



British Birds

January 2003 Vol.96 No.1

16 JAN 2003

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Wigeon

Red-billed
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Seabird
control in
Cornwall



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A review of the status and identification of American Wigeon in Britain & Ireland

*Stephen C. Votier, Andrew H. J. Harrop
and Matthew Denny*



John Wright

ABSTRACT The numbers of American Wigeons *Anas americana* recorded in Britain & Ireland have increased significantly since the establishment of BBRC in 1958, and records ceased to be considered by the Committee from 1st January 2002. The status and distribution of the species is analysed here, and its identification discussed. Although male American Wigeon in breeding plumage is very distinctive, the identification of other plumages is much more problematic.

Records of American Wigeon *Anas americana*, previously considered a rare vagrant to Britain & Ireland from North America, have increased considerably since the mid 1980s, and there were 462 accepted records by the end of 2001 (Rogers 2002; P. A. Fraser *in litt*; note that Irish records until the end of 2000

only were available). From 1st January 2002, records of American Wigeon ceased to be assessed by BBRC, since the criteria for its removal from the list of species considered had been met: more than 150 individuals had been recorded in the previous decade, with at least ten in eight of those years. With this in mind, it

seems timely to document the status and distribution of the species, particularly given the problems of separating genuine vagrant wildfowl from escapes. In addition, although male American Wigeon in breeding plumage is a relatively easy bird to identify, the identification of females and non-adult males has only recently been approached in a rigorous manner which befits their subtlety (Harrop 1994a). Furthermore, frequent hybridisation between American Wigeon and Eurasian Wigeon *A. penelope*, or Eurasian Wigeon and Chiloe Wigeon *A. sibilatrix*, as well as of American and Eurasian Wigeon with other species of ducks in the genus *Anas*, can produce extremely variable hybrids (Carey 1993; Harrop 1994b; Jiguet 1999), providing major identification pitfalls.

In this paper we review all the accepted records of American Wigeon in Britain & Ireland since the formation of BBRC in 1958, presenting data on annual totals, timing and distribution of records, as well as age and sex composition. We also present a distillation of current identification criteria based on a combination of our own observations, published material and BBRC files. The aim of this review is to provide a clear picture of the status and occurrence of one of the most regularly occurring North American vagrants to Europe and, with its removal from the BBRC list, to provide local and county records committees with a convenient reference to help them assess future records of this species.

Status and distribution

American Wigeon breeds throughout northern North America, from Alaska to Hudson Bay, and south through the Prairies to the eastern seaboard (Cramp & Simmons 1977; Madge & Burn 1988). The majority of the population are highly migratory, wintering across the southern United States and Mexico, through the Caribbean and into Central America and northern South America (Madge & Burn 1988; Ogilvie & Young 1998). One of the most numerous dabbling ducks in North America, its breeding population has oscillated around the long-term average of 2.8 million birds, although the population increased from a 40-year low of 1.8 million in 1987 to over 3 million in 1998 (Ducks Unlimited www.ducks.org).

American Wigeon is a rare, but regular, visitor to Europe. Combining data requested from the Association of European Rarities Committees (AERC) with information from Lewington *et al.* (1991), we have established its status in Europe as follows. There have been regular records in Iceland (112, up to and including 1999); Finland (38, up to 2000); the Netherlands (35, up to 2001); France (31, up to 2000); Spain (18 accepted records up to 2000, involving 27 individuals); Belgium (14, all 1986-2000); Germany (12); Sweden (12); Norway (11, up to 2000); Azores (9); Channel Islands (3) and Denmark (n/a). The majority of European records, however, are from Britain & Ireland.

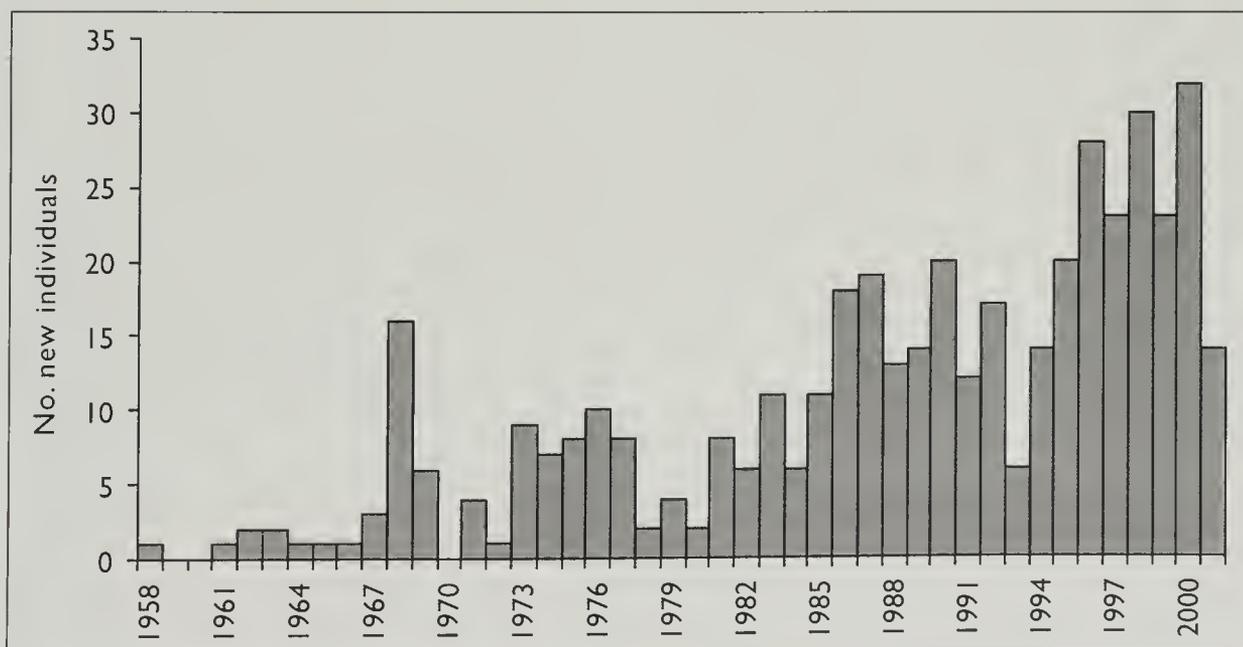


Fig. 1. Numbers of newly arrived American Wigeons *Anas americana* in Britain & Ireland, 1958-2001. The increase in numbers is statistically significant (linear regression: $r^2=0.67$, $F_{1,42}=87.0$, $p<0.001$).

Table 1. Flock size and composition of groups of more than two American Wigeons *Anas americana* in Britain & Ireland, 1958-2001.

	males	females	total flock size
Co. Cork 1986	3	-	3
Co. Cork 1996	3	-	3
Fife 1989	2	1	3
Orkney 1995	2	1	3
Berkshire 1985	2	2	4
Cornwall 1981	4	1	5
Shetland 2000	6	4	10
Co. Kerry 1968	>2	>2	13

Status in Britain & Ireland

Prior to 1958, there were just 22 records of American Wigeon in Britain & Ireland, but between 1958 and 2001 there was a total of 440 accepted records. During this period, the number of new birds recorded each year showed a steady, consistent (and statistically significant) increase (fig. 1). The only marked deviations from the trend were in 1968, when 16 new arrivals were reported (including a single flock of 13 individuals in Co. Kerry), and in 1993 when only six new birds were recorded. Although it is possible that a number of records may relate to the same wandering individuals, local observers, recorders and BBRC have attempted, wherever possible, to eliminate the

problem of double-counting. Certain individuals have returned to the same location for several consecutive winters, and this high site fidelity may reduce the likelihood of between-site duplication.

The majority of records constitute single birds associating with flocks of Eurasian Wigeon; all American Wigeons which returned to the same sites in consecutive winters were associating with Eurasian Wigeons. Several American Wigeons appear to have formed inter-specific pair bonds with their Eurasian counterparts, and there have also been at least 13 pure pairs of Americans, as well as six records of two males together. A number of larger flocks have been seen (table 1), the most notable being flocks of 13 in Co. Kerry in October 1968 and ten in Shetland in October 2000.

The significantly higher numbers of American Wigeons recorded in Britain & Ireland in recent years may be attributed to a number of different factors. Given the increasing numbers of observers and the increasingly sophisticated nature of modern birdwatchers, it is clear that more and more rarities (of many species) are now being found and identified in Britain & Ireland. All things being equal, the numbers of American Wigeons found are likely to increase accordingly. It might be speculated that records have increased because observers are now able to identify the more subtle female and imma-

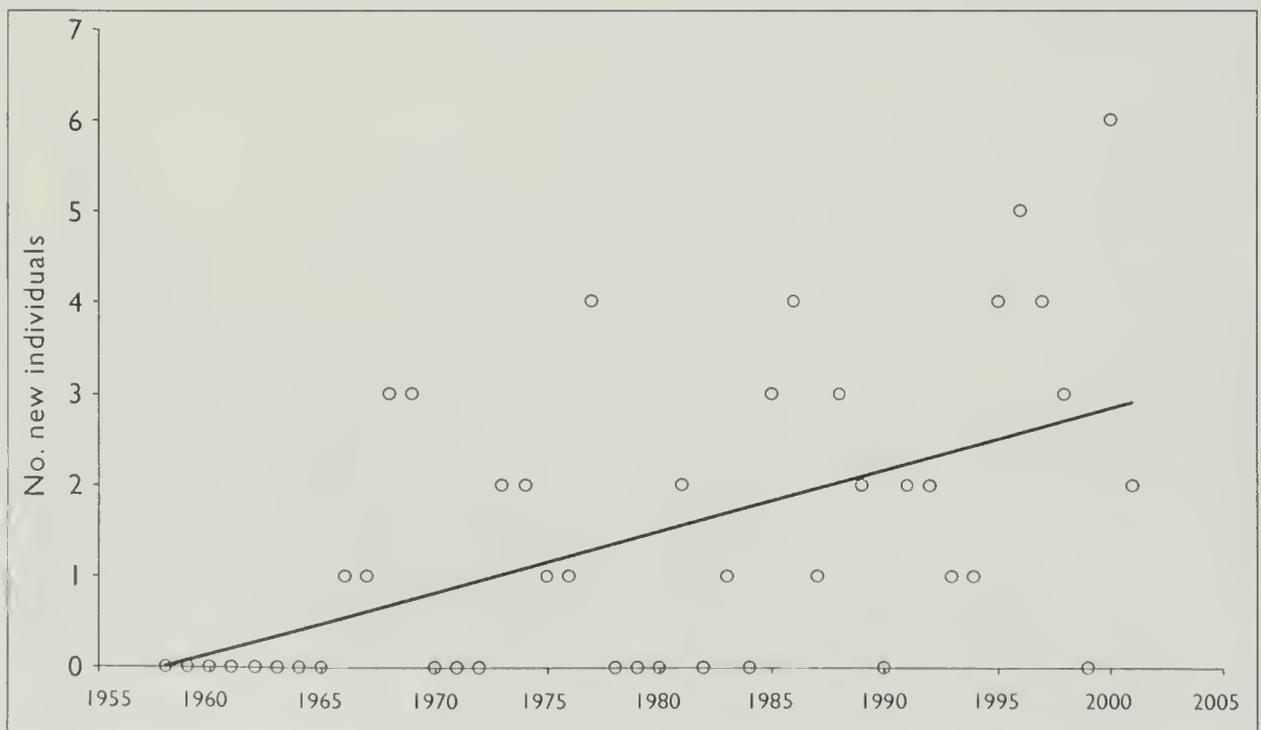


Fig. 2. Accepted records of new female and unsexed immature American Wigeons *Anas americana* in Britain & Ireland, 1958-2001 (linear regression: $r^2 = 0.29$, $F_{1,42} = 16.86$, $p < 0.001$)

ture plumages, since the number of accepted records of females and immatures increased significantly between 1958 and 2001 (fig. 2). Nonetheless, females and immatures are still relatively scarce, and cannot really explain the overall increase in records (fig. 1). While the North American population has fluctuated considerably in the past 50 years, there has been a steady increase since the mid 1980s. The number of British and Irish records does not, however, correlate with the North American population estimates¹. It seems that vagrancy patterns are influenced by many factors, which cannot be easily separated.

Distribution and timing

American Wigeons have been recorded in a total of 77 counties or recording areas in Britain & Ireland, with records from 76 counties/areas between 1958 and 2001 (Appendix 1). There is a broad spread of records, with the greatest numbers in Ireland and the Northern Isles, but also with relatively large numbers in counties with both high levels of observer coverage and sizeable wintering populations of Eurasian Wigeon. Twelve counties have recorded American Wigeon on ten or more occasions: Shetland (30), Co. Cork (25), Co. Kerry (25), Cornwall (17), Norfolk (16), Orkney (16), Cheshire (14), Lancashire & North Merseyside (14), Northeast Scotland (13), Dorset (12), Co. Wexford (12) and Cleveland (11).

The greatest numbers of American Wigeons appear in October and November (fig. 3). The number of new arrivals declines in December, but new birds continue to be recorded throughout the first four months of the year followed by a further peak in May, suggestive of northbound spring migrants which arrived in Europe the previous autumn. Combining the analysis of timing and distribution, we grouped records into three-monthly seasonal blocks – winter (December-February), spring (March-May), summer (June-August) and autumn (September-November) – and plotted the numbers for each season by county (fig. 4). This reveals

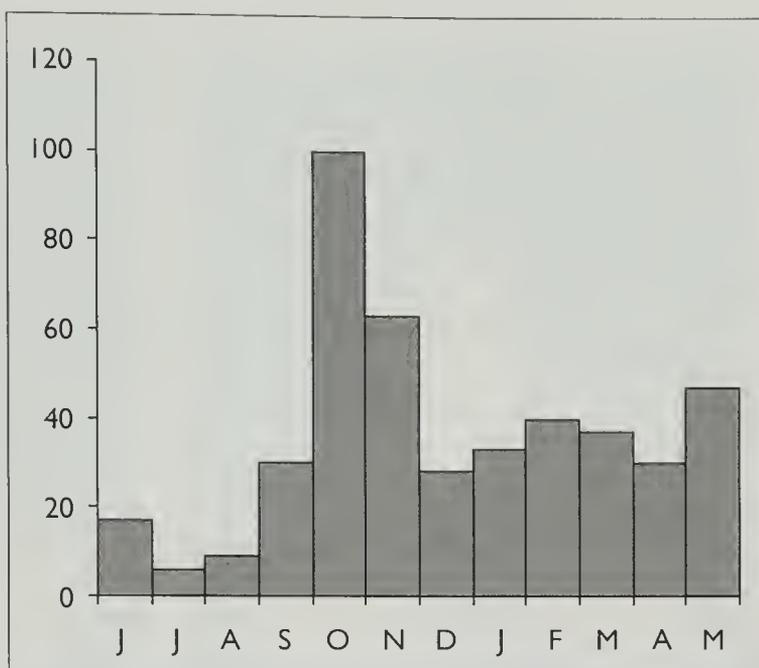


Fig. 3. Arrival dates of American Wigeons *Anas americana* in Britain & Ireland, 1958-2001 (presumed returning birds are excluded). The greatest numbers arrive in October and November, although there also appears to be a pronounced passage during spring.

that most new arrivals in autumn occur on western and northern coasts. This pattern fits in well with the typical arrival dates and locations of most North American vagrants (Cottridge & Vinicombe 1996). In addition, while many American Wigeons do occur with flocks of Eurasian Wigeons, the majority of Britain & Ireland's wintering population of the latter species arrive later in the winter (fig. 5). Winter records are more widely spread, with no clear geographical pattern, but once again a close association with wintering Eurasian Wigeons is apparent. Spring passage seems to show a bias towards counties bordering the North Sea, as well as the Northern Isles. This trend, that of birds migrating north after an Atlantic crossing the previous autumn is also apparent in Scandinavia where American Wigeon is virtually unknown in autumn and almost all of the records have been in spring (Lewington *et al.* 1991). Midsummer records are few and generally widely scattered. Some June records, mostly in northern Britain, may involve late migrants, whereas summering individuals at inland sites may be of uncertain provenance.

Age and sex composition

The vast majority (86.5%) of American Wigeons recorded in Britain & Ireland have been males, with the bulk of these being adult males (table 2). Of those females recorded so

Footnote:

¹ Linear regression: $r^2=0.003$, $F_{1,41}=1.74$, NS

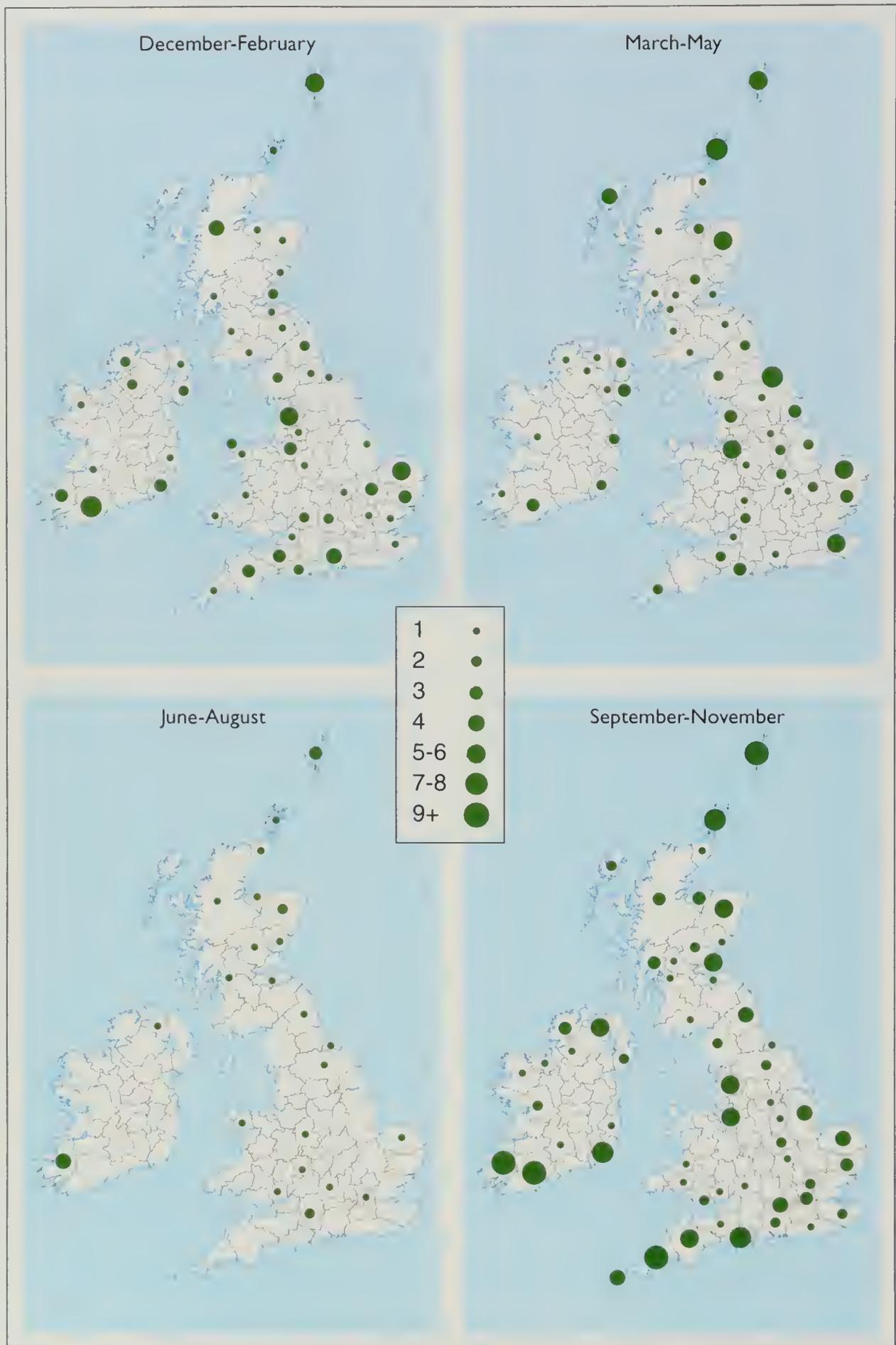


Fig. 4. Numbers of newly arrived American Wigeons *Anas americana* recorded in Britain & Ireland 1958-2001, grouped by county and by season. Records are widely scattered in summer and winter; but autumn records are predominantly in the west, while spring records occur mainly in the east and north.

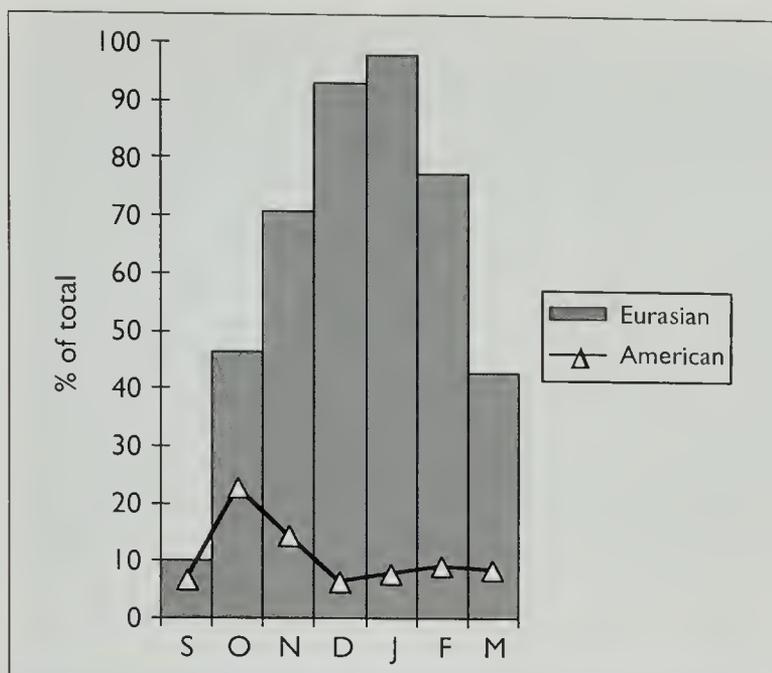


Fig. 5. Arrival patterns of American *Anas americana* and Eurasian Wigeons *A. penelope* in Britain & Ireland. The data for American Wigeon show the percentage of new arrivals in each month during the period 1958-2001. The data for Eurasian Wigeon are from Wetland Bird Survey counts, expressed as a percentage of peak counts (averaged over winters 1994/95 to 1998/99 inclusive). The graph illustrates that the peak arrival of Eurasian Wigeon is considerably later than that for American Wigeon.

far, only 22 were found without the additional presence of a male of the same species (19 were part of a pair and a further 11 were part of larger groups). In addition, although the sample is very small, the details of ringed American Wigeons recovered in Britain & Ireland suggest that more females occur than are being reported (Appendix 2). Combined with the extreme difficulty of identifying female American Wigeon, these factors indicate strongly that females are being consistently overlooked.

While this bias towards males may be largely explained by the difficulty of identifying female American Wigeon, a similar pattern emerges for a number of other vagrant wildfowl with more distinctive female plumages (e.g. Ring-necked Duck *Aythya collaris*), and it may be speculated that the males of such species are more prone to vagrancy.

under the circumstances described above are genuine vagrants, although the true status of escapees is admittedly very poorly understood.

Identification

The identification of adult male American Wigeon in breeding plumage is straightforward, although in eclipse plumage they are more subtle and require more careful examination. The identification of females and immatures is much more problematic: subtle or subjective features combined with a high degree of variability mean that such individuals require critical scrutiny and prolonged views. Furthermore, *Anas* ducks hybridise quite freely and mixed parentage can produce a bewildering array of plumage features. Because of these problems, observations are best made at close range with a telescope, in good, flat light conditions. It is also

Escape potential

As with all species of ducks commonly held in captivity, it is possible that escapees may cloud their true status. While American Wigeon is commonly found in many collections, and birds are known to escape, five ringing recoveries from North America show unequivocally that genuine migrants do cross the Atlantic (Appendix 2). In addition, the arrival of flocks in the west and north in autumn is a strong indicator of wild origin, rather than a mass escape from captivity, while evidence of a northward spring passage is a strategy which a number of North American vagrants may adopt (Cottridge & Vinicombe 1996). It is, of course, possible that escaped American Wigeons could join flocks of Eurasians and essentially behave as wild birds, but at present there is no direct evidence for this happening. It is generally accepted that the majority of American Wigeons recorded in Britain

Table 2. The distribution of various age/sex classes among American Wigeons *Anas americana* recorded in Britain & Ireland, 1958-2001. Data refer to new birds only. For some early records age/sex information is not available.

(i) Adult males	(ii) First-year males	(iii) Certain females	(iv) Females/immatures – excluding those in (iii)
328 (74.5%)	53 (12.0%)	52 (11.8%)	7 (1.6%)

Jan Fisher



1. Adult male American Wigeon *Anas americana* (centre) with Eurasian Wigeons *A. penelope*, Cresswell, Northumberland, December 1991. Most American Wigeons recorded in Britain & Ireland associate closely with Eurasian Wigeons.

essential that observers are aware of the high degree of variability of female Eurasian Wigeon, and also of possible hybrids or variants. Accurate identification relies upon careful observation of the upperwing-coverts and underwing-coverts, for extended periods and not simply in flight. Until recently, the critical examination of feather tracts, considered crucial to the identification of such diverse groups as passerines and waders, was not applied to wildfowl. A number of authors have recently advo-

cated a more critical approach, however, which has increased our knowledge of wildfowl in general (Madge & Burn 1988; Harris *et al.* 1989), and American Wigeon in particular (Harris *et al.* 1989; Harrop 1994a, b).

Moult, ageing & sexing

When attempting to identify an American Wigeon, ageing and sexing is an important starting point. The moult strategy is similar to that of Eurasian Wigeon, with adults under-

Ann M. S. ...



2. Adult male American Wigeon *Anas americana*, Vancouver, December 1997.



Ian Fisher

3. First-year male American Wigeon *Anas americana*, Druridge Bay Country Park, Northumberland, May 2000. The greyish centres to the otherwise white median coverts are lacking in adult birds.

going a complete post-breeding moult in summer, quickly followed by a pre-breeding moult during autumn and early winter. Juveniles replace a variable amount of body feathers after leaving the nest, before commencing a further body moult in the autumn of their first year. During the latter moult, young males begin to resemble adult males, while young females look essentially similar to adult females but retain more juvenile feathers than do males.

As with most wildfowl, juvenile and first-winter American Wigeons can often be aged in the hand by the presence of abraded tips to the rectrices, producing a 'V' pattern. In the field, however, first-years can be identified when showing a combination of the following features: (i) rather short, brown- or buff-tinged tertials; (ii) the feathers of the upperparts having narrow fringing, lacking the paler internal bars typical of adults; (iii) median and lesser coverts with duller, less crisp fringes than those of adults; (iv) rounded centres to the undertail-coverts, compared with more arrowhead-shaped markings of adults; and (v) (given very close views) pale tips to the breast producing a faintly scaled appearance. First-year females may also lack the obvious black tips to the greater coverts shown by other ages, as well as displaying a somewhat reduced amount of white in the outer webs of these feathers (but see 'Upperwing pattern', below).

Midway through their first winter, young males appear similar to adults but may still retain short and brownish- or buff-tinged tertials and, most importantly, the median (upperwing) coverts have extensive dark centres giving a scaly appearance; the median coverts appear

entirely white in adult males.

Eclipse males appear broadly similar to females and immatures. The presence of an extensive white forewing flash, and a head pattern showing, albeit faintly, the pattern of adult male plumage will separate eclipse males from these different sex/age groups.

Upperwing pattern

At all ages except for adult male, the precise pattern of the upperwing-coverts is of vital importance for separating American from Eurasian Wigeon, and any claim of a non-adult male American should include detailed information on the upperwing (as well as the underwing).

Typically, female/immature American Wigeon differs from Eurasian in having extensive white outer webs and broad black tips to the greater coverts, which form a distinctive white bar across the wing (plates 5 & 7; fig. 6). In Eurasian Wigeon, the outer webs show less white and the dark tips are narrower and duller, making the wing-bar appear less striking. In first-year female American, however, the outer web of the greater coverts can be similar to Eurasian, lacking extensive white markings and being rather greyish overall. The distinctive all-white forewing patch of male Eurasian is shared by adult male American. On close inspection, however, the forewing patch of American is somewhat reduced compared with Eurasian (fig. 6), owing to the broader black tips to the greater coverts on American. This difference is largely academic, however, given other more obvious plumage characters.

Colin Bradshaw



4. Adult female American Wigeon *Anas americana*, in captivity, Northumberland, April 1992. This individual shows the classic pale head with coarse flecking throughout, contrasting with the warm-toned breast and flanks. The extensive white in the forewing of some female American Wigeons can resemble the pattern of males.



Colin Bradshaw

5. Juvenile or female American Wigeons *Anas americana*, New Brunswick, Canada, August 1993. The white central bar to the greater coverts is distinctive in most juvenile or female American Wigeons.

an Fisher



6. Female American Wigeon *Anas americana*, in captivity, Washington, Co. Durham, February 1997. The pale internal patterning of upperparts feathers, glossy tertials and arrowhead markings on the undertail-coverts suggest an adult, but the broad, grey subterminal bar across the otherwise white greater coverts is a feature more commonly found in young birds.

American Wigeon

Eurasian Wigeon

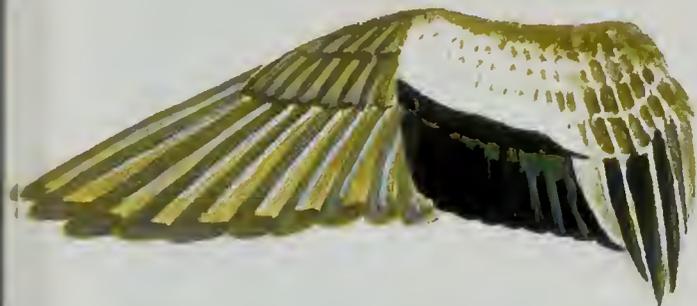
Adult ♂



Adult ♂



Juv ♂



Juv ♂



Adult ♀



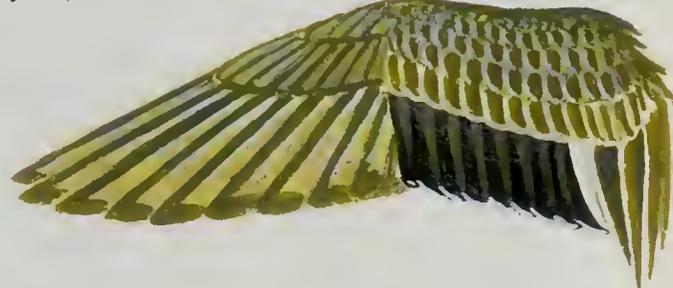
Adult ♀



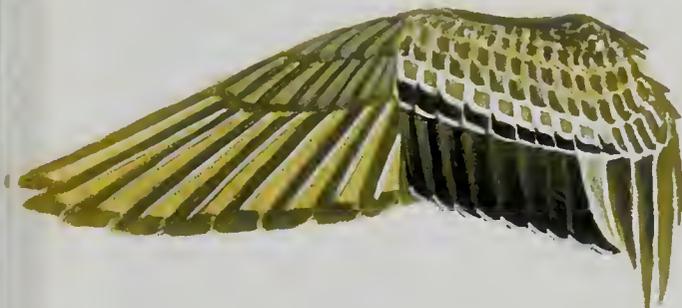
Adult ♀ (variant)



Juv ♀



Juv ♀



Hybrid juv ♀



Fig. 6. Upperwing pattern of American Wigeon *Anas americana* and Eurasian Wigeon *A. penelope*.
John Wright

Bernie Zonfrillo

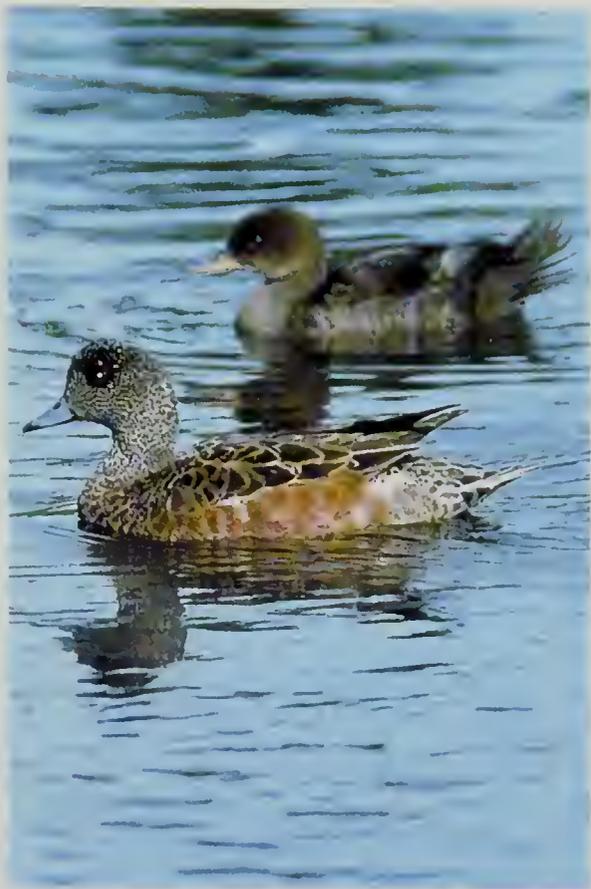


7. Female American Wigeon *Anas americana*, Springburn, Glasgow, October 1996. Note the extensive white wing-bar on the outer greater coverts. The dark portions of the otherwise white base to the outermost feathers suggest that this may be a first-year.

Stephen Votter



8. Female American Wigeon *Anas americana*, California, USA, March 1997. Many birds lack the dark line at the base of the bill which, if present, is diagnostic of American Wigeon.



Colin Bradshaw

9. Female American Wigeon *Anas americana* (front), and female Hooded Merganser *Lophodytes cucullatus*, New Brunswick, Canada, August 1993. The peaked forecrown of American Wigeon is sometimes strikingly obvious.



Colin Bradshaw

10. Female Eurasian Wigeon *Anas penelope*, Marden Quarry, Northumberland, March 1998. Many female Eurasian Wigeons are coarsely marked about the head, but typically show a warm ground colour that does not contrast with the warmly coloured flanks.



Anthony McGeehan

11. Adult female American Wigeon *Anas americana*, Newfoundland, Canada, January 1994.

Underwing pattern

It is essential to obtain details of the axillaries and the pattern of the median underwing-coverts to reliably separate American from Eurasian Wigeon, and also to eliminate some hybrids. The pattern of the underwing is variable in both American and Eurasian, but does not overlap between the two species. Lighting and viewing conditions can alter the appearance significantly in the field, however, and only with prolonged views, preferably while a perched bird is wing-stretching, can the precise pattern be determined.

In American, the axillaries are entirely white, and combine with the all-white median underwing-coverts to produce a striking white bar across the whole of the underwing. Upon close inspection, many American Wigeons show some very fine greyish speckling to the distal part of the axillaries; in addition, the outermost greater underwing-coverts may be off-white, but are never grey. In Eurasian, the axillaries are white but typically heavily peppered with grey or brown, while the median underwing-coverts are grey, not white. We do stress that during brief or flight views, or simply in bright conditions, the axillaries of Eurasian Wigeon, especially males, can appear virtually white, with the pale grey median coverts also appearing rather

paler than they really are. The importance of prolonged views of these feather tracts during wing-stretching cannot be emphasised enough.

Head pattern

The head pattern of adult male American is striking, and quite different from that of male Eurasian. The face and head are pale and heavily peppered with dark throughout, with a broad, glossy green post-ocular stripe, extending on to the nape. The extent of the green tends to vary somewhat, with the most well-marked individuals having a solid green patch, while others have a duller stripe partially invaded by darker speckling. The creamy-white forehead and crown ends in a point on the upper nape. The forehead patch tends to be rather richly coloured, almost yellowish-cream when freshly moulted, but typically becomes more creamy-white by the end of the winter.

Apart from the pattern of the wings, the most useful pointer to a putative male American in non-adult plumage is the presence of a distinctly grey, coarsely marked head, contrasting with rather richly coloured breast and flanks. The head of comparable Eurasians typically has rather warm tones and is poorly peppered. In juvenile and eclipse male Americans, the ground colour of the head is virtually white, with coarse



Bernie Zonifillo

12. Female American Wigeon *Anas americana*, Springburn, Glasgow, October 1996. Same bird as in plate 7. This individual shows only a slight contrast between the head and the underparts, which is typically more obvious in female American. Note the extensive white in the upperwing in plate 7.



Colin Bradshaw

13. Female Eurasian Wigeon *Anas penelope*, Cresswell, Northumberland, February 1989. Female Eurasian Wigeons commonly show rather grey tones to the head, but such birds typically lack contrast between the head and similarly cold-toned breast and flanks.

speckling throughout, which contrasts with rich orange- or coral-coloured breast and flanks. In addition, the streaking coalesces around the eye forming a darker patch, while the forehead may be distinctly paler, ghosting the pattern of adult males. In some, the ground colour of the head is much less white and has a distinct buff tinge, recalling paler-headed Eurasians. The more grey-headed Eurasian Wigeons should always be similarly coloured on the breast and flanks, however, thus lacking a contrast between the head and these two areas (plate 13).

Bare parts

Many American Wigeons have a narrow black band bordering the base of the upper mandible, a feature which is lacking in Eurasian. In juveniles and some females, however, this feature can be lacking or significantly reduced. In some male Americans the bill appears strikingly pale, which may be an artefact of the black band at the bill base (if present).

Size and structure

Structurally, American and Eurasian Wigeons are essentially very similar, with most biometric measurements largely, or completely, overlapping (table 3). On average, American tends to be somewhat heavier and bulkier, which is reflected in the mean weights for this species being slightly greater than for Eurasian. Bear in mind, however, that while some vagrant American Wigeons may appear large compared with accompanying Eurasians, others will show little or no difference, and this is not a consistent identification character.

Following the moult to adult breeding plumage, the tail of American Wigeon is strikingly long, sometimes noticeably longer than that of Eurasian, with the result that the wing-tips fall well short of the tail tip. American Wigeon tends to appear larger-headed with a more pronounced forecrown compared with Eurasian. This difference is most obvious in males, where the pale forehead may accentuate

Table 3. Tail length and weight of American *Anas americana* and Eurasian Wigeons *A. penelope*. Given values for tail length are: mean, range (in parentheses), standard deviation and sample size (Cramp & Simmons 1977); data for weight are means (Madge & Burn 1988).

	American	Eurasian
Tail length		
Adult male	116 mm (101-126), sd=7.23, n=6	106 mm (102-119), sd=3.84, n=19
Adult female	96.3 mm (96-97), sd=n/a, n=3	90.7 mm (86-95), sd=2.5, n=13
Weight		
Adult male	770 g	720 g
Adult female	680 g	640 g

this appearance. In some cases, the bill of American Wigeon may appear smaller than that of Eurasian Wigeon. This difference may be a result of the larger, more bulbous head (and possibly even the black outline at the bill base).

Calls

Male American Wigeons have a more subdued, wheezing, three-note call, compared with the ringing, disyllabic whistle of male Eurasian. Although this is unlikely to be a useful identification character, a vagrant female American in Cornwall in 1991 was shown to respond to taped calls of male American, while not responding to the calls of Eurasian Wigeon (Harrop 1994a).

Additional identification features

The following plumage characters *may* prove useful in separating American from Eurasian Wigeon. Note that, in all cases, they are highly variable and when attempting to make a firm identification it is far more important to describe those characters listed above.

- **Outer web of the innermost secondary**
American has this feather variably grey, with a narrow white outer fringe. By contrast,

male Eurasian has the outer web white, narrowly fringed black, while females and immatures show grey outer webs but a more extensive white fringe. This character shows much overlap and is difficult to observe in the field.

- **Eyelids** American Wigeons have strikingly pale or whitish eyelids which contrast with the dark eye-patch, while the eyelids of Eurasian are pale fawn (Larkin 2000; personal observations).
- **Tertials** While the buff-fringed juvenile tertials are similarly patterned in both species, they may appear different following the post-juvenile moult. In general, the outer web of each feather is blacker and more broadly tipped white in American than in Eurasian (Wallace 1980). Again, this difference is highly variable and there is much overlap; it is at best only a contributory feature.

Other characters, including the pattern of the uppertail-coverts and the pattern of the mantle and scapulars, have been mooted as possibly diagnostic, but because of the high degree of variability they are really of little use.



14. Female American Wigeon *Anas americana*, and male Eurasian Wigeon *A. penelope*, St John's, Newfoundland, Canada, April 1995. Although the breeding ranges of these two species do not overlap, mixed pairings may still occur because pair bonds are formed on the wintering grounds.

Hybrid A – Eurasian Wigeon-type



Hybrid B – American Wigeon-type



American Wigeon



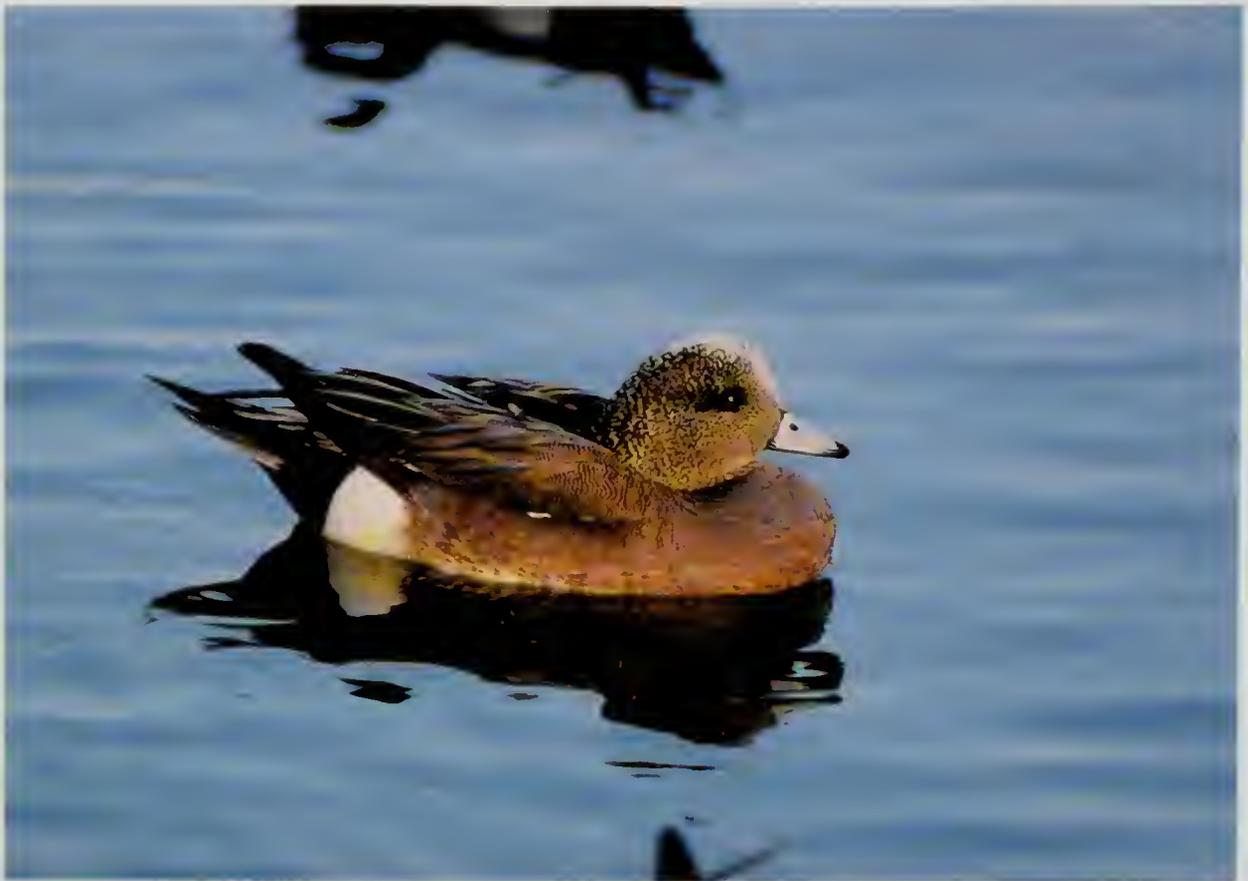
Chiloe × Eurasian Wigeon



Variant Eurasian Wigeon
(extreme individual)



Fig. 7. Male hybrids and variants which may prove pitfalls when considering the identification of American Wigeon *Anas americana*.
John Wright



Stephen Votier

15. Possible hybrid male American Wigeon *Anas americana* × Eurasian Wigeon *A. penelope*, California, USA, March 1997. Hybrid wigeons can be encountered at several sites in western North America. The rufous feathering behind the eye suggests some Eurasian Wigeon genes in an otherwise 'classic' American Wigeon.



Stephen Votier

16. Hybrid male Eurasian Wigeon *Anas penelope* × American Wigeon *A. americana*, California, USA, March 1997. This individual closely resembles a Eurasian, but the pink tones to the flanks and darker eye-patch reveal some American parentage.

Hybrids and variants

Both wild and captive pairings have resulted in a variety of hybrids which have caused identification problems in the past, and which need to be considered before claiming a vagrant American Wigeon. As well as hybrids between American Wigeon and Eurasian Wigeon (Bailey 1919; Watson 1970; Hubbard 1971; Aubry 1981; Shiota 1987; Carey 1993; Merrifield 1993; Harrop 1994b; Jiguet 1999; Randler 2001), and between Eurasian Wigeon and Chiloe Wigeon (Harrison & Harrison 1968; Harrop 1994a), which constitute the main pitfalls, other potentially confusing hybrid combinations have included Eurasian Wigeon \times Eurasian Teal *A. crecca*, Eurasian Wigeon \times Falcated Duck *A. falcata*, Eurasian Wigeon \times Gadwall *A. strepera*, Eurasian Wigeon \times Mallard *A. platyrhynchos*, American Wigeon \times Falcated Duck, American Wigeon \times Gadwall, American Wigeon \times Mallard, Chiloe Wigeon \times Gadwall, Chiloe Wigeon \times Falcated Duck, and possibly American Wigeon \times Chiloe Wigeon (Gillham & Gillham 1996; Harrop 1996; Mackay 1996; Gillham & Gillham 2002). It is impossible to give an account of all the possible outcomes of such pairings, but it is feasible to show some of the recurring (stereotyped) plumage patterns. It is also necessary to take into account variant and aberrant plumages which do not result from hybridisation.

Likelihood of occurrence

In the USA and Canada, both Eurasian Wigeons

and hybrids are recorded with increasing frequency on the Pacific coast. Although estimates vary, there has been a steady increase since the 1970s, leading to recent counts in excess of 200 Eurasian Wigeons from British Columbia (Jon King *in litt*). On the Atlantic coast, there has been a corresponding increase in the number of Eurasian Wigeons recorded since the late 1980s, thought to involve birds from Iceland (Bruce Mactavish *in litt*). Hybrids remain relatively rare on the Atlantic coast and in the Pacific Northwest, but are more commonly recorded in California (David Sibley *in litt*). As the number of American Wigeons in Europe has also increased, there is a growing likelihood of wild hybrids occurring. Hybrids of captive origin also occur occasionally, though less frequently. While the number of hybrids at large is much smaller than the number of pure American Wigeons, they do occur sufficiently frequently to represent a genuine potential pitfall.

Male hybrids

The most frequently encountered male hybrids which resemble American Wigeon are Eurasian \times American. Based on a sample of 21, Gillham & Gillham (2002) found 11 different appearances, but two main types predominate and, at the risk of wishful grouping, their division of these into 'Eurasian Wigeon-type' and 'American Wigeon-type' will be followed here (fig. 7).

'Eurasian Wigeon-type' hybrids (plates 16, 17) typically have a yellowish forehead and



17. Hybrid male Eurasian Wigeon *Anas penelope* \times American Wigeon *A. americana*, in captivity, England, date unknown.

Andrew Harrop

crown similar to male Eurasian; a chestnut-brown post-ocular stripe, sometimes with a little green admixed (the stripes on either side of the head merge on the nape); lores and cheeks variably pale brownish-grey with dark peppering; and mantle, scapulars and flanks predominantly grey with variably prominent pinkish-brown feathering admixed. The axillaries and underwing-coverts may have extensive grey patterning similar to Eurasian, or barely more than is normal in American.

'American Wigeon-type' hybrids (see plate 15) typically have a pale yellowish-cream forehead and crown; a striking green post-ocular stripe similar to that of true American; greyish-brown lores and cheeks, with variably prominent dark peppering; and mantle, scapulars and flanks predominantly grey (similar to Eurasian). A small number of presumed Eurasian × American hybrids documented by Carey (1993) and Shiota (1987) have resembled pure American much more closely, in some cases differing only in having a reddish wash on parts of the head and in calling like Eurasian. Such birds, which represent a major, although infrequent pitfall, are unlikely to be identified correctly unless they are subjected to prolonged study at close range.

The other male hybrid resembling American Wigeon which has been recorded with some frequency is Eurasian × Chiloe Wigeon. Such birds may have a dark-based upper mandible,

variably pale whitish or yellowish forehead which ends above the eye or quite squarely on the crown, an extensive green post-ocular stripe, grey lores and cheeks with dark peppering, predominantly grey mantle and scapulars (the latter with prominent dark centres, unlike either American or Eurasian), pinkish-orange flanks, and extensive white on the rump.

Female hybrids

Female hybrids, not surprisingly, are recorded much less frequently than males, and are most probably overlooked. Gillham & Gillham (2002) recorded only five female Eurasian × American hybrids, compared with 53 males; and two female Eurasian × Chiloe (which do not closely resemble American Wigeon), compared with ten males. The photographs in Jiguet (1999) are a useful reference for female Eurasian × American hybrids. Such birds are unlikely to be diagnosed correctly unless they are studied for long periods at close range.

First- and second-generation hybrid females may have a chestnut head like Eurasian, or a much greyer head like American (though their heads do not normally contrast with the breast as sharply as in pure American); the axillaries vary between heavily patterned (like Eurasian) and virtually pure white (like American); and the greater coverts (fig. 6) may resemble those of Eurasian (with brown centres) or American (with whitish-grey centres). Fortunately, most



18. Male American Wigeon *Anas americana*, Seattle, Washington, USA, December 2001. Variant with pale cheeks and lores.

individual hybrids do not combine all the characters of a pure bird and, statistically, an individual which has all the typical features of American is much more likely to be the genuine article than a hybrid. Seeing all these features in the field is, however, seldom easy!

Variant and aberrant plumages

Before concluding that a bird is a hybrid, variation within apparently pure birds should also be considered. As already mentioned, female Eurasian Wigeons are highly variable, leading some authors (e.g. Baker 1993) to advocate recognition of four morphs of two colours (namely grey and rufous, plain or barred). Males of both Eurasian and American Wigeon also show more variable head patterning than is widely recognised. Male Eurasians regularly have a small area of green feathering behind the eye, occasionally have extensive green behind the eye, and (rarely) have an extensive green post-ocular stripe resembling that of male American (fig. 7). Since birds of these types show typical Eurasian features in all other respects, they are much more likely to be variants than hybrids. A few male Eurasians have atypically pale lores formed by an extension of the yellow-buff forehead, which may sometimes be combined with green feathering behind the eye. Male Americans have also been recorded with atypically pale lores and cheeks (Sibley 1994; plate 18), and the colour of the crown-stripe varies between whitish and yellowish-cream. True hybrids are likely to show several intermediate characters, though second-generation and subsequent offspring may be more problematical and in some cases impossible to identify in the field.

Acknowledgments

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Appendix 1. Numbers of newly arrived American Wigeons *Anas americana*, by county. Note that when the same individual was recorded in two (or more) counties, it is recorded twice (or more) in this dataset.

Anglesey	3	Gwent	2
Angus & Dundee	3	Hampshire	9
Co. Antrim	3	Hertfordshire	3
Argyll	5	Highland	9
Co. Armagh	1	Kent	9
Avon	3	Co. Kerry	25
Ayrshire	2	Lancashire & North Merseyside	14
Berkshire	4	Leicestershire	4
Borders	2	Co. Limerick	2
Caernarfon	2	Lincolnshire	7
Caithness	3	Lothian	3
Cambridgeshire	5	Moray & Nairn	7
Carmarthen	1	Norfolk	16
Central	2	Northamptonshire	3
Ceredigion	2	Northeast Scotland	13
Cheshire	14	Northumberland	9
Co. Clare	2	Nottinghamshire	3
Cleveland	11	Orkney	16
Clyde	3	Outer Hebrides	6
Co. Cork	25	Oxfordshire	3
Cornwall	17	Pembrokeshire	1
Cumbria	6	Perth & Kinross	5
Co. Derry	8	Scilly	4
Devon	8	Shetland	30
Co. Donegal	6	Co. Sligo	1
Dorset	12	Somerset	6
Co. Down	7	Staffordshire	3
Co. Dublin	2	Suffolk	9
Dumfries & Galloway	3	Sussex	1
Co. Durham	1	Co. Tipperary	1
Essex	1	Co. Tyrone	1
Co. Fermanagh	3	Warwickshire	2
Fife	8	Co. Wexford	12
Co. Galway	3	Co. Wicklow	2
Glamorgan	2	Wiltshire	2
Gloucestershire	5	East Yorkshire	3
Greater London	4	North Yorkshire	4
Greater Manchester	1	South Yorkshire	2

Appendix 2. Details of American Wigeons *Anas americana* ringed in North America and controlled in Britain & Ireland.

Female, shot Shetland October 1966, ringed as a chick near Sheffield, New Brunswick, Canada, August 1966.
Male, shot Co. Kerry October 1968, ringed Jemseg, New Brunswick, Canada, August 1968.
Female, shot Co. Galway October 1977, ringed Prince Edward Island, Canada, August 1977.
First-year, trapped Fair Isle, Shetland, ringed New Brunswick, Canada, August 1986.
First-year female, shot Co. Wexford, November 1986, ringed Washington DC, USA, 1986.

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The restoration of the Red-billed Chough in Cornwall

*Ian Carter, Andy Brown, Leigh Lock,
Simon Wotton and Stuart Croft*

ABSTRACT The Red-billed Chough *Pyrrhocorax pyrrhocorax* has a restricted range in Britain and has been in long-term decline since at least the early 1800s. Southwest England was a former stronghold and Cornwall was the last county in England from which it was lost as a breeding species, the last successful breeding attempt being in 1947. The reduction of suitable foraging habitat owing to changes in the management of clifftop pastures, and the direct impact of human activities are thought to be the main factors responsible for the loss of Red-billed Choughs from the southwest. Recently, there has been much interest in restoring the Red-billed Chough to Cornwall, and this has increased following a small influx of birds to the county in spring 2001 and successful breeding in 2002. The Cornwall Chough Project has been launched to monitor the birds currently present, and to encourage natural recolonisation through appropriate management of coastal habitats. There is now more potentially suitable habitat in Cornwall, and adjacent parts of Devon, than at any time since the species was last present, and such habitat is likely to increase further during the next few years.

The Red-billed Chough *Pyrrhocorax pyrrhocorax* breeds patchily from Ireland south to the Atlas Mountains of Morocco and the Canary Islands, and from the Bale Mountains of Ethiopia eastwards to China. The European population, of between 12,000 and 17,000 pairs (Hagemeijer & Blair 1997), has declined in recent decades and the bulk of the population is now found in Spain, France and Greece. Even here, many populations are small, isolated and of doubtful viability (Tucker & Heath 1994). In Britain, the Red-billed Chough has been in serious decline since the early nineteenth century and the population, estimated at only 315 breeding pairs, is restricted to the coasts of Wales, the Isle of Man and the islands of Islay, Colonsay and Jura in Scotland. There are about 830 pairs in Ireland (Gibbons *et al.*

1993) but a small population in Northern Ireland is now on the verge of extinction (Giles Knight *in litt*). A full survey, being carried out in 2002 and 2003, will provide a more up-to-date population estimate for Britain & Ireland.

One means of helping a vulnerable species with a small population and a restricted distribution is to encourage appropriate management and subsequent recolonisation of areas within its former range. For some time now, there has been interest in restoring the Red-billed Chough to its former English stronghold, in Cornwall (Meyer 2000; Brown *et al.* 2002). This paper describes the background to a new Red-billed Chough restoration project in Cornwall, and shows how its aims and objectives have been shaped by the first successful breeding of this species in England for more than 50 years, in 2002.

A brief history of the Red-billed Cough in England

The Red-billed Cough was once widespread along the south and southwestern coasts of England, and also occurred on both the west and east coasts of northern England. A long-term decline was already apparent during the early 1800s, and by 1860 the species had ceased to breed in Northumberland, Kent, Sussex, Hampshire and the Isle of Wight (Brown & Grice in prep.). The species was lost from Cumbria by about 1865 and from Devon by 1910, and then remained only in its stronghold of Cornwall (Holloway 1996). Even here, it had become scarce by the early part of the twentieth century. After 1930, the majority of the known nest sites were between Watergate Bay and Tintagel on the north coast and, although only 3-4 sites were occupied in any one year, young continued to fledge almost annually until the last successful breeding in 1947. Two birds were present here between about 1960 and 1967 with just a single bird remaining until 1973 (Penhallurick 1978).

The extinction of the Red-billed Cough in England has generally been attributed to a loss of suitable foraging habitats (e.g. Batten *et al.* 1990). The species favours heavily grazed, close-cropped coastal pastures enriched with animal dung, and with patches of bare ground where invertebrates are easily accessible. Such habitats have been lost either because they have been ploughed and converted to arable farmland, or because the abandoning of grazing has led to establishment of rank vegetation or scrub where foraging becomes more difficult for Red-billed Coughs. Meyer (2000) highlighted the crash in the Cornish tin-mining industry in the late 1800s as a possible factor in the Red-billed Cough's decline. Once pit ponies and other livestock kept by miners around their crofts were no longer required, the extent of heavily grazed pasture was reduced. In the

meantime, other pastures were improved through the addition of inorganic fertilisers, thus reducing the variety of plants and invertebrates that they supported.

As the English Red-billed Cough population fell, so it became an ever more attractive target for specimen collectors, particularly during the Victorian era when trophy hunting for eggs and adult birds was at its peak (Penhallurick 1978). The fact that the Red-billed Cough is a corvid, albeit one which poses no threat to gamebirds or livestock, probably also made it a target for persecution, along with the almost universally disliked Magpie *Pica pica* and Carrion Crow *Corvus corone* (Batten *et al.* 1990). The direct impact of humans in this way may well have been the final straw for a population already depleted by habitat loss.

The Red-billed Cough in Cornwall

The Red-billed Cough has a particularly strong association with Cornwall and this is reflected in its alternative local name of 'Cornish Cough'. Despite its absence for the majority of the last 50 years, it remains a popular bird with many people in the county and is even featured in the county's coat of arms (fig. 1). The species also features strongly in Cornish legend. King Arthur was reputedly transformed into a Red-billed Cough when he died (Penhallurick 1978), the red feet and beak presumably representing the violent and bloody end to which he came!

For many years, a group of conservation organisations, involving both government-funded bodies and voluntary organisations, have been exploring means of restoring the Red-billed Cough to England. 'Operation Cough' was launched in 1987 and a great deal of research was carried out into the habitat requirements of the Red-billed Cough in order to assess the species' future prospects in Cornwall. The focus in recent years has been on trying to restore as

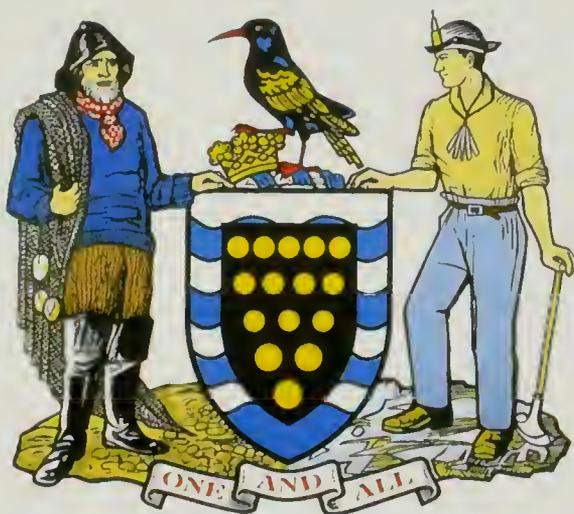


Fig. 1. The cultural importance of the Red-billed Cough *Pyrrhocorax pyrrhocorax* in Cornwall is apparent from the county's coat of arms. The tin-mining industry is also recognised, and this may have played a role in providing suitable foraging habitat for coughs through the grazing of pit ponies and other livestock around miners' cottages.

much semi-natural habitat as possible into suitable condition for the species, concentrating on the coast of north Cornwall and adjacent areas in Devon. Much has already been achieved through land being entered into management agreements, either based on the voluntary co-operation of landowning bodies such as the National Trust and their tenant farmers, or through the Government's Countryside Stewardship scheme, sponsored by the Department for Environment, Food and Rural Affairs (Defra). It is particularly important that Defra has been willing to amend its national Countryside Stewardship guidelines in order to maximise the potential for restoring good Red-billed Chough habitat in the region. This has enabled details such as livestock densities and the time of year when grazing animals are present to be adjusted so that the best possible foraging habitats can be created.

In 2000, Richard Meyer suggested that there was sufficient apparently suitable habitat along the Cornish coast to sustain a population of Red-billed Choughs (Meyer 2000). It was then widely believed that the species was unlikely to return without human assistance, since Red-billed Choughs are generally sedentary and southwest England is a considerable distance from the nearest established populations. Adults are extremely site-faithful and although juveniles disperse more widely, they typically show strong natal philopatry, returning to breed close to their own place of birth (Batten *et al.* 1990; Cross & Stratford unpublished). The nearest populations are in southwest Wales, southern Ireland and Brittany, northwest France, all being separated from Cornwall by large stretches of water. Between 1980 and 2000, there were just three apparently genuine records of Red-billed Chough in Cornwall, with several further records thought to relate to birds which had either escaped from captivity or been deliberately released (Brown *et al.* 2002).

Perhaps unsurprisingly, there have been regular calls for the Red-billed Chough to be reintroduced into Cornwall. This would not be an easy option as a suitable donor population would need to be identified and techniques established for releasing birds. In particular, the fact that the Red-billed Chough lives in social groups, in which the young learn to forage from more experienced adults, would need to be taken into account. Simply releasing young birds into an area, as has been the case with

other re-establishment projects in Britain, such as those involving Red Kites *Milvus milvus* and Ospreys *Pandion haliaetus*, would not necessarily result in the successful establishment of a viable population. Some wildlife centres have attempted to breed Red-billed Choughs in captivity to provide birds for release into the wild. Although there are estimated to be 60-70 captive individuals in Britain, however, efforts to produce viable young have so far met with very little success (Brown *et al.* 2002). The historic events of 2001 and 2002 have, in any case, stalled any thoughts of reintroduction, at least in the short term, and have led to a significant change in emphasis for Red-billed Chough restoration efforts in Cornwall.

Range expansion and the 2001 influx

The first encouraging development involved a significant expansion in the breeding range of Red-billed Chough in south Wales. Between the two breeding atlases for Britain and Ireland (Sharrock 1976; Gibbons *et al.* 1993), and despite some loss of ground in the stronghold of Pembrokeshire in the far southwest, birds had managed to reach the Gower Peninsula, over 40 km to the east and separated from the Pembrokeshire populations by the wide expanse of Carmarthen Bay. Breeding has been regular here during the 1990s. In the late 1990s, another site, approximately 40 km farther east than Gower, was colonised (*Welsh Birds* 2000, 2001). These relatively large extensions of the breeding range showed that recolonisation of suitable habitat some distance from established populations was possible, and gave hope to those keen to see the bird back in southwest England. The north Devon coast is less than 40 km from Gower, from which it is easily visible on a clear day. This may account for a recent increase in records from north Devon, and may provide a potential route for the ultimate recolonisation of suitable coastline throughout the southwest.

If the expansion of the breeding range in south Wales had been somewhat surprising, then the events of 2001 in southwest England were totally unexpected. A small influx of Red-billed Choughs took place between late January and May, involving sightings of birds along the south coast from the Isles of Scilly to Portland in Dorset. Establishing the true picture was hampered by access restrictions imposed as a result of the outbreak of foot-and-mouth disease, but at least four different individuals



19. The three Red-billed Choughs *Pyrrhocorax pyrrhocorax* which first appeared on the Lizard peninsula, Cornwall, in April 2001.

were seen, including three together on the Lizard peninsula in Cornwall. It is possible that as many as seven Red-billed Choughs were involved in total (Brown *et al.* 2002).

The origin of the birds involved in the influx has been the subject of considerable debate and will never be known with certainty. The nearest established population is in southwest Wales

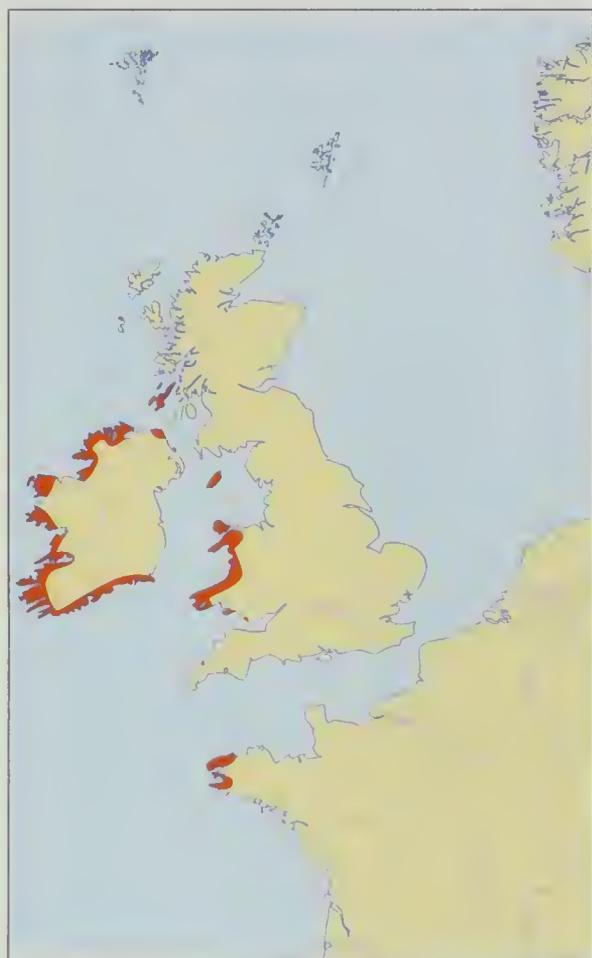


Fig. 2. The breeding range of Red-billed Chough *Pyrrhocorax pyrrhocorax* in northwest Europe.

(see fig. 2), with about 45 pairs breeding along the coast of Pembrokeshire (Welsh Birds 2000). If the birds had arrived from this direction, however, they would presumably have first reached northern parts of Devon or Cornwall and, given that much suitable habitat is available on the north coast, it seems unlikely that all would then have continued overland to the south coast. Ireland supports a population of over 800

pairs (O'Sullivan 1992) but even those breeding on the south coast are more than 230 km from the closest point in southwest England; moreover, birds arriving from this direction might also be expected to reach the north coast first. Another possible source is the small, isolated breeding population on the coast of northwest Brittany, where recent estimates suggest that about 30-40 pairs are present (Kerbiou 2001). Although the coast of southwest England is approximately 200 km away from Brittany, the distribution of records in spring 2001 along the south coast is consistent with an arrival from the south or southeast. Many birds in the French population are colour-ringed; the fact that all three of the birds on the Lizard were not ringed makes this origin perhaps less likely, although by no means impossible.

Breeding attempts in 2001 and 2002

Two Red-billed Choughs were seen together on the Lizard peninsula on 7th April 2001, with three at the same site the following day (plate 19). It is conceivable that they had been present for some time, since parts of the coast were only re-opened to visitors in late March as access restrictions were lifted. Intensive monitoring by English Nature, RSPB and local birdwatchers confirmed that the birds remained in the same area throughout the spring, and their behaviour prompted speculation that two of them were a pair. These two, one clearly smaller than the other and so presumably the female, were often seen in close company, while the third individual usually kept some distance away.

Observations revealed that at least two birds were roosting regularly at the same site on the

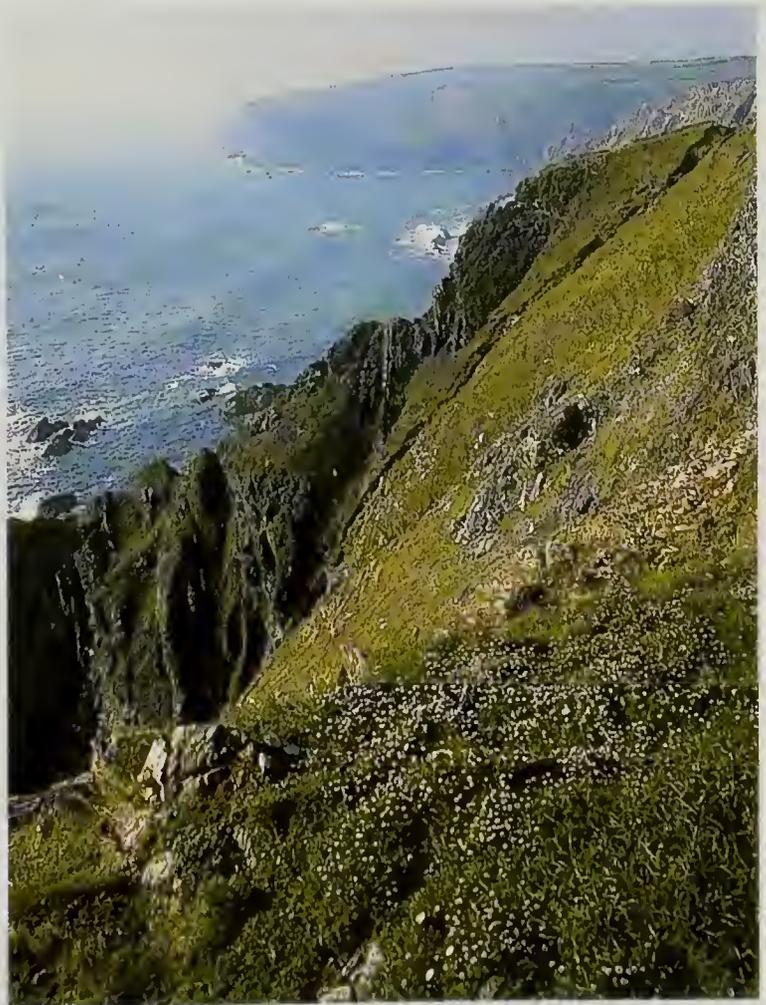
cliffs, at Bass Point. Then, in early July one was seen taking sticks into a crevice within the cliff face, which helped confirm that these two were indeed paired up and raised the serious possibility that they might breed. Since adult Red-billed Choughs are highly site-faithful once they have made their first breeding attempt, it is likely that this pair comprised young birds attempting to breed for the first time, rather than an established pair which had moved from another population. This reduced the expectation of successful breeding because, as in other long-lived species, first breeding attempts by inexperienced birds often result in failure. Indeed, the pair got no further than carrying sticks in 2001 but, encouragingly, they remained in the same area throughout the summer and the winter of 2001/02, and developments the following spring were eagerly anticipated.

By the early spring of 2002, the pair had settled at a potential breeding site about 2 km from that used in 2001. Nest-building was recorded from early March, with both birds seen regularly flying into a cave at the base of tall cliffs, easily observed from the coastal footpath. Based on the birds' behaviour, it was estimated that incubation started around 12th April, but, in order to avoid any disturbance at the nest, the site was not visited until much later in the season. While the female was incubating, a group of local volunteers and RSPB staff maintained a 24-hour watch to protect the nest from unwitting disturbance, and to monitor the activities of the pair. The nest cave was only accessible for a relatively short time at low tide, which reduced the potential for casual disturbance. Despite this, three people acting suspiciously were seen close to the nest cave on 23rd April. Decisive action by the Devon and Cornwall constabulary, including the rapid arrival of police officers on the scene, helped to avoid a potentially serious incident and ensured that the nest site was not disturbed.

Monitoring work showed that the male usually remained close to the nest cliff and returned to the cave regularly to feed the incubating

female. Both birds were sometimes seen together for a few minutes, either close to the entrance of the cave or on nearby pasture, before the male resumed foraging and the female returned to the nest. The male spent a remarkable amount of time during the incubation period in a single grazed pasture field, adjacent to the coastal footpath and within 300 m of the nest. At times it was joined in the field by groups of Eurasian Jackdaws *C. monedula*, but for long periods it could be picked out at some distance as a lone bird in an otherwise empty field.

Based on the estimated date when incubation started, it was expected that the eggs would hatch on about 2nd May. Soon after this date, a visit was made to the nest cave to check on progress. Four chicks were found and they all appeared to be fit and healthy. During a later visit to fit colour-rings, it was discovered that only three chicks had survived, all of which were sexed as males from biometric measurements. Between 10th May and 11th June, after the eggs



David Chapman/National Trust

20. Short-sward clifftop pasture on the Lizard National Nature Reserve with short vegetation, bare ground and exposed rock, thought to provide ideal habitat for Red-billed Chough *Pyrrhocorax pyrrhocorax*.

had hatched, a total of 179 nest visits by the adult birds were recorded, averaging about 25 minutes between visits. On 11th June, one young was seen outside the cave, followed two days later by the rest of the brood. For the first time in over 50 years, English-bred Red-billed Choughs were now gracing the coastal cliffs of the county with which the bird has had such a long and rich association. Bass Point and the adjacent Lizard Point are both owned and managed by the National Trust and their involvement and keen interest in Red-billed Chough conservation will help to ensure that everything possible is done to encourage the birds in the coming years.

The Cornwall Chough Project

English Nature, RSPB, the National Trust and Defra launched the Cornwall Chough Project in spring 2002. The Project aims to consolidate the conservation work already carried out and has the following major objectives:

- To continue to monitor the behaviour, habitat preferences and movements of the birds which are now present in Cornwall
- To further improve the coastal habitat by encouraging the appropriate management of coastal grasslands
- To promote the return of the Red-billed Chough to Cornwall, and increase awareness of how managed coastal habitats benefit our native wildlife

Monitoring will be carried out throughout the year to help assess the prospects of a small population of Red-billed Choughs becoming established naturally. With only a single breeding pair, the current situation is extremely fragile and the loss of either of the adults from this pair would greatly reduce the chances of further recolonisation. Much also depends upon the survival and movements of the young birds fledged this year. Will they disperse from their natal area and join up with a more established population, or will they remain and help to form the nucleus of a small social group? Optimists have suggested that, because the Red-billed Chough is such a highly social species, even the small number of birds now present could attract wandering individuals from other areas, when previously such birds might have simply passed through, perhaps unnoticed. This would help to improve the genetic diversity of the embryonic population and hence improve the long-term prospects of natural recolonisation.

Monitoring will also help to gather information on foraging habits and habitat preferences in the southwest. Although there have been various studies of Red-billed Chough habitat use in Britain, significant differences have been found between breeding areas. Bignal *et al.* (1997) concluded that 'it is unlikely to be appropriate to extrapolate observations in one area into management prescriptions for



21. Heavy grazing by cattle on parts of the Lizard ensures that suitable foraging habitat is available for Red billed Choughs *Pyrrhocorax pyrrhocorax*.

another. Well-targeted local action based on locally identified needs is required.' Future monitoring in Cornwall will provide crucial information, enabling advice to be better targeted and management prescriptions to be improved.

A key objective of the project is to provide further areas of suitable Red-billed Cough habitat across a network of sites around the Cornish coast. Priority areas have already been identified, based on criteria such as former breeding, existing habitat quality and the feasibility of future habitat restoration, and many of the most suitable sites are on the north coast of Cornwall (Gowenlock 2001). Some of these sites are already being managed for the benefit of Red-billed Choughs by the National Trust or by farmers who have entered land into Defra's Countryside Stewardship scheme.

The next few years will be critical to the prospects of Red-billed Choughs in the southwest. If a foothold is established in Cornwall, then it is hoped that sufficient habitat will be available to allow the species to increase and expand its range. If, however, the current fragile nucleus breaks down, then reintroduction may have to be reconsidered as an option for securing the long-term future of the Red-billed Cough in southwest England.

Acknowledgments

We would like to thank the team of volunteers who put so much effort into monitoring the breeding pair on the Lizard. Special thanks go to Mike and Alix Lord, RSPB Cornwall members' group leaders, who co-ordinated the volunteer effort. Alistair Cameron, National Trust, and Ray Lawman, English Nature, helped to co-ordinate work on the Lizard. We are grateful to John Gowenlock, who

carried out habitat assessment work around the coast and provided management advice on the Lizard, and to John Holmes, from English Nature's Cornwall Team, who chairs the Cornwall Cough Project Steering Group. Kevin Rylands and Dominic Coath carried out monitoring work to help improve our understanding of movements and habitat use of the Lizard birds. Tony Cross visited the nest site to fit colour-rings and take biometric measurements that enabled the young to be sexed. This paper benefited from useful comments by Claire Mucklow (RSPB), Peter Bowden (Defra), Peter Newbery (RSPB) and Simon Ford (National Trust).

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Footnote:

Request for help: A Project Officer, Claire Mucklow, has been employed by the Cornwall Cough Project to provide advice and guidance to landowners interested in encouraging Red-billed Choughs and to co-ordinate the monitoring of birds which are present in the southwest. She would welcome any records of Red-billed Cough in Cornwall, or elsewhere in southwest England (with details of colour-rings if appropriate), in order to build up as complete a picture as possible of the bird's current status and distribution. Contact Claire at the RSPB's southwest regional office (see address above), or e-mail claire.mucklow@rspb.org.uk

A research project has been undertaken to assess the foraging behaviour and habitat requirements of Red-billed Choughs on the Lizard. A paper describing this work is currently in preparation for submission to *British Birds*.

Seabird control and fishery protection in Cornwall, 1900-50

Robert A. Lambert

ABSTRACT Environmental history research in the archives of the Cornish Sea Fisheries Committee has revealed the extent to which some seabird species were perceived as pests in the early twentieth century by fishing communities, fishing organisations and estate owners in Cornwall and Scilly. An official bounty scheme operated in Cornwall during this time, alongside a private control scheme on Scilly. This paper estimates how many birds may have perished as a result of these control measures.

The archives and papers of the Cornish Sea Fisheries Committee (CSFC) contain some fascinating historical observations on the complex economic, environmental and political relationships between seabirds and the fishing industry of Cornwall and the Isles of Scilly between 1900 and 1950. The CSFC, based in County Hall, Truro, was an original committee of Cornwall County Council, formed in 1889 after the Fisheries Act of 1888 designated Cornwall as a separate Fisheries District. From about 1909, the National Sea Fisheries Protection Association had asked Cornwall to pay attention to the destruction of inshore fisheries (fry and small fish) by large flocks of gulls *Larus*, as part of their countrywide campaign 'Fish as Food' (CC1/9/1). Although gulls remained a source of moderate concern for fishing organisations over the ensuing decades, the attention of the CSFC turned, in August 1910, towards investigating and combating the potential threat to fisheries from local populations of fish-eating seabirds, particularly Great Cormorants *Phalacrocorax carbo* (hereafter referred to as Cormorant) and Shags *P. aristotelis*.

Control measures begin

In 1911, after lobbying by fishermen (led by those based in Newlyn), and by an order of the Secretary of State, Cormorant and Shag were removed from the list of protected birds (under

existing legislation, known collectively as the Wild Birds Protection Acts 1880-1908) for the county of Cornwall (CC1/9/2; Home Department/Montagu 1919). Regional control measures thus began. On 31st May 1911, the CSFC decided on a bounty of 1/- (one shilling) to be offered for each Cormorant or Shag destroyed around the coast, except in May and June. In August 1911, the local Fishery Officer in each district was made responsible for payments for the head of each bird brought in. Both species had suffered varying levels of local subsistence hunting, disturbance or persecution in Britain for centuries, but this was different. It was an organised and determined effort by a county council to reduce the regional populations of these species by using a funded bounty scheme. Cornish fishermen seemed happy with this control policy. In May 1912, the crabbers on the Lizard reported that since the Fisheries Committee had authorised the culling of Cormorants and Shags, there had been 'a marked improvement in the quantities of longshore fish', bait had been more easily obtained and 'this has had no small share of influence in making the fishery so successful' (CC1/9/2). The bounty scheme of 1/- was suspended in summer 1915, however, after questions were raised over its legality, and because of wartime stringency. It remained suspended for ten years, before being reintroduced in September 1925.

Isles of Scilly

The Shag population on Scilly first came to the notice of the official bounty scheme in 1925/26, after a report was sent to the Chairman of the CSFC, in September 1925, from an unnamed 'warden of bird colonies' on Scilly with regard to 'the depredation of fishing grounds by shags and cormorants' (CC1/9/5). At this time, the Ministry of Agriculture and Fisheries and the Ministry of Health in London had just agreed to reinstate the bounty scheme to protect fisheries, by agreeing that a portion of local fisheries committees' funds could be used in the control of pest species, including Shags and Cormorants. From autumn 1923, the CSFC had been lobbying the Ministry of Agriculture and Fisheries to bring back the scheme to control these two species. The CSFC noted that, on 31st March 1926, there were large numbers of Cormorants on Scilly, and Lord St Levan (a Sea Fisheries Committee member) was urged to investigate the matter. He reported back in June 1926 and tabled a letter from Major Arthur Algernon Dorrien-Smith of Tresco Estate which stated that, in fact, only 47 pairs of Cormorants bred on the islands, but that there were considerable numbers of Shags. Dorrien-Smith had himself been overseeing local control measures since 1920, proudly boasting that he had supervised the killing of over 6,000 adult birds and that his system for doing so was effective. He was killing birds throughout the year, but especially in May and June when birds on their breeding colonies were easier to shoot. The whole of this work was carried out at Dorrien-Smith's own expense and, therefore, 'he would welcome a grant of say £15 to defray the charges of three men each in his local area to smash and destroy all the eggs and young'. Dorrien-Smith's letter was warmly received by the CSFC and they agreed, subject to Ministry approval, to give him the grant requested. The Duchy of Cornwall was to be



David Tipling/Windrush

22. Adult Shag *Phalacrocorax aristotelis*, Craigleith, Lothian.

asked to contribute as well. Dorrien-Smith never fully explained his grievance against the Shag, although in a letter about Grey Seals *Halichoerus grypus* in April 1935, he complained about the serious difficulties of obtaining smaller fish for bait purposes (especially for crab pots) in Scillonian waters (CC3/9/41/5).

The bounty scheme in practice

How extensive was this control policy, and for how long did it match the demands of fishermen? Most local fishery districts in Cornwall took part, with the exception of Portloe, and the CSFC felt that the bounty scheme was beneficial to protect immature fish. Indeed, in March 1927, a Fishery Officer commented that the scheme could profitably be extended to all fishing areas in southwest England and Wales, and could be taken up by all responsible island proprietors (such as on Lundy, Devon). In con-

trast, Scilly seemed to operate their own home-grown control policy, conceived and orchestrated by Dorrien-Smith, and there are no records to suggest that Shags which were killed in Scilly were ever sent in to the mainland bounty scheme. No published county and regional avifaunas refer to the bounty scheme, although C. C. Vyvyan observed that Cormorants and Shags were destroyed by fishermen whenever possible (Vyvyan 1953). She also noted how the high price of cartridges had made shooting parties of cormorant [Shag] on Scilly at Christmas far less common than in past years. Cramp *et al.* (1974) noted the past persecution of Cormorant populations by some river authorities, and also that bounties had been offered in some areas for both Shags and Cormorants, but provided no evidence.

In the 1910s and 1920s, the bounty scheme probably satisfied Cornish fishermen that their official fishing organisation was taking positive steps to safeguard their livelihoods. By 1928/29, however, fishermen felt that the scheme was having little real effect and, indeed, that fish-eating birds were no longer the main problem: a far greater menace had emerged. By 1931, the fishermen of Cornwall and the CSFC were pointing the finger of blame directly at the Grey

Seal, which was to be seen as the major regional pest to fishing interests for the rest of the century. The emphasis of the predator-control policy changed from seabirds to seals.

How many birds perished in Cornwall? The figures in the archives reveal that from August 1911 to July 1915 a total of 4,220 Shag and Cormorant heads were sent in to the bounty scheme, and that from September 1925 to December 1929 a total of 6,739 heads were sent in (including 2,076 between October 1925 and July 1926, and 1,008 between 4th July 1928 and 26th September 1928). This gives a total of 10,959 birds killed under the official bounty scheme (see figures displayed in CC1/9/7-8). It is, however, unlikely that this figure tells the full story. It does not appear to include the 6,000 adult birds killed on Scilly during 1920-26 (there is no record of these in the archives), and Dorrien-Smith, in his letter of 1926, talks openly of killing nestlings and smashing eggs on Tresco over a six-year period (CC1/9/6). Furthermore, some of the birds shot around the rocky coastline of Cornwall may have been difficult to retrieve. So perhaps a more realistic estimate is that as many as 20,000 birds in total may have been killed in Cornwall and Scilly during the periods 1911-15 and 1920-29.



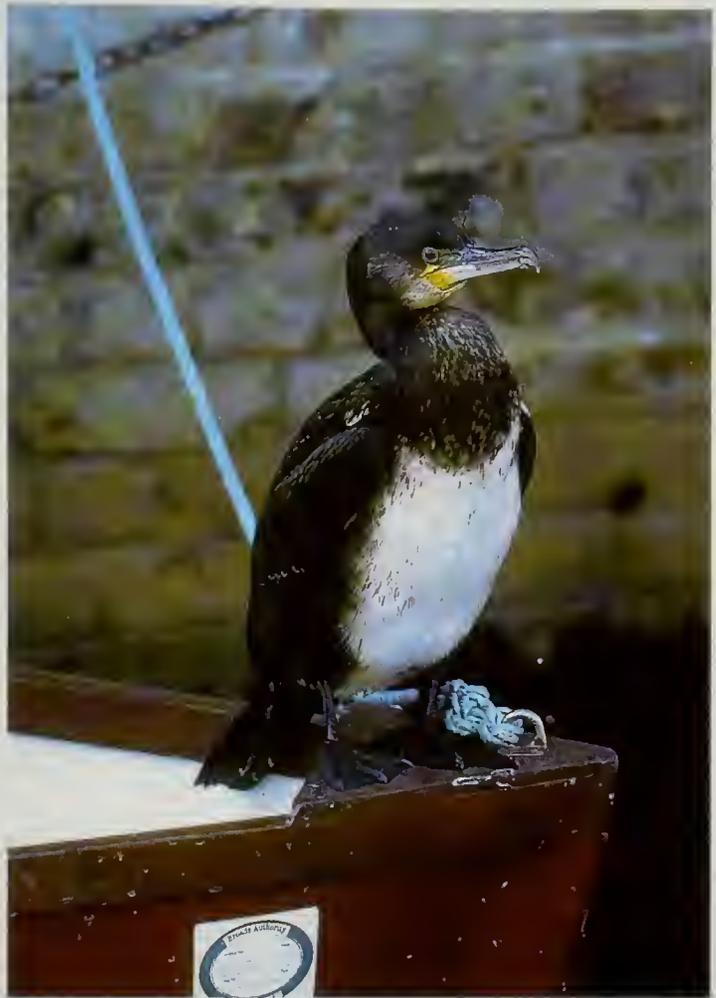
23. Shag *Phalacrocorax aristotelis*, Inner Farn, Northumberland.

Isles of Scilly, 1946

Although the perceived Grey Seal menace dominated the predator-control policy of the CSFC from 1931 (see evidence held in CC1/9 and CC3/9/41), the control of Shag populations on Scilly did surface one last time. In June 1946, the Committee discussed a second application by Dorrien-Smith for the culling of Shags, which 'had increased in very large numbers and were destroying the fry of fish around the islands' (CC1/9/13). Shag numbers had probably increased throughout Cornwall from about 1930, when the bounty scheme seems to have ended, and would presumably have increased during the war years when there would have been fewer men in the islands to control them. The district Fishery Officer supported Dorrien-Smith's claims that Shags had increased on Scilly, and the Ministry authorised another grant of £15 for their control. Unfortunately, there are no figures to indicate how many birds were killed there in the late 1940s, or how long the new control scheme operated.

Comment

It is difficult to assess the impact that control schemes in Cornwall and Scilly had on regional Cormorant and Shag populations, since statistical evidence was virtually non-existent before the 'Operation Seafarer' survey in 1969-70 (Cramp *et al.* 1974). County avifaunas tend to reveal little more than the fact that Shags were far more abundant in the region than Cormorants (Rodd 1880; Clark 1906; Clark & Rodd 1906; Ryves & Quick 1946; Quick 1964; Penhalurick 1978; Coulcher 1999). Operation Seafarer recorded 50 breeding pairs of Cormorants on Scilly and 170 pairs in mainland Cornwall; and 1,000 pairs of Shags on Scilly and 740 pairs in mainland Cornwall (Cramp *et al.* 1974). The report of a survey of breeding seabirds on Scilly in 1983 included a table of population trends of seabirds in the islands since 1900 (Harvey 1984). It estimated that the Cormorant population had possibly declined until 1945, then remained unchanged during 1946-83. No assessment of Shag numbers was made during 1900-61, but after a period of stability during 1962-74, they increased markedly in 1975-77,



Robin Chittenden

24. Juvenile Great Cormorant *Phalacrocorax carbo*, Norfolk, September 1994.

then declined slightly to 1983.

There is perhaps one final observation to make. During the twentieth century, fishing communities around the UK were often very quick to blame mammals and birds that they felt were damaging the inshore fishing industry. Seals, Harbour Porpoises *Phocoena phocoena*, dolphins (Delphinidae), Shags, Cormorants, gulls and even auks (Alcidae) were all identified as competitors with humans for fish stocks, and were at times labelled as pests. They were easy scapegoats, often used to conceal a far more serious problem within the fishing industry, namely the unsustainable human exploitation of marine resources. Yet, although the fishermen of Cornwall did blame seals and seabirds too readily, they were also aware, as early as April 1911, of the part they themselves were playing in the reduction of fish stocks. On 29th April 1911, a public meeting in Padstow considered the quantity of immature fish destroyed annually off the north coast by large numbers of trawlers. The fishermen resolved to take action to prohibit the use of trawl nets with a

smaller mesh than 15 cm, and to restrict trawling in shallow bays used as spawning grounds (CC1/9/2). This was an early and genuine attempt by fishermen (keen to protect their own economic interests, of course) to take action to promote sustainability in local fisheries. More importantly, it perhaps indicates that these Padstow men were now willing to accept their own share of the blame.

Economic note

It is possible to estimate how much money, at today's prices, the various control schemes across Cornwall cost. Today's prices are calculated for 2001, using a retail price index to adjust for inflation (see McCusker 2001). During 1911-15, when the average value of one shilling at today's prices was £2.82, the number of bird heads sent in was 4,220, giving a total outlay of bounty money by the CSFC of £11,900.40 at today's prices. During 1925-29, when the average value of one shilling at today's prices was £1.96, the number of bird heads sent in was 6,739, amounting to a bounty payment of £13,221.92 at today's prices. As a consequence, the official scheme cost the county of Cornwall an estimated £25,122 in total (at today's prices) in bounty payments to local fishermen.

Dorrien-Smith was given £15.00 in 1926 to cull Shags on Tresco, equivalent to £579.88 at today's prices, and the same again in 1946, equivalent to £386.58. If, in 1926, he had sent in the heads of the 6,000 Shags he claimed to have killed over the previous six years, then he could have earned £11,130 in bounty money at today's prices, and it remains a mystery why he did not do this but then twice asked for money to help fund his private culling scheme.

Although we would consider these to be relatively small sums of money, the real historical interest lies in the fact that Shags and other seabirds were perceived as genuine economic pests by Cornish fishing communities throughout this period, and that Cornwall led the way in taking some action against these birds, and purposely set aside monies to do so. Of course, the perceived threat from expanding inland Cormorant and Goosander *Mergus merganser* populations to lake or gravel-pit fisheries is currently a source of conflict in the British

countryside, pitting recreational anglers (who are calling for a cull to protect their sport) against conservationists. Joint research by the Wildfowl and Wetlands Trust and Liverpool John Moores University (sponsored by three government agencies) is being undertaken to improve the current understanding of the behaviour of fish-eating birds, their populations and the extent to which they cause problems for fisheries, and to develop effective management strategies.

