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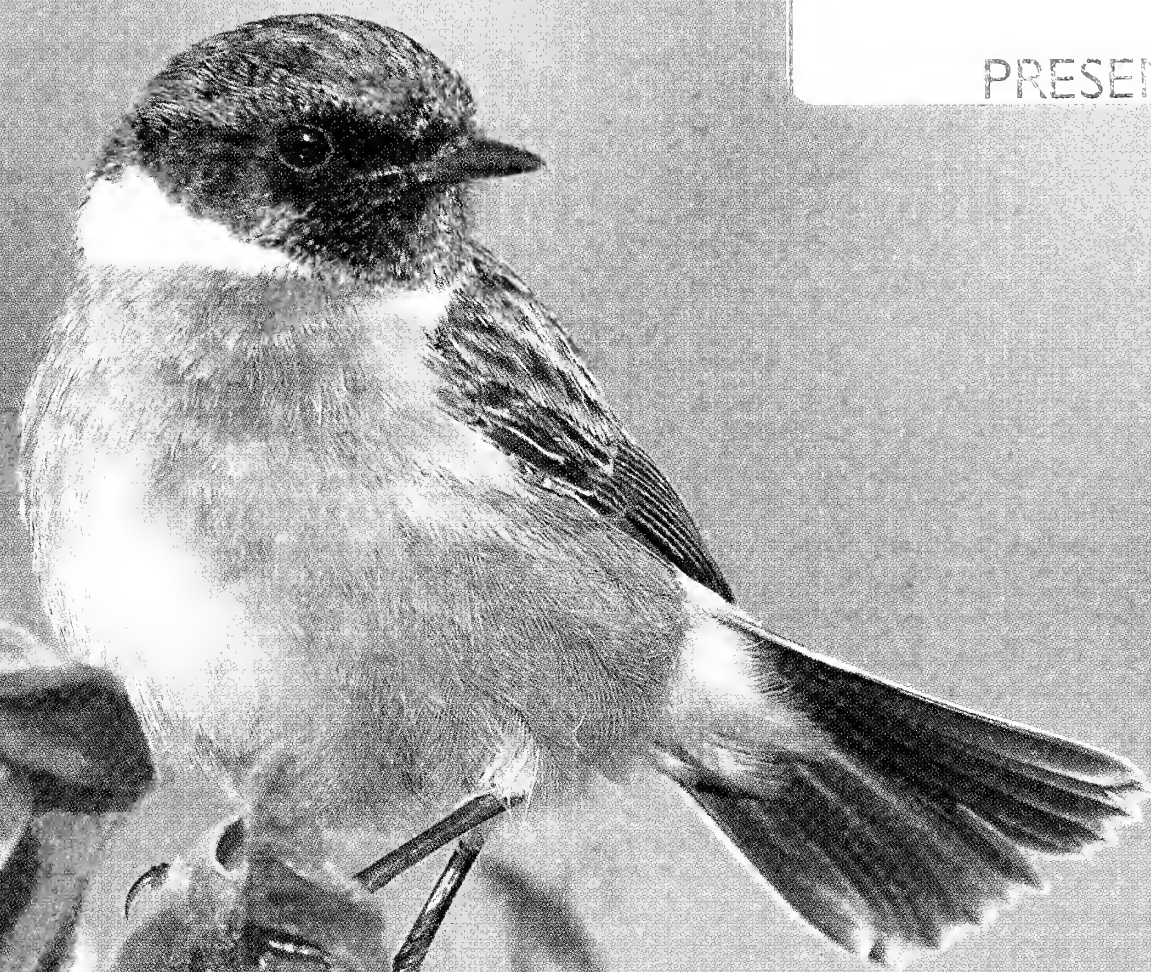
British Birds

March 2013 • Vol 106 • 127-180

NATURAL HISTORY
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11 MAR 2013

PRESENTED



A species is whatever I say it is
Plumage variability in Marsh Harriers
Best Bird Book 2012



British Birds

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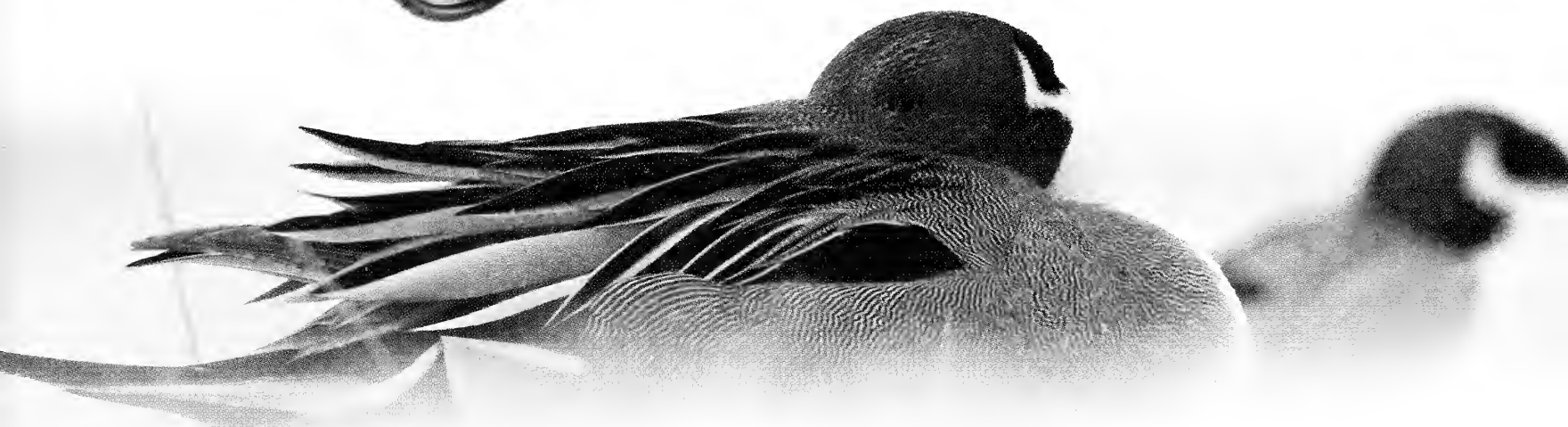
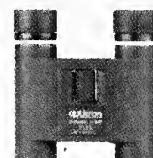
Front-cover photograph: Male European Stonechat *Saxicola rubicola*, Malta, January 2013. Natalino Fenech



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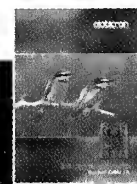
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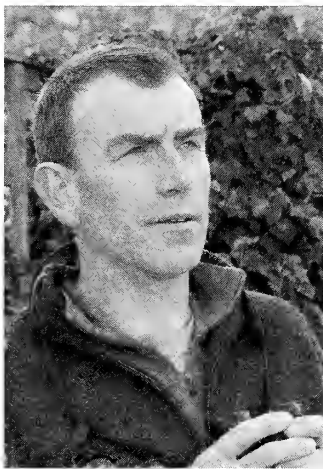
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Birders who frequent wetland habitats in the south and east of Britain might in the past have wondered just why ‘textbook’ adult male Marsh Harriers are not encountered more commonly – compared with other, essentially female- or immature-like, plumages. In other harriers, ‘grey males’ seem much easier to find. The paper in this issue by three ornithologists working on a population of Marsh Harriers in central France explains the reason why. By photographing individually marked birds, the authors determined that classic grey males are actually rather rare among the breeding adults at their study site, and that many males sport an essentially brown plumage into old age. The benefits of digital photography in terms of rarities and record assessment are very familiar to birders, but this is a striking example of photography, in combination with a relatively

simple marking programme, contributing to a broader understanding of a species’ ecology.

Another member of the harrier family, the Hen Harrier, features regularly in *BB* for quite different reasons. In the last decade, News and comment has regularly highlighted the parlous state of the species in northern England where, as a result of illegal persecution, the population hangs on by the most slender of threads – and for how much longer? The situation in southern Scotland is much the same. In this issue, there is a letter from RSPB Conservation Director Martin Harper (responding to the lead News item in the January issue of *BB*), outlining the Society’s position on the Hen Harrier and emphasising that they are ‘not giving up’ on this elegant raptor. It’s depressing and shocking that, in the twenty-first century, the vested interests of the grouse-moor fraternity are allowed to get away with Victorian practices. The failure of successive Governments to get a grip of this situation is equally shameful and inexcusable. The key issue is surely the will to deal with the problem at the highest level, nothing more complicated than that.

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.

The value of recording

You're out birding on a fine morning in late March and find a pair of Shovelers *Anas clypeata* at a local site, a shallow, eutrophic pond with fresh emergent vegetation along the banks. You've not seen a pair there before and it could be a potential breeding site, but Shovelers are not unusual in the area and it's early in the year. Later that day, in a patch of damp woodland, you hear a Willow Tit *Poecile montana* singing. You know that Willow Tits are getting scarcer, and occur at only a few sites locally. Worth putting in your notebook.

You go back to the same sites a few weeks later. Now there is a single male Shoveler, swimming furtively up and down along the edge of the reeds, but no sign of the female. In the woodland, you hear that distinctive buzzing call and this time find two Willow Tits.

If you were to go back a third time, perhaps you would see a brood of ducklings and realise that the male Shoveler had been guarding a female on the nest on your earlier visit. And perhaps, in the woodland, you would see recently fledged Willow Tits being fed by the adults.

These records are bread and butter to county bird reports as they provide evidence for local breeding by two scarce species. Both are now sufficiently rare for consideration by the Rare Breeding Birds Panel (RBBP), which does not just report on obviously rare breeders like Montagu's Harrier *Circus pygargus* and Wryneck *Jynx torquilla*.

Ever since my late teens, when I first saw my records appearing in county bird reports, I have appreciated the value of recording birds formally, as many others do. Now, as RBBP Secretary, I also see things from the other side: the huge value that personal records can have when pooled, first at county level and ultimately at a national level.

I wonder whether you have considered how you might add even more value to your records? With breeding records in particular, that extra effort to follow up an original sighting may mean that you can confirm breeding yourself – that third visit to look

for a brood of Shovelers in the example above. Alternatively, simply providing more detail may mean that, when coupled with the observations of others, breeding could still be confirmed. These records help to



establish the minimum number of breeding pairs in Britain & Ireland, and are critical for conservation. Although many rare species receive special protection under Schedule 1 of the Wildlife & Countryside Act (1981), requiring a licence for study or disturbance, so much useful data can be collected from a distance using a telescope, without disturbing the nesting birds – though their security must remain the top priority.

Most bird records contain date, species, site name and count. This is the bare minimum. A breeding code or description makes it clear what level of breeding behaviour you observed (e.g. singing male, nest-building, brood of young, parent carrying food). A six-figure grid reference pinpoints the location, avoiding ambiguity and perhaps helping the conservation of that site if threatened by some future development. Perhaps, unbeknown to you, there is another pond close by with a pair of Shovelers, but if both pairs are simply reported as being at 'Duckton Pits', they may be erroneously lumped as one pair rather than two by a recorder. Recording extreme dates when the birds were present and what activity was seen on which dates is also very helpful.

It is so important to be aware of what is a bit unusual in the area, or what the rarer breeding birds in Britain are, so you can make that extra effort. Spring is here – get out there and look out for your contributions to the next county and RBBP reports!

Mark Holling

News and comment

Compiled by Adrian Pitches

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

Seabirds wrecked by chewing gum additive

Hundreds of seabirds were washed up on the coasts of southwest England in late January coated in a mysterious white, waxy substance. Most of the casualties were Common Guillemots *Uria aalge* and any live birds recovered from the tideline were taken to the RSPCA's West Hatch centre in Somerset for treatment. At least 300 birds were washed up – but up to ten times that number could have perished at sea.

Subsequent analysis by chemists at Plymouth University identified the sticky substance coating the birds' feathers as polyisobutene or PIB. This was confirmed separately by the Environment Agency.

PIB is believed to have been responsible for over 4,000 seabird deaths in at least four separate incidents around European coasts in recent years (1994 off Merseyside, 1998 and 2010 off the Dutch coast and the latest incident), yet it is currently given one of the lowest hazard classifications under MARPOL (the International Convention for the Prevention of Pollution from Ships). It is classified as category Z: substances presenting a minor hazard to either marine resources or human health and therefore justifying less stringent restrictions on the quality and quantity of discharge into the marine environment.

The RSPB has queried the validity of this classification and believes that the current classification does not take into consideration the impact on marine wildlife when PIB

mixes with sea water. The effects of PIB are tested only under laboratory conditions, which do not take into account harmful changes to seabirds and the marine environment when mixed with sea water. As a result, PIB can still be legally dumped into the sea when vessels wash out their tanks.

Alec Taylor, the RSPB's Marine Policy Officer, said: 'Given that this substance is used for making chewing gum, adhesive tape and cosmetics, millions of people safely come into contact with it every day. However, it's when it mixes with sea water that this chemical can become lethal for seabirds, covering them in a sticky goo, and preventing them from flying, feeding and ultimately surviving.'

The RSPB has called on the International Maritime Organisation to review the hazard classification of PIB and implement regulations that prevent any further tragic and wholly avoidable incidents like the one just witnessed.



Steve Trehella/FLPA

85. Boxes of Common Guillemots *Uria aalge* being loaded up by RSPCA staff and volunteers at Chesil Beach, Dorset, before being transported to a rescue centre; January 2013.

European budget deal 'a disaster for wildlife'

A regressive deal for wildlife: that's how the RSPB has described the European Budget deal, which has seen potentially huge cuts to payments for wildlife-friendly farming.

Martin Harper, the RSPB's Conservation Director, said: 'Wildlife across Europe will pay a heavy price for this terribly regressive deal, and

we're bound to see further declines in some species whose numbers have crashed. Since the 1980s Europe has lost 300 million farmland birds, how many more will we lose over the next seven years?'

The deal struck in Brussels cuts the amount of money available for conservation by over €11 billion. Worse still, it allows all member states to

raid what little is left in conservation coffers and siphon it off into untargeted subsidies.

Martin Harper added: ‘This is a bad deal for Europe’s wildlife, providing flexibility for a race to the bottom. But there is hope for the UK, a country which has led the way in investing in wildlife-friendly farming. The Environment Secretary, Owen Paterson, and his counterparts in the devolved administrations, now need to take the necessary decisions to make good on their environmental promises. This is nothing less than those 30,000 RSPB supporters who lobbied David Cameron to “vote for nature” at the European Budget meeting would expect. This means using the flexibility to shift as much funding as possible

from direct payments into Rural Development, the bit of the CAP that can really drive more sustainable farming.’

Before the revised negotiation, the UK received about £500m for wildlife-friendly farming payments, but a previous study showed that at best this was only half of the sum needed to fund environmental priorities. The need for concerted action to restore farmland wildlife in the UK remains as great as ever. Some typical farmland species, such as the Skylark *Alauda arvensis*, have shown massive declines; since 1978, the UK has lost more than 350 Skylarks a day or one every four minutes.

£700K for Scilly rat eradication programme

The Heritage Lottery Fund has awarded a £700,000 grant for seabird conservation in the Isles of Scilly.

The islands are home to breeding populations of 14 species, totalling approximately 20,000 birds, but they’ve been in decline for 30 years. Scilly is particularly important for Manx Shearwaters *Puffinus puffinus* and England’s only breeding European Storm-petrels *Hydrobates pelagicus* (to find out more, read the paper in the *BB* series on Important Bird Areas in the August 2008 issue – *Brit. Birds* 101: 418–438).

One of the major threats to the seabirds is predation of eggs and chicks by rats. Work over the last 15 years on the uninhabited islands has left them rat-free but further work is required to maintain them as seabird-friendly. With the support of the local community, conservationists now have the same ambition for the inhabited islands of St Agnes and Gugh.

The project will be managed by a coalition of groups including RSPB, Isles of Scilly Wildlife Trust, Natural England and the Duchy of Cornwall

with support from the Isles of Scilly Bird Group. Paul St Pierre, RSPB Conservation Officer, said: ‘The Isles of Scilly has long traded on the quality of its natural environment and seabirds are a major element of that. We want this project to help these islands make more of their seabird heritage and to strengthen still further their image as a seabird-friendly destination through the use of various media, including web technology, for an ever wider audience.’

David Mawer, from the Isles of Scilly Wildlife Trust, said: ‘This is a very exciting project and will bring many benefits to wildlife, locals and visitors, and crucially it will safeguard Annet, Scilly’s most important seabird reserve. The successful removal of rats from the uninhabited island of St Helen’s resulted in a dramatic increase in the number of Manx Shearwaters breeding there. The eerie cries and shadowy silhouettes of seabirds at dusk could soon be another wildlife spectacle enjoyed by locals and visitors on St Agnes.’

Andy Brown



86. Annet – the jewel in the crown of the seabird islands of the Isles of Scilly; May 2006.

Wildlife Crime Unit wins a year's reprieve

The Home Office and Defra have agreed to fund the National Wildlife Crime Unit (NWCU) for another year, beginning on 1st April 2013. Each department has committed £136,000 for the next financial year, securing the future of the unit. No decisions have been taken for funding the unit beyond 31st March 2014, however.

RSPB Conservation Director Martin Harper said: 'The continued support for the unit is great news. The illegal killing of birds of prey is threatening the security of some species, with the Hen Harrier *Circus cyaneus* facing imminent extinction in England as a nesting species [see also pp. 173–174]. The unit is a vital part of the UK's fight against wildlife crime, and we're relieved these crime fighters have been given a further year to provide the protection our wildlife deserves.'

The NWCU is jointly funded by the Home Office and Defra, with other contributions coming from the Association of Chief Police Officers (ACPO), ACPO Scotland, the Scottish Government and the Northern Ireland Environment Agency. The Unit leads the fight against serious

and organised wildlife crime such as rhino horn theft, ivory smuggling and bird of prey persecution across the UK. The strategic unit collates intelligence and provides specialist skills and expertise to enforcement agencies including the Police and UK Border Agency.

Nearly 140 MPs signed an Early Day Motion calling on Defra and the Home Office to maintain its current level of funding with long-term certainty beyond March 2013. And the work of the NWCU was also warmly praised by the House of Commons Environmental Audit Committee in its recent inquiry into wildlife crime and is widely recognised as punching above its weight. The Committee called on the Government to maintain the current level of funding, with longer-term certainty, to allow the unit to focus on its core duties.

Martin Harper added: 'For a relatively small amount, the UK has a unit with a worldwide reputation for delivering an effective response to the threats that criminals pose to our wildlife. What we now need is for its long-term future to be secured so that it can make strategic long-term plans.'

Brothers recklessly disturbed Roseate Tern colony

Two brothers who disturbed the UK's only breeding colony of Roseate Terns *Sterna dougallii* have been given community orders by magistrates in Northumberland. They were also electronically tagged.

Derwick and Leslie Ramsay from Amble were found guilty at Bedlington Magistrates Court of the reckless disturbance of Roseate Terns on Coquet Island off the Northumberland coast in July 2012. Derwick Ramsay, 43, together with four teenage relatives, landed boats on Coquet Island on 20th July allegedly to collect whelks. They were warned about the presence of breeding Roseate Terns by RSPB staff but this was ignored. On 22nd July, Ramsay returned with his brother Leslie, 41, who was recorded on CCTV disturbing the birds. On returning to Amble marina, the brothers were arrested and their boats

seized by Northumbria Police.

Coquet Island holds the only colony of breeding Roseate Terns in the UK. In 2012, 71 pairs of the Schedule 1 species nested on the island. Alan Firth, RSPB Investigations officer, said: 'Any disturbance to the colony could have a disastrous effect on the population. This reckless disturbance – that took place despite warnings – threatened to undermine all of the conservation efforts to protect this species.'

Derwick Ramsay was found guilty of recklessly disturbing nesting birds, whereas Leslie Ramsay pleaded guilty at an earlier hearing. The latter's community order was for one month and the former's was for three months. Both men were ordered to pay the RSPB £75 costs, and Derwick Ramsey was fined £200.

African vultures face increasing risk of poisoning

Following the calamitous decline of *Gyps* vultures in the Indian subcontinent, poisoned by the veterinary medicine diclofenac in cattle carcasses (see *Brit. Birds* 106: 58–59), new research suggests that African vultures may face a similar fate. The first study of the range and habits of the White-backed Vulture *G. africanus* (a widespread but declining species in Africa and now listed as Endangered) across southern Africa shows that the birds often

shun national parks, preferring to forage farther afield on private farmland, where they are far more likely to find dead cattle that have been administered veterinary drugs, or even poisoned carcasses intended to control other carnivores such as jackals *Canis* spp.

The research, published in the journal PLoS ONE, describes the use of satellite transmitters to track the movements of immature vultures and

showed that the birds will travel considerable distances to find food, crossing multiple state boundaries, with each bird on average ranging across an area twice the size of England. Co-author Stephen Willis, from Durham University, said: 'We found that young vultures travel much further than we ever imagined to find food, sometimes moving more than 220 km a day. Individuals moved through up to five countries over a period of 200 days, emphasising the need for collaboration to protect this species.'

'In South Africa, the vultures avoided the national parks that have been established to conserve wildlife. As a result, these parks are unlikely

to protect such a wide-ranging species against threats in the wider landscape. The vultures may actively avoid parks with numerous large mammal predators due to competition for food, and find easier pickings on cattle carcasses in farmland outside these protected areas.

'We found evidence that individual birds were attracted to "vulture restaurants", where carrion is regularly put out as an extra source of food for vultures and where tourists can see the birds up close. As a result, these individuals reduced their ranging behaviour. Such "restaurants" could be used in future to attract vultures to areas away from sites where they are at high risk of poisoning.'

BB Grant to Nature Iraq

For obvious reasons, we know little about the current status of birds and other animals in Iraq, and urgent measures are needed to protect important remaining sites. A BB grant of £1,000 has been donated to Nature Iraq, as a contribution towards a potentially important conservation publication. Since 2005, Nature Iraq has been undertaking summer and winter surveys throughout the country in order to identify the most important

areas for biodiversity. Over 220 sites have now been surveyed, some over 12 seasons, and these sites are now being assessed against international criteria, as in IBAs and IPAs (Important Bird and Plant Areas respectively). The aim is to present the findings in a publication later this year. The projected cost of this publication is provisionally set at £20,000, of which OSME and RSPB have also pledged £2,500.

