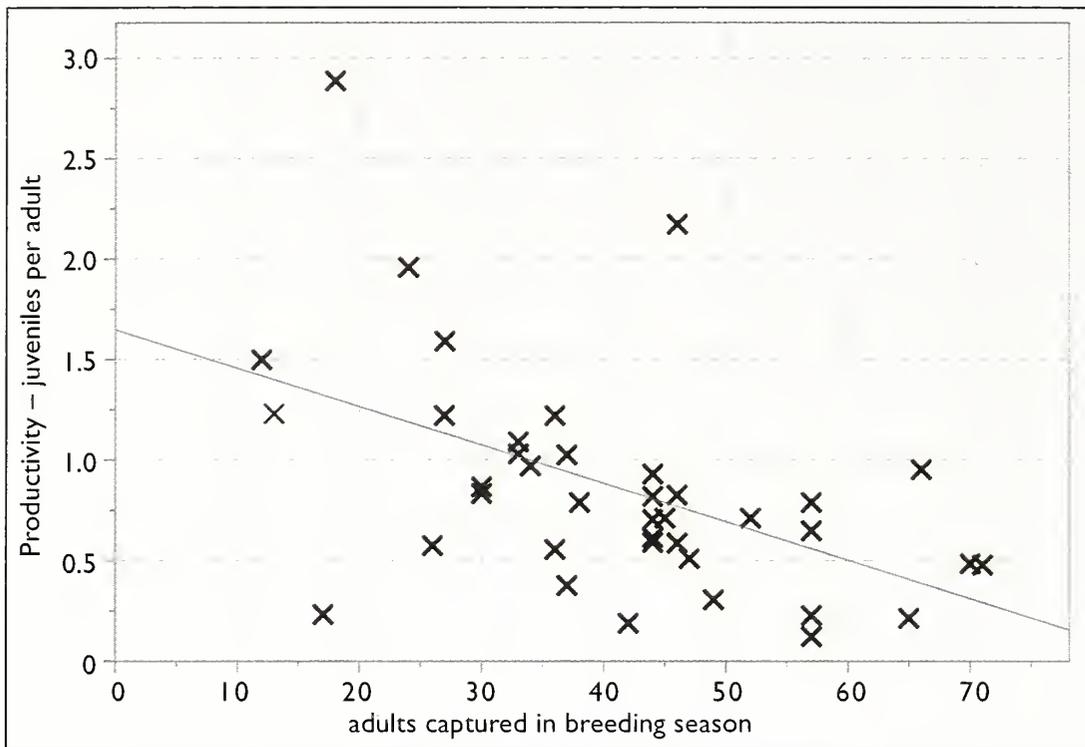


Fig. 10. Evidence for density-dependent productivity in Wrens *Troglodytes troglodytes* in Treswell Wood.

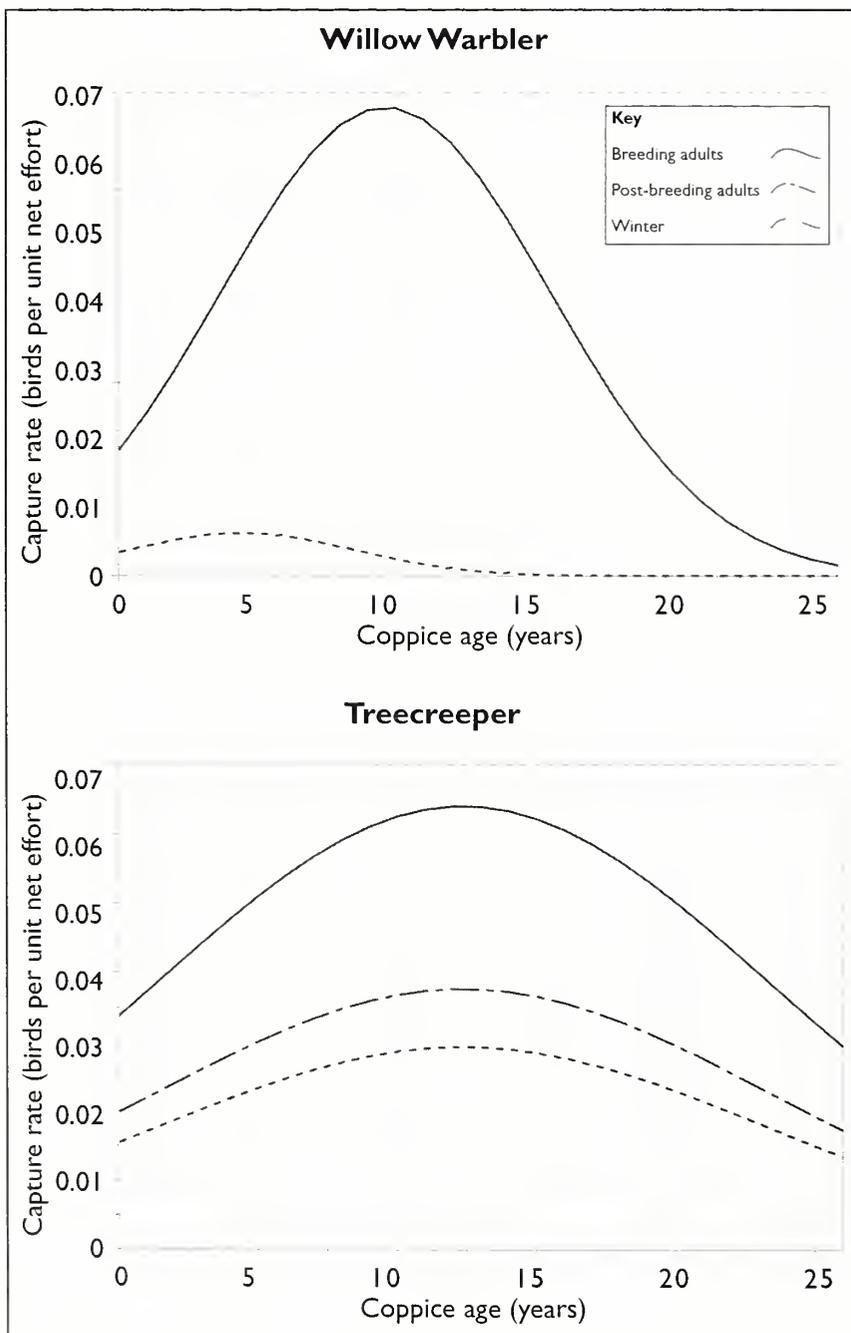


Fig. 11. The variation of capture rate of two species, Treecreeper *Certhia familiaris* and Willow Warbler *Phylloscopus trochilus*, with coppice age (in years).

has a very different ecology – the Treswell Wood breeding population size is typically one twentieth of that of Wrens. Because the Treecreeper has such a large territory size, studies on survival through ringing can suffer from a lack of data. However, the size of Treswell Wood has permitted sufficient encounters to make the data usable. The results

showed (not surprisingly, but not easily demonstrated in a bird with a population that is thinly spread) that annual survival did indeed vary. More surprising was that the critical factor was not temperature per se but a combination of cold and wet. Observations in the wood suggest a reason for this. In winters that are both cold and wet, trees can become wet then ice-glazed, which prevents Treecreepers from accessing invertebrates in tree bark, since they are now locked behind an impenetrable layer of ice. Furthermore, the short legs and consequent proximity of the birds' underside to wet tree trunks can lead to the plumage becoming wet, causing subsequent chilling far more rapidly than in the long-legged Wren.

Coppicing and bird populations

The re-establishment of the coppice programme by the Trust was aimed at preserving a wide variety of habitats within a relatively small area and maintaining a diverse ground flora. It was a matter of faith that the coppiced habitat would also benefit the woodland fauna, but we

can now look at the evidence.

The work of various authors (e.g. Fuller 1992) has shown clearly how birds respond to coppice management. Typically, for many species, the early years of coppice regrowth have low, but increasing populations. These populations reach a peak at medium coppice age (7–12 years) and then decline again as the regrowth thickens. With Andrew MacColl at Nottingham University, our present efforts aim to analyse capture rates of different species in different coppice ages. The 40-year dataset, in which each capture is linked to a specific coppice age and in which the catch effort can be included, allows a different approach from Fuller's well-established territory recording scheme (based on CBC-type methods). Our initial results are in broad agreement with established wisdom. There are some differences in the detail, which relate to different coppice-management regimes, tree species and parts of the country where studies have been carried out. Since mist-netting captures are not limited to breeding adults nor to the breeding season, we can look at other age and time classes (e.g. juveniles in autumn), and the results are promising (fig. 11).