Acknowledgments

Funding from the Leverhulme Trust towards my research on the history of the Grey Seal in Britain allowed me to investigate these archives in Cornwall. I would like to thank Ian Dickie of the RSPB Economics Department for helping an environmental historian perform some basic economic analyses. The staff of the Cornwall Record Office in Truro were helpful and hospitable. Professor T. C. Smout, Amanda Martin (Honorary Librarian, Isles of Scilly Museum), Peter Wilkinson, James Walsh and Tim Elms offered constructive and supportive comments on the text, and I am grateful for their observations.

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This paper is based entirely on primary archival research. The archives of the CSFC (minute books 1889-1989, reference CC1/9) are held in the Cornwall Record Office, Old County Hall, Truro, Cornwall TR1 3AY and are open to public access. The archives of the Dorrien-Smith family, who have leased Tresco Estate on the Isles of Scilly since 1834, are privately held in Tresco Abbey, but no access to them has yet been granted. It is likely that these papers would contain some interesting material on the control of bird and mammal species perceived as pests in the nineteenth and twentieth centuries.

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Conservation research news

Compiled by Ian Johnstone, Mark Bolton,
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Oystercatchers might starve earlier than expected

The term 'carrying capacity' is often used in discussions about how the value of a site to birds might be influenced by a change in its resources. There is a limit to the number of birds a site can support, and it is usually assumed that declining resources (such as food or habitat) will affect the population only if this carrying capacity or limit has been reached, and there are no 'spare' resources to compensate for losses.

John Goss-Custard and his research team have shown recently that bird populations may, however, be affected well *before* the carrying capacity of a site, defined in this way, is reached. They used a computer model to simulate how fat reserves of individual Oystercatchers *Haematopus ostralegus* vary during the winter. If a bird's fat levels fall to zero, it is assumed either to starve or emigrate and is omitted from further calculations. Initial simulations, in which all birds were assumed to be identical and have no fat reserves, showed that all birds survived in winters when the population was just below carrying capacity, whereas all of them ran out of food in winters when carrying capacity was just exceeded. This is because the model 'assumed' that food supply was shared equally. Of course, this never happens in nature

because real birds are not identical. Consequently, each bird in the model was given a different value for foraging efficiency (food intake rate when food is abundant and there are no competitors) and susceptibility to interference (the degree by which intake rate is reduced when competitors are nearby). With these new parameters, it was predicted that some birds would starve or emigrate even in winters when the population size was much lower than the carrying capacity. This is because poor competitors (those with low foraging efficiency and/or high susceptibility to interference) are unable to find sufficient food even when good competitors have no difficulty maintaining their fat reserves.

These results have clear implications for environmental impact assessments of areas containing wintering shorebirds, since maintaining a population just below carrying capacity may not prevent starvation or emigration. More importantly, but more difficult to answer, is whether a change in management will have a significant impact on overwinter survival.

Goss-Custard, J. D., Stillman, R. A., West, A. D., Caldow, R. W. G., & McGrorty, S. 2002. Carrying capacity in overwintering migratory birds. *Biol. Conserv.* 105: 27-41.

Reduced grazing helps breeding Black Grouse

Several upland bird species are of high or medium conservation concern and, in most cases, their future survival is likely to require appropriate livestock grazing regimes which produce suitable sward structure and composition. There has, however, been little published work on the specific effects of grazing on

upland birds. A recent five-year study, part of the North Pennines Black Grouse Recovery Project, examined the effect of reduced grazing on the population size and breeding success of Black Grouse *Tetrao tetrix* in northern England. Ten study sites subject to grazing restrictions (typically carrying 0.5 sheep per hectare in

summer) were each carefully paired with a nearby 'reference' site (with about 1.7 sheep per hectare). In the first year, there were no consistent differences among the sites in the numbers of lekking male Black Grouse, showing that the reference sites were not intrinsically poorer for grouse at the start of the study. Over the next five years, however, the number of displaying grouse increased by nearly 5% per year on sites subject to grazing restrictions, whereas numbers fell by almost 2% per year at reference sites. Furthermore, significantly more females were found with broods in the late chick-rearing period on restricted-grazing areas compared

with reference sites. This study convincingly demonstrates that agri-environment schemes which encourage extensive management of grazing land can benefit Black Grouse and lead to some population recovery. Clearly, we need to understand how the results of this type of relatively small-scale study can be extended to the landscape scale and over much longer time periods.

Calladine, J., Baines, D., & Warren, P. 2002. Effects of reduced grazing on population density and breeding success of Black Grouse in northern England. *J. Appl. Ecol.* 39: 772-780.

Avian Landscape Ecology

The 2002 annual International Association for Landscape Ecology conference was held in September at the University of East Anglia, in conjunction with the BTO. Landscape ecology is the study of the effects of spatial patterns on ecological processes in landscape mosaics, and deals with these issues at the scale at which species respond to habitat variation, habitat fragmentation and dispersal. Much of the science which underpins bird conservation could be regarded as falling into this category, and the conference provided a valuable review of recent developments in this field.

The issue of fragmentation, particularly of forest habitats, was a central theme. North American researchers described how forest fragmentation has reduced the abundance of woodland birds as a result of increased predation or brood parasitism, while Shelley Hinsley suggested that increased distance between small patches of fragmented woodland in Cambridgeshire limits breeding success of Great Tits *Parus major* by reducing their ability to feed their chicks. Per Angelstam showed that loss of natural forest cover in Continental Europe is detrimental to various woodpeckers (Picidae) because rarer species, such as Lesser Spotted Woodpecker *Dendrocopos minor*, require large deciduous trees and dead wood. The presence of seven woodpecker species in Białowieża Forest, Poland, underlines the value of preserving forest habitats on a large scale, although

Rob Fuller pointed out that some woodland birds occupy different habitats across their European range, and that critical factors in some areas may be less important elsewhere.

As well as presentations on a number of globally rare or threatened species (e.g. Bald Ibis *Geronticus eremita* and Spanish Imperial Eagle *Aquila adalberti*) and threatened habitats (e.g. the Sahel region of Africa and littoral forests in Madagascar), there was a section devoted to the ecology and conservation of declining farmland birds in Britain. In particular, Phil Atkinson examined the potential importance of context in determining the success of agri-environment schemes. He suggested that creation of grassland and arable crops in landscapes lacking these habitats is likely to have an unexpectedly large benefit for species which require such habitats.

Much of the work discussed also made use of recent technological advances in remote sensing. In particular, satellite imagery was frequently used as a means of describing habitat variation across large areas for a range of species (from Blue Tit *Parus caeruleus* to Australian waterbirds), and hence predicting bird abundance at the landscape scale. Such advances provide potentially invaluable tools for future bird conservation.

Chamberlain, D., & Wilson, A. 2002. Avian Landscape Ecology: Pure and applied issues in the large-scale ecology of birds. Conference proceedings, IALE.

Notes

Observations of European Honey-buzzard breeding density in Britain

The European Honey-buzzard *Pernis apivorus* is regarded as a widespread and common breeding species throughout most of the temperate and boreal regions of Europe. Possible reasons for its scarcity in Britain include: a cool, wet climate; a lack of large tracts of mixed woodland; low numbers of wasps (Vespidae), owing to intensive cultivation; and disturbance (Brown 1976).

The most recent report on rare breeding birds in the UK, updating the findings of the European Honey-buzzard survey 2000, gives a total of 30 confirmed breeding pairs and a further 21 probable/possible breeding pairs (Ogilvie *et al.* 2002), still a paltry total when measured against a European breeding population of some 160,000 pairs, of which 8,000-11,000 pairs breed in France and 4,000-10,000 pairs breed in Sweden (Hagemeijer & Blair 1997).

There are signs, however, that much of Britain is eminently suitable for breeding European Honey-buzzards (Roberts *et al.* 1999). A study of breeding density in two contrasting areas supports the view that the population



Steve Roberts

could be much higher than even the most recent estimates. Area A, a 3,500-ha block of upland conifer plantation (part of a much larger forest), and area B, a 24,000-ha mixed lowland woodland in southern Britain, were intensively studied in 2001. In area A, four pairs were located and three active nests were found (the fourth pair's nest was believed to have failed before it was found).

In area B, seven nests were located, with breeding strongly suspected at an eighth site (W. Percy and A. Page *in litt*). It is highly likely that the majority of nests in both study areas were located, and all nests were known to reach at least the egg stage, determined by nest inspection. Consequently, population density in the rich lowland woodland of area B, previously considered prime habitat for honey-buzzards (Brown 1976; Sharrock 1976; Batten *et al.* 1990), was considerably lower than in area A.

In area A, the mean distance between the nests of nearest neighbours was 2.4 km (range 1.75-3.0 km), whereas in area B it was 5.8 km (range 4.0-11.0 km). Another study, in mixed



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25. Typical upland conifer breeding habitat for European Honey-buzzards *Pernis apivorus*.



26. Typical lowland broadleaf breeding habitat for European Honey-buzzards *Pernis apivorus*.

lowland woodland in England, revealed two nests only 2.8 km apart (M. Cowlard *in litt*), and work in Scotland has revealed a mean nearest-neighbour distance of 2.7 km (range 2.2-3.6 km, $n=5$; Anon, verbally). European Honey-buzzards are hostile to conspecifics up to 1.5 km from the nest, and the traditional view is that nests are usually a considerable distance apart because of this (Cramp & Simmons 1980). Previous research in Britain concluded that European Honey-buzzards have large home ranges, up to 40 km² (Tubbs 1993), and that nests are well spaced (Cramp & Simmons 1980), never less than 3-5 km apart (Martin 1992). Tubbs stated that in the New Forest, an area of 37,000 ha, 6-9 pairs occupied home ranges annually between 1961 and 1980, not all of them attempting to breed (Tubbs 1993). Studies in Germany have revealed strict nearest-neighbour distances of 3.0 km (Kostrzewa 1998).

European Honey-buzzards are known to breed in many widely separated forests across Britain, but at present we have little understanding of density. Upland conifer plantations, which predominate in the north and west of Britain, have only recently been identified as potential breeding habitat for the species in Britain (Roberts *et al.* 1999). Area A is typical of many of the new forests of Wales, northern

England and Scotland. The total area of productive woodland in Britain is 2,447,000 ha (Forestry Commission data), and even if only a quarter of the 270,000 ha in Wales and the 1,180,000 ha in Scotland, and a smaller proportion of the 997,000 ha in England was suitable for breeding honey-buzzards, the potential for population growth would be considerable. One experienced Scottish ornithologist considers that all mature forests in Scotland greater than 2,000 ha are capable of supporting breeding European Honey-buzzards, and that the minimum Scottish population could be 30-50 pairs (Anon, verbally). We do not suggest that British forests contain large numbers of undetected honey-buzzards, but the results of intensive study in area A illustrate the potential in the upland forests.

Our data suggest that the existing population of European Honey-buzzards in Britain could be seriously under-recorded. Population estimates are difficult, owing to the species' secretive nature and the extent of potential habitat available. Many areas of upland plantation are rarely visited by birdwatchers, and in some areas of southern England, honey-buzzards have been found breeding in widely spaced trees with no closed canopy, and in hedgerow trees on the edges of woodland. We believe that, in light of recent findings, the

British population is likely to be in the low hundreds, and expanding.

Acknowledgments

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Pair-hunting by large falcons

The note by Lars Svensson on pair-hunting among large falcons *Falco* (*Brit. Birds* 94: 289-290) prompted a number of responses. David Christie very kindly agreed to collate these for *BB*, and a selection is published below.

Lanner Falcon

Pair-hunting is a well-known behaviour of the Lanner Falcon *F. biarmicus*, having been recorded decades ago in Sicily (Mebs 1959) and in Morocco (Brosset 1961), and subsequently mentioned by, for example, Glutz von Blotzheim *et al.* (1971), Cramp & Simmons (1980) and del Hoyo *et al.* (1994). An accurate description of pair-hunting by this falcon, each partner flying in turn to flush birds from cliff walls, is given in Glutz von Blotzheim *et al.* (1971, p. 833).

In early January 1983, at Niamey, Niger, I observed two pairs of the local Lanner Falcon subspecies *F. b. abyssinicus* regularly pair-hunting over flocks of Garganeys *Anas querquedula* and Ruffs *Philomachus pugnax* which were resting or feeding on flooded banks of the River Niger (see *Malimbus* 10: 36). More recently, Leonardi (1999) gave another account of this behaviour (see also Bonora & Chiavetta 1975).

Svensson suggested that the somewhat less pronounced sexual size dimorphism of the

largest falcons, the Gyr *F. rusticolus* and Saker Falcons *F. cherrug*, could favour pair-hunting, but differences in flight performance between, for example, the Lanner Falcon and the Peregrine Falcon *F. peregrinus* seem to me a more important explanation (see Jenkins 1995).

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I found the content of Lars Svensson's note very interesting, but his statement regarding the lack of mention of this behaviour in the literature is incorrect. Pair-hunting by Lanner Falcons *F. biarmicus*, for example, is mentioned in *BWP* (Vol. 2). My own observations on this species, published in 1991 (*Journal of Raptor Research* 25: 77-81), include the report that, in late December, males and females were seen to hunt co-operatively on 11 occasions. The male mainly flushed and chased the prey, usually in the direction of the female; the prey, upon detecting the female, would either turn back towards the male or continue flying into the

flight path of the female. Pair-members were seen to hunt together again after their young had fledged, when parents were also observed to teach the young co-operative hunting by incorporating them in their foraging expeditions. I found that co-operative hunting between mates enhanced hunting success and was practised most frequently prior to the breeding season. Females had significantly greater hunting success than males when co-operatively hunting with young.

A most interesting paper on the subject of co-operative hunting was published by D. P. Hector in 1986 (*Ethology* 73: 247-257).

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Peregrine Falcon

In May 1997, in Bedwas Caerphilly, Mid Glamorgan, I noticed a pair of Peregrine Falcons *F. peregrinus* about 800 m away. The male remained circling at a height of some 60 m, but I lost sight of the female. In front of me, a flock of racing pigeons *Columba livia* flew in fairly close proximity to the house where their loft was. A few minutes later, the female Peregrine, appearing as if from nowhere, flew down the drive below roof height and then climbed into the flock of pigeons, which scattered in every direction; two or three headed towards the male Peregrine, now much closer, which stooped at one of the birds, turned on its back and hit the

victim from beneath, the now-dead pigeon being caught by the female Peregrine.

In June 1998, again in Mid Glamorgan, a small group of us watched as a pair of Peregrines flew over a wood alongside the Mawddach estuary, the male flying lower than the female. A Coal Tit *Parus ater*, flushed intentionally or otherwise by the male, emerged from the wood and headed out across the estuary. It had covered 100 m or so when the female Peregrine stooped and caught it. Although this seemed to be co-operative hunting by a pair of Peregrine Falcons, it may have been a simple matter of chance.

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In North America, I have seen pair-hunting by adult Peregrine Falcons *F. peregrinus* frequently enough, in both the breeding and the non-breeding seasons, to have assumed that it was a well-known phenomenon. An interesting example occurred on 30th January 2001, at Bolinas Lagoon, Marin County, California, USA, when Keith Hansen, Annika Forsten, Antero Lindholm and I watched a pair of adult Peregrines successfully hunt a Sanderling *Calidris alba*. The chase started with the male Peregrine persistently pursuing the wader, with several close misses in near-horizontal flight chases and shallow stoops. After almost a minute of chasing, as the male pulled up from an unsuccessful dive when the Sanderling was forced to crash-land in the lagoon, the female Peregrine

made a stoop at the swimming wader, and for the next 30 seconds or more the two falcons alternated stoops and pull-ups over the Sanderling, which managed to fly for about 200 m before landing again in the water. This time, the female Peregrine simply flew in low, hovered while seeming to run on the water's surface, and deftly snatched the wader. Both falcons then flew to a nearby sandbar, where the female proceeded to eat the prey while the male stood about 3-4 m away, watching.

The sexual size dimorphism of Peregrines is more marked than that of Gyr *F. rusticolus* and Saker Falcons *F. cherrug*, suggesting that successful pair-hunting may not be overly compromised by pronounced size differences between the sexes.

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I have monitored the coastal breeding population of Peregrine Falcons *F. peregrinus* in Dorset from 1985 to date, with observations made principally between late May, by which time most pairs have young of at least ten days old, and late July, when most broods have been on the wing for at least three weeks.

During this time, I have witnessed several hundred hunting flights. Solitary hunting often occurs on breezy days, when one of the pair circles high over the breeding cliff, often for long periods, waiting for prey to fly into range (normally over the sea). On occasion, both adults hunt together in the same fashion, the male normally at greater altitude than the female, and both frequently chasing the same prey when it is sighted. On warm days, with little or no wind, the vast majority of hunts, probably at least 80%, are initiated from a perch: the Peregrines fly out from the cliff to intercept prey over the sea. I would estimate that well over 50%, and possibly as many as 75% of these hunts, involve both adults of the pair. If the observer is reasonably close to the cliff, it is usually possible to see both falcons flying out together. In my experience, it is normally the male that leads the chase, and which tends to fly higher, also appearing to be faster flying than the female (although this might be because of the male's smaller size and slightly 'whippier' wing action). Interception of the

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Lars Svensson's observations prompted me to refer to notes which I made in 1982 in the Aveyron valley, in the Massif Central, France, where I watched two pairs of Peregrine Falcons *F. peregrinus* at their nest sites over a ten-week period. On 24th May, the male of one pair stooped from a great height and struck a Wood Pigeon *Columba palumbus*; as the pigeon fell,

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At a site in southeast England, local observers have watched Peregrine Falcons *F. peregrinus* hunting in tandem on a regular basis since the species recolonised the area in the late 1980s. Typically, the two Peregrines are noted flying in the same direction (into the wind), one behind and above the other and the two separated by a distance of 50-100 m. In all cases, the 'leading'

prey often occurs well out to sea, the male usually making the first attack. If, as generally happens, this fails, then both falcons attack the prey more or less in turn, making a series of short stoops and attempted grabs. These hunts often develop into a furious chase, as the targeted prey flies as fast as it can towards land with both falcons in hot pursuit, all three often very low over the sea; if the initial attempted interception occurred well out to sea, it is not unusual for each adult to make five or six stoops at the prey before it makes landfall, where the hunt is often abandoned.

Pigeons *Columba*, at least, are remarkably adept at dodging at the very last moment, and of the very large number of joint hunts which I have witnessed, fewer than 20% resulted in prey being caught. On certain days, over ten instances of pair-hunting have been observed, all of which failed, while on other days, capture has been made with apparent ease in the first stoop of the first hunt. It is possible that, as other observers have noted, Peregrines hunt with less intensity on some days than they do on others.

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the female suddenly appeared, caught it in flight and carried it away.

Looking further through my notes, I find that one of the females was twice seen to be carrying a Eurasian Jackdaw *Corvus monedula*. On the only other occasion when I saw a male try for a Wood Pigeon, it was unsuccessful.

falcon attacks first, by stooping at a bird that is below it, the 'following' falcon then stooping at the intended prey. For both sexes, the impetus of the first stoop frequently leads into an upward attack, with a series of stoops and upward movements ensuing. In short, the two Peregrines are hunting together, and we have observed a number of kills under these circum-

stances. This behaviour has often been noted in windy, overcast conditions during the early spring, less frequently at other times, and without exception it has involved an adult male and an adult female, which we have assumed to be the ones breeding at the site. We have

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Aplomado Falcon

On 29th August 1995, near Oruro, in southern Bolivia, I observed a pair of Aplomado Falcons *F. femoralis* hunting co-operatively. The two took turns in actively chasing a Spot-billed Ground-tyrant *Muscisaxicola maculirostris*, presumably in an attempt to tire it out and eventually capture it, which they did. The sexes of this medium-large falcon, incidentally, differ clearly in size, the female being significantly bigger than the male.

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Merlin

During observations over the last 30 years, mainly in the Peak District National Park, in Derbyshire, I have witnessed pair-hunting by Merlins *F. columbarius* on three occasions, always close to nest sites. In the most recent incident, on 14th July 2001, John Atkin and I watched as a male began to pursue a Meadow Pipit *Anthus pratensis* in level flight over the open moorland at a height of about 20 m, while the female, in very active flight, rapidly rose to about 200 m

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Various falcons and other raptors

Co-operative hunting is more widespread among diurnal raptors than may be inferred from Lars Svensson's note, contrary to which I have little difficulty in finding easily available references to the behaviour. It is noted for the Peregrine Falcon *F. peregrinus* by, for example, Treleaven (1977) and Ratcliffe (1993), the latter author stating that Peregrines hunt in pairs 'often... during courtship and when the young have fledged'. In his monograph on Eleonora's Falcon *F. eleonora*, Walter (1979) wrote that several solitary species of raptor hunt in pairs,

watched two different pairs exhibit this behaviour, and both passerines and pigeons *Columba* have been attacked. In addition, a single adult Peregrine is sometimes seen to pursue prey in level flight, with another adult circling overhead and, finally, stooping at the prey.

The monograph by Ferguson-Lees & Christie (2001), published after this observation was originally submitted, states of the Aplomado Falcon that 'More than most falcons, pair may work in tandem (in one study, two-thirds of all bird-hunts, with success rate of 45%, compared with only 21% when one falcon alone).'

Ferguson-Lees, J., & Christie, D. A. 2001. *Raptors of the World*. London.

above the pipit. As the female reached the peak of her climb, the male ceased chasing the pipit; the passerine then appeared to 'relax', whereupon the female stooped steeply at high speed towards it. We were unable to see the outcome, as both raptor and pipit disappeared into the next valley. On each of the previous occasions, the prey was also a Meadow Pipit; one hunt was successful, and the other not so. On all three occasions the method of hunting was similar.

citing the Golden Eagle *Aquila chrysaetos* and the Lanner *F. biarmicus*, Saker *F. cherrug* and Sooty Falcons *F. concolor* as examples. In addition, Chapman (1999) mentioned co-operative hunting by the Hobby *F. subbuteo*, Peregrine, Merlin *F. columbarius*, Eleonora's Falcon and Eurasian Sparrowhawk *Accipiter nisus* (see also Newton 1986).

Given the above references, Svensson's suggestion that pair-hunting may be linked to 'a somewhat less pronounced sexual size dimorphism' seems unlikely to be correct.

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EDITORIAL COMMENT Ferguson-Lees & Christie (2001, *Raptors of the World*) mention co-operative hunting as a strategy employed to various degrees by many diurnal birds of prey. For Lanner Falcon, for instance, they state that 'Pair-members not uncommonly hunt co-operatively', while Laggar Falcon *F. jugger* pair-members have been said to hunt usually in co-ordination, taking turns to chase and harry the prey. Co-operative hunting is a widespread phenomenon among falcons, although it seems not to have been particularly well documented for many species, especially the largest ones. Furthermore, the degree of sexual size dimorphism appears not to influence the extent to which pair-hunting is practised. We intend not to publish further contributions on this subject unless they add significantly to current knowledge of this behaviour.

Lars Svensson has responded as follows: 'Although I am overwhelmed by the massive response to my note, which helps to give a better-balanced and more complete picture of how pair-hunting is practised among raptors, the main point of my original note was to bring readers' attention to a regular habit which was, I thought, inadequately noted or described. It now emerges that the Peregrine Falcon, too, practises pair-hunting, in particular in association with breeding, and so the sexual size dimorphism seems less likely to be linked to this behaviour. I regret that I overlooked the mention in the literature of pair-hunting by Lanner Falcons, but for the other species I maintain that the habit was previously inadequately covered.'

Moorhen interspecific brood parasitism

The Moorhen *Gallinula chloropus* is an adaptable species which displays a diverse range of social and reproductive strategies, including intraspecific brood parasitism. This usually involves a female Moorhen laying between one and six eggs in a conspecific's nest (usually in a neighbouring territory) as well as in their own nest. In 1999, at the Wildfowl and Wetlands Trust Centre in Llanelli, South Wales, I observed what I believe to be the first documented case of Moorhen interspecific (between species) parasitism.

The site is populated by some 180 territory-holding Moorhens. One experienced pair has occupied one particular pond each year since 1999. During early spring 1999, there was substantial disturbance owing to construction of a new visitor building and enlargement of the pond. This caused the Moorhens and the only other residents of the pond, a pair of Common Coots *Fulica atra*, to abandon their breeding attempts. Eventually, after about ten weeks, the birds began to acclimatise to the disturbance and began courting and mating. The Common Coots constructed a nest in a stand of Yellow Iris *Iris pseudacorus* and often vigorously defended their area from the Moorhens, which

also showed signs of nesting in the same area. I visited the Coot nest daily, and four eggs were laid on successive nights. On the morning of Day 5, I found a complete clutch of five Common Coot eggs plus a single Moorhen egg which was also being incubated. On Day 7, the nest had been partially predated by Brown Rats *Rattus norvegicus*, and on Day 8 all the eggs had disappeared.

Subsequently, I found the Moorhen's nest within 3 m of the original Common Coot nest, containing six eggs. Using both egg measurements (width, length and mass) and details of colour patterns, I was able to confirm that the female Moorhen was the same as the parasite female which had laid in the Common Coot nest.

It is likely that this interspecific parasitism was atypical. It is possible that the female Moorhen may have been attempting to mitigate delayed breeding by laying an additional egg in the Common Coot nest. Whether the Coot was selected as a host by the Moorhen female because of mistaken identity, or whether it simply utilised a convenient potential host nest requires further investigation. It is, however, interesting to note that both these rail species

have very similar incubation requirements (approximately 21 days for Moorhen and 25 days for Common Coot) and are generally

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congeric.

I would be interested to learn of any similar observations.

Common Coot feeding on dead fish

In April 1993, a derelict arm of the Grand Union canal in Leicester was cleaned out. On 20th April, a dead fish of unknown species was seen floating on the surface of the canal, and I observed a Common Coot *Fulica atra* approach this dead fish and peck at it several times, apparently feeding on the corpse.

On 20th May 1998, at Birstall Lakes, Leicestershire, E. Barnes and I watched an adult Common Coot feeding six recently hatched

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chicks on another dead fish. We were able to approach within 2 m of the family, and observed the process clearly for several minutes. On one occasion the morsel was too big for one of the young to swallow, and three chicks entered a tug of war. During this time, the second adult collected food by diving, and never approached the dead fish.

I can find no reference to Common Coots feeding on dead fish in the literature.

Black-headed Gulls dunking dry bread

On 27th June 1997, during a picnic near Loch Garten, Highland, my wife and I threw a number of pieces of dry bread to two Black-headed Gulls *Larus ridibundus* on the loch

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shore. To our surprise, the birds picked up the bread and dunked it, either in the loch or in puddles on the loch shore. After dunking, the gulls proceeded to swallow the softened bread.

EDITORIAL COMMENT This behaviour is already known for corvids (e.g. see *Crows of the World*, Goodwin 1986; *Brit. Birds* 87: 478), but we are not aware that it has been documented for Black-headed Gulls.

Common Kingfisher mobbing Great Bittern

There appear to be few published records of Common Kingfishers *Alcedo atthis* mobbing other birds, but on 13th October 2001, at Grove Ferry, Kent, I watched a Common Kingfisher pursuing a Great Bittern *Botaurus stellaris* across the reedbeds. The bittern was flying low over the reeds, with the kingfisher in attendance

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some 4 m above it, hovering and stooping on the bittern in a manner reminiscent of Little Tern *Sterna albifrons* diving for food. The kingfisher made at least five such attacks before the bittern dropped into the reedbeds, and its tiny attacker flew off towards the river.

Letters

Rare birds and the BBRC

The 'Dungeness petrel' (*Brit. Birds* 95: 156-165; 459-464) would surely have been astounded if it could have realised how much print would be generated by its decision, as it flew down the Channel on 4th January 1998, to keep to the right-hand shore rather than fly down the middle or – heaven forbid! – keep to the left-hand shore. I read with interest the detailed account of its occurrence and assessment, but was then dismayed by the rather petulant correspondence which followed. Before some disgruntled observer takes the next logical step and sues the BBRC for damages, it seems timely to pause and consider, just for a moment, what exactly *is* the British List? It is simply a list of species believed to have occurred in Britain; it is not immutable and not sacred. Just a convenient list.

If we are not careful, we shall all become so engrossed in listing that we forget the birds. One fact which to me is really surprising is that pelagic birds, with brains a tiny fraction of the size of our own, can find their way about the oceans both by day and night, flying huge distances in all weathers, and – in the vast majority of cases – navigating unerringly. To us, these oceans seem trackless, and, even with modern navigational aids, vessels still manage to pile up

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on coastlines. With breeding stations in the South Atlantic, it is remarkable that Herald Petrel *Pterodroma arminjoniana* has not strayed here before!

Having re-read both the original article and the subsequent correspondence, I should like to make the following points: (1) The whole assessment system would be worthless if no records were rejected. (2) Non-acceptance is no reflection on the observers – as made clear by BBRC. (3) The time required to submit a record is generally small compared with the time spent on observations. It would have been better if others who had previously thought that they had seen a Herald Petrel had submitted their observations for consideration at the time. (4) Three cheers for the idea of more pelagic trips! But let them not concentrate exclusively on seeking accidentals. It would, for example, be nice to learn more about the offshore habits in winter of relatively familiar summer visitors such as Atlantic Puffins *Fratercula arctica* and Red-necked Phalaropes *Phalaropus lobatus*. (5) Three cheers also for members of the BBRC, who assess records with thoroughness and objectivity. They deserve bouquets rather than brickbats for the amount of time they spend on this apparently thankless task.

BBRC and observer behaviour

In the recent exchanges over the 'Dungeness petrel' (*Brit. Birds* 95: 156-165; 459-464), my sympathies lie entirely with the seawatchers, but it is hard to find flaws in BBRC's increasingly pontifical responses to such situations. I am, however, beginning to be troubled by the Committee's occasional use of quotients which purport to measure observer behaviour. Is it, or indeed are others, running a book on us? Lee Evans claims openly to do so, and, at the British Birdwatching Fair in August 2002, he asserted once again that about 600 rarity records fail to reach BBRC every year. Steve Gantlett is equally strong in his belief that *Birding World's* display of rarities is more accurate and fuller than the BBRC report. Yet, in his closing remarks on the

issues raised in the Dungeness petrel debate, Colin Bradshaw states that 'The percentage of records not being submitted has remained about 5% for well over ten years and there is no evidence that the validity of the BBRC report is being reduced.' I am at a loss as to how to (i) reduce the imagined or actual disparity in the three separate amassings of rarities found, claimed, submitted and judged, and (ii) count the number of pro-active observers who actually find the birds or assist their identifications.

We have been bone idle in our construction of verifiable indices of record- or fact-contributing observers. An honourable exception to this rule appeared in the recent review by Langston, Gregory & Adams of Hawfinch *Coc-*

cothraustes coccothraustes status (*Brit. Birds* 95: 168, fig. 1). This demonstrated that the number of record-submitting observers in 34 English and Welsh counties by 2000 was close to 8,200. My own view is that the total number of such responsible people in the UK is now close to 10,000, this figure having a close similarity to the past ceilings of individual efforts devoted to the BTO Atlas projects, but I have little idea how to split it into subclasses or even main interests, or assess the overlaps between them. If we are eventually to produce some real

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We are always happy to receive feedback about the work of BBRC, and are pleased that both the 'Unst Warbler' and the 'Herald Petrel' papers (*Brit. Birds* 94: 236-245; 95: 156-165) have generated correspondence and lively debate. We hope that the 'From the Rarities Committee's files' contributions give people an insight into just how much effort goes into reaching a decision on such difficult records. These accounts also illustrate the fact that not everything is clear-cut in birding, despite what some people might have you believe. I am sorry if the tone of the BBRC response seems pontifical. I must take the blame for that, since I did most of the writing for both of these articles and for the subsequent published response to correspondence. It is sometimes difficult to strike a balance between factual accuracy and readability, and in these cases perhaps I failed.

With reference to our 'quotients', we undertake an annual count of the rarity records pub-

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ornithology from the competing gospels of rarity records and trends, it is high time for the imprecisions of the observer universe to be given attention. If we do not, the analysis of the database will still be fogged by our own behaviour and we will constantly bog down in the ephemeral gossip of individual claims and counter-claims. And if books are being kept, can their methods of construction and judgement be made public? Otherwise there is a real risk that 'birding off piste' will attract more aficionados than mavericks like me.

lished in all the mainstream British birding magazines, and compare this with the number which have been submitted to BBRC. This is how the figure of 5%, quoted by Ian Wallace (above), is derived. Of course, some submissions are received too late, or the assessment process is too complex, for the records to be assessed and published in the report for the 'right' year. Consequently, the number which appears in the BBRC report will be different from that in all other magazines. We admit that this figure can take no account of those (very few?) rarities which are simply not published at all. Nonetheless, the records in the BBRC report have all been assessed by ten democratically elected, independent birders, who have studied all the available documentation and been prepared, if necessary, to take a large amount of time to consider their decisions. In this way, we believe that the BBRC report still maintains its high level of relevance for British birders.

Declining farmland birds

The use, by Chamberlain & Vickery (2002), of a 30-year time span for monitoring changes in farmland birds is indicative of the short-term attitude to such problems, even though, in this case, it may simply be the period for which reliable census data are available. Changes in farming practices are not, however, the prerogative of the last 30 years: in the 1660s, there was demand for 'new crops, new farming methods, extensive manuring and improved drainage' (Fagan 2000). My experience of West Country farms during and shortly after the Second

World War suggests that substantial change in farming practices took place between 1945 and 1955, when tractors and combine harvesters replaced horses. Mechanisation had three main impacts on farming practices, all of which led to fewer, larger fields. Economies of scale meant that it was impractical to mechanise all the numerous and diverse activities of the typical mixed farm, and farmers tended to specialise. With fewer activities to segregate, a large number of small fields were no longer necessary. New machinery could be used more effi-

ciently in larger fields and, because all activities could now be done much quicker, the area of any one crop which could be cultivated and harvested within the appropriate window of opportunity was greatly increased. Consequently, hedgerows which had appeared with the enclosures of the seventeenth and eighteenth centuries began to disappear. A tractor with a multi-furrow plough takes only a day or two to cultivate an area which would take a month with horses. I suspect that horse-drawn agriculture could not prepare sufficient land in time for autumn-sown cereals, even if winter-hardy seed varieties had been available. In my view, a better picture of the causes of changes in farmland bird numbers could be obtained by looking at details of the changes in the type of farms, the number of activities they carried out, and the changes in the number of horses used relative to those of tractors and combines.

Many of the beneficial strategies listed by Chamberlain & Vickery include features typical of pre-mechanised agriculture (crop rotation, animal manures, decreased use of pesticides, field margins, winter stubble) but none are on a larger scale than a single farm, nor do they make any mention of other factors which make modern farms less 'bird friendly'. Most modern farm outbuildings are industrial-style structures with steel frames and corrugated sheeting. Even where older buildings exist, EU grain storage regulations require access for vermin to be sealed up, preventing access to food and nesting sites for birds. Free-range poultry and its feed, which once supported wild birds, have disappeared from most modern farms. Likewise, the rather neglected orchards, which many mixed farms had for home or local consumption, have disappeared. Many farms had small areas of woodland, providing fence posts and fuel, and these have also disappeared, except as game coverts. Michael Shrubbs (Shrubbs 2002) takes me to task for using 'a few decades' as indicative of an era of short-term avian abundance, but I do not believe that the assumption of a long period of stability is warranted. The colder and more variable weather of the Little Ice Age, from about 1250 to 1850 (Burton 1995), 1300 to 1850 (Fagan 2000), or 1430 to 1850, coldest from 1550 to 1700 (Lamb 1966), may not have been favourable to bird species. The sort of summers which caused the harvest to fail in Scotland in seven years out of eight in the 1690s and winters cold enough for the Thames to

freeze seven or eight times a century must have had an adverse affect on bird numbers. The general warming trend in Britain since the mid eighteenth century is largely due to milder winters (Burton 1995), and the scarcity of cold winters between 1895 and 1940 may well have boosted farm bird numbers by the Second World War. Going back to 1750, as intended by Shrubbs, is hardly 'long term' in an evolutionary or even historical context.

Shrubbs's 'ecological desert' is fashionable conservation-speak, but human land-use practice has seldom had wildlife conservation as a priority. It just happens that some species found human changes to their liking. Farming is an industry and farmers are not in it for fun or to create a pretty landscape, but to make a living. Farmers, like everyone else, are amenable to financial incentives, and if the rest of society wants a bird-rich landscape they have to pay for it. Farmers would willingly become wildlife managers rather than crop producers if they were paid enough, i.e. if birds in general (not just those of interest to the shooting fraternity) become a 'crop'. Maintaining diversity over an area as wide as possible, as proposed by Shrubbs, is limited by the definition of 'possible' in our crowded artificial landscape. It is why we have managed nature reserves. Would he call Minsmere a zoo? Shrubbs's final comment, suggesting that the numbers of all species must be kept at a high level to prevent them becoming scarce at some future date, is a Utopian ideal and, again, impractical with limited resources. Spring-sown cereals, which have been the mainstay of European agriculture since agriculture began, may be the favoured habitat of Sky Larks *Alauda arvensis* but the crop was planted to feed humans, not to boost Sky Lark populations. If a million Sky Larks is good, why should 500,000 be a disaster, when 10,000 Cirl Buntings *Emberiza cirlus* or 1,000 Corn Crakes *Crex crex* would be considered a triumph? What price does one put on an extra 500,000 Sky Larks, or whatever species is the conservation cause of the month? A price list with payment for each successful nest would be prohibitively expensive and impossible to monitor for all but the rarest species.

The higher numbers of birds in pre-mechanised agriculture were due to its methods, structure and leisurely pace: a multiplicity of livestock (dairy and beef cattle, sheep, pigs, horses) and chemical-free, weedy crops (cereals,

root crops, hay, grass, lucerne, fallow), a large number of small fields with substantial hedges, free-range poultry, a duck pond, muck heap, spilt grain, delapidated outbuildings, scruffy orchards and small woods. To have a meaningful effect on overall numbers, all would have to be (re-)adopted on a wide scale, as advocated by Shrubbs. It is unlikely that farmland bird populations can ever be returned to some previously higher level, comprising artificial numbers we created unintentionally in the first place, but the present decline may be slowed or halted for some species.

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Correction: Does holotype 'priority' always serve nomenclature?

In the reply, by Richard Schodde and Walter J. Bock, to the letter by Alan Dean (see *Brit. Birds* 95: 593-595), a factual error was contained in the passage concerning the naming of Isabelline Shrike *Lanius isabellinus*. The second option which is outlined, i.e. maintaining the nomenclature of the second half of the twentieth

century, should refer to neotypifying the name (*L. i.*) *isabellinus* with a specimen from the Tarim Basin of northwest China (not Mongolia). 'Traditional' *isabellinus* comes from the Tarim Basin, while the form 'traditionally' named *speculigerus* occurs in Mongolia.

We apologise for this error.

Requests

Photographs for BB

Photographs for forthcoming papers in *British Birds* are required for the following subjects: hole-nesting ducks (especially Mandarin Duck *Aix galericulata*, Common Goldeneye *Bucephala clangula* and Goosander *Mergus merganser*), farmland birds, Greater Flamingo *Phoenicopterus ruber*, Houbara Bustard *Chlamydotis nndulata*, Turtle Dove *Streptopelia turtur*, Oriental Turtle Dove *S. orientalis* (of both the nominate race and *S. o. meena*) and Song Thrush *Turdus philomelos*. Keen photographers are also reminded that we are constantly searching for high-

quality images for use on our front cover, and teasing (yet instructive) pictures for Monthly Marathon. High-quality transparencies, colour prints or digital images (supplied on CD – see Guidelines for contributors) are required, although initial submission of low-resolution digital images for assessment purposes is encouraged. Images should be sent to the *BB* editor, Chapel Cottage, Dunrossness, Shetland ZE2 9JH; e-mail: editor@britishbirds.co.uk Full acknowledgment will be given for published material, and photographers will be eligible for payment.

Wanted: Records, both old and recent, of birds and other wildlife species, however common, from within a 7-mile (11-km) radius of Selborne, Hampshire, but excluding Frensham Common and ponds. These are required for a book covering the wildlife of the Selborne area since Gilbert White's death in 1793. References to published records prior to 1990 will be especially welcome, while published records of birds and Lepidoptera since 1990 have already been extracted. Contact John F. Burton, In der Eitzwiese 2, D-69181 Leimen-St Ilgen, Germany; tel/fax: 0049 (0) 6224 3578; e-mail: johnburton@arcor.de

News and comment

Compiled by Adrian Pitches

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

From Russia with glove

There are ambitious plans to reintroduce the Great Bustard *Otis tarda* to Salisbury Plain, Wiltshire, in 2003. Young birds from Russia will be airlifted to the UK and reared in release pens adjacent to the Ministry of Defence's Salisbury Plain Training Area. The chicks will be fed from behind a screen by 'bustard puppet' to avoid them becoming habituated to humans, a technique which has proved successful in the rearing of the endangered Whooping Crane *Grus americana* in the USA.

The Great Bustard is one of just three British birds to have become extinct as a breeding species within the past 200 years, and which has not subsequently recolonised or been reintroduced. The other two are Great Auk *Pinguinus impennis* and Kentish Plover *Charadrius alexandrinus*, the latter last breeding in 1979. Great Bustards were once widely distributed in Britain, ranging from the Wessex downs to Breckland, and north to the North York Moors. A combination of low productivity and hunting drove the species to extinction in 1832. Today it is Globally Threatened, with a world population of 30,000-40,000 birds.

Under the EU Habitats Directive there is an obligation on the British Government to consider the feasibility of restoring species which have become extinct.

The Great Bustard Group has applied to the Department for Environment, Food and Rural Affairs (Defra) for a licence to import up to 40 bustard chicks every year from the Saratov region of Russia for a period of up to ten years. Modelling by Dr Patrick Osborne of Stirling University suggests that the Salisbury Plain area could support 200 Great Bustards. The reintroduction programme is designed to establish a breeding stock of 100 free-living birds. Dr Osborne told N&C: 'The young birds will be rescued from Russia, where nests and eggs are routinely destroyed during agricultural operations. In fact, mortality in young Great Bustards is very high throughout their range – that's why we need to bring over 20 or more at a time because we will lose many birds during their first year.'

As the UK's prime artillery training area, Salisbury Plain is a protected area, the stewardship of which is guaranteed far into the future. The MoD has agreed to

support the bustard reintroduction, subject to Defra and English Nature approval. Other local landowners are also enthusiastic. Indeed, unlike the reintroduction of Red Kites *Milvus milvus* to Yorkshire or the attempted reintroduction of European Beavers *Castor fiber* to Scotland, there has been no opposition to this planned reintroduction. In fact, there is genuine enthusiasm for the bustard in Wiltshire, where the bird has remained a part of local culture – in pub names and (like Red-billed Choughs *Pyrrhocorax pyrrhocorax* in Cornwall – see page 24) in the county's coat of arms.

In the 1970s, the Great Bustard Trust also hoped to reintroduce the bird to Salisbury Plain. That project, however, was based on captive breeding of semi-tame birds, and, as they failed to breed, the project foundered. If the Great Bustard Group is successful in rearing bustard chicks rescued from Russia and flown to Britain, it proposes to repay the compliment by training Russian biologists in the rearing techniques used on Salisbury Plain.

Link: contact Dave Waters on Wbustard@aol.com

Special stewardship for Stonehenge and Stone-curlews

Elsewhere on Salisbury Plain, Defra has announced a gold-plated agri-environment scheme: Special Countryside Stewardship. In recognition of the ancient monuments on the Stonehenge and Avebury World Heritage Site – and the hundreds of burial mounds scattered between them – Defra is encouraging the reversion of arable land to grassland, and extensive grazing instead of intensive livestock farming. Farmers in the area who

sign a ten-year agreement with Defra will receive payments ranging from £20 to £555 per hectare, depending on the type of land management. As well as providing more protection for overgrazed tumuli, the scheme should enhance the chalk downland habitat for Grey Partridges *Perdix perdix*, Stone-curlews *Burhinus oedicnemus*, Northern Lapwings *Vauellus vauellus* and Corn Buntings *Miliaria calandra*.

Seabird Group conference

The Seabird Group announces that its next conference, on the theme of North Atlantic Seabird Populations, will be held at Aberdeen University over the weekend of 2nd-4th April 2004. This will coincide with the launch of the book reporting the results of the *Seabird 2000* count of British and Irish seabirds. Further details and calls for papers will be made in mid 2003 and posted on the group's website www.seabirdgroup.org.uk

Zino's Petrel could disappear off the radar

A Critically Endangered European seabird is facing a novel threat to its only known breeding site. Zino's Petrel *Pterodroma madeira* is Europe's rarest breeding bird. There may be fewer than 30 nesting pairs in the mountains of Madeira, where the Portuguese Government wants to build a NATO radar station. The proposed site is near the summit of Pico do Areeiro, in close proximity to the last-known breeding colony of Zino's Petrel. The mountain is a Special Protection Area: the highest level of protection under European law. BirdLife International has called for the project to be suspended because of concerns that the construction and operation of the radar may have a detrimental impact on the petrel. The Sociedade Portuguesa para o Estudo das Aves (SPEA) is also concerned that newly fledged petrels may be attracted to the station's night lights and accidentally collide with them. Canan Orhun, head of BirdLife's European Division, commented that 'Zino's Petrel is on the verge of extinction. There is no margin for error in this case.'

Links: SPEA (www.spea.pt).

BBC News Online <http://news.bbc.co.uk/1/hi/sci/tech/2493049.stm>

Raso Lark in search of sexual equality

On another Atlantic archipelago, the Cape Verde Islands, another Critically Endangered western Palearctic species faces an uphill struggle for survival. A survey of the Raso Lark *Alanda razae* on the island of Raso by SEO/BirdLife has found a world population of between 128 and 138 birds (World Birdwatch, December 2002) – and two-thirds of these are males. This skewed sex ratio may result from differences in bill morphology and feeding methods. Nest predation, by a near-endemic gecko *Tarentola*, is also extremely high.

Yet another avoidable tanker disaster hits European seabird populations

Gone but not forgotten, the oil tanker *Prestige* eventually sank off northwest Spain on 19th November 2002. Between the time it first got into difficulties off Cape Finisterre on 13th November and it sinking six days later, an estimated 7,000 tonnes of the total cargo of 77,000 tonnes of heavy bunker fuel leaked from its ruptured tanks. This happened as the ship was being towed further offshore into the midwinter Atlantic in a disastrously naive attempt by the Spanish authorities to protect the Galician coast from oil pollution. A further 11,000 tonnes of oil were released when the ship sank, creating a massive slick which began to wash ashore on the already heavily polluted Galician coast on 1st December. Surveys of the wreck, lying in 3000 m of water 240 km offshore, show that the remaining 60,000 or so tonnes of oil which sank with the ship has not been solidified by the pressure and temperature of that depth, but is leaking continuously and creating new slicks. Oiled birds started coming ashore on the Galician coast around Cape Finisterre on 15th November, and their collection has been organised by the Sociedad Española de Ornitología

(SEO), the BirdLife partner in Spain, with subsequent examination and scientific recording by a team based at the University of A Coruña. The most numerous species recorded dead so far have been, in descending order: Razor-bill *Alca torda* (mostly first-winter birds), Northern Gannet *Morus bassanus* (mostly adults), Atlantic Puffin *Fratercula arctica* (mostly adults) and Shag *Phalacrocorax aristotelis* (mostly adults). Many other species have been found, however, including Great Northern Diver *Gavia immer*, four species of shearwaters (Great *Puffinus gravis*, Cory's *Calonectris diomedea*, Little *P. assimilis* and Balearic *P. mauretanicus*), a range of gull species but mostly Yellow-legged Gull *Larus cachinnans*, Common Guillemots *Uria aalge* from both the local Iberian population (which must now be in danger of extinction) and from further north, and even Little Auks *Alle alle*. Oil slicks have already polluted coastal wetlands, and have now penetrated the southern rias of Galicia, huge estuarine inlets which will hold an even wider range of species likely to become oiled. While there is great concern over the fate of the tiny Iberian Common Guillemot popu-

lation, and it is certain that the Galician population of Shags will be hit severely by this spill, there is also concern over the Balearic Shearwater, since a substantial part of their small and decreasing population moves out of the Mediterranean Sea in autumn to winter in the southern Bay of Biscay, exactly where the oil slicks have been and are likely to remain for several months. There is massive anger among the population of Galicia at the authorities' handling of this incident – their sixth big tanker disaster in the past 30 years. There is also an urgent need for a co-ordinated and properly funded scientific approach to documenting the impact of such spills on seabird populations. Such a plan should cover the northeast Atlantic, including the Baltic and Mediterranean Sea, and be based on the principle that 'the polluter pays', in that reasonable costs are reimbursable from the ship-owners' pollution contingency funds.

(Contributed by Martin Heubeck, who was in Galicia in November and December helping to co-ordinate the monitoring of oiled seabirds.)

Most important bustard site is saved

BirdLife International reports that the most important site for the Great Bustards *Otis tarda* in the world has been saved from a Spanish irrigation scheme. Plans to irrigate more than 4,000 ha of Villafáfila, in Zamora province in central Spain, would have destroyed 10% of an Important Bird Area which supports 2,700 Great Bustards: 8% of the global population. Villafáfila is also an important site for other steppe species, including Lesser Kestrel *Falco naumanni* and Little Bustard *Tetra tetrax*. The Spanish authorities have recognised the importance of the area: it is already a Special Protection Area and Ramsar site, and is soon to be declared a regional Natural Reserve.

County Recorder update for Lincolnshire

Steve Keightley is the current County Recorder for south Lincolnshire and, since there is no Recorder for north Lincolnshire at the moment, he is also acting as caretaker recorder for that part of the county too. Steve's contact details are as follows: Redclyffe, Swineshead Road, Frampton Fen, Boston, Lincolnshire PE20 1SG; tel: 01205 290233; e-mail: s.keightley@tesco.net

A new European endemic

DNA research suggests that there may be yet another species to be added to the European list, one which will be very familiar to the many birders who have been on a package holiday to Iberia. The bird in question is the Azure-winged Magpie *Cyanopica cyanus*, or rather the 'Iberian Magpie' *C. cooki*, the name suggested for the European outpost of the corvid which is also found 9,000 km away in northeast Asia. The popular theory for this markedly disjunct distribution was that sixteenth-century Portuguese merchants voyaging to the East returned with silks, spices, and captive Azure-winged Magpies which subsequently colonised southern Spain and Portugal. But, as reported in a paper in *BB*, the discovery of 44,000-year-old fossil magpie remains in a cave in Gibraltar knocked that theory on the head (*Brit. Birds* 92: 659-665). It was then postulated that the species once ranged across Eurasia from the Atlantic to the Pacific but that successive Ice Ages put paid to the intervening part of the population. Subsequent isolation and the resultant genetic divergence is highlighted by recent mitochondrial-DNA analysis. There is also phenotypic variation, since Iberian birds have a slightly darker blue plumage than their Asian counterparts, and lack pale tips to the central tail feathers (see *Proc. Roy. Soc. Lond. B* 269: 1671-1679).

Tartan Army eats Puffins

Your Christmas lunch probably featured one of those staple festive offerings, turkey or goose, but more exotic fare was on offer to travelling football fans on a recent trip to Reykjavik, when Scotland took on Iceland in a Euro 2004 qualifier. Scilly birder Martin Scot(t) sent N&c the following dispatch.

'A two-nil victory was worthy of celebration for the kilted masses, but one particular restaurant raised more than a few eyebrows. It was not just the price – £300 for a meal for three – but the fact that Atlantic Puffin *Fratercula arctica*, Common Guillemot *Uria aalge* and Northern Gannet *Morus bassanus* appeared on the menu. The Tartan Army, more used to pies and haggis, took up this cultural offer and reports back that Puffin actually tastes rather good. Have we been missing something all these years? And can the Vikings tell their Brännich's *U. lomvia* from their Commons, especially after it has been roasted and served with a rich creamy sauce?'

Food for thought. No doubt the Icelanders will be roaming the eateries of Glasgow in search of auk d'oeuvres when the return match is played at the end of March.

(Thanks to Bob Scott and Martin Scott for this contribution.)

Snowy Egret added to the British List

The BOURC has added Snowy Egret *Egretta thula* to Category A of the British List, following the acceptance of a bird first seen at Balvicar, Argyll & Bute on 5th November 2001 (see *Brit. Birds* 95: 481-482). 'Snowy' frequented several sites in west and southwest Scotland, spending more than two months on the Isle of Arran, and was last seen on 17th September 2002 at Caerlaverock, Dumfries & Galloway.

This species had previously been recorded seven times within the Western Palearctic: three times in (or near) Iceland, and four times in the Azores. Snowy Egret is not known in captivity in Britain or Europe, and this addition brings the British List to 565 species (Category A = 542; Category B = 14; Category C = 9).

The name's Bond, James Bond

Publisher HarperCollins has been quick to point out the delicious in-joke in the latest James Bond movie, *Die Another Day*. As *BB* readers will probably be aware, Ian Fleming was struggling for a name for his suave secret agent as he sat at his writing desk in his home on Jamaica. (And the name of the house? See below...) Fleming's eye fell on the bird book above his desk: *The Birds of the West Indies*, by James Bond. And so an eminent ornithologist was immortalised in print and on film. Forty years after the first Bond film (*Dr No*) was released, 007 returns to his namesake in *Die Another Day*. Secret agent Bond, played by Pierce Brosnan, refers to the Collins Field Guide *Birds of the West Indies* in order to impress Bond girl Halle Berry with his ornithological credentials. No doubt the original James Bond would have known that his creator lived in a house called *Goldeneye*.

Announcements

Bird Photograph of the Year

Established in 1976, this competition seeks to recognise the best and/or the most scientifically interesting bird photograph. Up to three colour transparencies, each taken during 2002, may be submitted by each photographer. Preference is given to photographs taken in the Western Palearctic (Europe, North Africa and the Middle East), but those of species on the West Palearctic List taken anywhere in the world are also eligible. The winner will receive a Sprayway Gore-Tex jacket, an inscribed salver and £100; the two runners-up will receive £50 and

£25; all three winners will also receive books presented by Christopher Helm/A&C Black and HarperCollins Publishers. An additional award of an engraved goblet and £100 is presented by The Eric Hosking Trust for the highest-placed photograph submitted by an entrant aged 25 or under. Closing date for entries: 28th February. For full details of the rules, visit our website (www.britishbirds.co.uk), or write to *British Birds* (BPY), The Banks, Mountfield, Robertsbridge, East Sussex TN32 5JY, enclosing a stamped, self-addressed envelope.

Past winners:

Michael C. Wilkes (1977), Peter Lowes (1978), Dr Edmund Fellowes (1979), Don Smith (1980), Richard T. Mills (1981), Dennis Coutts (1982), David M. Cottridge (1983), John Lawton Roberts (1984), C. R. Knights (1985), Alan Moffett (1986), Dr Kevin Carlson (1987), Bob Glover (1988 & 1992), Hanne Eriksen (1989 & 1990), Philip Perry (1991), Alan Williams (1993 & 1994), Mike Lane (1995), Roger Tidman (1996, 2001 & 2002), Jens Eriksen (1997 & 1998), Tony Hamblin (1999) and Alan Petty (2000).



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Bird Illustrator of the Year

We regret to announce that we will not be running this competition in 2003. We do, however, hope to continue to encourage new artists by retaining that part of the Award which seeks to provide high-quality colour artwork, suitable for the front cover of *BB*. A further announcement regarding this will appear shortly.

Free subscriptions for County/Regional Recorders

British Birds and Carl Zeiss Ltd, sponsors of BBRC, are jointly continuing to offer free annual subscriptions to *British Birds* to all County/Regional Recorders, to acknowledge and thank them for the hard work which they contribute to British ornithology.

Photographs and drawings for sale

Many of the photographers and artists whose work appears in *BB* appreciate the opportunity to sell their work. Anyone who wishes to obtain photographic prints or original artwork is welcome to enquire about their availability. Write to the photographer or artist concerned, *c/o British Birds*, The Banks, Mountfield, Robertsbridge, East Sussex TN32 5JY.



Monthly Marathon

Photo no. 192 Garden Warbler

Bird identification, just like certain modern technologies, has developed immensely in the last decade, and keeping up with either can often be a real struggle. Thankfully, thoughts of having to use new 'fieldcraft' techniques such as scanning or resizing images are not necessary with photo number 192 (reproduced here as plate 27). The large image clearly shows a relatively uniform, unstreaked passerine which is greyish/brown in colour, with very few obvious features. The general coloration, bill size and shape, as well as the bird's structure, help us to eliminate most families and leave us with the 'drabber' members of the chat (Turdidae), flycatcher (Muscicapidae) and warbler (Sylviidae) families. Taking each one of these in turn, we can further limit the choice of which of these families our mystery bird belongs to.



Colin Bradshaw

27. Garden Warbler *Sylvia borin*, Fair Isle, Shetland, August 1992.

To start with, the combination of a pale base to the lower mandible and dark legs would eliminate all of the chats that have a plumage as plain as this. Could our bird be a flycatcher? Its bill does appear quite broad-based and there is some kind of an eye-ring which may at first suggest a first-

winter Red-breasted Flycatcher *Ficedula parva* or even Asian Brown Flycatcher *Muscicapa dauurica*. In the case of Red-breasted Flycatcher this suggestion is strengthened by the apparent area of white at the base of the outer tail. On closer inspection, however, the extent of dark visible on the outermost tail feather is too extensive and too prominent to match the tail pattern shown by Red-breasted Flycatcher. Quite what this white area is I am not sure; perhaps it is a displaced undertail-covert catching the light? Other features which also point away from Red-breasted and Asian Brown Flycatchers include the pale area on the lower mandible being a little too extensive; the eye-ring, which appears to be broken both in front of and behind the eye; and, in the case of Asian Brown Flycatcher, the lack of any darker stripe on the malar.

Having thus eliminated all other families, we are left with the warblers. Of all the unstreaked warblers, only two show a combination of features shown by our bird. The lack of darker crown (cap) or ear-coverts, and the absence of a supercilium, coupled with the thick, dark legs and broken eye-ring, leaves us with just Garden Warbler *Sylvia borin* and an immature Barred Warbler *S. nisoria*.



28. 'Monthly Marathon'. Photo no. 195. Eleventh stage in twelfth 'Marathon'. Identify the species. Read the rules (see below), then send in your answer on a postcard to Monthly Marathon, c/o The Banks, Mountfield, Robertsbridge, East Sussex TN32 5JY, or by e-mail to editor@britishbirds.co.uk, to arrive by 28th February 2003.

Monthly Marathon

At first glance, both of these species may fit our mystery bird. The dark eye and broken white eye-ring could belong to either, but on an immature Barred Warbler I would expect to see at least some sign of a weak supercilium, pale fringing on the greater and median coverts, and maybe even some white on the outer edge of the outermost tail feather. The bill is also a good pointer: on our bird the lower mandible looks predominantly pale with a small amount of dark at the tip, whereas the bill of a Barred Warbler often appears to have an obvious dark tip.

With the head feathers slightly raised, it is possible to see some warmer brown tones on the crown which make it contrast with the grey neck side, and these features help us further in identifying our

mystery bird as a Garden Warbler. Having to search so hard for identifying clues sums up how unhelpful most field guides are in describing Garden Warbler, with terms such as 'featureless' and 'lacking obvious field marks' often being used.

Bird identification is often combined with a process of elimination, and would-be rarity finders are often told 'More often than not, if you think you have a rare bird it is probably something more common!' Having now discovered that this photograph was taken on Fair Isle, in August 1992, I wonder how much this may have affected my thought process had I known that beforehand!

James Lidster

Almost 57% of entrants worked out the correct solution to this round of the Marathon. Surprisingly, perhaps, most other votes (32%) were for Red-breasted Flycatcher. Once again, Jon Holt remains one step ahead of his nearest rivals, with a sequence of four-in-a-row.

Eds

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Monthly Marathon Rules

1. Only current individual subscribers to *British Birds* are eligible to take part. Entrants should give their name, address and *BB* reference on their entry. Only one entry per person each month.
2. Entries must be sent either by post, each one on a separate postcard, or by e-mail and be received at the British Birds Editorial Office (Monthly Marathon, British Birds Editorial Office, The Banks, Mountfield, Robertsbridge, East Sussex TN32 5JY; e-mail: editor@britishbirds.co.uk) by the stated closing date. Every care will be taken, but, even if negligence is involved, no responsibility can be accepted for non-delivery, non-receipt or accidental loss of entries.
3. All *BB* subscribers are eligible, except members of the Editorial Board and staff of *British Birds*, Directors and members of staff of SUNBIRD/WINGS Holidays, and Directors and members of staff of our printers. (Members of the *BB* Notes Panel, the Rarities Committee, and other voluntary contributors – including bird-photographers, even if one of their photographs is used in the competition – are eligible unless proscribed above.)
4. To win, a *British Birds* subscriber must correctly identify the species shown in ten consecutive photographs included in this competition. The 'Monthly Marathon' will continue until the prize has been won.
5. In the event of two or more *BB* subscribers achieving the ten-in-a-row simultaneously, the competition will continue each month until one of them (or someone else!) achieves a longer run of correct entries than any other contestant.
6. In the event of any dispute, including controversy over the identity of any of the birds in the photographs, the decision of the Editor of *British Birds* is final and binding on all parties.
7. No correspondence can be entered into concerning this competition.
8. The name and address of the winner will be announced in *British Birds*.
9. The prize for the next winner of Monthly Marathon will be £1,500 towards the SUNBIRD holiday of their choice.

Looking back

Seventy-five years ago:

'ON THE DECREASE OF BLACKGAME IN SCOTLAND.— Miss L. J. Rintoul and Miss E. V. Baxter have collected a valuable series of comparative observations, derived from a large number of correspondents and published records, on this subject... From the reports from various districts it is clear that the Black Grouse

(*Lyrurus t. britannicus*) has very seriously decreased in numbers during the last fifty years or so throughout Scotland. There is, however, evidence from a good many districts of a recovery during 1925 and 1926. There is a great difference of opinion as to the cause of the decrease.' (*Brit. Birds* 21: 206-207, January 1928)

Recent reports

Compiled by Barry Nightingale and Anthony McGeehan

This summary of unchecked reports covers mid November to mid December 2002.

White-billed Diver *Gavia adamsii* Bluemull Sound (Shetland), 14th November; South Nesting Bay (Shetland), 10th December. **Great White Egret** *Egretta alba* Loch Torornish, South Uist (Western Isles), 10th November into December; Chillington Hall (Staffordshire), 29th November into December. **American Wigeon** *Anas americana* At least nine were reported during the period, including two drakes in Shetland. **Lesser Scaup** *Aythya affinis* South Uist, 12th-16th November, with two 17th-23rd November, one of these remaining until mid December. **White-tailed Eagle** *Haliaeetus albicilla* Sandwich, then Minster Marshes (both Kent), 28th November. **Gyr Falcon** *Falco rusticolus* Pol-gigga area (Cornwall), 4th-5th December.



Jack Levene

29. First-winter Killdeer Plover *Charadrius vociferus*, St Agnes, Scilly, November 2002.

Killdeer Plover *Charadrius vociferus* Godrevy (Cornwall), 20th November. **White-rumped Sandpiper** *Calidris fuscicollis* Aberlady Bay (Lothian), 9th-17th November; Lundy (Devon), 10th November. **Long-billed Dowitcher** *Limnodromus scolopaceus* Inver Bay (Highland), 8th-18th November; Inner Marsh Farm (Cheshire), 10th November; Clonakilty (Co. Cork), 30th November; Tain (Highland), 7th December. **Lesser Yellowlegs** *Tringa flavipes* Cantley Beet Factory (Norfolk), 8th November into December. **Ivory Gull** *Pagophila eburnea* Mumbles/Blackpill area (Glamorgan), 28th November to 5th December. **Forster's Tern** *Sterna forsteri* Blacksod (Co. Mayo) 24th-30th November; Hayle Estuary (Cornwall), 26th November to 2nd December; Blennerville (Co. Kerry), 6th December. **White-winged Black Tern** *Chlidonias leucopterus* Lough Beg (Co. Cork), early December.

Oriental Turtle Dove *Streptopelia orientalis* Stromness (Orkney), 2nd-12th December. **Snowy Owl** *Nyctea scandiaca* Mullet Peninsula (Co. Mayo), 24th November into early December. **Pallid Swift** *Apus pallidus* Stanpit Marsh (Dorset), 22nd November. **Horned Lark** *Eremophila alpestris* Good numbers arrived during October and November, mainly along



Bill Baston

30. Juvenile Lesser Yellowlegs *Tringa flavipes*, Cantley Beet Factory, Norfolk, November 2002.

George Reszeter



31. First-winter Ivory Gull *Pagophila eburnea*, Swansea, Glamorgan, December 2002.

Mike Malpass



32. Juvenile Oriental Turtle Dove *Streptopelia orientalis* (left) with Collared Dove *S. decaocto*, Stromness, Orkney, December 2002.

George Reszeter



33. Bobolink *Dolichonyx oryzivorus*, Hengistbury Head, Dorset, November 2002.

the English coast where there were peak counts at Holkham Bay (Norfolk) of 57 on 16th November, 70 on 28th November and 90 on 8th December. **Red-flanked Bluetail** *Tarsiger cyanurus* Gibraltar Point (Lincolnshire), 15th-16th November. **Dark-throated Thrush** *Turdus ruficollis* Penmaenmawr (Conwy), 19th November.

Sardinian Warbler *Sylvia melanocephala* Sennen (Cornwall), 14th-15th November. **Pallas's Leaf Warbler** *Phylloscopus proregulus* Two, Dungeness (Kent), 16th November; St Mary's (Scilly), 26th-29th November. **Hume's Warbler** *Phylloscopus humei* St Mary's, 12th-15th November. **Dusky Warbler** *Phylloscopus fuscatus* St Mary's, 26th-27th November. **European Serin** *Serinus serinus* Land's End (Cornwall), 16th November; St Mary's, 16th November; Portland (Dorset), 16th and 29th November. **Two-barred Crossbill** *Loxia leucoptera* Sandringham (Norfolk), 8th-12th December. **Little Bunting** *Emberiza pusilla* Tidenham Chase (Gloucestershire), 28th November to 8th December. **Bobolink** *Dolichonyx oryzivorus* Hengistbury Head (Dorset), 1st-23rd November.



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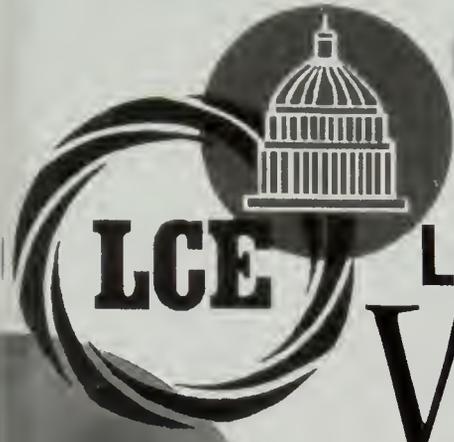
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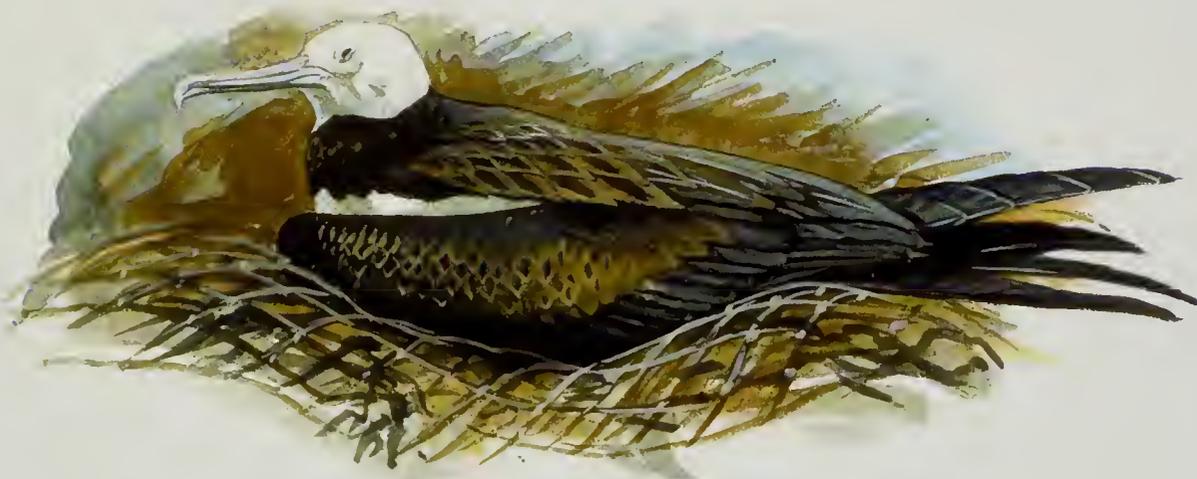
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From the Rarities Committee's files:

Ascension Frigatebird on Tiree – new to the Western Palearctic

*Grahame Walbridge, Brian Small
and Robert Y. McGowan*



Brian Small

ABSTRACT A frigatebird on Tiree, Inner Hebrides, on 10th July 1953 was identified at the time as a Magnificent Frigatebird *Fregata magnificens*. As part of an on-going review of older records by BBRC, the circumstances surrounding this record have been investigated and the specimen re-examined in detail. The measurements and plumage of the Tiree bird are incompatible with Magnificent Frigatebird but closely match those of Ascension Frigatebird *F. aquila* in 'juvenile' plumage. The revised identification has been accepted by both BOURC and BBRC, and this becomes the first record of Ascension Frigatebird for the Western Palearctic.



An exhausted frigatebird *Fregata* captured in a net on Tiree, Inner Hebrides, Scotland, on 10th July 1953 was identified at the time as Magnificent Frigatebird *F. magnificens*, and this identification has gone unquestioned for almost 50 years (Anon. 1953; Anon. 1954; BOU 1956). In an account by John Graham (Anon. 1954), who captured the bird in a landing net at Loch a' Phuill, in the south-west of the island, it is described as 'a big bird with an all-white head and an albatross beak'. He noted that the whole of the back and tail were brown and the tail was deeply forked. There was 'quite a lot of white on the underparts, and freckled black-and-white feathers down the legs to the toes'. Having been found exhausted at 10.30 hrs, the bird unfortunately died at 20.00 hrs the same day. Originally reported as an immature female, with a wingspan of '6 feet 6 inches' (c. 1,980 mm) and a length of '33 inches' (c. 840 mm), the corpse was sent to the then Royal Scottish Museum, Edinburgh (now part of the National Museums of Scotland (NMS)), for preparation as a cabinet skin. It was identified as a Magnificent Frigatebird (of the race *rothschildi**) by Sir Norman Kinnear at the British Museum (Natural History), now Natural History Museum (NHM). The specimen is retained in the NMS, Edinburgh.

Having occurred before 1958, the year that the British Birds Rarities Committee was established, the Tiree frigatebird subsequently became part of BBRC's on-going review of 1950-58 records. Reassessment of the record, principally by Grahame Walbridge (GW), and a close examination of the skin by Robert McGowan (RMcG) have shown that plumage, morphological features and biometrics of the Tiree bird are incompatible with *F. magnificens*. In this paper we describe the Tiree specimen in detail and present arguments to substantiate our assertion that the original identification as Magnificent Frigatebird was incorrect. After reviewing the characters associated with each of the world's five species of frigatebird, we conclude that the features of the Tiree bird are compatible with one species only, Ascension Frigatebird *F. aquila*.

Description of the Tiree specimen

Description from specimen at NMS, Edinburgh [Specimen number NMSZ 1953.16].

Upperparts

Forehead, crown and nape white, sharply demarcated from rest of upperparts. Mantle blackish-brown with paler brown fringes. Back lighter brown with heavily abraded and paler tips to feathers, particularly tertials. Rump and uppertail-coverts brownish-black, the latter with an almost imperceptible purplish-green gloss.

Underparts

Throat white, with slight projection onto light brown breast-band. Breast-band high on breast and deepest at sides (c. 100-110 mm), narrowest mid-ventrally (50-60 mm), with lighter fringes and darker brown shafts (recalling the mottling on the underparts of Great Skua *Catharacta skua*). Feathers of lower breast-band, which adjoin belly, more uniformly dark brown. Although some individual breast feathers are quite fresh and show a blackish centre and shaft-streak, the majority are old and appear faded brown with broad pale fringes. Belly to vent white, with a small white 'axillary spur' contiguous with white on belly, extending to axillary feathers. This is difficult to discern because the wings of the specimen cannot be extended fully.

Flanks, thighs, vent (distally) and undertail-coverts brownish-black, the undertail-coverts tipped with brown.

Wings

Tertials dark brown with blackish shafts, fairly abraded near tips. Primaries and secondaries brownish-black with blue gloss. Greater coverts black with slight gloss. Median coverts brownish-black, with paler and slightly worn fringes. Lesser coverts mid brown with darker centres and paler fringes. Marginal coverts, along the leading edge from carpal joint to body, dark blackish-brown. Taken together, the lesser coverts (and to a lesser degree, the median coverts) form a conspicuous wing-bar ('ulnar bar') of paler, brown-fringed and abraded feathers which contrast with the darker greater coverts and marginal coverts. Outer-

Footnote:

* Current taxonomic thinking suggests that *F. magnificens* is, in fact, monotypic, with minimal morphological and size differences throughout its range (Bourne 1957).

most primaries lightly abraded, but there is no evidence of primary moult. The outer primaries (P9 and P10, primaries numbered descendently) of both wings show slight abrasion, though this is considerably less than the extent of wear on the rectrices, tertials, etc. Inner primaries P3 to P8 on the left wing are not obviously abraded and the right wing shows a similar pattern, except that P5 is missing. All the remiges appear to be of the same age, indicating that the bird was a juvenile.

Underside of primaries with cream midline on dark shafts. Underwing-coverts blackish with slight gloss, no evidence of feather wear.

Tail

The tail is deeply forked, and has twelve feathers. Upper surface brownish-black, with brownish-black shafts, T4-T1 with slightly lighter brown fringes. Underside dark brown (proximally) to blackish (distally), with creamy-white shafts. Longer (outermost) feathers fairly abraded.

Bare parts

The following details were noted on the specimen label when the bird was recently dead. Bill: lead-blue with lining surface scale; tip pinkish-flesh, soft skin of pouch tinged turquoise. Iris: hazel. Legs: pale flesh, tinged bluish.

Biometrics

Wingspan	c. 1,980 mm ('6 feet 6 inches', measured when bird was found)
Overall length	c. 840 mm ('33 inches', measured when bird was found)
Wing length	613 mm
Tail, longest rectrix	371 mm
Tail, shortest rectrix	194 mm
Bill length	108 mm
Tarsus	21 mm
Longest toe	54 mm



Robert Y. McCowan

34. Ascension Frigatebird *Fregata aquila*, found on Tiree, Inner Hebrides, July 1953. The specimen is now at the National Museums of Scotland, Edinburgh.

Features of frigatebird species in 'juvenile' plumage

Immature frigatebird identification is notoriously complex and will rarely be straightforward, even given optimum viewing conditions (though in the case of the Tiree frigatebird the presence of a specimen helps greatly). It is made even more difficult by the fact that relatively little is known of the 'juvenile' plumage stages, as young birds of all species disperse from the breeding areas for up to five years after fledging until breeding condition is reached. Here we follow Howell (1994) and use the term 'juvenile' for those birds dependent upon their parents as well as for independent birds which retain the same plumage 'type' (see fig. 1). Some immatures may defy specific identification and there is usually no single diagnostic feature which will identify a non-adult frigatebird to species level. Correct identification will always rely on the detailed assessment of a number of characters, including size, head colour, the precise shape and extent of the breast-band and white belly-patch, and the presence or



Brian Small

Fig. 1. Juvenile frigatebirds *Fregata*. The illustration shows 'juvenile' frigatebirds with extremes of both axillar spur and breast-band. Great Frigatebird *F. minor*, in particular, frequently shows a less obvious (or absent) axillar spur and dark breast-side patches only. Magnificent Frigatebird *F. magnificens* is clearly larger than the other four species, while Lesser Frigatebird *F. ariel* is much smaller. Note also the angle of the axillar spur: on Ascension Frigatebird *F. aquila* and Lesser it is parallel with the leading edge of the humerus, while on Christmas Island Frigatebird *F. andrewsi* and Great (when present) it angles forward towards it.

absence of a white extension of the belly-patch onto the axillaries and underwing-coverts. The following brief review of 'juvenile' frigatebirds is based on Harrison (1983, 1987), Howell (1994), and Chalmers (2002), and focuses largely on those key areas which help to separate the species and those which concern the reidentification of the Tired bird as Ascension Frigatebird.

Magnificent Frigatebird *Fregata magnificens*
Head and breast

The head of *magnificens* is usually white, rarely with a trace of a dusky collar, but with time a dark collar or patchy hood develops. The triangular breast-side patches, which occasionally meet in a thin but complete breast-band, form the two leading sides of

Steve N. G. Howell



35. Juvenile Magnificent Frigatebird *Fregata magnificens*, Isla Isabela, Mexico, 9th May 1992. Fresh-plumaged juveniles have an extensively white head and neck, lacking the chest-band of *F. aquila*. The bill of *magnificens* is deep compared with the slimmer bill of *aquila*.

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36. Juvenile Magnificent Frigatebird *F. magnificens*, Dry Tortugas, Florida, USA, 24th April 2000. The extensive and tapered black chest-patches help to partially enclose a white, diamond-shaped belly-patch: a pattern typical of juvenile *magnificens*, and very different from that of Ascension Frigatebird *F. aquila*.

the distinct diamond shape of the white belly.

Belly and axillar spur

The white on the upper belly is often restricted and becomes blotched with black as the bird matures, and the area of white adjacent to the axillaries rarely 'bleeds' onto those feathers as white axillar 'scallops'. Although some *magnificens* can show axillar spurs, these are usually absent or restricted to small and narrow white patches, distinctly less pronounced than on *aquila*.

Lesser Frigatebird Fregata ariel

Size

Significantly smaller than the other four species.

Head and breast

The entire head of *ariel*, including the chin and throat, is rusty or cinnamon in first-stage juveniles, and often there is no clear demarcation between head and mantle as the white of the nape 'bleeds' into the black of the mantle. As the juvenile matures, the head becomes whiter and rarely it may seem all-white, although most birds retain a russet-brown wash on the crown. The head, including the chin and throat, of



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37. Juvenile Great Frigatebird *Fregata minor*, Isla San Benedicto, Mexico, 25th April 1992. The head and neck of fresh-plumaged juvenile *minor* are typically cinnamon-coloured, as on this bird, and are thus very different from the pure white head and neck of Ascension Frigatebird *F. aquila*.

both sexes becomes black as this species nears maturity. Young juveniles (first stage) show a broad dark band across the mid-breast (a little lower on the breast than on *aquila*), while the lower breast is white, but the belly is mottled darker. This breast-band gradually disappears as juveniles moult through the various stages of immature plumage.

Belly and axillar spur

Lesser Frigatebird possesses prominent white axillar spurs formed by the white breast extending onto the axillaries. These may seem slightly narrower and more pointed than on *aquila* and appear to run parallel with the humerus. In this respect it resembles *aquila*, but differs from *minor* and *andrewsi*. This spur does not extend onto the underwing-coverts, but small pale crescents may appear near the inner underwing-coverts. In females, the extent of white on the flank spur, where it runs onto the axillaries, also increases with age. In males, however, the pattern and extent of white on the breast decreases with increasing maturity.

Great Frigatebird Fregata minor

Head and breast

The head of *minor* is rusty on first-stage juven-

iles, becoming whiter on the crown of older juveniles and, like *ariel*, the division between the white of the hindneck and the mantle is not sharp. Most immatures retain a russet-brown wash, or streaking, on the crown, sides of the head, throat and chest, but as the species nears maturity, the crown, nape and ear-coverts become blacker and the black on the face can appear as a broad mask. Females of all ages, including adults, usually develop a white chin and throat, but some females, which appear close to maturity on plumage features, can still show a russet-brown chin and throat. In males, the chin and throat darken with age. Young juveniles usually show a dark breast-band which is russet-brown in the centre, becoming blacker towards the flanks. This band narrows considerably with age and is very thin or absent in older 'juveniles'. Although the breast-band may be complete, Howell (1994) suggests that a breast-band is rare in *minor*. If present, it is lower on the breast than is typical of *aquila*, narrower (c. 15-30 mm), and invariably black. The breast-band differs from that of Christmas Island Frigatebird *F. andrewsi* in shape and position, being broadest at the sides of the upper breast, while across the lower edge of the breast it is concave where it meets the white belly-patch. In



38. Immature Great Frigatebird *Fregata minor*, Isla San Benedicto, Mexico, 25th April 1992. Older immatures of this species develop a white head and neck with a broken black chest-band. They can then resemble juvenile Ascension Frigatebird *F. aquila* (plate 39), but *minor* typically lacks white axillar-patches (so the shape of the white underparts is different), while many retain some cinnamon wash.

this respect, *minor* resembles *ariel*, but unlike *aquila* the breast-band crosses the mid- or lower breast. In first-stage juveniles there is usually contrast between the whitish head and russet-brown breast-band. In later stages, some immatures lack the breast-band and appear white from the chin to lower belly, while others show a very narrow band.

Belly and axillar spur

The belly-patch, which is white in juveniles, is widest across the upper belly towards the front or centre of the wing and narrows towards the feet. On some individuals the belly-patch bulges out onto the flanks near the axillaries, but only rarely extends onto them as indistinct 'scallop'. Plate 395 in Harrison (1987) shows a juvenile *minor* with a relatively prominent axillar spur akin to that of *andrewsi*, but this appears to be rare. On *magnificens* the white belly is narrow, being more tapered to a point, while on *andrewsi* the belly-patch is usually broader towards the rear of the wings. The belly-patch

becomes darker with age and can often appear mottled and diffuse as black feathering moults through.

Christmas Island Frigatebird Fregata andrewsi *Head and breast*

The head of juvenile *andrewsi* is rusty or cinnamon in first-stage juveniles, but this typically wears and bleaches to a pale tan wash or occasionally white. The upper breast is also usually white, faintly mottled with pale tan, and merges with the chin and throat, which also become whiter with age. In strong sunlight, the head and upper breast often appear entirely white at a distance. All immatures exhibit a blackish breast-band which crosses the lower breast. This is typically very narrow across the centre but widens considerably at the sides. Because the throat and upper breast are white and the black breast-band very narrow at the centre, the band appears to taper evenly along both edges towards the centre of the breast. The shape of this breast-band is different from that of *magnificens* and *aquila* and would seem to be a key feature in its separation from those two species. On some birds, the centre of the breast is white but there are always black spurs extending from the flanks towards the breast centre.

Belly and axillar spur

A white axillar spur extends from the widest part of the white belly-patch across the axillaries and often onto the underwing-coverts. This spur is narrower than that shown by *ariel* and *aquila*, and is similar to *minor* in that it angles towards the humerus.

Ascension Frigatebird Fregata aquila

Head and breast

The head and neck of juvenile *aquila* are always entirely white, without the rusty or cinnamon wash evident on other species, the white ending abruptly at a clearly defined border between the hindneck and the dark upper mantle. There is some question as to the variability of juvenile *aquila*, as some juveniles on Ascension Island have underparts which are extensively white, yet many have a complete or broken breast-band, possibly indicative of age, although these are 'at most the first post-juvenile plumage' (S. Howell pers. comm.).

Perhaps the most important plumage feature which separates 'juvenile' *aquila* from all other species is the brownish (or patchy black) breast-

band, which is distinct in its width and position on the breast. On all specimens of *aquila* at the NHM of a similar age to the Tiree bird, i.e. in 'older juvenile' plumage, the breast-band is brownish, broad at the sides of the breast, and sometimes narrows towards the centre, although two specimens of 'juvenile' *aquila* at Tring have the breast-band broken by white on the central breast. Studies of photographs have shown that the amount of white dividing the breast-band is variable, with some juvenile *aquila* being apparently white-breasted (del Hoyo *et al.* 1992). Diagrammatical drawings of *aquila* on Ascension Island by Robin Prytherch (*in litt.*) show that the breast-band may be complete or broken on young birds (complete on five birds, broken on two and with a white notch on the lower breast-band on two), and also that the breast-band is invariably high across the upper breast. Though a complete or partial breast-band might be apparent on other species of frigatebird, it is never positioned as high on the breast as in *aquila*. On *magnificens*, the breast-band is much lower on the breast, virtually never complete and is usually blacker than that of *aquila* (Howell 1994). The breast-band on *minor* may be complete (although Howell 1994 indicates that a breast-band is rare



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39. 'Juvenile' Ascension Frigatebird *Fregata aquila*, Ascension Island, 12th April 2002. Most birds show a solid black upper-chest band but some have a broken band like this individual. Note the extension of white into the axillars, with the front edge parallel with the humerus.



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40. 'Juvenile' Ascension Frigatebird *Fregata aquila*, Ascension Island, 13th April 2002. From above, black from the mantle wraps around into the upper-chest band and isolates a white head – note the sharp division between the white of the head and the upper mantle, and also that the remiges are apparently of the same age.



41. 'Juvenile' Ascension Frigatebird *Fregata aquila*, Ascension Island, March 1980. This bird shows the typical clean white head and virtually complete brown breast-band of young *aquila*. Note the triangular expansion of white onto the underwing. The near wing shows a step in the secondaries and is possibly missing an inner primary, indicative of an older 'juvenile'.

in *minor*), but is again lower on the breast, narrower towards the centre (c. 15-30 mm), and invariably black. Similarly, *andrewsi*, like *minor*, shows a very narrow black band which runs across the lower breast.

Belly and axillar spur

On juveniles, and even some 'adult-type' females, a prominent square or blunt triangular spur extends from the upper flanks onto the axillaries. This spur is distinctly different in shape from that of *magnificens* and *minor*, where it is absent or poorly defined, subtly different from that of *ariel* and similar to (yet larger than) that of *andrewsi*. Harrison (1983) states that *ariel* is the 'only other species with white axillaries likely to occur in Atlantic'.

Identification of the Tirez frigatebird

During the early stages of the review of this record, GW became aware that plumage features possessed by the Tirez specimen, notably the breast-band, were inconsistent with *F. mag-*

nificens. Further investigation revealed that other structural differences and post-mortem evidence supported this. He soon realised, to his amazement, that the Tirez frigatebird was an Ascension Frigatebird, new to the Western Palearctic, and the only sighting away from Ascension Island and western Africa!

Plumage

As described above, there are crucial features which, when taken in combination, enable the five species of frigatebirds to be identified in 'juvenile' plumage. Comparison of the plumage details of the Tirez frigatebird has been made with birds of a similar age, using literature, input from observers with field experience of frigatebirds (and *aquila* in particular), and examination of reference collections at NMS, Edinburgh, and NHM, Tring. All species of frigatebird have been considered, and all, with the exception of *aquila*, have been rejected on the plumage features described above. In particular, by concentrating on the colour and definition of the head, the shape, width and position of the breast-band, and the white axillar spur, the identification as *aquila* is relatively straightforward.

Head and breast-band

As previously noted, the head of the Tirez frigatebird is pure white, this colour ending quite abruptly on the lower hindneck and upper breast. The area of white on the hindneck is more extensive and more sharply demarcated than on *magnificens*, while on *minor* the white head (of older 'juveniles') 'bleeds' into the upper mantle, and almost always has a rusty wash. Young birds of both *ariel* and *andrewsi* never show a pure white head and this feature alone rules them out also. The shape, colour and position of the breast-band of the Tirez frigatebird is wide, brownish with a few black feathers moulting through, and is positioned high on the breast, bordering the throat. This is typical of *aquila*, and this feature alone probably identifies the Tirez frigatebird conclusively.

Axillar spur

The presence of a white axillar spur on the underwing, described and illustrated for all juvenile stages of *aquila* and even pale-morph adult females (Harrison 1983), can be found on the Tirez frigatebird, but this is not diagnostic on its own. Partial relaxing of the Tirez spec-

imen, to loosen the wings, did reveal a white area on the axillaries, sufficient to rule out *magnificens* and most *minor*, but this feature can be shown by *ariel*, *andrewsi* and a few *minor*.

The underwing-coverts of *aquila* are described by Harrison (1983) as 'mostly blackish except for random white patches on coverts (this feature consistently appears in juvenile stages of this species)'. Descriptions in the main text of Enticott & Tipling (1997) and illustrations in Borrow & Demey (2002) support this as a feature of *aquila*, but are presumably based on Harrison's (1983) earlier work. Steve Howell has commented that these white patches are not, however, evident on juveniles on Ascension Island and, furthermore, they are not present on the Tiree specimen. Interestingly, what is apparent on the specimen are the pale feather-bases on the underwing-coverts, which are only visible when feathers are displaced. The validity of random white patches on the underwing-coverts as a feature of juvenile *aquila* is further questioned by their absence in published photographs of juvenile *aquila* in Harrison (1987) and Enticott & Tipling (1997).

On the basis of the body plumage, it would appear that the Tiree frigatebird was probably in fully developed so-called 'second-stage juvenile' plumage, in which the breast-band is more or less complete, but with a few black feathers evident on the upper and lower borders. The lack of evidence of primary moult, however, indicates that it was in 'first-stage juvenile' plumage, as an older bird would show moult or colour contrast between feathers of different ages in the primaries and secondaries. The sex was recorded at preparation as female, presumably by inspection of gonads, even though the wing length is beyond the range of measurements given for female *magnificens*. The colour of the legs of adults is described as black in males and pink or coral-red in females, but on juveniles the legs are pale blue (Stonehouse & Stonehouse 1963). The Tiree frigatebird had 'pale flesh, tinged bluish' legs, which gives the



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42. Ascension Frigatebird *Fregata aquila*, found on Tiree, Inner Hebrides, July 1953. The specimen is now at the National Museums of Scotland, Edinburgh.

impression that their colour was changing from the pale blue of a juvenile to the pinker colour of an adult female. This also suggests that the Tiree bird was a female, which is further supported by the wing length and other measurements.

Size and structure

Biometrics

The size and structure of the Tiree specimen show several inconsistencies with *magnificens*. The measurements, in particular wing length, are the first clue, though published data are based on very restricted sample sizes. On their own, measurements cannot be used to differentiate the Tiree bird from other frigatebird species, except *ariel*, which is markedly smaller (table 1). Given that the Tiree frigatebird is a female, and therefore larger than a male, it appears too small to be *magnificens*. Although its wing length is at the lower limit

for male *magnificens*, all other measurements fall well below those for females. In contrast, the biometrics of the Tiree frigatebird fit more or less within the range for *aquila*, although the wing length of 613 mm is slightly higher than the highest value given for four *aquila* by Murphy (1936). Conversely, the wingspan (1,980 mm) is relatively low for a female *aquila*, as is the overall length (840 mm), which is less than would be expected for *aquila* of either sex, although we stress again that the sample size of measurements used by Murphy (1936) is very small. Measuring the wingspan of such a large bird is difficult, and wing length is a better (more accurate, and more repeatable) measure of size. It does, however, seem that in comparison with other large frigatebirds, the wingspan of *aquila* is proportionally smaller, indicating that it is relatively shorter-winged.

Bill

The bill length of the Tiree frigatebird, 108.3 mm, is slightly above the range given by Murphy (1936) for *aquila* (n=4). It is also at the lower end of the range for male *magnificens*, though it is consistent with measurements quoted by Stonehouse & Stonehouse (1963) who recorded bill lengths of 102-120 mm for *aquila* between 61 and 120 days old. Murphy (1936) considered that the 'slender and remarkably depressed bill, the culminicorn plate of which is extraordinarily flat, rising little if any above the latericorn plates' is diagnostic. In his examination of the specimen, RMcG considered that the bill plates looked swollen. Measurement of the depth of the latericorn plates and culminicorn plate does appear to confirm some distortion, possibly caused by differential drying of the bill sheath-plates. Measurements of the various frigatebird species at the NMS and the NHM show that the depth of the culminicorn plate on *aquila* is slim, in the range 1.3-1.5 mm, compared with other species. It is apparent that the bill of the Tiree frigatebird cannot be used safely to argue for or against its identity as *aquila*.

Further evidence

One piece of highly relevant evidence supporting the identification as *aquila* owes much to the prescience of the original examiners of the Tiree corpse, who collected a number of parasites from the specimen. These have been identified as *Tetraborthius* sp. tapeworms, the hippoboscid fly *Olfersia spinifera* (Leach 1817) and three species of chewing lice *Fregatiella anrifasciata* (Kellogg 1899), *Colpocephalum angulaticeps* (Piaget 1880) and *Pectinopygus crenatus* (Giebel 1874). During the course of this investigation, the lice were sent to R. L. Palma, Curator of Insects at the Museum of New Zealand, who reviewed their identity. Chewing lice are obligate ectoparasites, completing an entire life-cycle by feeding on a single host's tissues. As these insects are wingless, transmission between hosts occurs only when hosts are in physical contact,



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43. Ascension Frigatebird *Fregata aquila*, found on Tiree, Inner Hebrides, July 1953. The specimen is now at the National Museums of Scotland, Edinburgh.