Mudhafar Salim/Nature Iraq



87. One globally threatened species that will feature in Iraq's KBA inventory is the Marbled Duck *Marmaronetta angustirostris*, seen here in the Mesopotamian marshes in February 2010; Iraq supports the largest world population of this species.

The Great Egg and Spoonie Race

The Oriental Bird Club is inviting participants for an energetic fundraiser to support the Spoon-billed Sandpiper *Calidris pygmeus* conservation breeding programme: a sponsored run along the north Norfolk coast on Sunday 5th May 2013.

Although the distance is 40 km in total, there will be something for everyone, whether you are a couch potato craving fitness, or a seasoned runner looking to put your talent to a great cause. The route is broken down into different sections of

between 1 km and 10 km from Titchwell to Salt-house and you can run as much or as little as you like. And for runners who fancy celebrating their achievement with a well-earned drink or two, the finish line is outside the Dun Cow at Salhouse.

If you wish to take part – or just donate to the cause – contact Mike Edgecombe m.edgecombe@virgin.net or John Gregory john.janel00@yahoo.com

African Bird Club in London

The Annual Meeting of the African Bird Club takes place on Saturday 6th April 2013. It will be run jointly with the British Ornithologists' Club and the Natural History Museum, and will be held in the Flett Theatre, Natural History Museum, Cromwell Road, London SW7 5BD. It will feature a full programme of talks on research and conservation in Africa, including: Libya's Lesser Crested Terns *Sterna bengalensis* – a vulnerable and important population; Saving Ethiopia's most threatened endemic bird in a constantly changing environment; Birds and birdwatching in Rwanda; Birding in the Republic of Somaliland; and Speciation in African White-eyes. Doors open at 10.00 am. Full details at www.africanbirdclub.org

New opportunity to help threatened birds across Ireland

Do you have a thorough knowledge of Ireland's breeding birds, or know someone who does? The Secretary of the Irish Rare Breeding Birds Panel (IRBBP) will shortly be retiring and the IRBBP is looking for an experienced birdwatcher to gather, interpret and manage rare breeding bird records from across the island of Ireland. The Secretary will also promote the work of the IRBBP and publish an annual report in *Irish Birds*. More information is available at <http://www.britishbirds.co.uk/news-and-comment/irbbp>. The deadline for applications is 31st March 2013.

The Birds of the Moroccan Atlantic Sahara

A book on the birds of the Moroccan Atlantic Sahara with an annotated checklist is in active preparation. Ornithologists are requested to send their unpublished records to Patrick Bergier, pbergier@yahoo.fr

New County Recorders

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The power of the book

The Kuwait Environment Protection Society, the BirdLife International affiliate for Kuwait, has just published *Birds of Kuwait* in Arabic. This is the fourth Arabic field guide in this series promoted by BirdLife, previous ones being to the Middle

East, Iraq and Syria. Guides for other Arab countries are in the pipeline. For the story behind these – and other Arabic guides – visit our website www.britishbirds.co.uk where Richard Porter expands on 'the power of the book'.

In praise of... the Inked Naturalist

Tristan Reid is a Cumbrian birder and a committed conservationist. And that commitment is much more than skin-deep. On his first visit to Turkey, Tristan learnt of Government plans for hydroelectric dams on the country's major rivers, which would damage many of Turkey's wetlands beyond repair.

His way to highlight this conservation crisis was unusual, colourful and painful: over the past 18 months he has had 24 tattoos of iconic Turkish birds inked on both arms. These were his first tattoos and took 60 hours of work by his friendly tattoo artists in Carlisle, who donated £20/hour to Tristan's conservation cause. Tristan has asked

people to sponsor his tattoos and has raised more than £3,000 for the BirdLife partner in Turkey, Doga Dernegi.

Tristan's new campaign to highlight the damming of Turkey's rivers is a 4,000-km walk across the country, from the Aegean to the Armenian border. See Tristan's blog www.theinkednaturalist.co.uk and follow him on Twitter @inkednaturalist

Postscript: in January, judges in Turkey halted construction of the Ilisu dam on the Tigris. www.birdlife.org/community/2013/01/turkish-court-stops-dam-construction-and-defends-world-heritage

For extended versions of many of the stories featured here, and much more, visit our website www.britishbirds.co.uk

The Bernard Tucker Memorial Lecture

A species is whatever I say it is

Nigel Collar

'When I use a word,' Humpty Dumpty said, in a rather scornful tone, 'it means just what I choose it to mean, neither more nor less.'

'The question is,' said Alice, 'whether you can make words mean so many different things.'

'The question is,' said Humpty Dumpty, 'which is to be master – that's all.'

And here is another question: why were so many avian taxonomists – Berlepsch, Bonaparte, Buffon, Cuvier, Gyldenstolpe, Hachisuka, Kittlitz, Kuroda, Lacépède, Lafresnaye, Meyer de Schauensee, Ogilvie-Grant, Rothschild, Salvadori, Taczanowski, Temminck, Tschudi, Tschusi, Walden, Wied, Yamashina, Zedlitz – members or descendants of the nobility? Partly, perhaps, because aristocrats have more time on their hands than the rest of us, and can devote themselves more readily to such heady things as classifying the natural world. Partly, perhaps, because laying down the law relating to hierarchy, lineage and identity comes most naturally to people of high birth. Even so, the *arrivistes* have predictably similar vested interests: Vigors was a Conservative Member of Parliament, P. L. Sclater the brother of a Conservative peer, Bocage a government minister. And even if, by contrast, Linnaeus was ennobled *because* of his achievements in taxonomy rather than *vice versa*, he evidently sensed no hubris in declaring 'God creates, Linnaeus arranges' or in describing his best students as his 'apostles'.

Democracy, at any rate, came slowly to taxonomy. Its seeds were sown in the early 1840s, when a group of English naturalists, Darwin and Owen among them, sought to establish the principles of nomenclature, notably using a political metaphor to explain the new order to which they aspired:

The world of science is no longer a monarchy, obedient to the ordinances, however just, of an Aristotle or a

Linnaeus. She has now assumed the form of a republic, and although this revolution may have increased the vigour and zeal of her followers, yet it has destroyed much of her former order and regularity of government. The latter can only be restored by framing such laws as shall be based in reason and sanctioned by the approval of men of science. (Strickland *et al.* 1843)

The first of the laws to be enshrined in what came to be known as the 'Strickland Code' was, famously, the 'law of priority', whereby the scientific name first applied to a taxon (genus, species or subspecies) was fixed as the name forever to be borne by it. People who established such names became not merely authors but authorities; and their own names would live on forever in association with the names they bestowed.

In reality, of course, the nineteenth-century republic of science was still very far from being a democracy, as the phrase '*men of science*' so tellingly indicates. Although diagnostic descriptions of taxa were now requisite, comparative material was an essential component of the process of validation, so systematics and taxonomy inevitably remained the province of small numbers of museum-based experts, not all of them bearing inherited titles; and after Strickland this situation persisted for another 150 years. In the middle of this long period, and two years before the UK gave equal voting rights to women, Tate Regan (1926), rising to a challenge that has long vexed students of

natural history, showed the temerity and self-knowledge to define a species as:

a community or a number of related communities whose distinctive morphological characteristics are, in the opinion of a competent systematist, sufficiently definite to entitle it, or them, to a specific name.

This somewhat convoluted formulation, widely paraphrased as *a species is whatever a competent systematist says it is*, explicitly locates the authority for original descriptions in the museum scientist, and it may well be that this view – to which Bernard Tucker (Tucker 1949: 132) himself evidently subscribed – reflected as much an incapacity to imagine an alternative as it represented an act of defiant gate-keeping. It certainly reflected a tradition of practice and belief that was far from spent. While preparing the ground for a guide to the birds of the Philippines, Delacour & Mayr (1945) produced a taxonomic review of the country's avifauna which included peremptory assertions of the following type (here relating to the endemic broadbills *Eurylaimus* or *Sarcophanops*), backed up by not a shred of evidence or analysis:

Although differing clearly in size and color, the two Philippine forms *steerei* and *samarensis* are in our opinion subspecies of one species.

The world took their word for it (some still do), perhaps simply trusting in the view that they were, by any standard of the time, competent systematists. As the century moved on, however, and species descriptions, at least in ornithology, began to seep into the literature from a wider constituency, gate-keeping of sorts may have become a stronger motive behind the albeit invaluable reviews of new species (see reference list to table 1 in Collar 1999) produced by Ernst Mayr and staff at the American Museum of Natural History (AMNH) in the 50 years 1943–1992.

Ironically, as if closing an era, 1992 – the centenary of the foundation of the *Bulletin of the British Ornithologists' Club* and its German rival *Ornitologische Monatsberichte*, both established for the rapid publication of new species descriptions – was the year in which Joel Cracraft moved to AMNH and

published his review of the birds of paradise (Cracraft 1992) based on a revolutionary proposition for the identification of species that he himself had brought to ornithology (Cracraft 1983) and which pitted monophyly (i.e. common descent from a single ancestor), the principle invoked under the phylogenetic species concept (PSC), against reproductive incompatibility (the inability of two taxa to produce viable offspring), the key criterion of Mayr's biological species concept (BSC). This proposition came at a time when molecular genetic research, buoyed on the broad wake of Sibley & Monroe (1990), was finally coming to be recognised as the most compelling force in modern systematics.

Looking back now, the consequences were dramatic, profound and liberating: over the next two decades avian taxonomy came alive with many new voices, the number rising as in a dawn chorus. PSC converts, molecular researchers and compilers of field guides, avi-faunas, monographs and handbooks, abetted by increasingly sophisticated equipment both inside and outside the lab, all took the opportunity to import into their classifications new insights from field observations, sound recordings, photographs and even simply a fuller consideration of pre-existing evidence. Front-line birdwatchers published their views. Magazine journalists speculated. National committees took their positions. Museum scientists – if not moving smartly into molecular systematics – withered and drooped; democratic taxonomy burst into leaf and flower. We were all competent systematists now.

Or were we? How well has the redistribution of powers worked, and what are the implications and prospects for the future? Is it democracy or anarchy? Euphony or Babel?

As in any revolution, the running was made by the more radical elements. Taxa that are 'diagnosably distinct', representing a single line of descent, are species under the PSC. The PSC was applied to the Cape Verde avifauna (Hazevoet 1995) and to the Dutch List (Sangster *et al.* 1999). The latter had perhaps the greater effect, since nothing on the Dutch List is a national endemic and the Netherlands has international borders; so would

other national lists follow the lead? The pressure was strong – so strong, indeed, that Svensson (1997) detected:

an almost arrogant and depreciatory tone when describing the... shortcomings... of the BSC, an inability to acknowledge the problems inherent in the proposed alternative... and an apparently insatiable aspiration for taxonomic hegemony.

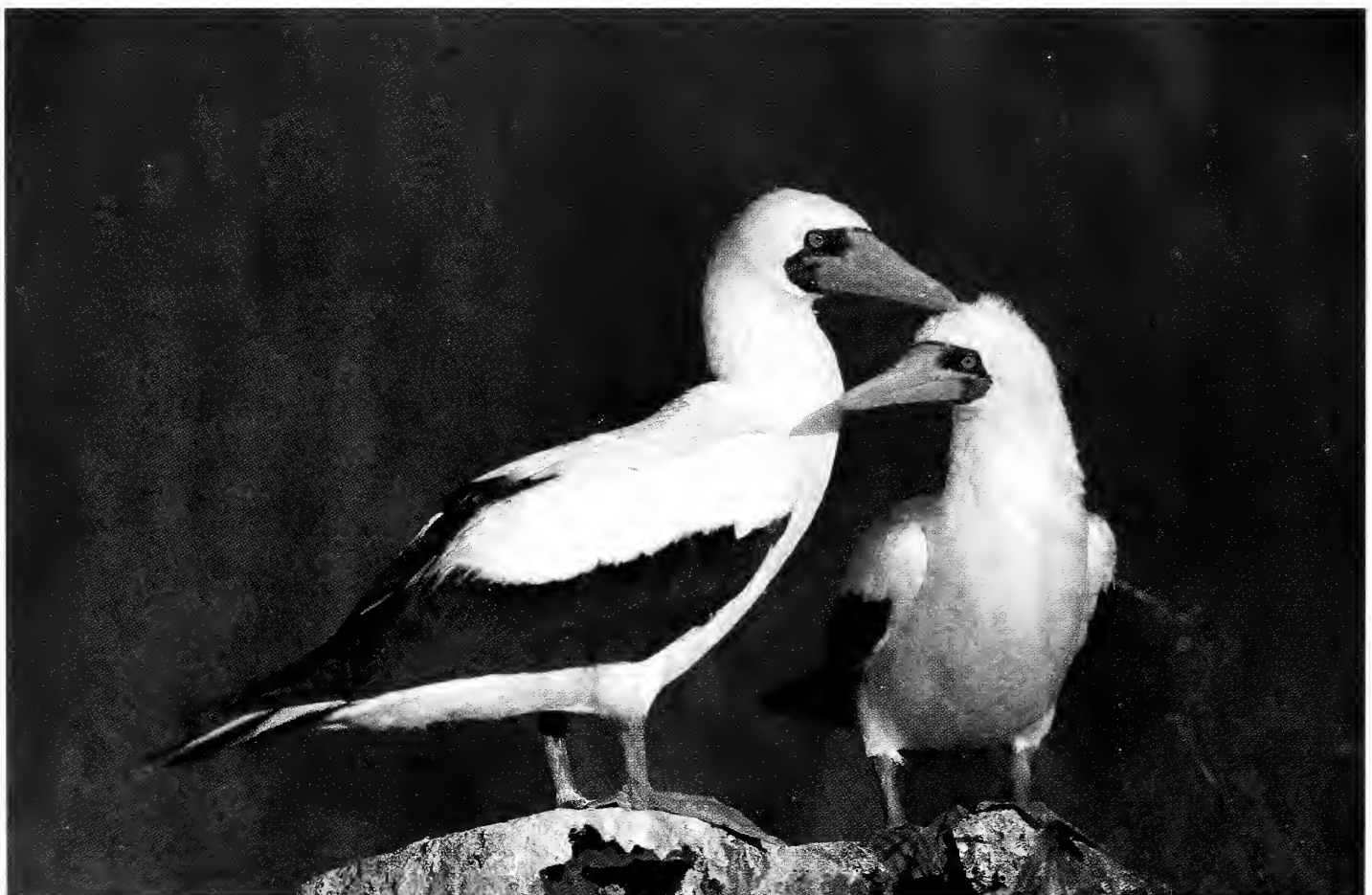
The pressure extended to conservationists. Having responsibility to the International Union for Conservation of Nature (IUCN) for the listing of birds on the IUCN Red List, BirdLife International, a global partnership of national NGOs, was an early target. ‘Taxonomic neglect promotes the extinction of endemic birds’ was part of the title of a critique by Hazevoet (1996) of BirdLife’s dependence on a BSC-based world list (Sibley & Monroe 1990), and the point was repeated in the pages of *Conservation Biology* by Sangster (2000) with particular reference to the Cape Verde Red Kite *Milvus (milvus) fasciicauda* (for which see more below). Six years later conservationists were again bidden

to ‘pay attention... pay close attention’ to taxonomic matters if they wanted their endeavours on behalf of biodiversity to reflect that diversity properly (Peterson 2006).

Some of this was entirely justified. Systematics is a living science, and new insights compel new conclusions – in this world, nothing can be said to be certain except death and taxa – and the taxonomic establishment is perhaps by definition behind the curve. For example, Nazca Booby *Sula granti* was ‘to me, unnecessary splitting’ (Nelson 2005), and both *Ardea purpurea bournei* and *Passer motitensis hemileucus* were denied even the status of subspecies (Hancock & Kushlan 1984; Summers-Smith 1998); yet the booby is now widely accepted, while the heron (Hazevoet 1995) and sparrow (Kirwan 2008) have been claimed, with varying degrees of success, as full species.

Ultimately and inevitably, however, for conservationists in particular there has to be a point of common reference from which to develop and against which to react. In the 1980s, the world list of birds that BirdLife used was Morony *et al.* (1975), which, being

Tui de Roy/Minden Pictures/FLPA



88. Nazca Boobies *Sula granti*, pair at nest-site, Genovesa Island, Galapagos, October 1998. Systematics is a living science, and the taxonomic establishment is perhaps by definition behind the curve. In 2005, Bryan Nelson, in his family monograph *Pelicans, Cormorants and Their Relatives*, felt that the Nazca Booby *Sula granti* was an example of ‘unnecessary splitting’, yet this is now widely accepted as a separate species.

largely a species-level synthesis of Peters (1931–1987), was regarded as possessing more authority than any other (Parkes 1975). In the 1990s, BirdLife switched to Sibley & Monroe (1990) as its cornerstone reference for species limits (but not family sequence). But with the proliferation of insights and ideas that followed the PSC challenge to established species limits, plus a requirement from IUCN in 2001 to assess *all* species – not just likely-looking candidates – against its Red List criteria, BirdLife was compelled to evaluate proposed taxonomic revisions on a case-by-case basis. The maintenance of a clear, well-grounded and defensible list has been an obligatory component of BirdLife's scientific remit since the start of this century, with two key criteria bearing on this work.

The first is consistency: it is obviously inappropriate to use one species concept – one set of rules – in one part of the world and another in another. This instantly places the PSC at a disadvantage, since current world lists were broadly formulated in an era of general acceptance of the BSC; therefore the BSC is the default setting for this criterion, although it is fair to say that most species-level revisions proposed in the past 10–15 years have invoked a broad BSC, which accepts that a degree of hybridisation between taxa is not fatal to their status as species.

The second is robustness: the evidence needs to be exhaustively assembled and dispassionately compelling. Here again the PSC is at a disadvantage, this time relating to its inherent difficulty with diagnosability: when is a character, however consistent, however diagnostic, too trivial to merit acceptance? Even so, 'robustness' does not refer just to strength of character: it refers also to strength of argument, clarity of presentation, and adequacy of the appraisal of uncertainty, things which the peer-review process ought to ensure but commonly – as conservationists find out to the cost of their own time and trouble – does not. Illustrations of these and other difficulties follow.

The Fuerteventura Blue Tit *Parus* (now *Cyanistes*) *degener* was promoted as a distinct species – on what was considered BSC

evidence (playback tests) alongside PSC-level plumage diagnoses – in a review that pointed out that as few as 200 individuals might survive (Sangster 1996). A survey happily increased that number by an order of magnitude (Garcia-del-Rey & Cresswell 2006), but in any case molecular work concluded that *degener* was indistinguishable from North African populations of Blue Tit *C. caeruleus* and should not be recognised even as a subspecies (Dietzen *et al.* 2008).

The Cape Verde Red Kite *Milvus fasciicauda* was elevated to (phylogenetic) species level by Hazevoet (1995). Sangster (2000), hailing the PSC's potential to deliver 'more efficient use of resources', called it a 'valid species' (only) 'superficially similar' to the Red Kite *M. milvus*. In response, the Peregrine Fund, a US-based raptor conservation organisation, went to some lengths to obtain the last few individuals for captive breeding, something they mistakenly thought they had achieved in 2002 (see Hille & Collar 2009); but then molecular analysis of museum skins placed *fasciicauda* within the range of variation exhibited by the Red Kite clade (Johnson *et al.* 2005), arguably thereby rendering it ineligible even for subspecific status.

A review of the Bean/Pink-footed Goose *Anser fabalis/brachyrhynchus* complex (Sangster & Oreel 1996) concluded that it consists of three morphologically and reproductively distinct populations, *A. brachyrhynchus*, *A. fabalis* and *A. serratirostris*, thereby rejecting, among others, the putative subspecies *middendorfi* (Siberian taiga populations allied with *fabalis*). By contrast, a phylogenetic analysis (Ruokonen *et al.* 2008) set aside reported behavioural, ecological, vocal and morphological distinctions and instead recognised *A. brachyrhynchus*, *A. fabalis* (heavily rearranged) and *A. middendorfi*.