One problem is that population changes within the wood will be driven by factors other than just coppicing. For instance, Song Thrush and Dunnock *Prunella modularis* have declined seriously in the wider environment over the study period, which affects capture rates. To control for this, some independent measure of woodland populations was needed. CBC territory numbers gave these vital, independent annual population figures, highlighting once again the value of integrated studies.

Frass

In recent years, increasing attention has been given to examining factors that drive breeding success. Tits are particularly dependent on small caterpillars to feed their nestlings. To maximise success, tits must time their nests so that peak food demand



John Clark

409. Frass trap at Treswell Wood, March 2011.

matches the peak caterpillar crop. In turn, moth eggs must be timed so that the hatching caterpillars have young leaves on which to feed (too early and there will be no leaves, too late and the leaves are old and full of toxins). It is hard to assess caterpillar abundance directly so a proxy measure of abundance is the mass of frass (i.e. caterpillar droppings) falling per day, per square metre. Since 2011 we have placed six 'frass traps' (plate 409) in the wood and collected contents every five days through the nesting season. The traps are placed in three pairs, one of each pair under Oak, the other under Ash. Already several things are apparent. First, the frass crop under Ash is very much less than under Oak. In 2012 the reason was clear – the Ash was so late to develop that leaves were not fully open until well after the peak food demand. Second, the timing of frass and tit nesting may be badly mismatched – in 2011 the caterpillar crop had passed its peak and was falling while the tits were still hatching (fig. 12). In recent years, the breeding success of tits has declined and it seems likely that this phenological mismatch is the cause. Third, the overall amounts of frass falling, even under Oak, are

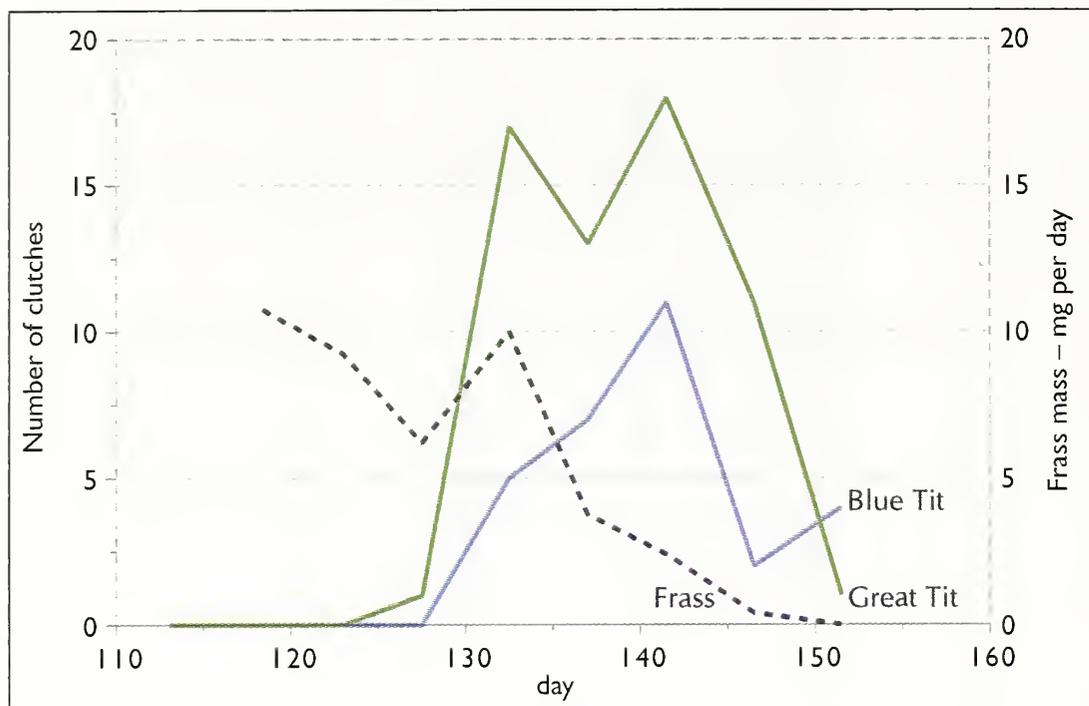


Fig. 12. Timing of frass fall and peak demand by nesting Blue *Cyanistes caeruleus* and Great Tits *Parus major* in Treswell Wood in 2011.

much lower than at similar study sites in the west of Britain (Ken Smith pers. comm.).

Students

We have a long track record of supporting students from local universities and schools. From the earliest days of the nestboxes, data have been used in school statistics projects for basic analyses using real data. One interesting result from these is that, unlike for some tits, where nest cavity size does influence clutch size, Tree Sparrow *Passer montanus* clutch size was not cavity-volume dependent. However, the number of successive broods in one box tended to increase with cavity size. It is a pity that the Tree Sparrow population in the wood became extinct before this could be investigated further.

Since the 1990s the wood has supported students, from undergraduate to doctoral level, in project work. Until recently, students have come, almost exclusively from Nottingham University but more are coming now from Lincoln and Nottingham Trent universities, both of which have departments built on the applied environmental studies traditions of the former Riseholme and Brackenhurst agricultural colleges. Students are given access to whatever part of our dataset that they require. However, it is important for successful project work that students understand the context in which data are gathered. In return for data, we require that they spend

time in the wood with the team members taking part in the field-work.

Student studies have been varied and include examination of the effects of fleas on reproductive success of tits; a long-term analysis of the annual cycle of abundance of feather mites on Robins *Erithacus rubecula*; an examination of the

effects of supplementary food on nesting success of tits; an analysis of the foraging distance by tits for nest-lining material; and examination of changing sex ratios of nestling tits through the breeding season.

In addition to supporting student project work, we have run a number of environmental statistics courses for primary school children. The aims of these were to explore limits of statistical understanding of young children and also to use statistics to help them to understand the natural world. The courses showed that children even as young as five or six could record, analyse and interpret 3x2 contingency table data with ease. The important things were to pose a question that children could understand; allow them to gather data themselves; compile class results under teacher direction but then let the children interpret them. In one course, for example, children recorded clusters of Bluebells *Hyacinthoides non-scripta* and Greater Stitchwort *Stellaria holostea* in one of three habitat classes – under the tree canopy, at the canopy edge or in the open (du Feu 2005). The data were compiled by constructing a three-dimensional Lego bar chart. Unlike 'three-dimensional' charts that are printed on paper, which are invariably unhelpful and misleading, genuine three-dimensional structures allow the user to view from any angle. Rear bars are not hidden behind front bars; rows and columns can be viewed separately or together and, impor-

tantly, the children have built the chart themselves with each block representing their own observations. One chart is illustrated (fig. 13) but, unfortunately, the two-dimensional printed image cannot do full justice to the real object.

The future

Nottinghamshire Wildlife Trust is hoping to buy part of the 'assart' – the patch of farmland to the east of the narrow central section of the wood (plate 410). This was, historically, part of the wood and the last section of the wood to be claimed for agriculture. The intention is to allow most of it to revert to woodland with minimum intervention. This will provide a wonderful opportunity for recording the succession from grassland to climax woodland, although in the first few years the bird territory mapping may be somewhat lacking in challenge and it is unlikely, of course, that the present team will see the project through to maturity.

Concluding thoughts

During the last 40 years, the group has built a comprehensive dataset, established a systematic recording regime for birds and habitat and has gathered a good deal of background species data. Paper records have been lodged with the Nottinghamshire county archives, computerised data are both secure and accessible. Collaboration with universities is established allowing better use of the dataset for a variety of purposes. The group is now an established organisation registered with the BTO ringing scheme as its first IPM group. Members have a greater sense of shared purpose than ever before and are kept informed by our newsletter, Twitter (an acronym for Treswell Wood Information To Tell Every Recorder, which pre-dates the modern electronic social medium by some ten years).