Table 1. Overall length, wingspan and wing length of Magnificent Frigatebird *Fregata magnificens*, Ascension Frigatebird *F. aquila*, Christmas Island Frigatebird *F. andrewsi*, Great Frigatebird *F. minor* and Lesser Frigatebird *F. ariel*. All measurements in mm (maximum chord).

Species	Sex	Overall length	Wingspan	Wing length	Source
Magnificent Frigatebird		890-1,140	2,170-2,440	651-682	Harrison (1983)
Ascension Frigatebird		890-960	1,960-2,010		Harrison (1983)
Magnificent Frigatebird	female (n=3)	940-1,120	2,240-2,360	628-674	Murphy (1936)
Ascension Frigatebird	female (n=4)	960	2,055	587-607	Murphy (1936)
Christmas Island Frigatebird		890-1,000	2,060-2,300		Harrison (1983)
Great Frigatebird		860-1,000	2,060-2,300		Harrison (1983)
Lesser Frigatebird		710-810	1,750-1,930		Harrison (1983)

Table 2. Bill measurements of Ascension Frigatebird *Fregata aquila* and Magnificent Frigatebird *F. magnificens* taken from Murphy (1936). Bill length refers to the exposed culmen, measured from the feathering at the base of the upper mandible to the tip of the upper mandible. All measurements in mm.

Species	Sex	Bill length (mean)	Mean bill depth at mid-point
Ascension Frigatebird	females (n=4)	99.0-105.9 (103)	14.0
Magnificent Frigatebird	females (n=21)	109.2-130.0 (121)	17.6

such as during breeding (Barker 1994). Louse distributions, therefore, are generally restricted to a small number of closely related host species, or often to a single species of host. The degree of host-specificity exhibited by these lice provides a useful aid to understanding the taxonomic relationships of birds (Pilgrim & Palma 1982; Zonfrillo 1993; Forrester *et al.* 1995; Zonfrillo & Palma 2000).

The three species of lice recorded from the Tiree specimen were checked against contemporary listings of hosts. The species *Fregatiella aurifasciata* is a louse recorded from all five species of frigatebird, and is, therefore, not useful for the identification of the host. The occurrence of *Colpocephalum angulaticeps* is strong evidence that the Tiree frigatebird cannot be *Fregata magnificens* because this latter species is host to *C. spineum* (Kellogg 1899) only in this genera (Forrester *et al.* 1995); *C. angulaticeps* has also been recorded from *F. ariel* and *F. minor* (Palma & Barker 1996). There are currently no authenticated records of *Colpocephalum* sp. from Ascension Island birds (R. L. Palma pers. comm.). Due to problems with identification and, in particular, a lack of authenticated comparative material, the *Pectinopygus* lice are of little assistance in the taxonomic determination of the Tiree bird.

Population, breeding and movements of Ascension Frigatebird

Ascension Frigatebird now breeds exclusively on Boatswainbird Islet, which measures approximately 225 m by 275 m and lies only 250 m off the northeast coast of Ascension Island in the tropical eastern Atlantic. It breeds on the ground 'among the stones and guano of the rough basalt cap' (Stonehouse & Stonehouse 1963). It formerly bred on Ascension Island itself, but since the 1800s has undergone a population decline as a result of predation by feral cats in particular, but also by introduced Black Rats *Rattus rattus*, and persecution by humans through the taking of eggs and guano. There remains the threat of predators reaching the current breeding site, while other threats such as longline fishing and over-exploitation of the fish stocks in the region of the colony are real, though as yet there is no evidence to suggest that these are affecting the population. Currently, a proposal to eradicate cats from Ascension Island is being considered.

There is general agreement that Ascension Frigatebird was more numerous in the 1950s than it is currently. The species account in del Hoyo *et al.* (1992) describes it as rare, with the last census in the late 1950s estimating the population to be 8,000-10,000 breeding birds and



44. Adult Ascension Frigatebird *Fregata aquila*, Ascension Island, September 2001. Adult *aquila* are usually all-dark, though females have a brown breast-band and some can have a white belly, but the blood-red gular pouch shown here indicates a male.

1,000-2,000 juveniles. Subsequent estimates put the population at 1,000-1,500 pairs or less. Enticott & Tipling (1997) refer to counts of 5,000 birds in 1976, and 2,500 birds and 1,000 nests in 1988. A more recent estimate, however, indicates that in 1997 the population 'was estimated to lie between 5,000-10,000 individuals, but may number as many as 10,000-12,000 mature adults' (BirdLife International, 2000).

Studies of Ascension Frigatebird by Stonehouse & Stonehouse (1963) between November 1957 and April 1959 provide the most detailed study of the breeding cycle. They noted that eggs are laid throughout the year, but with a more defined breeding season between the months of April and November or December. Nesting success of 15-20% is given for the population as a whole, but success was highest among early breeders and those pairs breeding at lower densities within the colony. Incubation was thought to last for between 43 and 51 days, with a mean of 44 days. The chicks grow slowly and steadily, finally losing the last of their down between 141 and 180 days after hatching. They are capable of flying within six or seven months, but 'remain at least partly dependent on their parents for a further three or four months'. Young birds begin to leave the nesting area for several

hours at the age of eight or nine months.

Stonehouse & Stonehouse (1963) found that older 'juveniles' with 'mottled breast feathering and scattered black feathers on the [white] head and neck' were seen occasionally at the colony, but that 'no white-headed or mottled birds attempted to breed'. This is in contrast to Harrison (1983), who stated that some birds apparently breed in what would appear to be 'immature' plumage. This may refer to the very few birds which breed with either a white breast or abdomen, or small areas of white on their chest and abdomen, but with otherwise adult plumage. Juveniles are likely to occur in the vicinity of the Ascension Island breeding areas, roosting at various sites, but are unlikely to re-enter the breeding colony until they are adults, or near-adults (S. Howell pers. comm.).

The movements of Ascension Frigatebirds away from Boatswainbird Islet remain relatively unknown. Enticott & Tipling (1997) comment that the species rarely strays more than 150 km from breeding areas, while Brown *et al.* (1982) note that it is a vagrant to the west African coast, from the Gulf of Guinea to the mouth of the Congo River. Borrow & Demey (2002) also state that it is a vagrant in the Gulf of Guinea, where it has been recorded in the waters of São Tomé and Príncipe. BirdLife International



Alan Bull

45. Ascension Frigatebirds *Fregata aquila*, Ascension Island, September 2001. Taken in September, there are very few (or no) juvenile birds present on Boatswainbird Islet in this image, though studies by Stonehouse & Stonehouse (1963) indicate that the breeding season lasts from April to November or December.

(2000) reports that this species probably spends much time far from the island. Being a surface-feeder, preying on fish, flying-fish and newly hatched Green Turtles *Chelonia mydas*, it may well follow shoals farther north than is currently recognised, especially given the difficulty of identification of frigatebird species at sea.

British, Irish and European frigatebird records

There have been other frigatebirds recorded from British waters. There are two records of unidentified frigatebirds in Britain: at Forvie, Grampian, on 20th August 1960; and at Porthoustock and Carrick Roads, Cornwall, on 13th June 1995 (with what is presumed to be the same individual seen off Skomer, Dyfed, on 14th June 1995). There are four accepted records from Ireland, all referring to unidentified frigatebirds: Co. Cork 1973, and Co. Dublin in 1988, 1989 and 1995. The last record, at Booterstown, Co. Dublin, on 22nd June 1995, was presumed to relate to the individual seen in Cornwall and Dyfed. Most recently, an adult female Magnificent Frigatebird was found exhausted on the Isle of Man on 22nd December 1998, and died in captivity in October 1999 (Gantlett 1999). This was accepted by the BBRC (Rogers *et al.* 2000) and now remains the only accepted record of Mag-

nificent Frigatebird for Great Britain; this record is currently under review by BOURC, as it is now a putative 'first' for Britain and the Isle of Man.

Excluding the misidentified Tiree bird, Lewington *et al.* (1991) list five records of Magnificent Frigatebird from the Western Palearctic. These include one at Saumur, France, in October 1852; a male at La Rochelle, France, in March 1902; and singles on the Azores in November 'sometime before 1903', in Denmark in March 1968, and in Spain in September 1985. Among several additional reports of unidentified frigatebirds, Scherner (2001) considers that a bird in Germany in January 1792 was 'most probably' Magnificent. Other, recent European records of unidentified frigatebirds include one in Belgium in July 1975 and two there in December 1988, one in the Netherlands in August 1960, singles in Norway in September 1983 and June 1989, and one at the Sea of Azov, Ukraine during the 1980s (Snow & Perrins 1998).

Discussion

In 1953, the occurrence of any frigatebird in the British Isles must have seemed highly improbable. Instinctively, thoughts about the identity and origin of such a bird would focus on the

nearest breeding colonies. With *magnificens* being widespread in the tropical Atlantic Ocean and also the species breeding closest to the British Isles, with colonies in southern Florida, USA, the Caribbean and the Cape Verde archipelago, it is understandable that the 'reasonable assumption' was that it was a Magnificent Frigatebird. This assumption, coupled with the lack of suitable comparative material and information about immature plumages, was presumably enough to set the original reviewers off on the wrong track. Although the Tiree frigatebird occurred when the population of *aquila* may have been greater than it is today, there were no records outside the Afrotropical region in 1953, and no reason to suppose it could occur here. Once accepted as a Magnificent Frigatebird, the identification went unquestioned for almost 50 years.

Only relatively recently has an attempt been made to evaluate the problem of immature frigatebird plumages. Even today, these plumages are poorly understood as most immatures depart from the breeding colonies after fledging and disperse into tropical seas where they remain for several years before returning to the breeding colonies as adults, or near-adults. Within this period, they moult through several poorly known plumage stages which radically transform their appearance. To compound the problem further, several species, all in various immature plumage stages, often flock together and congregate in communal roosts, making positive identification of specific individuals of unknown origin extremely difficult.

The above discussion, focusing on the plumage features and biometric data of the Tiree frigatebird, shows how new information and an improved understanding of immature frigatebird plumages has enabled this review to take place. The reidentification as Ascension Frigatebird is unexpected and surprising. With an improved knowledge of the plumage characters of this species, and taking into account the dynamics of seabird populations, linked with possible conservation measures, there is a possibility that it may occur again.

Conclusion/Summary

The identification of juvenile frigatebirds is fraught with problems, particularly in the field, and these should not be underestimated. We do, however, feel confident that the identification of the Tiree bird as Ascension Frigatebird has been

fully established on the basis of the features outlined above. Having confirmed its age as first-stage juvenile, the characters proving its identity as Ascension Frigatebird are as follows: the head is clean white, well demarcated from the mantle and breast-band, with no cinnamon or rufous wash; the brown breast-band, with some dark feathers, is virtually complete, of even depth and high on the chest (this is the most important, and probably the only truly diagnostic feature); and the presence of the axillar spur, which has been established through detailed museum analysis but is not, unfortunately, obvious on the images of the partly relaxed wing. The measurements are insufficient to confirm identity, but do at least establish that it is not Magnificent Frigatebird. Finally, and in some ways most importantly, we have confirmation by perhaps the world's leading authority on the identification of frigatebirds, Steve Howell, that, in his opinion, the Tiree bird could only have been Ascension Frigatebird, and we are extremely grateful for this testimony.

Acknowledgments

Thanks are due to the following for their help with researching the literature, examining specimens and for providing comments, photographs and drawings based on their own knowledge of frigatebirds: Mark Adams (Natural History Museum, Tring), Colin Bradshaw, Alan Bull, Martin Cade, Mike Chalmers, Ian Dawson, Peter Kennerley, Ed Mackrill, Tony Marr, Ricardo Palma, Chris Patrick, Robin Prytherch, Mike Rogers, and Bernard Zonfrillo. We would in particular like to thank Steve N. G. Howell for sharing his recent experiences of *aquila* at Ascension Island and for commenting on an earlier draft of this paper.

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EDITORIAL COMMENT Colin Bradshaw, Chairman of the British Birds Rarities Committee commented: 'I don't suppose anyone anticipated that the BBRC review of 1950-58 records would result in a new species being added to the British List. Our intent was always to conduct a rigorous evaluation of records from this period and, where possible, we have gone back to the original data rather than relying on published accounts. Where specimens exist, we have tried to get photographs of these added to the file. Grahame Walbridge is to be congratulated for having the acumen to notice that the prominent breast-band would be extremely unusual in Magnificent Frigatebird, and that there was something seriously amiss with this record.'

'After that first step, the detective work was rather more routine. The biometrics were too large for Lesser Frigatebird and, because the bird was sexed as a female on dissection, too small for Magnificent. The extensively white head excluded both Lesser and Christmas Island Frigatebird. The identification thus lay between Greater and Ascension Frigatebird. As described above, the staging of juvenile plumage, the position, extent and shape of the breast-band, the absence of any russet on the head, the presence of an axillar spur, and a sharp cut-off between the white of the head and the dark mantle all proved that this bird was, indeed, an Ascension Frigatebird.'

Eric Meek, Chairman of the British Ornithologists' Union Records Committee, commented: 'This is such an astonishing story that many of us found it hard to believe when the details first began to surface. The Tیره Magnificent Frigatebird had been part of the stuff of British ornithological folklore for almost half a century, its identity unquestioned by even the most sceptical – until, that is, the BBRC review of 1950-58 records.'

'The minute attention to detail displayed originally by Grahame Walbridge, and later by both Brian Small and Robert McGowan, has revealed what nobody had ever suspected and has resulted in the belated addition of a completely different species to the British List.'

'One of the surprises revealed by the investigation into this record has been the paucity of biometric data in the literature on which to base the comparisons. Some of the sample sizes are pitifully small, illustrating to ornithologists the world over the need to publish any data of this sort.'

'The circulation of this record saw, I feel, the BOURC working at its best. Several members asked some necessarily hard questions, resulting in some debate that could best be described as 'robust'! When the dust settled, however, we all knew a lot more about the identification problems within this very difficult genus and there was unanimous support for the reidentification.'

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The British Birds Rarities Committee is sponsored by Carl Zeiss Ltd

From the Rarities Committee's files: The Holme wing-barred *Phylloscopus* warbler

Andy Stoddart

ABSTRACT A record of a wing-barred *Phylloscopus* warbler at Holme, Norfolk, in October 1976 is discussed. Although originally accepted as an Arctic Warbler, the identification was reconsidered when unpublished photographs of the bird, not previously available to BBRC, were studied. The bird has now been accepted as a Greenish Warbler *P. trochiloides*, and was most likely to have been of the race *plumbeitarsus* ('Two-barred Greenish Warbler'). After two recirculations of the record, the Committee decided, reluctantly, that the documentation available narrowly failed to meet the required standard for what would have been a first record for Britain of this form.



Between 1958 and the end of 2001, there were 225 accepted records of Arctic Warbler *Phylloscopus borealis* in Britain (Rogers *et al.* 2002). Although there have been a handful of late spring records, in late June or early July, this species is chiefly an autumn vagrant to Britain, with most records falling between mid August and mid October, and a clear peak in mid September (Dymond *et al.* 1989; Vinicombe & Cottridge 1996). The Norfolk records of Arctic Warbler fit this general pattern well, but one record is notable for being almost two weeks later than any other. An Arctic Warbler at Holme, on 14th-19th October 1976 (*Brit. Birds* 70: 436), is by no means the latest ever in Britain, yet almost all the other Norfolk records have been in September (Taylor *et al.* 1999). Furthermore, conversations over a number of years with Steve Joyner (SJ), who had seen the Holme bird, revealed his disquiet about some aspects of this

individual's appearance, in particular that it had a strong double wing-bar and greyish legs.

The original submission

With my curiosity aroused, I arranged to see the original descriptions submitted to the BBRC. The file contained only one description (by Peter Clarke), although three members of the Committee at the time had also seen the bird. Two Committee members fully supported its identification as Arctic Warbler, one even describing it as 'a typical Arctic Warbler – size and leg colour just right for that species'. The third, Dave Holman (DH), had, however, expressed concern about both the overall size of the bird and the leg colour, and had voted to pend the record for further descriptions and opinions. Presumably because of the input from the other members of the Committee who had seen it, his view held no sway and the record was accepted as an Arctic Warbler on one circulation.

The submitted description contained the following text:

'It was extremely active and would slip several yards from the top to the base of a tree quicker than the eye could follow. Occasionally it hovered after the manner of a Goldcrest *Regulus regulus* and often returned, flycatcher-like, to the same perch. This bird was obviously a Willow Warbler *P. trochilus*-sized *Phylloscopus* but not larger than that species. In company with some newly arrived Common Chiffchaffs *P. collybita* on the 17th, it appeared to be about the same size as them.

'The two wing-bars were prominent, being formed by yellowish tips to the coverts. The second [median-covert] wing-bar was much less prominent than the first, but still very obvious. The thin whitish supercilium extended back almost to the nape, where it ended rather squarely and slightly upturned. A broad dark stripe through the blackish eye. General colour of mantle matt olive-green with darker brownish tips to secondaries. Fringes of primaries and secondaries brighter green. Head slightly more brownish-olive, with mottled cheeks. Rump slightly lighter greenish-olive and tail darker. Underparts almost pure white at a distance, but



Barry Barnacal

46. Greenish Warbler *Phylloscopus trochiloides*, probably *P. t. plumbeitarsus*, Holme, Norfolk, October 1976.



Barry Barnacal

47. Greenish Warbler *Phylloscopus trochiloides*, probably *P. t. plumbeitarsus*, Holme, Norfolk, October 1976.

very faint yellowish streaks on breast and a very faint greyish wash on upper breast only visible at nil range with 10x50 binoculars. There was also a slight tinge of yellow on the undertail-coverts. Leg colour was a lightish grey/brown. Bill longish and dagger-like, upper mandible horn and lower a rather prominent light flesh or even orange, especially at base.

These notes seemed to support the concerns of SJ and DH, not least because the jizz and character of this individual were clearly markedly different from the typically rather ponderous or deliberate movements of Arctic Warbler. But in the absence of additional or more detailed notes, or 'in-the-hand' data, the matter seemed destined to remain unresolved. To my surprise, however, the file contained a passing reference to photographs of the bird taken by Barry Barnacal. These were not on file and had not been available to the BBRC. An enquiry to BB led to a loft search and the unearthing of two slides of the bird, from which prints were taken.

The photographs

On first seeing the pictures (plates 46 & 47), I was astonished! Not only were they of good quality, but, more importantly, the structural and plumage features visible in the photographs immediately threw the original identification as Arctic Warbler into doubt.

Those aspects of the bird's structure evident in the photographs reinforce the impressions conveyed by the submitted description and argue persuasively against the identification as Arctic Warbler. They show a compact, small-looking and rather dumpy *Phylloscopus* with a neatly rounded head; moderate-sized, rather spiky bill; thin, spindly legs; and an apparently fairly short primary projection. By comparison, Arctic Warbler typically appears a little longer and more thickset, with a flatter head and a longer primary projection.

Turning to the plumage, the face pattern shows a broken loreal line and a weak eye-stripe, with a bold, broad supercilium arching above the eye and ending squarely just beyond the rear of the ear-coverts, and relatively little mottling on the 'cheeks'. Arctic Warbler should show a strong and complete dark loreal line, a narrower supercilium, particularly behind the eye where it tapers to a finer point, and more mottled ear-coverts. The underparts also look

clean and bright (although this might be an effect of the exposure of the transparency), with only very weak yellow or grey tones, and lack the more extensive sully commonly found on Arctic Warbler. Finally, the legs are greyish in colour, in contrast to the more orange tones typical of Arctic Warbler.

Taken individually, these characters are all somewhat variable, of course, being subtle or open to interpretation in photographs. In combination, however, they are incompatible with Arctic Warbler and point unequivocally to a member of the Greenish Warbler *P. trochiloides* complex. Certain other features, also evident in the photographs, demand even closer scrutiny, however, and call into question the subspecific identity of this bird:

- There is a clear double wing-bar, which is broad and of even width across the greater coverts and appears to reach the scapulars
- The supercilia do not meet above the base of the bill
- The legs are distinctly grey-toned

All these features are now known to be strong pointers towards 'Two-barred Greenish Warbler' *P. (trochiloides) plumbeitarsus*. The facial pattern of *plumbeitarsus* is essentially intermediate between Arctic Warbler and Greenish Warbler of the race *viridanus*. It has a fore-supercilium which stops at the base of the bill, a loreal line which can be complete or broken, and ear-coverts which can be variably mottled.

It is also instructive to note the striking resemblance between the photographs of the Holme bird and those of the *plumbeitarsus* present on Gugh, Scilly, on 22nd-27th October 1987 (Bradshaw 2001; see also plate 48), the first accepted record of this form for Britain.

First recirculation

On the basis that the photographs showed beyond doubt that the acceptance of the bird as an Arctic Warbler was incorrect, the original file (now with accompanying photographs) was circulated to the present-day BBRC with a request for it to be reviewed. On its first circulation, there was rapid and unanimous agreement that this was not an Arctic Warbler, and the record was promptly rejected as such (*Brit. Birds* 93: 557). The bird clearly belonged to the Greenish Warbler group and there was little doubt among voters that it would ultimately prove

acceptable as *plumbeitarsus*. In particular, the combination of structure, two strong wing-bars (with the greater-covert wing-bar being broad, of uniform width and long, appearing to reach the scapulars), face pattern (particularly the Arctic Warbler-like fore-supercilium) and greyish legs were agreed to be highly indicative of *plumbeitarsus*.

If accepted as *plumbeitarsus*, this individual would pre-date the other accepted European records and would, therefore, be a 'first' not only for Britain but also for the Western Palearctic. With such a potentially significant record, it was decided to seek further independent views from outside the Committee.

External advice

Four respected identification experts were consulted, all of whom agreed that the bird could not possibly be an Arctic Warbler. Per Alström was of the view that the bird could be safely identified as *plumbeitarsus*. Killian Mullarney agreed that it was a member of the Greenish Warbler group, but considered that the pattern of the wing-bars shown in the photograph did not rule out a well-marked *viridanus*. Lars Svensson considered that it could possibly be a Hume's Warbler *P. humei*. Steve Votier felt that the choice lay between *viridanus* and *plumbeitarsus*, and that it would be most unlikely for *viridanus* to show such strong median- and greater-covert wing-bars combined with a facial pattern typical of *plumbeitarsus*. In summary then, the majority view among our experts was that the Holme bird was a Greenish Warbler of some kind, with *plumbeitarsus* being the popular vote, but with varying degrees of certainty.

Second recirculation

With these comments available, the record was recirculated among the BBRC. At the end of the second recirculation, members were unanimous that the Holme bird was from the Greenish



David Cottridge

48. Greenish Warbler *Phylloscopus trochiloides* of the race *plumbeitarsus* ('Two-barred Greenish Warbler'), Gugh, Scilly, October 1987.

Warbler group and that the choice lay only between *viridanus* and *plumbeitarsus*. Given that the original description did not, understandably, contain critical detail and that there were contradictions in the comments of the then-BBRC members who had seen the bird, the assessment had to hinge entirely on interpretation of the photographs.

Plate 46 shows a very prominent wing-bar on the greater coverts consistent with *plumbeitarsus*, but the bird is clearly moving and the resultant blurring, coupled with 'flaring' on the image make an absolutely precise assessment of its extent and shape difficult. Plate 47 also shows a strong greater-covert wing-bar (as well as the bar on the median coverts), but its true prominence is masked by foreshortening, as the bird is partly facing the photographer. This plate also shows the face well and depicts a pattern typical of *plumbeitarsus*.

The Committee felt that the photographic evidence was highly indicative of *plumbeitarsus* and the majority of members believed that the Holme bird was indeed of this form. Although there is some evidence that a particularly well-marked *viridanus* could show wing-bars similar to those seen in the photographs, it was agreed that it would be highly unlikely for such an individual to show the fore-supercilium pattern typical of *plumbeitarsus* as well. It was, however, also argued that the photographs did not permit an absolutely definitive scrutiny of the features and that the identification was based,

albeit to a limited extent, on a degree of interpretation.

Although many readers, having seen plates 46 and 47, will form their own opinions, it was felt by the Committee that, for such a significant record, the case for Two-barred Greenish Warbler needed to be absolutely watertight. With the Holme bird, it was felt, albeit reluctantly, that the documentation available narrowly failed to meet the high acceptance threshold required by a first for Britain. As *plumbeitarsus* is treated by the BOU as a race of Greenish Warbler, it will now be accepted as that species with an accompanying comment that it was probably of the form *plumbeitarsus*.

Two-barred Greenish Warbler in the Netherlands

While this review was being undertaken, an accepted record of Arctic Warbler on Terschelling, the Netherlands, on 2nd October 1996, was also coming under scrutiny. The photographs of this individual, however, permitted a much more detailed examination than those of the Holme bird, and showed very clearly the shape and extent of the wing-bars, and even the presence of an emargination on the sixth primary. The combination of these two features simultaneously eliminated Arctic Warbler and pointed unequivocally to *plumbeitarsus*. This individual has now been accepted as the second record of *plumbeitarsus* for the Netherlands (van der Vliet 2001).

Conclusion

These two records highlight the extent to which Arctic Warbler and *plumbeitarsus* exhibit converging characters. The double wing-bar and the pattern of the fore-supercilium are shared by Arctic Warbler and *plumbeitarsus*, but in

other respects (basic plumage colour, structure and call) *plumbeitarsus* is typical of the Greenish Warbler complex. Consequently, *plumbeitarsus* may show characters suggesting both Arctic Warbler and its true Greenish Warbler lineage. Given that the separation of Arctic Warbler and *viridanus* has caused difficulties in the past (e.g. Bradshaw & Riddington 1997), caution is clearly still required when identifying a 'wing-barred *Phylloscopus*' warbler. There have now been five accepted records of *plumbeitarsus* in the Western Palearctic. With an increasing understanding of their characters, more will doubtless follow.

Acknowledgments

I would like to thank Steve Joyner for initially bringing this bird to my attention, Barry Barnacal for taking and supplying the excellent photographs without which this identification review could not have been undertaken, and Colin Bradshaw and Brian Small for their helpful advice in the preparation of this paper.

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Song of the Dark-throated Thrush

Vladimir Yu. Arkhipov, Michael G. Wilson
and Lars Svensson



49. Male Dark-throated Thrush *Turdus ruficollis atrogularis*, Lake Ysyk-Köl, Kyrgyzstan, February 2002.
Jürgen Steudtner

ABSTRACT The song of the Dark-throated Thrush *Turdus ruficollis* of the race *atrogularis* ('Black-throated Thrush') is described from one of the first fully authenticated tape-recordings of this vocalisation, and is shown to be distinctly different from that of the race *ruficollis* ('Red-throated Thrush'). Further studies of voice, mate selection, and breeding biology in general are needed for a full clarification of Dark-throated Thrush taxonomy.

The Dark-throated Thrush *Turdus ruficollis* is considered by most recent authors (e.g. Portenko 1981; Cramp 1988; Glutz & Bauer 1988; Clement & Hathway 2000) to be polytypic, comprising the red-throated nominate race *ruficollis* and the black-throated *atrogularis*. The two races interbreed where they overlap in the east and southeast of the range (Clement & Hathway 2000), with intermediates reported from the Altai, western Sayan, and upper Lena and upper Nizhnyaya Tunguska rivers (Dement'ev & Gladkov 1954). The situation is by no means clear-cut, however: in, for example, the Altai (Russia),

ruficollis and *atrogularis* were found to be separated by habitat, and no mixed pairs or hybrids were recorded (Stakheev 1979; Ernst 1992); in Mongolia, hybridisation was reported to occur in the northwest (Mongolian Altai and Great Lakes Depression) by Fomin & Bold (1991), but observations of passage *ruficollis* farther east in the country showed very little evidence of hybridisation (Mauersberger 1980). Indeed, nominate *ruficollis* and *atrogularis* were regarded by Stepanyan (1983, 1990) as separate species, and this view was shared by others, including Evans (1996) 'based primarily on plumage and ecological differences', but also



Stephan Ernst

50. Male Dark-throated Thrush *Turdus ruficollis atrogularis*, near Aktash, Altai Mountains, Russia, July 1999.

taking into account slight differences in song and calls between the two, as apparently evident in the *BWP* account (Cramp 1988). Svensson (1996) urged a more cautious approach, pointing out that the song of *atrogularis* was apparently unknown and that no recording appeared to exist. Moreover, he drew attention to the fact that the recording of an alleged vagrant *atrogularis* in Sweden (S. Palmér/Swedish Radio, May 1977), published in Palmér & Boswall (1969-80) and used for analysis in *BWP*, related to a record about which little was known, and had not been submitted to the Swedish Rarities Committee. In fact, the recorded song sounded like, and most probably was, that of a Song Thrush *T. philomelos* (Svensson 1996; LS *in litt.* 1996).

Both MGW and LS have attempted to ascertain whether the song of *atrogularis* had, after all, been recorded, or whether Russian colleagues could fill the gap, if indeed one existed. In April 2000, VYA reported to MGW (*in litt.*) that *T. r. atrogularis* had at last been tape-recorded, by O. V. Bourski at the Yenisey Ecological Field Station (in Mirnoye, on the Middle Yenisey river, Central Siberia) in the summer of 1997. It was not until the autumn of 2000 that VYA, having captured the song of *atrogularis* on tape at the Yenisey Station in June of that year himself, was able to send a copy of his recording (the original of which is held at the Veprintsev Phonothecca of Animal Voices [Library of Wildlife Sounds] in Pushchino, Russia) to MGW.

From this one recording of *atrogularis*, the song may be described as follows. It is fairly

simple in structure and, like other Siberian thrushes (e.g. Eyebrowed Thrush *T. obscurus*, Siberian Thrush *Zoothera sibirica*) and Fieldfare *T. pilaris*, has a rather slow pace, somewhat rambling presentation, and brief pauses between each group of notes. Most of the units are composed of series of simple chattering sounds ('chip-chip-chip', 'chi-chi-chi-chi-chi', 'chet-chet-chet', etc.). Interspersed among these series of chattering notes is the most striking feature of the song: rich, rather low-pitched and slightly husky warbling units recalling elements from the song of Blackbird *T. merula*, consistently given as a pair of disyllabic notes, each with the second note stressed and the final note higher-pitched, suggesting 'cherr-vooo cherr-vee'. At Mirnoye, 10-15 *atrogularis* males were studied each year during 1995-97: the Blackbird-like warbling notes were a constant feature in the song of the local population, being given by all the males studied; the song of some males indeed consisted of repeated warbling sounds with very little chattering in between (VYA). The section of song shown in fig. 1 suggests 'chet chet chet chet chet chet cherr-vooo cherr-vee tsirrr tsirrr', the last two notes being a squeaky twittering. Two further types of chattering units are illustrated in figs 2 & 3. Some chattering sounds in the recorded song have a strained quality, and they often closely resemble the bird's own alarm calls, though sonograms reveal structural differences (no sonogram of alarm calls is included here as that section of the recording has excessive background sounds). The chattering also suggests less fre-

Song of the Dark-throated Thrush

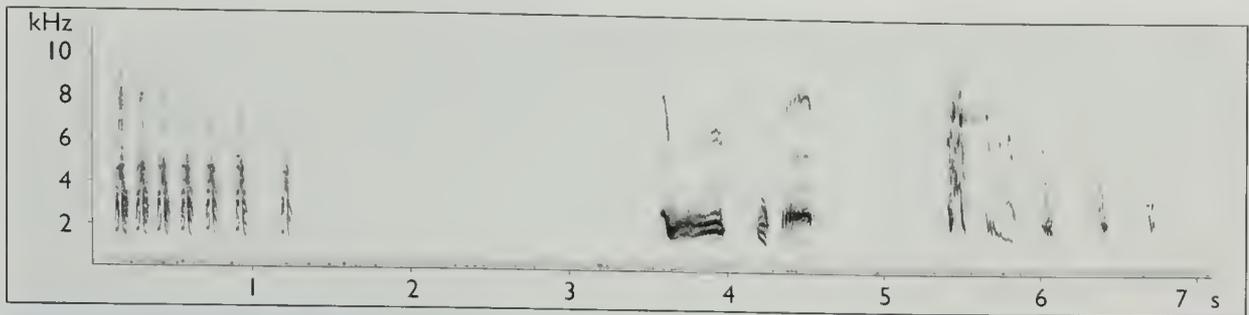


Fig. 1. Song of a Dark-throated Thrush *Turdus ruficollis atrogularis* (recording by V.Yu. Arkhipov, Mirnoye, Central Siberia, June 2000).

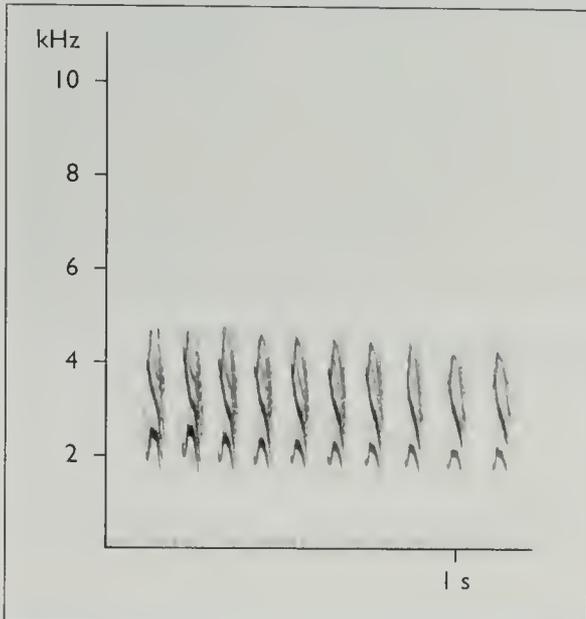


Fig. 2. Chattering sounds in the song of a Dark-throated Thrush *Turdus ruficollis atrogularis* (recording by V.Yu. Arkhipov, Mirnoye, Central Siberia, June 2000).

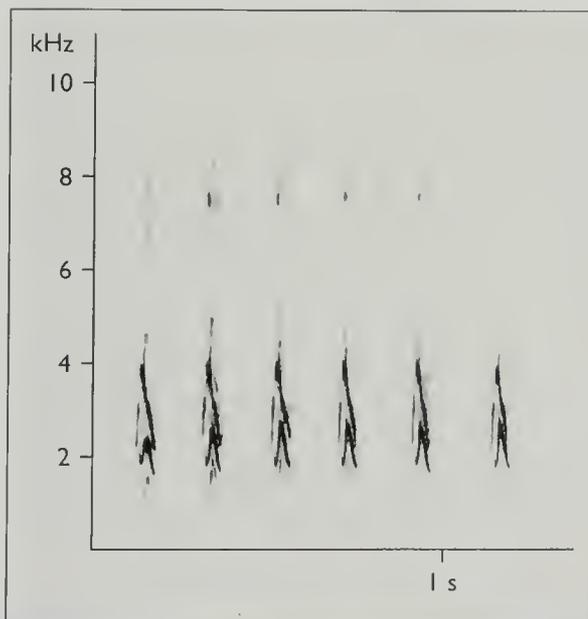


Fig. 3. Chattering sounds in the song of a Dark-throated Thrush *Turdus ruficollis atrogularis* (recording by V.Yu. Arkhipov, Mirnoye, Central Siberia, June 2000).

netic units of the alarm rattle of Blackbird or that of Song Thrush, while loud, bold and crisp units even suggest a fragment of Song Thrush song. Clearly, however, the song as a whole bears no resemblance at all to that of Song Thrush (*contra BWP*).

From earlier observations in Central Siberia, the characteristically hoarse and low-pitched song was reported to comprise a single phrase of 3-4 units, loud, long and descending at the start, then short, sharp and ascending: 'tee... tyuyuu... teeu-eet', with call notes given meditatively in longer pauses between the main warbling parts of the song (Rogacheva *et al.* 1991; Rogacheva 1992; Clement & Hathway 2000; K. Mikhailov *in litt.* to P. Clement). In Pakistan, in early May, prior to departure from the wintering grounds, birds strung together 'quich quich' and 'quoit-quoit' with some whistling sounds in between; this was interpreted as perhaps subsong or incipient song by Roberts (1992), but we suggest that this was more or less full song.

Comparison of *atrogularis*, based on the preceding description, with a single recording by M. Schubert of song (27 phrases) of *ruficollis* from Mongolia, analysed by J. Hall-Craggs and MGW in *BWP*, and by LS for this short paper, reveals marked differences between the races. The song of nominate *ruficollis* lacks the rambling, chattering quality characteristic of *atrogularis*, consisting rather of short, fluty, well-spaced phrases, which are often built up in similar fashion, commonly as 'chooee-chooee... chulee chill-veeta', where the 'chill' note is high-pitched and stressed (fig. 4). Of 27 phrases, only 14 are full, the others comprising a single figure – usually the initial figure 'chooee-chooee'. The song of nominate *ruficollis* was elsewhere reported to be simple and generally less melodious than that of Song Thrush: rambling and cackling 'chve-che-chve-che... chvya-chvya-chvya-chvya...' (Clement & Hathway 2000; see

Vadim Ryabtsev



51. Male Dark-throated Thrush *Turdus ruficollis atrogularis* at nest with young, Poluy River in north of Western Siberia, June 1996.

also transcription in Clement 1999). This rendering suggests series of chattering sounds, but no such sounds are evident in the song of *ruficollis* recorded by M. Schubert.

A comparison of the calls of nominate *ruficollis*, recorded by B. N. Veprintsev and V. V. Leonovich in Tyva (Russia), in June 1975 (Palmér & Boswall 1969-80; Veprintsev 1982-86; see fig. VI, and renderings, in *BWP*), with our description of calls and chattering units in

the song of *atrogularis* does, however, indicate a strong resemblance between the races. Nevertheless, a lack of relevant recordings prevents us attempting any further analysis of similarities and possible differences specifically in respect of calls of the two races. For descriptions of certain calls of both, including sonograms of *ruficollis* calls, see Ernst (1992, 1996).

In conclusion, any taxonomic reassessment of the Dark-throated Thrush *T. ruficollis* where

Werner Sute



52. Male Dark throated Thrush *Turdus r. ruficollis*, north of Nizhneangarsk, Lake Baykal, Russia, June 1991.

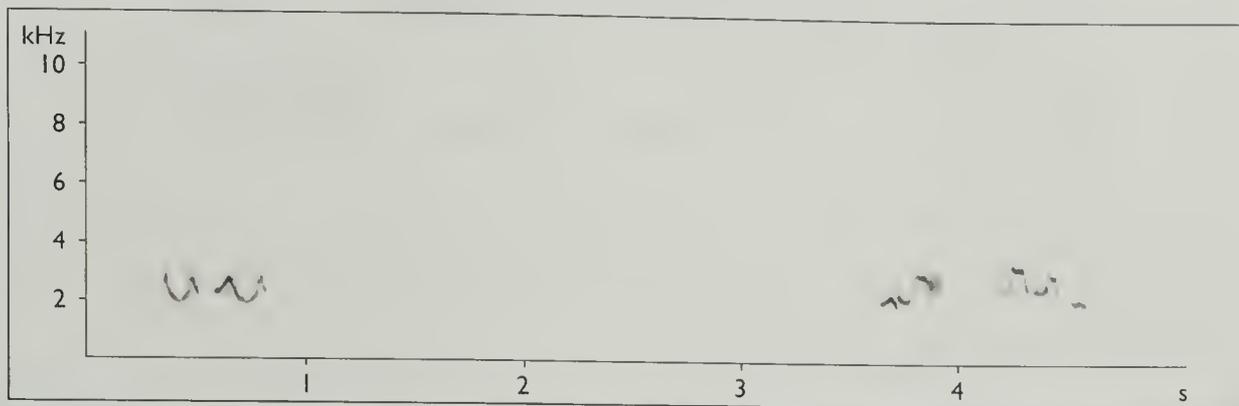


Fig. 4. Song of a Dark-throated Thrush *Turdus r. ruficollis* (recording by M. Schubert, Mongolia, June 1979) (Schubert 1982).

the vocalisations are used will indeed need to be based on an analysis of further recordings of song and calls from different parts of the range. In addition, the vocalisations of intermediates should be investigated.

Acknowledgments

We are especially grateful to Richard Ranft at the National Sound Archive, British Library, who made the sonograms published here as figs 1-4 and additionally gave much help and valuable advice. For supplying their superb photographs, we most warmly thank Stephan Ernst, Vadim Ryabitsev, Jürgen Steudtner and Werner Suter. The following are thanked for answering various queries, including those on the availability of recordings, or for help in other ways: P. Barthel, Oxford University librarians N. Behmer and L. Birch, J. Boswall, A. Bräunlich, P. Clement, S. Ernst, R. Kettle, A. Knystautas, the late V.V. Leonovich, V.M. Loskot, R. MacLeod, M. Marinina, K. E. Mikhailov, E.V. Rogacheva, P.J. Sellar, S. Vasyukov, O. D. Veprintseva and D. F. Vincent.

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The *BB/BTO* Best Bird Book of the Year 2002

British Birds and the British Trust for Ornithology announce the winner of the Award for the title of BEST BIRD BOOK OF THE YEAR. All books reviewed in *British Birds* or the BTO publications *BTO News* and *Bird Study* during the year 2002 were eligible for consideration for this Award.



For this competition, each of the six judges was asked beforehand to select a provisional list of six titles, and the resulting group of books (plus a small number of 'honourable mentions') formed our short-list. Although the judging for this Award does not follow any formal criteria, we are looking for special merit in books which will, we believe, appeal to the readership of *BB* and *BTO News*. In addition, in selecting these Awards, we hope to encourage good work by both publishers and authors. Judging was carried out at the BTO conference at Swanwick, Derbyshire, in December, where the short-listed books were available for further scrutiny. Eventually, the initial short-list of 18 was whittled down to 12 titles; each judge was then asked to rank these 12, so that the final winner and runners-up could be identified.

WINNER: Handbook of the Birds of the World. Vol. 7. Jacamars to Woodpeckers

Edited by Josep del Hoyo, Andrew Elliott & Jordi Sargatal. Lynx Edicions, Barcelona, 2002 (see Brit. Birds 95: 663).

In the past, we have always treated additional volumes of a multi-volume series as relating to a single title. *HBW* received the award of 'The "British Birds" Best Bird Book of the Year' in 1993 (*Brit. Birds* 86: 569), but this year, since its seventh volume was clearly the most outstanding book on our table, we simply could not ignore it. The Spanish publisher, Lynx Edicions, recently questioned readers as to whether it should finish the project in the original target of 12 volumes or adopt a new plan extending the series to 16 volumes. That the overwhelming response from consumers (93% of over 3,000 responses) was to continue the recent trend of longer, fuller texts, with more photos and more comprehensive plates, speaks for itself. The superb essay on the world's extinct birds by Errol Fuller added an extra dimension to this

volume which we particularly liked. The *BB* reviewer summed it up as 'colossal, lavish, definitive, meaty, beautiful' – it is just that, and we have to salute the series once again.

2nd: A Guide to the Birds of Western Africa

By Nik Borrow and Ron Demey. Christopher Helm, A&C Black, London, 2002 (see Brit. Birds 95: 404).

This book is a much-needed guide for the region, and offers a combination of text and illustrations that breaks new ground. It is beautifully produced, and while some might consider that its size and its price (£55) are a drawback, it must be viewed as a handbook rather than as a field guide (the latter will presumably follow), and the amount of work which has gone into this publication sets the price in better context. We felt perhaps a little disappointed with some of the plates, but this should not detract from the work as a whole. Given that our winner is indeed part of a long-term project, this book may, perhaps justifiably, claim to be the best 'brand new' bird book of 2002.

3rd: Guardian Spirit of the East Bank: A Celebration of the Life of R. A. Richardson

By Moss Taylor. Wren Publishing, Norfolk, 2002
(see Brit. Birds 95: 664).

The biography of an exceptional individual in the development of the British birdwatching scene in the twentieth century, this book has a strong narrative. It also serves as a vehicle for presenting a varied collection of RAR illustrations and nostalgic photographs, which accompany the text. One judge commented upon the 'character starvation' of the current British scene; the memory of this particular hero will be well served by this book. The production and design might not be quite up to the standard of the commercial giants of the industry, but it is functional and adequate, and allows the reader to concentrate on the man.

4th: Spix's Macaw: The Race to Save the World's Rarest Bird

By Tony Juniper. Fourth Estate, London, 2002
(see BTO News 243: 19).

This one is a cracking story, well written and easy to read, which deals with a sad and

shocking subject. The 'retro-chic' cover, seemingly 'distressed' to appear well-thumbed even when pristine, is curious, but this is the one to curl up with in an armchair on a winter's night.

5th: The Red Kite

By Ian Carter. Arlequin Press, Chelmsford, 2001
(see Brit. Birds 95: 31).

A well-written and attractive monograph, of a species which is high in the consciousness of British birdwatchers, and indeed the general public, at the moment. It is less lavish than some of the offerings from larger publishers, but the photos and the artwork are excellent and sensitively used. It also deals with the many issues, ecological and otherwise, in a straightforward style which readers at any level will enjoy.

6th: Bird Migration: A General Survey

By Peter Berthold. 2nd edition. Oxford University Press, Oxford, 2001 (see Brit. Birds 95: 266-267).

This is a second edition but is so different from the first to warrant being counted as a new book. This is by far the best on this popular and interesting subject, well written and full of gripping new stuff.

A further six titles also made the short-list, and should be mentioned here. The highest ranked of these, *Wild Goose Winter: observations of geese in north Norfolk* (by James McCallum; Silver Brant, Wells-next-the-Sea, 2001), is primarily a book of bird art, but nonetheless with a lucid and informative text as well. One judge rated the artist sufficiently highly to regard his talent as 'a new perception in bird art'. Two fine family monographs from the Helm/A&C Black stable merit more than a cursory glance – *Sunbirds: A Guide to the Sunbirds, Flowerpeckers, Spiderhunters and Sugarbirds of the World* (by Robert A. Cheke, Clive F. Mann & Richard Allen; 2001); and *Pheasants, Partridges and Grouse: a guide to the pheasants, partridges, quails, grouse, guineafowl, buttonquails and sandgrouse of the world* (by Steve Madge and Phil McGowan, with Guy M. Kirwan; 2002). *Sunbirds* is a major new treatment of a group not

dealt with for more than 100 years, while *Pheasants, Partridges and Grouse*, likely to be more relevant to BB/BTO readers, has the perfect layout for such a guide (with the maps opposite the illustrations), but is let down by some of the artwork. The *Field Guide to the Birds of East Africa* (by Terry Stevenson and John Fanshawe; Poyser, London, 2002) is an excellent field guide, the best on offer in our selection, yet it is a topic that has been done (and well) before. Last but not least, *Birdwatching Guide to Oman* (by Hanne & Jens Eriksen and Panadda & Dave E. Sargeant; Al Roya Publishing, Oman, 2001) sets the standard in site guides, with remarkably good text and stunning photographs, while *A Farewell to Greenland's Wildlife* (by Kjeld Hansen; BæreDygtighed & Gads Forlag, Copenhagen, 2002) is, like the book on Spix's Macaw (see above), both a great read and a tragic story.

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Notes

Melanistic Cattle Egrets

With reference to the recent notes on melanism in the Cattle Egret *Bubulcus ibis* (*Brit. Birds* 94: 390-391 and 95: 531), it may be worth recording that one was seen near Chakari, Zim-

babwe, in September 1969 by E. W. Lowden Stoole (*Honeyguide* 62: 33). This observer also mentions that four other similar records were known for South Africa.

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Grey Heron choking on Little Grebe

On 20th November 1988, at Oare marshes, Kent, I noticed a large bird lying dead in shallow floodwater on the grazing marsh. It proved to be an immature Grey Heron *Ardea cinerea* which had a dead Little Grebe *Tachybaptus ruficollis* stuck in its throat. The heron was still warm under the wings and both birds exhibited rigor mortis. Since the floodwater was only about 15 cm deep, I concluded that the heron had caught the grebe when the latter was unable to escape by diving. On dissection, the grebe showed extensive bruising of the head

and neck, but only a few minor puncture wounds in the skin.

F. A. Lowe (1954, *The Heron*) includes Little Grebe among birds, up to the size of an adult Wood Pigeon *Columba palumbus*, recorded as prey of foraging Grey Herons. He also gives anecdotal evidence of three herons choked to death on Moorhens *Gallinula chloropus*. There is no mention of mortality of this type in *The Handbook* or *BWP*, so this would appear to be the first fully documented record of a Grey Heron dying in this way.

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A polygamous Mute Swan

For many years, Ken and the late Win Williams fed the Mute Swans *Cygnus olor* which frequented Walrow pond, Highbridge, Somerset. This pond is an old brickworks' pit of approximately 4.5 ha, which some years ago was divided roughly in half by a causeway. Win and Ken closely followed the activity of these swans and told me of a male which had two mates for two consecutive years. The following is mainly a compilation of their observations.

The two females involved had been colour-ringed (NHS, born in 1985 and NPJ, born before 1988) and were possibly the progeny of the same pair, born in successive years.

In 1995, it was first noticed that these two females shared the same male. NHS, nesting less than 1 km from Walrow pond, had at least six cygnets with five surviving to maturity, and NPJ, nesting on the pond, had two cygnets, both of which were thought to have survived. The male alternated between the two families

but it is not known if he favoured one or the other.

In 1996, the male was observed copulating with both females on the same day and some aggressive behaviour was subsequently noted between the two females. NPJ had six cygnets by 21st May and NHS the same number by the beginning of June, having built a nest two weeks later than the other female. By the end of June, NHS still had all six young but NPJ was down to one. Both families were now on a nearby rhine, but separated by a piped crossing, and the male kept with NHS. In October, this family (now five young) moved back to the pond and by the end of the month all but one of the young had been driven off. NPJ remained in the nearby rhine but was now alone. At the end of the year, and about a week after the start of some severe weather, NPJ returned to the pond where NHS (together with the male and one remaining young) were being fed daily on a

small area of open water. Several hours of aggressive behaviour by NHS followed, and NPJ was eventually driven off. The male did not participate in this hostility and moved away when the two females got too close.

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Evidently, the male had a stronger pair bond with the more successful female. The question remains why another male did not pair with the less successful female.

Hybrid Gadwall × Mallard duckling

On 30th April 2002, Stephanie Pfrommer observed a mixed pair of ducks, comprising a male Gadwall *Anas strepera* and a female Mallard *A. platyrhynchos*, escorting a downy duckling in Ludwigsburg, southwest Germany (plate 53). Previously, on 4th December 1999, I had observed copulation between a male Gadwall and a female Mallard, and also recorded a similar mixed pair at the same site during February-March 2002; consequently, I considered the duckling a true hybrid. Both male and female parents defended the duckling against Mallards; the male was the only Gadwall present in the area. The duckling was observed until 7th May and disappeared thereafter.

This particular hybrid duckling was more

like a Gadwall of similar age than a Mallard. Specifically, the pale patches on the back were creamy-buff rather than yellow, the underparts were less yellow, and the edges of the upper mandible were flesh-coloured (see BWP; *Handbuch der Vögel Mitteleuropas*). The eye-stripe seemed intermediate between the two species, while the forehead appeared steeper than that of Mallard ducklings (plate 54). There appears to be no published description of a duckling with this hybrid parentage in the literature (Gillham & Gillham 2002, and *in litt*).

Reference

Gillham, E., & Gillham, B. 2002. *Hybrid Ducks: the fifth contribution towards an inventory*. B. Gillham, Hythe.

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Christoph Randler

53. Male Gadwall *Anas strepera* and female Mallard *A. platyrhynchos* with presumed hybrid duckling, Ludwigsburg, Germany, May 2002.



54. Presumed hybrid Gadwall *Anas strepera* × Mallard *A. platyrhynchos* duckling, Ludwigsburg, Germany, May 2002.

Post-fledging behaviour of the Red Kite in the East Midlands

Red Kites @ Rockingham is a project based around live footage of a Red Kite *Milvus milvus* nest in Rockingham Forest, Northamptonshire, which can be viewed at a nearby visitor centre. In 2002, the footage revealed some interesting data about the period of post-fledging dependence.

The pair of five-year-old adults successfully reared two chicks. The first chick to hatch, chick A, fledged when it was 55 days old, on 1st July, but continued to return to the nest until it was 84 days old, and visited the nest on 14 of these 30 post-fledging days. The second chick (B) hatched five days later than the first, but fledged when it was only 49 days old. It continued to return to the nest until it was 79 days old and visited the nest on 16 of the 31 post-fledging days. The period of post-fledging dependence for these two individuals (29 and 30 days) is at

the upper end of the range of previously published estimates for the Red Kite (Carter 2001).

In addition, however, two juveniles from two different nests in the same area (identifiable from their wing-tags) also visited the study nest. One juvenile, from a nest 2 km away, appeared when chick A was 79 days old (plate 55). The visiting chick was recorded at the study nest on 17 of the following 25 days, and was last seen on 18th August. During these visits it spent long periods of time sitting on the nest, and received at least 15 food-drops from both the male and female of the resident pair. Another juvenile, tagged on a nest 8 km away and four weeks older than chick A, also made regular visits to the study nest during this time. This bird was chased off the nest on several occasions by the other visiting juvenile.

Both of the visiting juveniles displayed begging behaviour on the study nest when they were over 100 days old. The resident adults continued to drop food on the nest until chick A was 98 days old. Once the young from the study nest had fledged, at least one juvenile, including the two from other nests, visited the study nest on 32 of the following 49 days (fig. 1). This confirms that the nest serves as an important feeding platform for fledged Red Kites.

The Red Kites @ Rockingham project has shown that adult Red Kites will feed young, including those from other nests, for over six weeks after their own chicks fledge, well in excess of previous estimates of the post-fledging



55. Fledged juvenile Red Kite *Milvus milvus*, Rockingham Forest, Northamptonshire, August 2002. This video image shows a visiting juvenile fledged from a nest 2 km from this site.

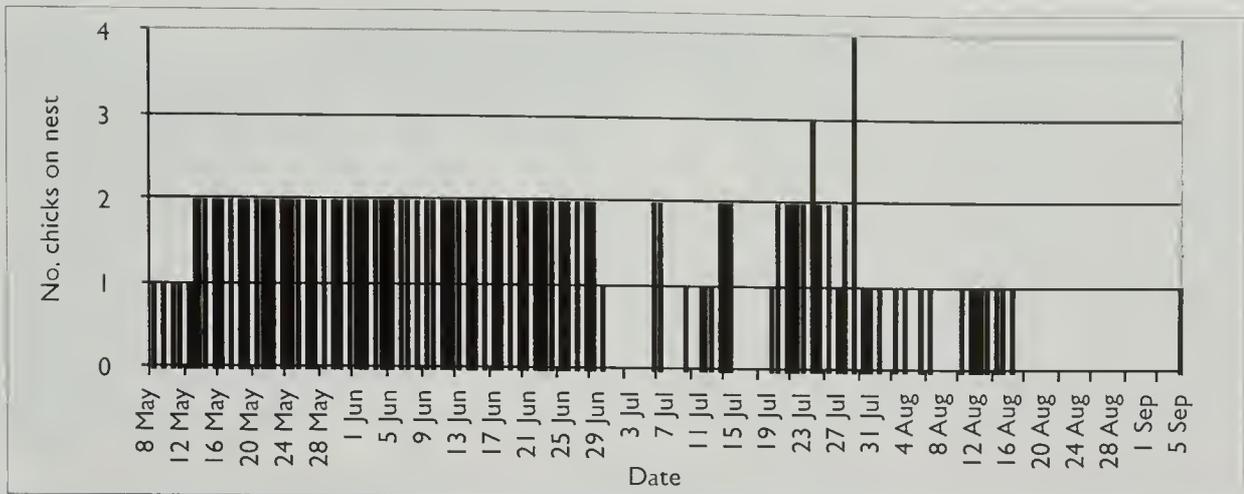


Fig. 1. Number of Red Kite *Milvus milvus* chicks on a study nest, Rockingham Forest, Northamptonshire, 2002. The two young raised at this nest fledged on 30th June and 1st July.

dependence period. The project has also revealed that juvenile kites will visit nests up to 8 km from their own and obtain food successfully from resident adults more than seven

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weeks after they have fledged.

Reference

Carter, I. 2001. *The Red Kite*. Arlequin Press, Chelmsford.

EDITORIAL COMMENT Ian Carter has commented that: 'The most interesting aspect of this note is the fact that young Red Kites from at least two other nests in the area made use of the study nest and clearly benefited from food provided by adults which were not their own parents. Such behaviour has been recorded in a number of different raptors and it appears that, at least in some species, adults are unable to differentiate between their own young and unrelated young. In the case reported here, even the clearly marked wing-tags did not allow the adults to recognise the interlopers! The price adult birds pay for 'adopting' young in this way is the extra work required to provide them with food. It is interesting that some raptors, including the Red Kite, accept changes at their nest site which, to our minds, clearly defy logic. When, for example, Red Kite eggs are replaced experimentally with two-week-old chicks, the adults immediately start to bring food to the nest, clearly driven by a strong 'chick-feeding' instinct. In the same way, the adult Red Kites at the Northamptonshire study nest seem to have responded instinctively to the presence of juveniles on their nest, even after their own young had become independent.

'What makes this note of particular interest is the length of time that the adults continued to bring food to the nest. Whereas previous studies have shown that young Red Kites are normally left to fend for themselves 3-4 weeks after fledging, this pair continued to bring in food, at least intermittently, for over six weeks after their own young had fledged. It is also noteworthy that the unrelated young were still taking food seven weeks after they had fledged from their own nests. It is almost certain that these juveniles were not totally dependent on the adults at the study nest but simply took advantage of an easy source of food.

'Workers in Wales and Spain have also recorded adoptions in the Red Kite (Bustamante & Hiraldo 1993; Davis *et al.* 2001). In Spain, however, adoptions were far less common in the closely related Black Kite *M. migrans*, which often nests semi-colonially. With nests sited close to each other, the potential for recently fledged juveniles to take advantage of non-related adults is high. To avoid frequent, costly mistakes, it appears that adult Black Kites have, unlike Red Kites, evolved the ability to recognise their own young and only rarely end up providing food for unrelated juveniles.'

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Dartford Warbler eating fruit

The note on Dartford Warbler *Sylvia undata* eating fruit (*Brit. Birds* 95: 457-458) prompts the following. As long ago as 1920, the late and well-respected T. A. Coward, in *The Birds of the British Isles and their eggs* (1920, series 1, p. 209), and referring specifically to Britain and

not to continental Europe, wrote: 'The Dartford Warbler is a local and non-migratory resident in a few of our southern counties... Insects – moths are specially noticed – are its food in summer, but wild fruits and small berries are eaten in the colder months.'

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Tameness of Sardinian Warbler

I read with interest the short notes in *British Birds* regarding the tameness of the Sardinian Warbler *Sylvia melanocephala* (*Brit. Birds* 95: 194-195, 456-457). In Malta, the Sardinian Warbler is a common breeding resident, and it can be found in a diverse variety of habitats such as maquis, garigue areas with low vegetation, tree groves and wooded areas. It is also found commonly in gardens, in both towns and

villages. Sardinian Warblers are one of the few species of birds which feed regularly on bird tables in Malta. Plate 56 shows a male in my garden at Birkirkara, while plate 57 shows a pair of Sardinians perched on a washing line, also in my garden. This pair nested in an orange tree *Citrus sinensis* in the garden, and were both tame and confident.

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Raymond Galea

56. Sardinian Warbler *Sylvia melanocephala*, Birkirkara, Malta, January 1989.

In both Malta and Sicily, the Sardinian Warbler *Sylvia melanocephala* is common and widespread. In Malta, it is second only to the Spanish Sparrow *Passer hispaniolensis* in tameness towards humans, and is frequently seen taking food scraps offered on bird tables or on the ground. A variety of items is taken, which generally consists of biscuits, breadcrumbs and even fruit, such as apples. Both males and

females have been observed regularly feeding in such a manner, with males being more frequently seen, especially during the breeding season. If undisturbed, they will also feed readily on the insects associated with pot plants on rooftops, balconies and patios. Moreover, the tameness towards humans is not restricted to feeding behaviour. As the note by Raymond Galea (above) describes, male Sardinian War-



Raymond Galea

57. Sardinian Warblers *Sylvia melanocephala*, Birkirkara, Malta, July 1990.

blers have been reported to use man-made objects, such as washing lines, as songposts, even in densely built-up areas. On one occasion, the line was even full of hanging clothes (J. Sultana, *Il-Merill* 29: 29).

In Sicily, Sardinian Warbler is clearly more approachable than other *Sylvia* warblers, and is perhaps comparable with the Robin *Erithacus*

rubecula in tameness. Sometimes, it appears to be even more tame than Spanish Sparrow and, especially during autumn or winter, it can occasionally be approached at point-blank range. As far as we know, there are no records of other species of *Sylvia* warbler commonly (as opposed to occasionally) feeding on bird tables.

Michael Sammut

11 Rigu Alley, Birkirkara, BKR 05, Malta

Andrea Corso

Via Camastra, 10-96100 Siracusa, Italy

EDITORIAL COMMENT These notes, and previous contributions on the subject (*Brit. Birds* 95: 194-195, 456-457), suggest that this behaviour, although little documented, is more widespread than was previously realised. We shall not, therefore, publish any further individual notes on this behaviour in Sardinian Warbler unless they relate to particularly unusual circumstances.

Common Chaffinch eating flesh of juvenile Blackbird

On 1st July 1998, at West Bagborough, Taunton, Somerset, I saw a female Common Chaffinch *Fringilla coelebs* standing on and inspecting the squashed remains of a juvenile Blackbird *Turdus merula* on the road; the Blackbird had evidently been killed and flattened recently by a passing vehicle. The chaffinch pecked at the bloody flesh of the dead Blackbird, and was seen to take and swallow several small portions; it flew off

after feeding for about two minutes. There was no evidence that young were fed from the carcass, and the chaffinch flew off without returning.

According to *BWP*, Common Chaffinches feed mainly on invertebrates during the breeding season. There is no mention of the species feeding from a fresh carcass.

Dr A. P. Radford

Crossways Cottage, West Bagborough, Taunton, Somerset TA4 3EG

Letter

The migration of Slender-billed Curlew

It seems to be conventional wisdom that the Slender-billed Curlew *Numenius tenuirostris* 'has a remarkable capacity for vagrancy' (Steele & Vangeluwe 2002), which is supported by the very wide spread of records in Europe listed in Adam Gretton's monograph (Gretton 1991). Conventional wisdom may, of course, be right, but I wonder whether there might be an alternative explanation which does not require a capacity for vagrancy beyond what we would expect for any long-distance migrant.

Take a great-circle route from the westernmost known wintering grounds, in Morocco, to the only known breeding grounds, in southwest Siberia (which I did with cotton thread and a globe before I discovered that the projection on the world maps, but not the West Palearctic maps, in *BWP* allows one to do the same with a ruler): the route runs through southern France, crosses the Alps, skirts southern Germany and passes through Austria, the former Czechoslovakia and Poland before reaching the expanses of Russia. Many of the European records are close to this route, and even the more northerly

records in France, the Netherlands and Germany are not far from it in the context of the length of the migration as a whole. It would not take much (for example, a tendency to avoid crossing the Alps, a preference for coastal habitats for the southernmost leg of the migration or, more speculatively, somewhat more northern breeding grounds than those so far discovered) for those more northerly European records to be on a 'normal' migration route. Even Druridge Bay, in Northumberland, would not be particularly far from it.

The species' rarity does mean that, even if most of Europe can be considered within or close to its normal migration route, few Slender-billed Curlews will ever be seen. Nonetheless, the message is that we should all look very closely at any flock of curlews, as the finders of the Druridge Bay bird fortunately did.

References

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Steele, J., & Vangeluwe, D. 2002. From the Rarities Committee's files: The Slender-billed Curlew at Druridge Bay, Northumberland, in 1998. *Brit. Birds* 95: 279-299.

Peter Wilkiuson

42 Dale Avenue, Wheathampstead, St Albans, Hertfordshire AL4 8LS

Announcements

Editorial Board changes

We are delighted to announce that Dawn Balmer has accepted our invitation to join the *BB* Editorial Board, from 1st February. Dawn brings the membership of the Board to seven, including the present Editor. Dawn currently works for the BTO as a Research Officer in the Demography Unit. She is a keen all-round birder and lists gull identification, migration and ringing as her main bird interests. She also serves on the Council of the Ornithological Society of the Middle East. We welcome Dawn to the *BB* team.

Eds

STOP PRESS

It is with great sadness that we learnt of the death of Chris Mead, who died in his sleep during the night of 15th/16th January 2003. Chris was an exceptional stalwart of the BTO; his services to the Trust and his knowledge of migration in particular will be sorely missed. A full obituary, describing his contribution to the world of ornithology will appear shortly in *BB*.

News and comment

Compiled by Adrian Pitches

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

Prestige oil continues to spill

In Spain, the Sociedad Española de Ornitología (SEO) has estimated that up to 40,000 seabirds were killed in the first month of the oil spill from the sunken tanker *Prestige*. The worst-affected species were Razorbill *Alca torda*, Atlantic Puffin *Fratercula arctica* and Common Guillemot *Uria aalge*, which collectively represented 65% of live birds washed ashore and 62% of all birds found dead.

SEO/BirdLife claimed: 'The wreck of the oil tanker *Prestige* represents the worst ecological disaster in the recent history of Spain. In the first month after the ship started to leak fuel [on 13th November, with the vessel eventually sinking on 19th November], a total of 4,114 birds of 40 species have been recovered dead and alive on the coasts of northern and northwestern Spain as well as in northern Portugal.' Taking into account the characteristics of the accident (the vessel sank far offshore and is still leaking oil, which has reached the shore in successive waves), the geographical nature of

the region (open to the ocean and subject to strong winds and currents), the shape of the coastline (which allows only beaches, i.e. one-third of the total coastline, to be surveyed), the time of year (with several tens of thousands of seabirds passing on migration) and experience from previous incidents, it is estimated that only 10-20% of all oiled and dead birds have been recovered. The total number of birds affected in the first month was estimated to be between 20,000 and 40,000 birds.

In the last week of December the situation worsened, however, with an upsurge in dead birds washed up on Spanish beaches. There had been a daily average of 20-30 tideline corpses in mid December but this became 70+ per day at the end of the month. This was associated with a change in weather conditions and wind direction, and continued immigration of wintering seabirds into the waters off northwest Spain. SEO's seabird campaigner, Carles Carboneras, said: 'The increase in the

number of dead oiled birds being found so long after the initial slick occurred is significant because it is almost unique among oil spills, and is without doubt related to the continued leakage of oil from the sunken wreck of the *Prestige*.'

And, as widely predicted, the first oil – and oiled seabirds – washed up on the southwest coast of France at the end of December. By 7th January the oil had spread halfway up the French Atlantic coast, shellfisheries had been closed and the French Government had pledged 50 million Euros to the clean-up (Spain spent 200 million Euros in the first month). For the French, this was history repeating itself. Exactly three years previously, in December 1999, the *Erika* spilled ten million litres of oil into the sea off Brittany. Up to 100,000 seabirds died in that disaster.

Links: BirdLife (www.birdlife.net), SEO (in Spanish) (www.seo.org/2002/prestige), LPO (in French) (www.lpo-birdlife.asso.fr).

And South Atlantic seabirds suffer too

Meanwhile, at the other end of the world, thousands of penguins have been dying in the South Atlantic. In the Falkland Islands, paralysed Gentoo Penguins *Pygoscelis papua* and Magellanic Penguins *Spheniscus magellanicus* have been found dying on beaches, unable to make it to their breeding colonies. The most likely explanation seems to be a 'red tide' event caused by dinoflagellates – microscopic red phytoplankton which bloom under certain conditions and release toxins into the sea, poisoning seabirds and other predators. The incident has largely been limited to West Falkland, with 500 dead Gentoos picked up in Fox Bay and both Gentoo and Magellanic

Penguins dying on the grimly appropriate Carcass Island. Kelp Gulls *Larus dominicanus* have also been affected.

Before this poisoning outbreak, the Falklands' population of Gentoo Penguins was more than 115,000 birds during the 2001/02 winter, representing more than 40% of the total world population. But the entire penguin population of the Falklands is under severe pressure. When British troops recaptured the islands in 1982 they were told that they were liberating two thousand people – and six million penguins. Twenty years later, the total penguin population has shrunk to one million. This decline is not caused

by poisoning, however: this is mass starvation caused by human over-fishing of the penguins' food supplies. In May 2002, an estimated 100,000 penguins – Gentoo, Magellanic and Rockhopper *Eudyptes chrysocome* – starved to death in their colonies. Penguins moult in May and June and, without adequate fat reserves to see them through this critical period when they cannot feed at sea, the birds are particularly vulnerable. This decline of the penguin population coincides with unrestricted exploitation of fish and squid in Falklands waters since the 1982 conflict.

Links: Falklands Conservation (www.falklandsconservation.com), Falklands Net (www.falklands.net/PenguinsStarve.shtml).

Electronic bird records – and recorders

No doubt all *BB* readers will have promptly submitted their 2002 bird records to their respective County Recorders by 31st January, so the compilation of annual reports can begin. But how many Recorders welcome electronic submission via e-mail? One such is the new Teesmouth recorder, Rob Little, who invites birders to visit the Teesmouth Bird Club (TBC) website and download the appropriate form. In another innovation, the TBC has also started sending out its newsletter electronically to members with e-mail access. Not only does this save paper – and postage costs – but it also allows inclusion of quality colour photographs. The latest newsletter can be perused on the TBC website, which is also well worth a visit for its monthly predictions, recent reports, weather forecasts and tide charts.

Link: Teesmouth Bird Club (www.teesmouthbc.freeserve.co.uk).

And CBWPS is now on the WWW

Although now a sprightly 72 years old, the Cornwall Bird Watching and Preservation Society has not been shy to embrace the Internet age and has recently launched a very attractive website. Almost 450 species have been recorded in Cornwall and the Isles of Scilly, with 408 in mainland Cornwall alone. But it was breeding species, rather than rare vagrants, which attracted most attention in 2002, with both Red-billed Chough *Pyrhocorax pyrrhocorax* and Hen Harrier *Circus cyaneus* successfully rearing broods in the county. Both species merit their own sections on the CBWPS website. The latest chough news is that a sixth bird has joined the pair and three first-years which made the headlines last summer (see *Brit. Birds* 96: 23-29). The most recent news on the Hen Harriers is that one of last year's wing-tagged youngsters appeared on Skomer, off the Pembrokeshire coast, in October 2002. Other CBWPS website highlights include a message from Society President Steve Madge and a commendable list of local field meetings: there are six this month and seven in March! Can any other bird club beat that?

Link: CBWPS (www.cbwps.org.uk).

Easy-access birding in Suffolk

A bouquet to the Suffolk Ornithologists' Group, who have produced a new edition of their guide to Suffolk sites suitable for the less mobile bird-watcher. First published in 1990, this completely new edition, entitled *Easy Birdwatching Again*, covers 59 sites throughout the county. It has been published with the assistance of a grant from 'Awards for All' and is free to the less mobile. Copies are available from the editor; contact Andrew Gregory, 1 Holly Road, Ipswich IP1 3QN; tel: 01473 253816.

Don't forget Valentine's Day

For the absent-minded among you, here is a timely reminder: Valentine's Day falls on Friday 14th February. The date should already be in your diaries or Personal Digital Assistants, not for any frivolous romantic reasons but because it is the start of National Nestbox Week! The Wildlife Trusts are urging us to create 'love nests' in our gardens, which would be great fodder for the tabloid press if they weren't referring to nestbox construction. Apparently, two million young birds are reared in nestboxes in the UK every year. All 47 county Wildlife Trusts will be hosting events during the week of 14th-21st February to encourage a nestbox housing boom as the breeding season gets underway.

Link: The Wildlife Trusts (www.wildlifetrusts.org).

Helping Hen Harriers on Orkney

Although Hen Harriers were successful in Cornwall last summer, they continued to decline at the other end of the country. Orkney was once a stronghold for this magnificent raptor but Hen Harriers have declined by 70% in the islands over the past 25 years. Loss of their preferred hunting habitat has been identified as the most likely cause of this decline, according to Dr Arjun Amar of the Game Conservancy Trust. Dr Amar commented: 'Recent research has shown that there is a shortage of food for birds on Orkney and that this decline is most likely a result of changes in land use causing a reduction in the amount of rough grassland, which is their preferred hunting habitat.'

Using a Geographical Information System (GIS), with digitised maps created from satellite images, his research team examined whether the proportion of rough-grass habitat had had an influence on the success of nests over the last ten years. The discovery of such a relationship would provide support for the creation of this type of habitat as a conservation measure to improve breeding success and reverse the decline. Summing up the results of this study, Dr Amar said: 'We found that such a relationship did indeed exist. Birds that nested in areas with more of this habitat had better breeding success – they were more likely to hatch their eggs and more likely to fledge their young, compared with birds which had less rough grass around them.'

These findings have helped to shape Scottish Natural Heritage's proposal for an Orkney Hen Harrier recovery project, which aims to pay farmers to create 600 ha of rough grassland around harrier nesting areas. This project is still awaiting final approval from the Scottish Executive, but if successful should be launched in 2003 and run for the following eight years.

Link: Game Conservancy Trust (www.gct.org.uk).

'Extinct' bat alive and well and living in Sussex

Birdwatchers are well aware that this is a time of great taxonomic discovery and upheaval, but there have been significant changes recently on another British list. Following the decision to treat the pipistrelle bat as two separate species – *Pipistrellus pipistrellus* and *P. pygmaeus* – a species thought extinct in the UK has been rediscovered. A young male Greater Mouse-eared Bat *Myotis myotis* was found hibernating in Sussex in December, not far from where an elderly female was found in January 2001 (she died within a few days of discovery). The female is thought to have been a survivor of a group of up to 30 Greater Mouse-eared Bats which used to frequent the hibernation site where the young male was found. Before her, the last Greater Mouse-eared Bat in the UK was an animal that wintered at the site from 1975 to 1988. Its failure to return in 1989 led to an official declaration in 1990 that the species was extinct in the UK.

Greater Mouse-eared Bats declined sharply in northwest Europe during the 1970s and 1980s, though there is some evidence of a recovery since then. They are one of the largest European bats, with a wingspan of up to 45 cm and an average weight of 30 g. They usually roost in large loft spaces during the summer, and feed mainly on beetles. David King, a member of the Sussex Bat Group, whose members discovered the young male, said: 'We check well-known hibernation sites during the winter to monitor bat numbers. A lot of species use this site, but the Greater Mouse-eared is the rarest bat we've ever found. Our members recognised this one straight away, and ringed it, so if we find one next summer we'll know whether it's the same individual. Ringing the bat would have woken it, but it would have settled down again quickly. When the temperature is below 6°C they sleep anyway, because there are no insects around.' Sixteen bat species (plus Greater Mouse-eared) are known to live in the UK. Two are classified as endangered, nine as vulnerable, and all are threatened.

Links: BBC News Online <http://news.bbc.co.uk/1/hi/sci/tech/2587445.stm>, Bat Conservation Trust (www.bats.org.uk).

New Highland Recorder

Due to increasing work commitments, Colin Crooke is stepping down as Highland Recorder after 12 years' service. The new Recorder is Alastair McNee. Please send all Highland records (Inverness-shire, Ross-shire and Sutherland) for 2002 onwards to: Alastair F. McNee, Liathach, 4 Balnafettack Place, Inverness IV3 8TQ; tel: 01463 220493; e-mail: aj.mcnee@care4free.net

New Devon Recorder

In similar vein, Mike Langman handed over the reins as Devon County Recorder at the beginning of 2003. The new Recorder is Mike Tyler, The Acorn, Shute Road, Kilminster, Axminster, Devon EX13 7ST; tel: 01297 34958; e-mail: mike@mwtyler.freemove.co.uk

Owls of anguish

At a time of year when travel brochures are required reading, sharp-eyed *BB* reader David Warden spotted a little-known ornithological phenomenon in his Sunday supplement. The advert by CTS Horizons for a holiday in the Galapagos Islands includes the copy line 'Be deafened by the cries of thousands of nesting owls feeding their young.' One would have hoped that Charles Darwin would have logged the world's only colonial owl species in his journey on the *Beagle*. But then, he obviously did not travel with this company...

Intensive farming rolls east?

BirdLife International is warning that European Union leaders have dealt a decisive blow to hopes for more sustainable agriculture in EU accession states, after deciding at the Copenhagen summit in December that the ten new members can divert up to 40% of EU rural development money to top-up direct payments to farmers after accession, paving the way for intensive farming. Agricultural intensification in the EU, supported by the Common Agricultural Policy (CAP), has contributed to dramatic declines in populations of many farmland birds, other threatened species (such as the Brown Bear *Ursus arctos*), and important habitats. Farmland in the accession countries, especially low-input extensive arable land and grasslands, currently supports very important populations of globally threatened bird species, such as the Corn Crake *Crex crex*, Great Bustard *Otis tarda* and Eastern Imperial Eagle *Aquila heliaca*. Now these strongholds may soon be lost for ever as accession countries are set to repeat the mistakes of established EU member states, turning away from the more sustainable agriculture option offered by the original European Commission proposal earlier this year. That package, with its generous rural development budget, could have paved the way to saving farmland birds and their habitats from the devastating impact of the intensive, production-oriented farming of the EU. By giving the new member states the opportunity to reduce their rural development funds in order to top up direct payments, these hopes are now seriously jeopardised.

'This decision is a disaster for the rich nature and wildlife that remains on farmland in the EU accession countries, especially in Central and Eastern Europe,' said Szabolcs Nagy, BirdLife International's Conservation Manager in Europe. 'With the level of direct payments reaching more than half of EU rates, agricultural intensification is inevitable.'



Monthly Marathon

Photo no. 193: Meadow Pipit

I think most people will recognise the slim, brownish passerine with heavily streaked underparts in photograph 193 (*Brit. Birds* 95: plate 322, repeated here as plate 58) as some kind of pipit *Anthus*. That much is easy, but pipits are one group which a lot of birdwatchers have trouble with and further identification is often far more difficult.

We are faced with a relatively poor photograph which does not really allow for a detailed analysis, but let's start by listing what we can see. The underparts are heavily streaked with broad blotches that extend right along the flanks. The legs are a striking pinkish colour. The throat, breast and flanks seem to be covered in a faint yellow-ochre wash. The malar stripes are very broad. The hint of the beginning of a white 'braces' line on the mantle is visible on the left side of the bird. The crown is heavily



Colin Bradshaw

58. Meadow Pipit *Anthus pratensis*, Scilly, October 1989.

streaked. The supercilia certainly run up to the eye but not, as far as we can see, past it, although with a bird looking straight at you, as this one is, discerning any clear details on the head and bill is almost impossible.

What we can see allows us to rule out some of the contenders straight away. The length of the legs, coupled with the general impression point to a small pipit. In addition, the heavy streaking on the underparts rules out any of the large pipits, while the same broad streaks running down the flanks neatly removes Berthelot's *A. berthelotti*, Tree *A. trivialis* and Olive-backed Pipits *A. hodgsoni* from contention as well. The last two have very fine flank streaking while Berthelot's Pipit has hardly any streaking on the flanks at all.

What about Rock *A. petrosus*, Water *A. spinoletta* and Buff-bellied Pipits *A. rubescens*? Rock Pipits generally have very dark legs and, although the legs of some can appear pale, they would never be as bright pink as on our bird. Furthermore, the streaking on the breast can vary in intensity but is always slightly smudged or diffused, not clean and crisp as in the photo. The same applies to Water Pipit, some forms/plumages of which can show pale legs and breast streaking, but, again, not to the extent of our bird. Buff-bellied Pipit (including the Asian subspecies *japonicus*) generally has a much thinner malar stripe (it may even be lacking altogether), and a less distinctly streaked crown. This



59. 'Monthly Marathon'. Photo no. 196. Twelfth stage in twelfth 'Marathon'. Identify the species. Read the rules (see page 53), then send in your answer on a postcard to Monthly Marathon, c/o The Banks, Mountfield, Robertsbridge, East Sussex TN32 5JY, or by e mail to editor@britishbirds.co.uk, to arrive by 31st March 2003.

last feature is also helpful in removing Rock and Water Pipits from the picture.

We are now left with three real possibilities: Meadow *A. pratensis*, Red-throated *A. cervinus* and Pechora Pipits *A. gustavi*. Pechora would appear much whiter below and darker above than our bird, with wing-bars which are altogether bolder, broader, and whiter than shown here, often emphasised by the solid-black-looking greater coverts. With just two contenders left, it now gets very difficult, if not, dare I say it, almost impossible. With a photograph of this quality and with the bird in this pose, putting a name to this individual with confidence is not easy. Meadow Pipit and first-year Red-throated Pipit (i.e. one lacking red on the throat) can be very hard to tell apart without good views of the head and bill in profile and of the upperparts, especially the tertials and the rump. Red-throated Pipit has more distinct and contrasting whitish fringes to the inner webs of the tertials, near the tips, compared with Meadow Pipit, but detailed examination of the tertials

is not possible with the bird in plate 58; similarly, the presence or absence of streaking on the rump cannot be checked (Meadow is largely unmarked on the rump, whereas Red-throated is streaked). It almost comes down to gut feeling, and mine leads me towards it being a Meadow Pipit. The main features which take me in this direction are the very broad malar stripes, which are often a little thinner in first-year Red-throated, and the pale yellow-ochre wash over the sides of the breast and possibly down the rear flanks. The colour of the bill base, often a useful identification pointer, is difficult to assess in this photograph, although perhaps that is dull pink we can see at the base of the bill on our mystery bird? The bill base of Red-throated Pipit typically appears yellowish, often with a greenish tone, and even with a bird at this angle we might expect to see at least a hint of that colour. This is indeed a Meadow Pipit, and was photographed on Scilly in October 1989.

Steve Rooke

As suggested by Steve Rooke's solution, this was a particularly difficult round, and almost half the contenders (46%) opted for Red-throated Pipit. The correct solution, Meadow Pipit, was the next most popular vote (29%), although there was also a strong body of support for Buff-bellied Pipit of the Asian race *japonicus* (18%). All this means that the leader board has changed dramatically since last month, and that Geir Mobakken is now the outright leader, with a sequence of three-in-a-row, ahead of a group of other contestants with two correct entries to their name.

Eds

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Recent reports

Compiled by Barry Nightingale and Anthony McGeehan

This summary of unchecked reports covers mid December 2002 to mid January 2003.

Black-browed Albatross *Thalassarche melanophris* Past Mundesley and Scratby (both Norfolk), 31st December. **Night Heron** *Nycticorax nycticorax* Ribchester (Lancashire), 13th-18th December. **Glossy Ibis** *Plegadis falcinellus* Bowling Green Marsh (Devon), long-stayer to at least 10th January.

Red-breasted Goose *Branta ruficollis* Islay (Western Isles), 1st-3rd January. **Black Duck** *Anas rubripes* St Martin's and Tresco (Scilly), 26th-30th December; Leam Lough (Co. Mayo),

28th December into 2003; Helston (Cornwall), 9th January. **Redhead** *Aythya americana* Kenfig Pool (Glamorgan), long-stayer to at least 10th January. **Lesser Scaup** *Aythya affinis* Studland/Poole Harbour (Dorset), 14th December to 12th January; Auchenreoch Loch (Dumfries & Galloway), 20th December, with three there 21st-24th December, two remaining until 30th December, and seen again on 5th-11th January; same (two), Milton Loch 31st December to 4th January, with one at Lochrutton Loch 29th December (all Dumfries & Galloway); Hornsea Mere (East Yorkshire), 11th-12th January.

Mike Malpass



60. First-winter Night Heron *Nycticorax nycticorax*, Ribchester, Lancashire, December 2002.

White-tailed Eagle *Haliaeetus albicilla* Copinsay (Orkney), 5th-7th January. **Pallid Harrier** *Circus macrourus* Stiffkey/Warham Greens area (Norfolk), 24th December to 12th January at least. **Booted Eagle** *Hieraetus pennatus* Sandwich Bay (Kent), 16th December. **Gyr Falcon** *Falco rusticolus* St Mary's and Tresco (Scilly), 15th December, Land's End area (Cornwall), later same day, St Martin's, 21st December and St Mary's, 23rd December (all presumed to refer to the same individual).

B. Baston



62. Bohemian Waxwing *Bombycilla garrulus*, Ipswich, Suffolk, January 2003.



Bill Baston

61. Great Bittern *Botaurus stellans*, Lee Valley, Hertfordshire, January 2003.

Long-billed Dowitcher *Limnodromus scolopaceus* Inver Bay (Highland), long-stayer to at least 12th January. **Bonaparte's Gull** *Larus philadelphia* Inchydoney (Co. Cork), 29th December to at least 8th January. **Forster's Tern** *Sterna forsteri* Two wintering birds in Ireland in early January, at Blennerville (Co. Kerry) and Baldoyle (Co. Dublin); Oban Bay (Argyll), 8th-11th January.

Blyth's Pipit *Anthus godlewskii* Gringley Carr (Nottinghamshire), 29th December to 5th January. **Bohemian Waxwing** *Bombycilla garrulus* During the first half of January there was an influx into (mainly) eastern England, with many small flocks of up to 40 birds. **Yellow-browed Warbler** *Phylloscopus inornatus* Stiffkey, 16th December to 12th January at least; Helston, 4th-5th January. **Dusky Warbler** *Phylloscopus fuscatus* Kessingland (Suffolk), 30th December to 6th January.

Steve Young



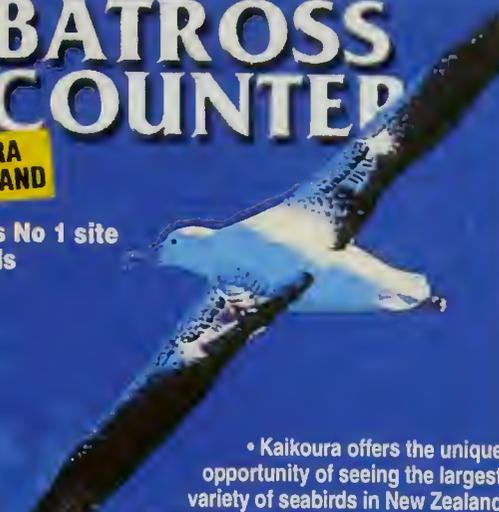
63. Female Two-barred Crossbill *Loxia leucoptera*, Sandringham, Norfolk, December 2002.

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British Birds

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Scottish Crossbills

Hybrid Canvasbacks

Song and territories of Song Thrushes



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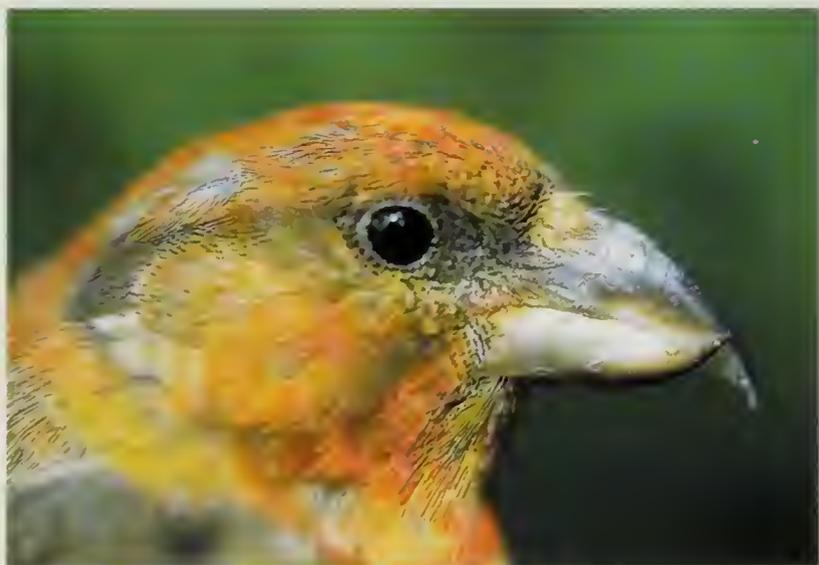
64. Male Parrot Crossbill *Loxia pytyopsittacus*, Abernethy Forest, Highland, April 2001.

Ron W. Summers



65. Female Scottish Crossbill *Loxia scotica*, Glen More, Highland, April 2002.

Ron W. Summers



66. Male Common Crossbill *Loxia curvirostra*, Abernethy Forest, Highland, April 2000.

requirements. These gaps in our knowledge stimulated the initiation of several studies in the early 1990s. As well as studying range and habitats, the relationships among Scottish, Common and Parrot Crossbills were investigated in terms of biometrics, vocalisations and genetics (Piertney *et al.* 2001; Marquiss & Rae 2002; Summers *et al.* 2002).

Can Scottish Crossbills be identified by their bill size?

One of the recent studies started with a re-examination of museum specimens. Initially, the biometrics of Parrot and Common Crossbills from Fennoscandia were described. There were no intermediate bill sizes in the sample from Fennoscandia, so there was no doubt about species identification in these populations. These formed the baseline against which birds from Scotland were compared. A comparison with museum specimens collected in Scotland showed that there were Common Crossbills and birds of intermediate size (i.e. Scottish Crossbills) in the Highlands of Scotland. The data from these two groups did not, however, separate into distinct clusters (Summers *et al.* 2002), so it was impossible to be sure of the identity of birds lying within the overlap zone. This meant that some birds could not be identified with certainty by size. In the sample of museum specimens from Scotland, there were also some birds which could have been classed as Parrot Crossbills. Because they occurred at the lower end of the size distribution of Parrot Crossbills, however, it is possible that they were, in fact, Scottish Crossbills.

Generally, most collecting of crossbills occurred during the late nineteenth century and early

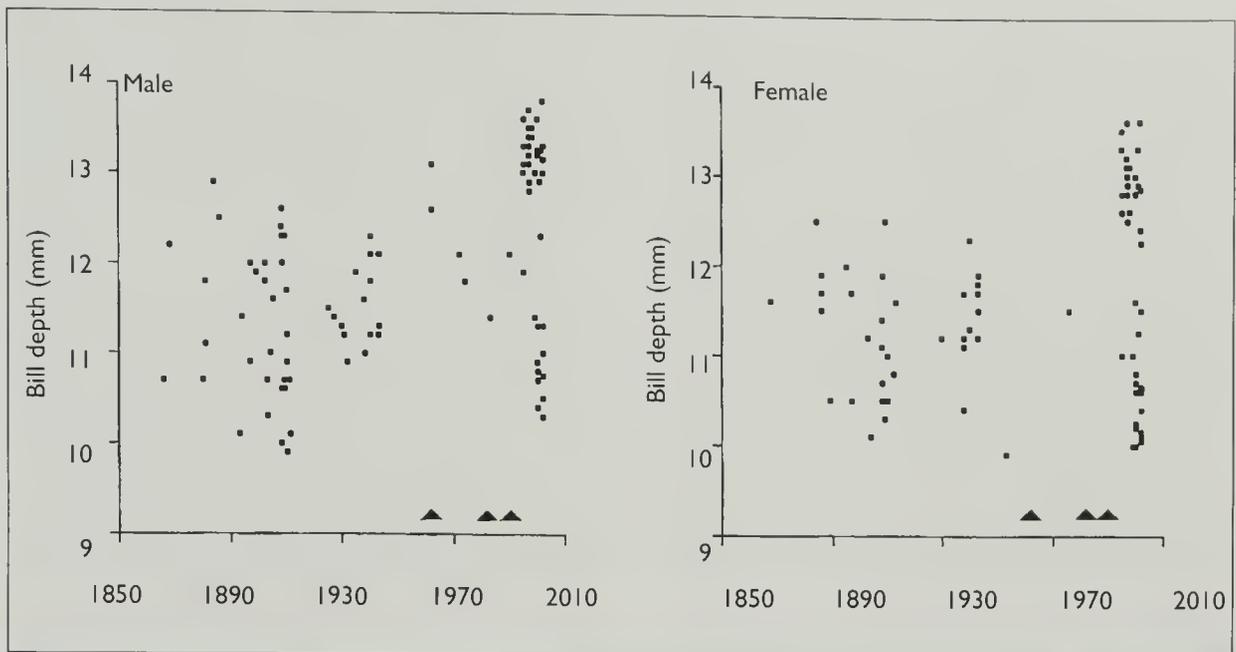


Fig. 1. The bill depths of museum specimens and live-trapped crossbills *Loxia* in Scotland in different years. All measurements are by RWS. The lower limits for the 95% range for Parrot Crossbills *L. pytyopsittacus* are 12.5 mm for males and 12.3 mm for females, and the upper limits for Common Crossbills *L. curvirostra* are 11.3 mm for males and 11.2 mm for females. The years with documented Parrot Crossbill invasions are shown by triangles.

part of the twentieth century, with relatively few specimens from the late twentieth century. Nonetheless, it was assumed that the museum specimens were a typical sample of birds living in Scotland. It was, therefore, a surprise when we started catching crossbills in the Mar Lodge woods and in Abernethy Forest in the 1990s to find that many of the birds were Parrot Crossbills (fig. 1) (Marquiss & Rae 2002; Summers 2002). It is possible that these birds originated from recent invasions which took place in 1962, 1982 and 1990 (Thom 1986; Jardine 1992). Parrot Crossbills are known to undertake sporadic eruptions from their Fennoscandian and Russian breeding grounds, although these are not as frequent as in the Common Crossbill (Newton 1972). Parrot Crossbills feed primarily on the seeds from Scots Pine cones, which are generally available annually, thus reducing the need to emigrate. This is in contrast to the Norway Spruce *Picea abies*, which produces cones more erratically, leading to the larger and more frequent eruptions of Common Crossbills, which rely on this conifer in their north European breeding grounds. The presence of Parrot Crossbills in Scotland has therefore further complicated the picture.