Almost universal acceptance followed the split of Great Grey Shrike into Northern *Lanius excubitor* and Southern Grey Shrike *L. meridionalis* (Isenmann & Bouchet 1993), even though claims of parapatry, unambiguous diagnosability and differences 'in behaviour and habitat, with *excubitor* nesting in grassland with scattered trees and *meridionalis* in dry grassy scrub' (!) (Sangster *et al.* 2002) were less than compelling. Now Olsson *et al.* (2010) report that such a division 'is not

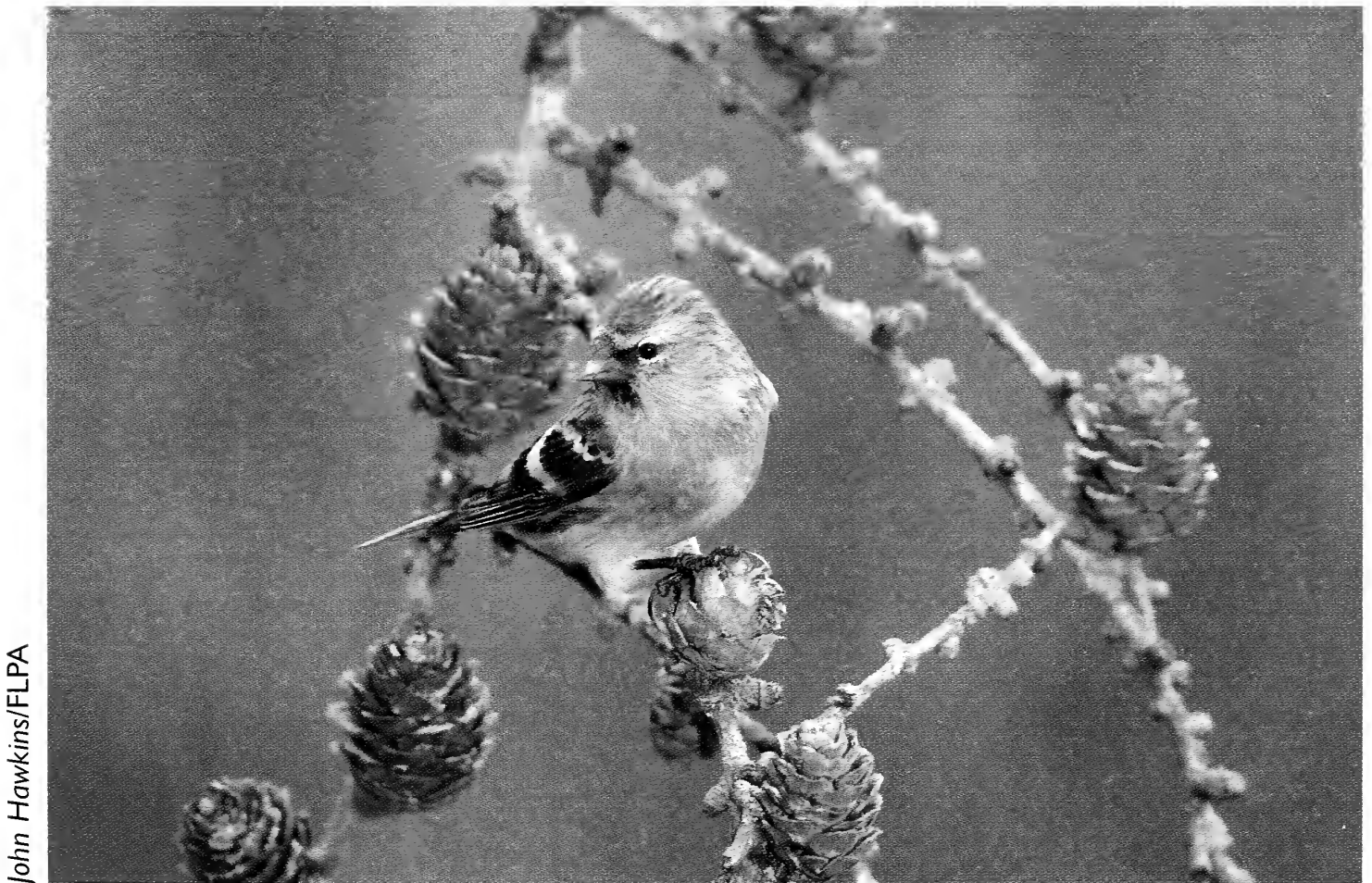
compatible with the mitochondrial tree'; the Great Grey Shrike is either one species or as many as six.

Lesser Redpoll *Carduelis cabaret* was split from Common Redpoll *C. flammea* on morphological, genetic and vocal grounds, plus a single-year record of assortative mating in a newly sympatric population (Knox *et al.* 2001). However, molecular differences prove not to exist and 10% of migrant redpolls at Falsterbo, in southern Sweden, could not be assigned to either *cabaret* or *flammea* in the hand, so 'the two taxa should be treated as subspecies' (Ottvall *et al.* 2002; also – with bad news too for fans of Arctic Redpoll *C. hornemanni* – Marthinsen *et al.* 2008).

Molecular results such as these have a seemingly impregnable authority that trumps other modes of species-limits analysis, but this assumption requires major qualification. At the most basic level, mistakes happen – for example, Zou *et al.* (2008), with implications in Pilgrim *et al.* (2009) – or seemingly happen, as when

Jönsson *et al.* (2010) reported White-lored Oriole *Oriolus albiloris* to be so close genetically to Isabela Oriole *O. isabellae* that they should 'perhaps... be treated as a single taxonomic unit' (in life the two taxa are sympatric and have highly divergent bill morphology and certain other features: Collar 2011). Moreover, different researchers, perhaps using different methods, obtain different results and make different interpretations. Contemplating the white-capped form *stricklandii* of White-rumped Shama *Copsychus malabaricus*, Sangster *et al.* (2010) wrote:

Our *cyt b* sequences of *stricklandii* and *C. malabaricus* differ by 2.2%... similar to or exceeding that in several species pairs... [This and] previously reported differences in plumage and sympatric breeding indicates that the inclusion of *stricklandii* as a subspecies of *C. malabaricus* may be premature and that further research is warranted.



John Hawkins/FLPA

89. Male Lesser Redpoll *Carduelis cabaret*, Shropshire, March 2010. In 2001, Lesser Redpoll was split from Common Redpoll *C. flammea* on morphological, genetic and vocal grounds, plus a single-year record of assortative mating in a newly sympatric population (Knox *et al.* 2001). However, molecular differences prove not to exist and, while some birds (like the male shown here) are straightforward, a proportion of migrant redpolls on either side of the North Sea have proved impossible to identify even in the hand, which led Ottvall *et al.* (2002) to recommend that the two taxa should once again be treated as subspecies.



Berndt Fischer/Biosphoto/FLPA

90. Great Grey Shrike *Lanius excubitor*, feeding on a mouse stored in a larder on a rose stem, Germany, December 2009. Following a period when the split of Great Grey Shrike into Northern *L. excubitor* and Southern Grey Shrike *L. meridionalis* was almost universally accepted, Olsson *et al.* (2010) reported that such an arrangement is not compatible with the mitochondrial tree. The Great Grey Shrike, it seems, is either one species or as many as six.

Yet simultaneously Lim *et al.* (2010), despite finding a slightly higher percentage difference, took the opposite line:

Although *stricklandii* is distinguished from western Bornean *suavis* by its white cap, this distinction is muted in the hybrid zone... Moreover, their ND2 divergence of 2.7% is within the commonly detected range of conspecific passerine taxa... Thus, the taxon *stricklandii* should be maintained as a subspecies of *C. malabaricus*.

Closer to home are the recent molecular analyses of the Iberian Green Woodpecker *Picus viridis sharpei* by Pons *et al.* (2011), who tentatively retain it as a subspecies, and by Perktas *et al.* (2011), who emphatically consider it a species.

But there are other issues to negotiate in these taxonomic reviews, molecular or otherwise, than the incongruence of their findings. Making the appropriate comparisons is perhaps the next most salient. When Kirwan & Shirihi (2007) argued for the species-level separation of northwest African populations (*sahari*) of the House Bunting *Emberiza stri-*

olata, they puzzlingly disregarded the form *jebelmarrae*, which is geographically intermediate between *sahari* and nominotypical *striolata* and, as they acknowledged, intermediate in certain plumage features and, from their data, bill measurements. When Saetre *et al.* (2001) claimed species status for Moroccan *speculigera* from Middle European Pied Flycatchers *Ficedula hypoleuca* on genetic and morphological grounds, they omitted full and fair analysis (no treatment in their morphological table; no reference to its genetic identity) of the geographically interposed form *iberiae*, which is, as noted by Taylor (2006), ‘an intergrade between [*speculigera*] and nominate’ (a point already evident from Cramp 1993: 86). And when Küpper *et al.* (2009) split Snowy Plover *Charadrius nivosus* from Kentish Plover *C. alexandrinus* on (almost entirely) genetic grounds (despite their title’s claimed ‘phenotypic... analyses’, some of which had to be supplied by Donegan *et al.* 2011), they missed out South Asian *seebohmi* despite the fact that – for all its biogeographical disjunction – it is closer to *nivosus* in coloration and

measurements than it is to *alexandrinus*.

Clarity of evidence is a third need. Shirihai *et al.* (2001: 167) split Orphean Warbler into Western *Sylvia hortensis* and Eastern *S. crassirostris* on the grounds that the taxa are ‘genetically well differentiated... [and] as divergent as either is from [Arabian Warbler] *S. leucomelaena* (Helbig *et al.* submitted, Shirihai *et al.* submitted)’, adding that ‘conclusive biometrics’ (this is a heading in bold type) show *hortensis* to have a shorter, less attenuated bill (‘15.3–16.9 mm’) than *crassirostris* (‘18.0–20.2 mm’). Acceptance of this split seems now to be widespread; yet more than a decade later, even allowing for the sad loss of one of the authors, neither of those apparently clinching citations has been published, and elsewhere in Shirihai *et al.* (2001: 188) there are far from ‘conclusive biometrics’, taken by C. S. Roselaar, in which (male) bills of 25 *hortensis* fell in the range 17.0–18.8 mm and of eight *crassirostris* in the range 17.7–20.0 mm.

Studying the *Larus michahellis/armenicus* interface in central Turkey, Liebers & Helbig (1999) reported that three haplotypes of

michahellis were present in 62% of birds at Beyşehir and 14% of birds at Tuz Gölü, so ‘hybridisation does occur, hybrids are fertile and backcross at least with *armenicus* in central Anatolia’, but ‘whether gene flow in the other direction... also occurs requires further study’. In recognising *L. armenicus* as a species, however, Collinson *et al.* (2008) condensed this account as disclosing ‘limited maternal gene flow from *michahellis* into *armenicus* populations (although not in the opposite direction)’, thereby unwittingly causing absence of evidence to morph into evidence of absence.

Problems such as these – and there are many more examples, which suggests rather more Babel than euphony – could perhaps have been avoided if some common standards had been set and met for reporting and gauging comparisons of taxa near the species boundary; and in fact a decade ago some such guidelines were provided (Helbig *et al.* 2002). These were footnoted as ‘an official document of the British Ornithologists’



Roger Tidman/FLPA

91. Orphean Warbler *Sylvia hortensis*, northern Spain, July 2011. In *Sylvia Warblers*, Shirihai *et al.* (2001) split Orphean Warbler into Western *S. hortensis* and Eastern *S. crassirostris* on the grounds that the taxa are ‘genetically well differentiated’, with ‘conclusive biometrics’ (bill measurements) providing further support. Acceptance of this split seems now to be widespread, although not yet endorsed formally by the BOU and the genetic evidence remains unpublished.



Hans Schouten/FN/Minden/FLPA

92. Wintering Tundra Bean Geese *Anser fabalis rossicus* in the Netherlands, January 2001. A review of the Bean *A. fabalis*/Pink-footed Goose *A. brachyrhynchus* complex published in 1996 (Sangster & Oreel 1996) concluded that it consists of three morphologically and reproductively distinct populations, *A. brachyrhynchus*, *A. fabalis* and *A. serrirostris*. A decade later, a phylogenetic analysis (Ruokonen *et al.* 2008) instead recognised *A. brachyrhynchus*, *A. fabalis* (heavily rearranged) and *A. middendorfi*. Unsurprisingly, Bean Geese wintering in western Europe cause regular headaches for birders desperately seeking to pigeonhole every individual to subspecies (or species) level.

Union' and hailed by one of its authors as 'a written constitution for species-level taxonomy' (Collinson 2002). Even so, the formulations possess a degree of ambiguity that has made them hard to interpret or apply with confidence. The consensus on their most fundamental points appears to be that (1) taxa to be split should differ on multiple characters and (2) these differences should be greater than those between pairs of species that are close(st) relatives of the taxa under review. Drawbacks here are that (a) 'multiple' can mean two; (b) characters can be extremely small (including molecular); (c) choice of species pairs for comparison is rarely straightforward and, when no close relatives exist, seemingly optional rather than obligatory; and (d) only a single character is needed to trigger 'allospecies' status, an ambiguous taxonomic category that embraces the key PSC criterion even while exhibiting an impracticably porous border (Appendix S1 in Tobias *et al.* 2010; also table S1 for an attempted tabulation of the BOU criteria).

Thus when the BOU criteria were applied

to 23 pairs of taxa widely treated as subspecies in the Western Palearctic avifauna, eight (35%) converted to species and nine (39%) to probable species, producing a total potential change of 17 (74%) (Tobias *et al.* 2010). This tends to suggest that the BOU criteria, although claimed to be more stringent than the PSC (Helbig *et al.* 2002: 524), yield results not dissimilar to it. Moreover, the uncertainty in these evaluations, which were made in the Natural History Museum, Tring, using specimens and literature, reflects not only the ambiguities in the criteria but also the fineness of the distinctions being evaluated (Lincoln Fishpool pers. comm., and pers. obs.). As Snow (1997) elegantly indicated, when differences between taxa are subtle and slight, the potential for instability at species boundaries rapidly rises, under the influence of different interpretations of the criteria and subjective assessment of character strength and significance. For example, the seminal PSC review of the birds of paradise (Cracraft 1992) elevated the number of species in the family from 40–42 under the BSC (5% uncertainty) to 80–120 (33%

uncertainty) (Collar 1997). Hazevoet's (1996) argument that:

Admitting that some situations are not entirely clear should stimulate further research and seems highly preferable to pretending that all problems have been solved when taxa are simply allocated as either 'species' or 'subspecies'

needlessly characterises established taxonomies as fixed and closed, and impractically suggests that leaving species limits entirely undefined in some taxa is better than allowing them to remain determined by poor (but still the best available) evidence.

There are, of course, many frustratingly difficult cases to confront; indeed, it is important to acknowledge that the delimitation of species is inherently problematic. Bernard Tucker (Tucker 1949: 162) himself made the familiar but necessary point that:

the provision of a hard and fast definition by which species can always be distinguished from subspecies has defied all

the efforts of taxonomists for the excellent reason that in nature no hard and fast line of separation exists.

Even so, it is clearly undesirable to have species defined on relatively minor characters winking in and out of taxonomic existence on the basis of shifts in opinion and evidence such as those surrounding *Parus degener* or *Milvus fasciicauda* above. Conservationists cannot build programmes and relationships with donors, governments, international agreements and conventions, as well as crucial local interests and communities, on the back of tenuous and debatable claims and cases, even when formulated in the best peer-reviewed outlets of science. They need species-limits criteria that deliver more precise, stable, transparent, consistent, defensible and reasonably rapid results but which at the same time do not simply endorse and extend an unsatisfactory *status quo*.

One solution is to give some kind of value to characters in order to rank and sum their strength. A system in which distinctions in



Tony Hamblin/FLPA

93. Azure-winged Magpie *Cyanopica cyanus*, Portugal, April 2007. The genetic differences between the disjunct Iberian and East Asian populations of this eye-catching corvid look convincingly large, yet there is still a lack of compelling evidence that, other than the white tips to the tails of Asian forms, the plumage, mensural, vocal, behavioural and ecological differences between the two populations are anything but minor or even non-existent.

plumage, size, voice and – with restrictions – behaviour and ecology are scored 1 for minor, 2 for medium, 3 for major and 4 for exceptional (with the number of plumage and vocal characters capped at three, and morphometric at two) was trialled on 58 pairs of closely related sympatric or parapatric bird species, and in 95% of cases species status was reflected in a total score of at least 7 (Tobias *et al.* 2010). When the system was applied to those same 23 pairs of Western Palearctic subspecies which the BOU criteria reclassified as 8–17 species, 21 (91%) remained subspecies while two (both Moroccan) became species. Applied to the global avifauna, the number of species may then increase by very approximately 1,000, although given the likelihood of greater taxonomic inaccuracy in the less completely resolved avifaunas of the tropics this may well be a minimum.

The Tobias criteria ‘firmly place a degree of consistency and transparency upon taxonomic decisions’ (Winker 2010). The weighting and explicitness of the scoring system ought, in theory at least, to make these criteria hard to apply without a rigorous and accurate evaluation of the evidence, and consequently they should establish a greater degree of long-term taxonomic stability, notwithstanding the collection and analysis of new data. Moreover, they include a technical method for quantifying levels of vocal divergence and proposing thresholds for the significance of such differences, an issue that the BOU guidelines left unaddressed.

However, they also take the uncomfortable but unavoidable step of excluding molecular evaluation from the criteria. This is primarily because there is no fixed threshold of genetic divergence which can be used to determine whether two taxa are species or not, but also because different techniques, measurements and interpretations all affect the equivalence of the results, so that (for the present, at any rate) the whole process of comparison between taxa is fraught with uncertainty. This exclusion applies even in cases where greater genetic distances between taxa are reported from within a recognised species than between that species and another, as in the case of the Yellow *Motacilla flava* and

Citrine Wagtails *M. citreola* (Pavlova *et al.* 2003) and Palearctic Sandwich *Sterna sandvicensis* and Nearctic Cabot’s Terns *S. aculeiflvida* (Efe *et al.* 2009). While such molecular paraphyly is unacceptable to pure cladists, it need not dictate terms to broader taxonomies based on other evidence; and in any case such counterintuitive results need painstaking validation and evaluation.

The split of the Azure-winged Magpie *Cyanopica cyanus* is another intriguing case. A ‘molecular genetic distance of 6.06%’ between Iberian and East Asian populations (Fok *et al.* 2002) looks clinchingly large, but as yet no compelling evidence (*pace* Kryukov *et al.* 2004) has been adduced to suggest that, other than the white tips to the tails of Asian forms, the plumage, mensural, vocal, behavioural and ecological differences between the two populations are anything but minor or indeed non-existent. Meanwhile, recent research has shown that two clades of Common Raven *Corvus corax* that are >4% divergent in mtDNA coding genes interbreed successfully where they meet (Webb *et al.* 2011). Evolutionary lineages disclosed by molecular analysis may well be better represented under the PSC; but under the BSC deep clades alone do not a species make.

Conversely, an absence of genetic differentiation need not override claims based on strong phenotypic characters. The molecular analyses that appear to sink the Fuerteventura Blue Tit, Cape Verde Red Kite and Lesser Redpoll as species simply underscore what the morphological evidence already indicates – that the distinctiveness of the forms is sufficiently low to place them somewhere on the spectrum between synonymy and subspecies. On the other hand, even if the White-faced Plover *Charadrius dealbatus* cannot be told from Kentish Plover at the molecular level, its morphological distinctiveness maintains its species status under the Tobias criteria (Rheindt *et al.* 2011 and pers. obs.).

The redrawing of species limits in birds is an enterprise that is likely to take many more decades of research and analysis, and cannot be obstructed or appropriated for long by any one faction in ornithology, conservative or radical, committee-based or birdwatcher-driven. Ultimately, however, what Sangster

(2009) appealingly calls 'taxonomic progress' depends on consensus, consensus on conviction, and conviction on evidence. A good case for splitting will marshal the relevant facts, cover the literature and reflect it accurately, make the best use of museum and other material, endeavour to achieve adequate sample sizes, ensure that all relevant taxa are properly considered, and present the findings clearly, fully and untendentiously. There will, inevitably, be fudges when the evidence is conflicting or partial and the practicalities of the decision-making process require assumptions to be made; but so long as these things are honestly acknowledged, convergence of opinion is still a realistic expectation.

However, it is worth just noting that the current extinction crisis has quietly been creating a new vested interest in taxonomy, consisting of a small group of people with unusual, unanticipated and for some perhaps unwelcome powers. Conservationists have been bidden to *pay close attention* to taxonomy, and indeed they must: for if it is they to whom the rest of the world turns to bear the burden of bringing as much biological diversity as possible through this extinction crisis, and if it is they who must seek to inscribe this diversity in national and international law for its greater security, then it is also they who, more than any others, have both the right and the responsibility to scrutinise what it is they are being bidden to save. This is the most compelling reason for the new democracy of taxonomists to ensure that their decision-making aspires to the highest standards. Conservationists have plenty of other work to be getting on with, and taking up their time with incomplete evidence and underdeveloped arguments whose final import is *a species is whatever I say it is*, in the style of Humpty Dumpty, seems hardly the most durable of foundations for 'taxonomic progress'.

Acknowledgments

This is the text of the Bernard Tucker Memorial Lecture for 2011, commissioned by the Ashmolean Society and Oxford Ornithological Society. It is dedicated to the memory of Clive Briffett, a good and gentle friend, who issued the invitation from OOS but sadly passed away three days before the lecture. A. Bräunlich, S. H. M. Butchart, L. D. C. Fishpool, J. del Hoyo, R. P. Prŷs-Jones

and J. A. Tobias most helpfully commented on various drafts, as did five referees; Martin Collinson very kindly pointed out the existence of Tucker (1949). Views and sentiments are personal, not institutional.

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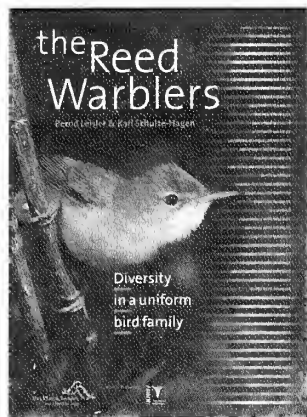
The BB/BTO Best Bird Book of the Year 2012

British Birds and the British Trust for Ornithology announce the winner of the Award for Best Bird Book of the Year. All books reviewed in BB or the BTO publications BTO News and Bird Study (and on the BTO website www.bto.org) during the year 2012 were eligible for consideration for this Award.

It is in the nature of an annual competition that no two years are ever quite the same. In deciding which are the best bird books, our six judges must form views and reach conclusions that are based on the books qualifying for consideration in the year in question which, by decree, are different every time. There are, however, predictable genres into which many of the books will fall. Most years, for example, will bring forth a crop of new field guides, site guides and monographs for species and genera, or revisions of or spin-offs from previous ones, for which the expected standards are well established. Nonetheless, there are always books

that stand out, attracting the judges' admiration because they in some way push boundaries and break new ground in established genres, or are more or less unique. The 2012 competition was no exception in these respects. We are pleased now to announce the winner and other top titles.

We were quickly able to agree the first two places. Our deliberations took longer than usual, however, because of differing views on how to rate some top-class but relatively formulaic monographs against several more innovative books that were harder to classify. After second place, therefore, our ranking becomes less clear-cut.



Winner

The Reed Warblers: diversity in a uniform bird family

By Bernd Leisler and Karl Schulze-Hagen, illustrated by David Quinn. KNNV Publishing, 2011.

Reviewed in BB by Martin Collinson (Brit. Birds 105: 546–547).

This book, a wide-ranging review of the Acrocephalidae, earned three first places and three seconds in the judges' final votes, making it the clear winner of the competition. By coincidence, last year's Best Bird Book, *Reed and Bush Warblers*, covered much of the same ground. This year's top book, however, sets the genera within a number of fascinating biological contexts and provides background to species that last year's winner helps us to identify. It is full of comparisons, within the acrocephalids and between them and their New World counterparts, that provide extraordinary insights into the ecology of these species. A beautiful design and many first-rate drawings and photographs combine with erudite yet clearly written and informative text to make a book well worthy of our highest accolade.