What about the next 40 years? Each addi-

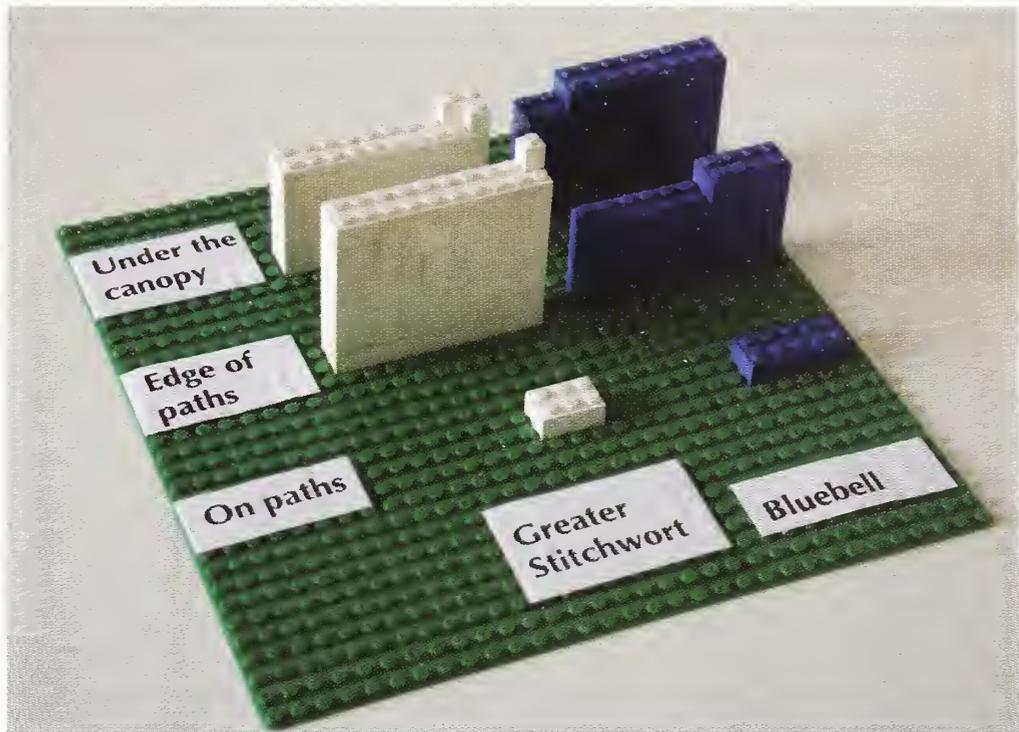


Fig. 13. A three-dimensional (Lego) bar chart for the analysis of habitat difference between Bluebells *Hyacinthoides non-scripta* and Greater Stitchwort *Stellaria holostea*.

Chris du Feu

tional year's data gives proportionally more value to the whole dataset. We hope that the group will continue for many years with the established programme, but also extend it in various ways. We hope to continue to provide a place where students can engage in practical fieldwork and have access to a large dataset for their own project work... and if a doctoral opportunity arises, then let us know.

Acknowledgments

My thanks are due to John Clark (photographs and fieldwork), Andrew MacColl (capture-rate analysis), John McMeeking (leadership of the project), Ken Smith (frass measurement), Steve Wain (coppice and CBC data), very many ringers and observers for their invaluable, continued fieldwork, and the Nottinghamshire Wildlife Trust for long-term support and enthusiasm for the project.

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John Clark



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Notes

First nesting attempt by Shags in the Netherlands disrupted by Isle of May pioneer

Dutch birders have recently encountered a number of Shags *Phalacrocorax aristotelis* summering among a Great Cormorant *P. carbo* colony at Neeltje Jans, Zeeland, and in 2012 a pair was discovered nest-building in what is thought to be the first breeding attempt of this species in the Netherlands. Among the dozen or so Shags seen at the Neeltje Jans colony was a single colour-ringed bird. Blue ZBU was ringed as a chick in June 2009 on the Isle of May but was then seen and photographed in the Netherlands on 21st May 2010 and recorded there again in subsequent summers. Neither bird of the pair in 2012 was ringed and they ultimately lost their nest material to the dominant Cor-

morants, but Blue ZBU was also observed interfering with the nesting attempt. An unringed pair attempted to nest in 2013 but again failed to lay, while Blue ZBU began nest-building in April but soon quit.

Of over 16,000 Shags that have been colour-ringed on the Isle of May since 1997, the vast majority remain on the east coast of the UK throughout their lives. Barlow *et al.* (in press) searched Shag colonies along the east coast of Britain and found that 90% of Isle of May chicks returned to their natal colony to breed. Of the 10% that moved away, the mean dispersal distance was 61 km while the maximum observed distance was 170 km. The minimum distance from the Isle

of May to Neeltje Jans is 590 km, so this represents a new breeding-dispersal record for Isle of May Shags. However, a Europe-wide genetic analysis of this species (Barlow *et al.* 2011) suggested that some genetic mixing does occur between populations on either side of the North Sea, so it is likely that Blue ZBU is the latest in a long line of occasional cross-North Sea dispersers dating back many centuries.

The Neeltje Jans Cormorant colony itself is unusual in being the only colony of the 'Atlantic' nominate subspecies in the Nether-

lands and was established as recently as 2008 at an artificial island reclaimed as part of the country's coastal defences.

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Peregrine Falcon taking Moorhen

In October 2012, flooding had created some temporary pools just northeast of the main hide at Wexford North Slob reserve. On 27th, I watched a Moorhen *Gallinula chloropus* swimming in one of these pools, which lacked any form of cover at the edge, some 50 m from the hide. A Peregrine Falcon *Falco peregrinus* that was hunting in the area also spotted the Moorhen. At first, the Peregrine hovered about 3 m above the Moorhen, and then gradually descended to within 30 cm or so of it. As the Peregrine came close, the Moorhen rolled on its back and submerged, whereupon the Peregrine returned to its original hovering position. Once the Moorhen resurfaced, the Peregrine descended again. This cycle was repeated several times over a

10–15 minute period. The Moorhen gradually tired and became progressively distressed, and its feathers became waterlogged. Finally, it failed to dive and the Peregrine took it in its talons. It dragged the Moorhen to the edge of the pool, along the surface of the water, beating its wings slowly, but never rising into the air. Finally it emerged onto the surrounding grass. The Peregrine plucked the Moorhen thoroughly, and picked it clean over the next 20–30 minutes.

Don Smith described somewhat similar hunting behaviour by a Peregrine in relation to a flock of Pochards *Aythya ferina*, although less persistently (and without a successful outcome to the hunt; *Brit. Birds* 74: 264).

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Great and Lesser Spotted Woodpeckers drumming together

At 09.45 hrs on 12th January 2012, deep in an East Staffordshire wood, I heard a burst of woodpecker sounds from the surrounding parkland. The calls came from a distant Green Woodpecker *Picus viridis*, but a series of drums followed by seemingly quiet echoes puzzled me. Soon after I located a Great Spotted Woodpecker *Dendrocopos major* in nearby tall trees, on the upper trunk of a Birch *Betula pubescens*, and then a Lesser Spotted Woodpecker *D. minor* about 7 m

behind and above the Great in the canopy of another deciduous tree.

Every time the Great drummed, but after a hesitation of several seconds, the Lesser responded with a roll of similar time length but with much fainter, more separated, less confident and less staccato beats. After listening to ten unhurried duets, and confirming that they were being performed by two birds, I continued on my walk. The duetting drums continued to sound behind me

for a total (since first hearing) of at least ten minutes.

All three woodpeckers have resided at the site for at least 26 years but on no other occa-

sion have I found the two *Dendrocopos* species so close together. *BWP* mentions that they perform drumming duets in Europe, but I can find no reference to such behaviour in Britain.

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Feeding association between Great Spotted Woodpecker and Blue Tit

On 16th April 2013, on farmland near Stogumber, Somerset, I saw a male Great Spotted Woodpecker *Dendrocopos major* fly onto the trunk of a Silver Birch *Betula pendula*. Following close behind the woodpecker was a Blue Tit *Cyanistes caeruleus*, which perched on a nearby branch. The woodpecker began to hammer at the bark, giving rise to two holes from which sap began to flow. The wood-

pecker drank from the sap for a minute or two before flying off; soon after, the Blue Tit flew to the sap source and also drank, for about a minute, before flying off. According to *BWP*, both Great Spotted Woodpeckers and Blue Tits normally drink tree sap (birch sap is a valuable food, being a high-energy, sugar-rich fluid), but I can find no published records of such an association between the two species.