Can Scottish Crossbills be identified by their vocalisations?

Nethersole-Thompson (1975) noted that Scottish Crossbills have different calls from other

crossbills, but these differences were not formally described. In order to investigate the calls of crossbills, we made tape recordings and sonograms of birds of known bill size. Following the work of Groth (1993) on North

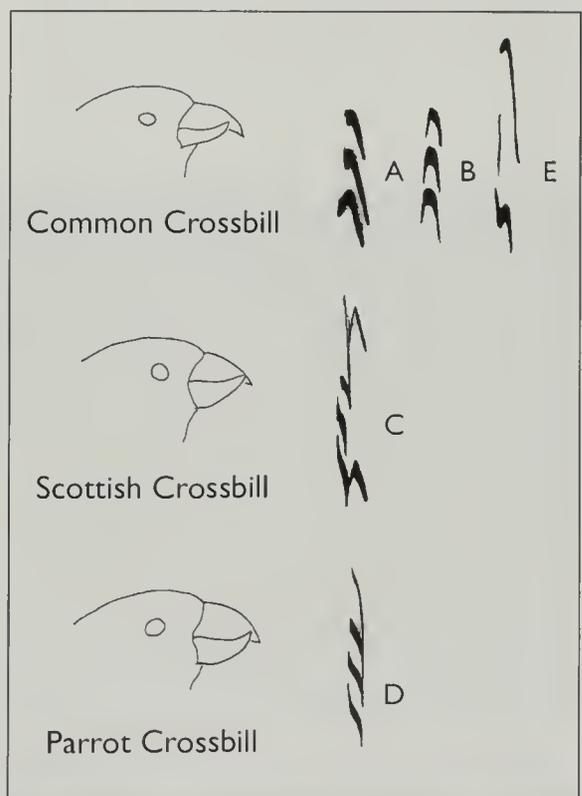


Fig. 2. Sonogram outlines of excitement calls of crossbills *Loxia* found in Scotland. Examples can be heard on the following website:
www.rspb.org.uk/wildlife/scisurv/speciesrsch/scotcrosscalls.asp

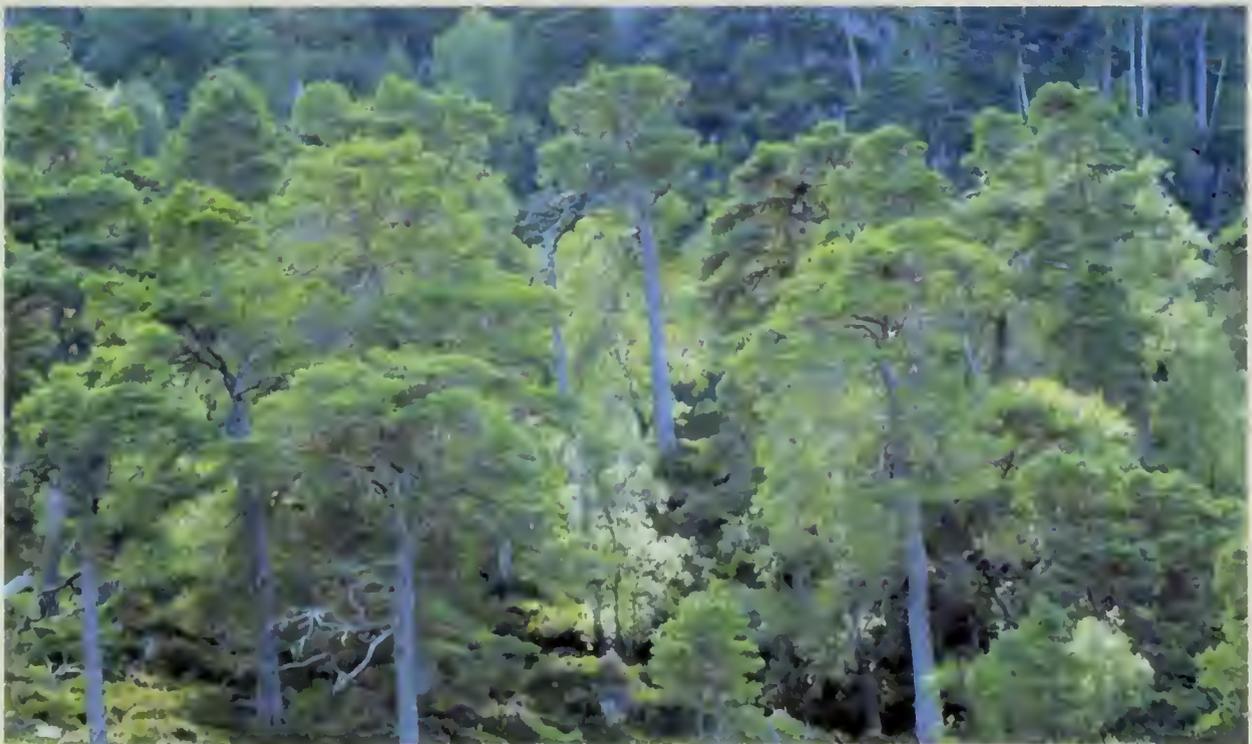
American crossbills, we concentrated on the single-note flight and excitement calls, which are given by both sexes. Unlike bill size, which showed no distinct clustering, the calls fell into distinct types, as seen on the sonograms. Five types of excitement call were recognised in Scotland, and by matching these up with the bill size of the birds which gave them, the following patterns were apparent (fig. 2). Common Crossbills gave three different types of excitement calls, Parrot Crossbills had only one type of call and the intermediate Scottish birds had their own excitement call (Summers *et al.* 2002). With each excitement call there was an associated flight call. It is likely that calls are learnt by young birds from their parents and so should remain constant within a species. We do not know, however, whether crossbills can change their calls after becoming independent from their parents, or what happens when crossbill species interbreed. Nevertheless, it does appear that, at the moment, we can use these calls as a means of identification. It must also be pointed out that other published sonograms of Scottish Crossbills must be regarded as suspect because the calls were not matched to bill size.

Where are Scottish Crossbills found?

The excitement call described above has allowed us to assess the range of the Scottish Crossbill. By making tape recordings throughout northern Scotland, we found that Scottish

Crossbills occurred mainly in the eastern Highlands with outlying records in the Flow Country of Caithness and Sutherland, Perthshire, Angus, Stirlingshire and Fife (fig. 3). In contrast, Common Crossbills were much more widespread across Scotland, while Parrot Crossbills were found in only a few woods in Strathspey and Deeside (Marquiss & Rae 2002; Summers *et al.* 2002). The other important discovery was that Scottish Crossbills occurred commonly in plantations as well as in ancient native pinewoods. These plantations either comprised largely Lodgepole Pine *Pinus contorta*, Sitka Spruce *Picea sitchensis*, larches *Larix* spp. or Scots Pine, or mixtures of these species. Nonetheless, during January to March, crossbills in woods where Scots Pines were dominant or co-dominant were more likely to be Scottish than Common Crossbills (Summers *et al.* 2002).

Another way to study the habitats of crossbills of known identity is to observe colour-ringed birds with known bill measurements. In Deeside, Marquiss & Rae (2002) found that crossbills with the largest bills (Parrot Crossbills) fed on Scots Pines throughout the year and tended to be found in the native pinewoods (Glen Tanar, Ballochbuie and Mar Lodge woods). Birds with the smallest bills (Common Crossbills) fed on Sitka Spruce and larches, and on Scots Pine in late spring when the cones opened and the seeds became readily available.



67. Native pinewood, Strathfarrar, Highland, August 2001.

Birds with intermediate bills (Scottish Crossbills) fed mainly on larches and Scots Pines, and occasionally on Sitka Spruces. The findings of Marquiss & Rae are therefore similar to those of the wider-ranging study where birds were identified from sonograms (Summers *et al.* 2002). Although there were ecological differences among the three groups, there was considerable overlap in habitat and diet. An analysis of habitat data for Common and Scottish Crossbills revealed a habitat overlap of 73% during January to March (Summers *et al.* 2002).

What are the movements of Scottish Crossbills?

Crossbills are famous for their movements in response to fluctuations in their conifer food supply (Newton 1972). This also applies to crossbills in Scotland (Nethersole-Thompson 1975; Summers 1999). What little we know about the movements of individual Scottish Crossbills comes largely from colour-marked birds in Deeside. Movements of less than 18 km were noted, usually between woods with similar conifer species (Scots Pines and larch). Marquiss & Rae (2002) observed that Scottish and Parrot Crossbills tended to be resighted in following years, i.e. they were resident. In contrast, none of the small-billed birds in Deeside were resighted in later years, reflecting the more nomadic behaviour of Common Crossbills. Only the small-billed birds were found to have stores of premigratory fat, indicating preparation to depart, usually in late spring and early summer. Spruce crops are well known for their erratic coning, leading to boom ('mast years') and bust years. Scots Pine also shows annual variations in cone production, though these are not as marked as those of spruce, and pine-eating crossbills also, on occasion, have to move. For example, 1996 and 2001 were poor years for cones in Abernethy Forest, leading to small numbers of crossbills there in these years. The fact that colour-ringed birds reappeared after these poor seasons, however, suggests that

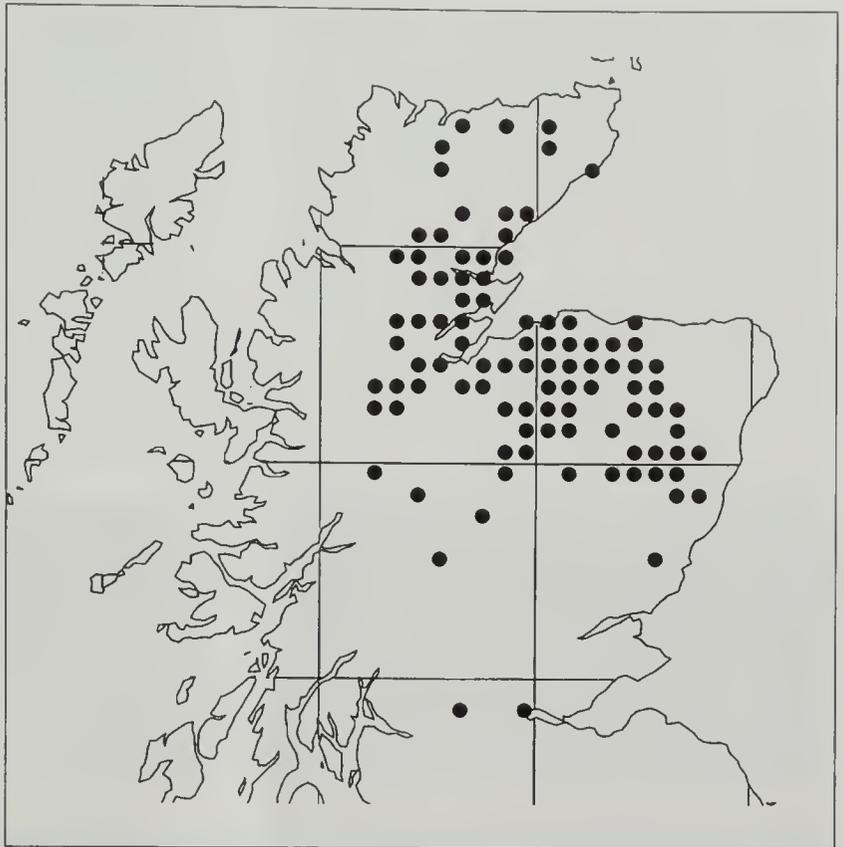


Fig. 3. The distribution of crossbills giving excitement call C (i.e. Scottish Crossbills *Loxia scotica*). From Summers *et al.* (2002) and unpublished data.

movements are local within Scotland. For example, one bird was recorded moving from Deeside to Strathspey (Marquiss *et al.* 1995), and a movement from Strathspey to Deeside has also been noted.

What is the niche of the Scottish Crossbill?

The general association between bill size and food preference of crossbills (Lack 1944), plus feeding studies of captive crossbills (Benkman 1987) provide evidence that the different species have specialised niches. Even the names of the crossbills allude to their specialisation. For example, the Norwegian names for Common and Parrot Crossbills are the 'Spruce Crossbill' (Grankorsnebb) and 'Pine Crossbill' (Furukorsnebb), respectively. The Scottish Crossbill does not, however, fit easily into this pattern because, along with the Parrot Crossbill, it is thought to be adapted to feeding on Scots Pine, the only conifer which occurred in the assumed ancestral habitat.

Recent findings are now casting doubt on earlier assumptions. First, the main species of crossbill inhabiting the remnants of the Caledonian forest is not the Scottish Crossbill. Rather, it is mainly Parrot Crossbills which occur in Abernethy Forest and the Mar Lodge

woods, and to a lesser extent in Glen Tanar (Marquiss & Rae 2002; Summers 2002). Second, although Scottish Crossbills do occur in the native pinewoods, they also occur in a range of conifer plantations, feeding on Lodgepole Pine, larch, and Sitka Spruce as well as Scots Pine (Jardine 2002; Marquiss & Rae 2002; Summers *et al.* 2002). Two possibilities exist to explain this situation. It is possible that the Scottish Crossbill was the main species occupying the ancient native pinewoods prior to the recent invasions of Parrot Crossbills, but that it is now excluded from these woods through competi-

tion with that species (Marquiss & Rae 2002). Alternatively, it is possible that the niche of the Scottish Crossbill is somehow intermediate between those of Parrot and Common Crossbills (as the bill size suggests), and that Scottish Crossbills are able to utilise the range of plantation woods now available in Scotland. Over the past 300 years, non-native conifers have been planted in the Highlands, so that there are now three very common conifers: Sitka Spruce, Lodgepole Pine, and the native Scots Pine (Summers *et al.* 1999). There are also smaller areas of Norway Spruce, larch (European Larch

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68. Larch *Larix* sp. cones, The Aird, Inverness, Highland, January 2003.



69. Lodgepole Pine *Pinus contorta* cone, Glen More, Highland, April 2002.

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70. Norway Spruce *Picea abies* cones, Strath Dearn, Highland, May 1996. The seeds from this conifer are the main food of Common Crossbills *Loxia curvirostra* in northern Europe.



71. A Scots Pine *Pinus sylvestris* cone, opening in spring, Abernethy Forest, Highland, May 2000. The seeds of Scots Pine are the main food of Parrot Crossbills *Loxia pytyopsittacus* in the Scottish Highlands, whereas Scottish Crossbills *L. scotica* feed from a range of conifers.

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Larix decidua, Japanese Larch *L. kaempferi* and a hybrid *L. × eurolepis*) and Douglas Fir *Pseudotsuga menziesii*. It has been shown that birds can adapt quickly to changes in their environment. It is even possible for the average bill size of a population to change significantly within a single season if there is a strong selection pressure (Grant 1999). It is quite possible, therefore, that the bill size which characterises the Scottish Crossbill has evolved recently, a product of recent silviculture. A possible route is through hybridisation between Common and Parrot Crossbills (Marquiss & Rae 2002).

There is also indirect evidence of niche overlap. If the three species of crossbill did occupy distinct niches, one would expect that bill size would reflect these niches and would be equally differentiated, but this is not the case. There is, in fact, a spread of bill sizes in Scotland covering the entire known range for crossbills in Europe, and there is no clustering of bill sizes into distinct groups (Marquiss & Rae 2002).

Are Scottish Crossbills genetically distinct?

To examine the genetic relationships among Common, Scottish and Parrot Crossbills, non-invasive DNA samples were taken from captured birds assigned to a putative crossbill type based on bill size. Putative Parrot Crossbills were those with bills greater than the modal bill depth for this species, Common Crossbills were those with bills less than the modal depth for

that species, and Scottish Crossbills were those within 0.2 mm of the mode for Scottish Crossbill (Knox 1976; Piertney *et al.* 2001). Therefore, misclassification was unlikely. Genetic similarity was assessed in two ways: by comparing the allele frequencies of five microsatellite loci, and by sequence variation across the mitochondrial control region. Both microsatellite and mitochondrial DNA are considered neutral. In other words, variation is not lost or maintained through natural selection. Instead, variation within a population can be accumulated by mutation, and/or lost by random genetic drift. If two populations are kept isolated, they will tend to have very different frequencies of the genetic variants because mutation and drift act independently in the two areas. Conversely, if two populations are hybridising, they will tend to have very similar frequencies of the different genetic variants, because interbreeding will move DNA variants among the populations. Thus, examination of DNA markers such as microsatellite and mitochondrial DNA polymorphisms is an ideal way of looking at the degree of isolation between populations and species.

The key result of our findings was that the microsatellite and mitochondrial DNA of populations of the three crossbill types were not statistically distinguishable (Piertney *et al.* 2001). The lack of differentiation could either be due to interbreeding among the three cross-



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72. Scots Pine *Pinus sylvestris* plantation, Culbin Forest, Grampian, July 1999.

bill types, or because there has been insufficient evolutionary time since separation from their common ancestral form for any differences to accrue. The latter explanation is certainly possible, given that the Scottish Crossbill will have been separated from its ancestral form during or after the last glaciation (10,000-20,000 years ago). From an evolutionary perspective, this is an extremely short time for major genetic differences to become apparent. That said, given that the crossbill population in Scotland would have undergone a considerable reduction when the Caledonian forest was reduced in size, evolutionary models would predict the Scottish Crossbill to be more genetically distinct than we observed. Consequently, it is more likely that some interbreeding does occur, and the challenge is, therefore, to estimate how frequently this takes place: whether the three species are interbreeding freely where they occur sympatrically, or whether the genetic similarity among the forms is maintained with only occasional interbreeding events.

Although the genetic similarity of Common, Scottish and Parrot Crossbills might be taken to indicate that the Scottish Crossbill cannot be a true species, it should be noted that we also found no significant genetic differences between Common and Parrot Crossbills (Piertney *et al.* 2001). These two types are recognised as full species by most/all authorities and show no overlap in bill measurements elsewhere in Europe. DNA studies to see whether there are genetic differences between Common and Parrot Crossbills on the European mainland would help to clarify this puzzle.

Do the three crossbill species interbreed?

We are now examining the extent of interbreeding of crossbills in Scotland by looking at the mating patterns of birds and, more specifically, the occurrence of heterospecific versus homospecific pairs, identified by bill depth and call type. In a sense, this is what Knox (1990a) did in his study in Deeside, but the sample of pairs he examined was small, no details were presented for the captured birds, and tape recordings were not made of the pairs. Such details are required to be sure that the birds are actually a pair, and to confirm putative species. It is likely that this survey will take several years to generate a sufficiently large sample size from different forest types for useful conclusions to be drawn, but already we have evidence of one

heterospecific pair (a male Parrot Crossbill was found nesting with a female Scottish Crossbill at Abernethy Forest), confirming that some interbreeding does occur.

Is the Scottish Crossbill a species?

What does all this information tell us about the species status of the Scottish Crossbill? Defining a species is somewhat problematic, and has sparked obdurate debate for several decades. Several species definitions have been proposed and revised, though there is still little consensus. Four species concepts are commonly applied to address species issues in avian taxa (Parkin *in press*). The data collected on the ecology, genetics, behaviour and morphology of crossbills allow us to reach an informed opinion about which of these concepts, if any, is most appropriate, and whether they confirm or reject crossbills as distinct species.

The *Biological Species Concept* (BSC; Mayr 1963) recognises that evolution leads to the progressive genetic divergence between separate populations such that ultimately they become reproductively isolated. Thus, the BSC advocates that species are 'groups of interbreeding natural populations that are reproductively isolated from other such groups'. In the case of crossbills, diagnostic call types may underpin behavioural isolating mechanisms preventing interbreeding, and Knox (1990a) originally highlighted that the forms (Scottish and Common Crossbills) do not interbreed when living sympatrically. These data would suggest that crossbills satisfy species status under the BSC, and, indeed, the Scottish Crossbill was elevated to species status because it was deemed to satisfy BSC criteria. Our more recent evidence of interbreeding from genetic and behavioural data would, however, suggest that crossbill species are *not* reproductively isolated, so do not strictly satisfy species status under the BSC. It should, of course, be pointed out that there are many species pairs (e.g. Herring Gull *Larus argentatus* and Lesser Black-backed Gull *L. fuscus*) which exhibit occasional interbreeding, yet are still regarded as full species. Much depends on the frequency of interbreeding and the fertility of the hybrid offspring.

The *Recognition Species Concept* (RSC; Paterson 1985) claims that a species is 'the most inclusive population of individual, biparental organisms which share a common fertilisation system'. In essence, individuals are defined as



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73. Mixtures of planted conifers, now typical of Highland landscapes, East Ross-shire, March 1992.

belonging to the same species if they share a common mate-recognition system, be it behavioural (such as song) or chemical (such as scent). This is similar to the BSC, but shifts attention from isolating mechanisms such as barriers to gene exchange, to a positive function in facilitating reproduction only among individual species members. As with the BSC, the different, diagnostic calls of the crossbill types may indicate species status under the RSC. Given that we know mixed pairs of birds can occur, however, we do not know whether these calls are sufficient to reduce heterospecific matings, or whether such calls are plastic and can be learnt, as suggested by Groth (1993) for captive-bred birds.

The *Phylogenetic Species Concept* (PSC; Cracraft 1983) defines a species as 'the smallest diagnosable cluster of individual organisms that can be traced back to a single ancestral form, and within which there is a parental pattern of ancestry and descent'. An outcome of this definition is that species members are all more closely related to each other than they are to anything else. The PSC avoids reference to isolating mechanisms, and focuses instead on the phylogenetic histories of populations. In the case of crossbills, genetic similarity among the forms (irrespective of whether that is caused by interbreeding or recent ancestry) means that a Scottish Crossbill is as closely related genetically

to a Common Crossbill or a Parrot Crossbill as it is to another Scottish Crossbill (Piertney *et al.* 2001), and as a consequence, the Scottish Crossbill cannot be viewed as a separate species under the PSC.

The *Evolutionary Species Concept* (ESC; Simpson 1951) is the most general species concept, identifying a species as 'an entity composed of organisms that maintains its identity from other such entities through time and over space, and which has its own independent evolutionary fate and historical tendencies'. The maintenance of an intermediate bill depth would indicate that the Scottish Crossbill satisfies ESC criteria, though it is as yet unclear to what extent bill morphology is inherited, or how bill depth is affected by interbreeding.

Helbig *et al.* (2002) have attempted to synthesize the species concepts to provide practical guidelines for assigning species rank with regard to the British List. They define species as population lineages maintaining their integrity with respect to other such lineages through space and time, which means that species must be diagnosably different (to recognise the separate lineages) and reproductively isolated (to maintain their integrity), and that their members must have a common mate-recognition and fertilisation system (so that they can reproduce). The key is that a given species can only be delimited in relation to other taxa, so

must be diagnosable and, in the case of sympatric species, hybridise at such low frequency that their gene pools will never merge. For crossbills in Scotland, this does not appear to be the case. The Scottish Crossbill cannot be diagnosed based on morphology (bill size or body size) or genetic characteristics, although perhaps it may be identified by its call. Moreover, as it can be argued that the gene pools of extant crossbills in Scotland are merged, it is difficult to be sure if they were ever truly separated.

A major criticism of all the species concepts is that they are attempting to partition a continuous process (evolution) into artificially discrete entities (species). This is inherently difficult, and means that judgement is required in borderline cases. Recently, there have been calls for a more rational basis for prioritising taxa of conservation concern, one which is divorced from traditional taxonomy. Concepts such as the *Evolutionary Significant Unit* (ESU) have been developed, and several operational definitions proposed, which identify genetic resources that warrant protection and allow a framework within which conservationists can work. Waples (1991) defined an ESU as a '...population that is substantially reproductively isolated from other conspecific population units', and which in a general sense 'represents an important component in the evolutionary legacy of the species'. Scottish crossbills are clearly an extremely important component of the evolutionary legacy of crossbills in the UK, Europe and the Palearctic. The future conservation of crossbills depends on us taking on board the ESU concept in its broadest sense because this complex group of forms does not fall clearly within any of the above species concepts (Parkin in press).

Traditionally and pragmatically, species status is used by wildlife legislators as the basis for allocating conservation priorities and is used to assist designation of protected areas for endangered animals and plants. Variation at other levels is, however, an equally, if not more, important component of biodiversity. Moreover, as we learn more about the process of evolution, we appreciate that scenarios exist whereby reproductive isolation, adaptive divergence and neutral DNA differences all evolve and accrue at different rates. Conservation legislation and priority setting which focus at the species level disadvantage those groups at the

evolutionary threshold of speciation, of which we are uncovering an increasing number from a range of different taxa (Orr & Smith 1998).

It is an inescapable truth that an endemic *type* of crossbill exists in Scotland which shows some specific adaptive divergence. This alone should warrant our best efforts to understand its ecological requirements and to maintain it as a component of our biodiversity. The important scientific issues are therefore associated with what we need to do to maintain the Scottish Crossbill. What is the population size? What woodland management and forestry policies and practices will maintain a population? How frequent is interbreeding by sympatric crossbills and does the planting of exotic conifers promote it? What are the relative contributions of heritability and phenotypic plasticity in maintaining bill morphology? To what extent are flight and excitement calls plastic and learnt? Efforts to understand such issues should not be hampered just because the Scottish Crossbill does not fall neatly into one of the currently accepted species concepts.

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The identification of a hybrid Canvasback × Common Pochard:

implications for the identification of vagrant Canvasbacks

Keith Vinicombe



74. Adult male hybrid Canvasback *Aythya valisineria* × Common Pochard *A. ferina*, Chew Valley Lake, Somerset, June 2002. Although vertical in the photograph, it sometimes showed a sloping line of demarcation between the dark breast and the pale flanks, like Canvasback. Note that it is starting to moult into eclipse plumage and is losing the white marks on the bill (see text). *P. Burrows*

ABSTRACT The identification of a male hybrid Canvasback *Aythya valisineria* × Common Pochard *A. ferina* at Chew Valley Lake, Somerset, is discussed. The most important character for separating a pure-bred Canvasback from a similar hybrid or impure individual is the presence of small white marks on the bill. The identification of Canvasback in Europe requires caution. Critical examination of all the key features, both structural and plumage-related, is essential, and particular attention should be paid to the bill.

On 21st March 1993, I discovered an unusual adult *Aythya* duck feeding off Moreton Bank, Chew Valley Lake, Somerset (plate 74). It closely resembled a male Canvasback *A. valisineria*, but the mantle, scapulars, wings and flanks didn't appear to be quite white enough and its forehead was not as dark as I would have expected. Furthermore, when viewed in profile, the head-and-bill shape was not sufficiently 'attenuated' and the neck was not quite long enough. More significantly, it showed a small, pure white, kidney-shaped patch just before the tip of an otherwise black bill. In addition, what appeared to be a small white 'scratch mark' was visible on the right side of the bill, closer to the tip than to the base. The bird did, however, show many features consistent with male Canvasback, including a noticeably brighter red eye than male Common Pochard *A. ferina*, a darker chestnut head and, in profile, two bulging ridges at the base of the upper mandible and a sloping line of demarcation between the black breast and pale flanks. Unlike Common Pochard, it often jumped high out of the water when diving. I saw it on a

further three occasions up to 25th April 1993 and I confidently identified it as a hybrid Canvasback × Common Pochard.

Hybrid or the real thing?

Following its appearance in 1993, the duck was not seen in 1994 but, to my surprise, it reappeared between 19th and 31st March 1995, although it was peculiarly elusive. A slight unease about the identification was brought into focus by two further developments. Firstly, during a visit to the Wildfowl and Wetlands Trust (WWT) at Slimbridge, Gloucestershire, on 19th March 1995, I watched several male Canvasbacks in the collection and was surprised to discover that about half showed small white marks near the tip of the bill, similar to those shown by the Chew bird. Subsequently, John Martin showed me photographs of a captive male Canvasback at Bristol Zoo which showed even more extensive white bill markings (plate 75). Secondly, on 25th January 1997, I saw Britain's first accepted wild Canvasback, a first-winter male at Wissington, Norfolk (although a previous record from Cliffe, Kent, in December



J. P. Martin

75. Captive adult male 'Canvasback' *Aythya valisineria*, Bristol Zoo, winter, mid 1990s. Given the amount of bluish-white on the bill, this is perhaps a first-generation hybrid Canvasback × Common Pochard *A. ferina* but otherwise it closely resembles a Canvasback.



K. E. Vinicombe

76. Captive first-winter male *Aythya* duck, thought to be a hybrid Canvasback *A. valisineria* x Common Pochard *A. ferina*, Wildfowl and Wetlands Trust, Slimbridge, Gloucestershire, February 1997. Although superficially resembling a Canvasback, its structure is not completely convincing for that species and it shows a small white subterminal patch on the bill.

Note that both first-winter Canvasback and Common Pochard can be easily aged by their darker grey wing-coverts, which in adults are pale grey and concolorous with the flanks and scapulars.

1996, has since been accepted as the first (BOURC 2003). I was surprised at just how similar to accompanying Common Pochards the Norfolk bird could look, particularly in dull light and/or when asleep. In certain lights, it did not look as large, as pale or as 'attenuated' as some literature suggests. Inevitably, these experiences set me thinking about the Chew bird. Rather than being a hybrid, could it have been a pure Canvasback with white on the bill? To counter these thoughts, in February 1997 I was shown four first-winter *Aythya* ducks in the holding pens at WWT Slimbridge which were thought to be hybrids between a captive Canvasback and a wild Common Pochard (plates 76 & 77). There was no denying that these birds showed some similarities to the Chew bird.

In an attempt to take the matter further, I wrote to the editors of *Birding*, the magazine of the American Birding Association, enquiring whether North American birders had ever



K. E. Vinicombe

77. Captive first-winter female *Aythya* duck, thought to be a hybrid Canvasback *A. valisineria* x Common Pochard *A. ferina*, Wildfowl and Wetlands Trust, Slimbridge, Gloucestershire, February 1997. Unlike its male sibling in plate 76, this bird completely lacks white bill markings, but its structure seems intermediate between Canvasback and Common Pochard. Such an individual would be very difficult to identify with certainty in the field.

encountered male Canvasbacks with white markings on the bill. Two photographs appeared in *Birding* (Vinicombe 1998): one of a bird at WWT Slimbridge and the other of the Bristol Zoo bird (see above). An expert comment from Richard Ryan (Ryan 1998) suggested that they were probably both Canvasbacks rather than hybrids, but that such individuals were most likely to occur in captivity as a consequence of either (a) inbreeding in a small captive population (the species is apparently difficult to breed in captivity), or (b) damage to the bill. One of the markings on the bill of the Chew bird, and some of those shown by the birds at WWT Slimbridge, indeed resembled scratch marks and this made the latter theory seem particularly plausible. Despite these comments, however, I could not prove that the Chew bird was a Canvasback, particularly given the lack of confirmation from North America that such individuals exist in the wild. Despite these helpful comments, the identity of

our bird seemed doomed to uncertainty unless it reappeared again.

Although it was not seen in 1996 and 1997, the Chew bird did return in April 1998 and on 14th May I enjoyed particularly good views of it displaying to Common Pochards. As a consequence of these views and the comments from Richard Ryan, I became more convinced that it was indeed a Canvasback, rather than a hybrid. This view was reinforced by two behavioural observations: (1) when displaying, it inflated its throat, which then appeared rather like a small ball at the base of the lower mandible; and (2) it persistently and vigorously threw back its head in the manner of a displaying Ring-necked Duck *A. collaris*. Although Common Pochards occasionally display in this fashion, they do not do so habitually or as frequently.

The Chew bird was present again in April 1999, when it remained elusive, but it was not seen in 2000. In August 2000, I visited Bristol Zoo and found that *all* the male Canvasbacks there (about six) showed small white marks on the bill. The evidence to suggest that Canvasbacks could indeed show such markings seemed to be mounting. In April 2001, the Chew bird reappeared yet again, but, to everybody's amazement, it suddenly took to feeding on bread provided by human visitors. Although wild birds may come to bread, it had to be conceded that this development was suspicious. On 9th May, I decided to test its tameness. I approached the lake through a small wood at the edge of Herons Green Bay, well away from the usual feeding spot by the road, armed with a loaf of bread. While all the Common Pochards, Tufted Ducks *A. fuligula* and Common Coots *Fulica atra* swam away at my approach, the 'Canvasback' swam straight towards me, approached to within 10-15 m and readily accepted the bread that I threw at it! Regardless of its identity, it seemed clear that it was an escape from captivity. It was present during May-June 2002, but it had by then reverted to its previously elusive behaviour.

Origin of the Chew bird

Amazingly, there was to be a final twist to the story. In July 2001, I received a letter from Phil Bristow informing me that at Roath Park Lake, Cardiff, South Glamorgan, a pinioned female Canvasback bred with a wild male Common Pochard in both 1990 and 1991 and produced hybrid young. In 1990, she hatched seven young, six of which fledged, while in 1991 she produced six young, but it is not known how many survived. Plate 78 shows two of the juvenile hybrids from the 1990 brood. Although I was vaguely aware of these records and subsequently discovered that details had been published (Bristow 1992), I did not connect them with the Chew sightings. PB also sent me some slides of a surviving male hybrid in adult plumage, taken in March 1997. It was undoubtedly 'our' bird! It had exactly the same pattern of white on the bill as well as the same overall appearance (plates 79-80). Moreover, PB furnished me with a long series of dates between 1997 and 2001 when the bird was present at Roath Park Lake. None of these dates overlapped with its appearances at Chew. It was clear, therefore, that it had been commuting back and forth across the Bristol Channel, a distance of some 30 km.



78. Two juvenile Canvasback *Aythya valisineria* x Common Pochard *A. ferina* hybrids, Roath Park Lake, Cardiff, South Glamorgan, July 1990. Note the long, attenuated bill, the sloping forehead and long neck, all typical of Canvasback.

P. Bristow



P. Bristow

79. Adult male hybrid Canvasback *Aythya valisineria* × Common Pochard *A. ferina*, Roath Park Lake, Cardiff, South Glamorgan, March 1997, with adult male Common Pochard behind. This individual superficially resembles a Canvasback but note the white kidney-shaped patch on the bill, although this appears whiter and more prominent in the photograph than it normally did in the field. It is considered to have been the same bird as that recorded at Chew Valley Lake, Somerset, intermittently from 1993 to at least 2002 (plate 74).



P. Bristow

80. Adult male hybrid Canvasback *Aythya valisineria* × Common Pochard *A. ferina*, Roath Park Lake, Cardiff, South Glamorgan, March 1997. The same bird as that in plates 74 & 79. This photograph shows how long and thin the neck could appear. Also note the relatively brown forehead compared with a pure Canvasback.

Identification repercussions

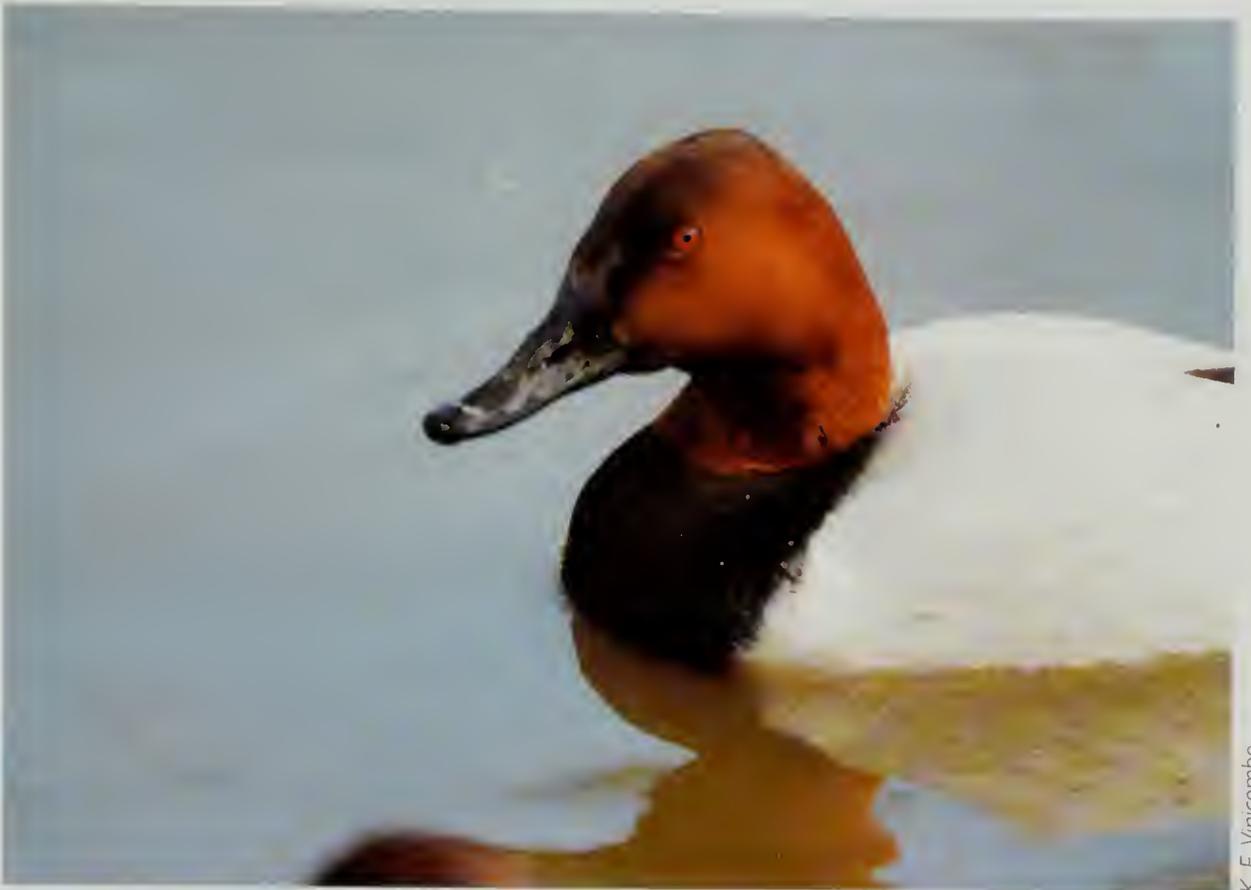
The identification of the Chew bird has significant repercussions for the identification of Canvasback in Britain. Firstly, it is clear that Canvasback × Common Pochard hybrids can appear very similar to pure Canvasbacks, both in plumage and structure. Secondly, from my experiences at both WWT Slimbridge and Bristol Zoo, I would suggest that a significant number of captive Canvasbacks in Britain are either inbred or 'polluted' with Common Pochard genes. While most captive Canvasbacks are clearly not first-generation hybrids, it seems likely that many share their ancestry with Common Pochards. Whether all captive Canvasbacks in Britain are tainted in this way is not known.

The most important difference between a Canvasback and a hybrid, or an inbred or impure captive bird, is the presence of small white marks on the bill. At present, there is no evidence to suggest that wild Canvasbacks ever show such marks. Any suspected vagrant Canvasback found in Europe should, therefore, be examined very carefully for such markings, and any individual

which shows white on the bill should not be identified as a Canvasback nor accepted as such. It must be stressed that on some of the birds at WWT Slimbridge, these marks were so tiny that they were visible only at close range (plates 81 & 82 show two of the Slimbridge males, the bird in plate 82 having particularly subtle bill markings). In my opinion, it is essential that descriptions of male Canvasbacks submitted to national records committees contain confirmation that the bill was examined critically at close range, and that white markings were specifically and carefully looked for and were not present.

The problem of eclipse males, females and juveniles

While adult males in full plumage should be identifiable, the problems presented by inbred or impure eclipse males, females and juveniles are imponderable. Any white bill markings are likely to be reduced or even absent in eclipse, thereby making the identification of adult males in late summer much more difficult (see plate 83). Indeed, the Chew bird was losing its



K. E. Vinicombe

81. Captive adult male 'Canvasback' *Aythya valisineria*, Wildfowl and Wetlands Trust, Slimbridge, Gloucestershire, March 2002. With the exception of a small white subterminal patch on the bill, this bird showed all the characters of a pure Canvasback. The 'classic' characters of Canvasback, compared with Common Pochard *A. ferina*, comprise a relatively long neck, a higher-based and longer, all-black bill which bulges at the base and merges with a distinctively high, peaked crown. In terms of plumage, adult males have the mid-body whitish-grey, paler than on Common Pochard, while the boundary between the black breast and the pale flanks is often distinctly forward-sloping (almost vertical in Common Pochard). Additionally, the forehead area is distinctly blackish in Canvasback.

bill markings towards the end of its stay in both June 2001 and June 2002, as it moulted into eclipse plumage (see plate 74). It is interesting to note that, while two first-winter males in the brood of four apparent hybrids at WWT Slimbridge in February 1997 showed white bill markings, their two female siblings did not (see plates 76 & 77). When identifying eclipse males, females and juveniles, it seems clear that no plumage characters exist which would separate an inbred or impure Canvasback from the real thing. Very careful attention must be paid to structure, although only a first-generation hybrid would be likely to lack the more extreme proportions shown by a pure Canvasback.



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82. Captive adult male 'Canvasback' *Aythya valisineria*, Wildfowl and Wetlands Trust, Slimbridge, Gloucestershire, March 1995. This individual appeared to be a Canvasback, except that it showed tiny white subterminal marks on the bill, suggesting that it was either inbred or that its lineage was not pure. It seems that many captive Canvasbacks in Britain show such markings, which would be extremely difficult to see in the field.

Conclusions

The identification of Canvasback in Europe requires the utmost caution. It must be clearly established that a suspected individual has a completely black bill and shows 'classic' Canvasback plumage and structure, particularly the long, thin looking bill (see plate 81). Photographic evidence to support both the identification and the adjudication of such records is highly desirable. In my opinion, the only way that records committees can deal with the problem is to continue to accept only those individuals which show the full suite of classic characters, with the proviso that escaped inbred or impure individuals could occasionally slip through the net. To assess the likelihood of this, those committees will also need to make a full and objective assessment of the escape potential of any apparent vagrant.

Although these findings could be used to cast aspersions on the four accepted British records of Canvasback, two of those were supported by photographs. The fact that both photographed individuals lacked any traces of white on the bill and appeared to be perfect Canvas-

backs in both plumage and structure suggests that (a) they were probably pure bred, and (b) they did not have a captive origin. It should also be stressed that all the captive Canvasbacks that I studied were pinioned.

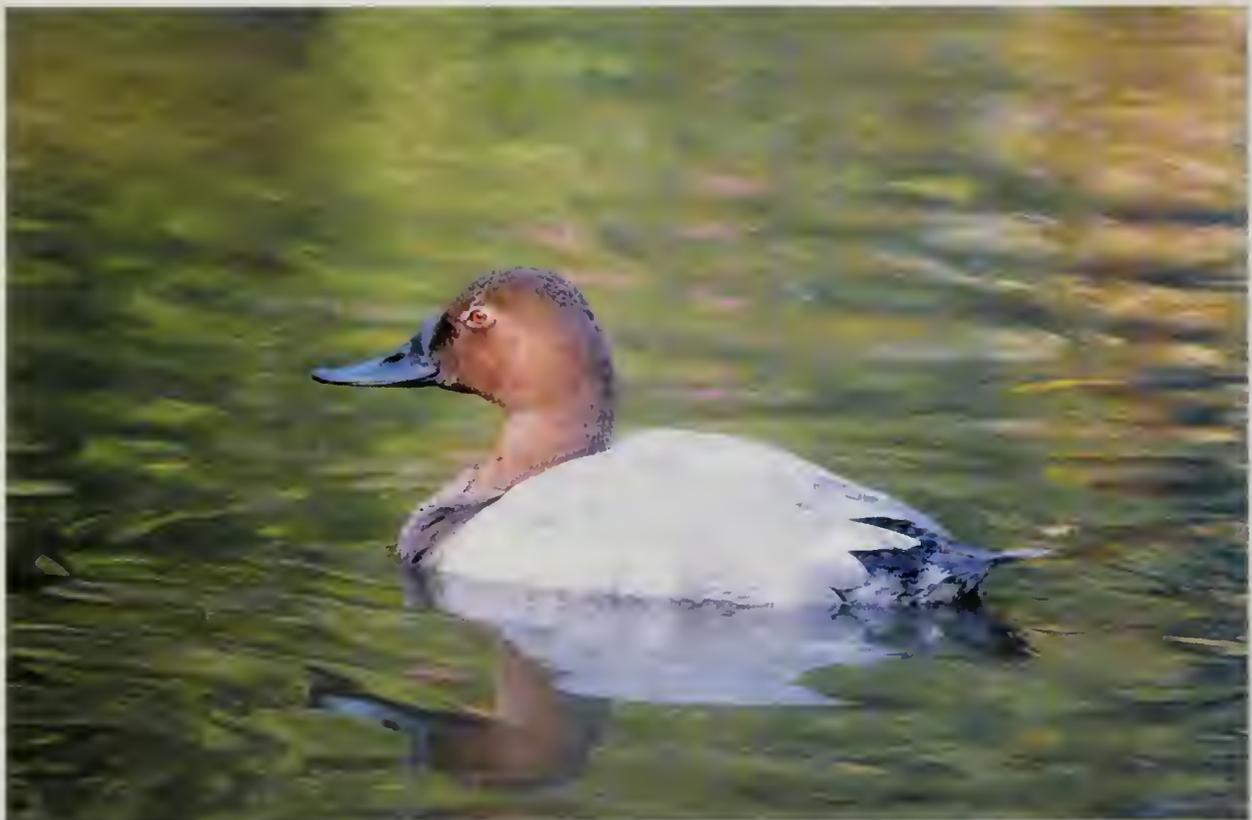
Acknowledgments

I am very grateful to Phil Bristow for supplying the solution to the identification of the Chew bird and for providing me with his notes and photographs. I am also grateful to John Robinthwaite for showing me around some of the non-public pens at WWT Slimbridge, and to P. Burrows and Ian Stapp for video footage and photographs of the Chew bird.

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Keith Vinicombe
Bristol



K. E. Vinicombe

83. Captive eclipse male Canvasback *Aythya valisineria*, Wildfowl and Wetlands Trust, Slimbridge, Gloucestershire, July 1999. This bird resembles a pure Canvasback but it is likely that any white on the bill may be reduced or even lost in eclipse, perhaps making definitive identification impossible. What is interesting about this bird, however, is that its head is far more female-like than that of a male Common Pochard *A. ferina* in eclipse, but it can of course be readily sexed by its red eye colour: In contrast, eclipse plumage of male Common Pochard resembles 'dulled-down' breeding plumage.

Song and territories of Song Thrushes in a Buckinghamshire village: a ten-year study

David Snow



Dan Powell

ABSTRACT A long-term census of Song Thrushes *Turdus philomelos* was carried out in a Buckinghamshire village. Detailed records were kept of song, which began in late October or the first half of November and continued, with breaks caused by cold spells in winter, until July or early August. The most sustained periods of song occurred in January and early February, long before breeding began. On the basis of song output, territories were established in all months from late October to March, with a small number even later. The mean number of territories established in the breeding season was 50.2. A marked decrease in 1997 (28) was almost certainly due to a long spell of severe weather during the preceding winter. The numbers of breeding Song Thrushes are often seriously underestimated, and the problems of censusing this species accurately are discussed. It is suggested that, in the recent publicity given to the decline of the British Song Thrush population, too little consideration has been given to garden habitats.

For ten years, from October 1991 to September 2001 inclusive, I kept detailed records of Song Thrushes *Turdus philomelos* in the village of Wingrave, about 7 km northeast of Aylesbury, in Buckinghamshire. My aim at first was to find out more about the puzzling incidence of winter song in this species, which I knew, from previous, more casual observations, varied from regular sustained song to no song at all and often bore no clear relation to weather. In the event, in order to relate winter song to song in the breeding season, I continued regular observations through the spring and summer, and so arrived at an accurate figure for the number of territorial males in the breeding population.

The main purpose of this paper is to present my findings on winter song, an aspect of Song Thrush biology which has been much neglected. Since widespread alarm has recently been expressed about the decline of the Song Thrush population in Britain, I also include my data on the breeding population of the study area, and discuss briefly the relevance of these findings to the wider picture.

The study area

Wingrave (plates 84 & 85) is a rural village of some 1,500 inhabitants. It has grown a great deal since the 1960s, partly through infilling and the conversion of farmyard buildings to dwellings, and partly through the addition of new closes and one large housing estate. Its present area is approximately 43.6 ha, most of which (c. 39 ha) consists of houses and gardens, some of the gardens being quite large and mature while many others are small and modern. A large playing field and a number of smaller areas of grass make up c. 4 ha. The village is completely surrounded by agricultural land, at present a mixture of arable and pasture, divided by hedges containing a moderate amount of hedgerow timber. There is no woodland in the near vicinity, and very little woodland within about 8 km of Wingrave.

Methods

I recorded territories by similar mapping methods to those used in the BTO's Common Birds Census (CBC), but made much more frequent visits, over a much longer season, than is usual for the CBC. As in the CBC, a crucial part of my study methods involved noting, on all possible occasions, when neighbouring birds

were singing at the same time. Regular recording was done mainly at dawn and dusk, the two peak song periods of the day. During each winter season of the study period, from the start of song in late autumn to the middle of February, I made an average of 75 census visits (range: 65-83), each visit usually covering between one-half and one-third of the village. Records were dictated into a pocket dictaphone, and then entered on monthly maps (Ordnance Survey 1:2,500).

In spite of the large number of census visits over the winter, my occasional absences and inability to cover the whole village in a single visit meant that not all potential singers could be checked every day. Moreover, some singers were much less persistent than others, and sang at dawn or dusk so briefly that they could easily be missed. In summarising my records on a daily basis (fig. 1), I have, therefore, assumed that an individual's song continued in the interval between two successive records, if the interval was of no more than five days and did not include more than one day on which it could have been – but was not – recorded. Most such gaps were of 1-3 days. The histograms in figs. 1 & 3 may be somewhat more 'jagged' than would have resulted from an absolutely complete record, but are certainly accurate in broad outline.

From mid February to the end of the breeding season, census visits were fewer but still regular. My objectives were to keep track of all singers already recorded, to record any new singers (which were few), to monitor song output at different times of day, and thus to census and map the breeding population accurately. Visits were made at many times of day, but the majority at the time of the dusk chorus, which was usually when most birds could be heard. In addition, to obtain a semi-quantitative measure of the incidence of song at different times of day, I made a large number of counts of individuals heard singing during half-hour periods, during walks through different parts of the village, and recorded these as a proportion of the total number which I knew would have been within earshot had they been singing. Some of these results are summed and given as percentages in the text. Complete records were kept of the song patterns of a few birds over more extended periods, especially those whose nesting circumstances were known at the time.

As most of the Song Thrushes in the village



David Snow

84. Wingrave, Buckinghamshire, 1984. This view of the village shows recent housing development, together with some older properties, and also emphasises the sharp boundary between the village and the surrounding agricultural land, all pasture in this case. The area shown typically held about eight Song Thrush *Turdus philomelos* territories during the study period.



David Snow

85. Wingrave, Buckinghamshire, 1984, showing mostly older housing and mature trees and gardens

nested in private gardens, in many of which suitable cover was abundant, I did not attempt to find all the nests. Each year, a number of nests were located and recently fledged young were seen, which confirmed that song territories were either actual or potential breeding territories.

In addition, regular walks were made during the winters 1991/92 to 1998/99 inclusive,

through about 200 ha of mostly arable farmland adjacent to the village, and all Song Thrushes seen or heard were noted. In 1996-99, the same area was surveyed during the breeding season, using the standard CBC methods.

Daily records were kept of maximum and minimum temperatures and of rainfall; other weather conditions (e.g. wind, fog) were noted but not measured.

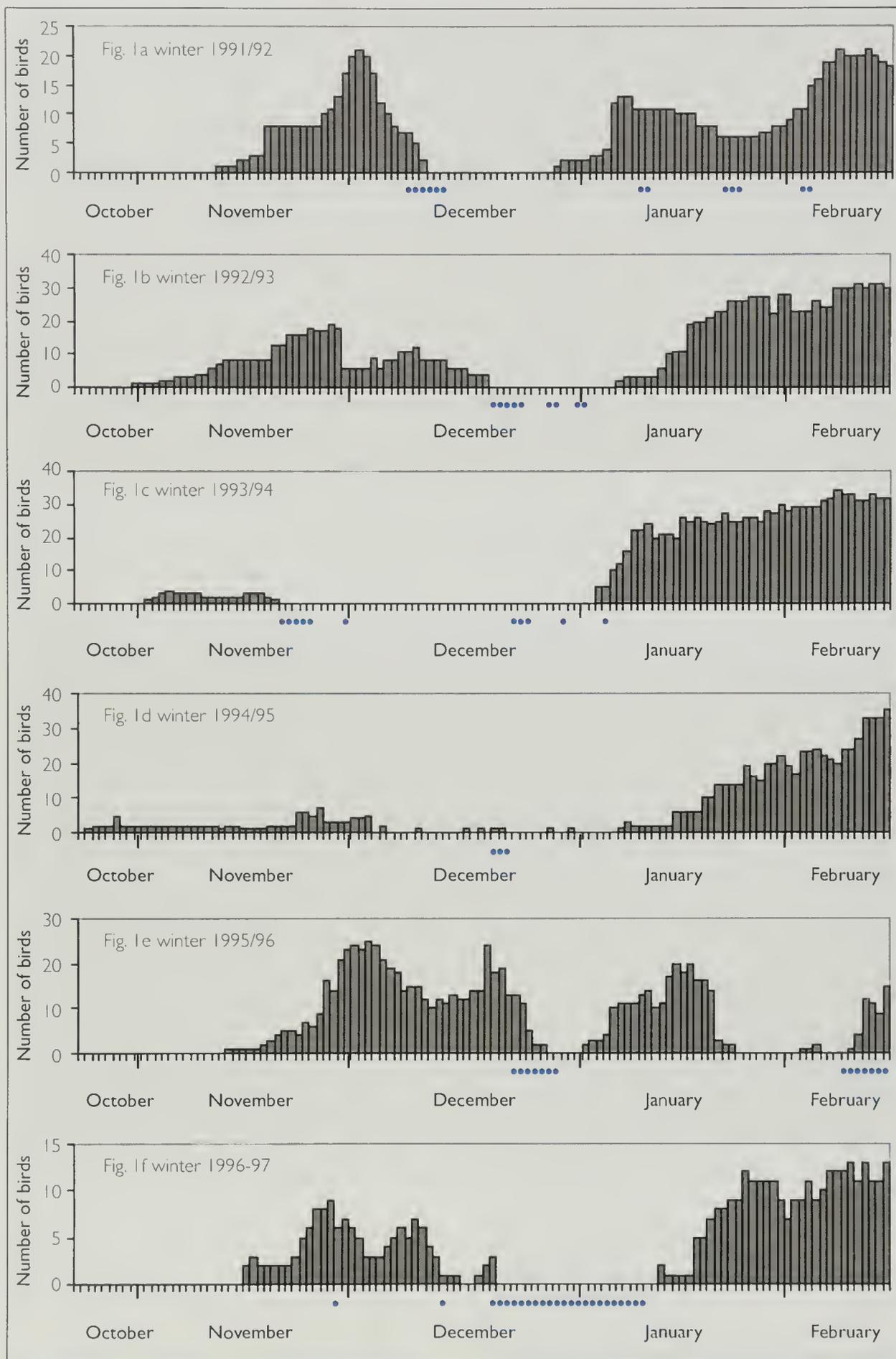


Fig. 1. Numbers of Song Thrushes *Turdus philomelos* singing daily (see text) in study area at Wingrave, Buckinghamshire, 1991-2001. Days with mean temperature below freezing are shown as blue dots on the x-axis.

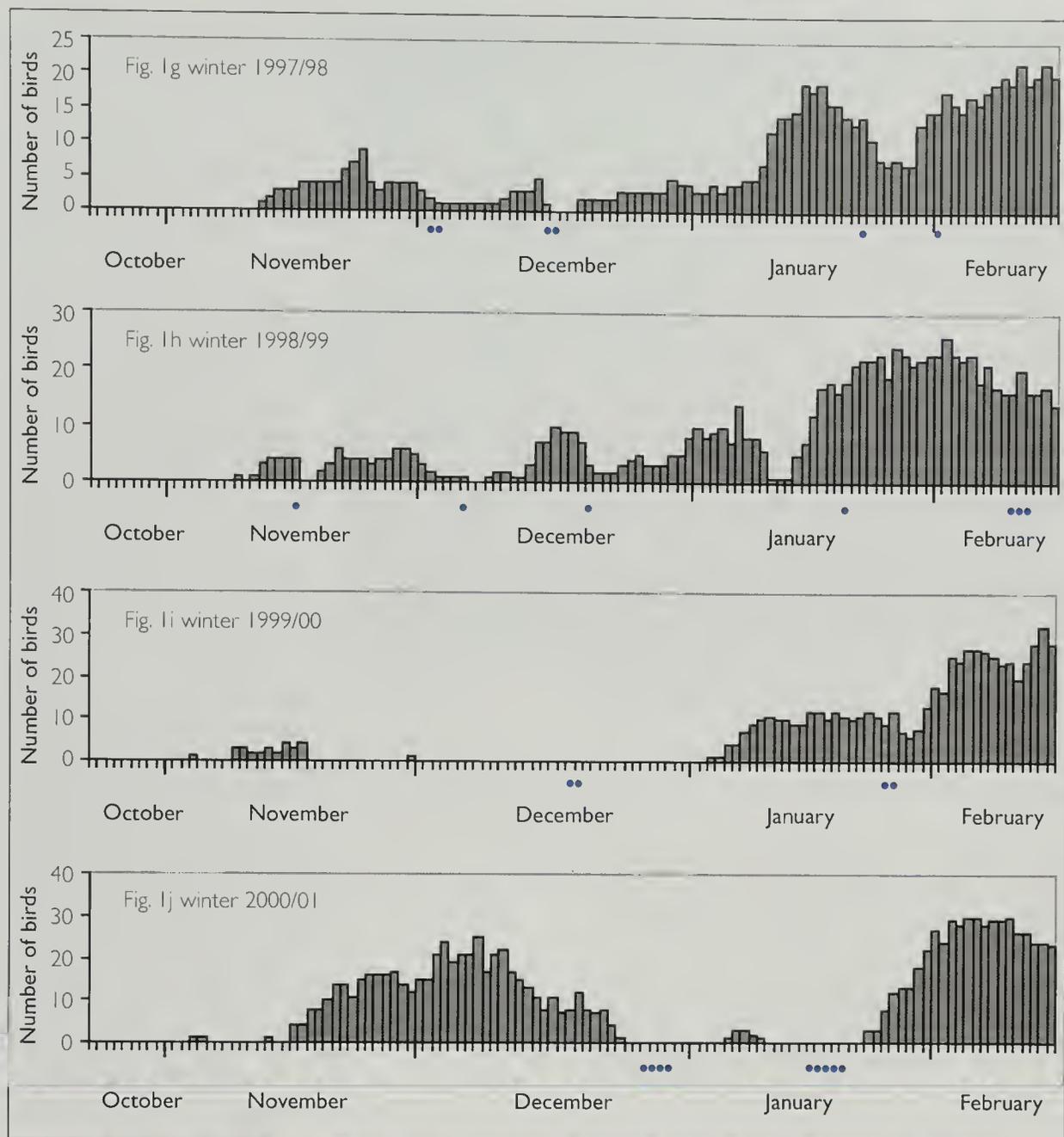


Fig. 1. Numbers of Song Thrushes *Turdus philomelos* singing daily (see text) in study area at Wingrave, Buckinghamshire, 1991-2001. Days with mean temperature below freezing are shown as blue dots on the x-axis. (continued from page 122)

Results

The general pattern of winter song

Fig. 1 shows the numbers of birds recorded singing on a daily basis in each of the ten winters. It is at once apparent that there were marked differences between years, but that in most winters the periods of song were in two main blocks: one (of very variable magnitude and duration) in late autumn and early winter, and the other from some time in January to mid February, towards the end of the winter period. Based on their use of the same song sites within their territories (often the same individual song perch) almost all the birds which sang in the first period also sang in the

second, and continued through the following breeding season, ending in July or August. In addition, in each year of the study, new birds began to sing in the second period, from January onwards. By the end of February, the great majority of those individuals which became territory-holders in the following breeding season had begun to sing. A small number of new singers were recorded in March (c. 3% of the total, all years combined; $n = 502$), while others (also c. 3% of the total) were not heard until even later, in April-June. Fig. 2 shows the dates of the first recorded songs of the 502 territory-holders in the ten years combined. It is evident that, overall, those individ-

uals which began to sing from January onwards outnumbered the earlier singers, but they did not do so in all years.

The start of song

In each year, song was first recorded either in late October (in two years only, the earliest date being 21st October) or the first half of November (between 1st and 15th November), with variable numbers of birds starting over the subsequent few weeks. The reasons for the variation in starting dates were unclear, but one factor was probably the amount of rainfall in the immediately preceding period, perhaps affecting food availability. The ten Octobers were all mild, at times even warm, and seven of them were wet or very wet (with monthly rainfall between 67.5 mm and 153 mm). In three years, however, October was comparatively dry (25.5 mm of rainfall in 1991, 42 mm in 1995, 36.5 mm in 1996), being followed by wet weather in early November, and these were the years with the latest starting dates for Song Thrush song (11th, 12th and 15th November respectively).

The variable incidence of late autumn song

The very marked annual differences in the number of birds contributing to the November and early December song period are hard to explain. The numbers ranged from 7 to 12 in 1993, 1994 and 1999 (12-22% of the population

in the following breeding season) to 30-38 in 1991, 1995 and 2000 (54-79% of the following breeding season's population). In November 1993, there was a sharp fall in temperature from 12th, leading to a very cold spell during 20th-24th. As discussed below, cold weather has a strong inhibiting effect on song in early winter, and this was almost certainly the reason why the number of birds singing in the early winter period failed to build up in 1993 as in most other years; not surprisingly, song ceased completely on 19th November. It is probably also significant that in the four years with the greatest numbers of birds singing in the early winter period (1991, 1992, 1995 and 2000), there was no cold spell until well into December. But the very small numbers singing in 1994 and 1999, when the whole of November and the first half of December were mild, remain unexplained.

The effect of cold weather

The most obvious effect of weather on the seasonal pattern of song was that severe cold spells (defined as periods when daily mean temperatures were below freezing) led to complete cessation of song, unless the cold snap was short-lived. Just one or two days of such temperatures usually caused a reduction in (but not cessation of) song, or, especially from mid January onwards, had no noticeable effect on song output. Most strikingly, in the winters of

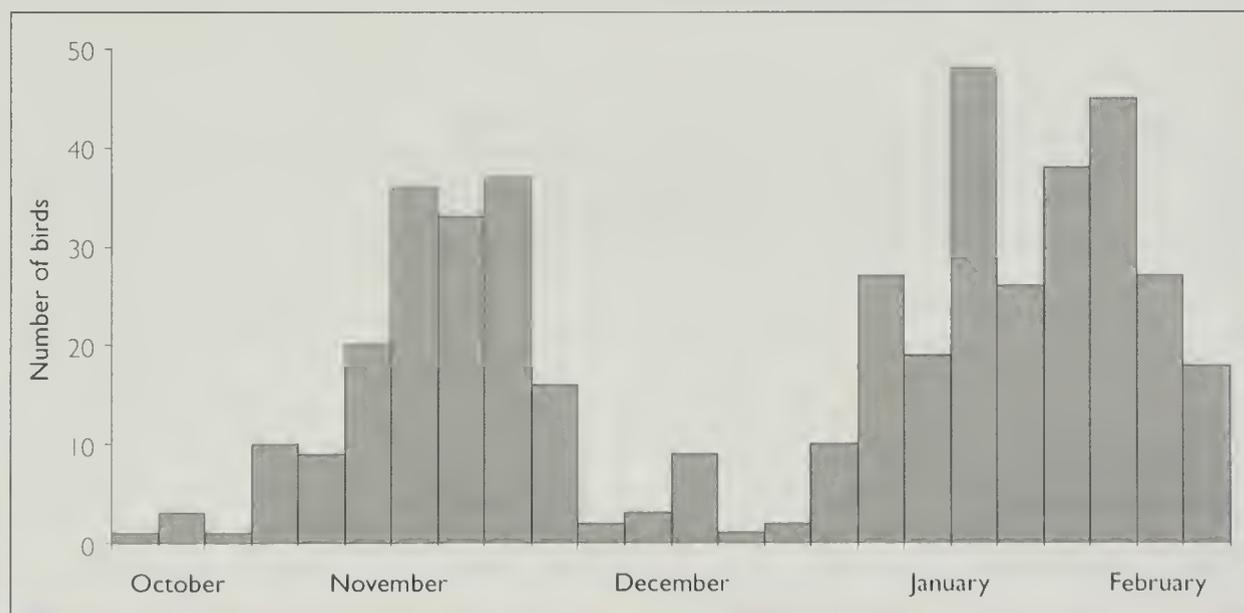


Fig. 2. First recorded dates of winter song of Song Thrushes *Turdus philomelos*, Wingrave, Buckinghamshire, 1991-2001. Figure shows combined results for ten winter seasons, with 447 records grouped in five-day periods. This shows, for example, that over the ten study years combined, ten individual Song Thrushes were first recorded singing during the first five days of November; and that a peak of 48 were first recorded during the fourth five-day period in January.

1991/92 and 1993/94, there were long silent periods following severe cold, despite the fact that the weather then became very mild again. In 1991, the mean temperature for the eight days following the December cold spell was 7.0°C, which was similar to the mean temperature for the eight days of the marked peak of song at the end of November (7.2°C), yet no song was recorded in the former period. The data suggest that after intense cold in early winter there is a longer gap before song is resumed than after later cold spells, but records from more years are needed to confirm this. Silent periods during mild weather in early winter, and continuing song during short cold spells in late winter, were probably responsible for the impression gained from casual observation that there often seemed to be little relationship between song output and weather.

Another factor complicating the relationship between song and weather was that during the late autumn/early winter period many individuals, after giving sustained song for two or three weeks, fell almost entirely silent at a time when later-starting birds were in full song. In



Robin Chittenden

86. Song Thrush *Turdus philomelos*.

1998/99, apart from four very brief (one-day) cold spells, mild weather prevailed throughout almost the entire season. As shown in fig. 3, new birds were recorded coming into song throughout the winter, mostly coinciding with warm spells. The winter of 1997/98 was also generally mild, and song was well spread through December. The two main 'blocks' of song which were a notable feature of most other years were thus clearly a consequence of cold spells in midwinter.

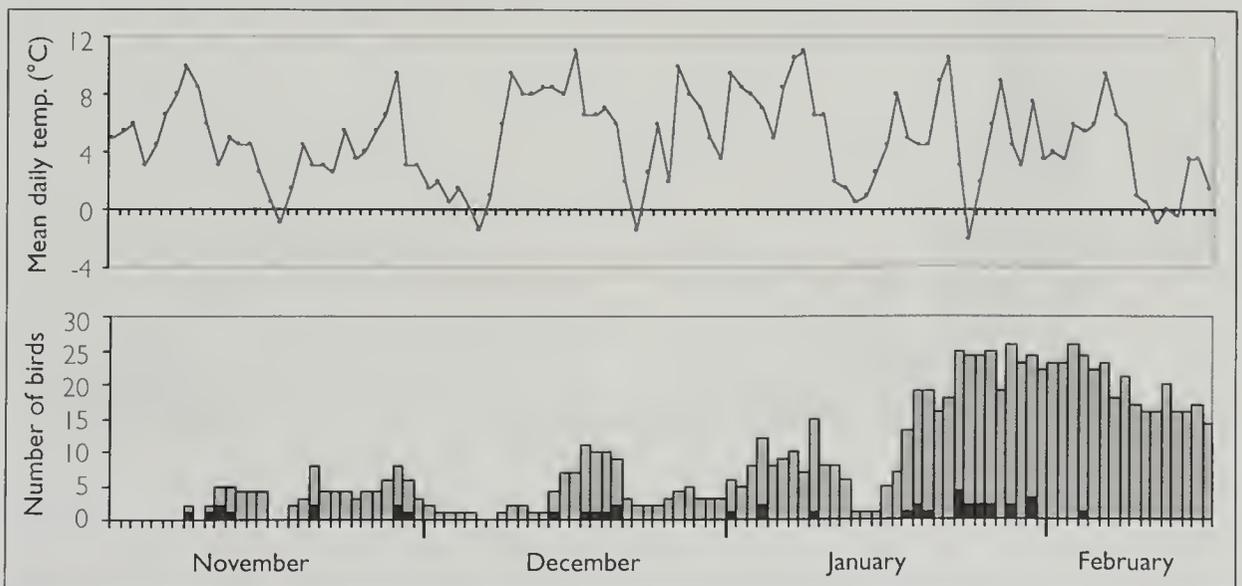


Fig. 3. Mean daily temperatures (top chart) and the number of Song Thrushes *Turdus philomelos* singing daily, Wingrave, Buckinghamshire, winter 1998/99. First records of individual birds singing are shown in black on the lower chart.

Dawn and dusk song

This and the following section summarise a very large number of winter and breeding-season records. The general pattern was that the greatest concentration of song was confined to short periods at dawn and dusk. This was evident right from the start of song in late autumn, when only a few birds were singing, not enough to form an actual chorus (fig. 4). The length of the chorus was taken to be the time between the start of the first song and the ending of the last song heard, of all the individuals which were audible in the area being censused.

The dawn chorus begins well before sunrise, increasingly so as the season advances, and the dusk chorus ends well after sunset, also increasingly so as the season progresses, although the period of song after sunset is always shorter than that before sunrise (table 1). The dawn chorus begins quite synchronously, but has a less well-defined ending; its length is thus not always easy to assess, but it typically lasts about 20 minutes. The dusk chorus tends to both begin and end abruptly, and is shorter than the dawn chorus, lasting usually 7-15 minutes. It is also made easier to monitor by the fact that, in contrast to the dawn chorus when Song Thrushes and Blackbirds *T. merula* begin to sing at the same time, the more numerous Blackbird's dusk chorus ends on average about 13

minutes earlier, so that it has often finished before the Song Thrush's chorus has even begun. The extent of cloud cover affects both the time the dawn song starts and the dusk song ends (see note to table 1). Especially in early winter, both at dawn and dusk, the song of an individual bird is often preceded or followed respectively by a short bout of the 'kikikik...' excitement or alarm call, or this call may even be given in the absence of song. At dawn the call is usually followed shortly afterwards by song, and if not, it is a useful indication that the individual concerned will begin to sing within a day or two. At both ends of the day it presumably serves, like song, as an announcement of territory ownership.

Although dawn and dusk were the best times for monitoring the presence of territory-holders, they were not equally so throughout the season. The dawn chorus was best developed in January and the first half of February, when averages of 47% ($n = 703$) and 52% ($n = 829$) respectively of known territory-holders were recorded on individual census visits. This figure fell to 33% ($n = 359$) in the second half of February and 26% ($n = 242$) in March. Based on fewer records (from April onwards the dusk chorus was usually the one monitored), the dawn chorus continued at a relatively low level through the breeding season.

The dusk chorus became well-marked in

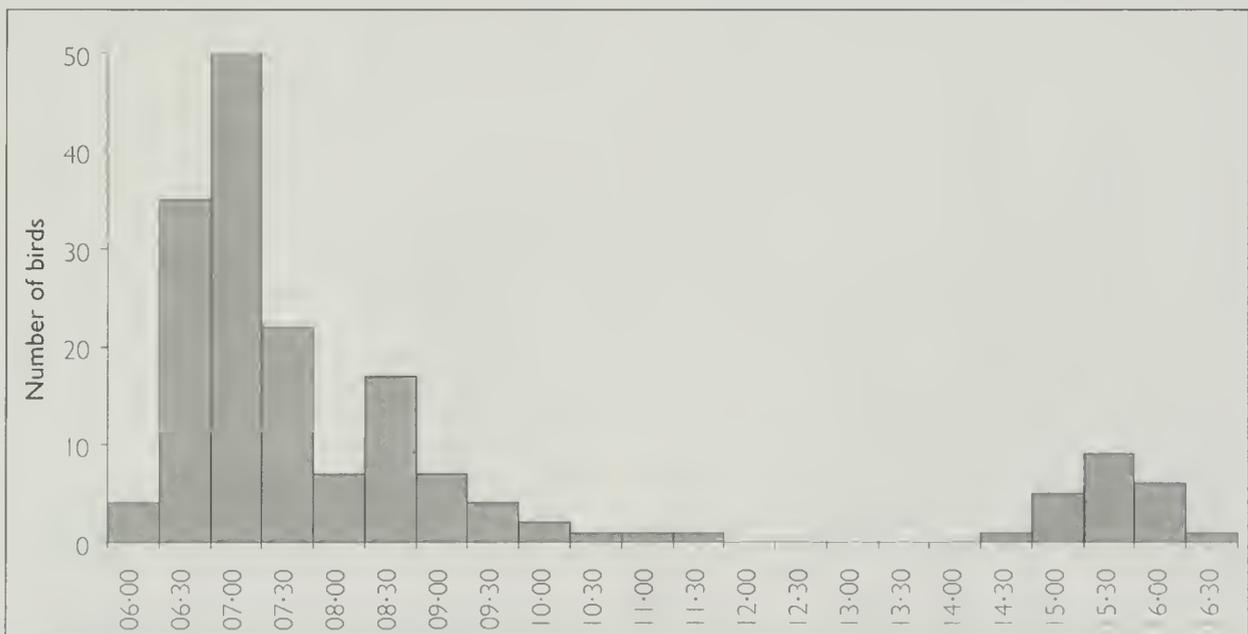


Fig. 4. Diurnal pattern of song recorded in the first week of late autumn for Song Thrushes *Turdus philomelos* in Wingrave, Buckinghamshire, 1991-2001 (all years combined). Data show 30-minute periods, beginning with the time shown. During the period covered by the records, sunrise shifted from 07.00 to 07.16 hrs, while sunset shifted from 16.32 to 15.54 hrs.

Table 1. Start of dawn song and end of dusk song, in relation to local sunrise and sunset, of Song Thrushes *Turdus philomelos*, Wingrave, Buckinghamshire, 1991–2001.

	Dawn		Dusk	
	Minutes before sunrise		Minutes after sunset	
	Range	Mean	Range	Mean
November–December	51–55	53.1	21–30	24.4
January–February	56–61	57.4	29–35	31.2
March–June	59–66	61.1	43–51	45.0

Note: The figures are for the ten earliest and ten latest records for each period. The results for the months March–June are combined, as no changes were evident from March onwards. Cloud cover affected the timing of the beginning of dawn song and the end of dusk song. Dawn song began up to ten minutes earlier when the sky was clear than when it was fully overcast, and dusk song ended correspondingly later. The data presented all refer to conditions with clear skies.

January, and remained at a rather even level until June (monthly averages of 28–38%, except for 23% in April). It tended, however, to be spatially patchy, as also did the dawn chorus from mid February onwards. In other words, it was common to find several birds singing in one part of the village while neighbouring parts were quite silent. Generally, both choruses were best developed in areas where territories were most concentrated. In addition to this spatial variation, many individuals sang very briefly in both the dawn and dusk choruses – often only two or three phrases – so that they could easily be missed, and no doubt often were.

Daytime song

The output of song during the middle part of the day showed even more marked seasonal variation. It was greatest during mild weather in January, the month when most birds began to sing, or resumed their song after a cold-weather break. In that month, in the half-hour periods from 09.00 to 15.00 hrs GMT, an average of 30% ($n = 314$) of known territory-holders were recorded singing. This proportion declined sharply in February, with an average of only 3% ($n = 1,701$) in the same period, and daytime song continued at a very low level through most of March (1%, $n = 1,323$). Once breeding had begun, there was a slight increase in daytime song, with averages of 4% in April, 5% in May and 4% in June ($n = 1,396$; 618; and 1,603). This increase may have been partly due to the fact that, as shown by observations at a few nests, some males regularly gave short bursts of song when their mates were incubating, while in May and June a few individuals sang persistently for no known reason (although loss of a

mate may have been a possible cause). It was also striking that in May and June early evening song increased markedly, with an average of 14% ($n = 695$) in the hours from 18.00 to 20.00 GMT. Moreover, song tended to be more sustained at this time than in the subsequent dusk chorus, so that, although the percentage of birds heard was considerably lower, the early evening was often a better time for recording particular territory-holders, especially those whose contribution to the dusk chorus was very brief.

It is clear from the figures in this and the previous section that censuses of Song Thrushes based on dawn and dusk song need to be frequent and regular in order to give accurate results, while surveys at other times of day are liable to produce more serious underestimates unless they are even more frequent.

Individual differences in song output

As mentioned above, birds in parts of the village where territories were concentrated tended to sing more than those in areas with sparser territories. A case in point involved a rather large territory (ST1), which covered my own and a large adjacent garden and had no near neighbours, and a small garden territory (ST3) in another part of the village where territories were closely packed. Both territories were intensively monitored. In 2000/01 both territories were occupied from early November, with regular song until a cold snap caused a mid-winter break (fig. 1). In both, song restarted on 25th January, with daily song until 10th February, after which the bird in ST1 became very silent, being heard singing on only 11 of 112 days of monitoring from 11th February until the end of June, on each of which it sang only



87. Song Thrush *Turdus philomelos*, Berkshire, July 1996.

briefly. In contrast, the bird in ST3 continued regular song, being heard on 100 of 119 days of monitoring, often giving sustained song at several times of day. Both ST1 and ST3 bred successfully, producing one or two families which survived to at least several days after fledging.

The breeding population

The final numbers of territories recorded in the breeding seasons 1992-2001 were (in year order): 56, 57, 57, 55, 47, 28, 34, 49, 53 and 66 (mean 50.2). As shown in fig. 1, during the winters of 1995/96 (followed by the drop from 55 to 47 territories) and 1996/97 (followed by the drop from 47 to 28 territories), Song Thrushes suffered from the longest and most severe cold spells of the study period. Especially severe was the winter of 1996/97, when the mean daily temperature was below freezing for 20 consecutive days, at a time when daylength was shortest. This was the only winter when some of the territories occupied in late autumn were vacant in the following January. The four subsequent winters were largely mild, and the Song Thrush population increased and finally rose above its previous level. No obvious reason can be suggested for the very high population in the final year, but casual observations in neighbouring areas, especially of birds singing in places where they had not been heard previ-

ously, suggested that the increase in population was not confined to Wingrave.

Song Thrushes in surrounding areas

In the course of winter surveys of mainly arable farmland within 1-2 km of Wingrave (see *Methods*), I regularly flushed Song Thrushes from hedge bottoms. Invariably these were single birds, which flew away silently, often for some hundreds of metres, before taking cover in a distant hedge. This behaviour was very different from that of the resident, and much more numerous, Blackbirds, which flew short distances along the hedges when flushed and usually called. It seemed probable that at least some of these Song Thrushes were part of the Wingrave breeding population.

In the course of regular breeding-season surveys of the same farmland area in 1996-99, no Song Thrushes were seen or heard in the arable parts during the first two years. In 1998, one pair was found breeding (with fledged young seen) in a patch of very thick hedges, with trees, at the junction of three fields, one of which was pasture. In 1999, the same site was again occupied and breeding proved, and song was also heard from another small thicket at the junction of three arable fields. I had previously carried out a CBC survey on a small part of this area in 1965-66, and recorded 8-9 Song Thrush territories; as discussed below, almost certainly an underestimate.

*Discussion**Seasonal pattern of song and territoriality*

The only published data with which the Wingrave observations can be compared seem to be those from a much earlier study in the Oxford Botanic Garden in 1954-56 (Davies & Snow 1965). The results of that research were unfortunately not fully written up, and, in particular, the seasonal pattern of song was only summarised briefly. On the other hand, the Oxford data were based on a small but mainly colour-ringed population in each year, allowing different individuals to be identified with certainty.

In the Oxford Botanic Garden, some males occupied their territories throughout the year, apart from brief absences during spells of severe weather. Even when territorially active, however, birds did not spend the whole time within their territories, often feeding well outside them. After a period in late summer and autumn, when territorial behaviour was in abeyance, active re-establishment of territories began, in two years, by the second week of November, but not before early December in the third year. New males arrived steadily, in small numbers, throughout the winter and early spring (mainly January-March), occupying territories which had remained empty. This is broadly consistent with the Wingrave results. Since the Wingrave birds were not ringed, there was no positive evidence of the whereabouts of territory-holders when they were not singing, but observations at fruit sources in the village in autumn and winter showed that some individuals were present there at times when there was no song. In addition, there was always a scattering of single birds in the sur-

rounding farmland in winter.

Robert Spencer (*in litt.*) told me that in his last two years with the BTO at Tring, Hertfordshire (8 km from Wingrave), he became fascinated by the winter song of Song Thrushes, and recorded it daily along the route of barely 1.5 km between his house and Beech Grove, plotting the song posts on a large-scale map. He could often hear 10-12 individuals in this area of suburban houses and gardens. Much as in Wingrave, song started in the first ten days of November, followed by a gap at the end of the year. When he moved to Cumbria on retirement, he had planned to continue his study in the Loweswater area. The situation in Cumbria was, however, very different. There were effec-



88. Song Thrush *Turdus philomelos*.

Robin Chittenden

tively no Song Thrushes there in winter, and the first ones returned and began to sing in mid February.

Clearly, somewhere between Buckinghamshire and Cumbria the seasonal pattern of territorial behaviour and song changes radically. This is apparent from the observations reported here as well as what has long been known about the differences in the Song Thrush's migratory behaviour between southern and northern Britain (Lack 1943). There are probably differences according to altitude as well as latitude, and there is much scope for further study, of a kind which is not difficult to carry out, in any new area.

Problems of censusing Song Thrushes

It has long been realised that the Song Thrush is a difficult species to census accurately, and Tomialojć & Lontkowski (1989) discussed the problem at length. They suggest that almost all previously published data have underestimated the true numbers by 30-60%. For their research in primeval forest in Poland, they devised methods which they believed gave fairly reliable results. These depended primarily on frequent dawn and dusk census visits, when most territory-holders sang. Visits later in the morning were liable to produce records of unmated males only.

My study, in a completely different habitat, was in substantial agreement with these findings. It soon became clear that repeated visits at dawn and dusk were necessary if the village population was to be censused accurately, in this case over a much longer period than was possible in Poland, where Song Thrushes did

not arrive until early April. As illustrated here, checks during the middle of the day usually recorded a very small proportion of the territory-holders. Furthermore, census visits at dawn and dusk themselves became less effective from some time in February onwards, long before breeding had begun.

There is the further difficulty that song output may vary considerably according to local population density, with more regular song registrations where territories are most densely packed. In spite of the large number of census visits, there may still have been a slight underestimate of the breeding population of Wingrave. Each year, a few isolated song records which could not be allocated to known territories (and which were omitted from the figures used here) may have been from very silent territory-holders. On farmland, where population levels are much lower than in gardens, the problem is especially acute. An investigation of the accuracy of the CBC, by checking mapped territories against nests found by independent, thorough fieldwork (Snow & Mayer-Gross 1967), showed that, while some species were quite accurately censused, the Song Thrush population was underestimated by about 50%, the results being especially poor where the density was lowest.

Decline of the Song Thrush population

Analysis of CBC data has indicated that, between 1970 and 1989, the British Song Thrush population suffered a 54% decline in farmland and a 27% decline in woodland (Gibbons *et al.* 1993). Based on these and other findings, widespread concern for the Song

Thrush's future has been expressed in the popular as well as the scientific press. Mason (1998, 2000) has discussed the decline in relation to breeding-season surveys of Song Thrushes in an extensive area of northeast Essex in 1994-96 and 1999. In the first survey, he found densities of 0-0.1 pairs per km² in ten randomly selected, predominantly arable farmland tetrads, and densities of 43.8-60.0 (mean 51.3) pairs per km² in gardens. Although making



89. Song Thrush *Turdus philomelos*.

up only 2% of the total area, gardens held 71.5% of the territories. In the second survey, he recorded a density of 25 pairs per km² in villages, and none in farmland. It was recognised that these densities might be underestimates, in view of the difficulties of censusing Song Thrushes, especially in farmland; nevertheless, the contrast between gardens/villages and farmland was striking.

The virtual disappearance of breeding Song Thrushes from intensively farmed land is also evident in the Wingrave area. Two farms, adjacent to the village, on which I carried out censuses by the standard CBC method in 1965-68, held, respectively, 8-9 Song Thrush territories on 67 ha in 1965-66, and 12 territories on 69 ha in 1967-68. No Song Thrush territories were found in these areas during the course of similar surveys in 1996-99, except for one territory bordering the sewage works, close to the village boundary.

With a mean of 50.2 territories in 43.6 ha, the Wingrave breeding population averaged 115 pairs per km², a figure not dissimilar to the 91 pairs per km² recorded by Wyllie (1976) in a Cambridgeshire village. It would be interesting to have similar data for other villages, and also for suburban areas, based on the large number of census visits needed to give reliable figures. As new housing proliferates, especially in the south of the country, the sheer number of gardens must be increasing fast. But this increase may not benefit Song Thrushes very

much, as the present trend in any newly developed area is for the greatest possible number of houses to be built, all with tiny gardens. Villages like Wingrave and suburbs with a high proportion of larger, more mature gardens will be vitally important for the Song Thrush's future in parts of Britain, such as much of mid Buckinghamshire, where there is extensive arable farmland and little woodland.

Acknowledgments

I am grateful to my wife, Barbara K. Snow, and to Mrs Pat Roberts for many records supplementing my own, and to the late Robert Spencer for sending me a summary of his observations in Tring when he was already terminally ill. Andy Wilson kindly sent me tracings of Song Thrush territories on my CBC plots in the 1960s.

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From Pagham Harbour to Denzil Harber...

Tony Marr

Reading Mark Cocker's *Birders – Tales of a Tribe* (see *Brit. Birds* 94: 447), in which he has so ably and affectionately recorded for posterity the entertaining stories and heroic legends about his experiences as a young birder, I was reminded of my own formative years as a 'birdwatcher' growing up on the Sussex coast in the 1950s and 1960s. Hotspots like Pagham and Chichester Harbours and Selsey Bill were my regular haunts. Above all, there were the characters and personalities who made it all such fun – for most of the time, anyway. Some of the stories about these unusual people ought to be recorded before they are lost for ever, and with them much of the early colour and passion of our obsessive hobby.

In the hi-tech, fast-moving birding world of 2003, it is difficult to appreciate just how basic and low-key was the birdwatching scene of 50 years ago. The pursuit itself was regarded as highly eccentric and open to ridicule. 'Oh, you watch birds, do you? The sort with two legs, I suppose. Ha, ha!' was the usual gibe. Walking about with binoculars, you were regarded as either a nutter or a peeping tom.

Few birdwatchers had telephones and even fewer had cars. Consequently, bird news passed around very slowly, and, incredible as it now seems, usually by letter or postcard. I remember receiving a letter in October 1957 from a friend who lived only four miles away, telling me that he had seen a Pectoral Sandpiper *Calidris melanotos* at Pagham Harbour the previous Sunday, and that if I were to go there the fol-

lowing weekend, I might be lucky enough to see it. Amazingly, I did see the bird. Most bird-watchers travelled by train and bus, which were reliable and punctual in those days.

Most of us learned our craft from *The Observer's Book of British Birds*, fortuitously published in a new edition in 1952 when I first consciously started watching birds. In the same year, Phil Hollom published his *Popular Handbook of British Birds*, based on Witherby's *Handbook*, which schoolboys could not afford, and opened our youthful eyes to the wonders of field identification and the skills and knowledge needed to practise it.

Travel abroad was prohibitively costly and therefore out of reach of most people. Before 1954, when the legendary 'Peterson' *Field Guide to the Birds of Britain and Europe* was published, we knew virtually nothing about birds beyond our shores, other than what could be gleaned from the occasional article about 'foreign' species in *BB*.

Binoculars were heavy and expensive, mostly ex-wartime models, used mainly by coastguards and racegoers. Telescopes were cumbersome three-draw 'brass and glass' naval implements which no one had thought of mounting on a tripod. Cameras and telephoto lenses were impossibly expensive, and fairly primitive.

These were pioneering days, when it was unusual to meet another birdwatcher, most of whom were self-taught. The RSPB and BTO were small. There were few county ornithological societies, just a few local natural history

This is the first contribution in what we intend will be an occasional series. Our aim is to celebrate, in an informal way, some of the major 'characters' of the British and European birdwatching scene, by publishing various anecdotes and tales which we are sure will entertain our readers. Tony Marr, former chairman of BOURC, has provided a vivid portrayal of the 'Sussex scene' in the 1950s and 1960s, of which the legendary D. D. Harber was a part, with which to start this new series. Anyone willing or able to author a similar piece is urged to contact the Editor of *BB*. Eds

societies and even fewer local bird clubs. An 'expert', which usually meant anyone with a telescope who could separate a Sanderling *C. alba* from a Dunlin *C. alpina*, was held in awe, and we avidly read about the legendary exploits and achievements of the great bird men of the past.

There had been a number of these in my home county of Sussex, which has a well-documented ornithological history traceable as far back as 1752. Many of the early ornithologists were men of private means with time on their hands to pursue their interest, or clergymen or doctors, and some of them were highly eccentric. John (Jock) Walpole-Bond was among the great characters, an inveterate egg-collector who even described himself as 'an honest rogue'. He will be remembered above all for his monumental three-volume *A History of Sussex Birds* (1938), the culmination of over 30 years of nest-finding and egg-collecting which provided him with an outstanding knowledge of British birds, as acknowledged in his obituary in this journal (*Brit. Birds* 51: 237-239).

Walpole-Bond was possibly Sussex's finest-ever field ornithologist, who found more nests than anyone is ever likely to again. He 'examined' well over 200 nests of Grasshopper Warbler *Locustella naevia*, for example. He clearly had a great affection for birds like the Wood Lark *Lullula arborea* and the Cirl Bunting *Emberiza cirlus*, despite looting their nests. He wrote eloquently about what he saw, as, for example, of a Common Raven *Corvus corax* family which 'together all leave home at dawn, together all return with eve, a straggling line of croaking animation'. He went out into the field dressed like a tramp, to such effect that he boasted that twice he had been offered his fare on a bus by a kind-hearted old lady, and on one notable occasion he was tipped a florin by a dear old girl and told to buy himself a square meal!

I was not fortunate enough to meet Walpole-Bond, but I did encounter another Sussex character whose personality and exploits were equally larger than life. It was at a time when I was living near Brighton and had just started learning about birds. This was Denzil Dean Harber, who was our county bird recorder, and to whom, rather hesitantly, I first submitted my county records in 1954 as a rather timid schoolboy. As the sole editor of *The Sussex Bird Report* for six years, he acquired a certain repu-

tation as a tyrant who wielded the editorial red pen with obvious relish and great severity. His frequent rejection, or pointed omission, of records was a source of friction with many observers, and several suggested that he accepted only his own. This was an era when success and acceptance as a good birdwatcher were judged by the number of times your initials appeared in the annual report, and it was always liberally sprinkled with DDH's. He himself wrote of being 'in charge of bird records for the county', and it felt like it.