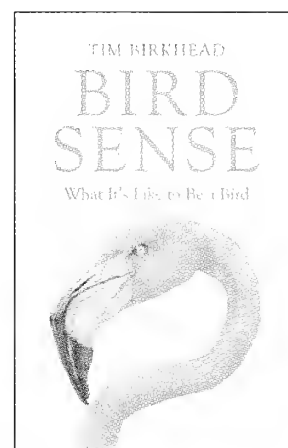
2nd

Bird Sense: what it's like to be a bird

By Tim Birkhead. Bloomsbury, 2012.

Reviewed in BB by David Parkin (Brit. Birds 105: 487).

All six judges also rated this book very highly. Professor Birkhead knows the science of bird senses intimately and has provided an overview that will fascinate readers as well as inform. Anyone who enjoys watching birds will find it a wonderful, cover-to-cover read, and will learn much, whatever their scientific interest or initial knowledge of the subject. Some judges felt that the subject matter and brilliant writing warranted higher production standards, such as more illustration, but this would of course incur costs: the low price of the book as published is another of its virtues.

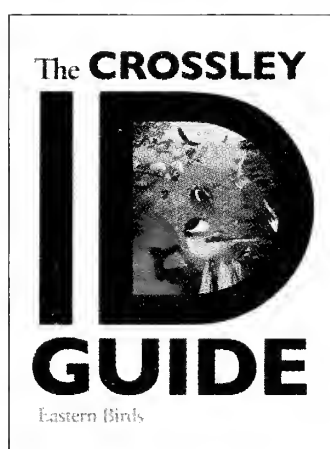


3rd

The Crossley ID Guide: Eastern Birds

By Richard Crossley. Princeton University Press, 2011.

Reviewed in BB by Mike Pennington (Brit. Birds 105: 46–47).



The approach of using composite photographs to put many images of birds against a background of their habitat is entirely novel in an identification guide and potentially overpowering. It is a book that has divided opinion. Most of us were strongly in favour, because the multiplicity of images of real birds gives a genuine impression of actual identification issues, such as individual variation, and of what it might be like to see these birds in the wild. It is truly remarkable that more than

99% of the photographs are the author's own. We look forward to further Crossley books, which are now in preparation.

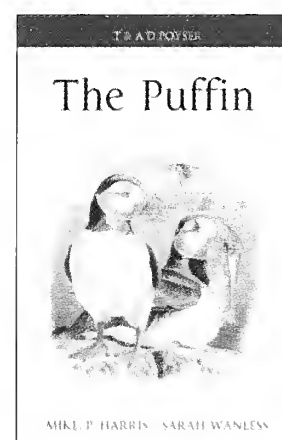
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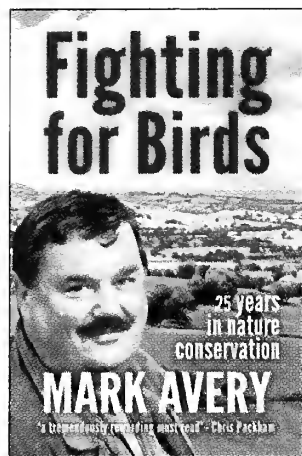
The Puffin

By Mike P. Harris and Sarah Wanless. T. & A.D. Poyser, 2011.

Reviewed in BB by Oscar Merne (Brit. Birds 105: 106–107).

This monograph was not totally new but had been extensively rewritten since Mike Harris's original volume, published way back in 1984. Much of its information is recent and still developing fast, such as that on feeding behaviour and life at sea more generally, including outside the breeding season. The Puffin *Fratercula arctica* has many fans, to whom we can wholeheartedly recommend this pleasingly designed and well-illustrated book.





5th

Fighting for Birds: 25 years in nature conservation

By Mark Avery. Pelagic Publishing, 2012.

Reviewed in BB by Mike Everett (Brit. Birds 105: 687–688).

Like the winner and runner-up, this book was ranked among the top six by all the judges and, like each of our first three books, it earned top marks from one of our judges. It gives remarkable insight into bird conservation as practised in the UK over the last quarter-century and is a timely reminder that birds, faced with the consequences of human population and continual economic growth, will always need strong organisations, armed with compelling arguments, to fight their corner. We

appreciated Mark's idiosyncratic but highly readable writing style: for example, in support of his trenchant opposition to 'the raptor haters', he concludes with a quotation from Sid Vicious!

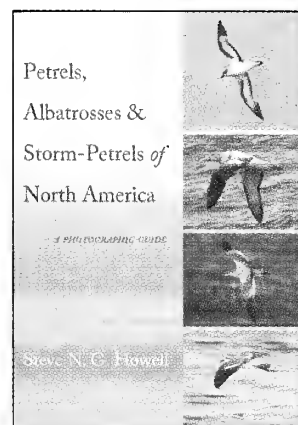
6th

Petrels, Albatrosses, and Storm-Petrels of North America: a photographic guide

By Steve N. G. Howell. Princeton University Press, 2012.

Reviewed in BB by John Martin (Brit. Birds 105: 545–546).

Steve Howell's book adds greatly to the growing literature on seabirds at sea. A surprisingly wide array of species are observable offshore from North America, some of them remarkably little known. We were particularly impressed by his thorough treatment of complex taxa, such as Madeiran *Oceanodroma castro* and Leach's Storm-petrels *O. leucorhoa*, where splits at species level have been recently made or are proposed, and at least one taxon worthy of species level has yet to be scientifically described. Such taxonomic advances are fundamentally important to the conservation of oceanic biodiversity.



In addition to our top six, we singled out three other books for special mention:

The Kittiwake (by John C. Coulson, T. & A.D. Poyser, 2011 – see *Brit. Birds* 105: 283). We struggled to define why we rated this book less highly than its sibling *The Puffin* but, through no fault of the author, it tells a less complete and less compelling story. Undeniably it is a great monograph that, in another year, might easily have made our top six.

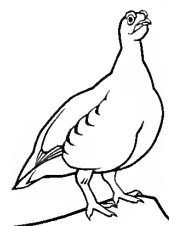
Bird Habitats in Ireland (by Richard Nairn & John O'Halloran, The Collins Press, 2012). Compared with that of Britain, the avifauna of Ireland is depauperate and less well studied yet more vulnerable to species loss: almost all birds breeding there are at the edge of their range. This attractive and well-illustrated book provides a timely boost to bird conservation in Ireland, which we applaud.

Handbook of the Birds of the World, Vol. 16: Tanagers to New World Blackbirds (edited by Josep del Hoyo, Andrew Elliott and David Christie, Lynx Edicions, 2011 – see *Brit. Birds* 105: 335–336). This volume of *HBW* completed the systematic list of species but does not quite mark the close of this magnificent series. Once again we were hugely impressed by the high standard this series has maintained. Previous volumes won this award in 1993 and 2002 but could have done so in almost every year since 1993 – but what a dull competition that would have been!

Acknowledgments

We are grateful to the BTO for making facilities available for judging at Swanwick, and especially to Carole Showell for sourcing books from the Chris Mead Library at Thetford.

John Marchant, Dawn Balmer, John Eyre, Peter Hearn,
Robin Prytherch and Peter Wilkinson
c/o BTO, The Nunnery, Thetford, Norfolk, IP24 2PU



Plumage variability in Marsh Harriers

Jean-François Blanc, Audrey Sternalski and Vincent Bretagnolle

Abstract The Marsh Harrier *Circus aeruginosus* is typically illustrated in field guides as a sexually dimorphic species, with several age classes identifiable by differences in plumage pattern and colour. In some populations, however, such as the one we studied in west-central France, the species can show extreme plumage variability in adult males and, to a lesser extent, in adult females. Our study population is markedly polymorphic, with highly distinct patterns of coloration and almost continuous individual variation between those different morphs. Barely a single adult male looks like a typical ‘field-guide male’. Since this plumage variability is independent of age and sex, it is almost impossible to age birds solely from their plumage, which contradicts the established view. We highlight the difficulties of ageing and sexing Marsh Harriers by plumage only, and advocate the recognition of this species as polymorphic, at least in some parts of its range.

Introduction

The Marsh Harrier *Circus aeruginosus* is typically illustrated as a sexually dimorphic species in the literature, with distinctive adult male, adult female and juvenile plumages (e.g. Cramp & Simmons 1980, Forsman 1999, Ferguson-Lees & Christie 2001, van Duivendijk 2011). Adult males are typically trichromatic, with black wing-tips, brown upperwing-coverts and silvery-grey mid-wing and tail, whereas adult females are mainly brown with whitish throat and crown, and pale wing-coverts. Juveniles are similar to but darker than females, with pale, rusty cream replacing the whitish areas of adult females. First-adult males (i.e. during late autumn of the second calendar-year (hereafter CY) and summer 3CY) are also distinctive, a mix between juvenile and adult male plumage; see illustrations in Beaman & Madge (1998), Clark (1999) and Génsbøl (2009). In addition, a rare and localised dark morph has been described in the eastern part of the breeding range (Clark 1987), in all three age/sex classes mentioned above, but there are no published records of this dark morph in western Europe (Clark 1999;

Forsman 1999). Both sexes become somewhat paler with age, which may be more pronounced in males than in females (Forsman 1999; van Duivendijk 2011). Despite recent advances in digital technology, no recent publications or reviews based on photographic evidence have acknowledged the existence of individual plumages that do not fit this classic view, even though discrepancies may occur at the population level (see below). Here, we provide a detailed description of plumage variation in a large breeding population of Marsh Harriers in west-central France, in which virtually not a single male appears like a typical ‘field-guide male’ (plate 94 shows a selection of atypical adult male plumages) and some breeding adult males have female-type plumage throughout their adult life (Sternalski & Bretagnolle 2010; Sternalski *et al.* 2012).

Bavoux *et al.* (1988, 1991, 1993) provided detailed information on Marsh Harrier plumage variation from west-central France, in particular the variability of juvenile plumage (Bavoux *et al.* 1991). Sexing adults purely by plumage colour was shown to be unreliable, since some adult males exhibited

'female-like' (i.e. mainly brown) plumage (Bavoux *et al.* 1988, 1993, 2006; Sternalski & Bretagnolle 2010; Sternalski *et al.* 2012; see also plate 94). Other than behaviour, the only reliable method of establishing the sex of adult Marsh Harriers is by using biometrics (Bavoux *et al.* 2006) or silhouette and jizz. The studies by Bavoux *et al.* were published some 20 years ago (in French), yet the results have seemingly not reached the wider ornithological community. More recently, Forsman (1999) considered plumage variability and mentioned atypical plumages of the Marsh Harrier, but few details were provided and the existence of adult males that remained in a brown plumage for life was omitted.

Our main aim is to document the extreme plumage variability of Marsh Harriers in west-central France, where there is a breeding population of c. 300 pairs (Thiollay & Bretagnolle 2004). We describe the juvenile, adult female and adult male plumages in this population, and provide colour photographs of all plumage types in flight. Following previously published studies (i.e. Bavoux *et al.* 1988, 1991, 1993), and using Forsman's (1999) highly detailed plumage description as a reference basis, we provide a quantitative assessment of plumage variability in this population, illustrate the range of variation in adult males and females, and advocate the recognition of a polymorphic population (and therefore species). Having described the plumages, we address the following questions: (i) how does plumage coloration vary with age?; (ii) at what age do grey males acquire grey feathers?; (iii) do brown adult males show delayed plumage maturation?; (iv) when do males and females acquire their definitive plumage (or is their plumage changing continuously)?; (v) is there any fundamental sexual dimorphism and therefore reliable sexing criteria?

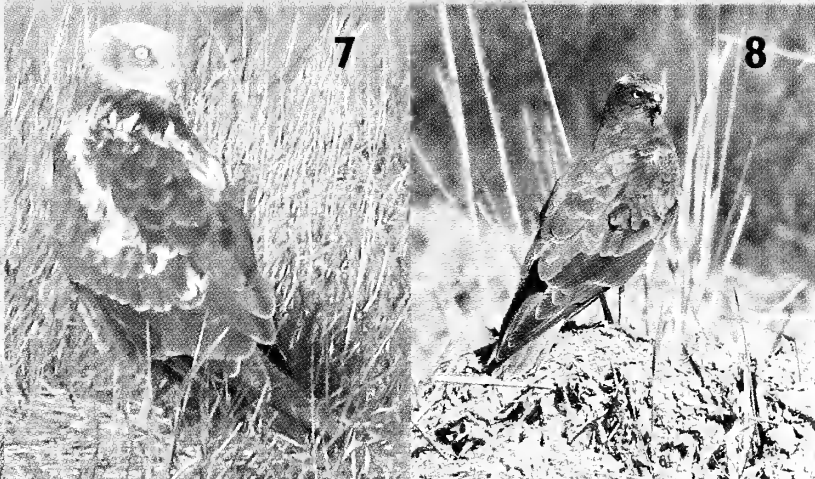
Materials and methods

We began a monitoring and wing-tagging programme of the Marsh Harriers of west-central France (the district of Charente-Maritime, 45°51'N, 01°04'W) in 2006. This programme has been carried out at four distinct study sites, which are close to each other (c. 20 km between them) but differ in terms

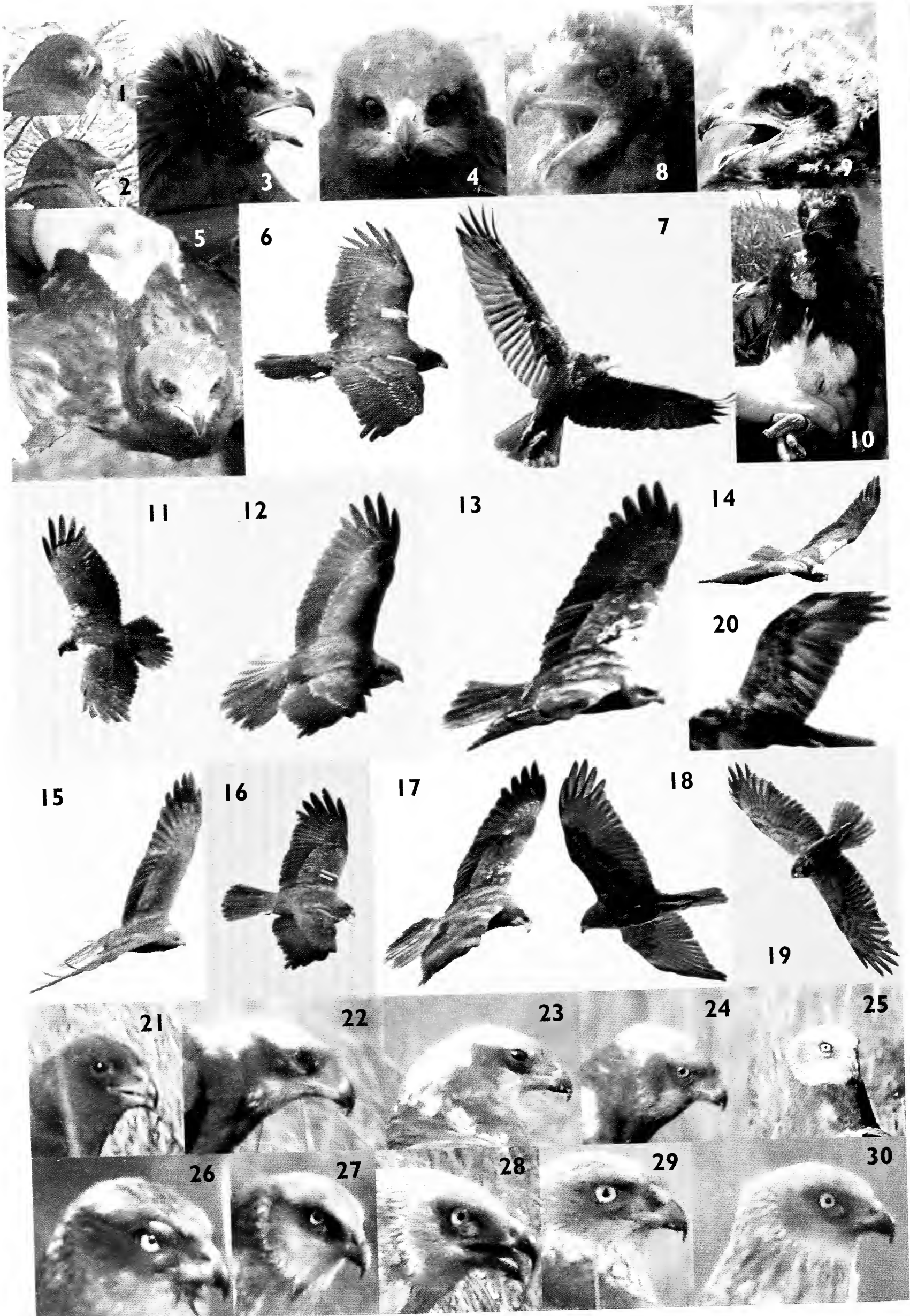
of available food resources and habitats (Sternalski *et al.* 2013). The monitoring project has included searching for nesting pairs and recording breeding success (for, on average, c. 100 nests per year), but also a weekly/monthly population census during winter, since Marsh Harriers in this area are sedentary (Bavoux *et al.* 1992). Wing-tagging has been restricted to nestlings and a total of 473 fledglings have been tagged since 2006. Both in the winter and in the breeding season, a particular focus of the study has been to photograph as many individuals as possible, in particular breeding and wing-tagged birds.

Photographs were used to establish colour categories using five key areas of the plumage: the upperwing, upperwing-coverts (i.e. the presence and/or size of pale patches on the upperwing), underwing, tail, and head (plumage description following terminology given in Forsman 1999). The number of subcategories for each of these five parameters was established as a balance between power (i.e. sufficient and similar sample size within each category) and the extent of variation within the population for this parameter. Hence, seven subcategories were used for general coloration of the upperwing (ranging from very dark brown to wide extent of grey colour in secondaries and primaries); five subcategories for the upperwing-coverts (varying in extent from lesser coverts to median coverts); eight subcategories for general underwing coloration (ranging from very dark brown to light); eight subcategories for the head (ranging from completely brown to creamy-white); and four subcategories for the tail (ranging from entirely brown to grey). For fledglings, plumage colour categories focused only on the head (in particular the crown and chin) and upperwing-coverts, since these are the most important variable parts of plumage at this age.

To assess adult plumage variability, c. 3,000 photographs were available, allowing plumage descriptions for 352 breeding harriers (168 males and 184 females, all years combined). The sex of the individuals was determined by observing copulation behaviour and participation in incubation (Bavoux *et al.* 1988). Not all parameters were assessed for each individual, so sample size may differ



94. Adult male Marsh Harriers from west-central France (all from the Marais de Brouage) showing various plumage coloration patterns (note that the same individual is shown in images 4 and 8). All photos in plates 94–97 are by Jean-François Blanc, Audrey Sternalski and Vincent Bretagnolle.



between parameters. In addition, a minimum age class was introduced for breeders given that sexual maturity occurs at one year for females and two years for males, at least in this population (Bavoux 1995; pers. obs.). To assess fledgling plumage variability, a total of 327 fledglings were photographed, colour-scored, wing-tagged and sexed (using blood samples and the method developed by Fridolfsson & Ellegren 1999) between 2006 and 2011. When possible, iris coloration was also scored from photographs for both adults and fledglings.

Trends in plumage variation with age were assessed using photographs of 164 individuals of known age: 152 of these were wing-tagged at fledging and photographed at least once in subsequent years (66 males and 86 females), and 12 were radio-tagged fledglings. In addition, no fewer than 38 breeding birds (25 males and 13 females) were photographed in successive years (at the same nest location).

Results

Plumage patterns according to age and sex

Juveniles (n=327)

This includes all 1CY birds and 2CY before their first summer. As in other Marsh Harrier populations, all fledglings were uniformly dark brown (with the exception of a few birds with aberrant plumage, see plate 95, 10), with variably pale areas on the head and upperwing-coverts. Juvenile plumage varied

in terms of both the presence/absence and size of these patches. In very fresh plumage, fledglings exhibited pale tips to the primaries, secondaries, tail, rump, and wing-coverts (plate 95, 5 & 6). As described by Forsman (1999), some fledglings had a pale crown and throat, divided by a dark brown mask through the eye (plate 95, 4), others had only a pale patch on the nape, which did not extend to the forehead (plate 95, 3; see also illustration in Clark 1999, plate 17), and some had an all-dark head (plate 95, 1 & 2).

There was a limit to the combination of these various characters in the individuals sampled: we never observed a fledgling with a pale crown but *without* a pale throat, or with a nape patch *and* a throat patch, or with *only* a pale throat patch. Among all fledglings for which we colour-scored the head pattern, those that displayed a pale crown and throat were particularly frequent (n=245, 75%), while those that displayed only a pale nape patch occurred less frequently (n=79, 24%) and those with an all-dark head were very rare (n=3, 1%).

We found that the presence and/or extent of upperwing-covert patches, described as independent of fledgling head pattern by Forsman (1999), actually varied with head pattern and sex. All 82 fledglings with an all-dark head or just a pale nape patch showed dark upperwing-coverts (46 males, 36 females; plate 95, 6). In contrast, among the 245 fledglings that showed a pale crown and throat, around two-thirds showed dark

95. Plumage patterns of juvenile (1–10) and breeding adult female (11–20) Marsh Harriers from west-central France (upper section), with head patterns of males and females (21–30).

1–5: Head patterns of wing-tagged juveniles (just before fledging), covering the entire range of variation from absence to presence, and then extent, of pale head patches (i.e. crown, throat, nape): 1–2, absence of pale head patches (same bird); 3, nape patch only; 4, pale crown and throat (classic juvenile head pattern); 5, pale crown and throat head pattern with additional light patches on back.

6–7: Juveniles displaying clear 'border lines' on primaries and secondaries (6), and a light collar (7).

8–9: Iris colour of wing-tagged juveniles (just before fledging), showing colour variation from paler to darker. **10:** A partially leucistic juvenile. **11–14:** Light-morph breeding adult females, involving an individual without pale lesser wing-coverts (12), and those with pale upperwing-covert patches (11, 13–14), the palest bird also with a whitish back (14).