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Common Swift taken by Pike

In late May 2013, blustery conditions over several days brought a large number of Common Swifts *Apus apus* and hirundines to hawk for insects over Seaton Lakes, in Kent. On 19th May I was watching Swifts flying rapidly very low over the water of the main lake. One bird hit the surface where the water was particularly choppy and sat floating for a few seconds, before 'rowing' itself towards the

shore using its long wings. As it approached the reedy margins of the lake, it was attacked repeatedly from below the surface by a Pike *Esox lucius* (which I estimated to be about 3 kg). A member of the angling syndicate made attempts to recover the Swift using a landing net, but the Pike returned and took the Swift below the surface and presumably ate it. I can find no previous records of such an event.

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Spotted Flycatcher feeding peanut fragments to nestlings

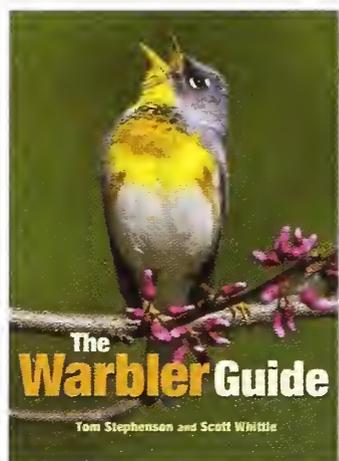
On 20th July 2013, during a hot, dry spell of weather, I saw a Spotted Flycatcher *Muscicapa striata* fly down to the ground beneath a suspended peanut feeder in a garden in West Bagborough, Somerset. The flycatcher hopped around, picking up fallen peanut fragments from the lawn, and then flew to feed them to its well-grown nestlings in the same garden. The bird returned soon after to gather more peanut pieces, again feeding them to its nestlings. After that, normal flycatching was resumed; I saw no more peanut collecting and the young fledged successfully

two days later.

Spotted Flycatchers normally feed their nestlings on aerial invertebrates and peanuts must be a very unusual food source. According to *BWP*, Spotted Flycatchers occasionally take berries during the breeding season by hovering in front of a bush, and the feeding of raspberries to nestlings has been noted. In general, Spotted Flycatchers seldom take food from the ground but it is known that insect prey is sometimes seized there; in Africa, birds have been observed taking termites from a road surface (*BWP*).

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Reviews



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£19.95 **BB Bookshop price £17.95**

This innovative guide brings together the North American Parulidae warblers in an entirely novel

format and presents a refreshing approach to their identification. Although primarily a photographic guide, it presents each species in a variety of postures, positions and half-takes that typify the views that you get when trying to identify warblers in dense cover. Although termed a 'guide', this isn't a book to lug around in the field (weighing in at over a kilogram). But neither is it a traditional handbook, as it lacks the scope and depth of that genre. Instead, it is better described as a photographic compendium, bringing together 20 or more colour photographs depicting each species from almost every conceivable angle and in multiple postures – and this excludes images of comparison species. For a superb collection of photographs of these brightly coloured gems, this guide is without peer.

The introductory chapters alone extend to 137 pages and provide detailed explanation of the species accounts and what to expect. A series of icons form a quick key that summarises silhouettes, colour impression and undertail patterns, with others outlining range, habitat preferences and behaviour. 'What To Notice On A Warbler' guides readers on a topographic tour and through a plethora of field marks, structural nuances and bewildering sonograms. Some users may find this a bit excessive or even intimidating, although the section on 'Understanding Sonograms' is particularly informative, one of the most enlightening interpretations I have come across, and includes song mnemonics where relevant. Putting all this into practice is detailed in 'How To Listen To Warbler Songs' and 'Learning Chip And Flight Calls', together amounting to 31 pages! I then discovered a discreetly hidden reference to a companion file (on page 69) containing all the vocalisations covered by the book, in excess of 1,000 files, and presented in the exact page-by-page

sequence as in the text. This file is available from the Macaulay Library at Cornell Lab of Ornithology <http://macaulaylibrary.org/guide/the-warbler-guide> for \$5.99. If you really want to understand sonograms, this is the bargain of the year, don't order one without the other.

The remainder of the text comprises detailed accounts for species that breed in Canada and the USA, presented in alphabetical order. On average, six pages are devoted to each species, the first with between two and six images followed by a multitude of smaller additional photos highlighting diagnostic features and showing the species in a variety of postures. Another page of comparison species follows, with images of similar warblers plus a selection of unrelated and only vaguely comparable species that might include chickadees or sparrows – it is really possible to mistake a chickadee for a Golden-winged Warbler *Vermivora chrysoptera*? A short summary of ageing and sexing comes next, again illustrated with relevant photographs, although in most cases these are a bit too small to convey the detail in the captions, and I felt this could have been explored in greater depth with additional text. Maps illustrate the breeding and wintering ranges and main migration routes, and the distribution of distinctive races. Each account concludes with a page or two of sonograms comprising up to four of the review species, plus several of songs of potentially confusing species. Where sexes differ greatly, for example Black-throated Blue Warbler *Setophaga caerulescens*, the female is treated completely separately from the male and given equal treatment. In some species where drab and bright 'morphs' occur, as in Connecticut Warbler *Oporornis agilis*, these are also discussed in separate sections, whereas the distinctive Audubon's and Myrtle races of Yellow-rumped Warbler *S. coronata* are not, although the combined account here extends to a whopping 16 pages that include 49 photographs, 20 sonograms and three maps!

A further seven species from the tropical regions to the Mexican border that have occurred

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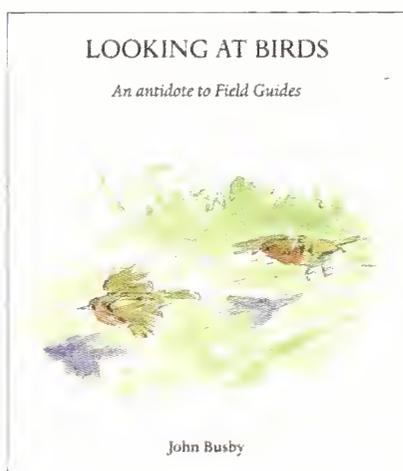
in the southern USA, plus two 'former warblers' (Yellow-breasted Chat *Icteria virens* and Olive Warbler *Peucedramus taeniatus*) are given two-page spreads. Potentially confusing families including Kinglets, Bushtits, Gnatcatchers, Chickadees and Vireos and even Sparrows are summarised, hybrids are addressed briefly and the book concludes with eight pages devoted to quizzes and reviews, images of warblers in flight, an overview of North American warbler taxonomy, a synopsis of habitat and behaviour, measurements and a glossary of terms.

There are a few minor niggles: some photos are too small to show what they are intended to

depict; there are gaps where additional material could have been included or existing images enlarged to fill the blank space; dates could have been added to the photo captions; the Distinctive Views of the seven vagrant species actually depict Comparison Species, and I just don't get the full-page image on page 339.

The only thing missing from this guide are the warblers themselves. Once you've picked up and browsed this book, you will be hooked. So be warned, this book may be a bargain, but the consequences come with a hefty price tag.

Peter Kennerley



Looking at Birds: an antidote to field guides

By John Busby

Langford Press, 2013

98pp; many illustrations

Hbk: ISBN 978-1-904078-54-8 Subbuteo code M21676

£20.00 **BB Bookshop price £18.00**

Pbk: ISBN 978-1-904078-55-5 Subbuteo code M21677

£15.00 **BB Bookshop price £13.50**

For many years John Busby's work has graced the pages and walls of numerous books and exhibitions. His ethos has always been to observe his subjects in the field and record first-hand what unfolds in front of him, rather than what preconceived ideas and published literature tells him he should be seeing. He (and before him Eric Ennion) was among the first wildlife artists to pioneer this approach, creating some of the most evocative and influential styles of work in the world of wildlife art and landscape painting.

Previously, in his own understated way, he described his approach through several articles in the RSPB *Birds* magazine (soon to be known as *Nature's Home* – what? really?) and books such as *Drawing Birds*. And so, with seeds sown, matters are taken further with *Looking at Birds*. It is another fine production from that great champion of wildlife-based art, Langford Press. It is slightly smaller in stature than the Wildlife Art Series, but no less lovingly crafted together and also great value for hard-earned pennies.