I quickly learned to recognise his erratic typing on postcards and letters, always starting 'Dear Marr', and realised that he set high standards. He challenged a record I submitted of 428 Sky Larks *Alauda arvensis* arriving from the sea one day in October 1955 by suggesting that they were Common Starlings *Sturnus vulgaris*, and published the record under Sky Lark as 'some coming in...'. To Bob Scott, who wrote to report some Twite *Carduelis flavirostris* at Beachy Head one September, DDH (as he was affectionately known by most) replied to say that Twite had never been recorded in Sussex in September, although he had seen some himself. He described a paper on diver *Gavia* flight identification written by Richard Porter as 'largely nonsense'. He even wrote to an observer who claimed to have seen a Snowfinch *Montifringilla nivalis* at Newhaven to tell him that 'it was of course a Snow Bunting [*Plectrophenax nivalis*], you bloody fool'.

The Report enjoyed a good reputation, since it appeared promptly and because most contributors realised that it was better perhaps to exclude a few genuine records than to include any doubtful ones. The relationship between Harber and contributors to 'his' bird report was definitely that of headmaster and pupils: many of them recalcitrant and out of order, as he saw it, and needing education and enlightenment. He clearly regarded birdwatching and bird-watchers as a source of great entertainment, and he certainly livened things up. His presence at a 'twitch', as it would now be called, was both welcomed and feared, as his outspoken comments about other observers, although hilarious to some, were regarded as cutting and outrageous by others, particularly those on the receiving end.

Some observers from Portsmouth, from a group calling themselves the 'PG' (the 'Portsmouth Group', birdwatching friends who

were regularly in the field together at Langstone Harbour and Farlington Marshes), paid a visit to Harber's regular seawatching haunt at Langney Point, near Eastbourne, one September, where they saw a Long-tailed Duck *Claugula hyemalis*. They wrote to tell him of their sighting, to which he replied that it was only an 'aberrant' female Common Scoter *Melanitta uigra*. They then submitted a full description, to which he replied that he considered the correspondence terminated. Their response was to post him a brown paper parcel containing a pair of plastic binoculars purchased in *Woolworths*, accompanied by an anonymous note suggesting that he would see better if he used them! He quickly discovered their origin when he noticed that they were wrapped in a copy of the *Portsmouth Evening News*...

On the international scene, a unique achievement of Harber's was his 40-page review in *BB*, between May and November 1955, of the six volumes of Dementiev and Gladkov's *The Birds of the Soviet Union*. This was an epic task, involving translation from Russian, in which DDH was fluent, and one which he tackled with his customary zest and energy.

His obituary (*Brit. Birds* 60: 84-86) paid tribute also to his work as a founder member of BBRC in 1958, and his period as its Secretary from 1963 until his untimely death in 1966. He clearly relished this role, entering into prompt and incisive correspondence with those who either approached him for advice, or complained about the rejection of their rarity records. He once wrote to Alan Kitson, who had asked for BBRC's help in confirming the identi-

Tony Marr

Two Hoots, Old Hall Farnu Barns, Cley next the Sea, Norfolk NR25 7SF

fication of an odd raptor, to suggest that 'There is no point in sending the raptor to my Committee. It sounds very like a [Common] Buzzard [*Buteo buteo*] to me.' Alan also asked whether a strange wheatear he had seen might have been a Pied *Oenanthe pleschanka*, to which DDH responded by writing that 'such cases usually arise as a result of abnormal (e.g. albinistic) plumage or of defective observation'. He also wrote to John Cox (of 'Cox's Sandpiper' fame), who had complained about the rejection of (ironically) a Pectoral Sandpiper, to thank him for his 'childish letter'.

These two-words became legendary. He coined the phrase 'mass hallucinations' to describe the phenomenon of observers uncritically accepting identifications made by others which subsequently proved to be incorrect, in a letter to *BB* headed 'The original misidentification of the Hampshire Cetti's Warbler' (*Brit. Birds* 58: 225-227). And when I had the temerity to submit a pithy observation on what I considered to be an unnecessarily lofty criticism by DDH of the observers (*Brit. Birds* 58: 518), I was subsequently rebuked by DDH for my 'schoolboy irony' (*Brit. Birds* 59: 204-205!).

Denzil Harber was an eccentric in the ornithological world, unconventional and non-conforming, who did not suffer fools gladly, but who was determinedly logical. Time, ornithology, and the BBRC have all moved on since then, but the world is a duller place without such colourful characters.

Acknowledgments

I am grateful to the Sussex Ornithological Society for allowing me to quote from *Birds of Sussex* (SOS 1996), *Birds in Sussex* 1962-1987, and from Society newsletters.

Looking back

Fifty years ago:

'Black-browed Albatross in Derbyshire.—On August 21st, 1952, Mr Morton H. Edmunds, the Editor of *The Derbyshire Times*, sent to the British Museum for identification a photograph of a bird (see *Brit. Birds* 46: plate 13) that had been captured a few days previously (the exact date was unfortunately not recorded) at Stavely, Derbyshire, where it had become entangled with telegraph wires, although without sustaining any serious injury. The bird seemed to be in an exhausted

condition and Inspector G. A. Lloyd, of the R.S.P.C.A., took the sympathetic course of sending it by rail to Skegness, Lincolnshire, where it was released. It is much to be regretted that the bird was not examined by a competent ornithologist, but the excellent photograph... seems to show fairly clearly the main characteristics of an immature Black-browed Albatross (*Diomedea melanophrys*)... J. D. MACDONALD.' (*Brit. Birds* 46: 110-111, March 1953)

Conservation research news

Compiled by Will Kirby and Lennox Campbell



Southeast England remains a stronghold for Rufous Nightingales

BTO volunteers and staff undertook a national Rufous Nightingale *Luscinia megarhynchos* survey in 1999. Previous national surveys of this enigmatic species located 3,230 singing males in 1976 and 4,770 in 1980 (although coverage was poor in some areas). The population was estimated to be 5,000-6,000 pairs at the time of the 1988-91 *Breeding Birds Atlas*. In 1999, 4,565 singing males were located at sites known to hold the species in recent years, suggesting that the British population might be more or less stable. A random tetrad survey estimated that about 32% of nightingales occur away from known sites and hence the total of singing males was extrapolated to a population estimate of 6,700 pairs (between 5,600 and 9,350 pairs using 95% confidence limits).

The survey confirmed that the southeast is the Rufous Nightingale's stronghold in Britain, with Kent, Suffolk, Sussex, Essex and Norfolk together accounting for 77% of the national population, compared with 52% in 1980. Rufous Nightingales have been lost as regular breeding birds from several counties at the edge of their range, including Nottinghamshire, Shropshire and Devon.

There has been an apparent shift in the species' habitat preference between 1976 and 1999, with 47% found in scrub in 1999, compared with 28% in 1976. The use of mixed woodland and active coppice has substantially declined over the same period. The reasons for these

changes are not clear, but they may involve increased deer grazing reducing the density of the understorey in many lowland woods. There may also have been an increase in the availability of suitable scrub habitat owing to regeneration following storms in October 1987 and January 1990. Disused gravel-workings could also be important in some areas, and may, to some extent, have compensated for losses in



90. Rufous Nightingale *Luscinia megarhynchos*, Spain, April 2001.

Gordon Langsbury

more traditional habitats.

Rufous Nightingales are at the edge of their range in Britain, with the core population area in southern Europe associated with warmer and drier weather in spring and summer. Consequently, it might be expected that if temperatures were to increase, as a result of climate change, this would lead to an extension of the species' range in Britain. In their report on the Rufous Nightingale survey in 1999, Wilson *et al.* (2002) used a simple model to predict what effect climate change might have on the species' distribution over the next few decades. The model duly predicted an expansion of range both northwards and westwards, along with

infilling of gaps in their current strongholds.

It is also possible that changes in adult survival during migration or on the wintering grounds in equatorial Africa may have an important role in determining population levels of Rufous Nightingales, both in Britain and elsewhere. This theory is supported by observed declines in other species, such as Willow Warbler *Phylloscopus trochilus*, Wood Warbler *P. sibilatrix* and Pied Flycatcher *Ficedula hypoleuca*, which overwinter in similar areas.

Wilson, A. M., Henderson, A. C. B., & Fuller, R. J. 2002. Status of the Nightingale *Luscinia megarhynchos* in Britain at the end of the 20th century with particular reference to climate change. *Bird Study* 49: 193-204.

Is an expanding White-tailed Eagle population a threat to Golden Eagles?

Reversing the declines of populations of threatened birds can often be achieved by relatively straightforward measures, such as restoring preferred habitat conditions or removing some other threat, such as persecution. If, however, a species is locally extinct and is unlikely to recolonise naturally, then reintroduction may need to be considered. Although there are well-established principles to guide such reintroduction schemes, there always remains some concern that reintroduced species may have a negative impact on other species within the same area.

The White-tailed Eagle *Haliaeetus albicilla* has been the subject of a concerted reintroduction programme in Britain since 1975. From the start, there were fears that, if successful, reintroduced White-tailed Eagles would displace Golden Eagles *Aquila chrysaetos* from many coastal ranges. Indeed, competitive exclusion and competition for food or nest sites were theories used to explain the apparent spread of Golden Eagles into western coastal areas of Scotland after White-tailed Eagles became extinct in the early twentieth century.

Whitfield *et al.* (2002) looked at Golden Eagles breeding on Mull, where both species of eagle used to occur, and which currently has relatively high densities of both. They showed that there is little evidence so far to suggest that Golden Eagles have been affected by the successfully established and slowly increasing populations of White-tailed Eagles (22 occupied

territories in Scotland in 2000). No Golden Eagle ranges were abandoned as the White-tailed Eagles increased. One Golden Eagle nest was taken over, but the pair continued to breed at an alternative nest site, returning to the original site when it was abandoned by an unsuccessful pair of White-tailed Eagles. More detailed analysis of productivity data gave contradictory evidence of both small negative and small beneficial effects, but the overall conclusion was that White-tailed Eagles presently have no biologically significant effects on Golden Eagle breeding productivity or range occupancy. The authors suggest that the spread of Golden Eagles after White-tailed Eagles became extinct may be as much to do with reduced persecution as with direct competition. Similarly, although there may be dietary overlap, recent work suggests this may be less than previously assumed, and that their preferred hunting ranges may be only partially overlapping.

Although recognising that their study was based on small sample sizes, and recommending that careful monitoring should continue, the authors suggest that the two species are likely to be able to co-exist in western Scotland: an optimistic outlook, as White-tailed Eagles continue to expand their range.

Whitfield, D. P., Evans, R. J., Broad, R. A., Fielding, A. H., Haworth, P. J., Madders, M., & McLeod, D. R. A. 2002. Are reintroduced White-tailed Eagles in competition with Golden Eagles? *Scottish Birds* 23: 36-45.

Notes

Communal roosting behaviour of Black-throated Divers on a freshwater loch in late summer

In late August 2001, I discovered an apparent communal roost of Black-throated Divers *Gavia arctica* at a loch in North Uist, Western Isles. Black-throated Divers are sociable birds, frequently gathering in flocks during the breeding season (Lehtonen 1970; Sjölander 1978; D. Jackson *in litt.*). Flocking can occur daily throughout the breeding season, with birds converging on recognised flocking areas, a behaviour which has been attributed to pair formation (Lehtonen 1970) or communal feeding (Sjölander 1978). There is no mention of communal roosting during the breeding season in *BWP*.

The loch concerned covers approximately 50 ha and forms part of a complex of blanket bog, moorland and freshwater lochs in central North Uist, within 10 km of the sea. Observations were carried out on consecutive days from 29th August to 1st September 2001, and were made at 'dawn' (between 30 and 60 minutes after sunrise) and 'dusk' (from soon after sunset until dark). The weather was dry and there was little or no wind.

The minimum numbers of divers present on the loch are given in table 1. Interestingly, a subadult Great Northern Diver *G. immer* joined the group on several occasions. All the Black-throated Divers appeared to be adults, apart from one juvenile which accompanied an adult at dusk on 31st August. In the evenings, divers arrived from different directions; none was seen leaving at dusk. The largest incoming group was of five individuals, but most arrived in pairs, some flying in when it was almost dark. Morning counts were lower than evening counts, probably because some birds had already departed by the time my observations began. Casual observations at the loch on several occasions during the daytime in August revealed no divers.

On each evening, most of the birds initially joined together in a tight, non-diving group,

Table 1. Minimum numbers of Black-throated Divers *Gavia arctica* present at an apparent communal roost at a loch in North Uist, Western Isles, August/September 2001.

Date	Time	Number of divers
29th August 2001	dusk	15
30th August 2001	dawn	8
30th August 2001	dusk	12
31st August 2001	dawn	0
31st August 2001	dusk	10
1st September 2001	dawn	6

with much posturing, as described by Sjölander (1978). On 29th August, the Great Northern Diver was closely followed by this group, but never formed a part of it. On 30th August, there was no interaction with the Great Northern, and the group subsequently fragmented. Individuals and pairs became widely scattered over the loch by dark, with some birds starting to dive. This pattern was repeated on 31st August, suggesting that, as darkness advanced, a behavioural switch took place from social interaction to probable roosting.

The numbers of Black-throated Divers involved in these gatherings would account for a high proportion of the known Uist breeding population, although the breeding status of the birds seen at the loch is unknown. Further observations, to ascertain whether the loch is used as a roost in other years, the seasonal duration of the roost and the local origins of the birds involved, would be interesting.

I thank Digger Jackson and Andrew Stevenson for their comments.

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Great Cormorants feeding on carrion

On 22nd October 1962, while walking along the shingle beach at Salthouse, Norfolk, I found the body of a dead Harbour Seal *Phoca vitulina* which had been washed ashore during the preceding 36 hours. A single immature Great Cormorant *Phalacrocorax carbo*, together with an adult Great Black-backed Gull *Larus marinus* and an adult Herring Gull *L. argentatus*, was at the carcass. The cormorant was seen tearing strips of flesh from the seal's head, as were both gulls. The eyes had been removed and the flesh

of the head torn off down to the bone.

Similar behaviour was seen again, on 12th November 2000, next to the Burnham Overy channel at the eastern end of Scolt Head Island, Norfolk. Here, an adult and an immature Great Cormorant were feeding on the body of a Harbour Seal, one pulling strips of flesh from the neck area and the other from near the anal end of the body. An extensive literature search has failed to find any previous records of this species taking carrion.

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Peregrine eating moths

The notes on insectivorous behaviour by Peregrine Falcons *Falco peregrinus* (*Brit. Birds* 90: 358-359; 95: 142) recall the following. On 24th July 1997, in the Isungua area of west Greenland, we observed an adult female Peregrine taking two large moths and consuming them on the wing, much in the manner of a Hobby *F. subbuteo*. We watched the bird soaring over a high ridge for several minutes and were able to get close alongside it by climbing to the highest point of the ridge. From here we observed it

through binoculars at about 50-m range. There was a considerable updraught from below and we surmised that it had been deliberately hunting for insects blown up the ridge. The bird's flight action appeared unusually languid for Peregrine and it took the moths in its talons with dexterous twists while soaring, before transferring them to its beak – reinforcing the impression that it was not unusual behaviour for this individual.

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Little Owl taking Common Starling

On 29th May 2002, Peter Lloyd, Brian Stoneham and I were watching a flock of about 200, mostly juvenile, Common Starlings *Sturnus vulgaris* feeding in a large field next to Sevenoaks Wildfowl Reserve, Kent, when there was a commotion and a predator emerged from the confusion with its unfortunate victim. It carried the starling about 40 m back to the fence post from which it had presumably sallied forth. We were surprised to find that the predator was a Little Owl *Athene noctua*, since none of us had ever seen this species take a bird, let alone one of this size.

In *BWP*, it is recorded that birds, mostly up to the size of thrushes *Turdus*, are taken, but also that hunting is essentially nocturnal, mainly from dusk to midnight, with a two-hour 'tea break' before resumption to dawn. Little hunting is done during the day, even when the young are in the nest. It is also stated that most hunting is done from a perch, the owl dropping onto prey below or nearby. Thus, although a prey item the size of a Common Starling may not be exceptional, a daytime attack and one of this nature both appear to be most unusual.

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Large concentration of roosting European Nightjars

The note on roost sites of European Nightjars *Caprimulgus europaeus* (*Brit. Birds* 95: 392-393) recalled the following. One day in late March or early April 1970, while birdwatching on Cape Kormakiti, on the north coast of Cyprus, I wandered into a clearing of mixed-age juniper *Juniperus* sp. Many of the trees were around 2 m high, with the lowest branches resting on the ground. Every tree held roosting European Nightjars, the birds gathered bill-to-tail along the lower branches facing outward from the trunks. In addition, others were roosting on the ground and under trees and bushes. Those nearest to me when I first came across them shuffled and stretched into a crouched position, head and body flattened against the branches they were on. Those farther away maintained a rather head-up, listening position. Wherever I looked there were roosting nightjars, and without moving through the clearing I could see 100+ birds. I was reluctant to move further

into the clearing to assess what area the roosting birds covered, because local hunters were active on the Cape that day and I had no wish to put the nightjars to flight.

The time of my observation was mid morning, and the weather conditions that day were dry and relatively calm. A substantial movement of hirundines and warblers (including Lesser Whitethroat *Sylvia curruca*, Common Whitethroat *S. communis* and Blackcap *S. atricapilla*) suggested that other migrants were also on the move.

BWP comments that European Nightjars migrate singly or in small groups but acknowledges that relatively little is known about migratory behaviour. I wonder if the exceptional gathering I encountered was the result of a number of small groups arriving independently at the Cape and then roosting together at a favoured site, or whether this species sometimes migrates *en masse*?

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Roosting behaviour of European Nightjar

I was interested to read the note by Nigel Cleere about roosting European Nightjars *Caprimulgus europaeus* (*Brit. Birds* 95: 392-393), but was surprised that so little must be known or published about the roosting habits of this species. I have been studying European Nightjars for about 20 years, and have found or been shown more than 100 roost sites. Most of these were in Sherwood Forest, Nottinghamshire, or on Hatfield Moor, South Yorkshire, with others elsewhere in Britain and abroad.

European Nightjar roost sites in the Midlands and northern England are variable in height, from ground level to the upper branches of tall trees, although about 95% of those I have visited have been on the ground or less than 1 m above it. This also appears to be the case with sites I have found in Namibia, but I understand from other fieldworkers that roosting in trees may be common in the New Forest, Hampshire. There may be a bias to finding ground-roosting birds because they are more easily flushed, but even radio-tracked birds at my study sites (which can be located without flushing) still avoid roosting in trees unless there are no safe

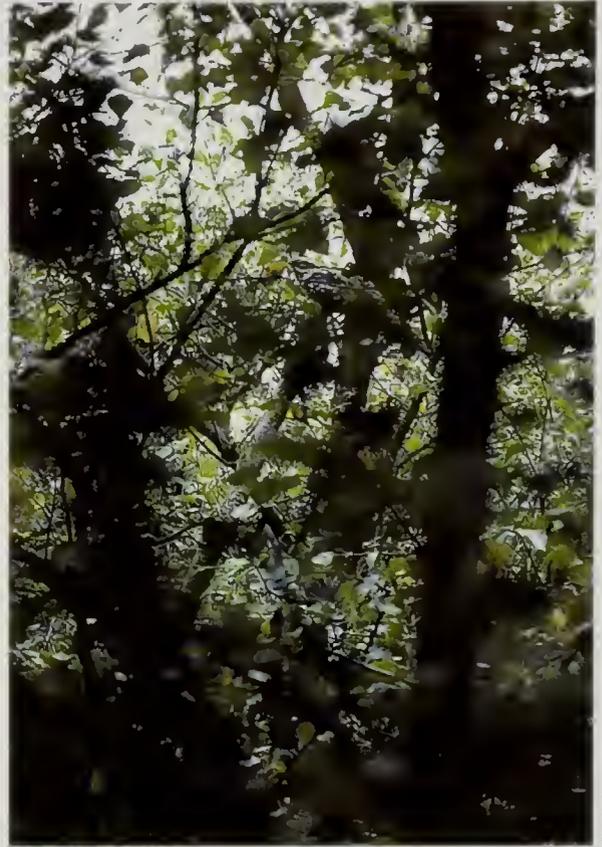
sites at ground level. Typically, roost sites allow for an easy escape route, being situated in open heathland-type habitat. Some birds, however, choose to roost in dense young conifer plantations (c. 6-9 m high), as found in Nottinghamshire, or thick birch *Betula* scrub of a similar height, as on Hatfield Moor. The density of trees on parts of Hatfield Moor is so high that some roost sites can be found only with the help of radio-tracking equipment. In such cases, the birds will approach the site almost vertically, disappearing down through a small gap in the canopy onto the floor or a branch to roost. In at least one case, the gap in the canopy was less than 1 m in diameter, so the bird's approach could be likened to 'dropping down a chimney'. At least one recorded nest site was in a similar situation.

I have found that birds habitually return to the same roost site unless they are disturbed, when they move to an alternative site away from the potential threat of a predator. Occasionally, an individual may return to a roost site from which it has been flushed, but, particularly if there are plenty of alternatives, the disturbed



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91. Roosting adult male European Nightjar *Caprimulgus europaeus*, Hatfield Moor; South Yorkshire, July 2000. This shows a typical roost site for this species, in a small 'clearing' (which could be among Heather *Calluna vulgaris*, Bracken *Pteridium aquilinum* or grasses). The bird is perched lengthways on a cut birch *Betula* branch, raised slightly above damp ground (quite common for males at this site, as they prefer to avoid the damp peat soil), and surrounded by taller vegetation. Similar sites are used for nesting.



Phil Palmer

92. Roosting adult male European Nightjar *Caprimulgus europaeus* (upper centre), perched on the top of a thin vertical stump, c. 2.5 m high, amid dense birch *Betula* scrub, roughly 5 m high. Despite the ground having a suitable carpet of dead leaves, access to the ground was virtually impossible owing to the density of birches. This roost site is most unusual, being in such dense cover with the only rapid exit route being vertically upwards. Hatfield Moor; South Yorkshire, July 2000.



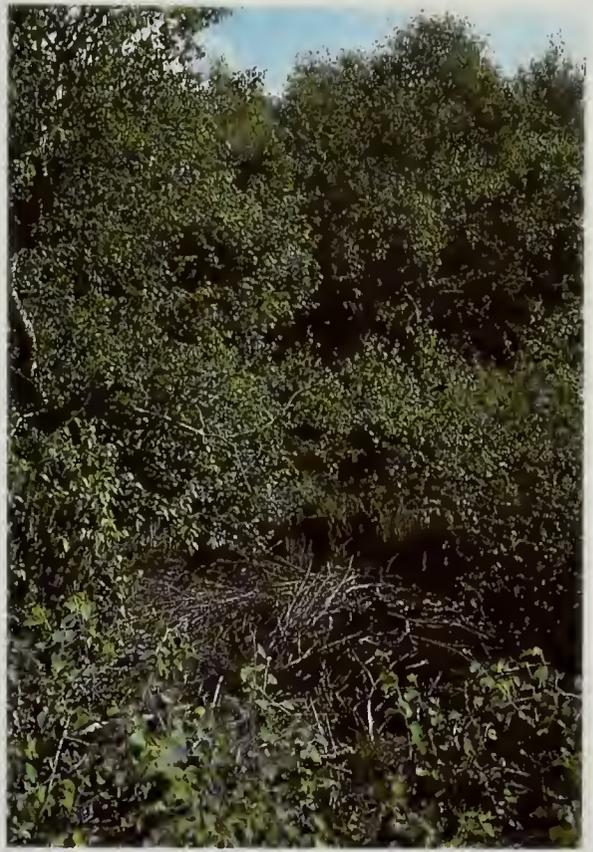
Phil Palmer

93. Adult male European Nightjar *Caprimulgus europaeus*, Hatfield Moor; South Yorkshire, July 2000. The roost site is about 1 m above the ground; small patches of bare ground were available below the perch, but a fast exit would have been impeded by dense branches. The bird moved to this alternative roost site when disturbed (by humans) from the stick pile roost shown in plate 94, but after about one week it returned to the original, favoured site.

site may well be abandoned completely. Nightjars are more likely to return after disturbance in habitats which are tall and overgrown, and thus lacking in other suitable roosting habitat. For example, I recorded one male which roosted daily on a pile of sticks on Hatfield Moor for over two months. On just one occasion it disappeared for about five days, before returning. Subsequently, I found that it had been flushed accidentally by someone working in the wood; this disturbance was, presumably, comparable to the discovery of a roost site by, for example, a Red Fox *Vulpes vulpes*.

Males may have several roost sites which they use during the course of a year. These are continually modified in position as vegetation grows up around the site. Such modifications may be a response to certain environmental conditions (e.g. wind direction or strong sunlight), or to avoid a concentration of white droppings which might attract predators. Security is paramount, however, and once a favoured spot is established it may be used regularly until the nightjar migrates after the breeding season. Many nest sites reflect similar preferences and a second clutch is often laid in a site previously used by a roosting male. In this way, the nest site is 'trialled' to see if it remains undisturbed.

With the help of ringing recoveries, my



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94. Roost site of European Nightjar *Caprimulgus europaeus*, Hatfield Moor, South Yorkshire, July 2000. The site comprises a low pile of stacked branches surrounded by birch *Betula* scrub. This roost site was used by an adult male for at least five weeks (see caption to plate 93). The bird also chose to roost here during the night when not foraging or displaying.



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95. Roost site and later nest site of European Nightjar *Caprimulgus europaeus*, in a clearing of about 3 m x 4 m among dense birch *Betula* scrub, Hatfield Moor, South Yorkshire, July 2000. This is a typical roosting place at Hatfield Moor, where there is extensive and dense birch scrub. The bird is on leaf litter at the base of the tree, to the left of the observer.

studies have shown that birds return each year to their natal area, and the previous year's breeding site. They are less likely to explore new territories if they find the old one satisfactory, although modifications to the chosen nest site during the season, as described above for roost sites, are typical. One nest scrape was used by the same female in Sherwood Forest for three consecutive years, at a site where there had been no obvious change in vegetation height or density. In contrast, several nests in short, 'open' Bracken *Pteridium aquilinum* at the start of the breeding season were completely enclosed by a solid 'canopy' layer by the time the chicks were seven days old. When leaving the nest, at least one female was observed flapping hard against the 'roof' of Bracken leaves to force her way out, which could easily alert predators. This illustrates how quickly the vegetation at sites can change, but, as long as the birds feel secure, they continue to use them. A nesting female has little choice but to remain with the eggs, although the chicks are able to run like waders soon after hatching and the adults occasionally move them by calling from a new, safer site. The reason why nightjars in Sherwood Forest and on Hatfield Moor have chosen to roost and nest in tall,

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dense cover could simply be because the sites have been used successfully for some time; although vegetation cover has increased, the birds retain a feeling of security, so continue to use them. There is also a shortage of available lower-height heathland-type roosting/nesting habitat nearby.

Perhaps roost sites of the type described by Nigel Cleere are used when the habitat is becoming less suitable for occupation by European Nightjars. Habitat management, to provide a greater number of alternative roost sites for the species, would not force the birds to return continually to a less suitable site. It seems that less successful birds are not forced to use such sites by competition, but that they prefer not to abandon territories where they have previously been successful, at least until forced to do so by vegetation encroachment or habitat loss.

The observations described here were carried out as part of my work for English Nature, and on private land. I am grateful to Peter Clement, Derek Evans, Ben Fraser, Helen Kirk, Richard Lyons, Mark Paine and the Doncaster Ringing Group for their help and encouragement.

Swifts feeding by artificial light

In southern Spain, Andrew Paterson has recorded both Pallid *Apus pallidus* and Common Swifts *A. apus* regularly feeding on insects in spring up to two hours after sunset, helped by artificial street lighting (*Brit. Birds* 94: 506). In mid May 2002, at the Placa de S'Españada, Es Castell, Menorca, I regularly saw Common Swifts, together with some Pallid Swifts, feeding well after sunset with the help of street lamps. Feeding was observed at least 60 minutes after sunset, when it was quite dark. The birds fed low over streets illuminated by the lamps, before returning to their nests (several breeding pairs of both species were nesting under the roof tiles of adjacent buildings, or in areas close by). The evenings were warm, and

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presumably the lamps attracted insects. The previous week was cold and wet, and no late feeding had been recorded.

Until recently, night feeding by Pallid or Common Swifts using artificial light does not seem to have been documented, although H. J. Freeman recorded Alpine Swifts *Tachymarptis melba* feeding in the evening on moths attracted to floodlights at Lucerne, Switzerland (*Brit. Birds* 74: 149). Perhaps such night feeding by swifts may be more common than records suggest.

I thank Santi Catchot and Graham Hearl for comments on the breeding status of Common and Pallid Swifts in Menorca.

Letters

The nomenclature of albatrosses and the former distribution of the English Albatross

In their account of the history of albatross classification, Sangster *et al.* (2002) omit to mention why Alexander *et al.* (1965) wrote on the subject, or the fact that these authors already recognised four main groups. The nomenclature of the tubinares had already been reduced to confusion during the first half of the twentieth century, by George Mathews in particular, who, in the case of the albatrosses, recognised at least nine genera (Mathews & Hallstrom 1943), and then later combined them all into one (Mathews 1948). In the interests of consistency, we (Alexander *et al.* 1965) therefore tried to arrive at a stable classification which everyone could agree with. Will current revisions last as long (Bourne 2002)?

The main problem which emerged with the albatrosses was that while there already appeared to be four distinct groups, and the mollymawks *Thalassarche*, great *Diomedea* and sooty albatrosses *Phoebastria* seemed quite distinct, the North Pacific albatrosses *Phoebastria* appeared to link the first two. The reasons for this are now becoming clearer: present-day albatrosses do not appear to be a homogenous group, but relics of a larger and still incompletely described northern albatross community occurring in the circumpolar Tethys Ocean of the Tertiary (57-1.5 million years BP) (Olson 1985), which also gave rise to the southern great albatrosses, as shown by Nunn *et al.* (1996). It seems possible that the last word has still not been said on the North Pacific albatrosses (Bourne 2002).

All this has some relevance to Britain. Before the closure of the Isthmus of Panama at the end of the Pliocene (c. 2 million years BP), there was a colony of albatrosses of the North Pacific type in the Atlantic, on Bermuda (which were prob-

ably wiped out by the temporary rise in sea level during the Pleistocene c. 2 million-10,000 years BP) (David Wingate and Storrs Olson, verbally; Bourne 1997). These apparently included the lost English Albatross *D.* (or *Phoebastria*) *anglica* of the Red Crag of East Anglia, which was very similar to the endangered Steller's or Short-toed Albatross *P. albatrus* of the North Pacific (Harrison & Walker 1978); natural casts of the eggs, measuring 110 x 70, 117 x 75 and 125 x 80 mm, are of the right size for this species. Presumably, like Fea's Petrel *Pterodroma feae* and the North Atlantic Little Shearwater *Puffinus assimilis baroli*, it once also nested in its winter quarters and dispersed north in the summer.

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White-tailed Black Storks in Iberia (and elsewhere)

I was interested to read the account by Luis Santiago Cano Alonso (2002) of white-tailed Black Storks *Ciconia nigra* in Iberia, and of his conclusion that this phenomenon is caused by

partial albinism.

Despite fairly widespread experience of Black Storks in Europe, the Middle East and Africa during the last two decades of the twen-

tieth century, it was not until 20th May 1999 that I encountered a white-tailed individual, in central Turkey. Its tail did not appear to be stained with faeces, a cause tentatively proposed by Harvey (1982) to explain this feature. In spring 2000, I was again in good Black Stork country, this time in central Spain, and on 2nd April saw an individual sporting a white uppertail drop into a stream to feed. Some time later, the stork flew up out of the stream and I was astonished to see that the uppertail was now black.

Ryder & Ryder (1982) described how they noticed that Black Storks visiting a nest in Malawi sometimes showed white tails but at other times black, implying that either more than two birds were involved or that the storks were somehow changing the appearance of their tails. They subsequently noted long white undertail-coverts 'billowing out sideways; when the birds turned... they appeared to have a large amount of white on the uppertail' and stated: 'We could not identify any single common

factor, such as strong winds, that might account for the regular appearance of a seemingly white tail; it remains a mystery to us why, at times, one or both parents should display this feature, whereas at other times neither did.'

Although partial albinism may be responsible for some, many, or even most records of white-tailed Black Storks, my observation in central Spain (which was a timely personal reminder not to jump to conclusions) and those of Ryder & Ryder (1982) demonstrate that careful observation is required to ensure that this feature is constant. I now wonder if the stork in Turkey would have similarly changed the appearance of its tail, had I been able to watch it for a longer period.

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Derivation of the word 'isabelline'

In his letter *Lower case hmyc* (*Brit. Birds* 95: 360-361), with which I wholly concur, Ken Douglas mentions that the word 'isabelline' derives from the name of the Infanta Isabella, elder daughter of Philip II of Spain, subsequently wife of the Archduke Albert of Austria, and potentially a major player in our own history as Queen designate of England when the Spanish Armada set off on its ill-fated mission in 1588. In greater detail, the story goes that when, in July 1601, her Catholic army laid siege to the Protestant town of Ostend, she vowed not to change her clothes until the town was taken. It was not until three years and 77 days later that this was achieved, by which time

her previously white clothing had acquired the distinctive greyish-yellow colour which is now known as 'isabelline'.

It is a pity to spoil such a good story, but it seems to have been effectively discredited by the compilers of the *Oxford English Dictionary*, whose diligence has unearthed an earlier instance of the word in an Inventory, dated July 1600, of the Wardrobe of our own Queen Elizabeth I: 'Item, one rounde gowne of Isabella-colour satten'. So it would seem that, whatever the derivation of the word may have been, it cannot have come from the condition of the Archduchess's garments in 1604.

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Correction

European Honey-buzzards in the UK – correction to breeding totals

The figures for the number of European Honey-buzzards *Pernis apivorus* breeding in the UK, published in the annual report of the Rare Breeding Birds Panel for 2000 (Ogilvie *et al.* 2002), considerably under-reported the number of pairs, especially in both Wales and Scotland, through the omission of some records. The following replaces the species account published in the Panel's report:

European Honey-buzzard *Pernis apivorus*

33 pairs bred; minimum of 40 young reared.

Great Britain

15 pairs fledged two young, ten pairs fledged one young, five pairs bred but failed, one because the female was shot. A further three pairs are known to have bred, but their success is unknown. There were an additional 25 pairs which probably or possibly bred, as well as one locality with two males and ten localities with single birds, at least one of which showed breeding behaviour.

The breakdown of the above into countries is: England 24 pairs bred, plus 21 probable/possible pairs; Wales five pairs bred, plus five probable/possible pairs; and Scotland four pairs bred, plus ten probable/possible pairs.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Confirmed (pairs)	3	2	8	6	9	9	14	14	17	13	33
Max. total pairs	19	22	26	27	28	30	34	39	37	43	69

The first-ever survey of this species in Britain, organised by the Panel, was carried out in 2000, and Batten (2001) published a preliminary summary suggesting that there were 29 confirmed pairs and a further 32 probable or possible breeding pairs. The totals set out above include some additional late-arriving records, as well as a re-analysis of all the records received, and show an increase in the totals of both confirmed pairs (to 33) and probable/possible pairs (to 36).

Batten published criteria for establishing breeding status of this difficult to observe species, for which it is not uncommon to get just a single sighting during many hours of observation. Criterion 14: 'Species observed in suitable habitat', causes the most difficulty in interpretation of sightings of single birds, in view of the distances that birds will sometimes travel from their breeding territory and also because of the wanderings of unmated, perhaps immature, individuals. In addition, there is potential for migrants to occur as early as the beginning of August, when breeding pairs are still feeding young. The opinion of the local observer is taken into account in record assessment, but it is acknowledged that such records remain a 'grey' area with a few which will always be difficult to resolve.

The total number of confirmed pairs is well in excess of any previous total reported to the Panel and reinforces the belief that this species has been considerably under-reported in the past. Unfortunately, the outbreak of foot-and-mouth disease in 2001 prevented the planned repeat of the survey, but it is hoped that observers will continue to both record and report breeding season observations of European Honey-buzzards from now on.

I am very grateful to Leo Batten for drawing my attention to my omission of some records from the totals published in the Rare Breeding Birds Panel report for 2000, and also for very helpful discussions on the interpretation of several records in relation to the criteria.

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News and comment

Compiled by Adrian Pitches

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

A memorial to Chris Mead

Following the untimely death of Chris Mead in mid January, the BTO has announced a memorial fund to refurbish the library at The Nunnery, in memory of the Trust's greatest ambassador. It will be renamed the Chris Mead Library in a dedication ceremony on 5th May. The BTO library, currently housed in the chapel of the old nunnery, is the one part of the BTO's headquarters which has not been completed since the move from Tring in 1991, owing to lack of funds. The library has only background heating, insufficient shelf space, a wall at one end which is made of polythene and batons, and there is precious little space in which to work. The BTO said: 'It seems fitting to make his memorial a permanent one, which is why we have decided to use contributions, from those who will miss him, to develop the BTO library. This is a chance not just to mark the life of Chris but also to build for the future. As we have all agreed, this is a fundraising opportunity which Chris would not have let go by. He had a way of opening our wallets as well as our hearts! Let's do him proud!'

Donations can be made on the BTO website: www.bto.org; by telephone: 01842 750050; or by cheque, made payable to BTO, sent to: CMME, BTO, The Nunnery, Thetford, Norfolk IP24 2PU. If you wish to attend the ceremony on 5th May, please write for free tickets to the address above.

Oil in troubled waters

As the tanker *Prestige* continues to leak oil off the northwest coast of Spain, there have been further spills off southern Spain and in the English Channel. Among the thousands of seabird casualties of the *Prestige*, the following species were washed up in the Galician province of Pontevedra: a White-faced Storm-petrel *Pelagodroma marina* (the first for mainland Spain, if accepted), a Little Shearwater *Puffinus assimilis* and a probable Brown Booby *Sula leucogaster* (potentially the third for Spain).

The Spanish Government, smarting from criticism of its role in the *Prestige* disaster, said that it would spend €12.5 billion (£7.5 billion) over the next few years to repair the damage to the environment and economy in Galicia. It also tried to score political points by banning single-hulled tankers from its waters and demanding that Gibraltar do the same. But this backfired spectacularly on 20th-21st January. Greenpeace boats, with Spanish journalists aboard, blockaded a single-hulled oil tanker in Algeciras Bay. The activists and two journalists were arrested and held in the colony's police cells overnight, and appeared in court the next day to loud protests by the Spanish

Government. But that night a Spanish oil barge, reportedly carrying 1,000 tonnes of fuel oil, sank in Algeciras Bay. It was single-hulled – and it leaked oil which came ashore on Gibraltar's western coastline the following morning. The Gibraltar Ornithological and Natural History Society says that the spill could pose a threat to Gibraltar's small and possibly isolated population of Shags *Phalacrocorax aristotelis desmarestii*, which is estimated to number only 7-8 pairs.

Far more serious was the fuel oil leak from the sunken Norwegian cargo ship *Tricolor* in the English Channel. The *Tricolor* was carrying 3,000 luxury cars when it sank 50 km off the Kent coast on 14th December, after colliding with the Bahamas-registered container ship *Kariba*. Since then it has been hit by no fewer than three other ships! On 16th December, the wreck was hit by the *Nicola*, a 3,000-tonne ship registered in the Dutch Antilles. On 2nd January, the vessel was struck again, by an oil tanker, the *Vicky*, which was carrying 70,000 tonnes of kerosene. And then, on 24th January, it was hit yet again: this time by a tugboat operated by the company overseeing the salvage operation!

Up to 150 tonnes of oil is believed to have leaked from the *Tricolor*, and by 5th February no fewer than 9,366 seabirds had been counted from the Belgian and Dutch coasts with details yet to be received on the condition of a further c.1,500. About 60% of birds found in Belgium were alive and a massive rehabilitation effort is underway, assisted by the RSPCA. On 1st February, 1,200 dead birds from southern Holland were transported to the Netherlands Institute for Sea Research, on Texel, for post-mortem examination. Most were very heavily oiled Common Guillemots *Uria aalge* and Razorbills *Alca torda*, and most were healthy adults when smothered by the bunker oil. The only ringed bird discovered so far has been a French Common Guillemot, and most corpses were too heavily oiled for external biometrics to be taken. A small number (c. 50) of auks have been taken into rehabilitation centres in southeast England, presumably also *Tricolor* victims. Meanwhile, there are fears of further casualties in the area after the Dutch ro-ro vessel *Eurolink Assie* sank north of the Freisan island of 'erschelling on 25th January, following a collision with a larger Swedish cargo ship.

Some oiled Common Scoters *Melanitta nigra* have been reported coming ashore, presumed victims of this new spill, and there are fears

over the safety of a concentration of 30,000 Common Scoters presently off the coast of Terschelling.

Links: <http://www.vliz.be/>

olieslachtoffers/index.php (in Dutch); <http://home.planet.nl/~camphuys/TriColore.html> (in Dutch).

And the Exxon Valdez spill isn't over yet

Perhaps the most notorious oil spill of them all – that of 42 million litres of oil from the *Exxon Valdez* into the pristine waters of Prince William Sound, Alaska – is still having an impact on marine life in the area. The oil tanker ran aground on 24th March 1989 and spread oil over almost 2,000 km of shoreline. Exxon spent more than \$2 billion on the cleanup and, in 1991, settled state and federal government damage claims for a further \$1.025 billion.

But 14 years after the event,

small oil patches left from the spill are still releasing toxic hydrocarbons that harm sea life, according to the US National Marine Fisheries Service. The Fisheries Service used data from a survey in 2001 which concluded that almost 12 ha of shoreline remained contaminated by 60,000 litres of oil. In the summer of 2002, Sea Otters *Enhydra lutris* and Harlequin Ducks *Histrionicus histrionicus* in waters near the oil patches were still struggling with high death rates and poor reproduction. Liver

samples from otters in the areas near the remaining oil patches show high levels of an enzyme associated with oil exposure.

In 1994, a US District Court jury ordered Exxon to pay \$5 billion in punitive fines for damages suffered by fishermen, Alaskan natives and other residents. This was reduced to \$4 billion on appeal.

Link: US National Oceanic and Atmospheric Administration (<http://response.restoration.noaa.gov/bat/about.html>).

Scottish Osprey heads out into the Atlantic

Following the amazing journey of the Highland-reared European Honey-buzzard *Peruis apivorus* which was satellite-tracked as it flew over the Atlantic for 100 hours non-stop (*Brit. Birds* 95: 599), another Scottish raptor has gone west – rather than south. The young Osprey *Pandion haliaetus* was ringed in its nest near Stirling in July 2002. The bird and its ring were recovered off the island of Fogo in the Cape Verdes, 600 km off the coast of Senegal, in late September 2002. It is not clear if the bird was alive on arrival and taken into care, or had drowned in the sea.

The Osprey had travelled almost 5,000 km in 50 days. Duncan Orr-Ewing, RSPB Scotland's Head of Policy, told the Press Association: 'It's quite possible that a lot of birds migrating over the sea miss their targets and end up in the sea. This is the first record we have had of a bird travelling so far off course over sea. For any bird to cross that distance of ocean is quite amazing.' Two years ago, residents of a village in Gambia found a Scottish-born Osprey in the stomach of a crocodile. The bird, which had been ringed at a nest in Argyll, was discovered after the crocodile was killed and its stomach emptied.

English Ospreys win an award

English Ospreys have been in the news recently too. The breeding pair at Bassenthwaite in the Lake District have become a major tourist attraction over the past two summers, and the Lake District Osprey Project won the Countryside Tourism Award at the inaugural Cumberland News Countryside Awards ceremony in Carlisle on January 24th. The award was presented by BBC *Countryfile's* John Craven to Pete Barron of the Lake District National Park Authority, which runs the Osprey watchpoint beside Bassenthwaite Lake in collaboration with the RSPB and Forest Enterprise. The Ospreys reared a single chick in 2001 and two young in 2002. In the summer of 2002, approximately 100,000 people viewed the birds at the watchpoint or on a video link to the nearby Whinlatter visitor centre.



David Trpling

96. Osprey *Pandion haliaetus*.

Your list is not a patch on mine

As twitching becomes ever more popular, and listing becomes ever more competitive, it is refreshing to hear of a steadily growing cult obsessed not with their world list, nor their British list, nor even their county list, but with their local patch list – ‘patchwatchers’. Birding your local patch was the norm before phonelines and pagers started luring people farther afield. Finding the first Common Chiffchaff *Phylloscopus collybita* and the last Barn Swallow *Hirundo rustica* of the year were then a cause for quiet celebration.

Well, there are loud celebrations going on in northeast Derbyshire, where a tiny band of patchwatchers have passed a major milestone, the patching equivalent of reaching 500 on your British list. On 17th December 2002, the team logged their 1,000th consecutive day of birding at Carr Vale, near Bolsover: birders had been on site every day since 22nd March 2000. The site has produced 196 species,

including Black Kite *Milvus migrans*, Red-rumped Swallow *H. daurica* and Yellow-browed Warbler *P. inornatus*, excellent records for an inland county.

Carr Vale stalwart Mark Beevers told N&C: ‘Such a level of continual coverage will, I suspect, be hard to beat anywhere in the country, except perhaps on reserves like Cley [in Norfolk] or Blacktoft [in East Yorkshire]. What is more astounding is that this achievement was carried out by very few observers – just seven of us. We think that this level of coverage is pretty impressive, especially as we all work, and two of the three major players tend to go off on month-long foreign trips at least once a year. It requires a great deal of effort to ensure that somebody covers the site each day, and keeping the motivation going through rain or shine is hard work, but the odd goodies are always there to be found.’ Impressive indeed – and as a result of the Carr

Vale patchwatchers’ hard work, part of the area is now a Derbyshire Wildlife Trust reserve.

Patchwatching is also serious business in Northumberland, where a Local Patch league, together with handicaps for particularly productive sites, has introduced a competitive element which ensures that some of the county’s finest birders aren’t leave their local area unattended for long. The results speak for themselves: patchwatchers in the unprepossessing locality of Newbiggin have found Pallas’s Grasshopper Warbler *Locustella certhiola*, Blyth’s Reed Warbler *Acrocephalus dumetorum*, Western Bonelli’s Warbler *P. bonelli*, Hume’s Warbler *P. humei* and Black-faced Bunting *Emberiza spodocephala* in the last three years alone!

Links: Derbyshire Wildlife Trust (www.derbyshirewildlifetrust.org.uk); Northumberland Local Patch League (<http://mysite.freeserve.com/northumberlandpatch>).

Pink-footed Goose cooked in aluminium foil

Alongside homegrown popstar Björk, the RSPB has weighed in to protest at Icelandic plans for a giant hydroelectric scheme and aluminium smelter. Iceland’s state-owned power company plans to build 11 dams which would create a 56-km² reservoir in the Kárahnjúkar wilderness. This would provide the hydroelectric power for a smelter to be built by the US-based company Alcoa, the maker of Bacofoil, at Reydarfjörður on the east coast (see *Brit. Birds* 94: 608 and 95: 317). Kárahnjúkar, close to the Vatnajökull glacier, is the breeding ground of a globally important population of Pink-footed Geese *Anser brachyrhynchus*.

These are ‘our’ geese: almost the entire world population of pinkfeet winters in the UK, mainly in the coastal areas of East Anglia, in Lancashire, on the Solway and in eastern Scotland. Nicola Crockford, of the RSPB, said: ‘We estimate that as many as one in eight of the Pink-footed Geese visiting the UK in winter could be affected or displaced. The two sites are globally recognised for their importance for birds and other wildlife, but Iceland seems determined to renege on its international conservation commitments and damage and destroy substantial portions of these sites.’

Work has already begun on the scheme, which, once completed, will damage the breeding, feeding and moulting areas for 3,800 pairs of pinkfeet. It was initially rejected by the Icelandic planning agency, following an environmental impact assessment which showed unacceptable levels of damage, but the agency’s decision was reversed by the Environment Minister, Siv Fridliefsdóttir.

Link: Icelandic Nature Conservation Association (www.inca.is).

Volunteers needed in Italy

Volunteers are needed once again to help survey and protect migrating raptors and storks at the Strait of Messina, in southern Italy. The area is well known as a strategic flyway into Europe. It is the most reliable site in the Western Palearctic for Amur Falcon *Falco amurensis*, and many other raptors (such as Pallid *Circus macronurus* and Montagu’s Harriers *C. pygargus*, Lesser Kestrel *F. naumanni*, Eleonora’s *F. eleonorae* and Lanner Falcons *F. biarmicus*) are regular. See *Brit. Birds* 94: 196-202 for more details of the site. The survey runs from 1st April to 28th May. Volunteers are welcome for all or any part of this period. For more information, please contact Andrea Corso, Via Camastra 10, 96100 Siracusa, Italy or via e-mail at: voloerrante@yahoo.it

Pennine finch gets a free feed

The old bird-catchers called it the 'trash finch' because it was very common, dowdy and had a plaintive call: not what cagebird keepers would pay good money for. But the Twite *Carduelis flavirostris* is no longer a common bird in the southern Pennines: England's last regular breeding population is dwindling fast with the rapid loss of arable farming from the hills. To reverse that trend, the RSPB Northwest office has started a year-round feeding project using seed generously supplied by CJ Wildbird Foods.

Until recently, Twites in the Pennines were year-round residents because they could find abundant food in winter not far from their moorland breeding sites, in oat fields and hay meadows. But the virtual disappearance of small-scale arable farming in the last few decades has forced the Twite population to become facultative migrants and move away when their food supply is exhausted. By contrast, in Scotland the majority of Twites stay put because there is still adequate food in the fields of traditionally farmed crofts (although in parts of Scotland there are similar fears about the lack of foraging opportunities in winter – see 'Neaps for Linties', *Brit. Birds* 94: 93).

The Twite feeding project is being run in conjunction with a ringing scheme to establish if birds now wintering on the Lancashire coast (a recent phenomenon) are indeed the south Pennine birds. There are approximately 300 pairs remaining in the last English outpost, but putting out food (niger seed, hulled millet and high energy seed mix) at 25 sites in the uplands is designed to boost that population by attracting Twites to former strongholds where silage cropping has replaced hay meadows. The RSPB is also actively encouraging farmers to enter Countryside Stewardship agreements with Defra, which will guarantee them subsidy payments in exchange for Twite-friendly hay meadow cultivation. RSPB spokesman Tim Melling told N&C: 'The farmers are really interested. They regard the Pennine Finch as their special bird. It appeals to their Yorkshire sense of pride.'

Financial lifeline for the EGI

One of ornithology's foremost academic institutions, the Edward Grey Institute (EGI) at the University of Oxford, has been given substantial funding to create a Chair in Field Ornithology. The holder will also be Director of the EGI: a post which had been expected to disappear because the University of Oxford was not prepared to fund it. The Luc Hoffman chair has been endowed by the family of the eminent Swiss zoologist to celebrate his 80th birthday. Many happy returns!

Nature conservation already owes Dr Hoffman, of Basel University, a great debt: he is a past director of IWRB (now Wetlands International), and a former Vice President of WWF (of which he was a co-founder) and of IUCN. He is also an Honorary Life Fellow of the Wildfowl and Wetlands Trust and was instrumental in the ratification of the Ramsar Convention for wetland conservation in 1971, which remains the only habitat-specific international convention in existence today.

The EGI was founded in 1938 to carry out research and training in field ornithology. It was named after Viscount Grey of Fallodon, Chancellor of Oxford University and a keen amateur ornithologist. It is the base for the world's longest continuous study of bird populations on the Wytham Estate near Oxford. Edward Grey was the British Foreign Secretary at the outbreak of the First World War when he famously remarked that 'The lamps are going out all over Europe; we shall not see them lit in our lifetime.' Thanks to the family of Dr Luc Hoffman, the lights will not be going out at the EGI.

OSME supports fieldworkers in Armenia

The Ornithological Society of the Middle East (OSME) has awarded a grant of \$700 to support research at the Armash Fish Farm in Armenia. Vasil Ananian, the recipient of the award, will co-ordinate monthly bird counts at the farm, focusing on globally threatened species using the area, such as Pygmy Cormorant *Phalacrocorax pygmeus*, Marbled Duck *Marmaronetta angustirostris* and White-headed Duck *Oxyura leucocephala*, and identify those habitats which are of greatest importance to birds. One of the most important aspects of the project is to train local enthusiasts and amateurs in the basics of bird identification and encourage them to help out with survey work.

Keith Betton, Chairman of OSME said: 'OSME wants to advance the study of birdlife throughout the Middle East and Central Asia, particularly focusing on either countries or species for which we have little information. This project is a good example of how we can help fieldworkers by subsidising their local costs.'

Link: OSME (www.osme.org).

And finally... You can't hold a candle to puffins

Following the revelations in January's N&C (*Brit. Birds* 96: 51) about the Icelandic appetite for auks, *BB* reader Allen Banks has written in with an earlier reference to the adaptability of the Atlantic Puffin *Fratercula arctica*. A book published anonymously in 1875 by Daldy *et al.*, entitled *Half Hours in the Far North*, contains the following passage: 'Game is very plentiful... the little fat puffin... only needs to be shorn of its feather, have a wick passed through its body, and be set on end in a saucer to form a brilliant light for the household.'

Very illuminating. Any further uses of a dead puffin gratefully received.

Reviews

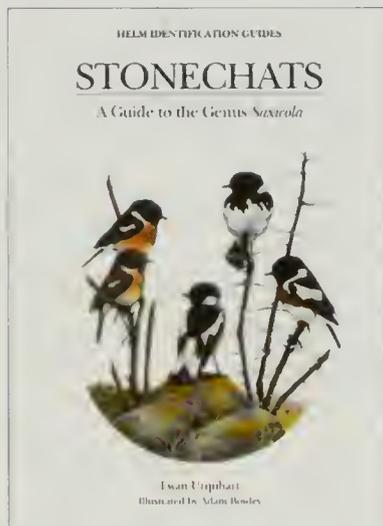
STONECHATS: A GUIDE TO THE GENUS *SAXICOLA*

By Ewan Urquhart, illustrated by Adam Bowley. Christopher Helm, A&C Black, London, 2002. 320 pages; 14 colour plates; 92 colour photos; distribution maps. ISBN 0-7136-6024-4. Hardback, £37.00.

This new addition to the Helm Identification Guide series presents a comprehensive review of much that is known of the genus *Saxicola*. It discusses the taxonomy, identification, status, distribution, habitat, movements, calls, behaviour, moult, breeding biology and conservation status of the 14 currently recognised species and their constituent forms. Immediately, we are confronted by taxonomy and the on-going debate regarding species versus subspecies. This is dealt with in some depth through the inclusion of a discrete chapter entitled 'A Molecular Phylogeny of Stonechats & Related Turdids', which discusses early DNA work on this group. Urquhart is the first author to acknowledge the inadequacy of the current 'official' taxonomic treatment, and in the light of this new research adopts the increasingly common three-way split of the Common Stonechat *S. torquata* complex into European Stonechat *S. rubicola*, Siberian Stonechat *S. maura* and African Stonechat *S. torquata* (see also *Brit. Birds* 95: 349-355). It is acknowledged that this can only be an interim position until further work takes place. This may, for example, establish that 'Caspian Stonechat', comprising the forms *armenica* and *variegata*, is sufficiently differentiated from other forms to merit specific rank, while currently recognised forms *hibernans* and *indica* may be better treated as insufficiently differentiated from *rubicola* and *maura* respectively.

Despite these taxonomic uncer-

ainties, the book deals with all currently recognised forms of the polytypic species in detail. Throughout, this is a very well-researched piece of work with a multitude of current references, acknowledged correspondence with global experts and full recognition of the mainstream literature. Its thoroughness does, at times, make for a fairly heavy read but that can hardly be held as a criticism. Although previous volumes in this series have been somewhat variable in their scope and quality, the in-depth treatment of a rela-



tively small number of species here has enabled the author to discuss each form in greater detail. This highlights some significant gaps in the literature, concerning the distribution of relatively conspicuous and easily observed birds. For example, the latest autumn record of *stejnegeri* in Korea is quoted (from a paper published in 1948) as 10th September, whereas it is now known to be a regular migrant into October. I can also reassure the author over the winter occurrence of *rubicola* in the United Arab Emirates, despite unclear statements on the subject in the local literature.

As an identification guide, the book is again most thorough. The only refinement I would make refers to the sections on the forms *maura* and *stejnegeri*. Although

well illustrated in the photographs, the text could place greater emphasis on the incidence of a darker, more saturated plumage in some autumn Siberian Stonechats, a number of which have been described in recent years in north-western Europe. Whether these should be regarded as *stejnegeri* or as darker *maura* is a somewhat philosophical point, but they do demonstrate that not all 'Siberian Stonechats' are as ghostly as popularly portrayed.

The 14 colour plates by Adam Bowley depict each species in a variety of plumages and include sketches of wing and tail patterns. These paintings are well executed and, although some may find them a little 'sculptured', they are generally pleasing to the eye and capture well the pert roundness so distinctive of the genus. Indeed, some of the flight paintings would bring a tear to Ian Wallace's eye! The text is also enhanced by a small number of line-drawings depicting aspects of behaviour, as well as distribution maps for all forms.

The book concludes with a large selection of photographs, which portray all the species. These are generally well chosen, but with the less familiar forms picture choice was presumably limited. As a result, the photograph of male *armenica* reveals very little and there is no directly comparable picture of *variegata* in the same plumage. Furthermore, although the summary identification captions are helpful, they do occasionally refer to features which, to my eye, are not actually visible in the photographs.

Despite these minor niggles, this is a hugely impressive piece of work from someone who clearly has a passion for this attractive and popular group of birds. If you are fond of Common Stonechat and Whinchat *S. rubetra*, or if you are well-travelled and likely to see the other species, go out and buy it.

Andy Stoddart

BIRDS AND LIGHT: THE ART OF LARS JONSSON

By Lars Jonsson. Christopher Helm, A&C Black, London, 2002.
232 pages; many colour illustrations.
ISBN 0-7136-6405-3. Hardback, £35.00.

Lars Jonsson is world renowned for his brilliant field guide illustrations. First published in his early twenties, they broke the mould and are still without peer. While they are undeniably brilliant, for me Jonsson's skill really excels in his field sketches and his loose watercolour painting. Here, his talent for observation and his handling of pencil and watercolour are exceptional. Jonsson is one of the few artists I know who can portray birds the way you see them: not perfect portraits, but as beautiful, emotive and subtle impressions. His sketches and watercolours display an intimate knowledge of and respect for the subject, brilliantly capturing fleeting observation with the interplay of light. Jonsson published excellent examples of this type of work in three beautiful books: *Bird Island*, *En dag i Maj* and *Dagrar*. *Birds and Light* is a departure from those publications. In part, this is a review of Jonsson's career and contains numerous reproductions of his work over the past four decades. It is also part biography, with contributions coming from three writers.

The introductory section, 'Looking at Nature', is beautifully illustrated with pages from recent sketchbooks. It discusses the development of bird art and explores

criticisms of wildlife art levied by the art establishment, which suggests that it is, in the main, scientific illustration. Jonsson attempts, and often succeeds, to challenge this. Much of his work is concerned with capturing mood and light, rather than realistic portraiture. This section also contains an interesting discussion about the emotions and thoughts that Jonsson has when sketching, with reference to the text and images in the previously mentioned publications.

The next section explores Jonsson's development as an artist from childhood to the present day. This reveals much about his thoughts on art and aspects of his life, as well as some information on the techniques and methods he employs. Interspersed throughout the text are numerous reproductions of early drawings, field guide plates, paintings and illustrations, some are old favourites while many others are previously unpublished. Jonsson also discusses venturing into other areas of art apart from birds, and mentions other artists who have inspired him. Indeed, in some of his non-bird pictures, they appear to have had a direct influence: in particular, *Winter Night*, on page 63, reminds me of van



Gogh's style, while the self-portrait on the same page would not have been out of place in a Lucien Freud exhibition. My personal non-bird favourite is the cat on a rubbish tip.

The final section contains some excellent paintings, including several large oil paintings. Like many oils reproduced in books, it is difficult to gain an impression of their impact, as they are greatly reduced in size. In my opinion, those which work the best in this book are painted loosely, in particular his watercolours. Take, for example, the Rooks *Corvus frugilegus* on page 178, in which Jonsson's individuality shines through, compared with some of the more controlled oils which appear to lack this individuality and freshness.

At 232 pages and lavishly illustrated, *Birds and Light* is a sumptuous collection of Jonsson's work. It will not be in print for ever, so buy it while you can, and hopefully we will see more of his work in the future.

Howard Towll

**COMPLETE GUIDE TO ANTARCTIC WILDLIFE:
THE BIRDS AND MARINE MAMMALS OF THE ANTARCTIC
CONTINENT AND THE SOUTHERN OCEAN**

By Hadoram Shirihai. Alula Press, Finland, 2002. 510 pages; 35 colour plates; 492 colour photographs; maps, figures and tables.
ISBN 0-691-11414-5. Hardback, £40.00.

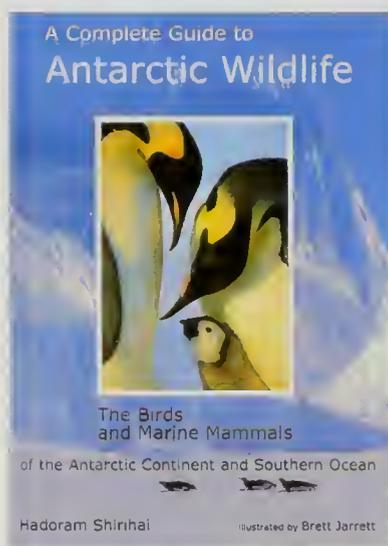
I am lucky enough to be able to 'road test' or, perhaps more accurately, to 'ship test' this book from within the Southern Ocean (as part of my work with the British

Antarctic Survey), and even in the few days we have been at sea, we have seen several other ships carrying naturalists on whose bookshelves this guide is sure to find a

home. The increase in visitors to the Antarctic, most particularly through well-organised tourism, has created a need for a book like this. Hadoram Shirihai has brought together a wealth of information and excellent photographs, which, complemented by Brett Jarrett's plates, reveal that a trip to the Antarctic is about so much more than penguins (Spheniscidae) – although the penguins are undoubtedly pretty special. The big question is whether this really is

the 'complete' guide as claimed in the title. If you look hard enough, I am sure you will be able to find something that is missing; but you *will* have to look hard and in doing so you risk missing the detailed information and excellent photography which make this book so special. The emphasis of the text and illustrations is on identification, but there is also considerable attention given to the conservation status of each species. In many cases this reveals how much there is still to learn about the wildlife of this most remote region.

The book begins with a general section introducing the geology, biology and history of the region. This is followed by the species accounts for birds and marine mammals, and then a series of descriptions of some of the more readily defined regions and island groups which lie south of about 40° south. Not only does this book



cover the largest geographical area of any single 'field guide', it also has to contend with some particularly complex taxonomic and identification issues. The region's seabirds clearly have a special place in the author's heart and the detailed discussion of the identification and taxonomy of albatrosses

(Diomedidae) is both engaging and indicative of the difficulties and uncertainties involved in identifying this group of birds at sea. Clearly, some will enter into the spirit of the debate, and try to name everything they see, while others may take a more sanguine view and simply enjoy the variety and complexity of plumage states of these majestic birds. Hopefully, this book will enthuse a great many people, in both of those camps, which will in turn raise awareness of the worrying conservation status of many of the species involved. Undoubtedly, this book will prove an invaluable and inspirational resource, whether you are 'discussing' the identification of albatrosses from the deck of a ship, or simply spending another night at home, saving up the money for a trip to the Southern Ocean.

Keith Reid

THE COMPLETE GUIDE TO THE BIRDLIFE OF BRITAIN & EUROPE

By Peter Hayman and Rob Hume.
Mitchell Beazley, London, 2001.

288 pages; 106 colour plates; 316 half-size colour plates.
ISBN 1-85732-795-0. Hardback, £25.00.

This book has approximately A4-sized pages, and is thus a desk-top guide, not a field guide. Between its introductory chapters and the glossary, index and acknowledgments sections are 264 pages of paintings and texts. The plates, which comprise in excess of 3,500 images, together with their captions and written identification pointers, cover about three-quarters of each page. Individually, they measure between 14 cm x 26 cm and 14 cm x 12 cm and the great majority show one species only. This large format, single-species layout is an ideal showcase for Peter Hayman's high-quality watercolours. His meticulous studies of the proportions and plumage details of birds are evident from the accuracy and realism of the illustrations, which convey perfectly not only the

appearance but also the character and movement of each species. The splendid paintings are accompanied and enhanced by Rob Hume's descriptive jottings, which clearly demonstrate the writer's familiarity with the most recently published identification criteria. These notes, which concentrate on species' salient field characters, are pertinent to each image and perceptive yet succinct. Thus, an enormous amount of information, both painted and written, is presented on the plates. It has been possible, therefore, for the texts themselves, which occupy the remaining quarter of each page, to be devoted entirely to non-identification subjects. Following a short general introduction, most texts describe feeding, display and voice, breeding and migration, and when and

where to see each species. Rob Hume's expertise as an author and editor is apparent throughout. Symbols are used to denote each species' status and seasonality in Britain, and the habitats in which it occurs.

According to its introduction, the guide's dual aims are to meet the needs of the beginner and to present new information to the experienced observer. The Hayman/Hume partnership has succeeded in achieving both of these ambitious objectives. So, the book has wonderful plates and an authoritative text, and it will appeal to all birders: what's the catch? Well, first and foremost, fewer than 440 species are featured (which has enabled every one to be treated so thoroughly). Furthermore, several species have been placed out of sequence, and there are no distribution maps (but text instead). If these drawbacks do not put you off, be warned: most of those who thumb through a copy will surely be sufficiently impressed to feel compelled to buy it on the spot.

Peter Lansdown

**THE BREEDING BIRDS OF
CUMBRIA – A TETRAD
ATLAS 1997-2001**

Edited by Malcolm Stott, John Callion, Ian Kinley, Colin Raven and Jeremy Roberts.
Cumbria Bird Club, 2002. 392 pages; colour photographs, maps, artwork.
ISBN 0-9543249-0-0.
Hardback, £30.00.

Surely only the Scottish Highlands hold breeding Golden Eagle *Aquila chrysaetos*, Osprey *Pandion haliaetus* and Dotterel *Charadrius morinellus*? Well no, there is an English county with all three, and a wealth of other breeding species too. Cumbria has a greater variety of bird habitats than any other county in England, in turn reflected in the diversity of its breeding birds: 152 species were recorded by Cumbria Bird Club fieldworkers in 1997-2001. The fruits of their labour is a magnificent volume which will be the benchmark for all future county breeding atlases.

The CBC was formed in 1989 and just 13 years later published this atlas which, at 2 kg, is a heavy-weight in more ways than one. Species accounts, written by a team of 29 authors, are presented on a double-page spread, illustrated with four separate maps: two small maps of 10-km squares comparing the breeding status in 1968-1972 (the original *Breeding Birds Atlas*) with that in 1997-2001, and two larger maps charting the distribution and abundance on a tetrad-by-tetrad basis. The latter set the Cumbria atlas apart. They are in colour and depict relief so that the reader can instantly relate where a species is found – and in what numbers – to the corresponding habitat. Another innovative feature is a box summarising conservation status and population size in Britain and Europe, together with the change in distribution over the 30 years since the first *Atlas*.

There are sadly familiar stories, like the 89% decline in Corn Buntings *Miliaria calandra* over that period, but unfamiliar ones too. New breeding species recorded during this atlas period include

European Honey-buzzard *Pernis apivorus* (up to four pairs may nest in the county), Osprey (the first breeding pair in Cumbria for 170 years nested in 2000 and there were three pairs in 2001) and Common Rosefinch *Carpodacus erythrinus* (a pair fledged three young in 1998). Sadly, the iconic Black Grouse *Tetrao tetrix*, which adorns the cover, has declined by 72% in the past 30 years. And although 3-4 pairs of Hen Harriers *Circus cyaneus* attempt to nest each year, they are ruthlessly persecuted on grouse moors. This book states that 160 harriers were killed illegally on a single estate in 1995-97. This cannot continue – not with access to previously private land under the new Countryside and Rights of Way Act – and one hopes that it will be the happy task of the Cumbria Bird Club to record a substantial increase of Hen Harriers in 30 years' time. For now, their 1997-2001 atlas is a testament to what a small band of dedicated birders can achieve in a short space of time. And it is certainly a superb result.

Adrian Pitches

**THE BREEDING BIRDS
OF THE LONDON AREA**

Published by London Natural History Society, London, 2002.
294 pages; maps;
line-drawings.
ISBN 0-901009-12-1.
Paperback, £30.00.

London's birdwatchers have been well served by the London Natural History Society. Its 1954 landmark review of the birds of the London Area (within 20 miles [32 km] of St Paul's Cathedral) and breeding bird atlas in 1977 have now been followed by this volume. Although based on the 1988-91 tetrad atlas survey, fieldwork was extended to 1994 to improve coverage. The species accounts were drafted in

1996 (including some prepared by your reviewer), but then followed a long delay. Despite this, the text is up to date, with information included from as recently as 2002.

The species accounts follow the usual format, with a line illustration and text facing three maps: one for the 1988-94 survey, and two smaller ones, one showing the 1968-72 survey data, the other depicting changes between the two. A chapter reviews the changes (44 species were recorded in over 20% more tetrads than in 1968-72, and only 15 in over 20% fewer), and short accounts are included of new breeding species since completion of the survey and those lost since the previous one.

Was a wait of over eight years since completion of the fieldwork worthwhile? The answer is unques-

tionably 'yes'. The species accounts are extremely informative and present a clear picture of London's breeding birds at the end of the twentieth century. Three things could have been improved, however: the main map depicting the London Area is poor, with unsatisfactory definition and lacking a legend showing the features included; the review of changes since the previous survey would have benefited from a quantified assessment of habitat change; and references are weak, and many assertions unattributed. But no one should attempt to study London's birds without reference to this excellent book.

Peter Oliver



Monthly Marathon

Photo no. 194: Arctic Skua

For most participants, the bird featured in Monthly Marathon photo number 194 (*Brit. Birds* 95: plate 347, repeated here as plate 97) was immediately apparent as a skua (*Stercorariidae*). Only a gull (*Laridae*) has similar structural proportions and overall shape, but no Western Palearctic gull, of any age, shares this combination of very dark underparts, golden-brown head and pale, powder-blue legs.

Having established our bird as a skua, the long wings and strongly patterned upperparts are incompatible with any of the larger *Catharacta* skuas, leaving the solution to be found among the smaller *Stercorarius* skuas. As always with mystery photographs, establishing the age of the bird is an important part of the identification process. In adult plumage, the three *Stercorarius* species share uniform



Colin Bradshaw

97. Arctic Skua *Stercorarius parasiticus*, Fair Isle, Shetland, August 1992.

upperparts, so we can conclude that our bird is an immature; furthermore, the neat, unworn feather fringes strongly suggest that it is in fresh juvenile plumage. An older juvenile would display variable but typically greater feather wear, with

narrower fringes, until the post-juvenile moult into first-winter plumage, which commences during late autumn for all *Stercorarius* skuas. Once in first-winter plumage, the upperparts appear plainer, with less conspicuous fringes and tips. The sparse vegetation and the grassy tussocks suggest that this juvenile might still be in a breeding area, although the occasional bird, particularly inexperienced immatures, do come ashore.

Unfortunately, we are given few clues as to the size of this bird, or to 'jizz' features such as shape, which might assist us when identifying a flying skua. Both the bill structure and the central tail feathers, which can be useful identification features, are obscured in this photograph. The body does not, however, seem particularly heavy or deep-chested, suggesting that this is one of the smaller species. To establish firmly the identity of our mystery bird, we must turn to the finer plumage details. All three *Stercorarius* species share a similar pattern of pale tips and edges to the mantle, scapular and wing-coverts feathers, but there are minor differences which help us if we know exactly what to look for. Pomarine Skua *S. pomarinus*, the largest of the three,



98. 'Monthly Marathon'. Photo no. 197. Thirteenth stage in twelfth 'Marathon'. Identify the species. Read the rules (see page 53), then send in your answer on a postcard to Monthly Marathon, c/o The Banks, Mountfield, Robertsbridge, East Sussex TN32 5JY, or by e-mail to editor@britishbirds.co.uk, to arrive by 30th April 2003.

is also the least variable and has the plainest juvenile plumage. It shows a fairly uniform and largely unstreaked crown and nape, along with dark brown wing-coverts with narrow and poorly defined feather fringes. On our bird, the nape is contrastingly streaked, and the wing-coverts broadly edged golden-brown and tipped creamy-buff. These features, combined with the fairly lightly built structure, are sufficient to eliminate Pomarine Skua. This leaves us with just the two smaller species, which both show highly variable juvenile plumages.

Juvenile Long-tailed Skua *S. longicaudus* is particularly variable, but generally lacks the warmer plumage tones which characterise most juvenile Arctic Skuas *S. parasiticus*. In general, juvenile Long-tailed Skua appears colder and greyer than juvenile Arctic, with pale feather fringes which often produce a conspicuous wavy pattern of whitish barring across

the mantle. Furthermore, the head and nape of Long-tailed Skua lack conspicuous streaking, and range in colour from dark brown to cold creamy-white, but rarely, if ever, appear warm golden brown. Taken together, the warm plumage tones and streaked nape shown by our bird eliminate Long-tailed Skua.

This leaves us with just one possibility: Arctic Skua. Juvenile Arctic Skua invariably shows a heavily streaked head and nape, often washed warm golden-rufous, while the body also tends to appear warmer and browner than that of juvenile Long-tailed. Both these features match our bird well. Revealingly, our bird exhibits one further feature that clinches the identification beyond doubt: the appearance of the primaries. Those of juvenile Pomarine and Long-tailed Skuas are essentially entirely dark with just a suggestion of pale tips. On our mystery bird, each of the four visible primaries shows a creamy-buff tip, a feature displayed

exclusively by juvenile Arctic Skua. This Arctic Skua was photographed by Colin Bradshaw on Fair Isle, Shetland, in August 1992.

David Fisher

This month's mystery was clearly one of the more straightforward of recent times, and 88% of contestants solved it correctly. The remaining 12% all plumped for Long-tailed Skua. After this result, Geir Mobakken remains the overall leader, with a sequence of four-in-a-row, one ahead of several other competitors.

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Recent BBRC decisions

This regular listing of the most recent decisions by the British Birds Rarities Committee is not intended to be comprehensive or in any way to replace the annual 'Report on rare birds in Great Britain'. The records listed are mostly those of the rarest species, or those of special interest for other reasons. All records refer to 2002 unless stated otherwise.

Accepted: Pied-billed Grebe *Podilymbus podiceps* Harrow Harbour (Caithness), 6th May. Black Stork *Ciconia nigra* Barlavington (West Sussex), 3rd May; Spean Bridge (Highland), 18th May; Gateley (Norfolk), 25th-30th May; Blidworth (Nottinghamshire), 2nd June. Glossy Ibis *Plegadis falcinellus* West Walton (Cambridgeshire/Norfolk), 13th September. Great Snipe *Gallinago media* Sheringham (Norfolk), 8th September; Blakeney Point (Norfolk), 12th September. Terek

Sandpiper *Xenus cinereus* Maldon (Essex), 25th-29th August. Spotted Sandpiper *Actitis macularia* Gugh and St Agnes (Scilly), 11th-23rd October. Franklin's Gull *Larus pipixcan* Farmoor Reservoir (Oxfordshire), 17th-28th August. Ross's Gull *Rhodostethia rosea* Plymouth (Devon), 28th January to 5th March. Gull-billed Tern *Sterna nilotica* Inner Marsh Farm (Cheshire), 18th May. Whiskered Tern *Chlidonias hybrida* Cotswold Water Park (Gloucestershire/Wiltshire), 14th-15th April. Pallid Swift

Apus pallidus Bryher (Scilly), 25th-26th March. Olive-backed Pipit *Anthus hodgsoni* Calf of Man (Isle of Man), 10th May. Lanceolated Warbler *Locustella lanceolata* Annet (Scilly), 22nd-23rd September. Sardinian Warbler *Sylvia melanocephala* Old Hunstanton (Norfolk), 27th September to 15th October.



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Secretary: M. J. Rogers, 2 Churchtown Cottages, Towednack, St Ives, Cornwall TR26 3AZ

Recent reports

Compiled by Barry Nightingale and Anthony McGeehan

This summary of unchecked reports covers mid January to mid February 2003.

White-billed Diver *Gavia adamsii* One picked up moribund in Scarborough (North Yorkshire), 3rd February, died in care; Cloughton (North Yorkshire), 8th February. **Great Bittern** *Botaurus stellaris* Widespread influx during early/mid January. **Great White Egret** *Egretta alba* Christchurch Harbour (Dorset), 24th January. **Glossy Ibis** *Plegadis falcinellus* Long-stayer at Bowling Green Marsh (Devon), until 12th February at least. **Black Duck** *Anas rubripes* Dales Voe (Shetland), 18th January. **Lesser Scaup** *Aythya affinis* Loch Leven (Perth & Kinross), 1st February; this species or hybrid at Swarkestone Lake (Derbyshire), 20th January to 4th February. **King Eider** *Somateria spectabilis* Loch Ryan (Dumfries & Galloway), 9th-11th February.

Pallid Harrier *Circus macrourus* Long-stayer at Warham Greens (Norfolk), until 11th February at least. **Gyr Falcon** *Falco rusticolus* Rame Head (Cornwall), 31st January; Portknockie (Moray), 9th February. **Killdeer Plover** *Charadrius vociferus* Saleen (Co. Cork), 3rd February, then Ballycotton (also Co. Cork), 8th February. **Pacific Golden Plover** *Pluvialis fulva* South Uist (Western Isles), 9th February. **'Thayer's Gull'** *Larus glaucooides thayeri* Juvenile/first-winter, Killybegs (Co. Donegal), 2nd-6th February. **Forster's Tern** *Sterna forsteri* Two wintering birds in Ireland, one in Co. Kerry, one in Co.

Mayo. **Little Auk** *Alle alle* Notable passage along the east coast in late January, including the following counts on 31st January: 507 past Girdle Ness (Northeast Scotland) in 50 minutes; 1,150 north past Hauxley (Northumberland) in 30 minutes; 1,260 past Whitburn (Co. Durham) in 135 minutes; 1,350 past Hartlepool Headland (Cleveland); at least 550 past Scarborough (North Yorkshire); and a total day-count of 9,822 past Flamborough Head (East Yorkshire).

Late news concerns a white-rumped swift (either **Pacific Swift** *Apus pacificus* or **White-rumped Swift** *A. caffer*) at the North Bull Island (Co. Dublin), 25th December 2002: see photos at www.IrishBirding.com **Richard's Pipit** *Anthus novaeseelandiae* Birley Edge (South Yorkshire), 15th January to 10th February. **Bohemian Waxwing** *Bombycilla garrulus* Midwinter influx (see *Brit. Birds* 96: 98) continued, to cover the whole country, although few flocks of over 50 were seen. The largest reported was of at least 200 in Newcastle upon Tyne in mid February.

Great Grey Shrike *Lanius excubitor* Widespread influx during January, continuing into February. **Arctic Redpoll** *Carduelis hornemanni* Sumburgh Head (Shetland), 5th February. **Two-barred Crossbill** *Loxia leucoptera* Hedgerley (Buckinghamshire), 27th January to 12th February. **Little Bunting** *Emberiza pusilla* Long-stayer at Forest of Dean (Gloucestershire), until 11th February at least.



99. Great Grey Shrike *Lanius excubitor*, Sandwich Bay, Kent, February 2003.



100. Male Two-barred Crossbill *Loxia leucoptera*, Hedgerley, Buckinghamshire, February 2003.

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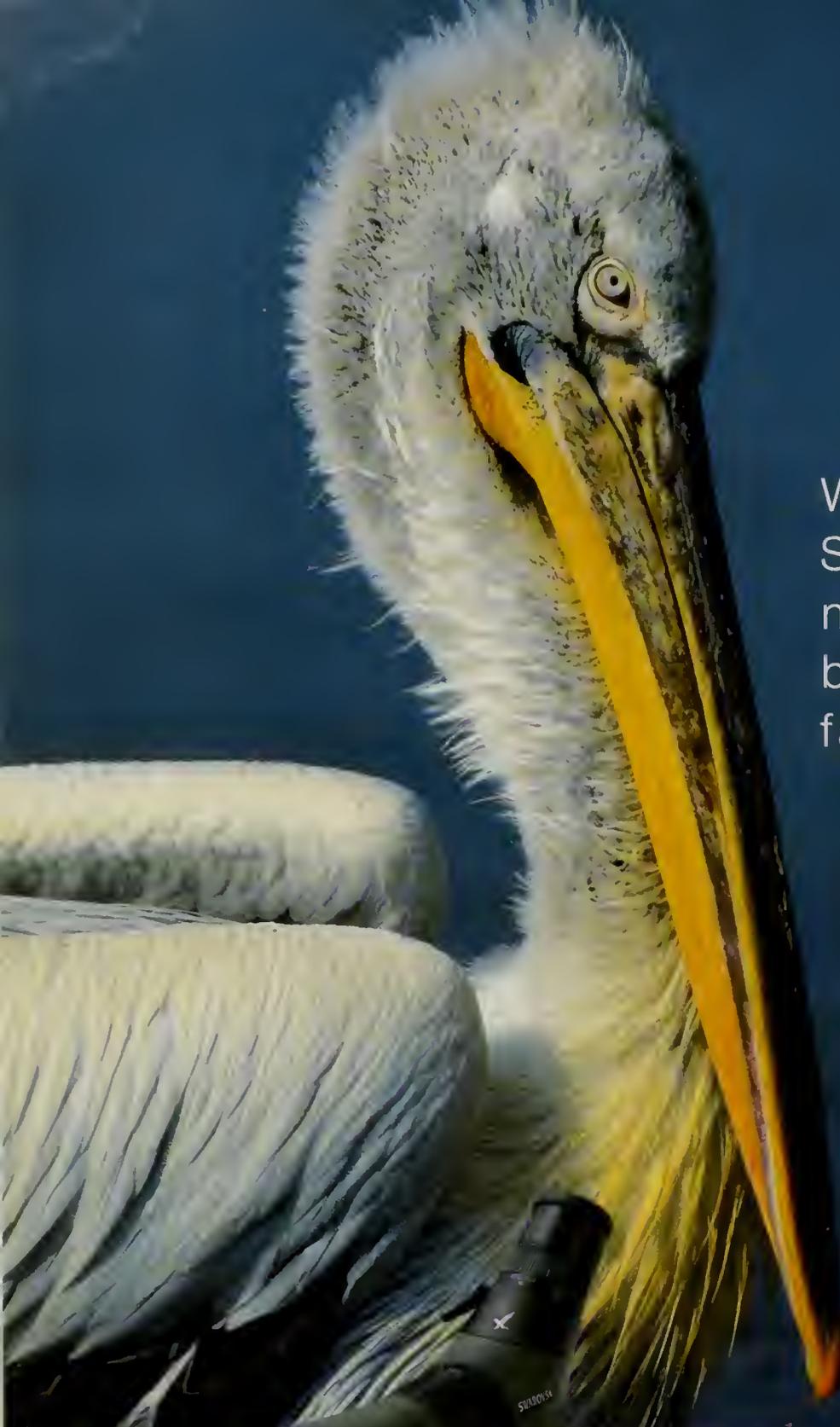


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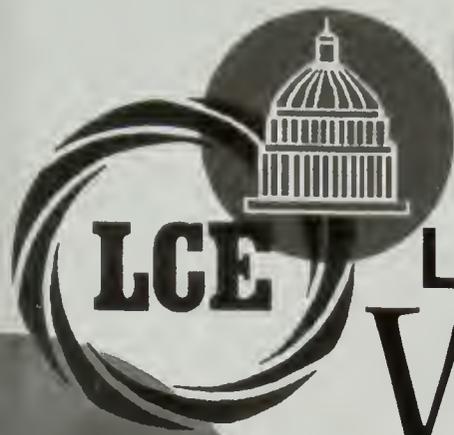
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Farming and birds: an historic perspective

Michael Shrubbs



Alan Harris

ABSTRACT Changes in farming have always had a profound impact on the countryside. During the eighteenth and nineteenth centuries, Parliamentary Enclosure and arterial drainage led to the loss of large areas of semi-natural habitat, but while species such as Great Bittern *Botaurus stellaris*, the harriers *Circus* and Black Grouse *Tetrao tetrix* certainly declined, the impact of these changes on the majority of farmland birds was surprisingly limited. This was largely because mixed farming systems developed at the same time. 'High farming' proved beneficial to many farmland species, raising fertility and providing new food supplies, particularly in winter. Furthermore, most permanent grassland was altered little, providing a stable habitat for specialised species. This created broad underlying stability in farmland bird populations.

In the modern era, this pattern has altered substantially, with declines dominating population change in farmland birds, and agriculture seen as a primary cause of decline. Four changes in farming methods have been crucial: the revolution in grassland management and destruction of old grassland; the development of pre-emergent chemical herbicides, causing the loss of arable weeds and leading to the predominance of autumn tillage; new methods of harvesting and the consequent loss of winter seed food; and the demise of undersown stubbles, which were important as both winter feeding sites and habitat for invertebrates. Farmland has become a far less rich and diverse habitat, and population declines were inevitable.

Introduction

A mantra of apologists for modern farming is that 'farming preserves the countryside'. Any examination of the history of farming in Britain over the past 250 years, however, shows profound changes in the habitats and the structure of farmland, and in crops and cropping patterns. All of these changes have had an enormous impact on our landscape: farming has been a catalyst for change.

The main changes in the eighteenth and nineteenth centuries were Parliamentary Enclosure, particularly of the commons, arterial drainage (often part of the process of enclosure), and the emergence of a new farming system, 'high farming'. After 1875, however, the prosperity of arable farming collapsed and arable land extensively reverted to grass, which, by the 1930s, occupied c.77% of the agricultural area of England and Wales, a proportion without historic precedent.

During and after the Second World War, the proportion of arable land increased again to a level comparable with that of both the Victorian period and the modern era, although with marked differences in distribution as arable farming is now concentrated in the east and pastoral farming in the west. Important habitat changes included extensive restructuring of field patterns, with major losses of hedgerows, and the ploughing of virtually all old pastures and meadows. Some of this old pasture was converted to arable, the rest reseeded with rye-grass *Lolium*. A key difference between the methodological changes of the nineteenth century and those of the later twentieth has been the importance of technological advances in the latter. The use of pesticides, particularly herbicides; the disappearance of livestock from arable farms, replaced by manufactured fertilisers as the source of fertility; the dominance of autumn-sown crops; and changes in the methods of harvesting cereals and grass have led to a marked loss of the diversity brought into

farmland by high farming. By contrast, changes in farming methods in the nineteenth century were broadly beneficial to birds, largely because of the scale of food resources they introduced. This paper examines some of the most important changes of the nineteenth century and their impact on bird populations, and uses that context to chart the most significant developments of the modern era.

The habitats comprising farmland (defined simply as land which is used for agriculture) are divided into (i) improved farmland (crops and grass), comprising the categories in the June Census of Agriculture Statistics of 'tillage', 'temporary grass or ley' (which together form 'arable'), and 'permanent grass'; and (ii) semi-natural habitats, comprising the categories 'rough grazing in sole right' and 'common rough grazing', together with hedges, ditches and woodland on farm holdings. The breeding birds of farmland are defined as (i) the ground-nesting species of fields, moorlands and marshes; (ii) species which feed extensively or entirely in fields; (iii) the common raptors and owls of the open countryside; and (iv) the common hedgerow birds included in the Farmland Index of the Common Birds Census (CBC). Wintering birds are defined simply as all species which winter regularly in farmland habitats (see Appendix 1).



Olaf Lessow

101. Montagu's Harrier *Circus pygargus*. A ground-nesting species of heath, down and fen which adapted to nesting in cereals in the twentieth century. Adaptation to crop nesting actually began in the nineteenth century but it requires protective measures during harvesting, and these were not an option at that time.

General changes in farmland bird populations

Fig. 1 shows the broad pattern of change in the breeding populations of farmland birds at four different periods. The final graph in fig. 1 is based on the results of the CBC, whereas earlier stages are based on more subjective observations and a good knowledge of distribution. It is, however, unlikely that early observers would have overlooked important changes in numbers. Reading the nineteenth-century county avifaunas shows clearly that ornithologists then had an acute sense of what, and why, changes were occurring.

Bird populations are rarely static, but fig. 1 is strong evidence that it was not until the mid 1970s that declines came to dominate patterns of population change in farmland birds, and agriculture was regarded as the predominant cause of those changes. In the nineteenth century, the main factors affecting population levels of farmland species were considered to be climatic amelioration, expansion of woodland, and persecution and game preservation (often synonymous). Population changes unequivocally

ascribed to agricultural development, and concomitant habitat changes, were surprisingly limited. This pattern persisted until the mid twentieth century, but Parslow (1973) then showed a new pattern emerging, with technical change in farming (largely the use of organochlorine pesticides) now a significant factor. But even then, withdrawal of these substances allowed populations to recover quickly. In the modern era, agriculture has emerged as the prevailing cause of change and declines have affected 45% of farmland species.

Since not all farmland birds are covered by the CBC, the number of 10-km squares occupied by proven or probable breeders in Sharrock (1976) and Gibbons *et al.* (1993) was compared (fig. 1d). Only differences of 10% or more between these two Breeding Atlases were taken as significant. This showed that only 15% of farmland breeding birds had shown no change in that period, while 58% had declined; three-quarters of those declines were concentrated among ground-nesting/wetland or field species.

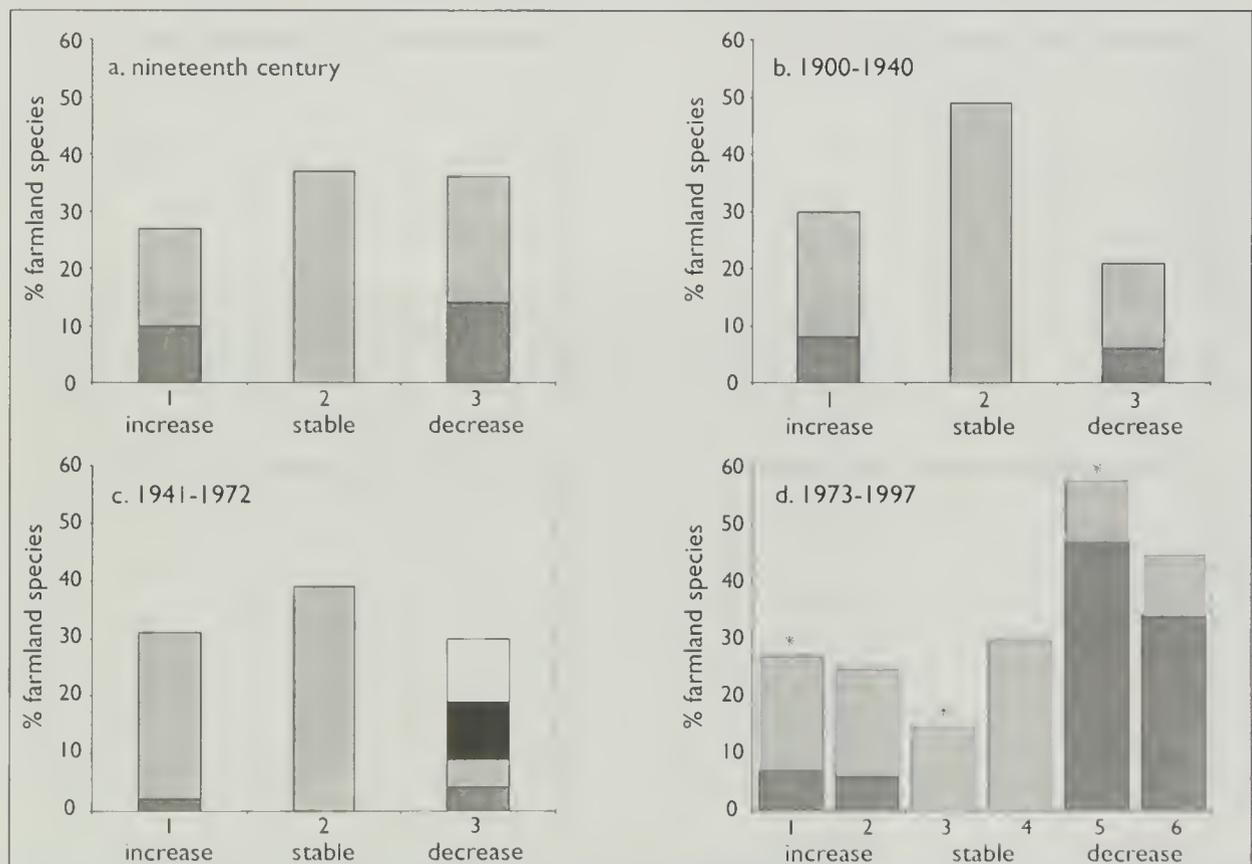


Fig. 1. Changes in the breeding populations of farmland birds in Britain at different time periods. Dark grey shading represents changes attributed unequivocally to developments in agriculture, pale grey shading represents other factors. In fig. 1c, dark grey represents general (non-specific) agricultural changes, black represents the effects of organochlorine seed dressings, white represents the effects of changes in grassland habitats, and pale grey represents non-agricultural factors. The bars marked * in fig. 1d represent changes shown by a comparison of the two Breeding Birds Atlases (see text).