15–16: Dark-morph breeding adult females, with pale nape patch only (15), or with all-dark head (16). **17:** Breeding female displaying greyish tint on upperwing flight feathers. **18–19:** Breeding adult females, showing dark underwing (18), and paler underwing (19). **20:** Partially leucistic female. **21–25:** Head pattern and iris colour of breeding adult females, showing variation from all-dark (21), more classic crown and throat head patterns (22–24), to extreme light pattern (25); and with iris colour dark (21), amber (22–23) and yellow (24–25). **26–30:** Head patterns and iris colour of breeding adult males, showing variation from nape patch only (26; the same male as in plate 94, 4 & 8) to paler head patterns (27–30).

Note that the collar is always present in males, and that the yellow iris colour varies somewhat.

upperwing-coverts (75 males and 75 females) whereas the remainder showed pale areas on the upperwing-coverts (56 males and 26 females; note that for the 13 fledglings, the upperwing-coverts were not colour-scored). In addition, a few fledglings displayed further light feathers on the back or collar (plate 95, 5 & 7). Iris colour was scored in 246 fledglings, and in the majority the iris was dark-brown (192, 78%; plate 95, 9). Greyish-brown irides were found in 54 (22%) of fledglings (plate 95, 8), particularly in males (98% of the 54 fledglings with greyish-brown irides were males). However, unlike Hen *C. cyaneus* and Montagu's Harriers *C. pygargus* (see Picozzi 1984 and Leroux & Bretagnolle 1996, respectively), this overlap between sexes, albeit small, means that this criterion cannot be considered diagnostic.

Breeding females (n=184)

Most breeding females displayed the classical plumage, with a chocolate-brown plumage and whitish patches on crown and throat (n=134, 73%; plate 95, 11), with tail colour ranging from dark brown to rufous-brown. Among these females, upperwing-covert patches were absent in 21 birds (16%), while in 109 birds (81%) they ranged from small (covering the lesser coverts only) to large (extending across both median and lesser coverts); note that for four birds (3%) the upperwing-coverts were not colour-scored. Females that sported the largest upperwing-covert patch usually also showed pale-mottled mantle and upper breast (plate 95, 14, 19).

In addition to this classic female plumage, we found a relatively high proportion of a second type (n=39, 21%), which consisted of an all-dark plumage, most birds with just a pale nape patch (n=30, 77%; plate 95, 15). The remainder were entirely dark (n=9, 23%; plate 95, 16 & 21).

Finally, the remaining 11 females (6%) showed a greyish tint on the primary coverts (plate 95, 17).

Female underwing pattern was usually a faded brown, with a paler inner hand and the 'fingers' and secondaries contrastingly darker brown, and a paler patch of variable extent on the underwing-coverts (plate 95, 18). The underwing pattern usually appeared darker

in all-dark females and in those that displayed only a pale nape patch, but some females showed a rather pale underwing (plate 95, 19). Up to 8% of females showed some degree of plumage aberration (plate 95, 20), most often the darkest females.

The iris colour of 115 females was recorded; the majority had brown (n=38, 33%; plate 95, 21) or amber (n=63, 55%; plate 95, 22 & 23) irides, although 14 had a yellow iris (12%; plate 95, 24 & 25).

Overall, female plumage-types in our study population did not differ markedly from those described elsewhere, except that we observed: (i) a relatively high proportion (21%) of all-dark females (i.e. lacking the whitish crown and throat); (ii) 16% of 'classic' females which lacked a pale patch on the upperwing-coverts; and (iii) a generally high plumage variability with almost continuous variation from all-dark females to the palest birds.

Breeding males (n=168)

The males in our study population exhibited two characteristics that have not been described previously: (i) a proportion of breeding males with brown, 'female-like' plumage (quite unlike the 'classic' grey ones; see plate 94); and (ii) an extreme range of plumage variation, with a continuous, gradual variation between brown 'female-like' males and 'typical field-guide grey males'. For convenience, we categorised this gradual variation arbitrarily into five plumage types, according to upperwing pattern. This variation was mainly independent of age.

Type 1 (n=16, 10%) involved completely brown or rufous-brown males. This type is previously undescribed (Cramp & Simmons 1980; Forsman 1999; Ferguson-Lees & Christie 2001). Virtually indistinguishable from females on plumage alone, these adult males lacked grey feathers and had an entirely brown upperwing pattern (plate 96, 1–3), varying from very dark brown (as in all-dark females; plate 96, 1) to chocolate-brown (plate 96, 3).

Type 2 (n=40, 24%), also undescribed in Forsman (1999), involved predominantly brown males with a dark brown upperwing that displayed a greyish tint only on some of the primary coverts (plate 96, 4 & 5), similar to that observed occasionally in older females

(see above). As with females, the limited grey may be difficult to observe at distance or in poor viewing conditions.

The remaining three types encompassed males with varying degrees of grey plumage, and correspond to the plumage-types described by Forsman (1999) – although we found that these types were independent of age (see below). Type 3 ($n=38$, 23%; plate 96, 6) corresponded roughly to the plumage pattern depicted by Forsman for transitional males (2CY summer and autumn) or first-adult males (2CY late autumn to 3CY summer). The birds' upper primary coverts were dull grey whereas most of the secondaries and their coverts were dark brown (although the latter sometimes showed some dull grey at the base).

Type 4 ($n=57$, 34%) corresponded to Forsman's younger adult-type males. These birds showed a distinct upperwing pattern with black outer hand, silvery grey mid-wing (i.e. primaries and secondaries) and brownish inner wing and coverts (plate 96, 7 & 8).

Type 5 ($n=17$, 10%) referred to birds that approached 'typical field-guide grey males', showing extensive silvery upperparts with the greater-coverts and tail being silvery grey (plate 96, 9 & 10). Only a single bird in our sample had no trace of dark on the grey parts of the plumage.

Overall, a third of the breeding males in our study population consisted of mainly brown males (lacking any purely grey feathers or showing just a greyish tint), whereas the remaining 68% showed a significant proportion of grey colour on the upperwings that was variable in extent. In addition, none ever reached the colour pattern observed in males depicted as 'old adult' by Forsman (1999).

Males also differed in relation to the presence or absence (and extent) of whitish upperwing-covert patches (see plate 96). Underwing pattern was also highly variable – the range of variation observed matched previous descriptions (Forsman 1999), but the variation we observed was unrelated to age (see below). About 17% of breeding males had a dark underwing, difficult to distinguish from that of females (plate 96, 14 & 15), with whitish, mottled patches on the underwing

lesser coverts of varying extent. An additional 37% of males showed paler underwing primaries and secondaries with a more extensive whitish mottled patch and black tips (plate 96, 17), some with a marked dark trailing edge (plate 96, 18). The most common pattern (46%) showed either whitish secondaries and primaries with pale ochre underwing-coverts and well-marked black wing-tips (plate 96, 19 & 20) or, as described for old adult-type males by Forsman (1999), an extensively whitish underwing with black wing-tips restricted mostly to the fingers and without a dark trailing edge (plate 96, 21). Therefore, except for brown males, which showed a predominantly brown underwing, most males had a distinctively contrasting underwing pattern with a darker wing-tip (plate 96, 17–21).

Some males also showed rufous colouring on specific parts of the plumage, such as tail, uppertail-coverts, rump, underwing-coverts, breast and belly (plate 96, 11 & 13). Most of these males were entirely brown (type 1), but a few type 2 males also showed this characteristic (plate 94, 2). Rufous colouring seemed unrelated to age in our population (*contra* Forsman 1999; see below). Furthermore, about 47% of breeding males showed a barred tail (i.e. one terminal or several bars; plate 94, 3), although this pattern was restricted to type 2, 3 or 4 males and was unrelated to age. Finally, some 4.5% of males showed some form of aberrant plumage.

Type 1 males displayed a head pattern similar to that of females, with either just a pale nape patch ($n=5$, 33%; plate 95, 26) or a pale crown and throat with dark eye-mask ($n=11$, 67%). In type 2 males, the head pattern was much more variable (plate 95, 27–30), although the commonest variant was a very pale head pattern with a marked whitish collar ($n=18$, 46%; plate 95, 28). Grey males (types 3–5) had more typical male-type head patterns, ranging from an ochre head with dark brown streaking, sometimes with a hint of a dark ear-covert spot, to an entirely whitish head. In all cases, however, the breast and upper belly were streaked rusty-brown, highlighting a distinctive collar (plate 95, 27–30).

Trends in plumage coloration with age

Juveniles

As in other Marsh Harrier populations, the overall upperwing pattern of juveniles does not change much during the birds' first winter, i.e. before first moult (Clark 1999; Forsman 1999).

Females

In females, plumage variation with age involved mainly the upperwing-coverts and, to a lesser extent, underwing pattern, but was less apparent than in males. The presence of upperwing-covert patches varied with age: in some females lacking such patches as juveniles, they appeared after the first moult and remained a stable feature thereafter, whereas in other females, this feature remained absent (plate 97, 12). The extent of the pale upperwing-covert patch also varied with age (e.g. plate 97, 15) and this feature was not indicative of age in our study population. Underwing pattern became paler with age in some females, although less so than in males (plate 97, 14). However, pale crown, throat and upperwing-covert patches did not appear in very dark female fledglings (n=18) – in contrast to males, such females remained very dark for life.

Males

Although only five males in their second plumage (i.e. late 2CY) were photographed, we observed that the first grey feathers always appeared after the first complete moult (see plate 97, 1–3). Among these five photographed males, two were grey males (type 3 & 4) while the other three displayed 'female-like' plumage (type 1 & 2). We also found that some of the darkest juvenile males became grey males after their first complete moult (in

other words, juvenile plumage was not a good predictor of subsequent plumage).

In males of known age from type 2 to type 5, we found that plumage pattern showed slight variation between the second and third plumage (plate 97, 5) while plumage apparently stabilised after the third plumage (plate 97, 4 & 6). From all males observed within their second and third plumage (n=24), only two reached type 3 in their third plumage from type 2 in their second plumage; all the others remained as type 2. Similarly, all males with 'female-like' plumage in their second plumage kept that female-like plumage for life (e.g. plate 97, 7). Most grey males in their second plumage showed a contrasting underwing (i.e. darker secondaries contrasting with whitish primaries and black wing-tip), but brown males (type 1 & 2) showed uniformly brown, mottled whitish-brown, or rufous coverts, with barred primaries and secondaries.

Males photographed in successive years indicated that, in some cases, and despite being absent at fledgling stage, upperwing-covert patches could appear at various life stages: this was observed for four males between their first and second plumage, for two males between their second and third plumage and for two other males between their third and fourth plumage.

Finally, several authors have suggested that males usually display both a dark subterminal band to the tail and a dark trailing edge to the wings until 3CY autumn, but that these subsequently disappear (e.g. Forsman 1997, Beaman & Madge 1998, Génsbøl 2009). However, in our study population, although the dark subterminal tail-band was shown by some males (plate 97, 3), it was not shown by many others. In addition, although these authors stated that the dark subterminal

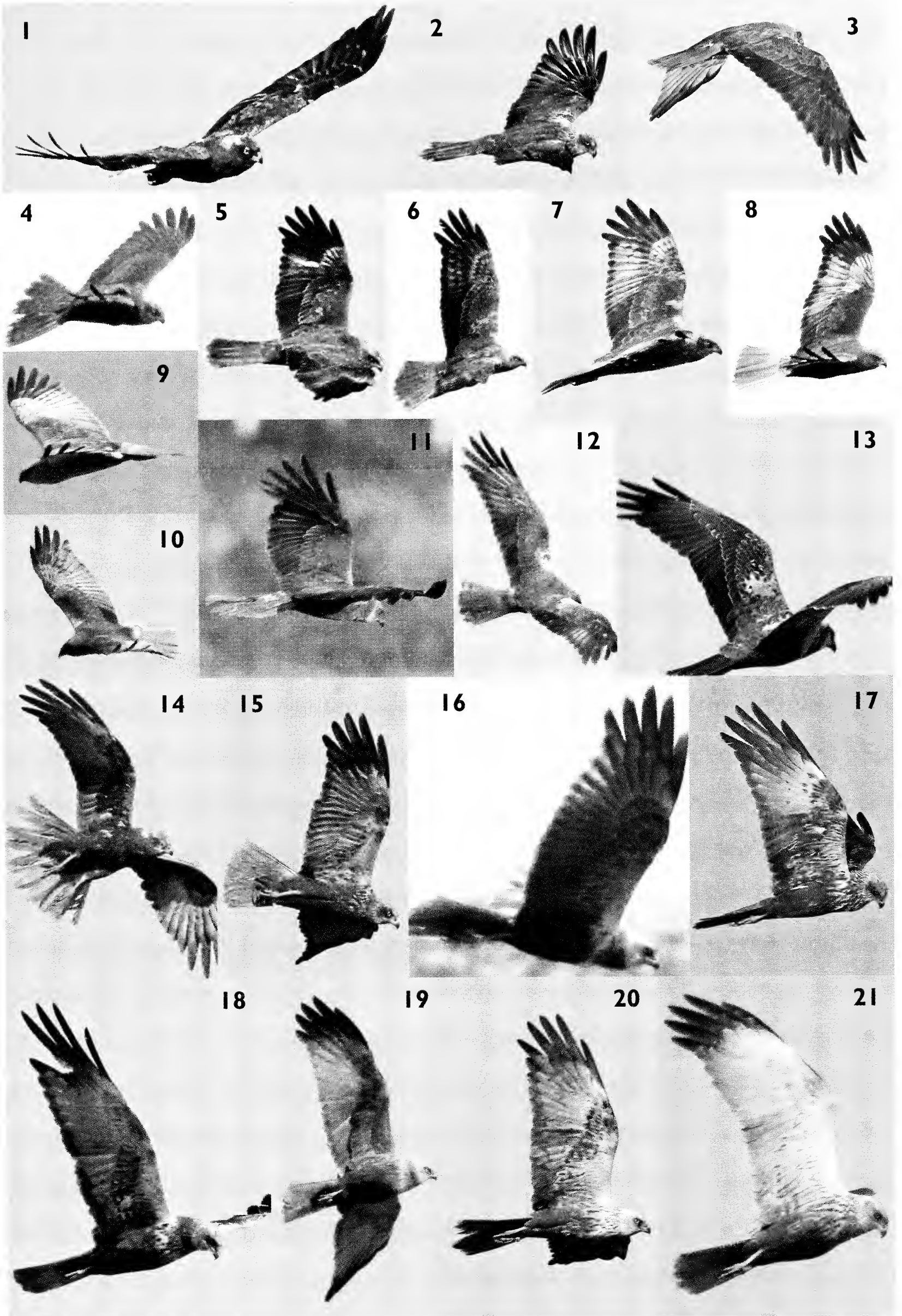
96. Plumage patterns of breeding adult male Marsh Harriers from west-central France belonging to the five types defined in this paper.

1–3: brown males of type 1, displaying very dark (1), or rufous-brown upperwing coloration (3).

Note that not a single grey feather is present in the plumage, though all these birds are 3CY at least.

4–5: brown males of type 2 displaying greyish tint on upperwing flight feathers and primary coverts to a varying extent. **6:** Grey male of type 3. This bird is 5CY at least. **7–8:** Grey males of type 4.

9–10: Classic 'field-guide grey males' of type 5. **11–13:** Variation of lesser wing-covert patches, from absence (11), to presence in both grey (12) and brown (13) males. **14–21:** Underwing patterns of adult breeding males. Brown males (type 1 & 2) displaying varying extent of pale underwing feathering (14–16), and contrasting primaries and secondaries (17). Grey males (type 3–5) displaying underwing patterns ranging from dark to very pale in colour (18–21).





tail-band and trailing edge disappeared after the 3CY autumn, we observed males up to 6CY with tail-bands (plate 97, 10), as well as 5CY and 6CY males with a dark trailing edge (plate 97, 8 & 9).

Discussion

As described above, the population of breeding males in our study shows several unique and intriguing characteristics: (i) a brown, 'female-like' plumage; (ii) a wide and seemingly continuous range of plumage variation between 'female-like' males and more typical grey males; and (iii) atypical plumages in all the defined types (see plate 94). Consequently, determining the age and sex of birds by plumage alone is a challenging task in this population. This variability occurs largely independently of age and/or sex of individuals, and is so pronounced that it allows easy identification of many individuals by photographs (Sternalski *et al.* 2012), which leads us to suggest that this species is highly polymorphic (Huxley 1955; Roulin 2004). The presence of recurrent patterns of coloration in our population allowed the distinction of several 'types', hence the recognition of the species as polymorphic in addition to sexually dimorphic.

Are brown males the result of delayed plumage maturity?

Brown males are not just immature birds with delayed plumage maturity, which might seem a logical conclusion given the similarity of their plumage to younger age classes (and females). Instead, these brown males represent a distinct morph, a permanent 'female-like' plumage that is currently known in only one other bird species, the Ruff *Calidris*

pugnax (Jukema & Piersma 2006). However, the situation is not quite that simple, since our study population does not consist of just brown and classic grey male morphs. In fact, these two types account for <20% of breeding males, with the remaining 80% exhibiting a wide variety of intermediate plumages. This may suggest that plumage variability in this population results from complete introgression between the two extremes of the range.

Are brown males present elsewhere?

Although brown males have long been known in this area of France (Bavoux *et al.* 1998), the lack of published records suggests that they are either restricted to west-central France or extremely rare elsewhere. However, based on our personal experience in other areas, and on an internet search (about 3,000 photos checked on Google and Flickr using 'western marsh harrier' and '*Circus aeruginosus*' as keywords), it appears that completely brown males (type 1) and brown males that display only a greyish tint in some of their primary coverts (type 2) are found elsewhere in western Europe (table 1). Such males occur in Spain (pers. obs. and plate 98), as well as the Camargue (southern France: pers. obs.), Italy (A. Corso pers. comm.), eastern Europe and the UK (table 1). In the Balkans, there are some very atypical males that resemble our most extreme plumage types (table 1). However, in all such cases, completely brown and greyish-brown males are apparently quite rare (though possibly overlooked) – in contrast to our study population – and we found no evidence of such birds in Fennoscandia or Germany.

97. Variation in coloration with age in wing-tagged male and female Marsh Harriers from west-central France. Age of wing-tagged birds is indicated on images; a red arrow indicates when the same bird is shown in an image sequence of increasing age. To allow better comparisons, some photos have been flipped horizontally, in order to show birds in the same flight direction, meaning that colour marks may not appear consistent, e.g. 7, 12.

1–3: Second plumage of three grey males. **4–6:** Variation in coloration with age in grey males between two or three successive plumages. Note that plumage coloration changed between second and third plumage (more grey is apparent in sequences 4 and 5) but not afterwards. **7:** Variation in coloration with age in a brown male between three successive plumages. **8–9:** Known 6CY males displaying a dark trailing edge on the underwing. **10–11:** 6CY and at least 3CY males (respectively) displaying a barred tail. **12–15:** Variation in coloration with age in wing-tagged breeding females between successive plumages. No upperwing colour variation occurred in dark females (12), whereas slight underwing colour variation occurred in pale females (14). No variation in the extent of the lesser wing-covert patch occurred in some females (13), whereas in others, the pale patch became larger with age (15).



98. A brown male Marsh Harrier in central Spain, June 2011.

It is interesting to note that the ornithological literature and field-guide descriptions and photographs are based primarily on birds from northern latitudes. These populations consist of birds that are migratory and that winter in Africa (Klaassen *et al.* 2010) and possibly southern Europe. These birds

seem to exhibit less plumage variability than southwest and eastern European birds. Sedentary and migratory populations may differ in coloration in addition to behaviour.

We currently have no firm explanation for the fact that brown and atypical males are so common in our population. The 'female-like'

Table 1. Some examples of brown or otherwise atypical male Marsh Harriers *Circus aeruginosus*. Many additional males were found but are not listed here because we could not rule out that they were 2CY–3CY birds. Note that in some cases the exact locality is not provided.

Male type	Country	Website
<i>Confirmed brown males</i>	UK	http://welshbirderindorset.blogspot.com/2011/03/marsh-harrier-madness.html
<i>Putative brown males</i>	Portugal	www.flickr.com/photos/36341545@N08/5546739427/
		http://fenetresurgaronne.blogspot.com/2008_11_01_archive.html
	Spain	www.flickr.com/photos/12576939@N05/2839720040/
	Spain ¹	www.ibercajalav.net/img/112_MarshHarrierC.aeruginosus.pdf
	Turkey	www.flickr.com/photos/donbaloglu/5442084946/in/photostream
	Oman	www.patrickdieudonne.com/4images/img3979.htm
<i>Putative intermediate males</i>	UK	http://pewit.blogspot.com/2009/03/3cy-male-marsh-harrier.html
	France	www.flickr.com/photos/40191328@N03/4793889351/
<i>Atypical males</i>	Eastern Europe	www.flickr.com/photos/63854769@N05/5814833384/sizes/z/in/photostream/
	Germany	www.flickr.com/photos/cis_schut/5107845814/
	Unknown	http://cheshirewildlifetrust.files.wordpress.com/2010/09/marshharrier-male-c-dave-newby-web.jpg

¹ The adult female (18–11) on page 3 is claimed to be a female, but it was not sexed genetically (A. Zuberogoita pers. comm.) and we believe that it is actually a brown male, based on head shape and tarsus size in the photo.

morph may result from very intense competition within the sexes at high breeding densities and may have evolved to lessen competition among males and allow brown males to breed (Sternalski & Bretagnolle 2010; Sternalski *et al.* 2012). Such differences in colour between populations must also have consequences on mating (which in turn may help to maintain such plumage variability), as well as on mechanisms of plumage transmittance and heritability. Schreiber *et al.* (2001) showed extreme plumage variability in a population of Common Buzzards *Buteo buteo*, despite very low levels of molecular divergence, suggesting that plumage variability in our harrier population may be a consequence of historical population bottlenecks having an effect on allele frequencies on genes, in turn affecting plumage pattern. However, further research on both the level of genetic variation and the evolution of conditional alternative mating strategies such as female mimicry (Sternalski *et al.* 2012) is needed to improve our understanding of the evolution and maintenance of such extensive plumage variability and the existence of different morphs.

Is sexing of Marsh Harriers in such populations feasible and reliable?