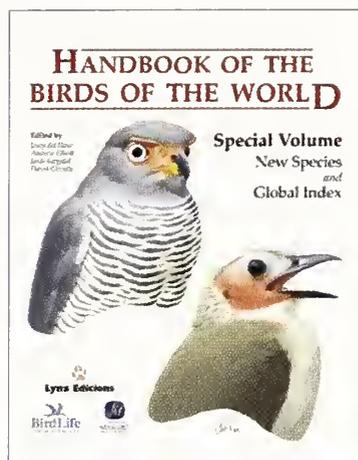
The first impression is of pages packed full of JB's jizzy watercolour paintings and pages of collected bird shapes. His seabird studies are second to none and reason enough alone to buy the book, in my humble opinion. However, it's within the

text that the differences from other books are highlighted. They are broken up into bite-sized chunks that make for easy reading. Some are an expansion of the image they sit alongside; others are quietly put as a set of challenges. For example, he encourages us to discover something new when we encounter even the most familiar of species: 'I find that the most enjoyable times of watching birds come when there is a chance to sit still, watch and share a large part of a day with a single species or even a single individual.'

So, not a lot about identification. In this case I don't believe it's an issue. After all, birds are unaware of the names we have given to them, but don't appear to suffer for it in any way. Yet, many subjects that are touched on only briefly by field guides and ignored by most monographs are explored here in depth: reflected light, shadows, odd behaviour, humour and beauty. Roughy, toughy subjects? Probably not. Thought-provoking? I think so. Busby says: 'identifying a bird is only the beginning'. I suggest in some instances that struggling with names only gets in the way of your enjoyment. Go on, read it, it may change the way you look at birds forever!

Dan Powell





Handbook of the Birds of the World. Special Volume: New Species and Global Index

Edited by Josep del Hoyo, Andrew Elliott, Jordi Sargatal and David A. Christie

Lynx Edicions, 2013

Hbk, 812pp; 214 colour illustrations, 50 figures, 319 colour photographs, 94 distribution maps

ISBN 978-84-96553-88-0 Subbuteo code M21351

£125.00 **BB Bookshop price £99.00**

For those who have collected the previous 16 volumes of *HBW*, this extra one presents an interesting dilemma. All of the others have included details of up to 700 species and this one features only 69. Furthermore, about 300 pages of this book are given over to a massive multilingual cumulative index to the entire collection. Certainly the book feels very different from others in the set, so there is a dilemma about whether or not to buy it. In my view, if you have all of the others, you really ought to have this Special Volume too. Although the cost per species is high, there is just about enough new material here to justify the purchase.

Since the first volume of *HBW* was published, in 1992, the number of new species being described has grown steadily. Most of these new forms were previously considered a distinctive race but have been upgraded to species level during the process of taxonomic revision. New species that appeared as races in previous volumes (perhaps 300 or so) are not included here but I suspect that many readers would have liked to have seen these receive the 'proper' *HBW* treatment. Not to include them seems to be something of a missed opportunity to me, especially since some will have new or significant characteristics that birders will want to know about. At least to have them acknowledged in some way would seem sensible. However, the editors assure us that the issues of lumps and splits will be covered in detail in the forthcoming *HBW and BirdLife International Illustrated Checklist of the Birds of the World* – to be published by Lynx fairly soon.

The 69 species that are included are species described as new to science since the publication of the relevant *HBW* volumes. All have been illustrated by Hilary Burn and are treated like all other species in *HBW*, with a description, plus details of taxonomy, distribution, habitat, food, breeding, movements, status and conservation. Of course, most new discoveries are doubted by at least someone, though given the ongoing debate about the reliability of Hocking's Parakeet *Aratinga hockingi* as a true species I was surprised to see that included.

There is an authoritative overview by Jon Fjeldså on how avian systematics has developed over the last two decades. He also provides extensive background and covers numerous taxonomic challenges before running through the individual cases of the various bird groups, explaining recent findings and current opinions concerning their origins and relationships. There is also an informative chapter on the history of BirdLife International on its twentieth anniversary, and looking back to the creation of ICBP some 90 years ago.

An unusual aspect of this Special Volume is that it includes the peer-reviewed scientific descriptions of a further 15 new species. Eleven of these are endemic to Brazil, while the others are to be found there and also in Peru and Bolivia. This is the largest ornithological development from the area since 1871, when 40 species were described by August von Pelzeln. With the exception of one species, these are all passerines, and they all are illustrated by Hilary Burn.

HBW has always taken great care to use good-quality photographs, and in this volume the bar is raised even higher with the inclusion of a collection of 200 stunning photos selected from the images presented in the *HBW* World Bird Photo Contest 2012.

Finally, there are five separate indexes, covering all 16 *HBW* volumes, which give the scientific, English, French, German and Spanish names of every species. These also include a small number of corrections where photographs were misidentified in the earlier volumes. Although I thought I would use the index very rarely, I have already found it to be an invaluable reference.

So *HBW* has finally come to an end. But of course this also signals a new beginning, with the arrival of an online version called *HBW Alive*. Having signed up to this, I have found it to be a useful resource. The result of that is that my *HBW* volumes now rarely leave their position in my bookcase!

Keith Betton

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Recent reports

Compiled by Barry Nightingale and Harry Hussey

This summary of unchecked reports covers early August 2013 to early October 2013.

Headlines An extraordinary collection of rarities appeared during August, September and early October, the headline acts being Eastern Kingbird and Wilson's Warbler in Ireland, Red-billed Tropicbird in Cornwall, Cedar Waxwing on Tiree, Thick-billed Warbler in Shetland and Ovenbird in Orkney. Other outstanding events included a swathe of sightings of Zino's/Fea's Petrels, no fewer than five Brown Shrikes (spread from Shetland to Hampshire) and a seemingly unstoppable run of good birds in Shetland and Fair Isle, which included Hudsonian Whimbrel, Baltimore Oriole, Eastern Olivaceous and Sykes's Warblers. A confiding Great Snipe in Yorkshire drew large crowds but many of the top rarities proved difficult to get to. The unprecedented arrival of Two-barred Crossbills that began in July continued throughout August. Classic fall conditions prevailed in late August as an anticyclone developed over Scandinavia, bringing Greenish Warblers and Citrine Wagtails in record-breaking numbers, while similar conditions from mid September onwards brought a huge arrival of Yellow-browed Warblers, particularly in Shetland/Fair Isle where over 300 were counted on 26th.

Red-breasted Goose *Branta ruficollis* Farlington Marshes/Fareham/Thorney Island (Hampshire), 27th September to 3rd October; Mersehead (Dumfries & Galloway), 27th September to 3rd October. **Black Duck** *Anas rubripes* Achill Island (Co. Mayo) 20th August to 18th September. **Blue-winged Teal** *Anas discors* North Ronaldsay (Orkney), 17th August; Coonagh (Co. Limerick), 3rd September; Frankenfield Loch (Clyde), 7th September to 6th October; Boutham Mere (Lincolnshire), two 16th September, three 17th September to 6th October. **Lesser Scaup** *Aythya affinis* Pennington Flash (Greater Manchester), 2nd September to 5th October; Bryn Bach Park (Gwent), 21st September; Cardiff Bay (East Glamorgan), 30th September to 6th October. **King Eider** *Somateria spectabilis* Burghead (Moray & Nairn), 18th–22nd September.

Zino's/Fea's Petrel *Pterodroma madeiralfeae* Off Scilly, 9th August; Porthgwarra (Cornwall), 14th August; Bridges of Ross (Co. Clare), singles 16th and 20th August, and 15th September, and two on 17th August; Galley Head (Co. Cork), 17th August; Berry Head (Devon), 17th August; Mizen Head (Co. Cork), 22nd August and 15th September; Farne Islands (Northumberland), 6th September; Helmsdale then Duncansby Head (Highland), 7th September; Bardsey (Caernarfonshire), 15th September; Brandon Point (Co. Kerry), 15th September; Dursey Island (Co. Cork), 23rd September. **Macaronesian Shearwater** *Puffinus baroli* Kerry Head (Co. Kerry), 19th August; Loop Head (Co. Clare), 31st August; Brandon Point, 15th September. **Wilson's Storm-petrel** *Oceanites oceanicus* Off Scilly, 11th and 15th August; Bridges of Ross, 23rd August; Mizen Head, 15th September; Kilcummin (Co. Mayo), two, 18th September. **Swinhoe's Storm-petrel** *Oceanodroma monorhis* Fair Isle, long-stayer retrapped intermittently to 3rd September. **Red-billed Tropicbird** *Phaethon aethereus* Pendeen (Cornwall), 18th August.