Sources: 1a. Nineteenth-century avifaunas; 1b. Alexander & Lack 1941; 1c. Parslow 1973; 1d. Marchant *et al.* 1999. Reproduced from Shrubb (in press).

Commons enclosure and arterial drainage

These two processes frequently overlapped, since many areas of fen and marsh were also extensive commons. 'Waste' was the term most frequently used into the early nineteenth century to designate the land we now call 'common'. 'Waste' was a manorial term, the closest modern equivalent perhaps being 'rough grazing'. Wastes comprised habitats such as lowland heath, downland and limestone sheepwalks, fens and marshes, and mosses and large areas of upland moorland grazings. Although unrewarding to cultivate by early methods, they provided essential resources to early rural economies: grazing in particular, but also materials for fuel, bedding for livestock, thatch and, in fenlands, fish and wildfowl for food. Wastes were highly valued, and Rackham (1986) noted that heathland commanded rents almost as high as arable. The word 'waste' did not acquire its present perjorative meaning until the height of the enclosure period.

Wastes were extensively managed under systems of rights in common, and most lay upon light, easily worked and free-draining soils – sands, peats, and chalk and limestone brashes – which were particularly well suited to early high farming techniques. There is little doubt that this factor was an important consideration in the drive for their enclosure from the mid eighteenth century.

In the early eighteenth century, wastes occupied at least 20% of the agricultural area of England and Wales, quite possibly more (Hoskins 1955). In 1795, the Board of Agriculture computed the area still remaining at 8 million acres (3.24 million ha), of which c. 45% comprised the area now treated as upland rough grazing in sole right. Every English county held extensive areas of heath and/or downland or limestone sheepwalk, and/or fen, marsh and moss. The ubiquity and extent of the wastes and their habitats is well illustrated by the distribution of bird species for which they

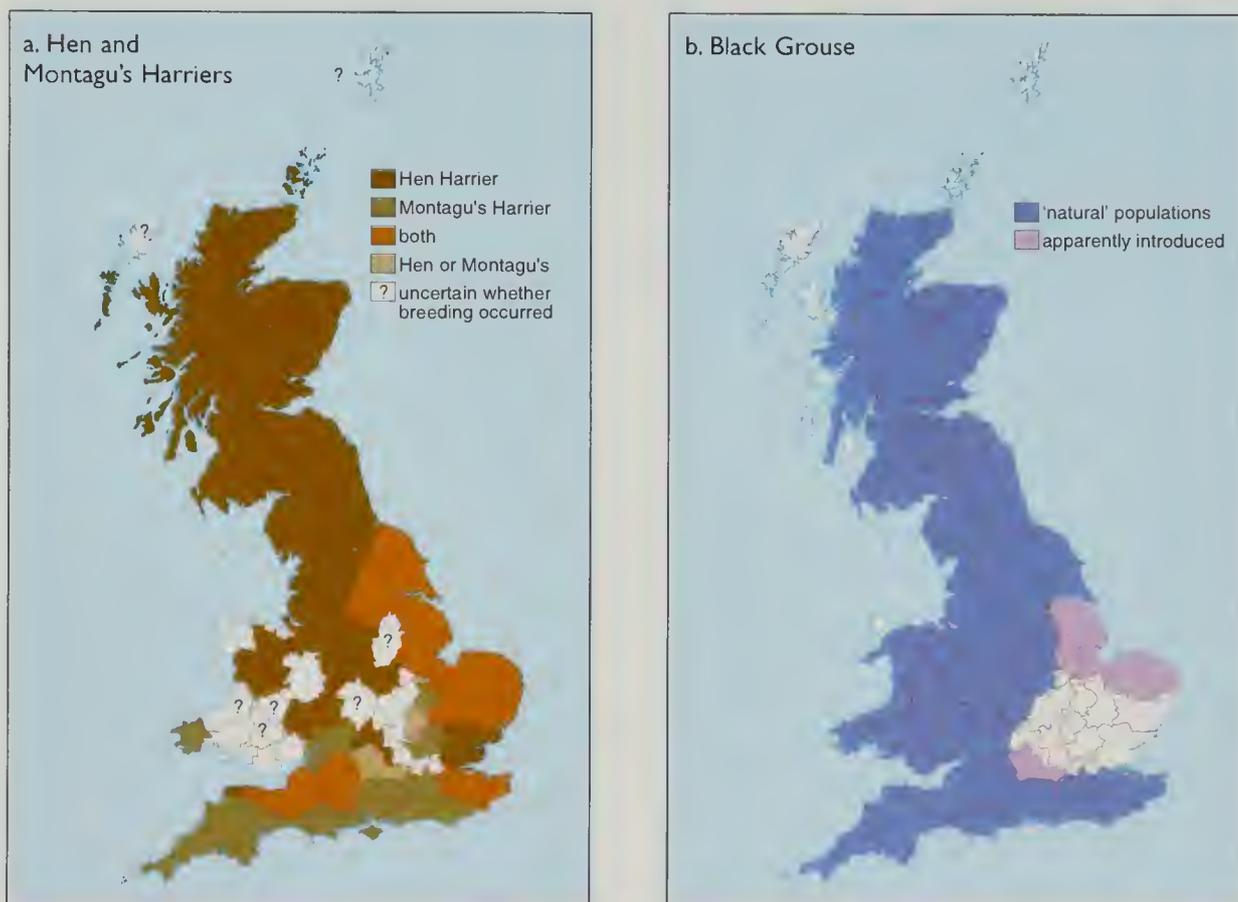


Fig. 2. The breeding distribution of (a) Hen *Circus cyaneus* and Montagu's Harriers *C. pygargus* and, (b) Black Grouse *Tetrao tetrix* in Britain in the late 1700s/early 1800s, by county. Question marks denote areas where breeding was uncertain but there was much suitable habitat. Note that there was much confusion over the separation of the two harriers until at least the 1850s. There was also a single breeding record for Hen Harrier in Shropshire. The distribution shown is my interpretation of the records. Black Grouse in Lincolnshire, Norfolk and Berkshire were apparently introduced in the nineteenth century.

Main sources: Nineteenth-century avifaunas; also Gladstone (1924) for Black Grouse.

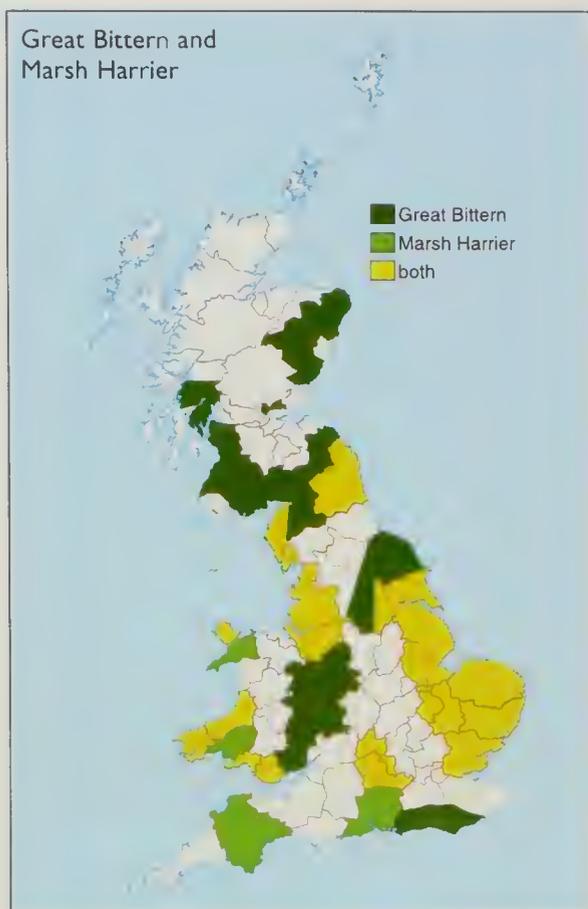


Fig. 3. The breeding distribution of Great Bittern *Botaurus stellaris* and Marsh Harrier *Circus aeruginosus* in Britain in the late 1700s/early 1800s, by county. Great Bitterns may also have bred in Kent, Hampshire, Middlesex, Carmarthen and the Conwy valley; Marsh Harriers may also have bred in Sussex, Dorset, Wiltshire and Bedfordshire. Source: Nineteenth-century avifaunas.

were particularly important. For example, fig. 2 shows the breeding distribution of Hen *Circus cyaneus* and Montagu's Harriers *C. pygargus*, and Black Grouse *Tetrao tetrix* in the late eighteenth/early nineteenth centuries, all numerous species in this period. Perhaps most striking is the widespread distribution of Black Grouse: absent from only 11 southern-midland and eastern English counties. This species requires home ranges exceeding several square kilometres (Tucker *et al.* 1995), and its distribution gives a convincing picture of just how extensively heathland and marginal habitats were distributed at that time, particularly in England. Major areas of fen and swamp were also widespread, and fig. 3 shows the distribution of two typical species of these habitats: Great Bittern *Botaurus stellaris* and Marsh Harrier *C. aeruginosus*.

Although extending from the early eighteenth century to the 1870s, the main period of Parliamentary Enclosure of the commons was from

about 1760 to 1845 when a total of 1.73 million acres (700,000 ha) was enclosed and much of it converted to arable land. Although enclosure did not affect Scotland, where waste and common had a different legal standing, much similar land was brought into cultivation there, particularly in the second half of the eighteenth century (see Smout 2000). In Scotland, any impact on birds was muted by the scale of semi-natural habitat remaining. Commons enclosure did not just lead to conversion of semi-natural habitat to farmland, however. It also involved the creation of an extensive infrastructure of roads, hedges and ditches, buildings and farmsteads. The result was a profoundly changed and much more uniform landscape.

The main period of arterial drainage almost exactly coincided with Parliamentary Enclosure, extending from about 1770 to the 1840s. Drainage in the Fens and the marshes of south-east Yorkshire in fact started in the seventeenth century, but these works were in serious need of repair and improvement by the late eighteenth century. The total area affected by such works was estimated by Marshall *et al.* (1978) as c. 800,000 ha in England and Wales. A huge area of swamp, fen and flood meadow was similarly treated in Scotland, mostly completed by the end of the eighteenth century.

Considering the scale of habitat change and destruction which occurred in this period, it is remarkable how few breeding species were lost. Ranges certainly contracted but, among farmland birds, only Greylag Goose *Anser anser* (in lowland England), the three harriers, Great Bustard *Otis tarda* and Ruff *Philomachus pugnax* disappeared entirely, plus Black-tailed Godwit *Limosa limosa*, which might arguably qualify as a farmland bird. Of these, only the loss of Great Bustard has proved permanent. Nor was habitat destruction the only cause of loss. For example, except for Hen Harrier in lowland England, much suitable habitat remained for all the harriers throughout the nineteenth century, and they were exterminated largely by game preservers. While it could be argued that persecution simply pre-empted the impact of habitat destruction, the adaptability of both Marsh and Montagu's Harriers in the modern era, when both have started to nest in cereal crops (Gibbons *et al.* 1993; Clarke 1996), suggests what might have happened had they been left in peace. Great Bustards commonly nested and fed in arable crops in the early nine-

teenth century, as they do elsewhere in Europe today, but the scale of persecution by egg-collectors and specimen hunters removed any chance of this species adapting to the new farming habitats. Anyone who doubts the impact of collectors on this species should read Nelson's (1907) account of its extermination in Yorkshire.

Many species of the waste, however, adapted readily to the new farming which replaced it, if sometimes in reduced numbers, e.g. Stone-curlew *Burhinus oediconemus*, Northern Lapwing *Vanellus vanellus* and Linnet *Carduelis cannabina*. Many nineteenth-century avifaunas record Linnets moving out of farmland, where they wintered, to nest in gorse on wastes and commons. Nesting in farmland hedges appeared not to be common until the late 1800s, an adaptation perhaps encouraged by familiarity with the habitat in winter.

Taking the nineteenth century as a whole, analysis of county avifaunas shows that 27 farmland breeding species increased, 36 showed little change and 35 declined. Contingency analysis shows that proportionately more change occurred in field species but the differences were only weakly significant ($X^2 = 9.66$, df 4, $P < 0.05$). But of the 35 field and ground-nesting species which declined, 41% were common raptors, owls and corvids, which were affected by game preserving far more than they were by habitat or farming change. Other species, particularly waders and wildfowl, were at least equally affected by exploitation for food. Such hunting commonly extended into the breeding season, for there was no close season. This problem became more severe during the nineteenth century, with major advances in the efficiency of guns. Not until the 1870s was an effective close season introduced by Act of Par-



Gordon Langsbury

102. Black Grouse *Tetrao tetrix*. A species of moorland and heathland edge. Fragmentation of its habitat by piecemeal enclosure was probably as significant as enclosure itself in its nineteenth-century decline.

liament, and its impact on recovery of populations was widely noted. Its preamble stated 'that the wildfowl of the United Kingdom, forming a staple article of food and commerce, have of late years greatly decreased in numbers by reason of their being inconsiderately slaughtered during the time they have eggs and young'.

There are perhaps three reasons why the scale of habitat change and destruction in this period had a limited affect on farmland bird populations. Firstly, enclosure was spread over more than a century, allowing time for adaptation, when not prevented by other factors. Secondly, extensive areas of grassland (such as old enclosed pastures, hay meadows, and water and flood meadows) were largely unaffected, providing a sanctuary of undisturbed habitat for many species. New habitats, particularly hedgerows, also provided alternative nest sites for species such as Linnet and Yellowhammer *Emberiza citrinella* which lost semi-natural breeding grounds. Estate management in this

period also saw extensive new woodland planting, which encouraged range expansions in several species (Holloway 1996). Thirdly, the new farming which emerged in this period was generally beneficial to birds, particularly through the increased availability of food resources.

High farming

'High farming' typically describes the system of rotation farming developed in the eighteenth and nineteenth centuries which then persisted until the 1940s. Crops and livestock were integrated through fodder root crops grown for winter stock feed. Animal manure in turn fertilised the system, making it largely self-sustaining. Fertility was further enhanced by short-term leys, often of clover, again fed to stock. The classic rotation was the four-course Norfolk system: roots, oats or barley under-sown, ley, wheat. Despite much variation during the nineteenth century, the principles remained unchanged and the most common rotation settled around one of five or six courses, including three years of cereals and one or two of ley. Fig. 4 plots the expansion of fodder roots

in England and Wales from 1800 as an index of the spread of high farming. It was first largely confined to areas of light soils, and the surge from the 1830s was related to the spread of field drainage in clay soils. Although machines for cutting hay and cereals were developed mid century, and threshing machines somewhat earlier, much harvesting was still by hand and storage was in ricks.

This system was highly beneficial to farmland birds, which exploit crops, crop residues, weed seeds, and soil and surface invertebrates for food. Cultivations are an important source of seeds and invertebrates, particularly in spring when other sources tend to be depleted. Crop growth progressively inhibits many species from feeding and ground-nesting birds from finding suitable nest sites, and crop rotation provides essential alternatives. Important features of high farming for birds were the variety of food sources it provided, and increased food supplies through the expansion of cultivation and greater availability of waste grain from the increased area and yield of cereals. Another factor was the increase in fertility of the soil which rotation and high inputs of organic

manure brought. This was particularly important in grassland (see below) and led to greater populations of soil invertebrates. There is a clear link between soil fertility and bird abundance (e.g. Ratcliffe 1976 for European Golden Plover *Pluvialis apricaria*; Laursen 1980 for farmland birds generally; Newton *et al.* 1986 for Eurasian Sparrowhawk *Accipiter nisus*; Shrubbs in press for farmland birds generally). Such mixed rotational farming had other demonstrable benefits. For example, Wilson *et al.* (1997) found that Sky Larks *Alauda arvensis* needed to make two or three nesting attempts per season for self-maintenance, which was possible in mixed rotations but not in monocultures. Similarly, Schlapfer (1988) found that crop diversity had a major influence on Sky Lark numbers in Switzerland, by increasing the availability of secure nest sites. Wilson *et al.* (1995) also found a strong preference for nesting in

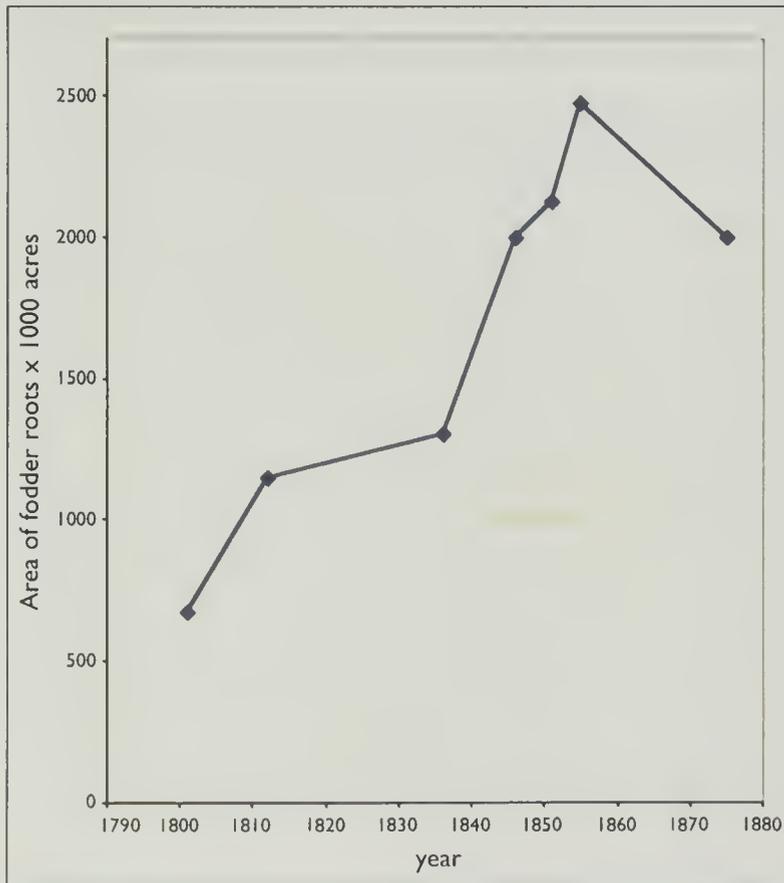


Fig. 4. The increase in the area of fodder roots in England and Wales from 1800 to 1875. Data from Trow-Smith (1951) and Grigg (1989). One ha = 2.47 acres. Reproduced from Shrubbs (in press).

rotational set-aside, which mimics the old undersown stubbles of high farming, and organically grown wheat crops, which also reintroduce some of the important features of the older farming methods. Similar results have been obtained in studies of other farmland birds, such as Northern Lapwing and Corn Bunting *Miliaria calandra*.

The value of the varied food sources arising from high farming was neatly encapsulated by Morris's (1851-57) summary of the feeding ecology of Common Chaffinches *Fringilla coelebs* in farmland. They used stubbles in autumn/early winter, stack- and stockyards from January to March, spring sowings in March/April, invertebrates during summer, and ripening corn in August and September. Studies of birds' feeding behaviour on my own farm in the 1980s also confirmed the importance of varied food sources. The farm then retained both spring and autumn cereals, one-year clover leys, and a large area of old permanent grass. Overall, the most favoured feeding sites were permanent grassland, newly sown ground in spring and autumn, and stubbles, including undersown stubbles. The grass was little used in autumn, and clover leys were important in spring and summer. The seasonal variations I



Robin Chittenden

103. Goldfinch *Carduelis carduelis*. An extremely common bird of the wastes in the eighteenth century, it failed to adapt to high farming as its congeners did, largely because of differences in feeding ecology. These problems were exacerbated by the activities of bird trappers, who operated primarily on its preferred common-land habitats.

recorded emphasised the avoidance of standing cereal crops. Without the alternatives provided by grassland, leys and spring tillage, it would have been a barren feeding area for most birds



Sam Alexander

104. Wood Pigeon *Columba palumbus*. A particular beneficiary of high farming among birds, turnip leaves became its principal winter food, leading to a population explosion. Although it declined sharply with the decline of turnips after 1945, it has increased again rapidly with the availability of another brassica crop, oil-seed rape.

Hugh Harrop



105. Corn Bunting *Miliaria calandra*. Although widely stated to be typically a bird of barley crops, this is one of the most charismatic birds of mixed arable rotations, of which barley is a significant component. A pest in the nineteenth-century stack-yards, it was frequently trapped and eaten in puddings as a result.

between March and August. In an area of mixed tillage crops in Huntingdonshire, Davis (1967) also found that rotational crops were most important in summer, while standing cereal crops were generally avoided, and Wilson *et al.* (1996) found that mixed farming, involving both arable and pastoral enterprises, clearly attracted greater numbers of more species of field-feeding birds than monocultures.

One important aspect of the increased availability of food resources for birds in high farming was almost certainly the impact on winter survival. We have little conception today of the sheer numbers of larks, finches and buntings which swarmed in stubbles and stack-yards in winter in the nineteenth century. Sparrows and buntings in particular were regarded as pests, as they stripped the thatch off ricks of stored grain. Not only seed-eaters thrived. Traditional cattle yards, then present on every farm, were (and are) favoured feeding areas for Wrens *Troglodytes troglodytes*, Hedge Accentors *Pruuella modularis*, Robins *Erithacus rubecula*, Blackbirds *Turdus merula* and tits *Parus* (pers. obs.), while buntings forage for grass seeds in

hay; indeed, Cirl Buntings *Eumyza cirlus* were particularly noted for this habit in the nineteenth century. Root fields, particularly of turnips, provided other winter food sources, the leaves especially so for pigeons (Columbidae), whose populations increased massively during the period, and the larvae of invertebrates such as the Turnip Moth *Agrotis segetum* and the Turnip Sawfly *Atlatia rosae* (now extinct) were common and avidly taken by plovers and larks. Undersown stubbles extended to c. 20% of arable land and provided feeding sites for seed-eaters and gamebirds throughout the winter. They were also significant overwintering habitats of invertebrate groups important to species like Grey Partridge *Perdix perdix*, particularly sawflies. Today, these resources, and the populations which exploited them, are largely gone, banished by the modern agricultural revolution.

Every nineteenth-century avifauna I have examined stressed the value of stack-yards, stockyards and farmsteads to birds, seed-eaters especially, as refuges in severe weather, particularly during snow. Assessments of the effects of severe winters in Britain in 1916/17 (Jourdain & Witherby 1918), 1929 (Witherby & Jourdain 1930), 1939/40 (Ticehurst & Witherby 1943), early 1947 (Ticehurst & Hartley 1948), and 1962/63 (Dobinson & Richards 1964) consistently recorded only limited effects on the common sparrows, finches and buntings compared with other small farmland passerines. The pattern was most clearly indicated by Ticehurst & Hartley for 1947 and Dobinson & Richards for 1962/63, who showed that only 17% and 28% respectively of reports for common finches and buntings in their surveys were for severe decline or extinction, compared with 46% and 52% for other small farmland passerines. The seed-eaters most affected were always Goldfinch *Carduelis carduelis* and Reed Bunting *Emberiza schoeniclus* and, to a lesser extent, Linnet. These species were rarely recorded as exploiting stock and stack-yards in the nineteenth century. The pattern shown by Dobinson & Richards for 1962/63 was supported by CBC results.

The Goldfinch was an interesting exception to the general patterns outlined here. Limited information is available on its status in the eighteenth and early nineteenth centuries, but suggests that it was extremely numerous. Cobbett (*Rural Rides*) saw a flock in Gloucester-

shire in September 1826 which he estimated at 10,000 birds occupying about half a mile (800 m) of roadside thistle *Cirsium* banks and noted several other very large flocks in the same district that autumn. The species declined for much of the nineteenth century, remaining fairly common only in a few southern English counties and much of Wales (fig. 5). This decline appeared to start with the major expansion of high farming from the 1830s (fig. 4). A species particularly of the wastes, the Goldfinch lost vast areas of habitat with their enclosure and proved unable to adapt to the changing ecology of farmland. It takes a much narrower range of farmland weed seeds than other cardueline finches (Newton 1967) and one weed species important to it, groundsel *Senecio*, was widely noted as becoming rare in high farming, while thistles were also declining. Goldfinches feed on the ground much less than, for example, Linnets (Newton 1967) and do not feed on seeds brought to the surface by cultivations (pers. obs.). Nor was it an important component of finch flocks in stack-yards, since it takes few cereals. These limitations made it par-

ticularly vulnerable to the changes wrought by high farming, which were aggravated by its attraction for bird trappers, who operated largely in its preferred habitat, the waste. The distribution illustrated in fig. 5 shows the core area of nineteenth-century populations in the mainly pastoral southwest.

High farming led to a significant reduction in farmland weed populations, particularly noticeable for conspicuous species like thistles. Weed control in high farming rested on crops sown by seed drills in rows which were then weeded regularly during the growing season. Such methods were effective but demanded a high level of manual labour. Roberts (1958, 1962, 1968) showed that such practices could reduce arable weed populations by up to 45% per year in good conditions. But elimination was impossible because such work was weather dependent: wet years allowed weed populations to recover and guaranteed that the soil's seed bank was replenished regularly. Nevertheless, there is no indication that the undoubted efficacy of weeding in high farming affected any species except Goldfinch. There are three reasons for this. Firstly, seed-eaters, which should have been most affected, make important use of wasted cereal grains, the availability of which increased with the area and yield of cereals, and in stack-yards. Secondly, not all high farming was of a uniformly high standard. Caird (1852) noted that good farming still existed alongside bad: weed seeds could always be found. Thirdly, although the weeds declined, their seeds remained widely available in the soil, exposed at each cultivation and replenished intermittently.

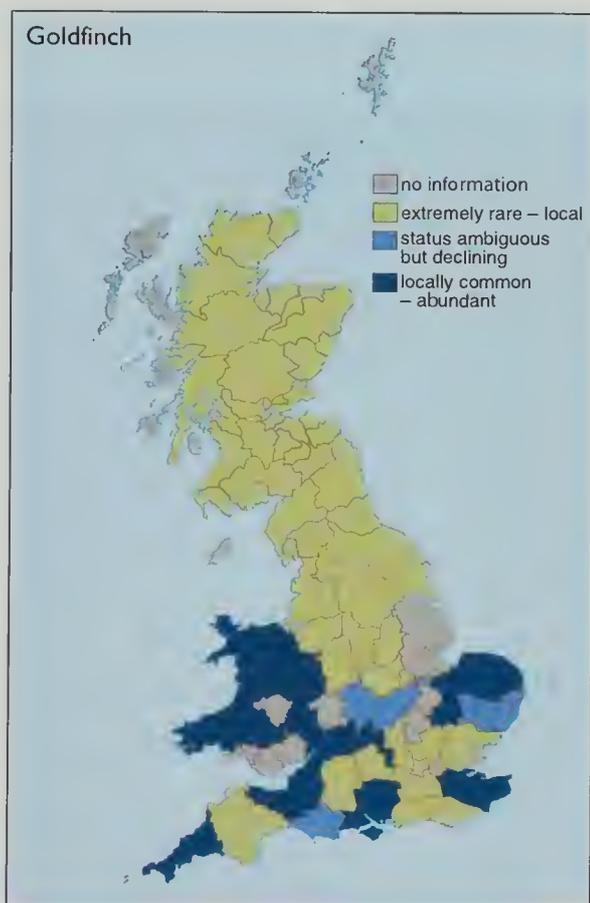


Fig. 5. Breeding distribution of the Goldfinch *Carduelis carduelis* in Britain in the late 1800s/early 1900s, by county. Source: County avifaunas. Reproduced from Shrubbs (in press).

Grassland and stock

The statistician Gregory King estimated the area of pasture and meadow in England and Wales, separate from the grazings of the waste, at c. 12 million acres (4.86 million ha) in the late 1600s (Stamp 1955). In the 1870s, the June Census of Agriculture (MAFF) recorded 11.5 million acres (4.66 million ha) of permanent grass, a category which, like King's category, included water and flood meadows, hay meadows and old enclosed pastures. Thus, the area of these habitats changed very little over a long period. Such habitats were less extensive and important in Scotland because of the great extent of open hill grazings. Cultivable land being comparatively limited, farmers preferred leys for their improved grass.

Many areas of riverine grassland were subject to distinctive forms of management. Irrigated water meadows were widely constructed, their classic distribution being in the streams of the southern chalk and limestone hills. But they were constructed throughout Britain, as far north as central Scotland, although unusual in the west. Such meadows were intensively managed, particularly for grazing in spring, and were of little value as breeding areas for ground-nesting birds. But they were valuable feeding habitats for farmland species, including wildfowl, raptors such as Common Kestrel *Falco tinnunculus* and Barn Owl *Tyto alba*, plovers, Common Snipe *Gallinago gallinago* and thrushes, particularly in winter because they rarely froze (Tubbs 1993).

Water meadows could not be constructed in every valley, because of unsuitable soil types, especially clays, and/or too little rainfall, and many riverine meadows in the nineteenth century were flood meadows. Clarke (1854) showed that most major river systems in England and Wales had extensive flood meadow, used for summer grazing and hay production. Silt-laden winter flooding fertilised these meadows and produced heavy yields, but

management was often disrupted by summer flooding, which produced loud demands for flood defences. Grazing was invariably by cattle, sheep being kept off because of the danger of the rot (presumed to be liver fluke), and stocking densities were low, commonly one cow per three acres (1.21 ha). Wilkinson (1861) noted only seven cows per 100 acres (40 ha) in the lower Test valley, Hampshire.

Many areas of flood meadow remained in poor agricultural condition in the mid nineteenth century. Mills, navigation rights and fishing weirs posed difficulties to land drainage, grain mills being the most widespread problem. By the end of the nineteenth century, grain milling was increasingly concentrated at coastal ports, railways were used to transport bulk goods rather than canal and river traffic, and the industrial use of water power had declined. By this time, effective interest in land drainage for agriculture was waning, but these developments led to the disappearance of major competitive commercial interests, backed by legal rights, to drainage on many rivers, which has had an important influence on land drainage in the later 20th century. These river valleys were important sites for breeding birds, particularly



Gunter Bachmeier

106. Black-tailed Godwit *Limosa limosa*. A common breeding wader in eastern England in the eighteenth century. Persecution was an important reason for its final loss in the nineteenth. It was a highly prized table bird and valued at about five shillings apiece (about £7.50 at today's prices), a considerable sum when farm labourers earned, on average, about ten shillings per week.

Northern Lapwing and Common Snipe, and, in hay crops, Common Quail *Coturnix coturnix*, Corn Crake *Crex crex* and Whinchat *Saxicola rubetra*. Waders were also common winter visitors. As breeding species, Eurasian Curlew *Numenius arquata* and Common Redshank *Tringa totanus* did not colonise many inland sites before the 1860s, when Common Redshanks started to spread rapidly inland. Since this was the height of the high farming period, climatic amelioration was probably the cause of their expansion (Burton 1995). Earlier, the frequency of severe winters into the 1840s, followed by a period of severe summer flooding (Clarke 1854), may have restricted them, as suitable habitat was always available. Many ducks, e.g. Eurasian Teal *Anas crecca*, Garganey *A. querquedula* and Northern Shoveler *A. clypeata*, were also unexpectedly scarce (although over-exploitation of these species for food was important). Finally, these sites were probably also important for Common Kestrels and Barn Owls as hunting areas, and such old grasslands were once favoured feeding sites for finches and buntings.

In the past, 'pasture' referred to grassland used solely for grazing, while 'meadow' meant

grass which was also mown for hay. By the early 1800s, outside the rather specialised habitats of riverine grassland, pastoral farmers faced increasing problems with declining fertility in their pastures and meadows. The main problem was that traditional management involved a long-term transfer of fertility from grass to arable (see Sturgess 1966). As pasture yields declined, so did stocking levels. Several factors helped break this cycle in the mid nineteenth century: clays were under-drained, allowing a major extension of roots and other crops to be grown for stock feed (fig. 4); the greater availability and use of purchased feeds; the increased use of purchased fertilisers, particularly bone dust and lime; and the practice of rotating pasture and meadow around the grass. Outside water and flood meadows, taking a hay crop once in three years came to be regarded as best practice (Cadle 1867), a change to which strongly philopatric species, such as Corn Crake, had to adjust. Reseeding was unusual at this time, and high water-tables were regarded as beneficial for fattening cattle (more important during this period than dairying). These factors increased hay yields, enabled more stock to be kept and allowed a much greater return of



Gunter Bachmeier

107. Common Kestrel *Falco tinnunculus*. More heavily persecuted by game preserving interests in the nineteenth century than many authorities believe, being a serious predator of game chicks in rearing pens. Now declining in western Britain with the great intensification of grassland management, particularly for sheep, which limits vole *Microtus* populations.

manure to grassland, resulting in a major increase in fertility. Both Sturgess (1966) and Thompson (1968) described this widespread process as the second Agricultural Revolution.

As fertility influences bird numbers, it is unlikely that the increased fertility of grassland in the nineteenth century had no impact on populations. Modern studies suggest that greater fertility would have particularly affected species exploiting soil invertebrates, since invertebrates almost certainly increase significantly in previously nutrient deficient pastures. Tucker (1992) studied the behaviour of invertebrate feeders in an area of mixed farming in Buckinghamshire in winter. Permanent grass was the preferred feeding habitat of these birds, particularly long-established pastures or those where farmyard muck was frequently applied. Manure also increased the attractiveness of tilled fields as feeding sites.

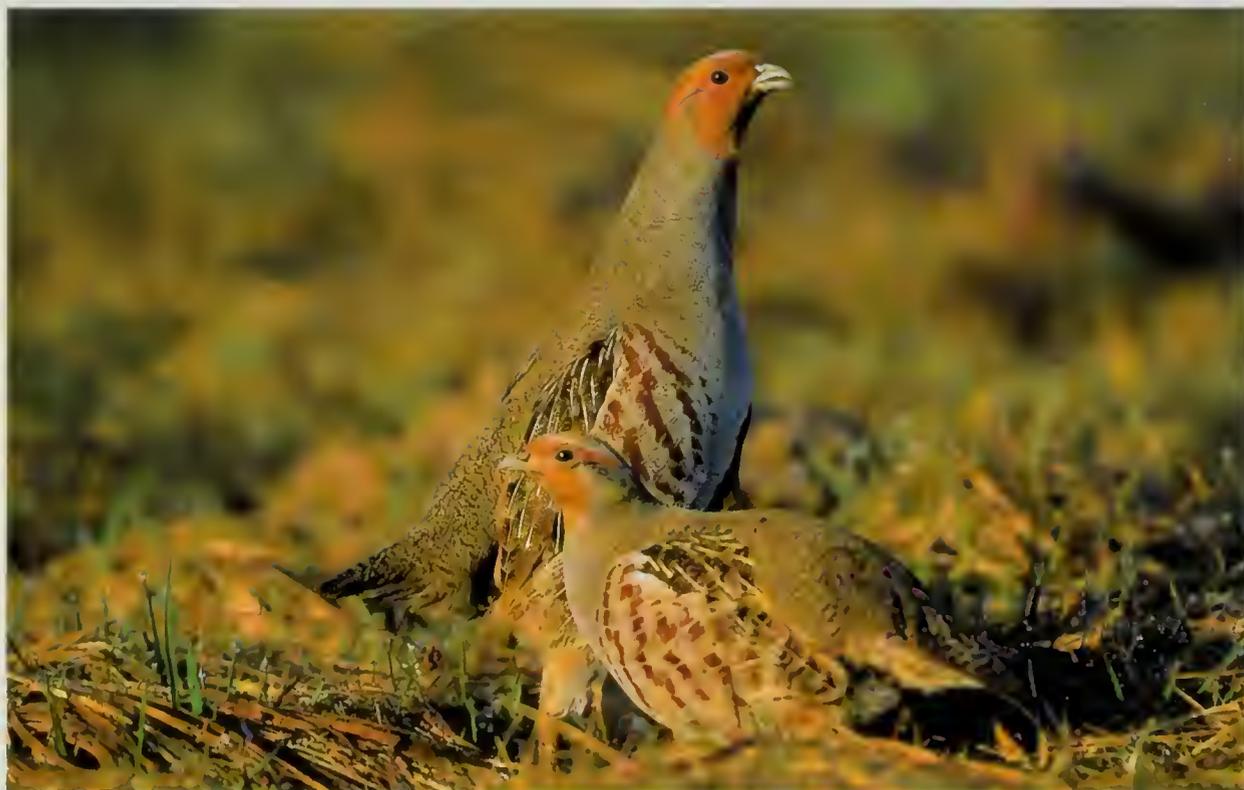
With one exception, however, there is little evidence that these changes in grasslands increased bird populations, and their main effect may have been to support population stability in a period of marked habitat change, providing new resources to maintain breeding success and survival. Common Starling *Sturnus vulgaris* decreased very markedly in the eighteenth century, however, becoming rare or

extinct in mainland Scotland and northern England by 1800 (Alexander & Lack 1944). The pattern reversed from about the 1830s and the species spread back into northern England and the whole of Scotland, and also into Wales and the West Country over the next 70 years, becoming universally abundant (Harvie-Brown 1895; Alexander & Lack 1944). Feare (1984) showed that invertebrate foods are essential for Common Starlings feeding in grassland, and that the population spread after 1830 was closely correlated with the marked changes in grassland fertility, with its probable impact on invertebrate populations.

In summary, several points about permanent grass habitats and management in the nineteenth century can be made. There was always plenty of wet grassland, cattle were predominant, stocking densities were low, summer water-tables were often kept high, fertility was considerably enhanced, and ploughing and reseeded was unusual. Good habitat for birds was clearly abundant.

The modern era

In the last 30 years, we have witnessed a profound decline in the diversity of farmland habitats, which has affected all farmland wildlife. What were the most important causes of change



Gunter Bachmeier

108. Grey Partridge *Perdix perdix*. One of only three common nidifugous species in arable farmland, a characteristic which has led to it being seriously affected by modern chemical herbicides. These have removed wholesale the arable weeds and their associated invertebrates upon which the chicks depend for food.

Table 1. Numbers of cattle and sheep in Britain since the early 1870s, together with the area of permanent grass. Source: June Census of Agriculture Statistics.

Period	Total cattle	Total sheep	Permanent grass (million ha)
early 1870s	6,034,326	29,642,933	10,779,446
early 1930s	7,235,358 (+20%)	25,262,012 (-15%)	12,209,412 (+13%)
early 1960s	10,734,311 (+48%)	28,025,919 (+11%)	11,679,336 (-4%)
early 1990s	10,237,430 (-5%)	41,136,100 (+47%)	10,308,166 (-12%)

Note: Permanent grass in this table includes permanent grass, rough grazing and commons rough grazing. The latter two categories were not recorded before 1892, so data for that year have been used for the early 1870s figures.

and population decline in the late 1900s? Four developments seem crucial. These are: the revolution in grassland management since 1945; the development of herbicides, particularly pre-emergents; changes in harvesting methods; and the loss of the undersown ley.

In grassland management, virtually all permanent grass other than rough grazings has now been ploughed and reseeded at some time, in sharp contrast to nineteenth century practice. Fuller (1987) found that the area of old lowland grassland in England and Wales had declined by 92% since the early 1930s and comprised only 4% of the existing grass area, excluding rough grazings. This area has surely continued to decline since. This has been the most significant and extensive habitat change in farmland and, until recently, one of the least regarded. It has probably affected invertebrate populations in particular, the scarcity of which in modern grass fields is striking to both ear and eye. The loss of old grassland has been accompanied since the late 1960s by a shift in the focus of land drainage into wet grasslands, a habitat largely bypassed by nineteenth-century operations. I have calculated the area of such habitat drained in England and Wales at c. 300,000 ha since 1970 alone (Shrubb in press). Surveying the extent and distribution of remaining areas in England, Dargie (1993) found a high degree of fragmentation. Fragmentation reduces species diversity, and lowering water tables to accommodate changing use in one

part, which has often occurred, makes it difficult to maintain them in the remainder, to the further detriment of wetland species (e.g. Williams *et al.* 1983; Green & Robins 1993).

Fertiliser practices in grassland have changed in favour of inorganic fertilisers, particularly nitrogen, rather than organic manures. Use of nitrogen reaches 200-255 kg/ha in grass cut for silage, which has almost entirely replaced hay as winter fodder. Cut earlier and more frequently than hay, silage contains little seed, and so there has been an important loss of winter food resources for seed-eating birds in pastoral farmland. High inorganic fertiliser usage also suppresses invertebrate populations (e.g. Beintema *et al.* 1991; Vickery *et al.* 2001) and discourages herbs and finer grasses; rye-grass-dominant swards can be produced by intensive management, including high fertiliser applications, alone (Fuller 1987). The objective of such management changes has been to increase livestock production from grass, and stocking densities have risen to historically unprecedented levels (table 1, fig. 6). These figures confirm the long-

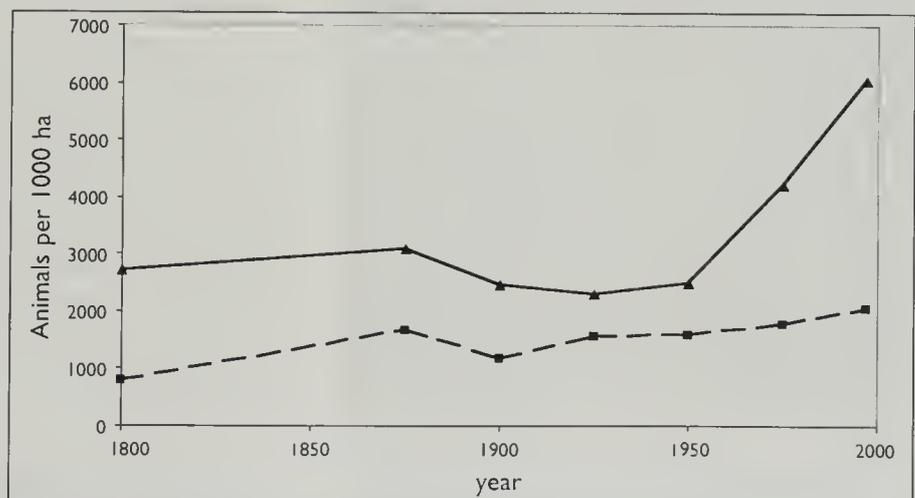


Fig. 6. Overall stocking densities of cattle and sheep in England & Wales (solid line) and in Scotland (hatched line) grazing all grass plus fodder crops, at intervals from 1800. Sources: Grigg (1989); June Census Statistics of Agriculture (MAFF). Reproduced from Shrubb (in press).

term stability in grassland use until the 1960s, despite changes in stocking patterns by the 1930s, and the rapid intensification since. As fig. 6 shows, the major changes have been in England and Wales. Long-term trends in Scotland have been remarkably stable throughout, largely because of the dominance of open rough grazings in Scotland.

Analysing changing bird distributions shown by the two Breeding Atlases in different categories of farmland – arable, mixed arable/grass, and grassland – has shown consistently that the greatest declines are in grassland for a wide range of ground-nesting and field species (e.g. Chamberlain & Fuller 2001; Shrubbs in press). Modern pastoral farmland has become an increasingly barren environment for birds. High stocking densities, intensive grazing, high fertiliser rates and often multiple cutting of silage crops mean that there are many fewer safe nesting sites for ground-nesting birds. Waders in particular are now often unable to produce enough young for self-maintenance (e.g. Bein-

tema & Muskens 1987; Baines 1990; Shrubbs 1990).

Modern grassland management has also amounted to a major assault on the food supplies of birds. Wilson *et al.* (1999) noted that the loss of grasshoppers (Orthoptera), ants (Formicidae), spiders (Araneae) and Lepidoptera larvae in intensively managed grassland removes important food sources for a wide range of species, and Vickery *et al.* (2001) noted that high nitrogen applications also reduce earthworm numbers. Seed stocks have declined with intensive grazing and the switch to silage. It is the loss of such food supplies that has most affected field species in grassland and it is likely to be of even greater long-term significance than loss of nest sites. For example, the wholesale loss of old grassland and its associated invertebrate fauna surely caused the demise of the Red-backed Shrike *Lanius collurio* in Britain, rather than climatic variation. The decline of shrikes and old grassland correlate very closely. The same factor probably underlies the present decline of Common Starlings in farmland.

One striking feature of fig. 6 is the much lower level of stocking in Scotland. As a result, grassland birds there have been far less affected. This is particularly so with waders, of which large populations remain in lowland Scottish farmland (Galbraith *et al.* 1984; O'Brien 1996).

Successful chemical weed control in arable farming started with the phenoxyacetic acids, such as MCPA, developed in the mid 1940s. These early herbicides had a remarkable impact on some common arable weeds, perhaps particularly Charlock *Sinapis arvensis*. But they had important limitations: they could not be used in root and brassica crops, and use in under-sown cereals was limited. Several weed species important to birds, such as the Polygonaceae, were also poorly controlled. Overall, these first-generation herbicides were probably little more efficient at reducing weed populations than properly managed and applied high farming techniques. But they were less weather dependent, so pressure on weed populations became more consistent.

The main chemical revolution in arable farming emerged in the mid 1960s with the development of pre-emergent herbicides. These herbicides are applied to the seedbed before crop emergence and thus prevent weeds competing at crop establishment. Crop growth then



Derek Moore

109. Yellowhammer *Emberiza citrinella*. The process of enclosure created new habitats, in particular hedgerows, which provided widespread nesting sites for Yellowhammers. This species also benefited from the greater availability of winter seed food in the 'high farming' system, particularly in winter stack-yards.

suppresses further weed growth. They control effectively a wider range of dicotyledonous plants, while many of the chemicals concerned selectively control grass weeds in cereals, and can be applied to autumn seedbeds. The use of pre-emergent herbicides is now standard practice in arable farming (except in some light sand and peat soils) and has three main effects. Firstly, because of the way they are applied they have eliminated weeds as flowering or seeding plants in crops. As well as removing seeds as a major food source for birds in crops and stubbles, the elimination of seeding plants is also eroding the soil's seed bank, another important food source for seed-eaters (Robinson & Sutherland 2002). It has also removed whole swathes of the invertebrate fauna of fields which were dependent on plants associated with crops. Such invertebrates were another important food source, particularly for chicks of species such as partridges. In cereal crops, weed seedlings can often be found in the later stages of growth but such seedlings are rarely allowed to seed before succeeding cultivations destroy them.

Secondly, pre-emergent herbicides have extended effective weed control into root, vegetable and leguminous crops, which were especially susceptible to early herbicides and therefore remained a major source of weed seeds for birds until pre-emergents were developed. Kale, grown for fodder in dairying, was a good example. Often infested with Fat-hen *Chenopodium album*, kale crops attracted huge winter finch flocks in southern England in the 1950s and 1960s, as various county bird reports testify

Thirdly, the capacity to control grass weeds has been the key to the decline of spring tillage since the late 1960s. Grass weeds must otherwise be controlled by cultivations, particularly in spring. Spring tillage has declined from 70-80% of all tillage in England and Wales (until the 1960s) to less than 30% today. The change has been most marked in southeast England, where it has affected an area of c. 1.4 million ha. The change has been less marked in Scotland but even there autumn tillage has spread to 40% of tillage since the 1980s. The loss of spring tillage may be particularly important because it involves the loss of significant fresh feeding opportunities at a time when other sources are depleted. The associated disappearance of winter stubbles is another factor which seri-

ously restricts feeding opportunities for many birds. Compared with the farming landscape before 1960, the widespread and almost complete disappearance of arable weeds and the extent of autumn cultivation are extraordinary. I believe they are the key ecological changes in arable farming. Like many changes in pastoral farming, their most obvious effect has been to undermine the food resources of birds.

The change in harvesting methods has been even more fundamental. The development of the combine harvester, which reaps and threshes grain in one operation, completely changed the processes of grain harvesting and storage, and the patterns of food supplies in autumn and winter which traditional methods of cut, stook, cart, rick and thresh had made available to birds. Combines first appeared in Britain in the 1930s, and although there were still only 10,000 in use in 1950, they were universal by the early 1960s. Consequently, the old rickyard vanished completely and with it one of the most important sources of winter food for



Gordon Langsbury

110. Northern Lapwing *Vanellus vanellus*. One of the most beautiful and evocative of farmland birds, which has declined severely with the intensification of grassland management and the loss of spring tillage, the latter its most successful farmland nesting site. Its remaining strongholds are in Scotland and northern England.

many farmland species. The totality and speed of this change is worth emphasising. Other major food sources exploited by birds have been affected by herbicides or changes in seasonal management but still exist, even if greatly reduced. The old rickyard vanished completely in less than 20 years. Only recently have we begun to see the reduction in availability of winter food supplies as a major cause of decline in farmland birds. A good example is provided by the work of A. D. Evans and his colleagues on Cirl Buntings (e.g. Evans & Smith 1994).

Undersown leys, i.e. short-term grass or clover leys established under cereal crops, remained a common feature of arable farming into the 1970s. Their scale as a habitat is perhaps unappreciated, but undersown stubbles occupied about one arable field in five under high farming and still one in ten under the three-year ley system in the 1950s and 1960s. Today they occupy less than 2% of arable. Their value as habitats were twofold: they provided assured winter feeding grounds, as the stubbles remained right through the winter, and they were major overwintering sites for a range of invertebrates which are also important for birds (e.g. Potts 1986; Aebischer & Ward 1997). Potts noted that the loss of undersowing was a major contributory factor in the decline of the Grey Partridge.

Taken together, a constant theme running through these changes is that of a serious reduction of the food supplies available to farmland birds. The developments are unique to the modern era and have resulted in farmland being unable to sustain the bird populations once found there. The conservation of farmland birds is most successful where it involves the standard agricultural practices of the day. The methodological revolution in eighteenth- and nineteenth-century farming produced a system, high farming, which was highly beneficial to birds, largely because of the scale of new resources, particularly food sources, which it introduced and maintained. But high farming was developed as the most profitable way of farming in its time. That ceased to be so from the late nineteenth century and the standard practices introduced in the modern era are inimical to birds, largely by seriously undermining food resources. Increasingly, we understand cause and effect and how they can be offset by schemes such as the Countryside Stewardship Scheme or State support of organic

farming (effectively high farming by another name). Such schemes, however, run contrary to the standard agricultural practices of the present. Whether, therefore, they can be introduced on a sufficient scale and permanence to restore the old diversity of farmland is much more problematical. We are at present far more successful in conserving scarce and rare species than widespread ones.

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Appendix I. The breeding and wintering birds of farmland.

Species	Status	Category
Mute Swan <i>Cygnus olor</i>	Res	Gn/Wet
Tundra Swan <i>Cygnus columbianus</i>	WV	Ground
Whooper Swan <i>Cygnus cygnus</i>	WV	Ground
Bean Goose <i>Anser fabalis</i>	WV	Ground
Pink-footed Goose <i>Anser brachyrhynchus</i>	WV	Ground
White-fronted Goose <i>Anser albifrons</i>	WV	Ground
Greylag Goose <i>Anser anser</i> (FI)	Res WV	Gn/Wet
Canada Goose <i>Branta canadensis</i> (FI)	Res	Gn/Wet
Brent Goose <i>Branta bernicla</i>	WV	Ground
Eurasian Wigeon <i>Anas penelope</i>	WV	Ground
Eurasian Teal <i>Anas crecca</i>	Res	Gn/Wet
Mallard <i>Anas platyrhynchos</i>	Res	Gn/Wet
Pintail <i>Anas acuta</i>	WV	Ground
Garganey <i>Anas querquedula</i>	SV	Gn/Wet
Northern Shoveler <i>Anas clypeata</i>	SV	Gn/Wet
Red Kite <i>Milvus milvus</i> (FI)	Res	Field
Marsh Harrier <i>Circus aeruginosus</i>	SV	Gn/Wet
Hen Harrier <i>Circus cyaneus</i>	SV WV	Gn/Wet
Montagu's Harrier <i>Circus pygargus</i>	SV	Gn/Wet
Eurasian Sparrowhawk <i>Accipiter nisus</i>	Res	Woodland
Common Buzzard <i>Buteo buteo</i>	Res	Field
Common Kestrel <i>Falco tinnunculus</i>	Res WV	Field
Merlin <i>Falco columbarius</i>	SV WV	Gn/Wet
Hobby <i>Falco subbuteo</i>	SV	Woodland
Red Grouse <i>Lagopus lagopus</i>	Res	Gn/Wet
Black Grouse <i>Tetrao tetrix</i>	Res	Gn/Wet
Red-legged Partridge <i>Alectoris rufa</i> (FI)	Res	Gn/Wet
Grey Partridge <i>Perdix perdix</i>	Res	Gn/Wet
Common Quail <i>Coturnix coturnix</i>	SV	Gn/Wet
Common Pheasant <i>Phasianus colchicus</i> (FI)	Res	Gn/Wet
Corn Crake <i>Crex crex</i>	SV	Gn/Wet
Moorhen <i>Gallinula chloropus</i>	Res	Gn/Wet
Oystercatcher <i>Haematopus ostralegus</i>	SV	Gn/Wet
Stone-curlew <i>Burhinus oedipnemus</i>	SV	Gn/Wet
European Golden Plover <i>Pluvialis apricaria</i>	SV WV	Gn/Wet
Northern Lapwing <i>Vanellus vanellus</i>	Res WV	Gn/Wet
Dunlin <i>Calidris alpina</i>	SV	Gn/Wet
Ruff <i>Philomachus pugnax</i>	WV	Ground
Jack Snipe <i>Lymnocyptes minimus</i>	WV	Ground
Common Snipe <i>Gallinago gallinago</i>	Res WV	Gn/Wet
Eurasian Curlew <i>Numenius arquata</i>	SV ?WV	Gn/Wet
Common Redshank <i>Tringa totanus</i>	SV	Gn/Wet
Black-headed Gull <i>Larus ridibundus</i>	SV WV	Gn/Wet
Common Gull <i>Larus canus</i>	WV	Ground
Stock Dove <i>Columba oenas</i>	Res	Field
Wood Pigeon <i>Columba palumbus</i>	Res	Field
Collared Dove <i>Streptopelia decaocto</i>	Res	Field
Turtle Dove <i>Streptopelia turtur</i>	SV	Field
Common Cuckoo <i>Cuculus canorus</i>	SV	Woodland
Barn Owl <i>Tyto alba</i>	Res	Field
Little Owl <i>Athene noctua</i>	Res	Field
Tawny Owl <i>Strix aluco</i>	Res	Wd/Field
Long-eared Owl <i>Asio otus</i>	Res WV	Field
Short-eared Owl <i>Asio flammeus</i>	SV WV	Gn/Wet
Wryneck <i>Jynx torquilla</i> (extinct)	SV	Wd/Field
Green Woodpecker <i>Picus viridis</i>	Res	Wd/Field
Great Spotted Woodpecker <i>Dendrocopus major</i>	Res	Woodland
Wood Lark <i>Lullula arborea</i>	Res	Gn/Wet
Sky Lark <i>Alauda arvensis</i>	Res WV	Gn/Wet
Barn Swallow <i>Hirundo rustica</i>	SV	Aerial
Meadow Pipit <i>Anthus pratensis</i>	Res WV	Gn/Wet
Yellow Wagtail <i>Motacilla flava</i>	SV	Gn/Wet
Pied Wagtail <i>Motacilla alba</i>	Res	Field

Species	Status	Category
Wren <i>Troglodytes troglodytes</i>	Res	Woodland
Hedge Accentor <i>Prinella modularis</i>	Res	Woodland
Robin <i>Erithacus rubecula</i>	Res	Woodland
Whinchat <i>Saxicola rubetra</i>	SV	Gn/Wet
Common Stonechat <i>Saxicola torquata</i>	Res SV	Field
Northern Wheatear <i>Oenanthe oenanthe</i>	SV	Gn/Wet
Ring Ouzel <i>Turdus torquatus</i>	SV	Gn/Wet
Blackbird <i>Turdus merula</i>	Res WV	Wd/Field
Fieldfare <i>Turdus pilaris</i>	WV	Wd/Field
Song Thrush <i>Turdus philomelos</i>	Res WV	Wd/Field
Redwing <i>Turdus iliacus</i>	WV	Wd/Field
Mistle Thrush <i>Turdus viscivorus</i>	Res	Wd/Field
Grasshopper Warbler <i>Locustella naevia</i>	SV	Gn/Wet
Sedge Warbler <i>Acrocephalus schoenobaenus</i>	SV	Gn/Wet
Reed Warbler <i>Acrocephalus scirpaceus</i>	SV	Gn/Wet
Lesser Whitethroat <i>Sylvia curruca</i>	SV	Woodland
Common Whitethroat <i>Sylvia communis</i>	SV	Woodland
Garden Warbler <i>Sylvia borin</i>	SV	Woodland
Blackcap <i>Sylvia atricapilla</i>	SV	Woodland
Common Chiffchaff <i>Phylloscopus collybita</i>	SV	Woodland
Willow Warbler <i>Phylloscopus trochilus</i>	SV	Woodland
Goldcrest <i>Regulus regulus</i>	Res WV	Woodland
Spotted Flycatcher <i>Muscicapa striata</i>	SV	Woodland
Long-tailed Tit <i>Aegithalos caudatus</i>	Res	Woodland
Coal Tit <i>Parus ater</i>	Res	Woodland
Blue Tit <i>Parus caeruleus</i>	Res	Woodland
Great Tit <i>Parus major</i>	Res	Woodland
Eurasian Treecreeper <i>Certhia familiaris</i>	Res	Woodland
Red-backed Shrike <i>Lanius collurio</i> (extinct)	SV	Wd/Field
Eurasian Jay <i>Garrulus glandarius</i>	Res	Woodland
Maggie <i>Pica pica</i>	Res	Field
Red-billed Chough <i>Pyrrhocorax pyrrhocorax</i>	Res	Field
Eurasian Jackdaw <i>Corvus monedula</i>	Res WV	Field
Rook <i>Corvus frugilegus</i>	Res WV	Field
Carrion Crow <i>Corvus corone</i>	Res	Field
Hooded Crow <i>Corvus cornix</i>	Res	Field
Common Raven <i>Corvus corax</i>	Res	Field
Common Starling <i>Sturnus vulgaris</i>	Res WV	Field
House Sparrow <i>Passer domesticus</i>	Res	Field
Tree Sparrow <i>Passer montanus</i>	Res	Field
Common Chaffinch <i>Fringilla coelebs</i>	Res WV	Wd/Field
Brambling <i>Fringilla montifringilla</i>	WV	Wd/Field
Greenfinch <i>Carduelis chloris</i>	Res	Wd/Field
Goldfinch <i>Carduelis carduelis</i>	Res SV	Field
Linnet <i>Carduelis cannabina</i>	Res SV	Field
Twite <i>Carduelis flavirostris</i>	SV	Gn/Wet
Common Bullfinch <i>Pyrrhula pyrrhula</i>	Res	Woodland
Yellowhammer <i>Emberiza citrinella</i>	Res	Field
Cirl Bunting <i>Emberiza cirlus</i>	Res	Field
Reed Bunting <i>Emberiza schoeniclus</i>	Res	Gn/Wet
Corn Bunting <i>Miliaria calandra</i>	Res	Field

Notes:

Res Resident.

SV Summer visitor to breed. Includes those species which are breeding summer visitors to farmland but mainly winter in other habitats in Britain, e.g. waders such as Eurasian Curlew.

WV Winter visitor. The populations of many resident species are augmented by large influxes of winter immigrants.

(FI) Numbers are still affected by feral releases and introductions.

Gn/Wet Ground-nesting or wetland species. These are combined as most wetland species in farmland nest on the ground or in low dense ground vegetation.

Ground Wintering birds only. Species which feed and roost on the ground in open country, usually farmland.

Field Species which feed in fields but nest in hedges, trees and buildings, etc.

Wd/Field Woodland/field species are those which mainly inhabit woodland but, in farmland, feed to an important extent in fields. Some other species, e.g. Hobby and Common Whitethroat, might well be regarded as woodland/field species.

Woodland Species which occur in farmland mainly because of the presence of farm woodlands, hedges and gardens.

Identification of Pintail Snipe and Swinhoe's Snipe

Paul J. Leader and Geoff J. Carey

ABSTRACT Differences between Pintail Snipe *Gallinago stenura* and Swinhoe's Snipe *G. megala* have been overstated in past literature. Data gained from birds trapped for ringing in Hong Kong indicate that body weight and wing, tail and bill lengths overlap considerably, making these characters of limited use in separation of the two species. Furthermore, both species share almost identical plumage patterns with no consistent differences. Positive identification relies upon the number of rectrices in the tail, and individual tail-feather shape. Field identification using supposedly established characters has oversimplified the extreme difficulties which observers face. Separation of the two species based on size and structure, even if both are together for direct comparison, is not possible in most cases, unless the diagnostic shape of the outer tail feathers is visible. Vocal differences suggest that the flight calls may be species-specific but further research is required to establish this.

Within the Palearctic region, identification of snipes *Gallinago* is notoriously difficult due to the complexities of their cryptic plumage, variable structure and typically skulking behaviour. When undisturbed, snipes feed regularly in open situations, but a single bird standing in the open often defies specific identification or, more likely, is not studied in detail. Most, however, remain hidden within dense vegetation and observers are usually unaware of their presence until accidentally disturbed. Being cryptically plumaged and invisible to the observer before taking flight, a typical encounter often catches an observer unawares, as one or more birds take flight at close range and disappear rapidly into the distance, either silently or calling occasionally. Under these circumstances, it is important to be aware of the characters which allow specific identification. These include: an appreciation of size, shape and structure, in particular bill length relative to head length; the patterning of the upperwing and

extent of the underwing and underpart coloration; and flight calls.

Even by 'snipe standards', however, Pintail Snipe *G. stenura* and Swinhoe's Snipe *G. megala* present an extraordinarily difficult identification challenge. Both species overlap extensively in size and structure, and lack unique plumage characters. On passage and during the winter months, they frequently occur together, making their separation and specific identification important. Furthermore, both species have been reported as vagrants within the Western Palearctic, and Pintail Snipe has strayed as far west as Italy. Future occurrences seem highly likely and European observers should be aware of the potential hurdles and pitfalls faced when dealing with a lone individual.

Although these two species share identical plumages, there is a widely held and generally accepted understanding that their specific identification in flight is possible. This has largely been founded upon perceived minor structural differ-

ences, which are not only prone to observer bias, but are considered by the authors to have been overstated in the literature. This rather unsatisfactory scenario has, surprisingly, retained its credibility because the structural differences between the largest Swinhoe's Snipes and the smallest Pintail Snipes do indeed appear obvious. This has resulted in the belief that all but the largest and most distinctive individuals must be Pintail Snipe. In turn, this has masked the true status of each species within their overlapping passage and wintering ranges, with Swinhoe's Snipe generally considered scarcer than Pintail Snipe.

Experience gained in Hong Kong, where Pintail, Swinhoe's and Common Snipes *G. gallinago* occur regularly, and frequently together, has demonstrated that their separation is less straightforward than has been supposed. In particular, the extent of overlap in size and structure has been quantified using measurements taken from birds trapped for ringing. In this paper, we review the identification of Pintail Snipe and Swinhoe's Snipe, based primarily on experience gained from trapped birds during the period 1999-2001, and an examination of museum specimens. Both species are compared with the more widespread Common Snipe, especially in terms of structure. Data are presented which illustrate the extreme difficulties that observers face when trying to separate Pintail Snipe and Swinhoe's Snipe in the field.

Identification in the field

An observer confronted with an unfamiliar snipe should have little difficulty in narrowing down the identification to Swinhoe's Snipe/Pintail Snipe. In flight, both of these species can be readily separated from Common Snipe by the lack of a clearly defined white trailing edge to the secondaries; uniform underwings; more rounded wings; a heavier, more compact body; and a quite different call. On the ground, both species show a more bulging supercilium than Common Snipe, together with typically darker upperparts, a bill which is typically shorter and deeper based, and a shorter tail. Nonetheless, Leader (1999) discussed plumage variation within Common Snipe, and showed this to have been understated in the literature.

Plumage characters

During the earlier stages of this study, we had

expected to build upon the subtle plumage differences between Pintail and Swinhoe's Snipes described by Carey & Olsson (1995), and possibly even to describe previously unknown plumage characters. After intensive investigation, involving observations of live birds under widely varying field conditions, and detailed examination of plumage characters of birds in the hand, we have been unable to identify a single plumage character which can be used in their separation at any time of the year. In order to check that our findings were not in some way anomalous, we undertook detailed examination of specimens at the Natural History Museum (NHM), Tring, and Academia Sinica, Beijing. This confirmed and reinforced our conclusions. We are, therefore, forced to concede that consistent and reliable plumage differences do not exist between Pintail and Swinhoe's Snipes. One other feature, leg colour, has been tentatively suggested by Higgins & Davies (1996) as a means of separation, with Pintail Snipe tending to show grey-green legs and Swinhoe's Snipe yellower legs. Our experience in Hong Kong shows, however, that there is also extensive overlap in this feature between the two species.

Structural differences

As plumage characters cannot be used reliably to distinguish Pintail Snipe from Swinhoe's Snipe, their separation must rely on differences in structure. These are, however, rather slight and also subject to much overlap. It is important to remember that, as with plumage, no single feature taken in isolation, other than the shape of the outer tail feathers, can be used to separate Pintail and Swinhoe's Snipes. Only when taken *in combination* do these features create an impression which favours one species or the other.

Head shape

Pintail Snipe tends to have a more rounded head profile and a steeper forehead, whereas on Swinhoe's Snipe, the forehead tends to appear more shallow and sloping, giving that species a more angular head profile. In addition, the eye seems to be set closer to the centre of the head in Pintail Snipe, but further back on many Swinhoe's Snipes. Indeed, occasionally on Swinhoe's Snipe, most of the eye appears to lie in the rear half of the head. There is, however, much variation.

Paul J. Leader



111. Adult Pintail Snipe *Gallinago stenura*, Long Valley, Hong Kong, China, 26th September 2001. Some worn median coverts are visible but some have been replaced and the new feathers appear richer and more contrasting. Note also the heavily worn primaries, which extend to the tips of the tertials but not beyond.

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112. Adult Pintail Snipe *Gallinago stenura*, Mai Po Nature Reserve, Hong Kong, China, 21st April 2002. In this recently moulted bird the primaries appear to extend well beyond the longest tertial.



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113. Juvenile Pintail Snipe *Gallinago stenura*, Long Valley, Hong Kong, China, 24th September 1999. In this shorter-billed individual, the rounded head is readily apparent. Note also the long tertials that appear to extend to the tip of the longest primary, which is hidden by the undertail-coverts. Note also the narrow whitish fringes to the juvenile scapulars, and compare with the broad golden fringes to the adult scapulars in plates 111 & 112; this is the same for Swinhoe's Snipe *G. megala*.



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114. Juvenile Pintail Snipe *Gallinago stenura*, Long Valley, Hong Kong, China, 10th September 2001. Compared with the juvenile Pintail Snipe in plate 113, this individual shows a conspicuously paler head, while the angular appearance to the head and position of the eye, set back behind the centre of the head, are more typically characters associated with Swinhoe's Snipe *G. megala*. Note also that the tip of the longest primary is just visible beyond the longest tertial.

Paul J. Leader



115. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 1st October 1999. Compare this bird with the almost identically plumaged juvenile Pintail Snipe *G. stenura* in plate 113.

Paul J. Leader



116. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 26th September 2001. Compared with the individual in plate 115, this bird shows duller and less contrasting upperwing-coverts that also appear more abraded. Note also the distinct yellowish tone to the toes.

Foot projection

Foot projection beyond the tail tip in flight has been considered an important identification feature, with Swinhoe's Snipe purportedly lacking the obvious toe extension of Pintail Snipe. Under normal field conditions it is often difficult to determine the extent of foot projection on an individual snipe, but observations of released birds of confirmed identity do indicate that this may be a useful feature. This is, however, based only on a small sample of Swinhoe's Snipes and the validity of this feature is best treated as tentative, pending further research. In this context, it is of note that a photograph of Pintail Snipe in flight in Carey & Olsson (1995) has a short toe projection, very similar to that shown in a photograph of Swinhoe's Snipe in the same paper.

Shape of the outer tail feathers

An exception to the lack of distinctive structural differences concerns the shape of the outer tail feathers. The outer tail feathers of both species are distinctly narrow when compared with those of Common Snipe. On Pintail Snipe, the outer eight pairs of tail feathers (sometimes six to nine pairs) are all less than 2 mm wide. On Swinhoe's Snipe, only the outermost pair is narrow, varying between 2 and 4 mm in width, 20 mm from the tip. The next one to four pairs are slightly broader, and the rest increasingly so towards the central pair. Pintail Snipe has 24-28 (typically 26) tail feathers, whereas Swinhoe's Snipe has 18-26 (typically 20), and Common Snipe 12-18 (typically 14 in the nominate race, and *G. g. faeroensis*, and 16 in *G. (g.) delicata*; Tuck 1972). Observing tail structure is, however, extremely difficult under normal field

conditions, and requires exceptional views. To complicate matters further, birds trapped in Hong Kong during the autumn have included several adult Pintail Snipes in complete tail moult.

Leg thickness

Swinhoe's Snipe tends to have significantly thicker legs than Pintail Snipe, with most Swinhoe's Snipes taking a larger ring size than Pintail Snipes. Some Swinhoe's Snipes do, however, have thinner legs, resembling those of Pintail Snipe, and require the same ring size, making this a 'one-way character'. Despite this overlap, a bird with thicker legs than a Common Snipe is probably Swinhoe's. This feature is extremely difficult to assess in the field.

Vocalisations

Carey (1993) stated that differences exist between the normal flight calls of the two species. Pintail Snipe was believed to have a more slurred, throaty and nasal call which sometimes resembles the 'quack' of a duck. The call of Swinhoe's Snipe was described as similar in pitch, though at times rather flat and low. When flushed, Swinhoe's Snipe calls less frequently than Pintail Snipe, and a flushed snipe which is silent is most likely to be the former.

Attempts to make sound recordings of the typical flight calls of birds of known identity, on release after ringing, have been unsuccessful. Nonetheless, vocalisations of flushed Pintail or Swinhoe's Snipes in Hong Kong fall into two distinct types which agree broadly with those described by Carey (1993). The first call type (fig. 1), generally the most frequently heard and

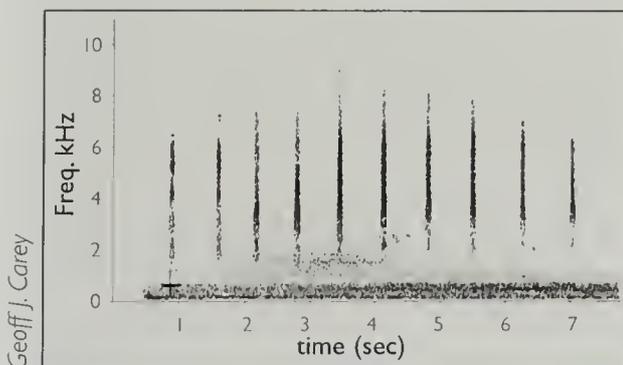


Fig. 1. Vocalisations of presumed Pintail Snipe *Gallinago stenura* recorded in Hong Kong, September 2001. The normal flight call has a greater frequency range than that of presumed Swinhoe's Snipe *G. megala* and, as it is largely above 3 kHz, sounds higher pitched.

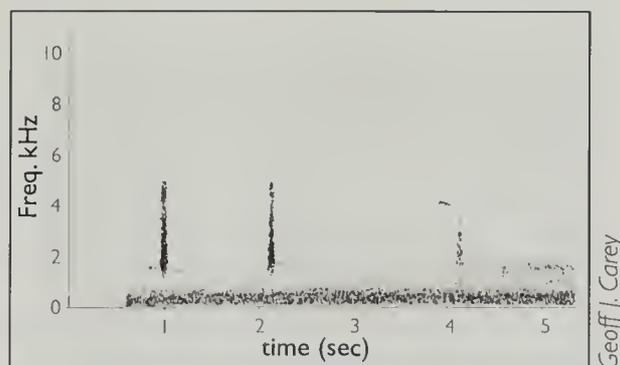


Fig. 2. Vocalisations of presumed Swinhoe's Snipe *Gallinago megala* recorded in Hong Kong, September 2001. The normal flight call has a narrower frequency range than that of presumed Pintail Snipe *G. stenura* and, with about 50% of the call being below 3 kHz, sounds lower pitched.

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117. Adult Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 10th September 2001. Only the outermost pair of rectrices is narrow, with the rest increasing in width towards the central pair. With the rectrices being broader, Swinhoe's Snipe usually appears to show more white in the sides of the tail than Pintail Snipe. Plates 117-122 illustrate the extent of variation found in both tail pattern and shape.

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118. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 4th September 2000. This juvenile shows paler outer rectrices than the adult. It is uncertain whether this feature applies consistently across all age classes.

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119. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 4th September 2000.

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120. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 26th September 2001.

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121. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 4th September 2000.

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122. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 4th September 2000.

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123. Adult Pintail Snipe *Gallinago stenura*, Long Valley, Hong Kong, China, 26th September 2001. On this adult, the outer seven pairs of rectrices are narrow and pin-like, and provide the only infallible means of separation from Swinhoe's Snipe.



124. Adult Pintail Snipe *Gallinago stenura*, Mai Po Nature Reserve, Hong Kong, China, 21st April 2002.

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125. Juvenile Pintail Snipe *Gallinago stenura*, Long Valley, Hong Kong, China, 10th September 2001. On this juvenile, only the outer six pairs of rectrices are characteristically pin-like.



126. Juvenile Common Snipe *Gallinago gallinago*, Long Valley, Hong Kong, China, 1st October 1999. In comparison with Pintail Snipe *G. stenura* and Swinhoe's Snipe *G. megala*, Common Snipe has fewer rectrices, which are characteristically broader with paler and more conspicuous tips.

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believed to be given by Pintail Snipe, is higher pitched, more nasal, slightly more urgent and does, indeed, resemble a duck's 'quack'. Occasionally, startled birds will give a short, high-pitched call which lacks nearly all the throatiness and slur of the first call type. The second call type (fig. 2), tentatively attributed to Swinhoe's Snipe, is lower pitched and flatter, with a more throaty quality. This call was heard (though not recorded) from a known Swinhoe's Snipe released after ringing. This second call type is less frequently heard among migrant snipe in Hong Kong, certainly proportionately less so than would be expected by the relative numbers of the two species trapped. If this second call type is attributable exclusively to Swinhoe's Snipe, it would appear that Swinhoe's Snipe calls more reluctantly than Pintail Snipe.

Given the difficulties of field identification, more research is needed to establish whether

these two call types are diagnostic. It should be stressed that these calls, although different from the calls of Common Snipe, are sufficiently similar to each other to confuse observers unfamiliar with the calls of Swinhoe's or Pintail Snipes. Even to experienced ears, some poorly heard calls can be confusingly ambiguous.

Identification in the hand

During the period 1999-2001, a total of 68 Pintail Snipes and 19 Swinhoe's Snipes were trapped for ringing in Hong Kong, mostly in September and October. Biometrics from a further 25 Pintail and 14 Swinhoe's trapped in Hong Kong prior to this were also available to us, giving a total sample size of 93 Pintail Snipes and 33 Swinhoe's Snipes. Individuals were identified based upon tail feather structure. Measurements taken from live birds included wing length (maximum chord), bill length (to feath-

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127. Adult Pintail Snipe *Gallinago stenura*, Mai Po Nature Reserve, Hong Kong, China, 21st April 2002. There is considerable overlap in the head pattern and shape of Pintail Snipe and Swinhoe's Snipe *G. megala*. Note variation in position of median crown-stripe relative to bill base in plates 127-133.

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128. Juvenile Pintail Snipe *Gallinago stenura* Long Valley, Hong Kong, China, 10th September 2001. The range of variation found within juvenile Pintail Snipe is greater than that which occurs between some juvenile Pintail Snipe and some juvenile Swinhoe's Snipe. Compare the appearance of this individual with those illustrated in plates 129 and 130.

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129. Juvenile Pintail Snipe *Gallinago stenura*, Long Valley, Hong Kong, China, 4th September 2000. The relative bill length of many birds overlaps widely with that of Swinhoe's Snipe. Compare the appearance of this bird with the Swinhoe's Snipe in plate 133.

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130. Juvenile Pintail Snipe *Gallinago stenura*, Long Valley, Hong Kong, China, 4th September 2000. A classic short-billed individual.

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131. Adult Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 1st October 1999. In this rather long-billed individual, note the position of the eye in the rear half of the head, behind the crown peak.

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132. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 26th September 2001. This is a shorter-billed individual.

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133. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 24th September 1999. Note a more rounded appearance to the crown and central position of the eye compared with the juvenile Swinhoe's Snipe in plate 132.



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134. Juvenile Common Snipe *Gallinago gallinago*, Long Valley, Hong Kong, China, 24th September 1999. The appearance of the head is generally darker and more contrasting than shown by either Pintail Snipe *G. stenura* or Swinhoe's Snipe *G. megala*.

ering), tail length and primary projection beyond the longest tertial, measured to the nearest 0.5 mm. The weight of each bird was measured to the nearest gram.

In addition, we examined specimens at the NHM, Tring, and Academia Sinica, Beijing. Owing to problems associated with shrinkage or poor preparation of specimens, we did not measure skins; our biometric data were, therefore, kept strictly comparable, even though this meant that sample sizes were sometimes small. Furthermore, without weight data, which are not available from specimens, the wing, bill and tail measurements, being one-dimensional, do not necessarily express the bulk of a bird (an important component of 'jizz').

Plumage variation

Carey & Olsson (1995) described the loreal stripe of Pintail Snipe as rather narrow, at times almost disappearing in front of the eye. We found this character to be variable, however, with shape, colour and definition overlapping completely with Swinhoe's, and so their description applies equally to Swinhoe's Snipe. Carey & Olsson also found that the median crown-stripe of Pintail Snipe sometimes reaches the bill base, but considered this unusual on Swinhoe's Snipe. In Hong Kong, we again found that this feature varies widely, with the median crown-stripe reaching the bill base on about 30% of Swinhoe's Snipes and 40% of Pintail Snipes.

There is extensive overlap in the pattern of the upperparts, including the scapulars and tertials, and no consistent differences exist in the pattern or colour of the underparts. The juvenile-type scapulars of both species can exhibit a

paler and broader fringe to the outer web. On almost all juvenile Pintail Snipes, the outer web of the scapulars is either slightly or clearly paler than the inner web, and only rarely are these feathers concolorous. About two-thirds of Swinhoe's Snipes have an outer web which is slightly or obviously paler than the inner web; the remaining one-third exhibit concolorous fringes. Thus, a greater proportion of juvenile Swinhoe's shows concolorous scapulars compared with juvenile Pintail. This agrees with Shirihai (1988), but the character is not diagnostic, and applies only to juvenile scapulars, not to all ages as Shirihai implies. The width of the fringes is variable in both species, with no consistent differences, *contra* Shirihai, who considered the fringes to be broader in Swinhoe's Snipe. The relative width of the inner and outer webs on both species varies widely, the outer webs being slightly broader on about 50% of birds, much broader on about 25%, and equal to the inner webs on about 25%.

There were no differences in the underwing pattern or the pattern of the underparts of birds trapped in Hong Kong.

Although Swinhoe's Snipe generally shows more white in the tail than Pintail Snipe, suggestions by Shirihai (1988) that this is a good field character do not take into account the variation in tail pattern of Swinhoe's. Pintail Snipe consistently shows white tips and inner webs to the narrow outer rectrices. If present, the pale tips to the central rectrices are buffish, and rarely whitish, unlike the illustration in Hayman *et al.* (1986). In comparison, although Swinhoe's Snipe usually has white tips to the outer rectrices, these may also be rich buff or pale ginger, colours rarely, if ever, shown by

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135. Adult Pintail Snipe *Gallinago stenura*, Mai Po Nature Reserve, Hong Kong, China, 21st April 2002. This individual has recently replaced the inner greater coverts, and the median and lesser coverts, which display broad, unworn bright buff fringes. Note the contrast with the paler and older outer greater coverts, primary coverts, primaries, secondaries and alula.

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136. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 1st October 1999. Compared with the adult Pintail Snipe *G. stenura* in plate 135, the outer wing of this juvenile has not faded to the same extent and contrasts less with the upperwing-coverts. The upperwing pattern and extent of wear and fading of juvenile Pintail Snipe would appear identical to this individual.

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137. Juvenile Common Snipe *Gallinago gallinago*, Long Valley, Hong Kong, China, 1st October 1999. Common Snipe always displays broad white tips to the secondaries and darker, less contrasting fringes to the upperwing-coverts.

Pintail Snipe. The central rectrices of Swinhoe's Snipe may also be conspicuously tipped pale, often white, unlike Pintail. Swinhoe's Snipe consistently shows barred or chequered outer rectrices, however. On Pintail, these are typically plain, except for white tips. Patterned (barred or chequered) outer tail feathers are exceptional in Pintail, and while some Swinhoe's occasionally show plain outer tail feathers, and thus appear extremely similar to Pintail, a bird with white tips to the central rectrices and chequered or barred outer rectrices is most probably a Swinhoe's Snipe.

Size and structure

Many authors have discussed differences in size and various structural characters between Pintail Snipe and Swinhoe's Snipe, and the widely held view is that most birds can be separated using a combination of these features. Hayman *et al.* (1986) stated that Pintail Snipe has, compared with Swinhoe's, a shorter tail, toes which project further beyond the tail tip in flight and is, on average, slightly smaller and lighter. According to Cramp & Simmons (1983), Swinhoe's can be up to 10% larger, with longer bill, tail, wings and legs, while Wallace (1989) used published measurements to suggest that Swinhoe's Snipe should have a wingspan 5-10% greater than both Common Snipe and Pintail Snipe, and believed that this was noticeable in the field. Carey (1993) and Carey & Olsson (1995) considered that Swinhoe's Snipe appears larger, heavier and more 'barrel-chested' than Pintail Snipe and Common Snipe, usually by 10-20%, and has slightly longer wings. Furthermore, they stated that the bill appears longer than that of Pintail, but is of a similar relative size to that of Common Snipe. Robson (2000) considered Swinhoe's to be slightly

larger than both Pintail and Common Snipe, with a squarer head which peaks behind the eye, a longer bill than Pintail, and a tail which projects further beyond the wings. Higgins & Davies (1996) described Pintail Snipe as being similar in size and shape to Latham's Snipe *G. hardwickii* and Swinhoe's Snipe but suggested some minor structural differences which may be useful in separation from Swinhoe's. They stated that Pintail is slightly smaller, with a proportionately smaller head, shorter wings and a much shorter tail. At rest, the folded primaries are covered by the tertials or project only a few millimetres, and the tail barely projects beyond the primaries, although this may be difficult to see. Viewed in profile, the short tail projection gives Pintail Snipe a truncated rear end and squat appearance, quite different from that of Swinhoe's. Beaman & Madge (1998) described Swinhoe's Snipe as slightly larger and relatively longer billed than Pintail. Most importantly, Swinhoe's is said to lack an obvious toe extension beyond the tail tip and, at rest, the tail projection recalls Common rather than Pintail Snipe.

Based upon birds trapped in Hong Kong, we found that Swinhoe's Snipe is larger than Pintail Snipe on average, although the extent of this has been overstated in the literature. Furthermore, size and structure are extremely variable, with extensive overlap on all standard measurements (table 1). Despite the generally consistent structural differences described by previous authors, our measurements suggest an almost complete overlap (fig. 3). In particular, wing and bill lengths overlap to such an extent that they do not represent consistent structural differences which can be translated into discernible field characters.



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138. Adult Pintail Snipe *Gallinago stenura*, Mai Po Nature Reserve, Hong Kong, China, 21st April 2002. There are no consistent differences in the barred patterning to the underwing-coverts and axillaries in Pintail Snipe and Swinhoe's Snipe *G. megala*, which is narrow and of equal width.



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139. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 1st October 1999. Compare this bird with Pintail Snipe *G. stenura* in plate 138.



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140. Juvenile Common Snipe *Gallinago gallinago*, Long Valley, Hong Kong, China, 24th September 1999. The broader white barring on the underwing-coverts and axillaries creates a bolder and more contrasting pattern than that on the underwing of Pintail Snipe *G. stenura* and Swinhoe's Snipe *G. megala*.

Table 1. Summary of wing, bill, and tail lengths, and weight of Common Snipe *Gallinago gallinago*, Pintail Snipe *G. stenura* and Swinhoe's Snipe *G. megala* trapped in Hong Kong. Measurements are taken to the nearest 0.5 mm and weights to the nearest gram.

Species		Wing	Bill	Tail	Weight
Common Snipe	Range	131.0-145.0	57.0-77.0	51.0-62.0	71.0-117.0
	Mean	136.4	66.6	58.7	96.4
	No.	48	47	7	44
Pintail Snipe	Range	130.0-143.0	54.0-70.0	43.0-50.0	90.0-182.0
	Mean	136.9	62.0	46.0	117.0
	No.	91	85	50	84
Swinhoe's Snipe	Range	139.0-150.0	59.0-72.0	48.0-56.5	108.0-181.0
	Mean	143.4	63.6	51.8	140.8
	No.	32	33	22	33

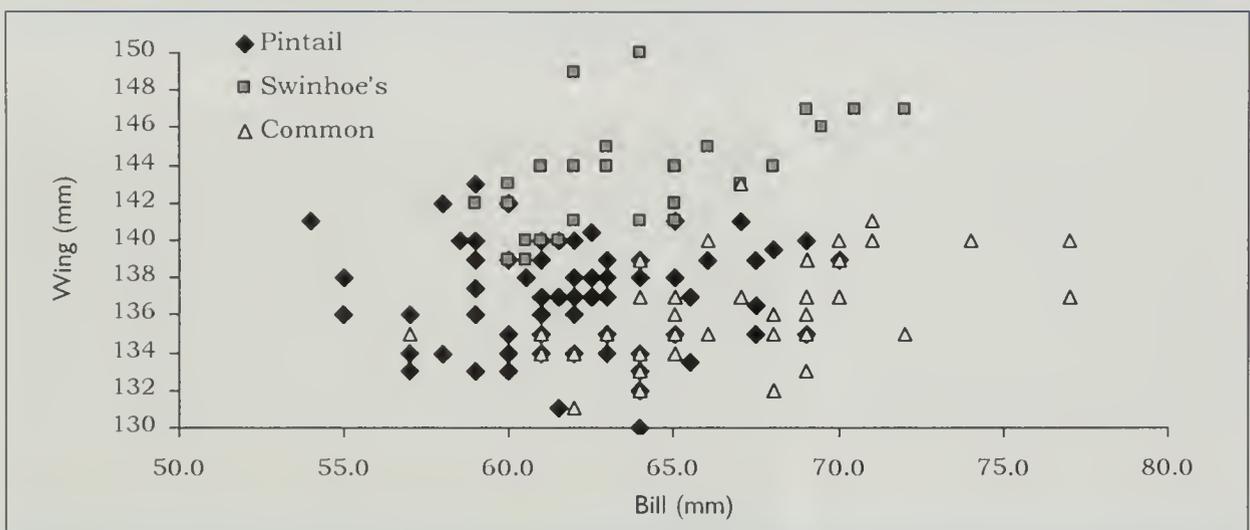


Fig. 3. Wing length and bill length of Pintail Snipe *Gallinago stenura*, Swinhoe's Snipe *G. megala* and Common Snipe *G. gallinago* trapped in Hong Kong. Measurements are taken to the nearest 0.5 mm.

There is a greater difference in tail length, with Swinhoe's Snipe having, on average, a tail which is 5.8 mm longer than that of Pintail Snipe. However, in terms of relative structure, this is largely negated by the difference in wing

length between the two species, which averages 6.5 mm longer on Swinhoe's. This results in a very similar wing/tail ratio for the two species, averaging 2.98 for Pintail Snipe and 2.80 for Swinhoe's Snipe (table 2 and fig. 4). In terms of

Table 2. Wing/tail and wing/bill ratios of Common Snipe *Gallinago gallinago*, Pintail Snipe *G. stenura* and Swinhoe's Snipe *G. megala* trapped in Hong Kong. Measurements are in mm.

Species		Wing/tail	Wing/bill
Common Snipe	Range	2.20-2.60	1.78-2.37
	Mean	2.40	2.06
	No.	7	47
Pintail Snipe	Range	2.76-3.23	2.00-2.51
	Mean	2.98	2.21
	No.	84	75
Swinhoe's Snipe	Range	2.51-2.98	2.04-2.41
	Mean	2.80	2.27
	No.	22	32

making an assessment of structure, these differences are further confused by the considerable variation in weight of the two species. This is especially evident in the sample of Pintail Snipes, with the lightest bird being 50% the weight of the heaviest. Furthermore, although on average Swinhoe's Snipe was 23.8 g heavier than Pintail Snipe, the heaviest Pintail Snipe was 1 g heavier than the heaviest Swinhoe's Snipe (table 1 and fig. 5). Accordingly, their separation based on size and structure, even if both are together for direct comparison, is, in all prac-

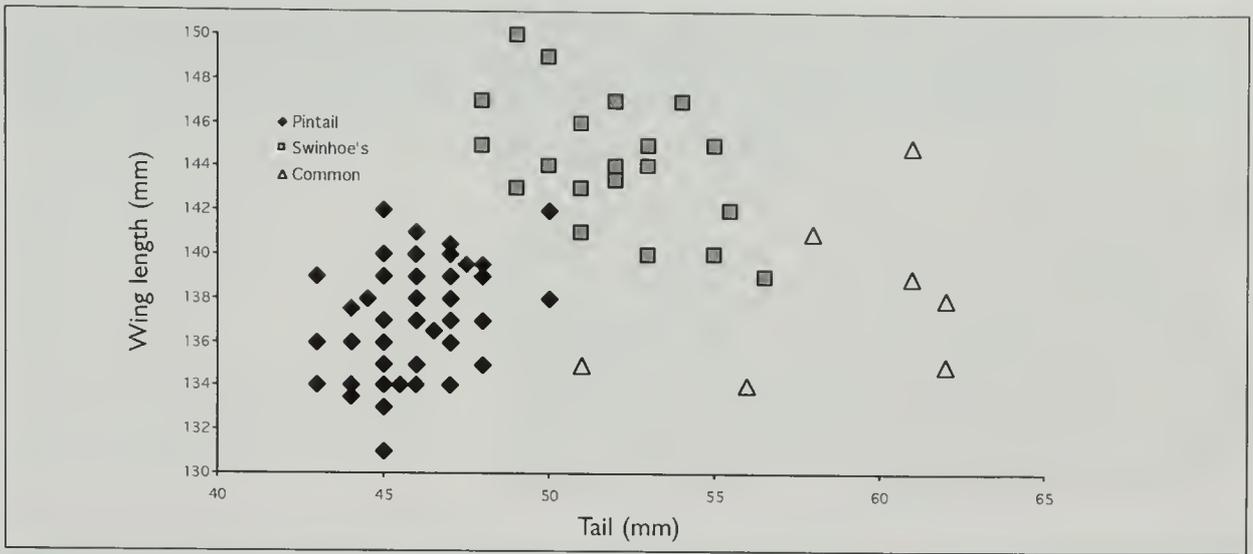


Fig. 4. Wing length and tail length measurements of Pintail Snipe *Gallinago stenura*, Swinhoe's Snipe *G. megala* and Common Snipe *G. gallinago* trapped in Hong Kong. Measurements are taken to the nearest 0.5 mm.