Since we also found that there are two distinct female morphs, the darkest one characterised by the absence of light patches (crown, throat, and upperwing-coverts), and since there is so much variability in male plumages, a key question is whether birds can be sexed reliably in the field in such populations. For instance, upperwing pattern appears as a good criterion for sexing birds, apart from brown males (type 1 & 2). Only males possess grey feathers, but beware that up to 6% of females may have some grey tint on the primary coverts. Brown males and females, irrespective of age, may thus be difficult to separate, but a grey or greyish hue in the tail is diagnostic of males. Furthermore, many brown males show black wing-tips, and also a large, whitish area at the base of the primaries, although these criteria are not always easy to note in the field (plate 96, 14 & 16, plate 97, 7). Apart from diagnostic behaviour during the breeding season (food pass and copulation behaviour only, since both males and females will carry nest material;

Simmons 2000), there are some subtle differences in silhouette between two members of a pair. Females are heavier than males and their silhouette, as well as their type of flight, more closely resembles a buzzard than a harrier – females are more ‘stubby’ than males, with a wider base to the wing and a shorter tail.

What about criteria for ageing Marsh Harriers?

Ageing birds solely by plumage colour and pattern is probably impossible (even if the sex of the bird is known) – at least at our study site – because of the wide plumage variability within and between age classes and the large overlap between these classes. For instance, the upperwing-covert pattern of older birds may be apparent in juvenile plumage or appear only after the first moult. Similarly, grey males from any given age class can show great variety in the extent of grey. At least in our population of wing-tagged, known-age individuals, there is no trend with age in the extent of light patches, the extent of grey in the upperwing or how pale the underwing appears. However, 1CY and early 2CY birds are identifiable as such from their uniformly fresh/worn plumage (lacking moult contrast); while males with grey feathers (in the tail and/or upperwing) and females with clean pale underwing-coverts are undoubtedly 2CY or older. Ageing criteria such as a barred tail or a dark trailing edge to the wing (both said to be typical of 2CY–3CY males) are found in much older males in our population.

Conclusions and future prospects

Our findings may come to a surprise to many, even those familiar with Marsh Harriers – that in a large breeding population in western Europe, only 10% of breeding males look like ‘typical field-guide males’, and almost a third of males show a previously undescribed ‘female-like’ plumage. Until now, this is the only population of Marsh Harriers in the region with such a high proportion of atypical plumages, especially in males, though such individuals apparently occur in other areas and may have been overlooked. This raises the question of the validity of sex and age attributions over most of the breeding range, at least with certainty.

Although we admit that this population may appear as an outlier, we hope that our findings will alert ornithologists to the existence of such birds, which may prove to be less rare than currently thought. We encourage further research based on our findings that both male and female Marsh Harriers are polymorphic.

Acknowledgments

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Jean-François Blanc has studied the breeding biology of Marsh Harriers for over five years, and wing-tagged many of the birds described here. During her PhD thesis, **Audrey Sternalski** worked on understanding the mechanisms and functions of coloured traits in harriers, and she is now working on assessing the effects of Fukushima ionising radiations on bird physiology. **Vincent Bretagnolle** is senior scientist and Head of the Chizé laboratory of CNRS. He has worked on harriers for over 20 years.



Conservation research news

Compiled by Guy Anderson, Jenny Bright, Sarah Davis and Daniel Hayhow

The dove's last stand? Turtle Doves retreat to the best bits of breeding habitat

The Turtle Dove *Streptopelia turtur* has declined rapidly in the UK (by 80% since 1995) and throughout Europe (by 29% since 1990). It is the UK's only migratory dove, spending the winter in sub-Saharan Africa, but breeding mainly on farmland, where chicks are fed on seeds. Various theories have been suggested as to the cause of the decline, including loss of foraging and/or nesting habitat, hunting on migration routes and conditions on the wintering grounds. However, in the UK a reduction in the number of late nesting attempts has meant that the overall number of chicks fledged per year has halved, and this alone is enough to account for the population decline. This has coincided with a change in diet from arable weed seeds to crop seeds, probably because favoured arable plants such as the fumitories *Fumaria* have declined in abundance with changing farming practices.

A recent study examined 58 1-km squares in eastern England, all of which had yielded breeding-season records of Turtle Doves in 2008 or 2009. All squares were resurveyed in 2010. Habitat data were compared between squares where Turtle Doves had been lost in the previous two years and those where territories had persisted. Turtle Doves were more likely to have persisted, and to be more abun-

dant, in squares with a greater area of suitable nesting habitat: established scrub or hedges over 4 m tall. They were less likely to have persisted in squares with more grazed grassland. Areas of fallow land (an important potential foraging habitat) and permanent standing water in the squares also had positive, although weaker, associations with persistence. Although this study provides no definitive evidence for the *cause* of the observed decline, it does suggest that Turtle Doves in eastern England may be increasingly restricted to the most suitable breeding areas – those with more available nesting and foraging habitats. Perhaps the most striking thing about the study is the rate at which Turtle Doves were lost from the surveyed area: a decline of 34% *over just two years*. If the species continues to decline at this rate, it may be lost from the UK as a breeding bird by 2021. It is now essential for the future of the Turtle Dove in the UK, and more widely, that further research is carried out on all stages of the life-cycle to pin down causes of the decline, and to develop and test management solutions.

Dunn, J. C., & Morris, A. J. 2012. Which features of UK farmland are important in retaining territories of the rapidly declining Turtle Dove *Streptopelia turtur*? *Bird Study* 59: 394–402.

Construction of upland windfarms can displace some breeding birds, but effects differ between species

As concerns over climate change and depletion of fossil fuel reserves have increased, so has the pressure to develop renewable energy sources. Onshore wind power is currently one of the cheapest forms of renewable energy and, as a consequence, has grown rapidly in the UK and continues to do so. Concerns about potentially detrimental effects of windfarms on surrounding bird populations, due to collision with the tur-

bines or through disturbance, displacement and avoidance, have resulted.

Upland areas are often chosen as sites for windfarms because of their exposure to high winds and the fact that they are often fairly remote from towns and cities. However, this potentially brings them into conflict with bird species of conservation importance in these areas, such as European Golden Plover *Pluvialis apricaria*, Northern Lapwing

Ben Hall (rspb-images.com)



99. Eurasian Curlews *Numenius arquata* in Lancashire (from the RSPB's reserve at Leighton Moss), with the snow-dusted Pennines in the background, March 2007.

Vanellus vanellus, Eurasian Curlew *Numenius arquata*, Dunlin *Calidris alpina* and Common Snipe *Gallinago gallinago*. Curlews, for example, have declined rapidly in recent years in the UK (about 40% over the past 15 years; BBS data).

Pearce-Higgins *et al.* (2012) collated monitoring data from multiple windfarms in upland areas to compare breeding densities before, during and after construction of the windfarms. There was sufficient data to look at ten upland species – Red Grouse *Lagopus lagopus*, Golden Plover, Lapwing, Curlew, Dunlin, Snipe, Skylark *Alauda arvensis*, European Stonechat *Saxicola rubicola*, Northern Wheatear *Oenanthe oenanthe* and Meadow Pipit *Anthus pratensis*.

Average densities of breeding Red Grouse, Curlew and Snipe all declined on the windfarm sites during construction, but did not continue to decline after construction had finished and the windfarms were operational. Red Grouse densities recovered after construction to their initial levels, but Curlew and Snipe densities stayed lower than before construction and Curlew densities at the windfarm sites after construction were lower than at equivalent sites nearby with no windfarms. Conversely, densities of Skylarks and Stonechats increased during the construction phase and remained higher subsequently, although the reasons for this are unclear. This study thus provides evidence of long-term

negative displacement effects for only two species – Curlew and Snipe – and previous research has also shown that they strongly avoid turbines, which potentially pushes them out of valuable breeding habitat.

Interestingly, there was little evidence to suggest that any of the ten species studied declined after construction during the first years of windfarm operation, but the authors do point out that this is a relatively small dataset and that it includes only three years of post-construction data. This suggests that windfarm construction may have a greater effect on bird populations than when the windfarms are operational. This could be very useful in the future planning of windfarms and the mitigation measures that can be put in place to minimise negative impacts. Further work is needed to establish whether the negative effects on those two breeding waders are primarily due to disturbance during windfarm construction, or avoidance of the turbine structures. If the former, it could be that, in some cases at least, simply avoiding windfarm construction during the breeding season could reduce the impact on breeding birds significantly.

Pearce-Higgins, J.W., Stephen, L., Douse, A., & Langston, R. H.W. 2012. Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. *J. Appl. Ecol.* 49: 1323–1331.

Protected areas will be critical to allow birds to respond to climate change

The expanding populations of several rare or scarce breeding bird species in southern England, such as the Eurasian Bittern *Botaurus stellaris*, Woodlark *Lullula arborea* and Dartford Warbler *Sylvia undata*, have helped to show that protected areas have a crucial part to play as climate change takes effect and influences species distributions.

Concern has been voiced, both within and beyond the conservation community, that the traditional emphasis placed on static protected areas may be short-sighted. The main issue is in relation to the necessary shifts in range that species will have to make in response to climate change, with the result that sites could soon be in the 'wrong place', thereby reducing their relevance. A recent study (Thomas *et al.* 2012) has addressed this question by exploring the pattern of range expansion in relation to protected areas for seven focal species (five bird and two butterfly species) and a wide range of other invertebrates.

The crucial role of protected areas was clear. On average, when arriving in new locations, species as varied as birds, beetles and spiders were around four times more likely to colonise protected areas than might be expected, given how much of the land surface they cover (having accounted for any differences in recording effort between protected areas and other places). For the Dartford Warbler, surveys have shown population increase and range expansion from 1974 to 2006 in response to milder winters; no less than 74% of new colonisations occurred within protected areas. Similar patterns were found across a range of invertebrate species as well.

For the other bird species investigated in detail, the reliance on protected areas was strongest for those species with very specific habitat requirements: the Bittern and

reedbeds, and the Woodlark and heathland and early successional areas in forestry. The pattern was positive but less strong for the Stone-curlew *Burhinus oedicephalus*, which can be found on arable farmland, open heaths and grassland. For this species, knowledge of the specific microhabitats it requires and the vulnerability of its nests to farmland machinery make it a good candidate for conservation outside as well as within protected areas through physical nest protection and habitat creation via agri-environment schemes.

These analyses are only possible thanks to the wealth of monitoring schemes and the dedicated recording by thousands of volunteers across the UK. Without these data it would be much harder to address questions such as: How does wildlife respond to climate change? This study provides convincing evidence that protected sites will remain crucially important even as our climate changes. Even if the composition of species within them may change, they remain the most important parts of the landscape for our most sensitive and vulnerable species.

Thomas, C. D., Gillingham, P. K., Bradbury, R. B., Roy, D. B., Anderson, B. J., Baxter, J. M., Bourn, N. A. D., Crick, H. Q. P., Findon, R. A., Fox, R., Hodgson, J. A., Holt, A. R., Morecroft, M. D., O'Hanlon, N. J., Oliver, T. H., Pearce-Higgins, J. W., Procter, D. A., Thomas, J. A., Walker, K. J., Walmsley, C. A., Wilson, R. J., & Hill, J. K. 2012. Protected areas facilitate species range expansions. *Proc. Nat. Acad. Sci.* 109: 14063–14068.



100. Eurasian Bittern *Botaurus stellaris*, Lee Valley Country Park, Essex/Hertfordshire, February 2007. The reliance on protected areas for species such as this, with its very particular habitat requirements, is high.

Andy Hay (rspb-images.com)

Fighting behaviour of Mute Swans

The fighting behaviour of Mute Swans *Cygnus olor* is described briefly in *BWP*: 'Rarely, fighting develops, which territory owner normally wins; such fighting involves both beak and wrists of wings, and nearly 3% of ringed birds found dead [are] thought to have been killed in territorial disputes'. More detail is given by Birkhead & Perrins (1986): '...necks become entwined and the rivals beat each other with their wings. The fight is accompanied by snorting and the winner usually ends up mounting his opponent, pecking him and beating him. Very rarely fights like this can result in deaths.'

On two recent occasions, both in May, in Northamptonshire and Norfolk, I have watched Mute Swans fighting. I was able to

photograph most of the event on the first occasion (probably all but the first minute or two), and saw the complete sequence of events on the second. Though there was no doubting the serious nature of these conflicts, I was struck by the almost ritualised behaviour, which closely followed the same sequence on both occasions. This note documents the fighting behaviour of Mute Swans, illustrated by photographs that show all but the initial phase of the interaction and provide a timed sequence of events.

On 17th May 2010, at a disused gravel-pit lake adjacent to Titchmarsh Wildlife Trust Reserve, Northamptonshire, I was attracted by the intense splashing of three Mute Swans. Two swans were attacking each other, while

the third was paying close attention to the other two (plate 101, the second image I took; time – 0m 01s). Since I was close to the scene and had only just heard the splashing, I presume that the fighting had only just commenced, although I had seen none of the preliminaries to the fighting. The photos confirmed that the two fighting swans were males, while the third, with a slightly yellower (less orange) bill and a smaller knob, was a female. The female slowly and quite closely circled the two males throughout the fight. The two males were both holding the leading edge of the inner wing of the other bird with their bill, while flapping their own wings, the cause of



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the splashing. After a while the wings were released and they tried to grasp the back feathers of the other swan (plate 102; +0m 48s). Shortly after that, plates 103 (+1m 24s) and 104 (+1m 29s), one succeeded in getting behind the other, then mounting it (plate 105, +2m 41s). Seconds later (plate 106, +2m 45s), the female also made a brief attack on the now almost completely submerged second male. After more struggling, the second male rested its head on the neck of the female for 3–4 seconds (plate 107, +3m 20s), apparently in an attempt to prevent its head being forced underwater. This was to no avail, and the dominant male forced the head of the second male underwater for perhaps 2–3 seconds (plate 108, +3m 24s). At this point the submerged male managed to lift its head from the water and escape, flying off low over the lake.

On 22nd June 2010, there was a Mute Swan's nest with two eggs within about 30 m of the scene of the fight, and another nest in the direction of escape of the defeated male about 200 m away.

The second fight took place at Cley Marshes, Norfolk, just in front of the Bishop Hide, on 16th May 2012. I was not able to photograph the encounter, but made detailed notes.

An adult male swan, in an exaggerated form of what *BWP* describes as the 'busking' (or

'swanning') posture, with raised secondaries and head held low, swam along the ditch from the left (west) towards another male half hidden in reeds to the right of the hide. The latter swam to meet it, and the two circled each other clockwise, about a metre apart, for perhaps a minute, and then commenced grappling with one another, exactly as described for the Northamptonshire



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swans. The fight proceeded as before, with the dominant swan eventually mounting and holding the head of the other underwater. The fight lasted 3–4 minutes, before the invader escaped, flying low along the ditch the way it had come. It was followed by the victor, swimming in the same exaggerated version of the busking pose that the first bird had shown initially. The only significant

difference from the Northamptonshire event was the absence of a female swan.

Discussion

Initially, once the swans made contact, the wings seemed to be used to make a great deal of noise (splashing), perhaps an attempt to intimidate the other swan, rather than directly as a weapon. I was not aware of any vocalisation during the fights, although that could easily have been masked by the intense splashing. Nor did I see any pecking as such, rather the use of the bill to grasp feathers to get a grip on the opponent. Descriptions of ‘pecking’ during fighting may simply be an attempt to grasp feathers.

The mounting of the opponent by the dominant male is very similar to that seen in mating behaviour. Although the male grasps the female at the back of the head when mating, and she may be largely submerged, the head is not forced underwater as in the two fights I observed. It seems possible that the deaths reported after fights between Mute Swans are the result of the dominant male drowning its opponent.

The ritualised nature of the fights described here suggests that the same general sequence of events occurs when Mute Swans fight. The ritualised nature of the fights is also echoed by the fact that the territory owner usually

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101–108. Mute Swans *Cygnus olor* fighting, Northamptonshire, May 2010.

wins, as is presumed in both cases here. This prompts further questions: which bird provokes the fight, and if the non-territory holder does so, as appeared to be the case at Cley, why does he bother if he will almost certainly be defeated?

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Breeding Pink-footed Geese in Norfolk in 1999

In the RBBP report for 2010 (Holling *et al.* 2012), 2–3 breeding pairs of Pink-footed Geese *Anser brachyrhynchus* are mentioned as being the first documented breeding ‘wild’ birds in the UK. There is, however, a reliable yet undocumented record of a breeding pair at Stiffkey, Norfolk, in 1999. A nest with 11 eggs was found by gamekeeper B. Slegg after flushing the female from inside a clump of Common Nettles *Urtica dioica* in wet meadowland alongside the River Stiffkey. The nest, and presence of a male, was later confirmed by the landowner, the late Lord Buxton. Neither bird bore rings, although one bird ‘did not look in the best of condition’. Unfortunately, after a full period of incubation none of the eggs hatched and upon examina-

Acknowledgments

I thank Malcolm Ogilvie for drawing to my attention the Birkhead & Perrins account, and Chris Perrins for his comments on a draft.

Reference

Birkhead, M., & Perrins, C. 1986. *The Mute Swan*. Croom Helm, London.

tion they proved to be infertile.

It is not unusual for a few Pink-footed Geese (and similarly Eurasian Wigeon *Anas penelope*) to summer in the north Norfolk marshes but these are invariably ‘winged’ or sick-looking birds, victims of a bad shot from a wildfowler during the preceding winter shooting season. This seems most likely to be the reason for this pair’s presence (although the possibility that they were feral birds cannot be ruled out completely) and also ultimately why the breeding attempt ended unsuccessfully.

Reference

Holling, M., & the Rare Breeding Birds Panel. 2012. Rare breeding birds in the United Kingdom in 2010. *Brit. Birds* 105: 352–416.

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Editorial comment Mark Holling, Secretary of the Rare Breeding Birds Panel, commented: ‘The RBBP welcomes any additional breeding records of all species on its list, even if, as seems to be the case here, the record is as a result of injury of wild birds unable to migrate. Records archived with RBBP in this way are then available for any future analysis, such as compilation of local avifaunas and species reviews.’

Common Shelducks attacking and killing Arctic Skua

In spring 2011, a pair of Common Shelducks *Tadorna tadorna* at Boddam Voe, in Shetland, reared an impressive brood of 15 chicks (presumably the result of brood amalgamation), at least 13 of which made it to the flying stage. The few Shelducks that breed in Shetland typically suffer heavy predation from skuas and gulls (just three other broods were reported in 2011, and all lost their chicks at an early stage) but both parents of this pair were aggressive and attentive. On 24th June 2011 the 15 ducklings were about half to

three-quarters grown. When I arrived I noticed the two adult Shelducks attacking something; the birds were quite distant and I wasn’t sure what the intruder was, but when I got closer I saw an Arctic Skua *Stercorarius parasiticus* in the sea near the Shelduck chicks. The two adults attacked the skua several times (see photos) before they swam back to the chicks. The skua seemed to have a broken wing and was shaking its head repeatedly; it had died when I returned for another look about an hour later. Perhaps because of

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109–112. Common Shelduck *Tadorna tadorna* attacking Arctic Skua *Stercorarius parasiticus*, Boddam Voe, Shetland, June 2011.

the ever-present risk of predation, breeding Shelducks in Shetland have been noted as particularly aggressive (in 1986, a pair at this same site was observed attacking Fulmars *Fulmarus glacialis*, Great Black-backed Gulls *Larus marinus* and Hooded Crows *Corvus cornix*, and even a Fulmar-oiled Great Skua *S.*

skua; Pennington *et al.* 2004) but the killing of a potential predator seemed to me sufficiently noteworthy to place on record.

Reference

Pennington, M. G., Osborn, K., Harvey, P.V., Riddington, R., Okill, J. D., Ellis, P.M., & Heubeck, M. 2004. *The Birds of Shetland*. Christopher Helm, London.

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Red-breasted Merganser display

At about 11.30 hrs on 10th March 2012, an unseasonably warm, sunny day with little or no wind, I observed the following behaviour by a group of Red-breasted Mergansers *Mergus serrator* on the Sleat peninsula, Skye. Six birds, five females and one male, swam into view in the sheltered inlet by the jetty at the Eilean Iarmain Hotel, Isle Ornsay. They formed into an almost perfectly straight line, the birds side by side and all facing in the same direction, just 3–4 m from the shore. They then began to wheel around in an anti-clockwise circle, all maintaining the line as if it had been drawn in the water with a ruler. The female in the centre of the circle was barely moving, while the drake, at the opposite end of the line and on the perimeter of the circle, was paddling furiously with head down, in order to maintain his position and the shape of the line. The group turned around slowly in these perfect wheels or circles three times. At the end of this spellbinding display of avian synchronised swimming, the line disintegrated and the birds swam into individual positions in a rough circle, all facing inwards, as if

‘eyeing one another up’. After a minute or so the drake and one of the ducks swam up to each other and then drifted back out of the inlet, out of sight; the remaining ducks followed suit in due course. The whole performance lasted between two and three minutes. The birds were silent throughout, with no pre-call head movements or other notable postures that I recall.

I can find no reference to any similar behaviour. Published accounts of Red-breasted Merganser courtship displays, including the description of communal courtship in *BWP* as well as video clips online, describe a quite different display. Typically, there are more males than females, and the males engage in a variety of energetic activities, some of them quite elaborate such as the ‘Salute-curtsey’, with the females typically on the periphery of the action. Indeed, although my observations on Skye seemed at the time to be obviously related to courtship, I wondered whether the behaviour could have had some other function, such as a prelude to co-operative feeding.