Cattle Egret *Bubulcus ibis* Recorded in Cheshire & Wirral, Lincolnshire, Kent, Norfolk, Staffordshire, Suffolk and Co. Wexford. Purple



Graham Catley

411. Juvenile Blue-winged Teals *Anas discors*, Boutham Mere, Lincolnshire, September 2013.

Heron *Ardea purpurea* Tresco, 18th August, St Mary's (both Scilly), 28th September to 6th October. Black Stork *Ciconia nigra* Cottington Lakes (Kent), 9th August; Rutland Water (Leicestershire & Rutland), 22nd August; Portinscale (Cumbria), 23rd September. Glossy Ibis *Plegadis falcinellus* Widespread influx from 22nd September including flocks of 15 at Cotswold Water Park (Wiltshire), 13 at Foulshaw Moss (Cumbria), 12 at Leighton Moss (Lancashire & N Merseyside), and 11 and nine in Devon.



Martin Elliott

Pied-billed Grebe *Podilymbus podiceps* Achill Island, 27th August to 18th September.

Black Kite *Milvus migrans* South Uist (Outer Hebrides), 11th September; Christchurch Harbour (Dorset), 27th September. Pallid Harrier *Circus macrourus* Sandwood Bay (Highland), 25th August. Red-footed Falcon *Falco vespertinus* Saltfleetby

412. Juvenile Semipalmated Sandpiper *Calidris pusilla*, Penzance, Cornwall, September 2013.

(Lincolnshire), 18th August; Felixstowe (Suffolk), 27th August.

Black-winged Stilt *Himantopus himantopus* Hayle Estuary (Cornwall), 27th September to 6th October. Upland Sandpiper *Bartramia longicauda* Fair Isle, 25th September. Hudsonian Whimbrel



Steve Young/Birdwatch

413. Juvenile Great Snipe *Gallinago media*, Kilnsea, Yorkshire, September 2013.

Roger Riddington



414. First-winter Brown Shrike *Lanius cristatus*, Wester Quarff, Shetland, September 2013.

Numenius hudsonicus Yell (Shetland), 30th September to 2nd October. Stilt Sandpiper *Calidris himantopus* Neumann's Flash, 29th August to 2nd September, then Sandbach Flashes (both Cheshire & Wirral), 2nd–7th September. Baird's Sandpiper *Calidris bairdii* Wester Sands (Orkney), 31st August; Levington Creek (Suffolk), 2nd September; Tiree (Argyll), 5th September; South Uist (Outer Hebrides), two, 7th–14th September; Snettisham (Norfolk), 8th September. In addition, at least 15 in Ireland from 25th August. White-rumped Sandpiper *Calidris fuscicollis* Thirteen seen during the period, with records from Cornwall, Co. Donegal

(three), Co. Dublin, Co. Kerry, Norfolk, Northumberland (two), Scilly, Shetland, Suffolk and Co. Wexford. Semipalmated Sandpiper *Calidris pusilla* Nine in Britain, mainly arriving in late August/early September, with records from Cheshire & Wirral, Cornwall, Dorset, Hampshire, Kent, Outer Hebrides (up to three) and Pembrokeshire. In addition, 16 in Ireland from 21st August. Wilson's Phalarope *Phalaropus tricolor* Skye (Highland), 16th–21st August; Belfast Lough (Co. Down), 28th–29th August; Lough Beg (Co. Londonderry), 8th September; Cley (Norfolk), 16th–19th September. Spotted Sandpiper *Actitis macularius* Tory Island (Co. Donegal), 5th–6th October. Greater Yellowlegs *Tringa melanoleuca* Coldharbour Lagoon (Kent), 10th September. Lesser Yellowlegs *Tringa flavipes* Long-stayer in Carmarthenshire plus c. 12 new arrivals: in Cornwall (up to three), Devon, Essex, Upper Forth, Co. Galway, Kent, Pembrokeshire, Shetland and Co. Wexford (two). Long-billed Dowitcher *Limnodromus scolopaceus* Pennington Marshes/Keyhaven Marshes (Hampshire), long-stayer intermittently to 6th October; Walmsley Sanctuary (Cornwall), 25th August.

Great Snipe *Gallinago media* Kilnsea (Yorkshire), 14th–16th September.

Ian Cowgill



415. Sykes's Warbler *Iduna rama*, Fair Isle, September 2013.

Bridled Tern *Onychoprion anaethetus* Farne Islands, long-stayer again 15th–16th and 19th August. Gull-billed Tern *Gelochelidon nilotica* Lady's Island Lake (Co. Wexford), long-stayer to 11th August; Telscombe Cliffs (Sussex), 3rd October. Caspian Tern *Hydroprogne caspia* Tacumshin (Co. Wexford), 23rd August. Elegant Tern *Sterna elegans*

Beale (Co. Kerry), 13th–24th September, presumed same Carrigaholt (Co. Clare), 20th September. **Forster's Tern** *Sterna forsteri* Rogerstown (Co. Dublin), 29th September. **Bonaparte's Gull** *Chroicocephalus philadelphia* Long-stayers in Kent to 15th August and Lancashire & N Merseyside to 20th September; Co. Durham & Northumberland, presumed returning bird from 2012; new arrivals in Co. Antrim, Devon and Scilly. **Laughing Gull** *Larus atricilla* Sanday (Orkney), 19th September to 4th October.

Snowy Owl *Bubo scandiacus* Arranmore (Co. Donegal), long-stayer to 6th September; Ardara (Co. Donegal), 1st October at least. **Alpine Swift** *Apus melba* Old Head of Kinsale (Co. Cork), 26th September. **European Bee-eater** *Merops apiaster* Fleetwood Marsh (Lancashire & N Merseyside), 14th August. **European Roller** *Coracias garrulus* Horsey (Norfolk), long-stayer to 13th August; Barra (Outer Hebrides), 29th–30th September. **Wryneck** *Jynx torquilla* widespread influx of about 170 in Britain during last week of August, including 27 in the Spurn area (Yorkshire), and 12 on Blakeney Point (Norfolk) on 25th August. A further 25 reached Ireland during the period.

Eastern Kingbird *Tyrannus tyrannus* Inishbofin (Co. Galway), 24th September. **Red-eyed Vireo** *Vireo olivaceus* Inch (Co. Cork), 26th September; Dunquin (Co. Kerry), 1st–2nd October; Fair Isle, 6th October.

Brown Shrike *Lanius cristatus* Hook-with-Warsash (Hampshire), 20th September; North Ronaldsay, 24th–29th September; Wester Quarff (Shetland), 27th–30th September; Balcomie (Fife), 28th September; Collieston (North-east Scotland), 28th–29th September. **Isabelline Shrike** *Lanius isabellinus* Pendeen Watch (Cornwall), 4th–6th October. **Lesser Grey Shrike** *Lanius minor* Leiston (Suffolk), 15th–23rd September; Capel Fleet (Kent), 5th–6th October.

Penduline Tit *Remiz pendulinus* Dungeness (Kent), 30th September.

Red-rumped Swallow *Cecropis daurica* Sennen (Cornwall), 4th Sep-

tember; Poole (Dorset), 14th September; Wakering Stairs (Essex), 22nd September; Landguard (Suffolk), 26th September.