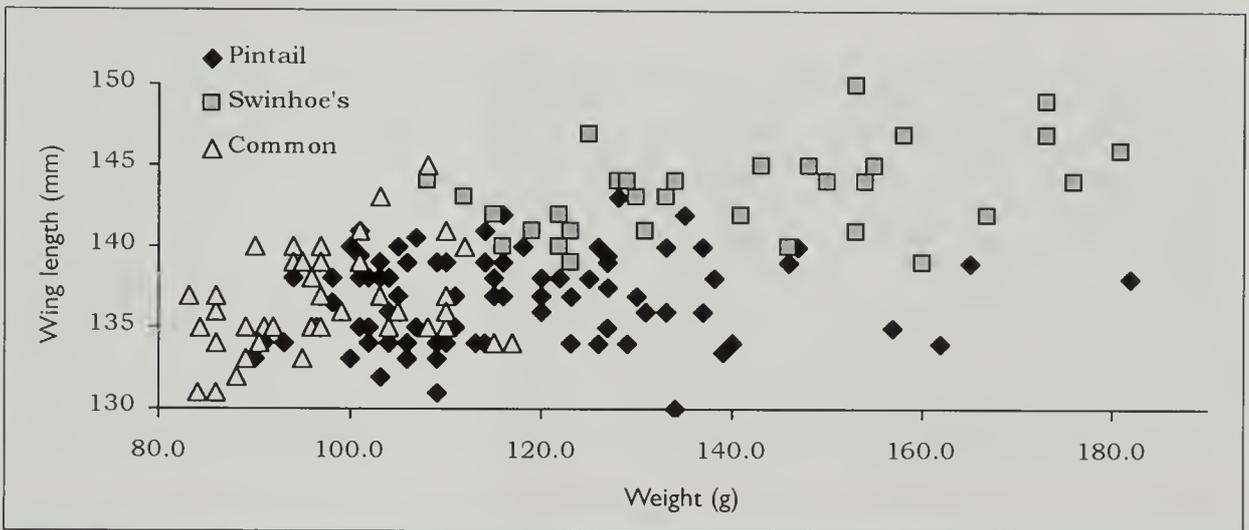


Fig. 5. Wing length and weight measurements of Pintail Snipe *Gallinago stenura*, Swinhoe's Snipe *G. megala* and Common Snipe *G. gallinago* trapped in Hong Kong. Measurements are taken to the nearest 0.5 mm and weights to the nearest gram.

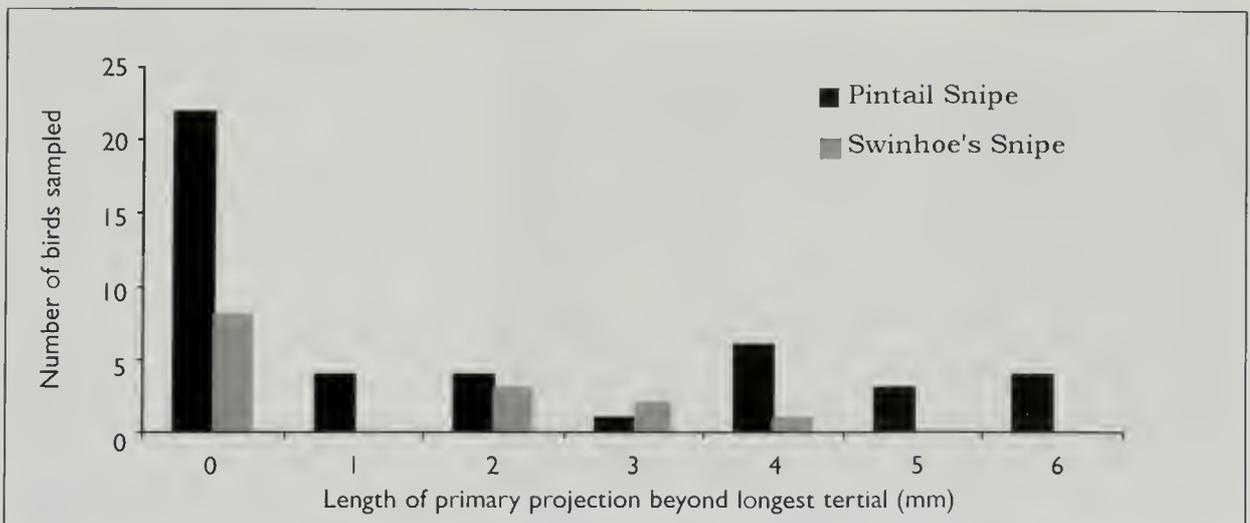


Fig. 6. Frequency of primary projection beyond the longest tertial for Pintail Snipe *Gallinago stenura* and Swinhoe's Snipe *G. megala* trapped in Hong Kong.

Table 3. Summary of Hong Kong and published biometrics of Common Snipe *Gallinago gallinago*, Pintail Snipe *G. stenura* and Swinhoe's Snipe *G. megala*. Measurements for the Hong Kong data are taken to the nearest 0.5 mm and weights to the nearest gram.

Species		Hong Kong data	Published data	Combined
Common Snipe	Wing	131-145	123-144	123-145
	Bill	57-77	55-75	55-77
	Tail	51-62	49-64	49-64
	Weight	71-117	84-220	71-220
Pintail Snipe	Wing	130-143	125-143	125-143
	Bill	54-70	55-72.7	54-72.7
	Tail	43-50	40-55	40-55
	Weight	90-182	84-170	84-182
Swinhoe's Snipe	Wing	139-150	130-151	130-151
	Bill	59-72	55.5-74	55.5-74
	Tail	48-56.5	46-63	46-63
	Weight	108-181	82-150	82-181

tical cases, not possible in the field, unless the shape of the outer tail feathers is clearly observed.

Published measurements show more variation than we found within the Hong Kong sample (see Appendix 1). As illustrated in table 3, this variation is quite large, in particular the weights of Common Snipe, with the heaviest being almost 40 g heavier than any Pintail or Swinhoe's Snipe. Primary projection beyond the longest tertial has been suggested as a useful structural difference. Hayman *et al.* (1986), and Higgins & Davies (1996) both stated that this is short in Pintail Snipe, and long in Swinhoe's. Data from Hong Kong contradict this, with Pintail Snipe being particularly variable and sometimes exhibiting a longer primary projection than Swinhoe's (fig. 6). About half of all Pintail Snipes and Swinhoe's Snipes show no primary projection.

Moult

The following data are based upon published accounts (Prater *et al.* 1977; Higgins & Davies 1996; Snow & Perrins 1998), with additional information coming from examination of museum specimens and live birds trapped in Hong Kong.

Pintail Snipe

Adults undergo a post-breeding moult on the breeding grounds (see under 'Distribution' for breeding range), with the inner primaries (at least P10-P8, sometimes up to P3; primaries numbered ascendantly) being replaced prior to migration. Moult is then suspended during

migration and completed in non-breeding areas during November-December. Body moult commences after the moult of the inner primaries. There is a partial pre-breeding moult, the timing and extent of which is poorly known.

Of 16 adults trapped in Hong Kong between 6th September and 1st October, eight were in active primary moult. These birds had already fully replaced between five and eight inner primaries; six were still growing the remaining outer primaries, and only two retained old primaries. Such birds thus do not fit the pattern described above. A small number of adults show excessively worn primaries and coverts, and it is possible that these are, in fact, first-summer birds.

The partial post-juvenile moult includes the tail and uppertail-coverts – which are replaced from December to February – and most upperwing-coverts, with most being replaced by mid-winter, although some are retained until spring.

Swinhoe's Snipe

Adult post-breeding moult is similar to that of Pintail Snipe, with the inner primaries moulted on the breeding grounds (see under 'Distribution' for breeding range) in early autumn before migration. Moult is suspended during migration and completed in October-November on the wintering grounds, although in Australia some apparently complete this moult by mid October. Similarly, a bird collected on 13th September on Luzon, Philippines, and held in the NHM had almost completed its moult, with seven fully grown inner primaries and the outer three still in pin. The timing of

body and tail moult is poorly understood. Pre-breeding moult is partial, involving most body feathers, innerwing-coverts and central rectrices, but does not include the remiges or outer rectrices. It commences in February in Australia and was complete in four birds collected in Japan in April. A specimen in the NHM collected in the Malay Archipelago in April shows suspended moult, with the inner eight primaries replaced and the outer two being old; such birds may be in their third calendar-year. Post-juvenile moult is poorly understood, but all the evidence suggests strongly that it is broadly similar to that in Pintail Snipe, with the primaries retained until the first autumn, and some median coverts and tertials being retained until late in the first spring on some individuals.

*Ageing and sexing
Pintail Snipe*

Females average larger than males (Prater *et al.* 1977), but there is much overlap in biometrics, and sexing in the field is not possible.

Adult

The lesser and median coverts of adults typically show two dark crossbars and a paler tip, bisected by a dark shaft-streak. Some birds lack the dark shaft-streaks and these are difficult to separate from juveniles. The scapulars have broad golden fringes and are often darker-centred than those of juveniles. Most adults are inseparable from first-winters once the juvenile coverts have been moulted.

Juvenile

In autumn, juveniles are in fresh plumage, and show no moult or suspended moult of the primaries or secondaries, although some may show a few adult-type lesser and/or median coverts and scapulars in early autumn. Juvenile lesser and



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141. Worn adult Pintail Snipe *Gallinago stenura*, Long Valley, Hong Kong, China, 26th September 2001. This worn adult has replaced the inner greater coverts, while a scattering of fresh and more richly coloured replacement median coverts are starting to appear among the older, worn and faded feathers. A similar pattern can occur in Swinhoe's Snipe *G. megala*.



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142. Adult Pintail Snipe *Gallinago stenura*, Mai Po Nature Reserve, Hong Kong, China, 21st April 2002. This adult has recently replaced the scapulars, along with the lesser, median and most of the greater coverts, which contrast with the unmoulted and faded coverts.



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143. Juvenile Pintail Snipe *Gallinago stenura*, Long Valley, Hong Kong, China, 10th September 2001. Upperwing-coverts appear fresh and warmly washed golden-brown.

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144. Worn adult Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 10th September 2001. The contrast between the faded and worn greater and median coverts with their fresher and darker replacements is apparent on this moulting adult.

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145. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 4th September 2000. In autumn, all juvenile upperwing-coverts are fresh and unmoulted. This individual shows particularly pale fringes to the median coverts.

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146. Juvenile Swinhoe's Snipe *Gallinago megala*, Long Valley, Hong Kong, China, 4th September 2000. The extent of median-covert pattern and colour variation differs widely among individuals and overlaps with Pintail Snipe *G. stenura*.

median coverts are obviously pale-fringed, appearing off-white, which gives a scaled appearance. This effect may be reduced on some juveniles, including birds in fresh plumage, which are then difficult to separate from adults. The median coverts usually show a dark shaft-streak, although this does not reach the tip of the feather. The scapulars are very different from those of adults, with narrow whitish or off-white fringes, and often have a browner feather centre.

First-winter

Following the post-juvenile moult, when the lesser and median coverts are replaced by adult-type coverts, first-winters can only be aged if there are some retained juvenile wing-coverts or scapulars. The contrast between scapulars of different generations can, however, be very distinctive, with the retained juvenile feathers having a rather even off-white fringe which contrasts with new adult-type scapulars that show broad golden fringes and blacker centres.

Swinhoe's Snipe

As with Pintail Snipe, the overlap in size makes it impossible to establish the sex of an individual in the field. Similarly, the features useful for ageing Pintail Snipe also apply to Swinhoe's, except that the pattern of the median coverts does not appear to be particularly reliable. Moult and scapular pattern are, therefore, the best features for ageing Swinhoe's Snipe.

Distribution

Owing to the difficulties of field identification discussed in this paper, data on distribution and movements of both species must be viewed with caution. Some misidentified museum specimens and erroneous field observations may have found their way into the published literature. It is likely that



Fig. 7. Breeding and wintering ranges of Pintail Snipe *Gallinago stenura*, showing locations of extralimital records.

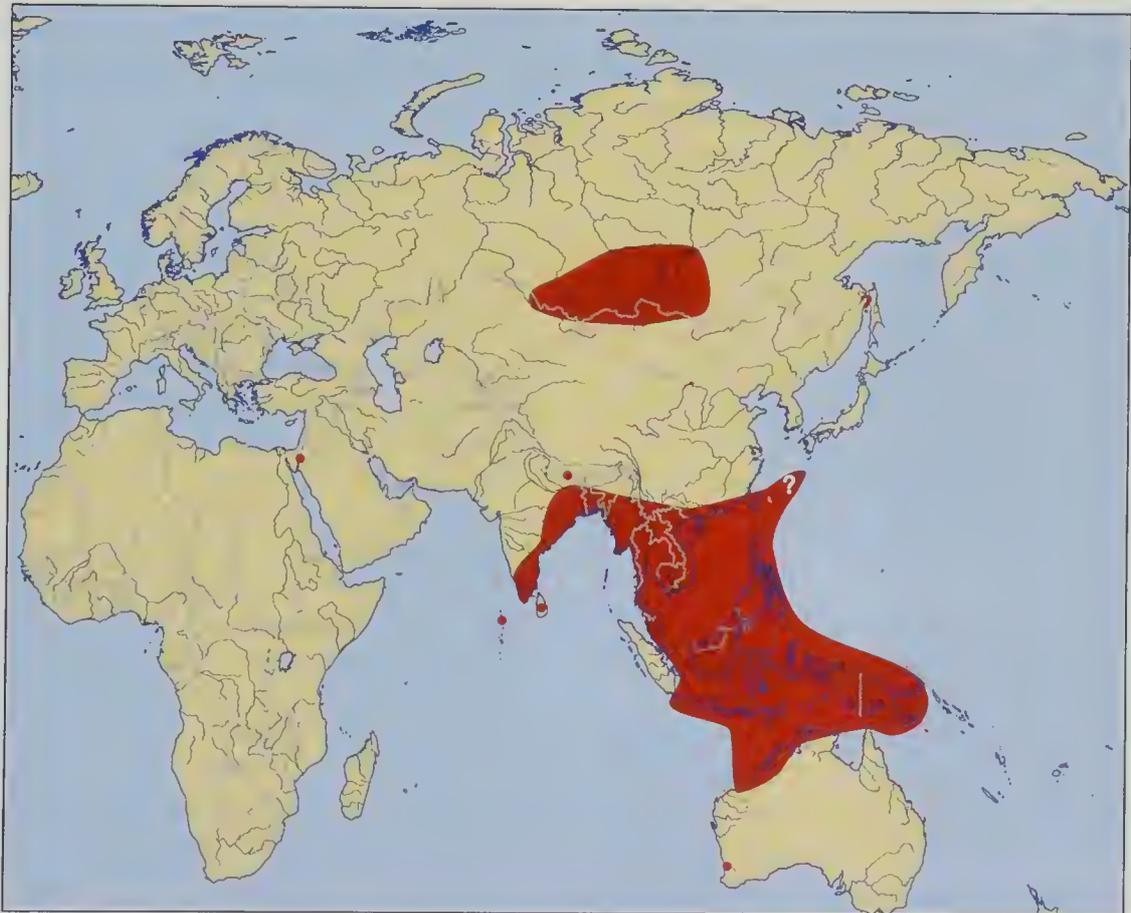


Fig. 8. Breeding and wintering ranges of Swinhoe's Snipe *Gallinago megala*, showing locations of extralimital records.

the overall picture presented here (figs 7 & 8) closely matches the true distribution, however, because many records are based upon accurate identification of trapped birds and museum specimens.

Pintail Snipe

Breeding

As a breeding bird, Pintail Snipe occurs across a wide expanse of arctic and boreal Russia within the Central and Eastern Palearctic, north to approximately 70°N where it reaches the southern edge of the tundra. The western limit lies in the northern part of the Ural Mountains and extends east to western areas of the Chukotsky Peninsula in northeastern Siberia and south through Siberia to Transbaikalia and northern Mongolia (Cramp & Simmons 1983; del Hoyo *et al.* 1996; Higgins & Davies 1996). Zhao (1995) states that breeding occurs in Jilin and Heilongjiang provinces, northeast China.

Wintering

The regular wintering range extends from Pakistan and Oman (where it is a fairly common passage migrant and winter visitor between early August and early June, usually seen singly or in very small numbers; Eriksen & Sargeant 2000) in the west, south through much of the Indian subcontinent (Hayman *et al.* 1986; Grimmett *et al.* 1998), and east to the coastal provinces of southern China and Taiwan (La Touche 1931-34). To the south, it regularly winters through Indochina and Thailand to Malaysia, the Philippines and Indonesia. Small numbers occasionally reach Australia (Higgins & Davies 1996), though it is probably under-recorded. Occasionally, birds occur to the west of the main wintering range, reaching Saudi Arabia, Bahrain, the United Arab Emirates, and East Africa where it has been reported on several occasions south to Kenya (Urban *et al.* 1986).

Migration

Pintail Snipe occurs as a regular migrant to inland and coastal freshwater sites across much of central, east, northeast and southeast Asia, although it is scarce or rare as far east as Japan and Korea (Brazil 1991; Higgins & Davies 1996; Ornithological Society of Japan 2000). The main post-breeding exodus from Siberia occurs in August and September (Cramp & Simmons 1983), with passage through China between early August and mid October (La Touche 1931-

34; Williams 2000). Numbers progressively peak further south as the season advances, and by mid October many wintering birds are present in southern China, which masks the presence of lingering migrants. By late October, wintering birds reach as far south as Sri Lanka and Singapore. Return movements in equatorial regions may commence in early February, but in peninsular India and southern China northbound passage occurs in March and continues through the first half of April (Cramp & Simmons 1983; Carey *et al.* 2001), with stragglers lingering into May. Migrants through China reach the lower Yangtze valley from mid April onwards and Hebei province in May (La Touche 1931-34).

Swinhoe's Snipe

Breeding

Swinhoe's Snipe breeds in the high temperate taiga and forest-steppe zones of central Siberia, west to approximately 82°E in the Kulunda steppe and Shegarka River regions, north to 59-60°N on the Tym and Yenisey rivers and east through Transbaikalia to adjacent regions of north Mongolia. The southern limits of the breeding range reach to the Altai Mountains. Cramp & Simmons (1983) note that it has nested in Ussuriland and possibly Sakhalin, east Siberia, but its status here remains obscure.

Wintering

Within mainland Asia, the wintering range of Swinhoe's Snipe overlaps widely with that of Pintail Snipe, although Swinhoe's shows a more southerly and easterly bias. The core wintering area lies to the east in the Philippines, Greater Sundas and Wallacean region, however, where Swinhoe's Snipe is distinctly more numerous than Pintail Snipe. The western limit of the known wintering range lies in the northeastern part of the Indian subcontinent and southern India (Grimmett *et al.* 1998), well to the east of the western limit of Pintail Snipe. It becomes progressively more numerous to the south and east, through Burma and Thailand and south to Singapore (Hayman *et al.* 1986; Cheng 1987; Wells 1999; Robson 2000), but is outnumbered by Pintail Snipe at a ratio of 200-250:1 in Malaysia (Cramp & Simmons 1983). Across southern China, including Hong Kong, at the northern edge of the regular wintering range, there are very few proven winter records (Carey *et al.* 2001). Some birds reach northern

Melanesia and northern Australia, although there are few definite records of specimens or trapped individuals (Higgins & Davies 1996).

Migration

After the breeding season, Swinhoe's Snipe migrates through eastern Mongolia, China and Taiwan. In Hong Kong, Carey *et al.* (2001) suggested that it was still outnumbered by Pintail Snipe during autumn passage, and, based on birds trapped for this study, Pintail is commoner by a ratio of 3:1 – much higher than that previously estimated from field observations prior to systematic trapping and identification in the hand. Swinhoe's is more numerous than Pintail in Japan, where it is locally common throughout the country (Ornithological Society of Japan 2000), occurring from the second week of August to late November (Brazil 1991). Return passage through Fujian province in southeast China extends from late March to the end of May (La Touche 1931-34), although farther west in Guangdong province and Hong Kong it is not numerous and is outnumbered by Pintail Snipe. Although plentiful in May in Hebei province, northeast China, it is less common on the coast than Pintail Snipe (La Touche 1931-34; Carey *et al.* 2001). In Japan, passage occurs in April and May (Brazil 1991). A bird trapped in the Philippines in October 1969 was found the following August near the western limit of the breeding grounds (McClure 1974).

Vagrancy

Both species have occurred as vagrants within the Western Palearctic. Pintail Snipe, breeding in western Siberia, is a likely vagrant to the region and currently there are three published records: two, one in November 1984 and the other in November 1998, from Israel (Shirihai 1988, 1996; Granit *et al.* 1999) and one in Italy in December 1996 (Corso 1998). Elsewhere, vagrant Pintail Snipe have occurred on Kure Atoll, Hawaiian Islands, in January 1964 (Clapp & Woodward 1968) and on Attu Island, western Aleutians, Alaska, in May 1991 (Gibson & Kessel 1992), both records involving birds identified in the hand.

Swinhoe's Snipe, with its breeding range restricted to central Siberia and with the orientation of autumn migrants being south to southeast, would seem less likely to occur to the west of its known wintering range and within the Western Palearctic, but there are two pub-

lished records. The first, one collected from the northern Caucasus in December 1898, was not preserved and unfortunately this record cannot be verified (Snow & Perrins 1998). The second, concerning a bird seen but not photographed or trapped, occurred in Israel between 28th February and 4th March 1998 (Shirihai 1999). Based upon our experience, we suggest that the published description does not, in fact, exclude Pintail Snipe. Vagrants have also been reported from Sri Lanka (Henry 1998), the Maldives (Grimmett *et al.* 1998) and Nepal (Madge 1989), although the latter is a sight record and appears insufficiently detailed to exclude Pintail Snipe.

Conclusions

Based on birds trapped for ringing in Hong Kong and an examination of museum specimens, the identification of Pintail Snipe and Swinhoe's Snipe has been oversimplified in the literature, and most individuals are not safely identifiable in the field owing to the overlap in size, structure and plumage. Although birds showing a combination of structural features may be considered to be *probably* either Pintail Snipe or Swinhoe's Snipe, it will generally not be possible to confirm identification unless the shape of the outer tail feathers is seen or the bird is trapped. We urge that, where possible, ringers should record the calls of trapped birds, so that further research into the variation in the calls of these two species can be made.

Acknowledgments

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Appendix 1. Summary of published measurements of Common Snipe *Gallinago gallinago*, Pintail Snipe *G. stenura* and Swinhoe's Snipe *G. megala*.

	Summary	Beaman & Madge (1998)	Cramp & Simmons (1983)	Hayman <i>et al.</i> (1986)	Higgins & Davies (1996)	Prater <i>et al.</i> (1977)	Tuck (1972)	Wells (1999)	Granit <i>et al.</i> (1999)
Common Snipe									
Wing (mm)	123-144	123-144	126-144 ¹	123-144	-	127-142	128.5 ± 3.89	129-139	
Bill (mm)	55-75	-	59-75 ¹	55-75	-	55-74	66.7 ± 7.53	59.9-69.8	
Tail (mm)	48-64	-	49-64 ¹	49-64	-	-	-	48-57	
Weight (g)	84-220 ³	-	84-220 ^{2,3}	-	-	-	-	-	
Pintail Snipe									
Wing (mm)	125-143	125-143	125-143	125-143	125-143	128-142	127.3 ± 3.66	127-143	142.5
Bill (mm)	55-72.7	-	55-70	55-70	55-70	55-69	61.4 ± 3.31	58-66.9	72.7
Tail (mm)	40-55	-	42-55	42-55	42-55	-	-	40-51	44
Weight (g)	84-170	-	84-170	-	101-170	-	-	92.6-123.8	126
Swinhoe's Snipe									
Wing (mm)	130-151	137-151	-	137-151	130-150	137-151	135.8 + 4.63	137-144	
Bill (mm)	55.5-74	-	-	56-74	55.5-73.4	56-74	63.5 + 3.83	61.1-69.9	
Tail (mm)	46-63	-	-	46-57	50-63	-	-	47-58	
Weight (g)	82-150	-	-	-	82-150	-	-	130.6	

¹ Nominate *gallinago*. ² Nominate *gallinago* and *fuerocensis*. ³ Excludes emaciated birds as light as 42 g.

Letters

Introduced species

Although I have given my views on this matter previously in this journal (*Brit. Birds* 93: 501-504), I cannot, and believe I ought not, refrain from expressing my sorrow and complete disappointment with the attitude taken by the nine authors of the article on the population status of birds in the UK (Gregory *et al.* 2002: *Brit. Birds* 95: 410-448) towards introduced species, in particular Mandarin Duck *Aix galericulata*, Golden Pheasant *Chrysolophus pictus* and Lady Amherst's Pheasant *C. amherstiae*. My disappointment is felt more especially because the article evidently represents the opinions of six powerful official or quasi-official organisations, although some of those over whom they hold sway do not willingly submit to their wishes (Mitchell 1999), and some of those who belong to and help finance these organisations do not fully realise the implications of all that they do or wish to in the future.

The idea that because certain introductions in some places have had unwelcome results then no introductions should be allowed is sadly negative. As products of either evolution or creation we should use our mental abilities, flawed or mistaken though they may sometimes be, to make value judgements. Certainly it is desirable to try to ensure that Golden and Lady Amherst's Pheasants are protected in their native countries, but that may not be possible. And in the

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I am dismayed and saddened at the parochial attitude to introduced species taken by the nine authors of the recent article on the population status of birds in the UK (Gregory *et al.* 2002). I had hoped that such insular and hidebound attitudes as this had long since been abandoned. While I agree with the authors that if introduced species have conservation problems then

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The valuable status assessments and comments by Gregory *et al.* (2002) include one statement with which I hope most readers will disagree. Under the heading 'Introduced species', the

future, Britain is likely to be less rather than more able to decide which creatures other countries should preserve and which not. In any case, precious eggs are better not left in a single basket. The British populations of the three species referred to above should be cherished and assisted. Even if, as seems not unlikely, our own species' unlimited breeding and resultant overpopulation were finally to bring about our own extinction, we could have taken pride in having brought about the existence of additional populations of these two most beautiful pheasants. In the case of the Mandarin Duck we could, however, only claim to have reintroduced it, as it appears that very long ago it *was* part of our avifauna (Harrison 1998).

It seems that even if some of the powerful people and organisations now so evidently giving the 'thumbs down' to the three species in question do not personally take action against them, as I suspect they soon will, that these species are doomed. I do not think that future, and less blinkered, generations of bird addicts will approve of the antagonism towards all alien species of those now in power, which deprived them from ever seeing naturalised populations of three uniquely beautiful and harmless species, and I know that many fellow bird enthusiasts share my views.

the most appropriate response is to address these within their native ranges, why should they not also be provided with a safety net in the form of conservation where they occur as naturalised species? To try to 'ignore' naturalised species, as the authors appear to do, is simply naïve and is to be thoroughly deplored.

opinion is stated that 'their populations are of no conservation concern within the UK'. This, in my view, is the equivalent of the Government refusing social security payments (or access to

National Health Services) to British citizens who are not of white Anglo-Saxon ancestry. That would be condemned as illegal racism.

Any bird (native or introduced) that is causing a conservation or environmental problem should, in my view, be subject to appropriate control measures (e.g. Wood Pigeon *Columba palumbus* as well as Canada Goose *Branta canadensis* and Rose-ringed Parakeet *Psittacula krameri*). Equally, any bird (native or introduced) that is benign should be entitled to appropriate conservation measures. Mandarin Duck *Aix galericulata*, Little Owl *Athene noctua* and Lady Amherst's Pheasant *Chrysolophus amherstiae*, to name three much-loved and long-standing additions to our avi-

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As an inveterate bird counter, I welcomed the paper on the population status of birds in the UK (Gregory *et al.* 2002), but feel bound to write to challenge the paragraph on introduced species. The contributors say that they see no compelling reason to attach conservation concern to the Mandarin Duck *Aix galericulata*, Golden Pheasant *Chrysolophus pictus* and Lady Amherst's Pheasant *C. amherstiae*, but I believe that there *are* compelling reasons to conserve these wonderful birds. It will be freely admitted that these species pose no threat to any native bird, while in their natural range they are in danger from human development in a part of the world where conservation does not rate highly.

My only experience of these three species concerns the Mandarin Duck, and this delightful bird should surely be encouraged on any suitable water. I was river warden for the National Trust at Cliveden, on the Thames, in the early 1990s. At the time, the Mandarin was

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fauna, deserve protection (and active assistance if necessary) just as much as do Common Goldeneye *Bucephala clangula*, Tawny Owl *Strix aluco* and Black Grouse *Tetrao tetrix*.

I am, of course, biased, since my adopted county of Bedfordshire is the principal home of the exquisite, elusive (and regrettably declining) Lady Amherst's Pheasant. It is my hope that research on this species' English population will be initiated to ascertain the reasons behind the decrease in numbers, and that appropriate conservation measures will then be introduced to halt and reverse this population decline.

Unlike Gregory *et al.*, I delight in and consider that it is our duty to have concern for the (benign) aliens in our midst.

the commonest duck on the river (partly as a result of a nestbox project), and was a talking point among visitors mooring boats on my beat. These were largely non-birdwatchers, and it was good to tell them that Britain may be home to an important part of the world population. If this species can make such an impression, it seems amazing that a group of ornithologists representing the leading conservation organisations in our country can dismiss these birds in such a cavalier fashion. Since that time, the large-scale flood alleviation scheme has largely disrupted the main breeding area, and mink *Mustela vison* are now active on the river. This in itself illustrates how quickly situations can change and underlines the reason for dispersing centres of population.

It seems to me that we should encourage these endangered species, of no proven risk but much proven pleasure, to be established in as many parts of our country as possible.

Introduced species – a response from the BOCC authors

Our comments regarding introduced species in Gregory *et al.* (2002) have prompted some emotive responses. We do not, of course, deny that introduced species can give pleasure to many people and, in some cases, a welcome splash of colour to a walk in the countryside.

Nor do we suggest any changes to the legal protection which these species currently receive here, but we stand by our belief that the populations of introduced species in the UK are not of conservation concern. The prime duty and responsibility of the organisations involved in

the review is, and will remain, the conservation of species native to the UK.

Of the 258 bird species which occur regularly in the UK, 11 are introduced. None of these is considered to be of conservation concern in their native areas, so why should they be here? Emphasis has been placed on three species in particular: Mandarin Duck *Aix galericulata*, Golden Pheasant *Chrysolophus pictus* and Lady Amherst's Pheasant *C. amherstiae*. All were once believed to be under serious threat in their native ranges, in Asia, but recent data have shown that they are more abundant there than previously realised. As a result, none is listed in BirdLife International's *Threatened Birds of the World* (Stattersfield & Capper 2000) or *Threatened Birds of Asia* (Collar *et al.* 2001). Furthermore, the IUCN's Pheasant Specialist Group has not identified either of the two pheasant species as in need of conservation action, and Madge & McGowan (2002) describe their status as 'Fairly common in suitable habitat.' We do not doubt that habitat destruction and deterioration is a problem for these species, as for so many birds, but the need to undertake conservation management for these species in the UK is no more credible than it would be for Egyptian Goose *Alopochen aegyptiacus* or Rose-ringed Parakeet *Psittacula krameri*.

The exclusion of introduced species by Gregory *et al.* follows previous reviews (Batten *et al.* 1990; Gibbons *et al.* 1996; JNCC 1996) and international convention. The World Conservation Union, for example, recommends that national conservation listings should only be applied to wild populations inside their natural range and to populations resulting from *benign* introductions (Gärdenfors *et al.* 2001). Here, 'benign introductions' are defined strictly as attempts to establish species, for the purpose of conservation, outside their recorded distribution, but within an appropriate habitat and geographical area. IUCN view this as an acceptable conservation tool only when there is no remaining habitat left within a species' historic range.

The three main causes of global species extinctions are habitat destruction, over-exploitation and species introductions (WCMC 1992). History is full of examples of species which are threatened with extinction, or have been driven to extinction, by introduced predators and competitors. While most of the bird species introduced into the UK currently seem to have had limited impact on native flora and

fauna, in the UK and elsewhere this is not the case for all. As it is difficult to predict which introduced species could become a problem, it seems wise to minimise such introductions, and unwise to treat existing introduced species as of conservation concern.

The exclusion of introductions from the analysis of conservation concern should not be seen as indifference towards these species. Knowledge of the populations of non-native birds has increased significantly in recent years and is reported annually through, for example, the Breeding Birds Survey (Raven *et al.* 2002), Wetland Bird Survey (Musgrove *et al.* 2001) and Rare Breeding Birds Panel (Ogilvie *et al.* 2002). We would like to see the monitoring of introduced species continue to improve – a challenge to both conservation organisations and bird-watchers.

Thus, when determining the list of birds from which the Red, Amber and Green lists of conservation concern are drawn in the UK, we see no merit in including introduced species. Given that such lists help to determine the expenditure of precious and finite resources, we remain unconvinced that it is wise to spend large sums of money on halting the decline of an introduced species in preference to species such as Corn Crake *Crex crex* and Stone-curlew *Burhinus oedicnemus*, which are a part of our natural heritage.

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Introduced species

A. M. Macfarlane's letter (*Brit. Birds* 95: 658) rightly raises the question of what should be done about parrots (Psittacidae) breeding in the wild in Britain. Interestingly, it was published in the same issue that carried the account of 'Non-native birds breeding in the United Kingdom in 2000' (Ogilvie *et al.* 2002: *Brit. Birds* 95: 631-635), which showed the extent of the problem in general. It is astonishing that so little attention has been given to this topic, especially after a joint BOU/English Nature conference on the subject, held in Peterborough about ten years ago, when Prof. Chris Feare warned that the Rose-ringed Parakeet *Psittacula krameri* would soon become an agricultural pest. If we do not take action, the other parrots may follow its example. But the issue is not just the damage which such species may do, particularly in competition with our native fauna, or indeed flora,

but whether Man should allow alien species to change our wildlife community. I believe strongly that we should not.

Sadly, it is probably too late to round up Canada Geese *Branta canadensis* or Rose-ringed Parakeets, but what needs to be done is to take early action to prevent alien species becoming established in the wild – and this applies to all kinds of wildlife – to avoid the problems created by species such as mink *Mustela vison*, Japanese Knotweed *Fallopia japonica* etc. Birders who welcome the opportunity to tick off a new species for their life list, or treat (for example) the Mandarin Duck *Aix galericulata* as an attractive addition to our bird population do not help. We must have the courage to tackle this issue before the UK becomes another Hawaii or New Zealand.

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Looking back

Seventy-five years ago:

'WHITE-TAILED EAGLE IN BEDFORDSHIRE. ON February 20th, 1928, "a very large Hawk" was reported to me as having been seen in our park at Woburn for the first time. On the 22nd I had a very good view of it for myself, and it has been seen daily by other observers or myself up to the present time, March 11th.

'It is, I think, undoubtedly an immature Sea-Eagle (*Haliaeetus albicilla*), the only thing making identification at all doubtful being that it shows absolutely no white in flight.

'The legs are bright yellow and not feathered on the tarsus, the bill is heavy, a narrow band of bright

yellow at the base shading to a bluish-horn colour. The tail is almost triangular in shape and not squared. The general body-colour is an ashy-brown with darker markings, and primaries, secondaries and tail-feathers are a very dark brown. The nape is also a darker brown than the general body-colour.

'It has a slow, heavy flight, only getting high in the air if it becomes suddenly aware of the proximity of a human being.

'It has lost some feathers in the left wing by which it might be identified if it meets with its probable fate when it leaves us, it being so unwary that I have been within shot of it on several occasions. M. BEDFORD.' (*Brit. Birds* 21: 283-284, April 1928)

Obituary

Christopher John Mead (1940-2003)

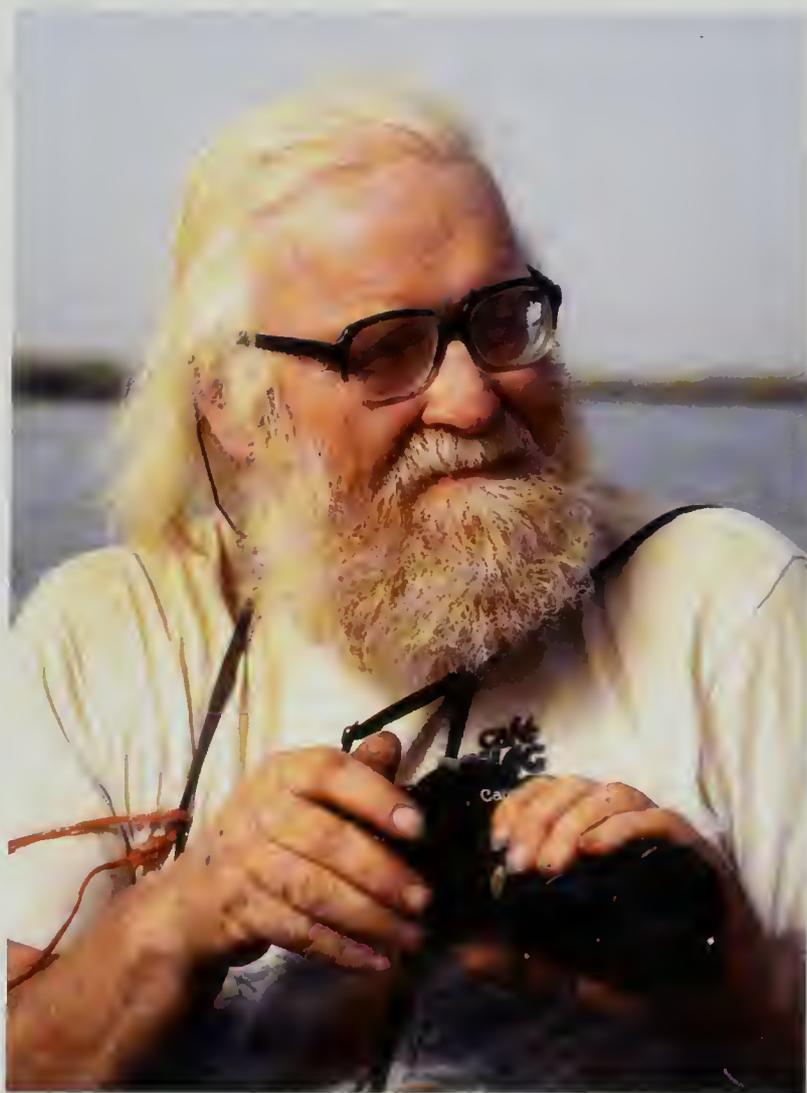
Very sadly, news arrived on 16th January 2003 that Chris Mead had died, peacefully in his sleep, concluding a remarkably full life. The UK has consequently lost a modern-day ornithological giant, one of its most powerful communicators of bird research findings to the media, an authority on bird migration, a lifelong supporter of *British Birds* and a good friend to many. The news came as a great shock, even to close acquaintances aware of his deteriorating health (the legacy of a severe stroke in 1994 and ongoing diabetes – problems of which he made light), because the ‘big man’ carried an air of immortality, and had a busy lifestyle which one dared not question.

Chris’s skills as an innovator, researcher, organiser and, most particularly, interpreter of bird study findings will be sorely missed in Britain, most especially in the four counties he frequented: Sussex, Cambridgeshire, Hertfordshire and Norfolk. Born on May Day 1940 at Hove, Sussex, son of a master grocer, it was from his parents’ home that elements of the fledgling Sussex Ornithological Society were founded, as his own early bird-watching promise blossomed.

Typically, Chris’s education was unconventional. From Aldenham school, Hertfordshire, where again he showed flair, he went up to Peterhouse, Cambridge, to read mathematics. Here he found his twin passions, ringing birds by day and enjoying jazz after dark, too tempting. He ‘graduated’ with a sound appreciation of Duke Ellington and, most importantly, a permit to ring birds – the latter a passport for a distinguished career in ornithology. He soon put his natural ability to handle and ring birds to good use, assisting in the work of the groundbreaking Wash Wader Study Group, established in 1959. In 1961, he moved to work

for the ringing scheme, administered by the BTO, soon helping in the Trust’s move to its first permanent home at Beech Grove, Hertfordshire. Today, hundreds of bird ringers operate through the BTO, thanks in no small way to Chris’s input and enthusiasm. He headed the National Ringing Scheme for a decade, helped to bring it into the computer era, and championed the ringing ethic during some challenging years; he also ringed over 400,000 birds in 18 countries, as far afield as Belize, Spain, Senegal and Zimbabwe.

Chris was very much an ‘ideas’ man, coming up trumps with a number of initiatives. Among the projects he spawned, or helped promote, were the pioneer Sand Martin *Riparia riparia* ringing enquiry, New Year’s Day bird counts, National Nestbox week (held annually during



Chris Mead family collection

147. Chris Mead (1940-2003).

14th-21st February), the Nightingale *Luscinia megarhynchos* survey in 1999 and, most recently, the House Sparrow *Passer domesticus* Survey.

Chris often bemoaned the inability of the modern-day 'twitcher' to undertake constructive, simple bird-survey work. In his defence, he probably did more than any other current professional ornithologist to convey bird science findings to the lay public in an illuminating, stimulating and readable fashion. Articles for magazines, and a number of books, flowed from his pen and PC. He contributed to *BWP*, *The Atlas of Breeding Birds in Britain and Ireland* (1976) – scraping together vital production monies along the way – *The Atlas of Wintering Birds in Britain and Ireland* (1986), and species accounts on the Barn Swallow *Hirundo rustica* and Sand Martin (two of his favourite birds) in *The Migration Atlas* (2002). Fittingly, the latter appeared before his death, having been a pipe dream shared along with the late Bob Spencer (also a former head of the BTO Ringing Unit).

Among his other publications were the popular BTO Guide *Bird Ringing* (1974), a readable digest *Bird Migration* (1984), and introductory monographs on *Robins* (1984) and *Owls* (1987). His scientific output spanned papers on a number of favourite birds, from seabirds and hirundines to Pied Flycatcher *Ficedula hypoleuca* and Lesser Whitethroat *Sylvia curruca*. Arguably, though, Chris kept his most telling solo production until last. In 2000, he produced *The State of the Nation's Birds*, a frank and ambitious book detailing the varying fortunes of birds in Britain and Ireland during the twentieth century – a subject which he loved to debate – with an illuminating look into the future.

He was a proud and worthy recipient of a trio of medals: the Union Medal from the BOU in 1986, the Bernard Tucker Medal from the BTO in 1997 for long-term services to the Trust, and the RSPB Medal in 1999 for his help with the causes of wild bird protection and countryside conservation.

Publications and accolades apart, Chris's lasting legacy will be the several hundreds of modern-day birdwatchers drawn into a lifelong hobby having attended one of his flamboyant talks, read one of his perceptive articles, or heard his persuasive tones on the radio (he featured regularly on Radio 4's *The Living World*)

or TV. Everyone lucky enough to have met Chris will retain fond memories of this 'larger than life' character. He was a fierce debator, always prepared to offer a view, never lofty enough to bear a grudge, and prepared to modify his stance overnight. Chris just loved birds and those who enthused about them. In later years, as a BTO publicity consultant, his media work had a lasting impact, especially on the plight of the Sky Lark *Alauda arvensis* (and inadequacies of economic farming policies), the concern for Common Swifts *Apus apus* (and the need to replace lost nest sites in roof spaces), Man's conflict with Great Cormorants *Phalacrocorax carbo* (and the need for fish farms to protect stocks), and the impact of oil pollution on seabirds (and the need for more effective maritime laws).

Those lucky enough to have worked alongside Chris (the writer and professional ornithologist for 34 years) will retain a treasure trove of happy memories, many resulting from the fun attitude (sometimes verging on farce) which he brought to life and bird work. The following incidents help to illustrate four considerable aspects of Chris's character: his charisma, determination, kindness and mischievousness. As a BTO team cricketer, his W. G. Grace 'lookalike' frame produced few flowing strokes, but his sheer bulk made him an ideal wicketkeeper, and bellowing appeals forced several quivering umpires to raise a trembling finger. He possessed a remarkable turn of speed, and when Fallow Deer *Cervus dama* threatened expensive mistnets at his ringing site in Hertfordshire they could be confronted with a demented charging bull elephant – to the delight of onlookers. But size was sometimes his undoing, gently slipping into the sludge beds of Wisbech sewage farm when attempting to carry the wheelchair-bound writer to a Wilson's Phalarope *Phalaropus tricolor* 'lifer'. This caring attitude often shone through. Witness a despondent character sitting with sprained ankle and upturned trouser leg in a water-filled fire bucket, holding a candle and tended by various hand maidens, having tumbled down the stairs at Beech Grove when raising the alarm during the Great Storm of October 1987.

Chris will be greatly missed, but no more than by his wife Verity (known to all as 'V') and three daughters, of whom he was so proud.

David Glue

News and comment

Compiled by Adrian Pitches

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

Government orders extermination of Ruddy Ducks

The wildlife minister, Elliott Morley, has confirmed that the Government intends to wipe out the British population of Ruddy Ducks *Oxyura jamaicensis*. This is the first attempt ever to eradicate an alien bird species from the UK and coincides with new moves to eliminate another North American alien, the American Mink *Mustela vison* (see below). The cull is portrayed as a last-ditch bid to protect the globally endangered White-headed Duck *O. leucocephala* from extinction through hybridisation with the more aggressive – and sexually attractive – Ruddy Duck.

It is the male Ruddy Duck's blessing and curse to be so well endowed that it proves irresistible to female White-headed Ducks. Unusually, the resultant hybrids are fertile and so threaten to undermine the fragile population of White-headed Ducks in Spain – which now stands at 2,300 birds, having fallen to a low point of just 22 in 1977. Spanish conservation-

ists have long clamoured for control of the UK Ruddy Duck population, which has rocketed since the first pioneers jumped the fence at Sir Peter Scott's Wildfowl Trust in Slimbridge, Gloucestershire, in the late 1940s.

Last year, Ruddies were sighted in 21 countries across Europe and North Africa. Controversial trial culls of British Ruddy Ducks between April 1999 and May 2002 killed more than 2,600 birds. The subsequent report, quietly slipped out by Mr Morley's department, Defra, stated that the UK Ruddy Duck population could be reduced to less than 175 birds within 10 years at a cost of up to £5.5 million (*Brit. Birds* 95: 597). This was based, however, on an initial population estimate of 3,500 birds. In fact, a more accurate population size at the time of the decision to begin trial culls is thought to have been 6,000 birds. If that is the case, then eliminating the remaining 3,400 Ruddies at a cost of £5.5m

works out at £1,618 per head.

The Ruddies do, however, have an 18-month stay of execution. In a statement to the House of Commons on 28th February, Mr Morley said: 'Further research into control techniques is still required. This will determine more efficient techniques of control, and explore the use of alternative control measures, such as egg pricking... The protection provided by domestic legislation to protect the Ruddy Duck should be removed... The UK cannot act alone in removing the threat posed by the Ruddy Duck. We will continue to work with our European partners to ensure that all appropriate action is taken to sustain the White-headed Duck.' The decision to eradicate the Ruddy Duck has been endorsed by the Wildfowl and Wetlands Trust and the RSPB.

Link: *The Guardian*
www.guardian.co.uk/guardianpolitics/story/0,3605,906225,00.html

And mink could be next

An even more ambitious cull – and one far less likely to spark opposition from birders – is being planned for the American Mink *Mustela vison*. Once again, another species, this time the Water Vole *Arvicola terrestris* (which has seen a catastrophic decline of 90% in 20 years – from nine million rodents to 800,000 today), has been designated as the beneficiary. Water Voles have vanished from 90% of their former haunts and many of those remaining are now seeking refuge along upland streams where they have never previously been encountered.

The prime culprit for this population crash is the mink. It is estimated that there are now 100,000 mink rampaging along British waterways, following escapes from fur farms and deliberate releases by animal rights activists. But trial culls of mink have already shown remarkable results. On one stretch of the River Hull in East Yorkshire, the culling of just two mink on a 3-km stretch led to a 50% increase in the local Water Vole population. Plans to cleanse Devon and Cornwall of mink have now been drawn up, while further trials are

planned in other counties, including North Yorkshire, Norfolk, Somerset and Wiltshire.

A national plan to remove mink from much of the UK is predicted to cost £3 million over the next decade, spiralling to £10 million for a 50-year eradication programme. Complete elimination, which could take 100 years, is considered impossible without unlimited funding. A precedent for the Environment Agency plans is the Mink Eradication Scheme Hebrides (MESH), which aims to eliminate the mink population of Lewis and Harris within a decade. Besides decimating the populations of waders and terns *Sterna* nesting on the machair, mink cause £500,000 damage to crofters' livelihoods every year by preying on ducks and chickens.

Also in the Hebrides, Scottish Natural Heritage has approved plans for a cull of 5,000 European Hedgehogs *Erinaceus europaeus* in North and South Uist by lethal injection to safeguard threatened wader populations. But the British Hedgehog Preservation Society is seeking to airlift the hedgehogs to the mainland and is

recruiting homeowners with gardens to house the refugee mammals.

Links: *The Observer* www.observer.co.uk/uk_news/story/0,6903,905710,00.html
BBC News Online <http://news.bbc.co.uk/>

[1/hi/uk/383942.stm](http://hi/uk/383942.stm)

British Hedgehog Preservation Society
www.software-technics.co.uk/bhps/
Western Isles Hedgehog Repatriation
www.kpmd.co.uk/scripts/Hedgehog.asp

Birds in the frontline in Gulf war

Supporters of the Ruddy Duck may see realpolitik at work here: the UK needs Spain as an ally in a deeply divided Europe in the run-up to conflict in the Gulf. Ironically, some of the first casualties of war could be White-headed Ducks – one of the most important wintering grounds for the Middle Eastern population is Basra, in southern Iraq, where Allied bombing will be concentrated. Indeed, BirdLife has spelt out the threat to a number of Important Bird Areas (IBAs) in Iraq from Gulf War II in a dossier sent to the five permanent members of the UN Security Council and to the UN

Environment Programme.

BirdLife Director, Dr Michael Rands, commented that: 'Until recently the impact of war on nature has often been ignored or obscured by the conflict itself. As the 1990-91 Gulf War showed, such conflicts have devastating effects on the environment, biodiversity and the quality of life of local people long after the cessation of hostilities.' Iraq contains 42 IBAs and the Mesopotamian marshes Endemic Bird Area. Sixteen globally threatened or near-threatened bird species occur in the country, plus three unique endemic wetland bird species (Grey Hypocolius

Hypocolius ampelinus, Basra Reed Warbler *Acrocephalus griseldis* and Iraq Babbler *Turdoides altirostris*).

Casualties among the oiled birds recovered by the BirdLife/RSPB team which went into Kuwait in 1991, after the last Gulf War, ranged from Barn Swallow *Hirundo rustica* and White-cheeked Tern *Sterna repressa* to Socotra Cormorant *Phalacrocorax nigrogularis*.

Links: Important Bird Areas in Iraq www.birdlife.net/news/iraq_iba_chapter.pdf

Mesopotamian marshlands Endemic Bird Area www.birdlife.net/news/eba_100.pdf

Socotra Conservation Fund

Socotra is often regarded as the Galapagos of the Indian Ocean. It has over 300 endemic plants, at least six endemic birds and 24 endemic reptiles. BirdLife International identifies 22 Important Bird Areas on the Socotra Archipelago. These include spectacular seabird breeding areas as well as the habitats of the endemic species. The Socotra Conservation Fund (SCF) is a newly created NGO (non-governmental organisation), of which one of the main aims is conserving the endemic and globally significant biodiversity of this Yemeni archipelago. Other key objectives are to protect and manage the large biodiversity reserves which have been identified in the Socotra Zoning Plan, to promote scientific research into wildlife conservation requirements in this unique island complex in the Arabian Sea, and to promote ecotourism and environmental awareness among the people of Socotra. Although the SCF is independent of government, it should have considerable political clout, as one of its directors is a past Prime Minister of Yemen. Link: Socotra Conservation Fund (www.socotraisland.org). (Contributed by Richard Porter)

Prestige update

The Prestige oil disaster (*Brit. Birds* 96: 50, 93) has killed about 200,000 seabirds of 71 species, making it one of the worst ecological disasters in the northeast Atlantic. According to the BTO, about a quarter of the victims were breeding birds from British and Irish coasts, an estimate which came from analysis of 21,500 ringed birds recovered. But the thickness of the oil from the tanker, and the number of birds which sank in the sea or were bulldozed by recovery teams mean that the casualties could be higher, possibly exceeding those killed after the worst recorded spill: that resulting from the 1999 sinking of the *Erika*, off Brittany, when 300,000 seabirds perished. The ring recoveries from the disaster include those of a 27-year-old Great Skua *Catharacta skua* from Shetland, a 25-year-old Common Guillemot *Uria aalge* from Scotland, and 21-year-old Atlantic Puffin *Fratercula arctica* from Orkney. So far, the ringing data suggest that the worst hit colony was Great Saltee Island, Co. Wexford, from where at least 1,500 seabirds perished. Link: http://www.guardian.co.uk/uk_news/story/0,3604,909005,00.html

Electronic records submission update

More evidence is emerging that bird clubs are encouraging electronic record submission via their websites (*Brit. Birds* 96: 94). Like the Teesmouth Bird Club, the Derbyshire Ornithological Society also welcomes e-records. Thanks to Dave Richardson of the DOS for pointing this out. And if your bird club does likewise, do e-mail me. What are the merits – and the disadvantages – of electronic records submission? Link: Derbyshire Ornithological Society (www.DerbyshireOS.org.uk).

Turning back the clock in Fenland

It will send Cornelius Vermuyden spinning in his grave, but the Great Fen Project intends to flood 3,000 ha (7,500 acres) of East Anglian farmland and return it to its medieval glory as a wildlife haven. Vermuyden was the great seventeenth-century Dutch engineer who achieved what the Romans and the Normans had tried, and failed, to do: he drained the vast wetlands of East Anglia, creating some of the richest farmland in the UK. But it is wetland, not farmland, which is at a premium today, and the first Fenland farmer has sold up to a conservation consortium hoping to re-create the mysterious marshland of Hereward the Wake's time.

The Great Fen Project, a partnership between English Nature, the Environment Agency, Huntingdonshire District Council and the Cambridgeshire Wildlife Trust, aims to link up the National Nature Reserves of Woodwalton Fen and Holme Fen by flooding the intervening 3 km of arable farmland. The first piece in the jigsaw was the purchase of Stewart Papworth's 83-ha farm north of Woodwalton Fen, near Ramsey Heights, with a £270,000 Heritage Lottery Fund grant.

The move is timely, according to Great Fen Project Manager Chris Gerrard: 'We had to act now before someone else took over, who could have worked the land for another 30 years. By that time it would be just too late, as all the peat would have gone. Now we'll be able to control the water levels on the site to bring back a wonderful reedbed.' Mr Papworth, whose grandfather laboured to clear dykes of reeds and wild flowers to plant crops, will be able to watch a medieval landscape of fens re-establish, and says he is proud to be a wildlife pioneer for the Fens. It is hoped that Great Bitterns *Botaurus stellaris* will return to a traditional fenland stronghold – and that Water Voles *Arvicola terrestris* will also recolonise the region.

Link: Great Fen Project (www.greatfen.org.uk).



Gunter Bachmeier

148. Great Bittern *Botaurus stellaris*, likely to be a key beneficiary of the Great Fen Project.

North Yorks wetland wins award

In 60 years time, the Great Fen Project may win the Living Wetlands Award, but this year it has been won by the Swale and Ure Washlands Project in North Yorkshire. The project beat 19 other entries in this new competition, devised by the RSPB and the Chartered Institution of Water and Environmental Management, to celebrate projects which benefit wetland wildlife and involve local communities. The winning project links industry, community and conservation groups by the creation of a chain of nature reserves on former mineral workings in the Swale and Ure valleys. The prize is a bronze trophy of a Common Snipe *Gallinago gallinago* and £1,500 to be used to boost conservation work on the site.

Birdfair 2002 was best yet

The British Birdwatching Fair (BBWF) at Rutland Water in August 2002 raised a new record sum for conservation – £146,900 to fund BirdLife's 'Saving Sumatra's Last Lowland Rainforests' project. BBWF organiser, Tim Appleton, handed over a cheque to BirdLife's Michael Rands at the Foreign and Commonwealth Office in London recently, and said that the sum raised also demonstrates how important global bird conservation is to the 16,000 birdwatchers who visited the Fair in August 2002. Indonesia has 117 globally threatened species, more than any other country in the world, and nowhere is the crisis more severe than on the island of Sumatra, where 78 of 102 lowland-forest-dependent bird species are globally threatened or near-threatened. The 2003 Fair, which will take place on 15th-17th August, will raise funds for Madagascar's threatened wetlands. Madagascar has 37 globally threatened or near-threatened endemic bird species, more than any other African country.

Birding Israel

Sadly, at this prime time of year for birding in Israel, the region has become a no-go area for nervous travellers. Indeed, the Foreign Office has recommended that all non-essential travel to Israel be avoided (although most hardcore birders would regard a spring trip to Eilat as essential travel!), and most tourists will be avoiding the Middle East for the foreseeable future.

But if you're not visiting Israel, you can at least visit birdingisrael.com. This is a superb website edited by South Yorkshireman James Smith, who's the resident birder-guide at Kibbutz Lotan in the Arava Valley, north of Eilat. James's digital photos of the Palearctic rarities he's found make mouth-watering viewing. See Temminck's Horned Lark *Eremophila bilopha*, Verreaux's Eagle *Aquila verreauxii* and an extraordinary sequence of an Eastern Imperial Eagle *Aquila heliaca* chasing a Red Fox *Vulpes vulpes* on foot!

Link: Birding Israel (www.birdingisrael.com).

First bird-friendly GM crop?

Researchers experimenting with genetically modified sugar beet have found a way to keep yields high while providing weed cover for nesting Red-legged Partridges *Alectoris rufa*, Northern Lapwings *Vanellus vanellus* and Sky Larks *Alauda arvensis*. The research involved sugar beet genetically modified to be resistant to the herbicide glyphosate, and it is claimed that this research is the first to show that GM herbicide-tolerant crops can be managed for environmental benefit.

The GM beet was developed by the agribusiness giant Monsanto, which holds the patent on glyphosate, and the trials were also funded by this company. The standard approach with herbicide-tolerant crops is to spray early, and spray regularly: if weeds are hit early, they fail to develop, and the crop flourishes in an otherwise

sterile field. But sugar beet is planted in rows 50 cm apart, and the team at the Broom's Barn research station in Suffolk looked for a way to allow weeds, and therefore insects, to survive between the rows. They adjusted the nozzles on herbicide spreaders so that the rows of emerging beet, but not the intervening spaces, were sprayed, allowing weeds to grow. Later in the summer, they sprayed the weeds that had grown between the rows with glyphosate, the only herbicide powerful enough to kill adult weeds. Before the weeds were sprayed, population levels of beetles (Coleoptera) and spiders (Araneae) were sampled and a sevenfold increase, compared with those in fields subjected to regular spraying, was found.

Although the experimental plots were small, researchers were surprised to find that the three bird

species mentioned previously had nested and raised broods in the weeds between the beet. 'I've been working with sugar beet for 19 years now, and in all that time I have never found a nesting Sky Lark,' said Alan Dewar, one of the team. The research is not, however, likely to lead to the immediate adoption of GM beet. While the yield matches conventional cropping, farmers might need some other incentive to encourage weeds in up to 800,000 ha of their fields.

Pete Riley, Friends of the Earth's Real Food and Farming campaigner said: 'Sugar beet farmers were sold the idea of GM crops in the mid 1990s, on the basis that they were good for weed control and would produce clean ground. This research does not support that. And the techniques proposed are likely to be more costly and more trouble for farmers.'

Birder of the Year

When two or more birders gather, the talk usually turns to great birds of the past – and the great birders who found them. We may not be the best at football and cricket but Britain is blessed with some of the best birders in the world (even the Americans have to admit that). One thinks of Chris Heard locating a Brünnich's Guillemot *Uria lomvia* on a choppy Shetland voe in a blizzard in January 1987, or Paul Holt identifying a fly-over Buff-bellied Pipit *Anthus rubescens* on Scilly in October 1988. And then there's Tim Cleeves and his Slender-billed Curlew *Numenius tenuirostris*.

So here's a light-hearted N&c competition to find the Birder of the Year 2003. My nomination this month is Doncaster birder Lance Degnan, who discovered the Blyth's Pipit *A. godlewskii* at Gringley Carr, Nottinghamshire, at the end of December 2002 and made many birders shelve their New Year's resolution to do less twitching in 2003. A Blyth's Pipit in the Midlands? In December? Identified on flight-only views and call? Well, the best bird-finders are never swayed by improbability.

Lance told his story on the *Birdguides* website. Here's an extract:

'During the flight views, I looked closely at the bird's structure. While definitely a "large pipit", it lacked the sheer bulk of a Richard's *A. novaeseelandiae* and overall the shape was perhaps more reminiscent of an oversize Water Pipit *A. spinoletta*. More importantly, yes, it definitely looked short-tailed and compact at the rear end with tail held firmly, compared with the elongated tail of a Richard's, which can readily be seen to flap about in flight. As a supplementary feature, I also watched as the bird came in to land – it went straight in without any hesitation or hovering just above the ground. So, we had a large pipit, in structure both small and short-tailed, with a forceful shrill "psheoo" call-note. Once I thought I heard a quiet "chup", but no more. All in all, we had everything you could expect to see on a flight-only Blyth's Pipit, and I was all but convinced.'

Birdguides.com has many interesting articles on its Bird News Extra subscription-only section. Non-subscribers can have a free tour. If you have nominations for Birder of the Year, write or send an e-mail to the N&c address (see inside front cover) with details of your nominee and why he/she qualifies.

Link: Birdguides (www.birdguides.com).

Fastest annual report publication?

As county records committees sift through the records for 2002, one annual report had already arrived on doormats in Dorset and beyond by the end of February! Congratulations to the team at Portland Bird Observatory for this speedy turnaround. No doubt they couldn't wait to brag about their Allen's Gallinule *Porphyryla alleni* one more time. The Obs. website boasts that Portland is now the 'Hilton of Bird Observatories' (when I stayed there in the late 1970s it was more like Fawltly Towers...).

Link: Portland Bird Observatory

(www.portlandbirdobs.btinternet.co.uk).

Reviews

THE MIGRATION ATLAS: MOVEMENTS OF THE BIRDS OF BRITAIN AND IRELAND

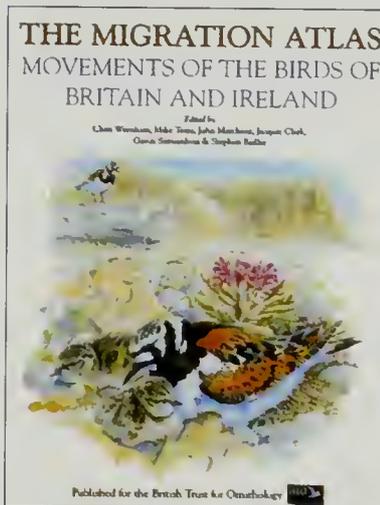
Edited by Chris Wernham, Mike Toms, John Marchant, Jacquie Clark, Gavin Siriwardena & Stephen Baillie. T & A D Poyser, A&C Black, London, 2002. 884 pages; numerous figures, tables, line-drawings and distribution maps. ISBN 0-7136-6514-9. Hardback, £65.00.

Well, here it is, the much trailed and trumpeted *Migration Atlas*! And weighing in at a little over 4 kg, it is heavier than the average new-born infant, or (if you prefer a more ornithological comparison, this one conceived by Chris du Feu) about the same weight as all the Eurasian Treecreepers *Certhia familiaris* ever ringed at Treswell Wood, Nottinghamshire.

The book is divided into two broad sections. The first describes the background to the ringing scheme, the methods of data collection, computerisation, analysis, etc. There are also chapters on migration and an attempt at synthesis (more about this later). The main part of the book comprises the species accounts, written by experts on the individual bird species, interpreting the results in the light of current knowledge of each. You certainly get a lot for your money.

I sat down to read the introductory chapters, and a day later was still there. There are 105 pages and with the relatively small font size this translates into a lot more information than it looks. To some extent, I was aware of the information in the chapters on methods of study and history of bird ringing, but it is interesting to see it all drawn together. Most *BB* readers are likely to be in the same position. There is an excellent chapter on the 'why' and 'how' of bird migration, although again this is a summary, and readers of *Bird Study* and *BB* are likely to have absorbed quite a lot of this along the way. Included here is a table of recoveries of rarer species, some of which confirm their transatlantic vagrancy. Of these, five ringed

American Wigeons *Anas americana* have been shot in Britain & Ireland, as have two Blue-winged Teals *A. discors* and a Ring-necked Duck *Aythya collaris*. Remarkably, a Ring-necked Duck that was ringed at Slimbridge, Gloucestershire, was subsequently shot in Greenland. While unlikely to have been returning to its natal area, it does



show that the potential for completing the journey across the Atlantic both ways does exist.

There are also attempts to synthesise the overall findings from ringing results. For those species with sufficient records, the editors have tried to determine whether there are differences in patterns of recovery between males and females, adults and juveniles, birds ringed in different parts of Britain & Ireland, or even those recovered at different seasons. This is a valiant effort, and resulted in a mass of tabulated results which were passed to the species authors, who have incorporated them into their accounts. I have to confess that this process worries me. The analyses determine the probability

that each individual difference (between age, sex, region, etc.) could occur by chance, and those with a probability of 5% or less are deemed to be unlikely and so are flagged as 'significant'. The logic of statistics, however, is that an observed result is compared with an expectation based upon a 'null hypothesis' (which essentially means 'no difference'). For example, do males of species X migrate farther than females? The null hypothesis says 'no, they do not'. Thus, we expect the mean distance of recovery to be the same in males and females. A statistical test estimates the probability of obtaining the observed data if the null hypothesis is true. A probability of 5% means that if males and females really do migrate similar distances, then we would get an erroneous result five times in every hundred. So, in a hundred tests where the null hypothesis is true, you will get five 'significant' results just by chance. If (as here) you do hundreds of tests, many 'significant' results will be thrown up by statistical chance. Thus, in among the array of 'significant' results listed by the editors will be some that are artefactual – but which ones are they? Is there a way of resolving this? Well, sort of. If you are doing (say) one hundred tests, then you modify the significance level using a standard correction factor, and discard those results where the probability is above this modified value. Since the editors do not give the individual probabilities, it is not possible for a reader to do this. I doubt that this is a serious problem (most of the 'significant' results are likely to be biologically real anyway), but I am still left with the nagging doubt over which of the arguments raised in the species accounts are, in fact, hand-waving attempts to dig the authors out of a hole not of their making. And giving us the individual probabilities would not have been too difficult.

There is also an excellent chapter

looking to the future. In such overviews, there is always a temptation to say 'more data!' And, indeed, the authors do say this, but temper their enthusiasm with recommendations for a targeted approach. They advise that it is essential for the general programme of ringing to continue, to maintain baseline data against future circumstances, but there are also areas of especially pressing need. Species for which we have a European or global responsibility should be targeted, with the aim of generating data of quality, as much as quantity. The changes in climate which are taxing us at present are already known to be influencing avian populations – indeed, the ringing data at the heart of this book have played an integral part in quantifying changes in distribution, abundance and survival. But this book is about migration, and there are likely to be changes in migration routes consequent upon changes in habitat on both breeding and wintering grounds, as well as en route. Ringing has an essential part to play in this. To take a simple example: when I was at school, we did not see Blackcaps *Sylvia atricapilla* in winter. Now they are a familiar sight – there was one in my garden yesterday (23rd February). Despite a concerted effort, there are still lamentably few recoveries of wintering Blackcaps on their breeding grounds – where

do they come from?

This leads me to the species accounts: these are legion, and impossible to summarise in 1,000 words – or 10,000 for that matter! There are lots of maps showing patterns of recovery at different ages, seasons, etc. Some of these are, by now, very familiar: British-breeding Barn Swallows *Hirundo rustica* migrate through southwest Europe and across West Africa to winter at the southern tip of the continent; most wintering Snow Buntings *Plectrophenax nivalis* seem to come from Iceland; Red-wings *Turdus iliacus* come from both Iceland and Scandinavia. There are some surprises though. Seemingly, Common Ravens *Corvus corax* hardly ever move between their upland massifs. Nor do Red-billed Choughs *Pyrrhonorax pyrrhonorax* move much between their breeding areas in Ireland, Wales, the Isle of Man and the Hebrides: the bird ringed on Islay and found dead in Buckinghamshire may perhaps have been a victim of bird theft rather than having dispersed naturally. The House Sparrow *Passer domesticus* ('one of the most sedentary species') has been recovered overseas only three times: two instances involving short-distance cross-Channel movements which may relate more to the availability of ferries than innate migratory drive!

My background is in population

genetics, and a key factor in this subject is the extent of gene flow between populations. The maps give a fascinating insight into this. Fulmars *Fulmarus glacialis* are believed to have colonised Britain from Iceland, perhaps via St Kilda. Naïvely, one might expect a 'stepping stone' pattern of colonisation, with birds moving from one colony to the next, and then the next, and so on. But the Fulmar map shows that birds between fledging and breeding age move more or less randomly among colonies, suggesting that colonisation may not have been the linear 'island-hopping' process depicted in older maps. Terns *Sterna* too seem to move freely between colonies, as do Grey Herons *Ardea cinerea*. Little wonder that some of these species show so little differentiation when gene flow is potentially so extensive.

But I am in danger here of rambling on from one map to the next. This book presents a mine of information which kept me entertained for hours, just looking, thinking and wondering – not just at the fascinating patterns of movement and dispersal, but at the millions of hours of fieldwork upon which it is based! This is a super book which is a fine testament to both birds and ringers alike.

David T. Parkin

**SPIX'S MACAW:
THE RACE TO SAVE THE
WORLD'S RAREST BIRD**

By Tony Juniper. Fourth
Estate, London, 2002. 296
pages. ISBN 1-84115-650-7.
Hardback, £16.99.

In 1819, two Bavarian naturalists, Dr Johan Baptist Ritter von Spix and his companion, Dr Carl Friedrich Philip von Martius, were travelling in northeast Brazil. They collected a macaw (Psittacidae) which, at the time, von Spix assumed was just another 'blue'

macaw, probably a Hyacinth Macaw *Anodorhynchus hyacinthinus*. Many years later, it was realised that this bird was an undescribed species, and it was subsequently named Spix's Macaw *Cyanopsitta spixii*. Consequently, Spix's Macaw became highly prized and much sought-after, increasingly so over the years when it was realised just how few existed. Extremely high prices were paid for specimens as the supply of new birds from Brazil dwindled.

As real concern for the survival of Spix's Macaw grew, Tony Juniper, together with four Brazilian naturalists, spent many

months in 1990 travelling through the arid wastelands of northeastern Brazil. Their extensive search to determine whether any Spix's Macaws still remained in the wild eventually paid off and the party was finally rewarded with the sighting of a solitary bird. Sadly, this turned out to be the last remaining wild Spix's Macaw. This individual had spent the last 13 years of its life alone after its mate had been taken by trappers. Today, there are but a handful of these most beautiful of birds in existence, all of which are in private collections, and most are now too old to breed, or are sterile.

Personally, I did not much like this book. Not because it is badly written or uninteresting: on the contrary, it is an exciting read, full of drama and tension, which I found unputdownable. It contains a great deal of information about the 'blue' macaws, their history,

habitat, food and breeding peculiarities. It also uncomfortably exposes much of what is worst in the nature of man: greed, obsession, jealousy, envy, venality and ignorance. This is also the story of how a few conservationists hoped to try and save Spix's Macaw from

extinction. It is a tale of good intentions, and of hope leading to betrayal. One could almost say the book is a parable on the future of the planet. Read it and be ashamed of your fellow man.

James Wilde

**BIRD SONG OF THE
GAMBIA & SENEGAL: AN
AID TO IDENTIFICATION**

By Clive Barlow, John Hammick and Pat Sellar.
Mandarin Productions,
Wimborne, 2002. 3 CDs;
265 species covered. £24.99.

A prominent warning forbidding the use of these recordings for playback accompanies this three-CD set, which covers 265 species occurring in The Gambia and Senegal. The collection is designed to be used in conjunction with *A Field Guide to Birds of The Gambia and Senegal* (Barlow, Wachter & Disley, 1997, Pica Press). The species included are predominantly landbirds and a further CD is promised covering waterbirds and raptors. The recordings vary in quality but are generally of a good standard, and the length of each cut lasts between a meagre 12

seconds for Sudan Golden-Sparrow *Passer luteus* and over seven minutes devoted to several variations of Cameroon Indigobird *Vidua camerunensis* (ironically a species not known to occur in these countries for certain!). For the listener, these recordings will undoubtedly clarify the corresponding 'voice' section of the field guide, although it is a shame that there are not more extensive sleeve notes giving details of what we are actually hearing – is it a call, song, duet, adult, juvenile, a single bird or a flock, etc.? It would also have been useful to know which race was recorded. In the case of Hoopoe *Upupa epops*, Rufous-tailed Scrub-robin *Cercotrichas galactotes* and Olivaceous Warbler *Hippolais pallida*, all of which have been subject to taxonomic splits, we have no information as to whether these are the African or visiting Palearctic forms.

I noticed a few errors. I believe that the second cut of Yellowbill

Ceuthmochares aereus is a Tambourine Dove *Turtur tympanistria*, the second cut of Fire-crested Alethe [White-tailed Alethe] *Alethe diademata* is Brown Illadopsis *Illadopsis fulvescens* and the first cut of Spotted Honeyguide *Indicator maculatus* is an oriole. I do not recognise the call attributed to Lead-coloured Flycatcher [Grey Tit-Flycatcher] *Myioparus plumbeus*, neither does it match the description in the book. If correct, it could conceivably be an undescribed alternative song.

On the whole, we have here a collection of recordings that the prospective visitor to the region would find invaluable. Particular praise must be given to the comprehensive coverage of *Estrilda* and *Vidua* vocalisations, while the songs of Palearctic migrants recorded on their wintering grounds are also of great interest.

Nik Borrow

**WHERE TO WATCH
BIRDS IN SCOTLAND**

By Mike Madders and Julia Welstead. 4th edition.
Christopher Helm, A&C
Black, London, 2002.
297 pages; line-drawings and
maps. ISBN 0-7136-5693-X.
Paperback, £14.99.

This is the fourth edition, by the original authors, of the very popular guide first published in 1989. Those familiar with the series will find few surprises, with the layout and design remaining unchanged, and the site descriptions being punctuated by line-

drawings of birds and site maps. In this edition, Scotland is divided into ten regions, compared with twelve in the first edition, and the sites are laid out regionally. These include some of the most famous sites in British birdwatching, for example Fair Isle and Aberlady Bay, but also some particularly obscure locations, even by Scottish standards, including Knockshinnoch Lagoons and Alemoor Loch.

The Highland section contains the most sites for any region and is, of course, where most of the Scottish specialities are to be found. Each speciality is mentioned in at least one site description, so keeping any prospective visitor satisfied. One slight gripe is that now,

in this fourth edition, the status of some of the birds listed is outdated, with certain accounts apparently still referring to the late 1980s and early 1990s. For example, European Nuthatch *Sitta europaea* is mentioned as having bred in 1989 at The Hirsell (Borders and Lothian, site 8). This species is now very common there, as it is in most of Borders, and is spreading rapidly throughout Scotland. Despite these shortcomings, anyone with an interest in birdwatching in Scotland should add this to their bookshelves (assuming it isn't already there).

August Murray

Rarities Committee news

Southeast representation on BBRC delayed

The nomination of a new southeast representative for BBRC, announced last September (*Brit. Birds* 95: 470), has encountered some difficulties. Following discussions among BBRC, the Kent Ornithological Society and Chris Bradshaw (the BBRC's nomina-

tion), it was felt that it would be prudent to postpone Chris's candidature for the time being. BBRC wish to see Chris join the Committee in due course and we propose to nominate him again in 2-3 years' time. No alternative candidate was proposed and seconded

to stand against Chris and, with time running out, Grahame Walbridge agreed to stay on as a BBRC member until late 2003, by which time we hope to have a replacement in post.

BBRC seeks new member

BBRC seeks a new member, preferably with knowledge of the birding scene in Wales, to join the Committee on 1st September 2003. The prime qualifications of candidates are:

- a widely acknowledged expertise in identification
- proven reliability in the field
- a track record of high-quality submissions of descriptions of scarce and rare birds to county records committees and BBRC
- considerable experience of record assessment
- the capacity to work quickly and efficiently, and handle the considerable volume of work involved in assessing upwards of 1,000 records per year
- easy access to and knowledge of IT

BBRC's nominee is Phil Bristow, from Glamorgan. He has a wide interest in identification and migration, has travelled extensively in the Western Palearctic, North America, Asia and Africa and has served on the Glamorgan Records Committee. He enjoys extensive support from the Welsh birding community. The Committee would, however, welcome any alternative nominees. These should be sent to the Chairman of the BBRC before 1st May 2003, with details of a proposer and seconder, and the written agreement of the nominee. After this date, a voting slip and list of candidates with relevant details will be sent to all County Recorders and bird-observatory wardens.

The successful candidate will join the committee six months earlier than originally planned to cover a vacancy which has arisen. They will replace Reg Thorpe, who has been a member of BBRC since 1995. Reg has not only been an active Committee member, but has been secretary of RIACT, the sub-committee examining subspecies, and has acted as summariser of complex records for the Committee. He has agreed to continue in the latter role.



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Announcements

Reviews of pre-1950 rarities

Many reviews of county avifaunas are currently taking place, which involves examining records of rarities that occurred before 1950. Some of these records have been found wanting, and both BBRC and BOURC have, in some cases, been asked to help with the review. Unfortunately, neither body has the resources to carry out this work for all such records. Indeed, the work falls outside the scope of BOURC, whose remit is to examine records

of 'firsts' for Britain, while BBRC has no expertise in researching local natural history archives (something which, in pre-1950 records, is often as important as the description itself).

Following the recent AGMs of both BOURC and BBRC, the two committees have agreed on the following approach and hope that counties will find it acceptable. BOURC will consider any pre-1950 record if it constitutes one of the

first five records of the species for Britain. For other records, we ask counties to make the decisions themselves. We would ask county records committees to notify both BBRC and BOURC of any changes made as a result of such reviews, so that we can update our statistics.

Colin Bradshaw
9 Tynemouth Place, Tynemouth,
Tyne & Wear NE30 4BJ On behalf
of both BOURC & BBRC



Monthly Marathon

Photo no. 195: Dark-eyed Junco

Although different species of grass vary in size, the vegetation around the bird in photo number 195 (*Brit. Birds* 96: plate 28, repeated here as plate 149) is a pretty good indicator of scale and suggests that we are dealing with a small bird. The size of the head in proportion to the body, together with the long tail indicate a passerine, so we need to consider small passerines which are essentially grey in plumage. Very few spring immediately to mind! Of breeding Western Palearctic birds, a few species of *Sylvia* warblers are grey with long tails, and the white outer web to each outermost tail feather shown by our bird might also fit that group. Could it be a Marmor's Warbler *S. sarda* perhaps, or a female Rüppell's Warbler *S. rüppelli*? Marmor's lacks any white in the tail, and probably even a female Rüppell's would show some black on the visible parts of the head. One feature quickly dispels such thoughts, however: our mystery bird is visibly streaked, or at least mottled, on the mantle, and all grey *Sylvias* have uniform upperparts. What other clues are there?



Colin Bradshaw

149. Dark-eyed Junco *Junco hyemalis*, Newfoundland, Canada, June 1995.

Our bird is perched on the ground and this, combined with the streaked mantle, might suggest a bunting. No Western Palearctic buntings are this grey though, and most would show wing-bars. Having eliminated all the regular Western Palearctic species, we therefore need to consider vagrants from farther afield. When we do so, there is only one species which fits the features of this bird: Dark-eyed Junco *Junco hyemalis* of the nominate form 'Slate-coloured Junco'. This is, of course, the only race of Dark-eyed Junco to have reached the Western Palearctic, so the rules of our Monthly Marathon competition allow us to ignore all other races. Females and first-winter

males of this species show brown tinges on the head and in the wing feathers, so we can conclude from the all-grey plumage that this is an adult male, though the prominence of the streaking in the mantle might suggest that it is not a full adult, most of which show a uniform grey mantle. This is probably one of those mystery photographs where most people either knew immediately what it was or were left puzzling for ages. These were certainly the responses of the *Sunbird* leaders involved in choosing this year's selection when they first viewed this slide! This individual was photographed in Newfoundland, Canada, in June 1995.

David Fisher



150. 'Monthly Marathon'. Photo no. 198. Fourteenth stage in twelfth 'Marathon'. Identify the species. Read the rules (see page 53), then send in your answer on a postcard to Monthly Marathon, c/o The Banks, Mountfield, Robertsbridge, East Sussex TN32 5JY, or by e-mail to editor@britishbirds.co.uk, to arrive by 31st May 2003.

For the second month in a row, most entrants named the species correctly, and 85% of entries received were correct! The few remaining votes were for either Dartford Warbler or Rüppell's Warbler. There has, however, been a shift in the leader board, and we now have three people, Nils van Duivendijk, Diederik Kok and Volker Konrad tied in first place with a sequence of four-in-a-row.

Eds

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Recent reports

Compiled by Barry Nightingale and Anthony McGeehan

This summary of unchecked reports covers mid February to mid March 2003.

White-billed Diver *Gavia adamsii* South Nesting (Shetland), 15th February. **Night Heron** *Nycticorax nycticorax* Basingstoke (Hampshire), 6th March. **Lesser White-fronted Goose** *Anser erythropus* Slimbridge (Gloucestershire), 16th-27th February. **Black Duck** *Anas rubripes* Dales Voe (Shetland Mainland), sporadically 16th-24th February. **Lesser Scaup** *Aythya affinis* Brent Reservoir (Greater London), 15th-23rd February, presumed same Regent's Park Lake (Greater London), 3rd-10th March; New Swillington Ings (West Yorkshire), 16th-23rd February; South Uist (Western Isles), 7th March; Inch Lake (Co. Donegal), 9th March. Also the following long-stayers: two, Milton Loch (Dumfries & Galloway), to 7th March, and Studland (Dorset), to 3rd March.

Common Crane *Grus grus* Influx in late February and early March brought widespread sightings (although inevitably with much duplication). These included flocks of up to nine in Oxfordshire, and five in Gloucestershire, Bedfordshire and Hertfordshire; together with other sightings in Buckinghamshire, East Yorkshire, Highland, Kent, Lancashire, Leicestershire, Shetland, Staffordshire, Suffolk, Warwickshire and Worcestershire. Perhaps more than 30 individuals (excluding the resident flock in Norfolk) were involved. **Pacific Golden Plover** *Pluvialis fulva* Long-stayer on South Uist (Western Isles) seen on 4th and 8th March. **Long-billed Dowitcher** *Limnodromus scolopaceus* Clogheen (Co. Cork), 4th March. 'Thayer's Gull' *Larus glaucooides thayeri* First-winter, Killybegs (Co. Donegal), from February until at least 9th March.



151. Common Cranes *Grus grus*, Glympton, Oxfordshire, March 2003.



152. Common Cranes *Grus grus*, Glympton, Oxfordshire, March 2003.

Alpine Swift *Tachymarptis melba* Poole (Dorset), 5th March; North Foreland (Kent), 8th-9th March. **Hoopoe** *Upupa epops* Duncormick (Co. Wexford), 27th February; two, Ladysbridge (Co. Cork), 27th February to 6th March; St Agnes (Scilly), 27th February to 1st March; St Mary's (Scilly), 27th February; Drift (Cornwall), 2nd March; Benwick (Cambridgeshire), 3rd March; Sennen (Cornwall), 6th March. **European Serin** *Serinus serinus* Newhaven (East Sussex), 21st-22nd February and 5th-10th March; Dunwich Heath (Suffolk), 6th March.

George Reszeter

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The Bernard Tucker Memorial Lecture

The following paper was presented originally as the 52nd Bernard Tucker Memorial Lecture to the Oxford Ornithological Society (OOS) and Ashmolean Natural History Society, in Oxford in November 2002. Dr Andrew Gosler, President of the OOS, introduced the speaker, Professor Janet Kear, and has generously allowed his introduction to be reproduced here:

'During the long run of eminent speakers who have contributed over the years to this lecture series, we have, quite unintentionally, established a number of traditions. Bernard Tucker lecturers have tended to be either academics, inviting mention of the fact that Bernard Tucker was an Oxford academic who played an important part in founding the Edward Grey Institute; or they have in some way bridged the gap between the amateur bird-watcher and scientific ornithology, so recalling how Tucker was involved in founding the BTO, the OOS and the Cambridge Bird Club.

'In most respects, Janet Kear follows in these

traditions. She is a distinguished academic, having presented her doctoral thesis on the feeding ecology of finches at Cambridge in 1959, the same year that she started work as a research scientist with the Wildfowl Trust (now Wildfowl & Wetlands Trust, WWT). She is a former editor of *Ibis*, the scientific journal of the BOU, and is now Editor of the BOU Checklist series. Throughout her career with the WWT, she has also been deeply involved in bridging the gap between the public and conservation science, variously as a research scientist, as Editor of the Trust's journal *Wildfowl*, as Avicultural Co-ordinator, as Curator of Martin Mere, as Assistant Director of the Trust and, finally, as Director of Centres. She has served on numerous Councils and committees outside the WWT, including the (then) Nature Conservancy Council and English Nature, the DoE Wildlife Inspectorate, the Association for the Study of Animal Behaviour, the BTO, RSPB, BOU, IUCN, the Jersey Wildlife Preservation Trust and many others. She has also written a

number of important books, perhaps the best known being the award-winning *Man and Wildfowl* published in 1990 in the Poyser series.

'But there is one tradition that I am delighted to break. This series of lectures, held jointly between our two Societies, actually began in 1933, and became the Memorial Lecture following Bernard Tucker's death in 1950. In 1950 also, coincidentally, the lecture was given by Peter Scott, founder of the WWT. It is a lamentable fact that the great list of speakers in this series, right back to 1933 contained no woman until now. This makes it an even greater pleasure and honour to welcome Professor Kear, and to invite her to give the 2002 Bernard Tucker Memorial Lecture on the subject of *Cavity-nesting ducks*.'

The Bernard Tucker Memorial Lecture is sponsored by *British Birds*, and we are delighted to publish it here.

Eds



153. Female Mandarin Duck *Aix galericulata* at nest hole.

Cavity-nesting ducks: why woodpeckers matter

Janet Kear



Goosander *Mergus merganser*
Rosemary Watts/Powell

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ABSTRACT This paper poses a number of related questions and suggests some answers. Why were there no resident tree-hole-nesting ducks in Britain until recently? Why is the Black Woodpecker *Dryocopus martius* not found in Britain? Could the supply of invertebrate food items, especially in winter, be responsible for the distribution of woodpeckers in western Europe? It is concluded that, in Europe, only the Black Woodpecker can construct holes large enough for ducks to nest in, and that this woodpecker does not occur in Britain & Ireland because of the absence of carpenter ants *Campanotus*. A plea is made for the global conservation of dead and dying timber, since it is vital for the biodiversity of plants, insects, woodpeckers and ducks.

Birdwatchers, at least in Britain, tend to think of ducks as nesting in the open and on the ground, but cavity-nesting is actually normal, if not obligatory, in almost one-third of the 162 members of the wildfowl family (Anatidae). Geffen & Yom-Tov (2001) suggested that hole-nesting has evolved independently at least three times within the group. I think that it is more likely to have arisen five or six times; indeed, hole-nesting could be the primitive condition. In any event, the habit occurs among whistling-ducks (Dendrocygnini), shelducks (Tadornini), in two or three different groups of

surface-feeding ducks (Anatini), including those which we used to call 'perching ducks', and in the seaducks (Mergini).

Because ducks are incapable of making holes for themselves, however, they must rely on natural agents for the construction of nest cavities, and this dependence has profound implications for their lifestyles, breeding productivity and conservation. As Eberhard (2002) pointed out, because they are not excavators, cavity-adopting ducks have limited control over the location of their nests, and rarely nest colonially. The skills of a variety of other animals

are employed, but the bird family which contributes most to the process of hole-making, as 'primary cavity excavators' (Aitken *et al.* 2002), is the woodpeckers (Picidae), of which there are just over 200 species (Winkler *et al.* 1995).

To give a few examples: Audubon (1835) observed the North American Wood Duck *Aix sponsa* laying for three successive years in holes made and abandoned by the large, and probably now extinct, Ivory-billed Woodpecker *Campephilus principalis*. Indeed, all early American explorer-naturalists (who were mostly Europeans) noted with interest that the Wood Duck nested in woodpecker holes. Bellrose & Holm (1994) actually speculated that the duck evolved its particular size and slim shape in order to take advantage of cavities created by a woodpecker which is slightly smaller than Ivory-billed but much commoner – the Pileated Woodpecker *Dryocopus pileatus*. They made the point that the range of the Wood Duck fits completely within that of the Pileated Woodpecker.

The Wood Duck's nearest relative, the Mandarin Duck *Aix galericulata*, breeds in temperate forests similar to those inhabited by the Wood Duck, but on the opposite side of the Pacific Ocean. The males of these two beautiful ducks differ substantially in plumage and a little in size – the Wood Duck being stouter – but the

females, which alone incubate the eggs, are extremely similar in appearance and body proportions (Madge & Burn 1988). Since it has been suggested, quite convincingly, that the size and shape of the American bird evolved to enable it to sit in a woodpecker hole, it seemed sensible to look for an Asian woodpecker, about the same size as the Pileated, which may have had a similar influence on the Mandarin. While it is not as rare as used to be assumed, the Mandarin is still uncommon. The forests of Manchuria, where it formerly bred, have been almost totally destroyed, and its breeding biology is little studied (Shurtleff & Savage 1996). The only woodpecker which occurs in Japan in sufficient numbers, and can produce cavities large enough for the Mandarin, is the Black Woodpecker *D. martius*. As a breeder, the woodpecker is more or less confined to Hokkaido and northern Honshu – and so is the nesting Mandarin. Black Woodpeckers are plentiful among the steep mountains of eastern Hokkaido, where Mandarins and Goosanders *Mergus merganser* also occur in the nesting season. As the female Goosander uses Black Woodpecker holes in Europe (and Pileated Woodpecker holes in America; Mallory & Metz 1999), it is likely that the Goosander and the Mandarin adopt such cavities in Japan as well. Perhaps at one time, the Mandarin nested in



A & E Morris/Windrush

154. Female Wood Duck *Aix sponsa* investigating nest sites, Canada.



Gordon Langsbury

155. Male and female Mandarin Ducks *Aix galericulata*, Virginia Water, Surrey. In Japan, the current breeding range of the Mandarin closely matches that of the Black Woodpecker *Dryocopus martius* (plate 156), which is found chiefly in Hokkaido and northern Honshu.

Black Woodpecker holes in other parts of the latter's extensive range, so that the Wood Duck/Pileated Woodpecker association in North America was mirrored by one involving Mandarins and Black Woodpeckers in Asia.

A number of holarctic seaducks are cavity-nesters, and many likewise depend on woodpeckers. Nearly 100% of Buffleheads *Bucephala albeola* use holes made by a smaller woodpecker, the Northern Flicker *Colaptes auratus*. Smew *Mergellus albellus*, Hooded Merganser *Lophodytes cucullatus* and Common Goldeneye *B. clangula* also use cavities made by large woodpeckers, as does Barrow's Goldeneye *B. islandica* in North America (Evans *et al.* 2002). The population of about 2,000 Barrow's Goldeneyes in Iceland uses crevices in the lava rock, however, since neither trees nor woodpeckers are available (Kear *in press*).

The requirement for a degree of adaptability and accommodation by cavity-nesting ducks is obvious. The Goosander will occasionally nest among boulders, in a hole in the ground or a cavity in the bank, so treeless areas are some-

times used (Sharrock 1976; Mallory & Metz 1999). Wood Ducks and Mandarin Ducks, on the other hand, are obligate tree hole-nesters, not laying at all unless an elevated cavity can be found. By no means all will use woodpecker holes, but many prefer them if they are available. In North America, Pileated Woodpecker nests constituted only 5% of cavities deemed 'suitable' by researchers in one study of over 300 such holes; nonetheless, 20% of cavities actually used by Wood Ducks were old woodpecker nests (Soulliere 1990). Why should they seek out a woodpecker hole rather than one which has merely rotted? By choosing a site in which to excavate their nest, woodpeckers are maximising their chances of being free of interference from their own kind, free from last year's nest parasites (20-50% of Black Woodpeckers may reuse last year's hole if it was successful, but Pileated Woodpeckers seldom do; Bull & Meslow 1977; Winkler *et al.* 1995), and, most of all, free from egg-eaters such as climbing snakes and mammals. In Europe and Asia, mammalian predators include Pine Martens *Martes martes*,



156. Black Woodpecker *Dryocopus martius*, Finland, February 1987.

Japanese Martens *M. melampus*, Stone Martens *M. foina* and Raccoon Dogs *Nyctereutes procyonoides*, while in North America, Common Raccoons *Procyon lotor* and the large Fox Squirrel *Sciurus niger* are potential predators. Woodpeckers intend their nests to be, so far as possible, out of the reach of predators, with few perches or ledges to give a foothold, and with a small entrance, so that an enemy has difficulty gaining access. Since woodpeckers are usually territorial, their holes are dispersed through the forest, and often concealed under dense canopy cover (Evans *et al.* 2002). This may not be the case with natural cavities; so, from the duck's point of view, old woodpecker holes are more likely to be cryptic and impregnable, and to

produce live ducklings at the end of 30 days of incubation.