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Raptor migration at the Pelagie Islands

The islands of Lampedusa, Linosa and Lam-pione form the Isole Pelagie (Pelagie Islands), situated in the Sicilian Channel between Sicily and Tunisia. Owing to their strategic location they attract many migrants, particularly passerines, moving between Europe and North Africa. To date, only limited observations from the islands have been made and few details have been published (e.g. Moltoni 1970, Corti *et al.* 2002, Corso *et al.* 2012). Apart from a brief mention in Corso (2005) nothing has been published on raptor migration through the islands. To establish the importance of the islands for migrating raptors, observations were made on Lampedusa and Linosa in spring in 2006–08, and on six occasions in autumn between 1997 and 2008. In total, 19 visits extended over a period of 200 days and totalled almost 2,000 hours. The most extensive survey took place in

spring 2006 as part of the LIPU project ‘Rapaci Migratori’ (Gustin 2006), while observations were more sporadic during other visits. Typically, observations began at 06.30–07.00 hours and continued until 18.30–19.00 hours. Observers used 10× binoculars and 20–60× telescopes. On Lampedusa, most observations were carried out near Albero Sole, although in the late evening Cala Pulcino was the preferred site, where a small pine plantation hosted the island’s main raptor roost. On Linosa, the main observation post was at Monte Bandiera, while at sunset harriers were counted at roosts in the Man-narazza area. This study was able to confirm that the southern Sicilian Channel is largely avoided by the larger soaring raptors, but smaller species and those capable of making prolonged sea crossings used the islands regularly to help them cross the Sicilian Channel.

Table 1. Migrating raptors recorded during autumn migration at Pelagie (Agrigento, Sicilian Channel) within the following periods: (1) 29th August to 8th September 1997, (2) 5th–9th September 2005, (3) 10th–20th October 2005, (4) 22nd–24th September 2007, (5) October 2007, and (6) September and October 2008. Age class determined as follows: ad – adult, juv – juvenile, 2CY – second calendar-year, 3CY – third calendar-year, na – not aged.

Period	1	2	3	4	5	6	total
Honey-buzzard <i>Pernis apivorus</i>	1 ad 126 juv	29 ad 63 juv	33 juv	5 ad 58 juv	20 juv 2 3CY	5 ad 40 juv 70 na	452
Black Kite <i>Milvus migrans</i>	4 ad 6 juv 9 2CY		1 ad 6 juv	2 ad 4 juv	1 ad 12 juv	3 ad 9 juv	57
Red Kite <i>Milvus milvus</i>				1 juv			1
Marsh Harrier <i>Circus aeruginosus</i>	40 ad 207 juv 38 2CY 9 3CY	99 ad 115 juv 53 2CY 15 3CY 41 na	11 ad 87 juv 14 2CY 29 3CY	81 ad 259 juv 92 na	15 ad 10 juv 19 2CY 10 na	33 ad 190 juv 50 2CY 40 na	1,557
Pallid Harrier <i>Circus macrourus</i>	2 juv	4 juv	5 juv	1 juv	4 juv	1 ad 3 juv	20
Montagu's Harrier <i>Circus pygargus</i>	1 ad 8 juv	1 juv 3 2CY	4 juv	2 juv	2 juv 1 2CY	3 juv 1 2CY	26
Booted Eagle <i>Aquila pennata</i>			2 3CY				2
Osprey <i>Pandion haliaetus</i>	2 juv	1 ad	1 ad 4 juv	1 ad 1 juv	1 ad 1 juv	1 ad 2 juv	15
Lesser Kestrel <i>Falco naumanni</i>	4 ad	6 ad 5 juv	1 ad 1 juv	10 ad 17 juv	3 ad 10 juv	2 juv	59
Common Kestrel <i>Falco tinnunculus</i>	10 ad 4 juv	25 na	17 ad 42 juv 21 2CY	c. 40	20	20	c. 199
Red-footed Falcon <i>Falco vespertinus</i>	9 ad 2 juv 6 2CY		2 ad 8 juv	4 juv	2 juv	4 juv	37
Hobby <i>Falco subbuteo</i>	1 ad 1 juv	5 ad	2 ad 3 juv	10 ad 2 juv	3 ad 1 juv	1 ad 4 juv	33
Peregrine Falcon <i>Falco peregrinus</i>			1 ad 1 juv	1 ad 1 juv	1 ad	1 ad	6

A total of 3,724 raptors of 14 species were recorded, with most occurring in autumn (tables 1 and 2). The most abundant species were Marsh Harrier *Circus aeruginosus* (1,967), Honey-buzzard *Pernis apivorus* (601), Common Kestrel *Falco tinnunculus* (349) and Red-footed Falcon *F. vespertinus* (157). The regular passage of Pallid Harriers *C. macrourus* (87) and Lesser Kestrels *F. naumanni* (143) in good numbers is particularly noteworthy.

Honey-buzzard

Numbers in autumn outnumbered those in spring by a factor of 3:1. In autumn the majority are juveniles, attempting a sea crossing for the first time; as reported by previous authors, most adults tend to avoid crossing the Sicilian Channel in the south, preferring to cross farther north, where the sea crossing is shorter (Agostini 2004; Agostini *et al.* 2002, 2004).

Table 2. Migrating raptors recorded during spring migration at Pelagie (Agrigento, Sicilian Channel) between March and May in 2006–08.

	2006	2007	2008	total
Honey-buzzard <i>Pernis apivorus</i>	90	38	21	149
Marsh Harrier <i>Circus aeruginosus</i>	200	120	90	410
Pallid Harrier <i>Circus macrourus</i>	20	28	19	67
Montagu's Harrier <i>Circus pygargus</i>	40	60	40	140
Unidentified harrier <i>Circus macrourus/pygargus</i>	10	12	13	35
Long-legged Buzzard <i>Buteo rufinus</i>	1			1
Osprey <i>Pandion haliaetus</i>	4	5	4	13
Lesser Kestrel <i>Falco naumanni</i>	35	27	22	84
Common Kestrel <i>Falco tinnunculus</i>	c. 80	40	30	150
Red-footed Falcon <i>Falco vespertinus</i>	70	35	15	120
Hobby <i>Falco subbuteo</i>	20	19	34	73
Peregrine Falcon <i>Falco peregrinus</i>	8	4	6	18

Red Kite

A juvenile on 23rd September 2007 was the first record for the Pelagie Islands (Corti *et al.* 2002; Corso 2005).

Marsh Harrier

A total of 1,967 were recorded, of which 1,557 were in autumn and 410 in spring. Of the 1,374 individuals for which the age class was established in autumn, 279 were adults (20%), 868 juveniles (63%) and the remaining 227 immatures in their second or third calendar-year. Among adults in autumn, males outnumbered females by 60:40. In spring the majority were aged as adults, of which 70% were males. On Lampedusa, up to 299 Marsh Harriers have been counted going to roost on a single night, making this one of the most important roosting areas for the species during migration in the Western Palearctic (Sammot (2005) reported a roost of up to 200 migrating Marsh Harriers at Buskett, Malta).

Montagu's Harrier

Totals of 140 and 26 were counted during spring and autumn migration respectively. In spring, the majority are adults and mainly males, but several second-calendar-year birds were also observed. On Linosa, up to 40 have been observed roosting at Mannarazza in recent years.

Pallid Harrier

This is a rare breeding bird in Europe, and

the Pelagie Islands apparently represent an important site for birds en route to and from Europe (see Corso & Cardelli 2004). During this study, a total of 67 were recorded in spring and 20 in autumn. In March and early April almost 90% of the birds observed were adult males, while females predominated later in April and into May. This supports the findings of Gustin & Pizzari (1998) and Corso & Cardelli (2004), but is at odds with the observations of Panuccio & Agostini (2006).

Lesser Kestrel

With totals of 59 in spring and 84 in autumn, these islands are one of the most important migration sites in Italy for this species (Corso 2001b, 2005). The ability of falcons to maintain sustained flight over open water is doubtless responsible for the high total recorded.

Peregrine Falcon

All the birds recorded are thought to belong to the migratory form *F. p. calidus*, which breeds in the tundra regions of northern Europe and Siberia. Corso (2001a, 2005) suggested that this race occurs regularly in Italy and these observations support this view.

Acknowledgments

The present study is part of the research started by MISC on the Sicilian islands in 2004, focusing on the birds and fauna of the islands and on their conservation. We wish to thank all the occasional observers who have joined the MISC team at the Pelagie Islands and

helped with counting; these include Giacomo Assandri, Ennio Bezzone, Olivia Brambilla, Marco Casati, Gianluigi Castelli, Giampaolo Ciccotosto, Pietro Damelio, Silvio Davison, Massimo Fedi, Martin Garner, Guido Prola, Giovanni Soldati, Giampaolo Terranova and many others. We thank Swarovski Optic Italia for providing optics to AC, and LIPU for funding some of the Pelagie expeditions.

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House Sparrow copulating with juvenile

At 11.45 on 6th May 2012, I noticed a male House Sparrow *Passer domesticus* copulating vigorously with a female on the birdbath in my garden in Fife. Both birds were facing me at a distance of about 12 m and the event lasted no longer than 10–15 seconds. The female shook herself as if to repel water and remained motionless for some time before flying down to ground level, whereupon she was fed by an attendant female House

Sparrow who was also feeding a juvenile male with seed from a feeder. I thought this was unusual so quickly grabbed my binoculars and was surprised to see that the first female was also a juvenile, sporting an obvious yellow gape and short tail. No further copulation was noted and the birds were soon flushed by an incoming Wood Pigeon *Columba palumbus*.

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Repeated feather-catching by female Common Chaffinch

On 21st March 2012, in my garden in Somerset, I watched a female Common Chaffinch *Fringilla coelebs*, perched at the edge of a roof, suddenly fly out to catch a falling white feather (approx. 2 cm long) in its bill. The Chaffinch returned to its perch and promptly dropped the feather, which blew away in the wind. The feather was again chased and

seized and the bird returned to the same perch, where the feather was brandished for a few seconds, only to be dropped and then recaptured once more. The process was repeated a fourth time before the feather was dropped for a final time and the bird flew off. Female Chaffinches might catch feathers in order to line their nests but, as far I could tell,

there was no nest-building involved in this case. I can only suggest that 'play' was an

explanation for the behaviour.

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Cirl Bunting feigning injury

On 10th August 2012, at Berry Head, Devon, I observed some unusual behaviour by a male Cirl Bunting *Emberiza cirlus*. A recently fledged Cirl Bunting had been hopping about, almost literally at my feet, for about 10 minutes; it seemed unconcerned by my presence and was searching for seeds in the grass. Suddenly, an adult male arrived, landing close to the young bird, and pretended to be injured. My camera was equipped with only a 100-mm macro lens at the time, but the birds were so close that I could still take a photograph (plate 113). The adult immediately adopted the pose shown in plate 113, and did

not move from this position. It was plain to see what it was doing and, not wishing to cause distress, I retreated quickly.

I have never observed this behaviour in a passerine before but in relation to Cirl Buntings *BWP* states that 'Apparent distraction-display (injury feigning) reported by several observers, from both sexes by one observer, but this display [is] apparently unusual (Witherby 1938).'

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113. Male Cirl Bunting *Emberiza cirlus* (right) feigning injury (the juvenile is to the left); Berry Head, Devon, August 2012.

All notes submitted to *BB* are subject to independent review. Most notes appear in the magazine, but some are available only on our website at www.britishbirds.co.uk/species

Shearwaters and their names

The remarks by Hudson *et al.* (2012) about what is currently known as the Macaronesian Shearwater *Puffinus baroli* deserve some comment. This species was of course first recorded in northwest Europe on a vessel off southwest Ireland in May 1853 (Yarrell 1856). Small shearwaters had apparently been visiting the Pembrokeshire seabird colonies for some years but were dismissed as small Manx Shearwaters *P. puffinus* (Perrins *et al.* 1965) until one was identified as *P. baroli* by James (1986); another has now been reported on Lundy (see also Townend 2010). Macaronesian Shearwaters are chiefly found in the vicinity of the breeding sites for much of the year and usually lay in January or February; the young fledge in May or June (Zino *et al.* 1994) and may then disperse west and north as far as Canada (Bourne 1986; Johnson 2012). The species' appearance ashore off Britain between April and June is thus unexpected. It is hard to draw conclusions on the basis of a sample size of two but the best explanation may be that these are young birds visiting land at the edge of their immature dispersal range, and towards the end of the breeding season, before they start to return home. If they return earlier as they get older, they might be overlooked before the arrival of regular wardens at potential British breeding sites. Their early breeding season may also help to explain the worrying apparent decline of this species in recent years (Zino *et al.* 1994; Rodriguez *et al.* 2012), perhaps related to poor weather in recent winters.

In our view, the vernacular name Macaronesian Shearwater is unsuitable for *P. baroli* because what many people regard as a distinct species, Boyd's Shearwater *P. boydi*, also breeds within Macaronesia, in the Cape Verdes. The established name for *P. baroli* was

formerly the Madeiran Little Shearwater, which might now be shortened to Madeiran Shearwater. There is room for doubt about the alternative use of the name 'Barolo Shearwater' (derived from the scientific name *P. baroli* in honour of the Marchese di Barolo; *Birding World* 23: 223), since this is a '*mixtum compositum*' derived from a number of sources (*Brit. Birds* 8: 282–283), and possibly a candidate for a *nomen conservandum* (conserved name). Similar problems arise with the names 'Scopoli's Shearwater' for *Calonectris (d.) diomedea*, since this was first called Cinereous and then Mediterranean Shearwater; and 'Yelkouan Shearwater' for *P. (y.) yelkouan*, originally called Levantine and then Mediterranean Shearwater. People adopting new vernacular names should perhaps look more deeply into past usage to avoid creating further confusion?

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Grassholm in photographs

Morgan (2012) referred to the first reliable survey of the Northern Gannet *Morus bassanus* breeding population on Grassholm, Pembrokeshire, being in 1883, though mentioned 'tentative' references to birds being present from perhaps as early as the 1820s. While no quantifiable estimates are available, Lockley (1957b) quoted correspondence he had with a daughter of a former tenant of Skomer and Grassholm, who said that in 1860: 'there were always Gannets there, but few nests. Specimens of their eggs were greatly prized and were always brought back from Grassholm whenever my father took visitors there.' In fig. 8, Morgan stated that the first aerial census of the Grassholm Gannet colony was in 1964. In fact, Fisher & Vevers (1951) referred to RAF photographs for the estimate of 9,500 nests in 1949, while in 1956 Ronald Lockley flew over the island in an Auster aircraft low enough for the Gannets to be counted subsequently on photographs taken with a large mapping camera.

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The colony was then 10,550 pairs strong Lockley (1957a,b). It is also interesting to note the pioneering early censuses of the colony using photographs. The first was in 1924 (Acland & Salmon 1924), which revealed 2,000 pairs; the second, in 1933, showed 4,750 pairs, using photographs taken from both land and sea (Salmon & Lockley 1933).

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England's Hen Harriers

In response to the news item on Hen Harriers *Circus cyaneus* in the January issue of *BB* (*Brit. Birds* 106: 3), I should like to reiterate the RSPB's commitment to promoting the species' recovery across its current and former UK range.

Tragically, the shooting of 'Bowland Betty' is far from an isolated incident. Fielding *et al.* (2011) concluded that illegal persecution remains the most important factor limiting the UK's Hen Harrier population, and that the English uplands are capable of supporting 323–340 breeding pairs. This contrasts with the one pair that bred in England in 2012. Hen Harriers are prevented from breeding across swathes of suitable upland heath and bog habitats managed for grouse shooting in northern England, and southern and eastern Scotland.

The strength of public support for birds of prey is clear from the responses to the e-petition on vicarious liability and the RSPB's

recent pledge to stop illegal killing. Our approach to tackling persecution has long promoted strong legal measures and associated penalties. Our advocacy led to vicarious liability in Scotland. In England, the Law Commission is reviewing wildlife legislation, determining how the species we value are protected, conserved and exploited for years to come. The RSPB, and many of its supporters, highlighted the valuable role that new offences, such as vicarious liability, tougher penalties and better regulation of shooting practice can play, and we will work hard to ensure that appropriate reforms are progressed.

Legal reform is a valuable tool for tackling persecution, but will not save Hen Harriers on its own. Crucially, we need the Government and its agencies to lead and resource a conservation plan. This must: (i) achieve effective year-round protection; (ii) ensure a coherent police response to persecution

incidents that secures prosecutions; (iii) persuade grouse-moor managers to adopt proven mitigation techniques, notably 'diversionary feeding'; and (iv) continue to raise awareness of and empathy with the Hen Harrier's plight, through initiatives such as our *Skydancers* project in northern England.

Helping Hen Harriers to recover in England and those parts of Scotland from which they are missing will not be easy. Nothing worth fighting for is. The RSPB is not giving up on Hen Harriers – quite the

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opposite – and I hope that *BB* readers will support us in our work. Betty's death must lead to strong action by this Government to consign persecution to the history books, allowing future generations the opportunity of enjoying the spectacle of these remarkable birds.

Reference

Fielding, A., Haworth, P., Whitfield, P., McLeod, D., & Riley, H. 2011. *A Conservation framework for Hen Harriers in the United Kingdom*. JNCC Report No. 441, Peterborough.

Reviews



The Long, Wild Shore – Bird and Seal Seasons on Blakeney Point

By James McCallum

Silver Brant, 2012

Hbk, 160pp

ISBN 978-0-9541695-5-8 Subbuteo code M21585

£25.00 *BB* Bookshop price £22.00

Blakeney Point is an iconic feature of the north Norfolk coastline. To many birders, it represents a long trudge along an unforgiving beach in search of waifs and strays. To the National Trust, who have nurtured it for 100 years, it is one of their most important nature reserves. To James McCallum, it has been the inspirational source for his seventh book. Over the years, he has built up a mass of information, acquiring an intimate knowledge of the area, achievable only through numerous visits and stints as a seasonal warden.

By way of his field paintings and diaries, he shares with us his secret world of nesting terns, waders and seals. Seasons are recorded, exciting falls of migrants described (including some very rare vagrants) and bracing seawatches endured. However, *The Long, Wild Shore* is more than this, it showcases wildlife field-painting of the highest quality. James has a deceptively easy-looking style with an economy of line and washes used, but do not be lulled into underestimating its simplicity (it is what you leave out that counts). The cover painting of fishing terns, gulls and loafing seals

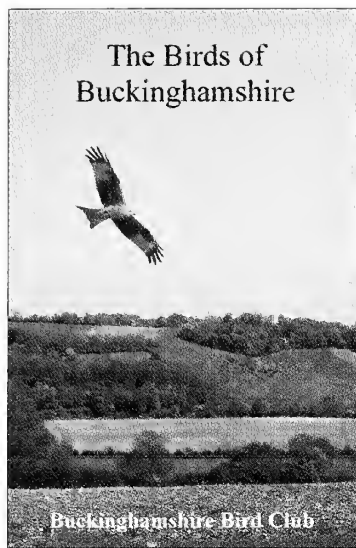
illustrates this skill perfectly, a complex subject, which could easily have been murdered by over painting in certain hands, is treated with a lightness of touch that keeps it alive and totally believable. My favourite images are those where he has captured a quirkiness of the light, which transforms a scene from the humdrum into something more special. The spring light on the water on page 12, the back-lit gulls on page 20 and the courting terns on page 35 are my highlights of this approach.

Measuring 28 × 24 cm, the format gives breathing room to the paintings, allows for a lightness of design to the layout and also represents good value for hard-earned pennies. So, if you have never visited Blakeney Point, this evocative tome will surely whet your appetite for an eight-mile round trek from Cley. If you have made the journey, I'm certain you will recognise much of what is shown within the pages and have the sore shins to prove it.

Dan Powell

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This is an excellent, attractively produced and timely book that should provide bird-watchers and con-

servation planners in Buckinghamshire with a trusted reference source for many years. Landlocked in central southern England, Buckinghamshire has traditionally been viewed by many as a Cinderella county, yet with its rich array of habitats, diversity of species, key birding spots and value as an indicator of population trends, it deserves exploration, scrutiny and protection.

Just as the Hobby *Falco subbuteo* on the dust jacket of the first edition (published in 1993) signalled a surprisingly important breeding population of this species, so the Red Kite *Milvus milvus* circling against a Chiltern escarpment on the cover of this second edition suggests a traditional sight in Buckinghamshire. But wait – breeding by Red Kites in modern times began as recently as 1992. The human memory plays tricks and solid facts are required periodically to generate an accurate current picture. Step forward Buckinghamshire's modestly sized but energetic bird club, together with the BTO membership, and in tandem with a determined editorial team led by Dave Ferguson: together, they have produced an eye-catching, comprehensive, yet very readable update of the much-admired first edition.

The 294 species accounts (21 added since 1993) have been given sensible space and attention, in accordance with their abundance and knowledge of their biology, enhanced by best population estimates and population trends. The species accounts rely heavily on BTO website data, a marked contrast to the paper forms and hand-drawn maps created in 1993. Some eight breeding species have been added, including Little Egret *Egretta garzetta* and Cetti's Warbler *Cettia cetti*, perhaps helped by climate change, Great Cormorant *Phalacrocorax carbo* by gravel-pits, Lesser Black-backed *Larus fuscus* and Herring Gulls *L. argentatus* by landfill sites, while Peregrine Falcons *F. peregrinus* nested in Aylesbury in 2011,

using a crafted tray part-funded by bird club members. Today, Turtle Dove *Streptopelia turtur*, Spotted Flycatcher *Muscicapa striata*, Willow Warbler *Phylloscopus trochilus* and Common Cuckoo *Cuculus canorus* are a quartet of sub-Saharan wintering species showing population declines of great concern. Lesser Spotted Woodpecker *Dendrocopos minor* and Corn Bunting *Emberiza calandra* are now very local breeding birds, and Willow Tit *Poecile montana* is limited to just a few sites. Long-distance migrants from farmland and woodland feature heavily among ten species 'lost' as breeding species since 1900, which include Corn Crake *Crex crex* (c. 1947), Stone-curlew *Burhinus oedipnemus* (1964), Wood Warbler *P. sibilatrix* (1992) and Common Redstart *Phoenicurus phoenicurus* (1997). Waterbirds are well represented among the breeding species 'gained' in that period, including Eurasian Curlew *Numenius arquata* (1946), Common Tern *Sterna hirundo* (1968), Oystercatcher *Haematopus ostralegus* (2000) and Goosander *Mergus merganser* (2007).