Greenish Warbler *Phylloscopus trochiloides* About 40 arrived from 23rd August to 1st September, with 14 on 25th alone. County totals included Shetland (12), North-east Scotland (eight), Yorkshire (five), Norfolk and Northumberland (three each), Co. Durham, Fair Isle and Suffolk (two each), Co. Cork, Highland, Orkney and Co. Wexford. **Arctic Warbler** *Phylloscopus borealis* About 16 were reported between 26th August to 6th October, with records from Co. Cork, Co. Durham, Fair Isle (three), Orkney (two), Scilly and Shetland (up to eight). **Radde's Warbler** *Phylloscopus schwarzi* Isle of May, 3rd October; Berry Head (Devon), 5th October. **Western Bonelli's Warbler** *Phylloscopus bonelli* Happisburgh (Norfolk), 25th August; St Margaret's at Cliffe (Kent), 26th August; Blakeney Point (Norfolk), 6th September; Ramsey Island (Pembrokeshire), 8th–10th September; Virkie (Shetland), 8th–19th September; Burray (Orkney), 23rd September to 5th October; Garinish (Co. Cork), 27th September to 4th October; Whalsay, 29th September to 4th October; St Levan (Cornwall), 6th October. **Iberian Chiffchaff** *Phylloscopus ibericus* Portlooe (Cornwall), 25th August. **Subalpine Warbler** *Sylvia cantillans* Easington (Yorkshire), 26th August; Yell, 24th September to 6th October; St Agnes (Scilly), 28th September to 6th October; Druridge Pools (Northumberland), 4th–5th October. **Sardinian Warbler** *Sylvia melanocephala* Mire Loch (Borders), 25th September to 6th October.



George Petrie

416. Pechora Pipit *Anthus gustavi*, Levenwick, Shetland, September 2013.

Pallas's Grasshopper Warbler *Locustella certhiola* Out Skerries (Shetland), 23rd September. Lanceolated Warbler *Locustella lanceolata* Fair Isle, 25th and 28th September and 6th October. River Warbler *Locustella fluviatilis* North Ronaldsay, 23rd September. Thick-billed Warbler *Iduna aedon* Geosetter (Shetland), 4th–5th October. Eastern Olivaceous Warbler *Iduna pallida* Hoswick (Shetland), 5th–7th October. Booted Warbler *Iduna caligata* Fifteen were reported, 12 between 22nd and 31st August. Records included Fair Isle, Kent, Norfolk (three), North-east Scotland, Northumberland, Pembrokeshire (two), Shetland (three), Sussex (two) and Co. Wexford. Sykes's Warbler *Iduna rama* Fair Isle, 26th–30th September; Garinish, 2nd October. Aquatic Warbler *Acrocephalus paludicola* South Milton Ley (Devon), 5th September; Nanjizal (Cornwall), 22nd September; Brow Head (Co. Cork), 28th September; St Agnes, 28th September. Blyth's Reed Warbler *Acrocephalus dumetorum* Following one on Fair Isle, 7th September, a further 12 were recorded, with five during 20th–23rd September, and seven 26th–29th September. Records came from Co. Durham, Northumberland, Orkney, Outer Hebrides, Pembrokeshire and Shetland (seven). Great Reed Warbler *Acrocephalus arundinaceus* Salisbury Plain (Wiltshire), 13th September.

Cedar Waxwing *Bombycilla cedrorum* Tirez, 21st–29th September.

Grey-cheeked Thrush *Catharus minimus* Dursey Island, 3rd October. White's Thrush *Zoothera dauma* Fair Isle, 25th September; St Agnes, 2nd October. Thrush Nightingale *Luscinia luscinia* Graemeshall Loch (Orkney), 26th August; Fair Isle, 26th–30th August; Levenwick (Shetland), 28th–29th September. Red-flanked Bluetail *Tarsiger cyanurus* Out Skerries, 29th September. Siberian Stonechat *Saxicola maurus* Bardsey, 24th–29th September; Trimley Marshes (Suffolk), 1st–6th October; Cliffe (Kent), 2nd October; Gibraltar

Point (Lincolnshire), 5th–6th October. Isabelline Wheatear *Oenanthe isabellina* Martin's Haven (Pembrokeshire), 30th September to 6th October.

Citrine Wagtail *Motacilla citreola* At least 27 from 12th August, with 18 during 22nd–31st August. County totals included Cornwall (three), Denbighshire, Dorset, Fair Isle (up to three), Co. Kerry, Norfolk (three), Northumberland (two), Orkney, Outer Hebrides, Scilly (up to four), Shetland (four) and Co. Wexford (three). Tawny Pipit *Anthus campestris* Bembridge (Isle of Wight), 3rd September; East Soar (Devon), 29th September. Olive-backed Pipit *Anthus hodgsoni* At least 14 from 23rd September, with six during 25th–26th September and five from 30th September to 1st October. Records from Co. Durham, Fair Isle, Fife, Orkney (two), Shetland (seven) and Yorkshire (two). Pechora Pipit *Anthus gustavi* Levenwick, 28th September to 2nd October; Islesburgh (Shetland), 4th October. Red-throated Pipit *Anthus cervinus* Out Skerries, 6th October. Buff-bellied Pipit *Anthus rubescens* Foula, 5th October; Inishmore (Co. Galway), 5th–6th October; Yell, 6th October.

Arctic Redpoll *Carduelis hornemanni* In Shetland and Fair Isle, c. 12, widely scattered, during 21st–30th September. Two-barred Crossbill *Loxia leucoptera* Lynford Arboretum (Norfolk), up to four to 6th October; Finstown (Orkney), six, 9th August; Broomhead Resr (Yorkshire), records from 12th August to 29th September, with max. count of nine; North Ronaldsay, 19th August; Weybourne (Norfolk), six, 22nd August; Glenborrodale (Highland), 6th September; Grindon Lough (Northumberland), 14th September; Unst, 22nd–24th September; Challock (Kent), 29th September. Parrot Crossbill *Loxia pytyopsittacus* Mains of Usan (Angus & Dundee), three, 25th September. Rustic Bunting *Emberiza rustica* Whitburn, 27th September; Donna Nook (Lincolnshire), 3rd October. Little Bunting *Emberiza pusilla* At least 23 from 18th September, including eight during 28th–30th September. Yellow-breasted Bunting *Emberiza aureola* Farne Islands, 5th–6th September. Black-headed Bunting *Emberiza melanocephala* Girdle Ness (North-east Scotland), 25th August.

Baltimore Oriole *Icterus galbula* Unst, 19th and 23rd September.

Ovenbird *Seiurus aurocapilla* Papa Westray (Orkney), 6th October. Black-poll Warbler *Setophaga striata* Inishbofin, 25th September. Wilson's Warbler *Cardellina pusilla* Dursey Island, 18th–21st September.

Ian Cowgill



417. First-winter Baltimore Oriole *Icterus galbula*, Baltasound, Unst, Shetland, September 2013.

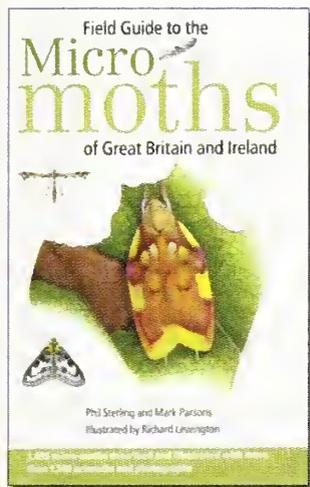


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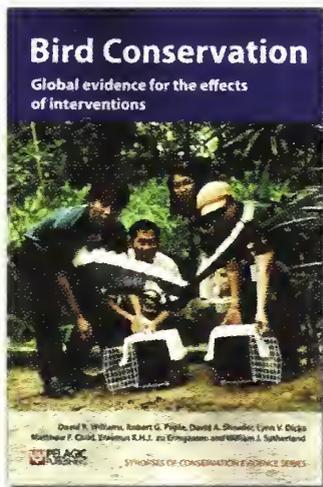
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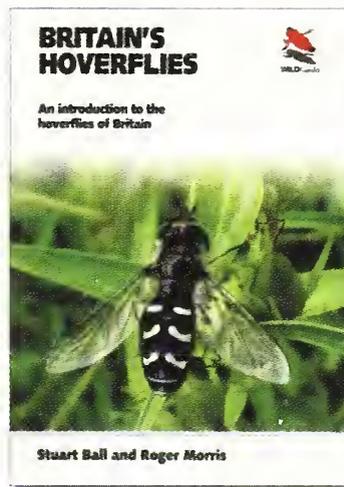
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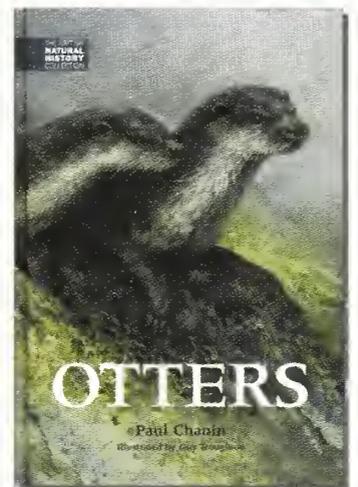
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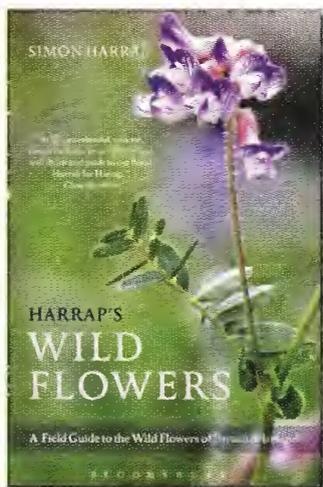
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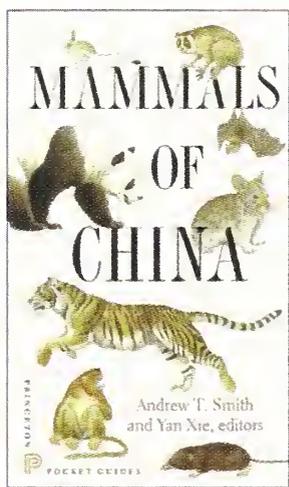
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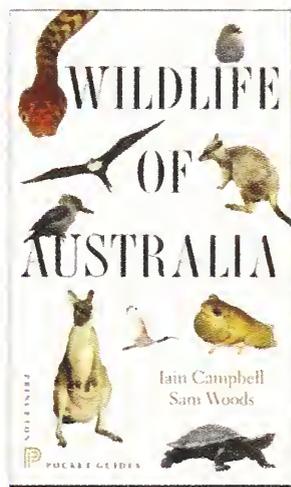
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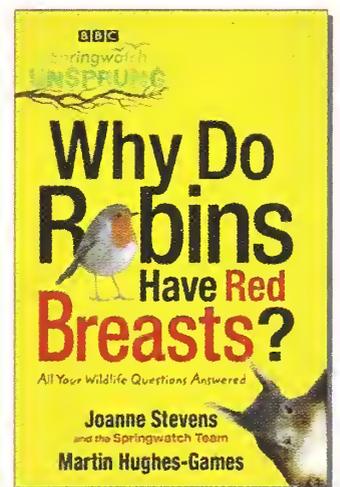
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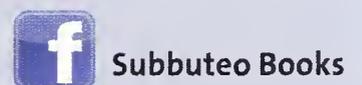
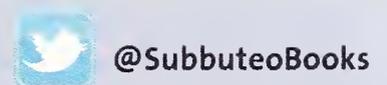
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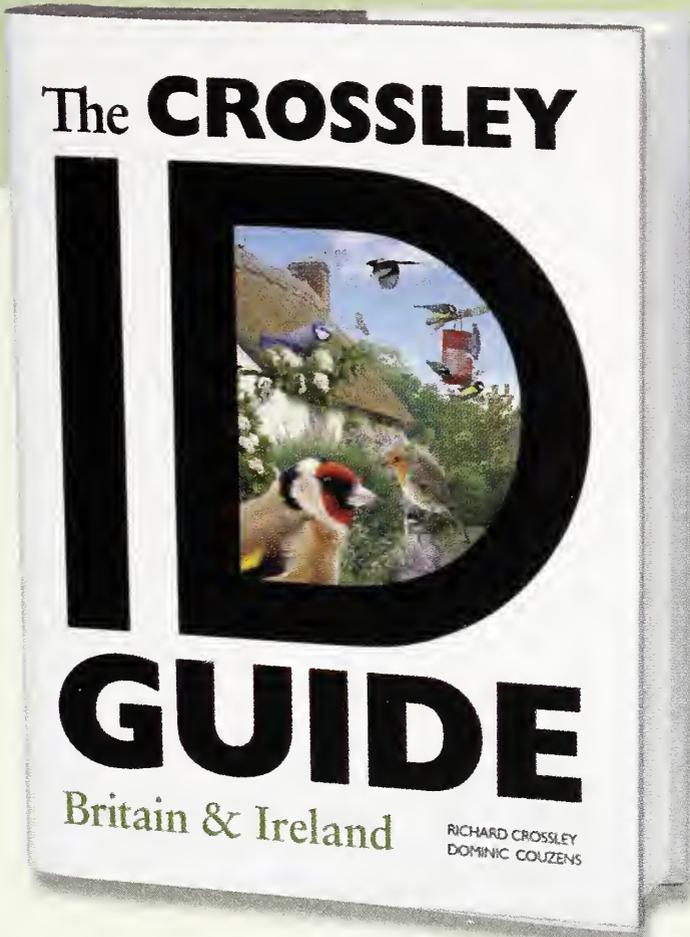
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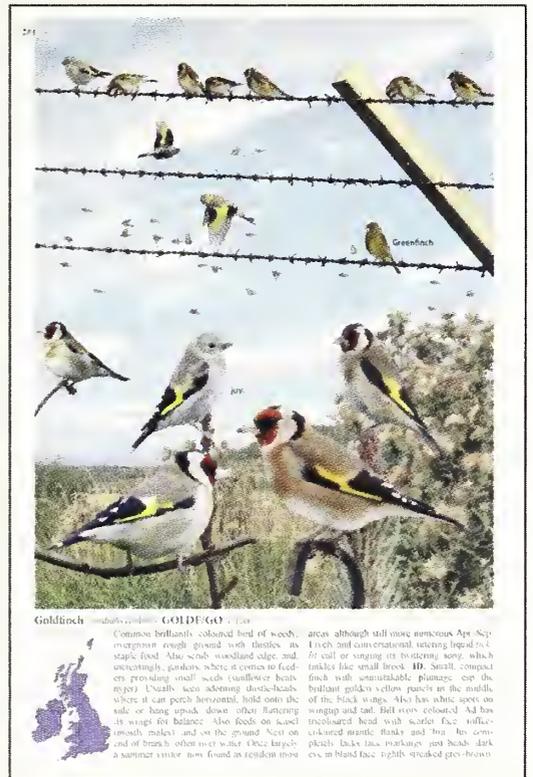
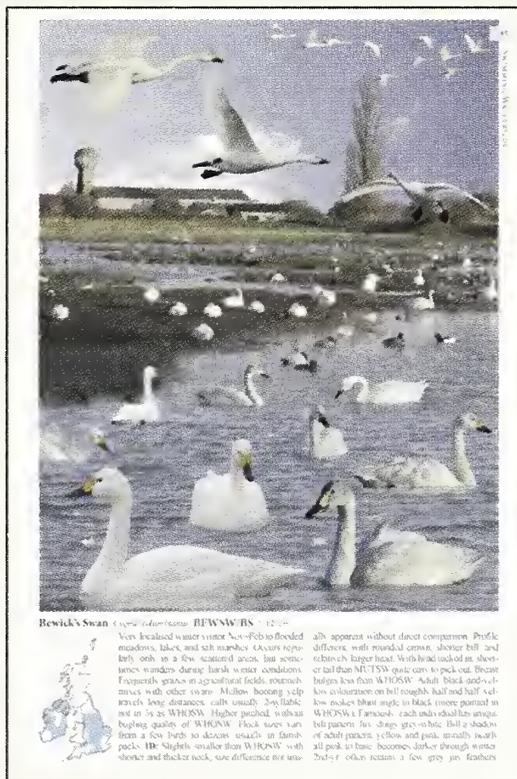
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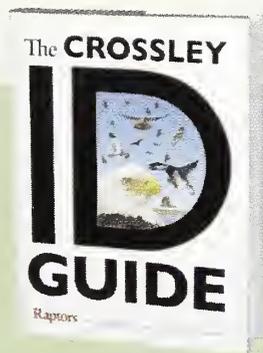
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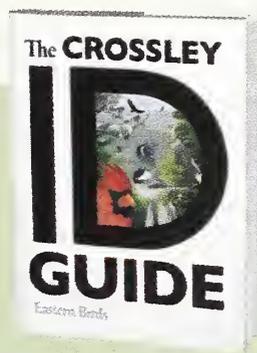


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