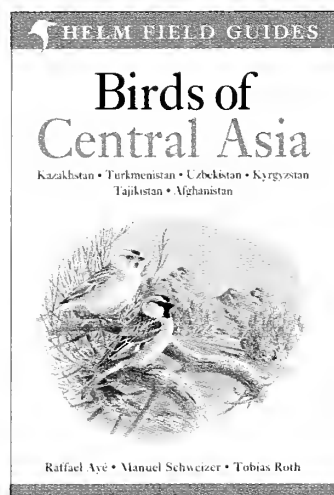
A dozen chapters help to embrace and enhance the core species texts. Most illuminating, perhaps, are those on bird migration by Mike Wallen, richly illustrated by some excellent digital images and showing sites discovered during Atlas fieldwork – emphasising the value of exploring new ground. Eye-catching long-distance BTO recoveries, portrayed by maps, illustrate the strength of this scheme within the county. Similarly, the highly illustrated chapter on bird habitats by Rob Andrew, supported by a gazetteer providing site information, access and potential birds to be encountered, will help birders. On the debit side, any updated texts that draw in part on existing narrative may lack a little of the fluidity from one started from scratch. Accepting this caveat, this modestly priced avifauna should provide a sound reference for Buckinghamshire birders and visitors to this under-explored county for many years to come.

David Glue

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Birds of Central Asia

By Raffael Ayé, Manuel Schweizer and Tobias Roth
Christopher Helm, 2012

Pbk, 336pp; 143 plates, 16 colour photographs, many maps
ISBN 978-0-7136-7038-7 Subbuteo code M21045
£35.00 BB Bookshop price £31.00

Birds of Central Asia is the latest offering from the Helm Field Guide series, and covers all species recorded from

the former Soviet republics of Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan and Tajikistan, with their characteristically Palearctic avifauna, together with neighbouring Afghanistan where the Palearctic and Oriental regions meet; collectively, this is Central Asia as recognised by OSME. This neatly packaged, pocket-sized guide covers the 635 bird species that occur in this region, which has lacked a modern field guide for a long time.

Within the 33 introductory pages are the expected and obligatory offerings. Of greater interest is the chapter addressing the geography and biogeography of the region, which is neatly summarised in 11 pages and illustrated with two maps and 16 colour photographs. A two-page section addresses taxonomic updates to the Howard and Moore checklist (Dickinson 2003, Christopher Helm), which this book otherwise adopts. Most changes reflect splits of distinctive Central Asian races, although a few distinctive races are lumped (e.g. Turkestan Tit *Parus bokharensis* now becomes a race of Great Tit *P. major bokharensis*).

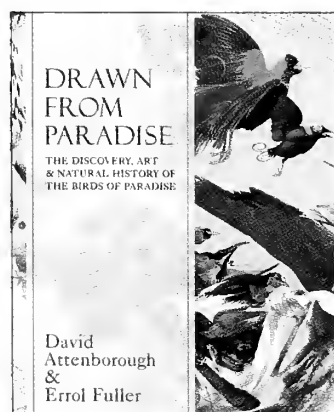
In characteristic Helm style, the appearance, vocalisations and habitat preferences of all species reliably recorded are addressed in concise summaries which face the illustrations. A clear, colour distribution map is included for all regular species, illustrating the breeding and non-breeding ranges, plus arrows for migration routes and question marks for

range uncertainties. The species are illustrated on 143 plates by 13 illustrators. Although many plates have been painted especially for this book, users familiar with previous Helm offerings will recognise some plates appropriated from preceding guides. Consequently, styles, accuracy of detail and aesthetic appeal vary considerably, which is understandable. What is not clear is why closely related species are not always taken from the same publication (for example the pipits, with one plate by Per Alström and two by Dave Nurney, showing very different styles and technical detail). On a personal level, I congratulate the publishers for getting the colour reproduction of Brian Small's excellent reed and bush warblers (plates 90–94) extremely close to the original artwork.

For me, this book was always going to be about addressing the many exciting Central Asian races of familiar European birds. In this it has succeeded admirably and exceeded my expectations, with most distinctive races described and illustrated; the only omission I could find was the lack of an illustration for the distinctive *plumipes* race of European Nightjar *Caprimulgus europaeus*, which is a migrant through the region.

This is an excellent guide and one that is essential for any visit to the region. Central Asia provides a rich source for many vagrants to Europe, and this is a concise guide to the many iconic species and distinctive races that are highly sought after in Europe in late autumn. The appeal of this book extends well beyond its intended market and should be useful for anyone with an interest in Central Asia and its birds.

Peter Kennerley



Drawn from Paradise: the discovery, art and natural history of the birds of paradise

By Sir David Attenborough and Errol Fuller
Harper Collins, 2012

Hbk, 256pp; 200+ colour illustrations, black-and-white photos
ISBN 978-0-0074-8761-5 Subbuteo code M21442
£30.00 BB Bookshop price £27.00

Drawn from Paradise is a glorious romp

through the history of the discovery of the birds of

paradise and their appearance in art in Europe. Ever since the first skins were brought back to Spain in 1522, by Ferdinand Magellan's ill-fated

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expedition to circumnavigate the globe, birds of paradise have been a source of wonder, fascination and inspiration. The story of their discovery by Europeans has been brilliantly interpreted by the authors, interwoven with fascinating details of explorers, adventurers, scientists, entrepreneurs and artists, all of whom have had some connection with birds of paradise. These include well-known scientists such as Alfred Russel Wallace and some surprising individuals, including the flamboyant Errol Flynn and the splendidly named Captain Neptune Newcombe Beresford Lloyd Blood! This all makes for a cracking good read, which has made me want to source some of the literature where many of these characters wrote of their exploits in paradise, which doubtless contain more ripping yarns.

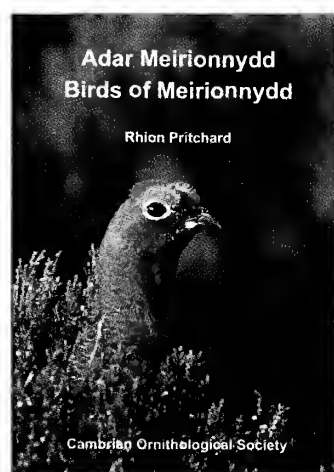
While the text in itself is an excellent read, what really makes this book is the magnificent artwork that adorns every single page. The book is crammed with beautiful work, with incredible paintings from the first skins returned to Spain, and continues in chronological order of discovery, with work by some of the greatest bird illustrators of the nineteenth century – Jacques Barraband, Joseph Wolf and John Keulemans to name just a few – right up to contemporary artists including Raymond Ching and William Cooper.

However, it was not just those early naturalists and bird painters that were inspired by these birds. Some notably illustrious artists have incorporated images of birds of paradise in their paintings, including Rembrandt, Breughel the Elder and

Rubens, and reproductions of some of these paintings have also been included here. Most of the artists in the book had never seen these birds in the wild, and worked solely from stuffed specimens or skins. Consequently, their interpretations were often inaccurate, particularly in portrayals of the outrageous displays and the arrangement of the birds' plumes. Indeed, it is only comparatively recently that artists such as William Cooper have witnessed these species displaying in the wild, and have been able to portray more accurately their spectacular displays. So extraordinary are they that seeing is truly believing, and one can only imagine the difficulty presented to these early artists when trying to interpret how the complicated arrangements of feathers were utilised. But no matter how inaccurate these earlier paintings were, they are still truly magnificent, forming an important part of the history of discovery, and greatly enhancing this beautiful book. The large format has allowed many of the illustrations to be reproduced on a large scale, which also adds to the enjoyment of the artwork.

Birders and ornithologists looking for a more contemporary and comprehensive review and images of birds of paradise may be less enthusiastic, and there are other publications which cater for this. For those with an eye for the romance of early exploration, an interest in history and natural history and a love of art, you are in for a real treat.

Howard Towll



Birds of Meirionnydd

By Rhion Pritchard

Cambrian Ornithological Society, 2012

Pbk, 220pp, incl. eight pages of photos

ISBN 978-0-9532-4981-7 Subbuteo code M21648

£9.50 *BB Bookshop* price £7.50

Most of Meirionnydd falls within the southern part of the Snowdonia National Park and extends from the

coast of Cardigan Bay inland into the heather-dominated uplands of the Migneint and the Berwyn Mountains, passing through extensive broadleaved and conifer woodlands on the way and, as you would expect in Wales, a lot of sheep-grazed grassland.

This book follows the format one would expect in a county avifauna. The types of habitat are well

described and the sheer beauty of some of the areas is conveyed in a series of colour photographs. There are also chapters on the history of the county boundary, bird recording and changes in bird populations.

However, the test of any book of this sort is the usefulness of the information in the systematic list. Like many counties of mid and north Wales, a paucity of observers results in very patchy coverage both geographically and over time. This makes summarising information difficult, but the species accounts are packed with all the information that Rhion Pritchard could locate. Since a considerable

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amount of information was in unpublished reports and observers' notebooks, he has completed an impressive task and much of the information is seeing the light of day for the first time.

The 287 individual species accounts fill 171 pages and, for all species other than the rare and scarce, they are divided into historical, recent and current status sections, the last covering the period of increased tetrad fieldwork associated with the recently completed, and soon to be published *Breeding Birds of North Wales* atlas. The accounts provide evidence for the declines of once widespread species such as Northern Lapwing *Vanellus vanellus*, Eurasian Curlew *Numenius arquata*, Willow Tit *Poecile montana*, Yellowhammer *Emberiza citrinella* and Corn Bunting *E. calandra* that are unfortunately mirrored throughout Wales. Looking on the bright side, the author highlights the healthy populations (in Welsh terms) of upland species such as Hen Harrier *Circus cyaneus*, Merlin *Falco columbarius*, European Golden Plover *Pluvialis apricaria*, Skylark *Alauda arvensis* and Whinchat *Saxicola rubetra*.

For rare and scarce species, the basic details are provided, and when all together in one book it gives one the impression that it is a reasonable

county in which to find unusual birds – until you realise that it has taken over 144 years to build up that list since the first reported rarity, a Little Bittern *Ixobrychus minutus* in 1867 or 1868!

For readers unfamiliar with Wales, there may be some surprises. For example, how well known is the impressive population of Hawfinches *Coccothraustes coccothraustes* around Dolgellau, with roosts of over 100 birds in recent years? Or the importance of the inshore waters of Cardigan Bay (which hold up to 900 wintering Red-throated Divers *Gavia stellata* and over 11,000 Common Scoters *Melanitta nigra*), and the county as a whole for Red-billed Choughs *Pyrrhocorax pyrrhocorax*, with flocks of 50 birds containing young from both mid Wales and farther north?

A current interest in the birds of Meirionnydd is probably not shared by many. But, having read this book, readers will have a much greater appreciation of the birds and the changes in populations in this relatively small Welsh vice-county, and perhaps even feel inspired to visit this beautiful and under-watched area.

Reg Thorpe

Recent reports

Compiled by Barry Nightingale and Harry Hussey

This summary of unchecked reports covers the period from early January to early February 2013.

Headlines After a sizeable influx into southern Scandinavia, many anticipated that a Pine Grosbeak would materialise somewhere in Britain. When one eventually did so, having escaped attention in northern Shetland for over two months, this obliging mega became the star bird of the winter for many. Elsewhere, the pickings were pretty slim, although a White-tailed Tropicbird found dead in Cumbria may well prove to be one of the most remarkable records of the year, and a Black-browed Albatross off Ireland was unexpected. Otherwise, the report is dominated by long-stayers (including Northern Harrier and American Coot in Ireland, and two long-staying Buff-bellied Pipits in Berkshire), although an unseasonal Pallas's Leaf Warbler is a good excuse to mention Berkshire twice in this summary of highlights.

Snow Goose *Anser caerulescens* Long-stayers at She-skinmore (Co. Donegal), to 19th January, and Lough Macnean (Co. Fermanagh), to 14th January. **Ross's Goose** *Anser rossii* Long-stayer, Haddiscoe Marshes, 13th January, Horsey (both Norfolk), 22nd–28th January. **Cackling Goose** *Branta hutchinsii* Long-stayers on Islay (Argyll), to 13th January, and at Lissadell (Co. Sligo), to 12th January. Frampton Marsh, 13th January and 3rd–7th February, and Freiston Marsh (both Lincolnshire), 26th January; North Uist (Outer Hebrides), 31st January to 6th February; North Wootton (Norfolk), 7th February.

Red-breasted Goose *Branta ruficollis* Long-stayers on Islay, to 17th January, at Loaningfoot/Southernness Point (Dumfries & Galloway), to 30th January, and Farlington Marsh (Hampshire), to 12th January, then Thorney Island (Sussex), to 2nd February.

American Wigeon *Anas americana* Long-stayers at Tullaghan (Co. Leitrim), to 6th February, Udale Bay (Highland), to 25th January and Bawburgh (Norfolk), to 31st January. South Uist (Outer Hebrides), 6th February. **Black Duck** *Anas rubripes* Long-stayer, Strontian (Highland), 2nd February.

Two, near Mizen Head (Co. Cork), 7th February. Blue-winged Teal *Anas discors* Long-stayer, Threave (Dumfries & Galloway), 22nd–23rd January.

Ferruginous Duck *Aythya nyroca* Priory CP (Bedfordshire), 27th–30th January and 2nd–7th February; Danson Park (Greater London), 31st January to 1st February. Lesser Scaup *Aythya affinis* Long-stayers at Lough Gash (Co. Clare), to 6th February, Dozmary Pool to 11th January, then Colliford Lake (both Cornwall), 12th–30th January, and Blagdon Lake (Avon), to 31st January. Loch of Ayre, 11th January and Loch of Bosquoy (both Orkney), 15th January; Shotton Pools (Flintshire), 2nd–3rd February; Cardiff Bay (East Glamorgan), 3rd and 7th February; Oxford Island (Co. Armagh), 3rd February. King Eider *Somateria spectabilis* Long-stayers St Combs (North-east Scotland), to 11th January, and Whalsay (Shetland), to 17th January. Rattray Head (North-east Scotland), 16th January. Surf Scoter *Melanitta perspicillata* Long-stayers at Llanddulas (Denbighshire), to 16th January, again 1st–2nd February; Largo Bay/Ruddon's Point (Fife), to 7th February; Ballinskelligs (Co. Kerry), to 19th January; Brandon Bay (Co. Kerry), to 10th January; Broad Haven (Pembrokeshire), to 27th January; and Dungarvan (Co. Waterford), to 24th January. Amroth (Pembrokeshire), 14th January; Wig Bay (Dumfries & Galloway), 31st January to 7th February; North Uist, 1st February.

White-billed Diver *Gavia adamsii* Isle of May, 23rd January; South Uist, 31st January; between Unst and Fetlar (Shetland), 1st and 8th February; South Ronaldsay (Orkney), 6th February. Black-browed Albatross *Thalassarche melanophris* Lahnich (Co. Clare), 30th January. White-tailed Tropicbird *Phaethon lepturus* Mawbray Bank (Cumbria),



Mike Lawrence

114. Male Ferruginous Duck *Aythya nyroca*, Priory CP, Bedfordshire, February 2013.

found dead on tideline, 6th January.

Cattle Egret *Bubulcus ibis* Tullyowen (Co. Donegal), long-stayer to 3rd February. Tealham Moor (Somerset), 11th–12th January; Holy Island (Northumberland), 24th January to 2nd February. Glossy Ibis *Plegadis falcinellus* Long-stayers at Timoleague (Co. Cork), to 2nd February; Bickerley Common (Hampshire), to 15th January; and Marloes Mere (Pembrokeshire), to 31st January. Blashford Lakes (Hampshire), 27th January.

Northern Harrier *Circus cyaneus hudsonius* Tacumshin (Co. Wexford), long-stayer to 4th February. Gyr Falcon *Falco rusticolus* Long-stayers on North Uist to 10th January, and South Uist to 12th January. Toab, 15th January and Loch of Sterness/Stromness area (both Orkney), 31st January to 2nd February.



Kit Day

115. Adult Bonaparte's Gull *Chroicocephalus philadelphia*, Eastbourne, Sussex, February 2013.



Gary Thoburn

116. Pallas's Leaf Warbler *Phylloscopus proregulus*, Moor Green Lakes, Berkshire, January 2013.

American Coot *Fulica americana* Murloch (Co. Galway), long-stayer to 2nd February.

Lesser Yellowlegs *Tringa flavipes* Ernesettle Creek (Devon), long-stayer to 7th February. Long-billed Dowitcher *Limnodromus scolopaceus* Long-stayers



Jim Nicolson

117. First-winter male Pine Grosbeak *Pinicola enucleator*, North Collafirth, Shetland, February 2013.

at Alkborough Flats (Lincolnshire), again 2nd February, and Gann Estuary (Pembrokeshire), to 5th February. Lady's Island Lake (Co. Wexford), 14th January to 5th February.

Forster's Tern *Sterna forsteri* Galway Bay (Co. Galway), long-stayer to 2nd February. Lady's Island Lake, 20th January. Bonaparte's Gull *Chroicocephalus philadelphia* Ogmore Estuary (East Glamorgan), long-stayer to 7th February. Padstow (Cornwall), 14th January; Rhymeny Estuary (East Glamorgan), 16th January; Eastbourne (Sussex), 27th January to 7th February; South Uist, 2nd February. American Herring Gull *Larus smithsonianus* Baltimore (Co. Cork), 2nd February.

Dark-breasted Barn Owl *Tyto alba guttata* Rodmell (Sussex), 3rd–7th February.

Penduline Tit *Remiz pendulinus* Stodmarsh (Kent), 6th February.

Pallas's Leaf Warbler *Phylloscopus proregulus* Moor Green Lakes (Berkshire), 12th January to 3rd February. Dusky Warbler *Phylloscopus fuscatus* St Mary's (Scilly), long-stayer to 11th January. Sub-alpine Warbler *Sylvia cantillans* St Just (Cornwall), long-stayer to 23rd January.

Rose-coloured Starling *Pastor roseus* Exminster (Devon), long-stayer to 8th February. Black-bellied Dipper *Cinclus c. cinclus* Thetford (Norfolk), long-stayer to 8th February. Desert Wheatear *Oenanthe deserti* Rattray Head, long-stayer to 8th February. Buff-bellied Pipit *Anthus rubescens* Queen Mother Resr and Kingsmead Quarry (both Berkshire), two long-stayers to 17th January, at least one to 2nd February.

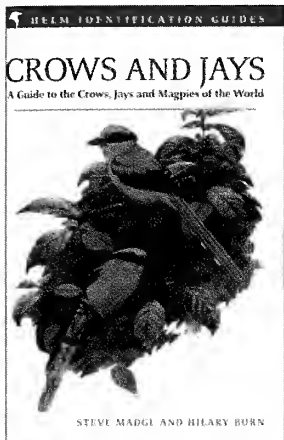
Arctic Redpoll *Carduelis hornemanni* Unst, 15th January. Pine Grosbeak *Pinicola enucleator* North Collafirth (Shetland), 29th January to 8th February (presumably the same as one photographed at nearby Urafirth in November 2012).



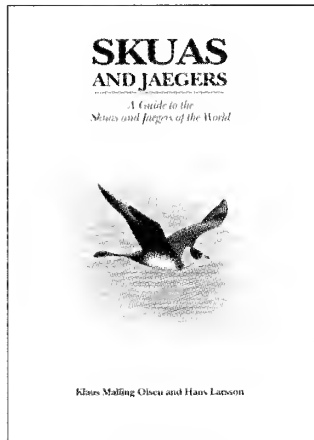
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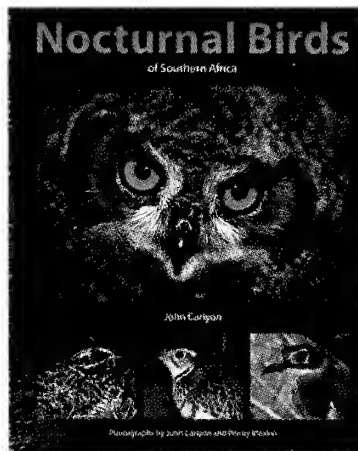
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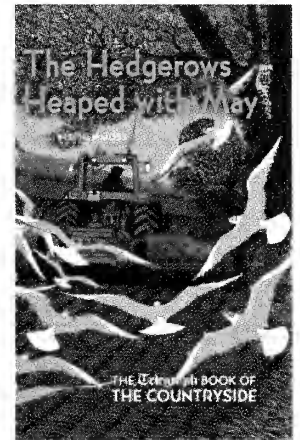
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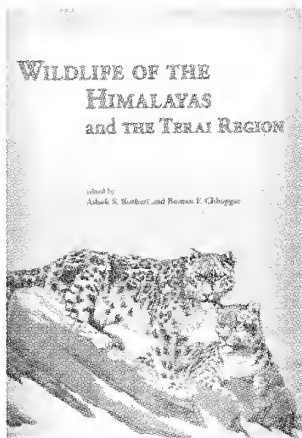
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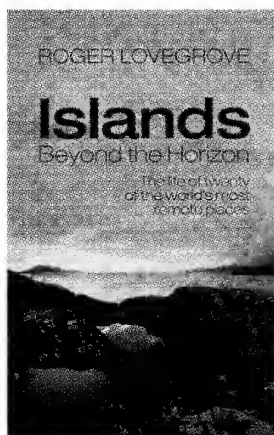
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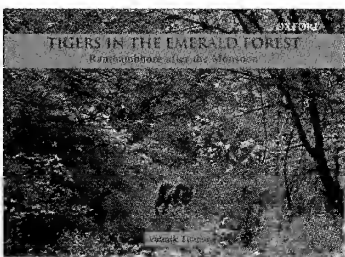
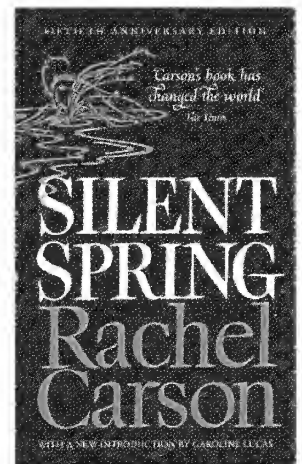
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| Bolivia - Lowlands | India - a range of tours | Thailand |
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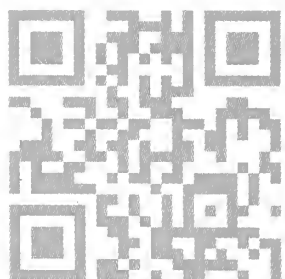
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