Cavity capacity may seem a tight fit for a duck and her eggs, as most female ducks are twice as large as a woodpecker. The size of the cavity excavated by the woodpecker, however, as opposed to that of the entry hole, is determined by the size of four or five full-grown fledglings because, unlike ducks, young woodpeckers grow up within the cavity. Nest-hole capacity will, therefore, be greater than that needed for an adult woodpecker plus eggs. The Pileated Woodpecker nest has a rounder entrance than that of the Black Woodpecker: 10.8 cm × 8.7 cm was the average of 13 entrances (Haramis 1990), and the Wood Duck seems quite capable of

getting through a hole of that size. Black Woodpecker entrance holes, at 13 cm × 8.5 cm, are more oval (Winkler *et al.* 1995), and a female Smew or Mandarin must turn through 90° to enter. Cavity depth and width are less easy to measure, but the average of 13 Pileated Woodpecker nests was 56 cm deep by 23 cm wide (Bull & Meslow 1977) – long enough to make it hard for a Raccoon to reach the bottom with its arm, and quite wide.

Even those few birds, including woodpeckers, which make burrows in the ground, can be useful to ducks. In South America, for instance, ground-burrowing woodpeckers (probably Campo Flicker *Colaptes campestris*) sometimes provide a home for the Speckled Teal *Anas flavi-*

rostris (Nores & Yzurieta 1980). In Africa, the African Pygmy-goose *Nettapus auritus*, at 250 g the smallest of all ducks, nests in the disused holes of barbets *Megalaima* spp. as well as those of woodpeckers. The female Ruddy-headed Goose *Chloephaga rubidiceps* sometimes nests in penguin burrows, as does the Falkland Steamerduck *Tachyeres brachypterus*, and the Torrent Duck *Merganetta armata* may use the abandoned burrow of the Ringed Kingfisher *Megaceryle torquata* (Kear in press).

In Argentina, Speckled Teals choose abandoned chambers in the crowded compound nests of Monk Parakeets *Myiopsitta monachus*, and may nest colonially – a rare phenomenon among ducks; the large, enclosed stick nests are 5–20 m high in the tree canopy. At the beginning of the twentieth century, parakeet nests were built only in Tala *Celtis tala* trees but, since then, exotic and much taller *Eucalyptus* gums have been introduced. These are selected almost exclusively by parakeets and ducks as providing higher and better security from terrestrial predators (Gibson 1920; Hudson 1920; Weller 1967; Port 1998a,b). Absolute height is not a problem, since young wildfowl of hole-nesting species hatch without a fear of heights (Kear 1967) and, being small and light in weight, jump without harm to join their parent on the ground beneath.

In Australia and Madagascar, there are no woodpeckers; nevertheless, many ducks are cavity-nesters, and so storms, fire, moisture, fungus, ants (Formicidae) and termites (Isoptera) must be relied upon to provide holes, mostly in trees but in other structures as well (Simpson & Wilson 2001). The Radjah Shelduck *Tadorna radjah* in Australia adopts cavities made by termites and fungal infections (Frith 1982). The grey teal group, including Chestnut Teal *Anas castanea*, Sunda Teal *A. gibberifrons*, Andaman Teal *A. (gibberifrons) albogularis* and Bernier's Teal *A. bernieri*, are essentially birds of the Grey Mangrove *Avicennia marina* ocean fringe of a tropical and semi-tropical range which stretches from Madagascar to Australia, and all are cavity-nesters (Young *et al.* 2001; Young 2002; plate 157). Cavities in mangrove trees are caused by the fall of side branches, and then by rot and termite action. Once rot sets into the crown, the tree will not live for long, so a cycle of maturing and dying swamps is essential for successful duck reproduction.

The endangered White-winged Duck *Cairina*

scutulata of the tropical wet forests of southeast Asia is yet another obligate cavity-nester; its continued presence in largely cleared areas of southeast Sumatra has been attributed to its habit of nesting in rot-created holes in rengas trees *Gluta* spp. These trees are frequently left uncut in former swamp forest on account of their irritant sap, which is poisonous to humans (although apparently not to monkeys and squirrels which eat the fruit), and so are rejected by tree-cutters and the timber trade (Green 1992). Thus, the duck can sometimes survive in places which are otherwise cleared of trees. While the Egyptian Goose *Alopochen aegyptiacus* in South Africa is not an obligate hole-nester – about two-thirds of the population nests on the ground – it will nest in elevated positions up to 60 m high and many of these are in holes (Milstein 1993); Brown *et al.* (1982), Maclean (1993) and Milstein (1993) noted sites which included old Hamerkop *Scopus umbretta*, crow *Corvus* spp. and African Fish-Eagle *Haliaeetus vocifer* nests, cliff ledges, tree holes, burrows, church steeples, caves and buildings.

Most shelducks use mammal burrows, rather than tree holes, except for the Paradise Shelduck *Tadorna variegata* of New Zealand, which, until recently, lived where there were no mammals



Lance Woolaver

157. Hole in mangrove tree used by Bernier's Teal *Anas bernieri*, Madagascar.

Reproduced by permission of CSIRO Australia © CSIRO



158. Bob Tilt examining the nest of a Pacific Black Duck *Anas superciliosa*, Barrenbox swamp, near Griffith, New South Wales, Australia, early 1950s.



Peter Fullager

159. Nest, with eggs, of an incubating Pacific Black Duck *Anas superciliosa* in a site similar to that shown in plate 158, NSW, Australia, October 1980. Note that there is a complete lack of nesting material, simply copious down and a few breast/belly feathers from the female.

Peter Fullager



160. Typical nesting site of Pacific Black Duck *Anas superciliosa* in a Red Gum *Eucalyptus camaldulensis* tree, Angora Swamp, Booligal, New South Wales, Australia, October 1980. This site is within a spout caused by a limb breaking off and revealing the hollow interior.

(the females of this species, like Barrow's Goldeneyes in Iceland, use rock crevices instead). The Common Shelduck *T. tadorna* must have been far less numerous in Britain before the Normans introduced the burrowing Rabbit *Oryctolagus cuniculus*. Rabbits were initially kept by monks as a source of food, and housed in special warrens which were bordered by high banks and gorse hedges. The Dissolution of the Monasteries in the first half of the sixteenth century meant that the warrens were sold into private

hands and, eventually, the rabbits escaped to populate the countryside, and their burrows provided underground nesting sites for shelducks. The Australian Shelduck *T. tadornoides* has likewise adopted the burrows of introduced rabbits; formerly, they must have used holes provided by ground-burrowing marsupials, some of which are now extinct. The South African Shelduck *T. cana* almost always selects burrows made by Aardvarks *Orycteropus afer*.

To summarise, many wildfowl use cavities for

Roy Dennis



161. Female Common Goldeneye *Bucephala clangula*, prospecting for nest cavities, Highland, spring 1996.

nesting, although not all are obligate hole-nesters. A variety of agents create the holes, and some of the most important of these are woodpeckers. Both wildfowl and woodpeckers are thought to have evolved at much the same time in the Cretaceous period (approximately 144 to 66.4 million years ago), quite early in the evolution of the birds. So, wildfowl have been around for a long time – long enough to get used to, and make use of, the woodpeckers.

The missing ducks

Until a pair of Goosanders produced young in Perthshire in 1871, no tree-hole-nesting duck had bred in Britain. There are now two more: the human-introduced Mandarin Duck, which has been breeding successfully in the region of Virginia Water, Berkshire, since 1930 (Shurtleff & Savage 1996), and the self-introduced Common Goldeneye which first nested in the Scottish Highlands of Strathspey in 1970 (Dennis & Dow 1984). All three have spread since their initial hatch (fig. 1). The

Goosander, despite being culled by fishermen concerned for salmon *Salmo salar* stocks, is now breeding throughout Scotland, Wales and England as far south as Devon. The Mandarin is still commonest in the Thames Valley, where, 15 years ago, it was thought to have reached a population size of at least 7,000 individuals (Davis 1988). More than 100 pairs of Common Goldeneyes now produce young every year in Scotland. In 1999, a pair bred in the Borders region,



162. Goosanders *Mergus merganser*, Germany, November 1998. Female Goosanders use Black Woodpecker *Dryocopus martius* holes in Europe, and Pileated Woodpecker *Dryocopus pileatus* holes in America.

Günter Bachmeier

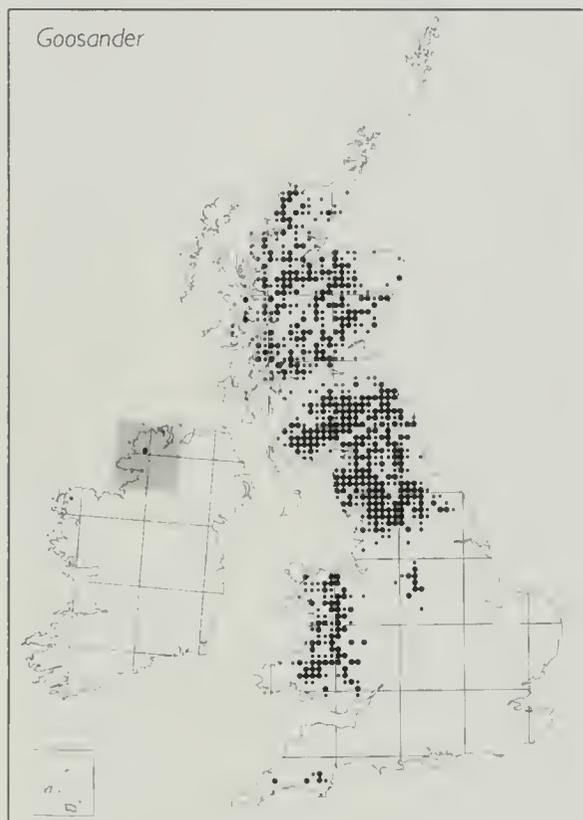
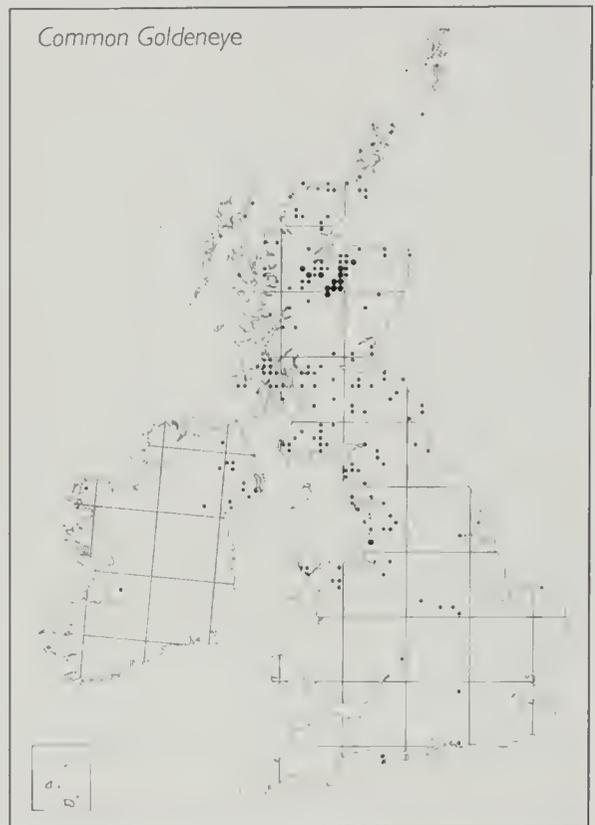
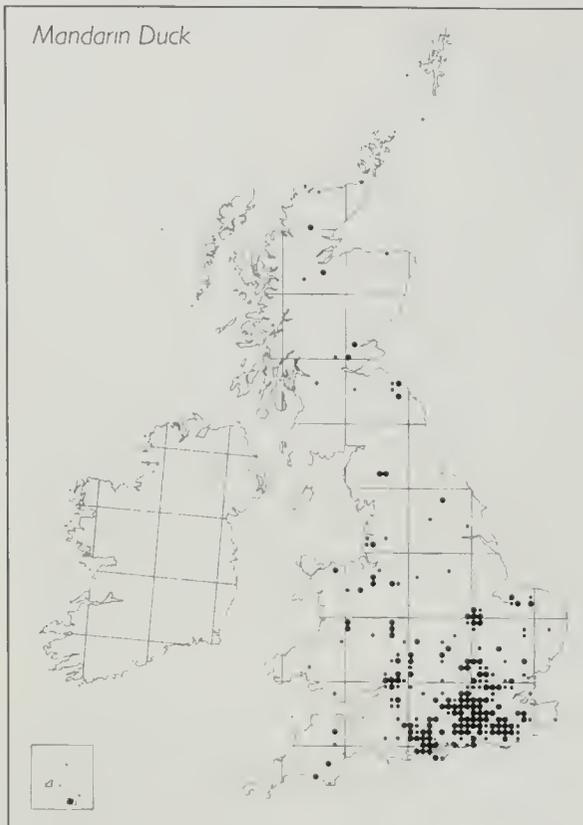


Fig. 1. Distribution of Mandarin Duck *Aix galericulata*, Common Goldeneye *Bucephala clangula* and Goosander *Mergus merganser* in Britain. Reproduced from *The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991* (Gibbons et al. 1993), with kind permission of the BTO. Large dots represent evidence of breeding within the 10-km square concerned, while small dots indicate that the species was present during the breeding season.

which may suggest a slow spread southwards, and individuals are seen increasingly during the summer in England (Ogilvie et al. 2001).

Why did tree-hole-nesting ducks take so long to reach Britain? Providing the answer to that question is one of the purposes of this paper – and while I cannot be certain, I am going to suggest some explanations.

Distribution of woodpeckers

Leaving aside ducks for a moment, what dictates the distribution of woodpeckers, especially the larger ones, to whose ranges our northern tree-nesting ducks seem so tied? In particular, why are there no Black Woodpeckers in Britain despite a thriving population just across the channel in France and Belgium, at the edge of a huge range stretching across Europe and Asia to Japan?

Let me also pose a related query: why are there no woodpeckers of any size in Ireland? They occur on the Isle of Wight, Anglesey, and Jersey, but not on the Isle of Man nor in Ireland. Are woodpeckers such poor flyers that they cannot negotiate the Irish Sea? Hutchinson (1989) thought that the absence of woodpeckers, along with other forest birds such as Tawny Owl *Strix aluco*, European Nuthatch *Sitta europaea*, and Marsh Parus *Parus palustris* and Willow Tits *P. montanus*, was due to their inability to reach Ireland at all, and their absence does support the hypothesis that immi-

gration rates are dependent on distance from the source pool (MacArthur & Wilson 1967). Fossils of the Great Spotted Woodpecker *Dendrocopos major* have been found in Co. Clare from the time of the last glaciation, when Ireland was joined to Britain, but only the Green *Picus viridis* and Great Spotted Woodpeckers have been recorded as recent vagrants, and according to Hutchinson (1989) most of the Great Spotted Woodpecker records are of irruptive Continental birds. Lack (1969), on the other hand, thought that the difficulty of dispersal across the Irish Sea could not be the factor responsible for the lack of woodpeckers, nuthatches etc. in Ireland. The fact that the Continental Great Spotted Woodpecker is occasionally irruptive suggests that it is quite capable of reaching Ireland and the Isle of Man – it just does not thrive once it gets there. Some explanation other than their inability to fly there is necessary for the missing Irish woodpeckers.

Woodpeckers do have a curious worldwide distribution (Winkler *et al.* 1995). Although occurring in the Bahamas, the Canaries and the Philippines, they are not found on some other conspicuous islands and continents, such as New Zealand, Australia, New Guinea, Madagascar (where the Aye-Aye *Daubentonia madagascariensis* is said to fill their niche by eating insects from rotting wood with a hugely elongated third finger – Young 2002) or on the Galapagos, where the Woodpecker Finch *Camarhynchus pallidus* classically performs that role (Lack 1947). There seems to be no evidence that Black Woodpeckers have been wiped out from Britain – the species has not been present since the last Ice Age (10,000-12,000 years ago) at least. Similarly, Ireland seems to have had no recent resident woodpeckers. Fungal decay of trees large enough for cavity excavation is a priority requirement. In Belgium, 40% of Black Woodpeckers make their nests in Beech *Fagus sylvatica* wood, often in the avenues of Beeches which line busy roads, and only 20% in pines *Pinus*. The Beech is a hardwood tree which is subject to heart rot and so becomes easy for the birds to excavate. Historically, it is a native of only the southeast corner of Britain, but Black Woodpeckers also excavate the decaying wood of pine and spruce *Picea*, so that the comparative rarity of Beech until recently does not seem sufficient reason for the absence of Black Woodpeckers.

Woodpecker food supply

I believe that the clue to woodpecker distribution in Britain & Ireland lies in their food supply, and in the availability of two kinds of wood-living insects – beetles (Coleoptera) and ants. The birds collect these insects with the aid of a long tongue and sticky saliva. The variety and size of insects becomes fewer and smaller respectively as one goes west from the Continent to England and then across the Irish Sea. Sixty-two species of longhorn or woodboring beetle (Cerambycidae) occur in Britain, particularly on oaks *Quercus* spp., willows *Salix* spp., poplars *Populus* spp. and pines, but this is only a quarter of the 250 species occurring in central Europe, and the Continental ones are typically larger in body size (McLean & Speight 1993). A Black Woodpecker may consume 900 bark beetle larvae or 1,000 ants in a single meal, and the largest beetle larva recorded as being taken was over 6 cm long (Cramp & Simmons 1977) – there is nothing of this size in Britain. Why have the larger longhorn beetles not spread more widely? Presumably because they do not fly powerfully, as there is no strong selection in



Fig. 2. The number of ant species per British vice-county and the zones where daily sunlight in May averages 5-6 hours. Black: over 30 species; dense dots: over 20; light dots: over 10; blank: 1-10. Reproduced from the *New Naturalist Ants* (Brian 1977) with kind permission of HarperCollins.

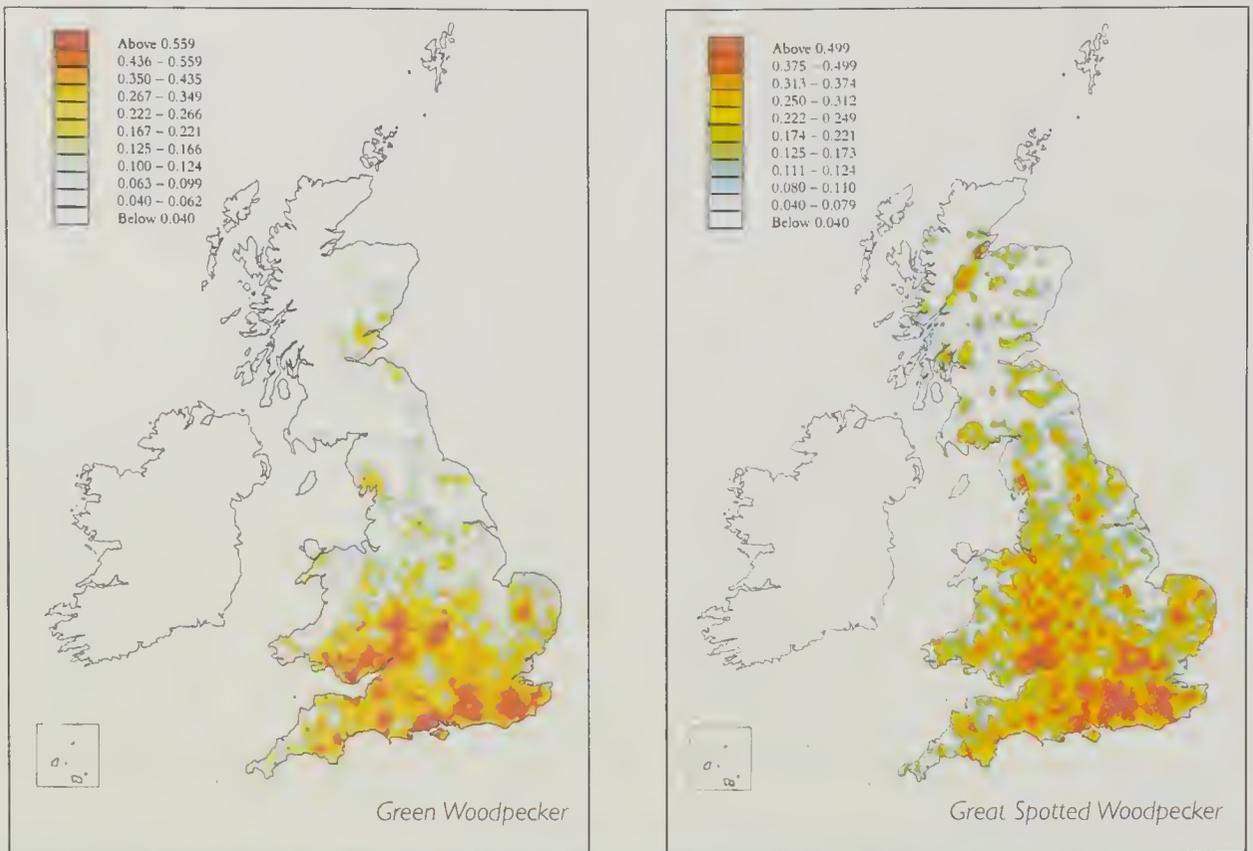


Fig. 3. Distribution of Green Woodpecker *Picus viridis* and Great Spotted Woodpecker *Dendrocopos major* in Britain. Reproduced from *The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991* (Gibbons et al. 1993), with kind permission of the BTO. These maps represent regional variation in relative abundance, from high (dark red) to low (light blue). The data were analysed so that each of the ten colours (excluding white) covers approximately one-tenth of the coloured area on the final maps. The numbers in the key represent frequency of occurrence (the proportion of tetrads visited in each 10-km square in which the species was recorded). These maps show that Green Woodpecker strongholds are in southeast England and the Home Counties, extending west to the New Forest; in wooded areas flanking the River Severn; the Welsh Marches and South Wales; and scattered concentrations in the Brecklands of East Anglia, Devon and the Lake District. Great Spotted Woodpeckers are most abundant in southern England, with other hotspots in Gloucestershire, Gwent and the Welsh Marches. Compare these patterns with the ant distribution shown in fig. 2 (page 225).

favour of long-distance dispersal – the next dead tree in an unmanaged forest is usually not far away (McLean & Speight 1993). As adults, they are dependent on the pollen of flowers, and are often to be seen feeding in the sunshine, or on warm evenings. Possibly our summers are not warm enough nor, especially, dry enough for them, or perhaps our winters are not sufficiently cold.

All European woodpeckers take ants, notably, of course, our own Green Woodpecker, which takes about 2,000 daily, mostly collected from lawns and meadows. Pileated and Black Woodpeckers are especially fond of carpenter ants of the genus *Campanotus*, which, although extremely widespread, do not occur in Britain & Ireland. Unlike the longhorns, ants live in, rather than feed on, dead wood. Their distribution again seems to be determined mainly by temperature, and a map of ant abundance (fig. 2) closely mirrors one showing abundance of

British breeding woodpeckers (fig. 3). A bias to the south is obvious: of the 42 species of ant found in Britain & Ireland, 33 occur in Dorset, 31 in Hampshire, 29 in Surrey, 18 in North Wales, 14 in the northern Highlands of Scotland, 18 in Leinster and nine in Ulster (Brian 1977). I believe that it is the availability of long-horn beetles and ants, especially in winter, that determines woodpecker success in Britain.

Nevertheless, British woodpeckers obviously do eat other things besides beetle larvae and ants. The Great Spotted Woodpecker seems particularly adaptable; since the 1960s, it has come onto bird tables, where it consumes fat, and seeds such as peanuts. Indeed, the fact that it eats spruce and pine seeds on the Continent, and that these fail in some years, is probably the cause of its occasional irruptive behaviour. It also takes nestling birds and moths. The two larger British woodpeckers have spread and increased in the last 100 years as the climate has

ameliorated, and they are presumably helped by increasing forestation, which has assisted the spread of the wood ants *Formica* spp. The Green Woodpecker has invaded Scotland, the Great Spotted Woodpecker has moved north, and both are thought to have benefited, temporarily, from Dutch Elm disease (Sharrock 1976). The Lesser Spotted Woodpecker *Dendrocopos minor* eats moths (Lepidoptera) and greenfly (Aphididae) in Britain (but seems to feed its nestlings on tree-climbing ants), and its numbers are currently declining for reasons which are not obvious. Ants and beetles may have multiplied and spread in Britain during the last half-century, but they are not counted so regularly nor completely as birds, and few distribution maps have been compiled.

So I may not be entirely correct in suggesting that the comparative lack of ant and beetle diversity in Ireland accounts for the lack of woodpeckers there. Clive Hutchinson wrote in 1989 that 'the only certainty at this stage is that much more remains to be said on the subject'. I do, however, feel that food supply, especially in winter, is likely to be the critical factor. Moreover, I suspect that the reason why there is no thriving population of Black Woodpeckers in Britain is the absence of carpenter ants, which are such an important element of their winter food across a range that extends from France to Japan. The closest carpenter ant to these islands in Europe is the tree-dwelling *Campanotus herculeanus*, which, as its name suggests, is

large. It lives in rotten wood and in big colonies; it therefore needs large old trees (Holldobler & Wilson 1990). Maybe our trees are generally too small for it. It also likes warm dry summers and cold winters. It has 'anti-freeze' arrangements in its physiology so that it is able to hibernate, stationary, within the wood, unless it is dug out by a probing woodpecker. Apparently, *C. herculeanus* occurred in Britain during the last interglacial period, but died out; today, it would probably find our climate too warm and our winters too unpredictable.



163. Male Great Spotted Woodpecker *Dendrocopos major*, Kent. Food supply, in particular the comparative lack of ant and beetle diversity, may be a critical factor in explaining why this species is absent from Ireland.

David Tipling/Windrush

To return to the missing tree-hole-nesting ducks, I suggest that Britain historically had no such birds because of the absence of Black Woodpeckers – the only creature large enough to excavate safe, sizeable cavities in wood. Why, then, do we now have three? Three changes may have influenced this situation, to varying degrees. One is that predator-proof cavities have become available from another source – from humans, in the form of nestboxes. Another factor has been a drastic decrease in our largest tree-climbing and egg-eating predator, the Pine Marten, brought almost to extinction during the last two centuries by gamekeepers who treated it as vermin (Corbet & Southern 1977). A third factor might be climate change – we entered another warming period in the 1880s, and our springs have become milder. Warmer springs are likely to have been relevant to both Common Goldeneye and Goosander as they are early nesters and lay on shorter daylengths than other species in the seaduck group (Murton & Kear 1978). I am inclined to believe that the Mandarin Duck is also affected by early spring temperatures (Kear 1990), and would not have survived its release into Britain if the climate had been that of the pre-1850s when the River Thames regularly froze in winter.

Nestboxes

Secure nesting sites are a priority requirement of cavity-nesting ducks, and boxes which can be rendered predator-proof can be an excellent tool for increasing the local productivity (Zicus 1990; Ludwichowski *et al.* 2002). In the case of Black-bellied Whistling-duck *Dendrocygna autumnalis* in Texas, hatching success was 44% in cavity nests but 77% in nesting boxes protected with predator guards (Bolen 1967).

Almost all Scottish Common Goldeneyes use nestboxes, but it took 14 years for the first bird to lay in one of the boxes supplied (Dennis & Dow 1984) – perhaps the individual was a female that had herself hatched in a box on the Continent. The small British breeding population is still largely dependent on boxes rather than on natural holes, and I doubt that the Common Goldeneye would be nesting so successfully were it not for those nestboxes. An absence of large tree-climbing predators probably contributed to that initial success – though a gradual increase in Pine Martens since the 1920s (Corbet & Southern 1977), owing to a reduction in keepers and the growth of new conifer plantations, has meant that martens now take Common Goldeneye eggs in the Highlands occasionally (Dennis & Dow 1984).

Obviously, Mandarin Ducks would not be



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164 & 165. Nestbox (left) sited for Common Goldeneyes *Bucephala clangula*, and a similar box containing a completed clutch (right), Sweden.



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breeding in Britain if someone had not introduced them. The initial breeding of a sizeable population of flying Mandarins was in boxes placed around a waterfowl collection at Foxwarren Park in Surrey (Kear 1990; Shurtleff & Savage 1996). Their successful escape and spread, into a relatively predator-free environment (domestic cats *Felis silvestris catus* and Grey Squirrels *Sciurus carolinensis* do not, on the whole, take eggs as large as those of ducks), was aided by the boxes which were put up around Windsor Great Park, in Berkshire. For instance, in the six seasons before 1985, an average of 56 ducklings annually left the Windsor boxes (Davis & Baggott 1989a,b).

The Goosander arrived by its own means, and its colonisation seems to be part of the species' natural increase and spread through western Europe. Its initial success was not due to boxes, although its spread, in Northumbria for instance, may have been, and some birds in Strathspey certainly make use of boxes put up for Common Goldeneyes. Perhaps the most important factor here was the comparative scarcity of a tree-climbing egg-eater; if the Pine Marten, which also nests in hollow trees, had been present when Goosanders started to colonise and breed in the 1870s, I believe that they would have had greater difficulty in becoming established.

Competition for holes

Sizeable cavities, suitable for ducks, are desirable if not essential for a wide range of other vertebrates and invertebrates, and competition for their possession can be considerable (Conner *et al.* 2001; Semel & Sherman 2001; Aitken *et al.* 2002). In Madagascar, for example, many parrots (Psittacidae), Comb Ducks *Sarkidiornis melanotos*, African Pygmy-geese and nocturnal lemurs (*Lepilemur* and

Cheirogaleus) spend time in holes (Young 2002), and compete with the Bernier's Teal for nest sites. Wood Ducks rival Black-bellied Whistling-ducks for cavities in the south of their range in Texas (Bolen & Cain 1968), and Hooded Mergansers, Buffleheads, goldeneyes, owls (Strigiformes), and mammals such as martens, squirrels and bats (Chiroptera) farther north (Bellrose & Holm 1994). Wood Ducks have been seen trying to usurp Pileated Woodpecker nests while they were still in use by the owner and excavator (Conner *et al.* 2001). Introduced European Honeybees *Apis mellifera* and Common Starlings *Sturnus vulgaris* (Kerpez & Smith 1990) provide further problems for the ducks.

Tree-hole-nesting ducks in continental Europe clash with Eurasian Jackdaws *Corvus monedula*, European Rollers *Coracias garrulus*, Stock Doves *Columba oenas*, owls and starlings, hornets (Vespidae) and bats (Winkler *et al.* 1995), among others. In Brazil, the critically endangered Brazilian Merganser *Mergus octose-taceus* has to share a limited tree-hole resource with Muscovy Ducks *Cairina moschata*, toucans *Ramphastos* spp., parrots and mammals such as White-eared Opossums *Didelphis albiventris* (Silveira & Bartmann 2001). Parrots, cockatoos, (Cacatuidae), owls, tree kingfishers (Halcyonidae), opossums (Didelphidae), bats, reptiles, bees (Hymenoptera) and introduced Common Starlings and Common Mynas *Acridotheres tristis* compete with ducks for cavity nests in Australia (Simpson & Wilson 2001). It is unusual for there to be enough large cavities present to satisfy local demand.

Conservation implications

The biodiversity of whole habitats needs preserving in order to maintain successful breeding populations of cavity-living animals, including



166. Brood of recently hatched Common Goldeneyes *Bucephala clangula*, reared in nestbox, Highland, 1973.

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ducks. Many primary cavity excavators are essential to the lifestyle of others. Agents besides woodpeckers can play a positive role; an increase in the number of North American Beavers *Castor canadensis* has been suggested as a factor in the North American Wood Duck's comeback since the 1920s and 1930s, as natural cavities in 'snags' standing in water tend to hatch more ducklings (Beard 1953; Haramis 1990). The ant-eating Aardvark is listed as Endangered by IUCN; its conservation is vital if the South African Shelduck is to find sufficient nesting opportunities.

In Poland, Mikusinski *et al.* (2001) found a positive relationship between woodpecker species richness and the numbers of other forest birds. They suggested that the woodpecker group is a good indicator for assessing avian diversity, and that in regions of Europe where data on forest bird numbers are not readily available, woodpecker surveys provide an excellent assessment tool. Sadly, many species of woodpecker are in decline because of habitat loss, and nestboxes do not work well for them (Winkler *et al.* 1995). It was the destruction and fragmentation of the old pine and hardwood forests of southeastern USA, as well as over-hunting, that eliminated the Ivory-billed Woodpecker (Jackson 1996); the same was probably true of the extinct Imperial Woodpecker *Campephilus imperialis* of Mexico, which, at 563 g, was the largest of the woodpeckers. The Brazilian gallery forests contain few old, large

holed trees because most have been removed by humans and, perhaps as a consequence, the hole-nesting Brazilian Merganser is reduced to just 250 individuals (Silveira & Bartmann 2001). Mangroves, the home of many of the grey teal group, and of great value as fish nurseries, are being destroyed at an alarming rate to provide farmed prawns for western markets. In Australia, governments are encouraging the planting of vast numbers of new trees while continuing to allow the clearing and logging of old-growth forest and woodland (Simpson & Wilson 2001), and this goes on elsewhere.

Where a shortage of safe nesting sites for ducks is limiting productivity, artificial ones need to imitate a range of features. The North Americans, in an environment still full of predators, make great efforts to create boxes for Wood Ducks which resemble tree trunks and woodpecker holes – because those are the ones which the ducks prefer. Maybe the Japanese, in trying to increase the numbers of Mandarin Ducks, should do the same. If no woodpecker holes are available for the ducks to make a comparison with the site in which they were hatched (as in Britain), then all sorts of boxes seem to be acceptable. In the tropics, artificial nest sites will need to be examined frequently as they themselves may decay, or be swept away in hurricanes.

A different benefit of nestbox schemes is that the construction and erection of boxes can involve the public and hunters' organisations,

167 & 168. Female Common Goldeneyes *Bucephala clangula*, investigating chimney pots as potential nesting sites, Strathspey, Highland, spring. This species sometimes attempts to nest in chimneys.



such as 'Ducks Unlimited' in North America and in New Zealand (www.ducks.org). As well as providing local employment, the construction of nestboxes can help to demonstrate practical conservation techniques (Fredrickson *et al.* 1990). Their use was pioneered long ago in captivity by aviculturists who wanted their tame ducks to breed; the development of structures which are predator-proof has been in the hands of biologists working with wild populations. The Orinoco Goose *Neochen jubata* of the Amazon and the rare Scaly-sided Merganser *Mergus squamatus* in far-eastern Russia are among species which have benefited recently, and taken successfully to artificial sites (Kear in press). The installation of boxes is suggested for the even rarer Brazilian Merganser in order to test whether the availability of good-quality nest sites is limiting breeding success (Silveira & Bartmann 2001).

Boxes may seem to be the answer to many problems of nesting-site shortage, but should not be employed to the detriment of an interest in conserving natural sites (Aitken *et al.* 2002; Evans *et al.* 2002). Bellrose (1990) thought that nestboxes made only a small contribution (4–5%) to the juvenile component of the Wood Duck's autumn population, despite some 100,000 boxes being available – more than for any other cavity-nesting duck. Extra boxes may not ensure extra young. As Poysa & Poysa (2002) pointed out, following a 12-year study of box-nesting Common Goldeneyes, density-dependent features such as competition, predation and food supply also limit reproductive success. The tendency for females to dump eggs can increase in boxes which appear identical (Bolen 1967; Semel *et al.* 1988; Evans *et al.* 2002). Semel & Sherman (2001) investigated the situation in a colour-marked, box-nesting population of Wood Ducks over seven breeding seasons. They concluded that a scarcity of preferred nesting sites was probably the key factor behind four characteristics of cavity-nesting ducks, including Wood Duck: natal philopatry, nest-site fidelity, aggressive competition for nest sites and high levels of intraspecific parasitism. Evans *et al.* (2002) found larger clutch sizes, lower nesting success and different major predators of Barrow's Goldeneyes nesting in boxes compared with those laying in natural cavities. They concluded that studies of Barrow's Goldeneye which use nestboxes may not be representative of a population that uses

natural holes. On the other hand, Buffleheads nesting in boxes were found to behave more like birds nesting in natural sites. Ideally, a thorough investigation of population ecology should be undertaken before any management measure, such as the provision of nestboxes, is put in place. In the real world, such perfection is seldom achieved – time always seems far too short.

Woodland, especially moist and flooded woodland, needs protection worldwide. In order to ensure that woods and forests contain healthy populations of primary excavators, such as woodpeckers, dead and dying timber is needed. Ironically, even the predators may suffer if no old wood is available: Brainerd *et al.* (1995) thought that woodland management reduced the number of natural den sites for martens in Scandinavian forests, and made them dependent upon the Black Woodpecker for the provision of breeding cavities. In Britain, veteran trees and dead timber are required for the conservation of numerous rare lichens, fungi and spiders (McLean & Speight 1993), and 20% of British insects are dependent on dead wood. Woods must be mature (over-mature from the forester's point of view) and not 'tidy' and disease-free. Old, rot-prone trees tend to be removed by foresters during the thinning process, so that the cavity-bearing, dead-wood component is now largely missing from managed forest. 'Limbs with decay should not automatically be cut back to sound wood, cavities should not be drained, filled and sealed, and damage to bark should not automatically be regarded as in need of remedial treatment. Outright felling of an ancient tree should be regarded as unacceptable' (Key & Ball 1993). Generally, fungi and insects which rot dead wood do not attack healthy trees (Winter 1993), although there are exceptions.

Dead wood matters – it turns to gold. Almost all agents responsible for cavity construction need moribund timber in order to start the process. In a natural, unmanaged forest, 50% of the wood will be dead or dying, and the slow process of decomposition is necessary to return nutrients to the soil. Attitudes must be changed; heart rot and rot holes in deteriorating woodland should be welcomed and not deplored, not just for the sake of hole-nesting ducks, but for a huge range of other organisms whose lives depend on wood that is rotten.

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Looking back

Twenty-five years ago:

Breeding status of Goosanders in Wales

Roger Lovegrove

'In their account of the spread of the Goosander *Mergus merganser* in Britain and Ireland, Meek & Little (1977) [*Brit. Birds* 70: 229-237] referred to proved breeding in Wales in 1972, and the possibility that "one or two pairs may breed annually". Colonisation is, however, more extensive than they implied and, since the species now has a reasonably secure foothold in Wales, it is timely to place on record a more accurate picture...

'The first published breeding record (that referred to by Meek & Little) was in Radnor in 1972, but Goosanders had by this time been established at a breeding site in Montgomery for several years, certainly breeding annually from 1970 and almost certainly for at least two years before then. Both the Radnor and Montgomery sites were at upland reservoirs, but, from the mid 1960s onwards, one or two pairs were becoming established on rivers, such as Afon Dyfi, where D. Smallshire (*in litt.*) watched an

adult female and juvenile, and saw what he presumed to be the remainder of the brood nearby, in late July 1968...

'The minimum numbers of pairs breeding in Wales in 1977 was ten. These were pairs known to have bred successfully, and it is probably safe to assume that the actual number involved was higher. Numbers have built up slowly over at least the past ten years; the species is now probably firmly established in Wales.

'The Gwent breeding records—the most southerly ever recorded in Britain—represent a considerable southward extension from the mid Wales sites and suggest that the southerly range expansion is continuing. Already, the species is being shot quite extensively on game fishing rivers such as the Wye and Severn, and the relative slowness of colonisation can in some parts be attributed to this. Nonetheless, as in northern England (I. H. Armstrong *in litt.*), Goosanders appear to be remarkably resilient in withstanding quite determined, illegal attempts to exterminate them.' (*Brit. Birds* 71: 215-216, May 1978)

Oriental Turtle Dove breeding in the Western Palearctic

Michael G. Wilson & Vadim A. Korovin



169. Nesting habitat of Oriental Turtle Dove *Streptopelia orientalis meena*: mature Scots Pine *Pinus sylvestris* forest, Sysert', Sverdlovsk region, Russia, June 1982. *Vadim Korovin*

ABSTRACT Hitherto regarded as a rare vagrant to the Western Palearctic, the Oriental Turtle Dove *Streptopelia orientalis* is now known to breed at two sites at least, and probably breeds at two others, in the extreme east of the region, just within the Western Palearctic boundary in the Ural Mountains of Russia. Details are presented of the species' distribution in the west of its range and brief notes are included on some aspects of its biology and ecology, as well as on separation of the two West Palearctic races in the field.

The Oriental Turtle Dove *Streptopelia orientalis* breeds in Asia from the Urals to the Pacific coast and islands (including Japan), south through China, Turkestan (i.e. western Central Asia, between the Caspian Sea and Lop-nor) and Afghanistan to India, Myanmar (Burma), northern Indochina, Taiwan and the Ryukyu Islands (Goodwin 1983; Cramp

1985; Gibbs *et al.* 2001; fig. 1). The essentially non-migratory races, *erythrocephala* (Indian peninsula from Bihar and Orissa south to Mysore), *agricola* (northeast India from Bihar and Orissa through Assam, Bangladesh and Myanmar to Tenasserim), *stimpsoni* of the Ryukyu Islands and *orii* of Taiwan (Gibbs *et al.* 2001), are not discussed further here.

Within the borders of the former USSR, the breeding range extends from the Kuril Islands, Sakhalin, and the coasts of the Sea of Okhotsk and Sea of Japan west to the eastern foothills of the southern Urals, to Kazakhstan (Lake Teniz, the upper Sarysu and upper Ili river valleys, and the western edge of the Tien Shan mountains), and also mountainous parts of Central Asia west to the Amudar'ya River. The range reaches 64°N in the Lena valley, 63-64°N in the Yenisey valley and 61-62°N in the Ob' valley (Stepanyan 1990; Prikloński 1993; Gibbs *et al.* 2001). Most of the range is occupied by the nominate race *orientalis*, while *meena* is found in the western part, these two races intergrading in a narrow zone lying between the upper Ob' and upper Yenisey river valleys and in the east Russian Altai mountains (Cramp 1985; Stepanyan 1990; Prikloński 1993; Gibbs *et al.* 2001).

According to Ivanov (1976), the northern limit of the range in the Ural Mountains is represented by records at the Sinara lake (56°N). Data collected in recent decades make it possible to delineate more accurately the distribution of the Oriental Turtle Dove in the Urals

(fig. 2). At Pervomayskiy, just south of Orenburg on the Ural River, four birds were seen on 8th and 11th June 1999, and a nineteenth-century record near Orenburg (reported as a vagrant) was also in June (Dement'ev & Gladkov 1951; Korshikov & Kornev 1999). Breeding has been confirmed in the southern Transurals: in isolated patches of pine *Pinus* forest near the settlement of Bolotovsk (Kvarkeno district) in the northeast of the Orenburg region (Kornev & Korshikov 1998; V. A. Korovin pers. obs.); also in tree clumps and copses of the Arkaim nature reserve, which is situated in the valley of the Bol'shaya Karaganka, an east-bank tributary of the Ural River, in the Bredy and Kizil'skoye districts of the southern Chelyabinsk region (Korovin 1997). In May 1998, several Oriental Turtle Doves, singing and apparently holding territories, were noted in the Toguzak River valley, near Varna in the southeastern Chelyabinsk region and close to the border with Kazakhstan (Morozov 1999; Zöckler & Stensmyr 1999). The Oriental Turtle Dove is also a common breeder in the Etkul' district, 20-60 km south of Chelyabinsk (Red'ko

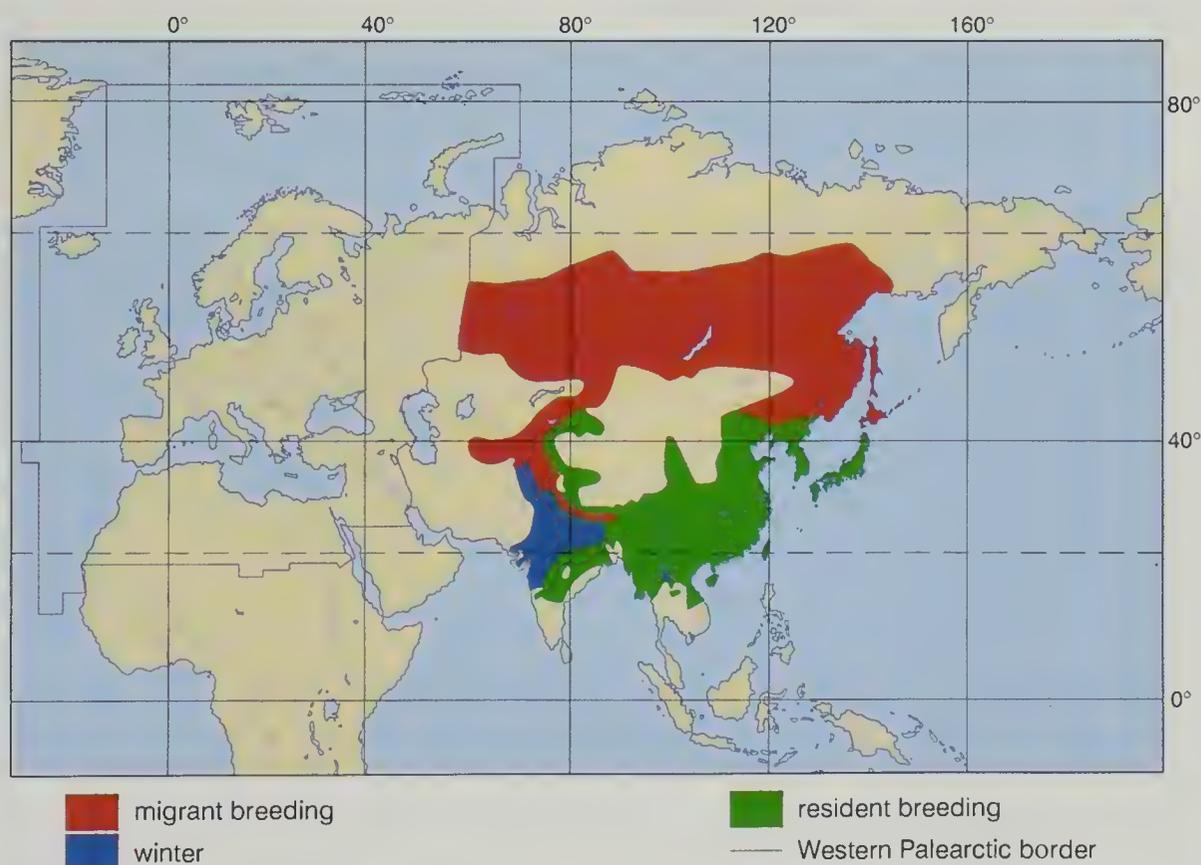


Fig. 1. Map showing world distribution of Oriental Turtle Dove *Streptopelia orientalis*, based on Kozlova (1932), Gizenko (1955), Etchécopar & Hüe (1978), Wild Bird Society of Japan (1982), Stepanyan (1990), Hirschfeld (1992), Prikloński (1993), Grimmett *et al.* (1998), Kazmierczak & Perlo (2000), MacKinnon & Phillipps (2000) and Gibbs *et al.* (2001). Map outline by kind permission of Oxford University Press.

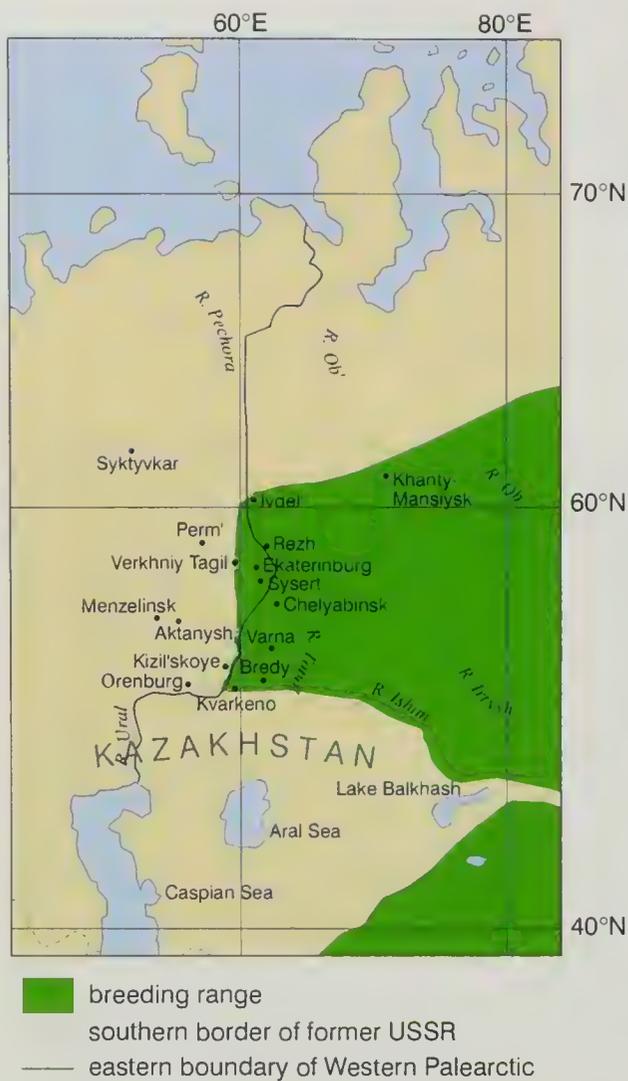


Fig. 2. Map showing western part of breeding range of Oriental Turtle Dove *Streptopelia orientalis*, based on Stepanyan (1990), Priklonskiy (1993), Ryabitsev (2001b) and other sources mentioned in the text.

1998), and in the Rezh district (Sverdlovsk region, Middle Urals), some 100 km north-east of Ekaterinburg (Ryabitsev 1999b; V. K. Ryabitsev *in litt.*). Much farther north in the Sverdlovsk region, there have been records since 1985 in the settlement of Polunochnoye (60°52'N, just north of Ivdel') and a juvenile was shot there in August 1995, but no nests have yet been found in the area to confirm breeding (Shtraukh 1997).

Breeding and other records in the Western Palearctic

The Oriental Turtle Dove has hitherto been treated exclusively as a vagrant to the Western Palearctic (e.g. Cramp 1985; Hirschfeld 1986; Gibbs *et al.* 2001). It is, however, now clear that in the West Palearctic part of the Sverdlovsk region (fig. 2; see also map and notes on boundary and names in Ryabitsev & Wilson 1999), the species has been an extremely common breeding bird in the Sysert' district, south-east of Ekaterinburg, for over 20 years; singing and displaying birds have been



170. Oriental Turtle Dove *Streptopelia orientalis orientalis*, Shikoku, Japan, April 1997.



Hugh Harrop

171. Juvenile Oriental Turtle Dove *Streptopelia orientalis meena*, Stromness, Orkney, December 2002. Note that this individual is still being considered by BBRC.

noted in the Beloyarskiy district, just southeast of Ekaterinburg (Korovin 2001; V. A. Korovin pers. obs.); there have been repeated breeding-season records near the town of Verkhniy Tagil, northwest of the regional capital (Piskunov 1999); and two birds (one singing) were noted in the Shalya district of the Sverdlovsk region, also northwest of Ekaterinburg, at 58°42'E, in June 2002 (Alekseeva 2002). Farther south and west, nesting has been confirmed close to the sources of the Miass, Uy and Ural rivers in the northeast of Bashkortostan, adjoining the Chelyabinsk region (Il'ichev & Fomin 1988).

Also in the European part of the former USSR, records for Russia include singing males near Syktyvkar (Komi Republic) in June 1990 (Estaf'ev 1999), and on the border between the Menzelinsk and Aktanysh districts in eastern Tatarstan in May 1999 (As'keev & As'keev 1999), while a single bird was observed on Mt Elbash just west of the upper Ural River in southeastern Bashkortostan in May 2000 (Barabashin 2001). Oriental Turtle Doves were seen regularly on autumn passage in the lower Ural River valley (Kazakhstan) in the mid 1970s, and a single bird was collected in the Crimea (Ukraine) in October 1902 (Gubin *et al.* 1977; Kostin 1983; Priklonskiy 1993). Vagrants, of both nominate *orientalis* and *meena*, have also been recorded, mainly in autumn and winter, in a number of European countries west

as far as Britain, northwest to Fennoscandia, and also in the Balkans and Mediterranean, and Middle East (Cramp 1985; Hirschfeld 1986; Lewington *et al.* 1991; Snow & Perrins 1998). Such birds were considered by Hirschfeld (1986) to be more likely genuine vagrants than escapes from captivity.



Hugh Harrop

172. Juvenile Oriental Turtle Dove *Streptopelia orientalis meena*, Stromness, Orkney, December 2002. Note that this individual is still being considered by BBRC.

Racial variation

Adults of the two races are separable in the field. Nominate *orientalis* differs from *meena* in being slightly larger and more bulky, and having distinctly darker and richer plumage, with browner crown and mantle, and redder fringes to the blacker-centred scapulars and inner wing-coverts (these fringes are also broader than in *meena*). Nominate *orientalis* also has grey-blue tips to the tail feathers, with dark on the outer web of the outermost feathers usually extending to the edge, so that the grey tips appear to form a wide terminal band; in *meena*, the tail feathers are tipped white and the dark area on the outer web is more restricted, so that the edges of the spread tail are thinly framed in white. The western race *meena* is brighter overall, with warmer brown upperparts (nape to mantle), and it lacks the grey fringes on the outer wing-coverts typical of nominate *orientalis*. According to Harris *et al.* (1996), it has a brown rump and blue-grey lower back, while the rump was said by Gibbs *et al.* (2001) to be fringed with earthy-brown, and Hirschfeld (1992) described the rump and back of both races as typically bluish-grey, though adding that some birds show brown tips to the uppertail-coverts. The throat of *meena* is whiter, and its vinous foreneck and breast (the breast is sometimes pale enough to suggest Turtle Dove *S. turtur*, but *meena* is still typically more exten-

sively darker below than that species) shade into pale pink on the belly and white on the undertail-coverts, whereas nominate *orientalis*, which also has a darker-grey underwing, is vinous to grey-cream on the underparts (with grey undertail-coverts). In general terms, then, the smaller *meena* is more similar to Turtle Dove overall. Juveniles of nominate *orientalis* are darker than *meena*, and also distinguishable by having the grey undertail-coverts and tips of the tail feathers typical of adult birds (Cramp 1985; Hirschfeld 1992; Harris *et al.* 1996; Svensson & Grant 1999; Gibbs *et al.* 2001). Based on morphological and vocal differences, but pending detailed investigation, including DNA analysis, *orientalis* and *meena* probably merit treatment as separate species (L. Svensson *in litt.*).

Breeding and ecology

The following summary is based on data collected by VAK at the western limit of the species' range (race *meena*), primarily at the Biological Field Station of the Urals State University in the Sysert' district of the Sverdlovsk region (56°36'N, 61°03'E). Oriental Turtle Doves arrive on the breeding grounds there a few days later than Turtle Doves, the average first date during the years 1976-85 being 9th May (range 4th-14th May). The majority will have departed by the end of September, with stragglers noted in early October.



Václav Korovin

173. Nesting habitat of Oriental Turtle Dove *Streptopelia orientalis meena*: mature Scots Pine *Pinus sylvestris* forest, Sysert', Sverdlovsk region, Russia, July 2002.

In the area around the Field Station, the Oriental Turtle Dove is a common breeding bird of pine forest and mixed birch *Betula* and pine forest. In a regular study plot in mature pine forest, with small plantations 40-50 years old, a survey of singing territorial males and nests showed that the density had fluctuated between 9.1 and 18.2 birds per km² in the period 1976-1985, with an average over ten years of 13.1 birds per km². Numbers in this area remained relatively stable up to the end of the 1990s. Apart from mature forest, Oriental Turtle Doves readily occupy clearings and fire-affected areas where rejuvenation produces young growth.

Favoured nesting habitat includes small patches or strips of more enclosed young pine plantations within mature forest, but also young and maturing stands of pine. Oriental Turtle Doves are less commonly recorded in the forest-steppe zone, but song and display have been noted particularly in isolated patches of birch forest in the Beloyarskiy district just southeast of Ekaterinburg, whereas the species has yet to be recorded in small woods of aspen *Populus* and birch (known as 'kolki') in the northern Chelyabinsk region. In the steppe zone (Bredy district, southern Chelyabinsk), singing and displaying birds have been observed occasionally in scattered small pinewoods and, very rarely, in forest strips planted as shelterbelts (e.g. in 1990, two birds along 10 km of such strips in May-June, small numbers perhaps breeding). In the Arkaim nature reserve, a nest with eggs was found in a small aspen and birch wood on 11th August 1993 (Korovin 1997).



Vadim Ryabitsev

174. Nest and eggs of Oriental Turtle Dove *Streptopelia orientalis meena*, Kurgan region, Russia, June 2001.

Diet

The crop of an Oriental Turtle Dove collected at a south-taiga study site in the Sysert' district in September contained 622 Umbelliferae seeds. Two birds from harvested fields in the steppe zone (Bredy district), also in September, showed a much more varied diet: mainly seeds of Hemp *Cannabis sativa* (793 items) and Sunflower *Helianthus annuus* (63) in one crop, while the other contained Common Millet *Panicum miliaceum* (276 seeds) and wheat *Triticum* (67). Both birds contained small numbers of seeds of



Yuri Shibnev

175. Oriental Turtle Dove *Streptopelia orientalis orientalis* at nest with young, South Ussuriland, Russian Far East, date unknown.



Yuri Shibnev

176. Oriental Turtle Dove *Streptopelia orientalis orientalis* feeding young, South Ussuriland, Russian Far East, date unknown.

Yellow Bristle-grass *Setaria pumila* and amaranth *Amaranthus*, while only one yielded seeds of cockspear *Echinochloa* and 20 small gastropod molluscs.

A major study of *orientalis* in the Novokuznetsk district of the Kemerovo region (c. 87°E, Western Siberia) showed close similarities to the western race *meena* in respect of habitat (mature birch and aspen forest in the forest-steppe zone, always with a shrub layer of Bird Cherry *Prunus padus*, *Viburnum*, elder *Sambucus* and hawthorn *Crataegus*); and also in the timing of its migration – arrival on 8th–18th May and departure from the last third of August, peaking mid-September and with stragglers to early October (Kotov 1976).

Acknowledgments

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177. Oriental Turtle Dove *Streptopelia orientalis meena*, Chokpak Pass, Kazakhstan, May 2001.

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Looking back

Seventy-five years ago:

'DECREASE OF BLACK GAME IN SCOTLAND. SIRS,—With reference to the note on this subject (*Brit. Birds* 21: 206-207), I have had occasion to observe on some moors in Holstein, north Germany, that Black Grouse [*Tetrao tetrix*] are extremely susceptible to changes in their environment. During a period of fuel scarcity the moors in question were more rigorously exploited for peat fuel than ordinarily, and a good deal of noisy machinery and many people were employed for this purpose. This caused the Black Grouse to leave these moors, where till then they had been plentiful, and they must have wandered far, as the stock on quieter moors in the neighbourhood was

not increased by their numbers.

'That Forestry Commissioners in Scotland advocate the extermination of Black Game strikes one as a very rigorous and short-sighted measure. In Germany, where afforestation is practised to a considerable extent, the Authorities on Afforestation do not regard Black Game as sufficiently harmful to order its persecution, especially as they are known to feed principally on moorland plants and buds of trees like birches etc., as also on insects, snails and grubs. Moreover, they prefer living on the open moors and do not much fancy plantations. R. T. FRETWELL, DUBLIN.' (*Brit. Birds* 21: 304, May 1928)

Observations on breeding Rosy Starlings in Bulgaria

*Konstantin Nyagolov, Lyubomir Profirov,
Tanyo Michev and Milko Dimitrov*



178. Rosy Starlings *Sturnus roseus*, at breeding colony, Karnobat, Burgas region, Bulgaria, 1996. *Konstantin Nyagolov*

ABSTRACT Formerly regarded as an irregular migratory and breeding species in Bulgaria, Rosy Starling *Sturnus roseus* now occurs almost annually on the coast of the Dobroudzha region of northeast Bulgaria. In recent years, three regular breeding colonies have been located in the Burgas region of eastern Bulgaria. This species can now be considered an annual migrant, summer visitor and breeding species in Bulgaria.

The Rosy Starling *Sturnus roseus* is an erratic, irruptive visitor to central and western Europe. Its breeding range extends from Central Asia to west and south Russia, and north to an as yet ill-defined limit. Occasional, irruptive range extensions of up to 1,200 km towards southeast and eastern Europe occur in spring, often in two or more successive years, with an 8-10 year periodicity, although the majority of these irruptive birds do not

breed (Munteanu 1997). These irruptions are often attributed to localised abundance of insect populations, which are a key element of the Rosy Starling's diet; for example, Nankinov *et al.* (2000) related the huge invasion in 2000 to population levels of the grasshopper *Dociostaurus maroccanus*. In Bulgaria, Rosy Starling has traditionally been classified as an irregular migrant and breeding species.

Historical information on Rosy Starlings in Bulgaria

Migrant populations and distribution

The distribution of migrant Rosy Starlings in Bulgaria has been relatively well documented, and we traced 147 literature records for the period between the mid nineteenth century and 1992. Almost all of these sightings were made during spring migration, which peaks in the second half of May, and only five were of autumn migrants. In spring, flock size was typically between 50 and 100, although there was one observation of c. 500 birds. Surprisingly, there were no records of migrant Rosy Starlings on the southern Black Sea coast, south of Burgas. Based upon observations of spring migrants during the last 100 years, we conclude that the birds enter Bulgaria from Greece via the valleys of the Maritsa, Arda, Tundzha and Struma rivers, cross the Sofia plain and so reach the Danube valley. Flying east along this river valley, they reach south Dobroudzha. Here, the populations apparently divide, some continuing northeast into Romania while others fly south along the Black Sea coast and subsequently breed in the Burgas region. There is currently no knowledge of their return route in autumn. It is possible that this circular spring migration route is the result of the species' historical breeding distribution.

Breeding populations

Known breeding localities are as follows (see fig. 1):

1. Sofia (and surrounding districts)

Several colonies, numbering 'scores of thousands of birds', were reported in 1889; and a 'small' colony near Pobit Kamuk in 1920. Subsequently, there have been no known breeding records in this area.

2. Northeast, Black Sea coast (Balchik-Tyulenovo)

Prior to 1916, there were several records of breeding colonies, but the political history of this region resulted in a lack of information between 1916 and 1940. After 1940, a breeding colony of several hundred birds was found south of Balchik in 1951, a colony of 1,000+ individuals was reported at Cape Kaliakra in 1972, and four colonies totalling 1,780 birds were found in the region in 1975.

3. East, Black Sea coast (Burgas region)

As early as 1890, there were large flocks of Rosy Starlings and reports of breeding in this district (Reiser 1894). The first confirmed breeding colony in the region was discovered in 1994 by Nyagolov (1996), and recent observations lead us to conclude that breeding now occurs annually in this area.

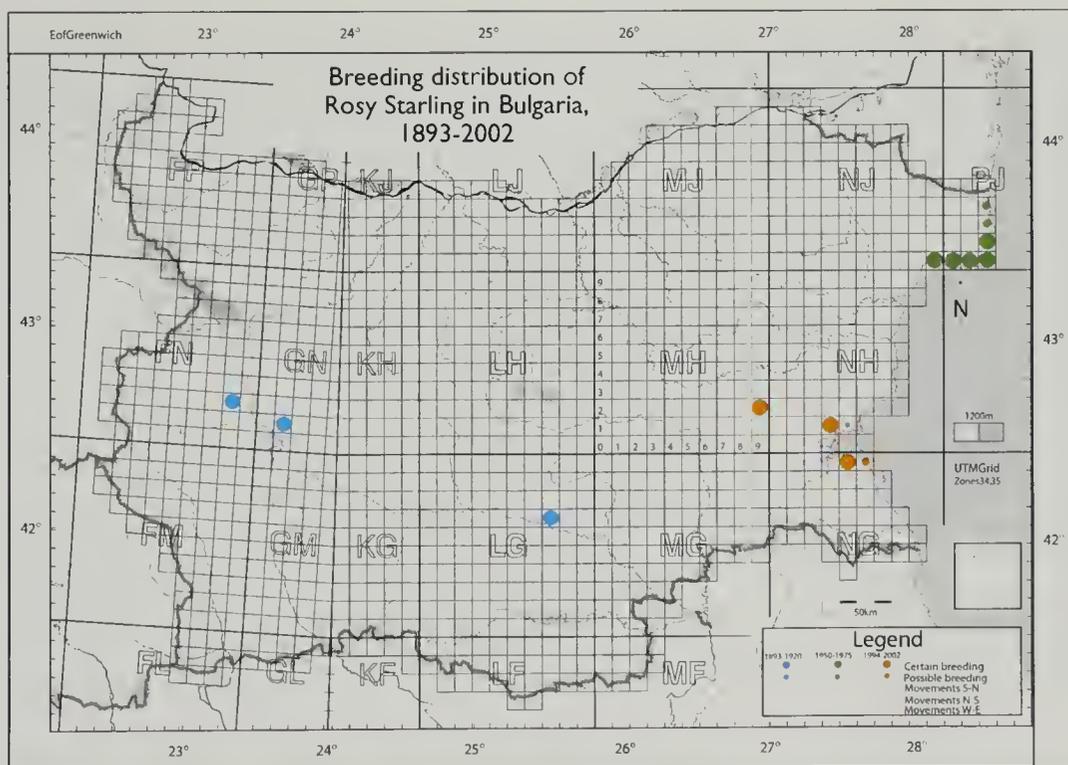


Fig. 1. Location of breeding Rosy Starlings *Sturnus roseus* in Bulgaria during 1893-1920 (blue dots), 1950-75 (green dots) and 1994-2002 (orange dots). Large dots represent confirmed breeding, small dots represent possible breeding records.



179. Stone quarry, Karnobat, Burgas region, Bulgaria, 1996: a breeding site of Rosy Starlings *Sturnus roseus*.

Recent data

Breeding populations

The discovery of a breeding colony in a stone pit near the town of Karnobat in 1994 led us to conduct a thorough search of suitable breeding sites in the region in subsequent years, which led to the discovery of further colonies, at Banevo and Chernivrahk (table 1). These colonies seem to be well established, and we believe that the Banevo colony has been occupied since 1960 (Mountfort & Ferguson-Lees 1961).

Table 1. Numbers of breeding Rosy Starlings *Sturnus roseus* at three stone/rock quarries in Burgas region, Bulgaria, 1994-2002. Counts are of numbers of individuals, not pairs.

Year	Karnobat	Banevo	Chernivrahk
1994	100	?	?
1995	3,000	?	?
1996	4,000	?	?
1997	0	?	?
1998	0	?	?
1999	120	?	?
2000	2,000	1,800	1,360
2001	500	1,100	1,300
2002	3,200	1,600	0

Our observations, particularly at the Karnobat quarry where Rosy Starlings have bred in every year since 1994, except 1997-98, suggest that the species should no longer be considered irruptive in Bulgaria, but is better classified as an annual breeding visitor. Its breeding range now extends southeast to the Burgas region on the Black Sea coast, where all breeding colonies are in active or disused stone/rock quarries. Munteanu (1997) put the total number of breeding Rosy Starlings in Europe at between 500 and 2,500 breeding pairs. Our data suggest that this may be a considerable underestimate, and that there were approximately 5,160 breeding individuals in the Burgas region of Bulgaria alone in 2000, with 2,900 in 2001 and 4,800 in 2002.

Food and feeding

The principal diet of Rosy Starlings in Bulgaria consists of various species of grasshoppers (Orthoptera), as well as considerable vegetable matter, including fruits such as mulberries *Morus*, cherries, apricots and plums *Prunus*, figs *Ficus* and pears *Prunus*. In the summer of 2002, the two breeding colonies near Karnobat had a significant adverse effect on the quantity of fruit in surrounding orchards. In addition to that fruit eaten by adults, nestlings are fed with



Konstantin Nyagolov

180. Adult male Rosy Starling *Sturnus roseus*, Karnobat, Burgas region, Bulgaria, 1996.

stoned fruits. Adults may disgorge up to ten or more fruit stones at a time and these litter the entire area of the colony, while the rocks surrounding the colony are coloured rosy-white or red from the large quantities of excrement.

Predators and other species

Such concentrations of highly visible, noisy birds inevitably attract the attention of several

predators, although the starlings often seem to pay no attention to a potential predator in their midst. All three colonies we studied were in quarries also occupied by nesting Eagle Owls *Bubo bubo*, but the starlings would alight on the edge of the eyrie even when occupied by nestlings or sitting adults and no interspecific reaction between the two species was noted. Peregrine Falcons *Falco peregrinus* were fre-



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181. Juvenile Rosy Starling *Sturnus roseus*, Karnobat, Burgas region, Bulgaria, 1996.



182. Rosy Starlings *Sturnus roseus*, Karnobat, Burgas region, Bulgaria, 1996.

quently recorded swooping upon the Karnobat colony, but only one successful capture was recorded and falcons alighting on the rock face near the colony were ignored.

Acknowledgments

The Bulgarian-Swiss Biodiversity Conservation Programme kindly provided the opportunity to carry out the field surveys. Kiril Bedev assisted with fieldwork, Stanislav Abadzhiev provided the UTM grid map, Vladimir Pomakov translated the manuscript into English, and Bob Scott encouraged us and commented extensively upon the manuscript. Grateful thanks are expressed to all.

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Looking back

Seventy-five years ago:

'EARLY NESTING OF THE SHAG IN DONEGAL. ON March 20th, 1927, Mr. C. B. Horsburgh reports having seen two Shags (*Phalacrocorax a. aristotelis*) sitting on nests, containing one egg each, on the north-west coast of Donegal. This is by far the earliest record of nesting which I have had for Ireland. C. V. STONEY.

'[Although the above record constitutes the earliest Irish record, it is remarkable that in the Orkneys eggs have been found as early as February 24th. On the south Devon coast I have seen birds which refused to leave their nests as early as March 3rd, but have no proof that they contained eggs at that date, as all the nests examined were only partially built (cf. *Brit. Birds* 7: 96-99).— F. C. R. J.]'

The 1864 Wiltshire 'Steppe Buzzard'

A review on behalf of the British Ornithologists' Union Records Committee

Andrew H. J. Harrop and Martin Collinson

ABSTRACT As part of its continuing review of records in Category B of the British List, the BOU Records Committee re-examined the specimen record of a Common Buzzard *Buteo buteo* shot at Everleigh, Wiltshire, in September 1864. Although this specimen was previously identified as *Buteo buteo vulpinus* ('Steppe Buzzard') it is impossible, on the basis of current knowledge, to exclude the possibility that the bird is an intergrade, or even an exceptional nominate *B. b. buteo*. Consequently, 'Steppe Buzzard' has been removed from the British List.

In September 1864, J. Clarke Hawkshaw shot a buzzard *Buteo* at Everleigh, Wiltshire, on the northeastern edge of Salisbury Plain. It was recorded as *B. desertorum* by Gould (1873), and subsequently confirmed as *B. b. desertorum* (= *vulpinus*) by Witherby (1921). The specimen is now in the Natural History Museum, stored as a cabinet skin (registration number 1881.5.1.4023) (plates 183 & 184). Its provenance has never been questioned. In addition to the features described below, it has a small bill, a streaked head, and dark restricted to the outer primary coverts (therefore not forming complete round dark carpal patches).

The plumage is unusual for nominate Common Buzzard *B. b. buteo* (henceforth known as '*buteo*'), and shows features normally associated with 'Steppe Buzzard' *B. b. vulpinus* (henceforth referred to as '*vulpinus*'), especially the rufous tones on the upperparts, tail, undertail-coverts and axillaries. The plumage is not, however, as distinctive as that of some 'classic' *vulpinus* from the eastern part of the range, in Siberia. The bird was not sexed, but can be aged as a juvenile on the basis of its streaked under-

body and narrow subterminal bar on the tail, and the lack of moult in the remiges (Forsman 1999). Witherby gave the following measurements: wing 363 mm, tail 200 mm, tarsus 76 mm and bill 20 mm. These are at the lower end of the range for *buteo*, but are not conclusive in themselves since they fall within the ranges of both *buteo* and *vulpinus* (Cramp & Simmons 1979).

During the review, the identification of other buzzards (notably Red-tailed Hawk *B. jamaicensis* and Long-legged Buzzard *B. rufinus*) was also discussed. Although variable, Red-tailed Hawks do not closely resemble *vulpinus* because (among other differences) they are larger and heavier, have broader wings with contrastingly dark marginal coverts along the leading edge of the underwing, and tend to have the head darker than the breast (Wheeler & Clark 1995). Some juvenile Long-legged Buzzards of the African race *cirtensis* can closely resemble *vulpinus*, but differ in having a more uniform, less streaked head, a heavier bill and contrasting round dark carpal patches (Forsman 2000). The measurements of both the

bill and the wing of the Wiltshire specimen fall within the ranges of *buteo* and *vulpinus* but not those of Long-legged Buzzard (Cramp & Simmons 1979).

The problem which the Committee faced, therefore, was that although the specimen resembles *vulpinus*, *buteo* is extremely variable, and a judgement had to be made as to whether there was a significant probability of it being an intergrade or an unusual *buteo*. Within the normal range of *buteo*, birds with reddish tails are not infrequent (R. Prytherch verbally; pers. obs.) but reddish tones are much less often present in other plumage tracts.

There is no known single diagnostic feature which enables completely safe separation of *vulpinus* and *buteo*. Indeed, the problems involved in distinguishing these two forms were recognised by Voous *et al.* as long ago as 1948. Furthermore, Ulfstrand (1977) documented clinal variation in Swedish Common Buzzards

between birds in the north, which tend to be smaller and redder (and may have a connection with *vulpinus*), and birds in the south – probably *buteo* – which tend to be larger and more frequently pale but may also be reddish (perhaps because reddish hues tend to persist as depigmentation proceeds). He found no trace of a demarcation line between two distinguishable populations, and concluded that 'subspective labelling of single specimens of so variable a species as *Buteo buteo* seems to be a rather futile exercise'. More recently, work by Haring *et al.* (1999) found no unambiguous genetic differentiation among the subspecies of *Buteo buteo*, with the exception of *B. b. japonicus*. Scriber *et al.* (2001) found extremely low molecular genetic variation within populations of *buteo* in Germany and tried to reconcile this with the extreme variation in plumage pigmentation among individuals. The authors discussed mechanisms by which, in populations



183 & 184. Common Buzzard *Buteo buteo* shot at Everleigh, Wiltshire, in September 1864, and formerly considered to be 'Steppe Buzzard' *B. b. vulpinus*. Now in the Natural History Museum, Tring.

where genetic diversity has been reduced by repeated falls in the effective population size ('bottlenecks'), polygenic characters such as plumage pigmentation could show extreme individual variation. In light of this, it is possible that rare mutations in populations of nominate *buteo* might occasionally produce individuals which show *vulpinus*-like characters. In these circumstances, members of BOURC concluded that the Wiltshire specimen cannot be diagnosed as *vulpinus* with sufficient confidence, and that this is likely to remain an insoluble problem for the foreseeable future.

Although this record is no longer considered acceptable, it is possible that future developments in the fields of *Buteo* identification or genetics will make it possible to re-evaluate the record. Common Buzzards which show characteristics of *vulpinus* are recorded occasionally in Britain (Skevington 2002), but sight records, even if they are supported by photographic evidence, are unlikely to be acceptable. Nonetheless, observers are encouraged to document Common Buzzards which 'show the characters' of *vulpinus*, since it is likely that some continental birds, including intergrades and possibly genuine *vulpinus*, reach Britain occasionally.

Acknowledgments

Mark Adams and Robert Prys-Jones arranged access to specimens at the Natural History Museum; Dick Forsman

kindly commented on photographs of the specimen; Linda Birch at the Alexander Library, Edward Grey Institute, Oxford, helped with references; and members of BOURC commented on the file and on a draft of this short paper.

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Looking back

Fifty years ago:

'FLOOD-DAMAGE AT HAVERGATE ISLAND. SIRS,—One of our most important bird-reserves, Havergate Island, Suffolk, was severely damaged by the exceptional tide which swept down the East Anglian coast on February 1st. This island is not only unique in that it contains the only British-breeding colony of Avocets [*Recurvirostra avosetta*], but it is a sanctuary for many other birds, including many species of ducks, waders and terns.

'In these small and heavily populated Islands, wildlife reserves must obviously be limited. Those that do exist are, therefore, of vital importance for future conservation. At Havergate we have managed to carry out temporary repairs, at a cost of about

£200, which should make the island secure for this breeding-season. In the autumn we are faced with the task of restoring to complete soundness the protective sea-walls, which were breached in twenty-six places. This will cost us several thousand pounds.

'We believe that there are many generous people who would wish to help us secure the future of this island in Suffolk, where birds, often to be numbered by the thousand, can breed and feed or roost virtually undisturbed by man. Donations, large or small, will be most gratefully acknowledged. The Royal Society for the Protection of Birds, 25, Eccleston Square, London SW1. P. E. BROWN, *Secretary*. (*Brit. Birds* 46: 192, May 1953)

Conservation research news

Compiled by Simon Wotton, Jeremy Wilson
and Norman Ratcliffe



Mass mortality of Common Eiders in the Dutch Wadden Sea

The Dutch Wadden Sea is of international importance for Common Eiders *Somateria mollissima*, with between 102,000 and 173,000 individuals spending the winter there. In the winter of 1999/2000, beached bird surveys detected a mass mortality event, with the numbers recovered being 3.3-12.8 times higher than the long-term monthly averages. It was estimated that 21,000 eiders died during the winter. The mortality affected mainly juveniles and females during the early winter, but the proportion of older males found dead increased steadily as the winter progressed. Common Eiders were the only species which experienced such increased mortality during the 1999/2000 winter.

The role of pollutants in this event was investigated. The proportion of birds oiled was not different from the long-term trend, and there was also no evidence of an increase in the levels of heavy metals, PCBs or other toxic chemicals that winter, nor of a 'red tide' of toxic dinoflagellates in the Wadden Sea. Post-mortem examination of the dead eiders revealed that they were severely emaciated, being 30-45% lighter than healthy birds. Subcutaneous fat deposits were severely depleted and breast muscle had atrophied to the point that birds were flightless, suggesting that they died of starvation. The majority (almost 95%) also had acanthocephalan worm infestations in their digestive

tract, which caused enteritis, with juveniles being the most severely affected.

This mass mortality was likely to have been caused by a collapse in the main prey of Common Eiders in the Wadden Sea. The eiders feed mainly on mussels *Mytilus edulis* and cockles *Cerastoderma edule*, and switch to trough shells *Spisula subtruncata* when these become scarce. Overfishing of mussels and cockles during the early 1990s, combined with reduced recruitment to the breeding stock caused by a series of mild winters, resulted in a reduction in availability and quality of the primary prey. Common Eiders therefore became dependent on trough shells for food; in turn, these were severely overfished in autumn 1999. This forced eiders to switch to poor quality prey such as shore crabs *Carcinus maenas*, which were inadequate to sustain the population and caused starvation. The crabs are also intermediate hosts of the acanthocephalan worms, which explains the high infestation rates of dead eiders.

Camphuysen, C. J., Berrevoets, C. M., Cremers, W. J. W. M., Dekinga, A., Dekker, R., Ens, B. J., van der Harve, T. M., Kats, R. K. H., Kuiken, T., Leopold, M. F., van der Meer, J., & Piersma, T. 2002. Mass mortality of Common Eiders (*Somateria mollissima*) in the Dutch Wadden Sea, winter 1999/2000: starvation in a commercially exploited wetland of international importance. *Biol. Conserv.* 106: 303-317.

Wild Bird Cover crops: providing a seed source for farmland birds in winter

The availability of seed foods for farmland birds has declined over the past 50 years (e.g. see *Brit. Birds* 96: 158-177). Reduced out-wintering of

livestock, the loss of winter stubbles, more efficient harvesting and grain storage, and increased use and efficiency of herbicides have

all played their part. Over the same period, species such as Grey Partridge *Perdix perdix*, Sky Lark *Alauda arvensis* and Linnet *Carduelis cannabina* have declined to the extent that they are included on the 'Red List' of birds of high conservation concern.

Means of restoring seed supplies to farmland ecosystems, especially in winter, have been included in agri-environment schemes and set-aside management throughout Britain as part of the conservation response to these declines. Growing small areas of high-yield, seed-bearing crops which are left unharvested can be a cost-effective option, especially on heavier soils where winter stubbles followed by spring tillage is less practical. Such crops are often called 'wild bird cover' (WBC), since they are often grown to provide food and cover for Red-legged Partridges *Alectoris rufa* and Common Pheasants *Phasianus colchicus* reared for shooting.

Stoate *et al.* (2003) studied the extent to which different WBC crop mixtures were able to enhance the density of various species of conservation concern during three winters on the Raby Estate in Co. Durham. Their results showed that overall winter bird densities following establishment of WBC were over ten times higher than those typically found on commercial crops at the same time of year, and that use of WBC crops by most seed-eating birds increased through the autumn to a mid-winter peak in December and January. Mixtures

of kale *Brassica napus* and quinoa *Chenopodium quinoa* in particular were heavily used. Kale (a two-year cover) provided excellent cover for seeding weed species and invertebrates in its first winter (and hence attracted species such as Song Thrush *Turdus philomelos* as well as seed-eating birds), and after seeding in its second winter attracted large numbers of finches. Quinoa, a relative of Fat-hen *C. album* (an important source of weed seeds on farmland), attracted the most seed-eating species, notably Tree Sparrows *Passer montanus*. A cereal component in the WBC was favoured by larger species such as Yellowhammer *Emberiza citrinella*, and the same preference might be expected for Corn Bunting *Miliaria calandra* in areas where this species still occurs.

Lower usage of WBC by seed-eaters late in the winter was at least partly due to poor establishment of the crops and low seed yield. The authors suggested that problems such as these are likely to be exacerbated by low nutrient levels in soils used repeatedly for WBC, and that higher fertiliser application rates (especially on set-aside land where such inputs are restricted) may be necessary to secure seed yields which are high enough to support seed-eating birds throughout the winter.

Stoate, C., Szczyr, J., & Aebischer, N. J. 2003. Winter use of wild bird cover crops by passerines on farmland in northeast England. *Bird Study* 50: 15-21.

Managing water levels in wetland habitats

Two recent papers have highlighted the importance of water-level control on waterbird populations in the USA. Russell *et al.* (2002) suggested that the dynamics of water flow affected productivity of wading birds (such as Great White Egret *Egretta alba* and Wood Stork *Mycteria americana*) in the Everglades, and that foraging success is the main causal link. They found that the optimal pattern was of intermediate water levels early in the dry season, followed by rapid, uninterrupted drying to concentrate prey in small areas (increasing water depth leads to prey dispersal). Water management decisions have contributed to recent poor breeding seasons: in naturally dry years, water is withheld from the Everglades, whereas in wet years the area is periodically flushed with water from water conservation areas.

Taft *et al.* (2002) assessed the optimal winter and spring flood depth for waterbirds in California. Their results showed that maximum diversity and abundance of waterbirds occurred at average depths of 10-20 cm on wetlands with topographic gradients of 30-40 cm (i.e. a difference of 30-40 cm between the deepest and shallowest zones). These findings allowed the authors to generate management prescriptions according to the most important species groups (e.g. wildfowl or waders) at a site.

Russell, G. R., Bass, L. R., Jr., & Pimm, S. L. 2002. The effect of hydrological patterns and breeding-season flooding on the numbers and distribution of wading birds in Everglades National Park. *Anim. Conserv.* 5: 185-199.

Taft, O. W., Colwell, M. A., Isola, C. R., & Safran, R. J. 2002. Waterbird responses to experimental drawdown: implications for the multispecies management of wetland mosaics. *J. Appl. Ecol.* 39: 987-1001.

Notes

Northern Gannet thermalling

I was crossing Ramsey Island Sound, Pembrokeshire, on the afternoon of 4th July 2002, when I noticed several Great Black-backed Gulls *Larus marinus* and Herring Gulls *L. argentatus* soaring in a thermal which was drifting eastwards across the Sound. These birds were circling clockwise about 100 m above the sea surface. An adult Northern Gannet *Morus bassanus* approached at a low height from the north and joined the thermal at low level. The gannet extended its wings fully and began to orbit clockwise on stiff wings. It achieved a rate of climb in excess of the gulls and soon climbed above them, without any flapping action. The gannet's rate of climb was impressive. In fact, it looked remarkably like a modern, high-performance sailplane as it gained height to about

200 m before leaving the thermal, partially closing its wings and departing southwards (towards Grassholm?) at high speed.

The surface wind was a light westerly and the air temperature was 21°C. The air mass was unstable, with active thermals and fair-weather cumulus clouds forming over the mainland. Nelson (1978) mentions gannets using slope soaring, dynamic soaring and soaring in standing waves, while del Hoyo *et al.* (1992) refer to gannets dynamic soaring; but neither mention gannets soaring in thermals.

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White Pelican taking Feral Pigeon

'A wonderful bird is the pelican – its beak can hold more than its belly can'. This ditty appeared to be true on 7th October 2002 in St James's Park, London. One of the Park's White Pelicans *Pelecanus onocrotalus* had caught a Feral Pigeon *Columba livia* and was having trouble swallowing it. Several times the pigeon seemed to be safely in the pelican's gullet only

to re-emerge in its pouch still alive, and another attempt was made to swallow it. On a number of occasions the pelican dunked the pigeon, still in its pouch, in the lake. Whether this was an attempt to drown it, or to wet the plumage to make it easier to swallow was not clear. The meal took more than ten minutes to consume. *BWP* mentions only fish as food.

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Egg weight and growth of nestling Merlins in Dumfries & Galloway

There are few published data on the growth of nestling Merlins *Falco columbarius* in the wild, apart from one study in Orkney (Picozzi 1983), and another, of the race *F. c. richardsonii*, in urban Canada (Sodhi 1992). Between 1971 and 1977, seven broods comprising a total of 28 nestling Merlins from ground nests were weighed regularly in Galloway, Dumfries & Galloway. Six of the broods (24 nestlings) survived to fledging, but one brood was predated, probably by an Adder *Vipera berus* (Shaw 1994).

Eggs were weighed when newly laid, and

again three weeks after incubation started; all the eggs hatched. One brood of four nestlings was weighed just after hatching, when the young were in the first 24 hours of life and were therefore of known age. Five other broods were first weighed when the young were 1-3 days old (estimated by backdating, using other nestlings of known age as a reference), and all young were weighed at intervals of 6-7 days thereafter. All were individually marked using coloured pens until they were ringed. In 1973 and 1974, the outermost (tenth) primary of nine nestlings

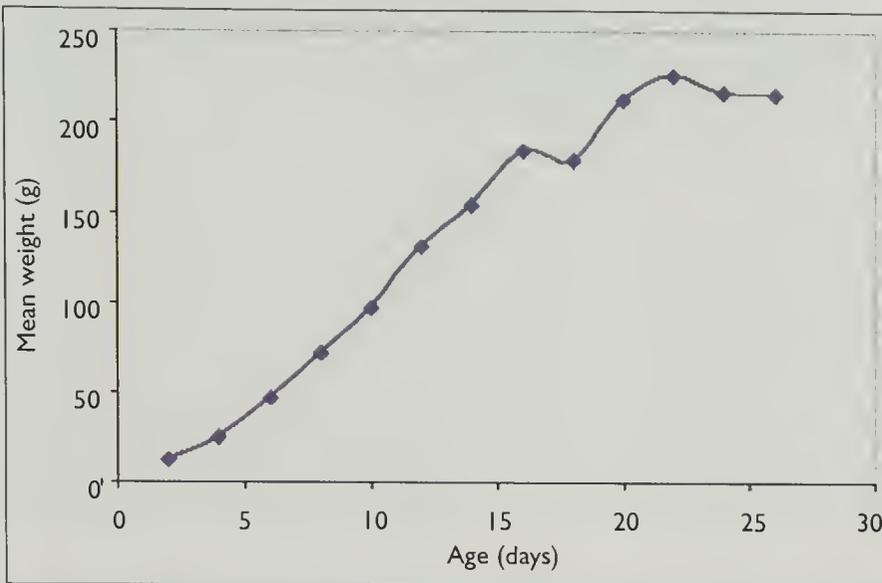


Fig. 1. Mean weights of nestling Merlins *Falco columbarius* in Galloway, Dumfries & Galloway, 1971-77 (see also table 1).

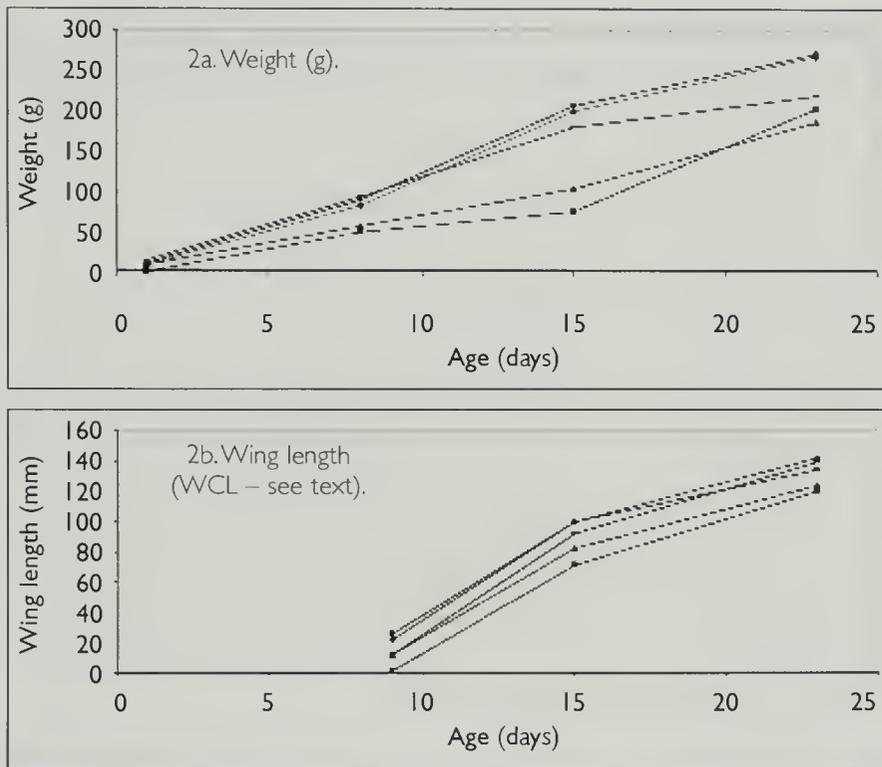


Fig. 2. Weight and wing length of a brood of five nestling Merlins *Falco columbarius* in Galloway, Dumfries & Galloway, 1973. There is a clear distinction between males and females by the age of 23 days: the three nestlings with the highest mass and longest wing length are females.

was measured. To derive wing-chord length (WCL), 30 mm was added to the measurement of P10 (growing feather plus sheath). Weights of adults were taken from *BWP*.

Egg weight

The mean weight of 20 freshly laid eggs was 22 g (range 20.0-23.5g, SD ± 1.09); each egg thus constitutes about 10% of an average

female's body mass (212 g). A clutch of four eggs would therefore weigh about 88 g on average, or about 42% of the female's body mass. The heaviest clutch of five fresh eggs in this study was 115 g (54% of the female's body mass), while the lightest clutch (of five eggs) was 103 g (49%). The mean weight of 13 eggs incubated for three weeks was 18.3 g (SD ± 0.72), an average loss of 3.7 g per egg during incubation.

Nestling weights

All the nestlings grew quickly, with mean mass of 13.7 g (± 2.06) at 1-2 days old, 72.7 g (± 11.4) at 7-8 days old, 184.1 g (± 24.0) at 15-16 days old, and 226.8 g (± 20.7) at 21-22 days old (table 1, fig. 1). Few nestlings were weighed after 23 days, since they are prone to fledge prematurely at this age. Two were, however, weighed after their first flight, at 25-26 days old; their post-fledging weights were 186 g and 214 g, within the range of adult males and females respectively.

Fig. 2 shows the weight and wing length (WCL) of a brood of five nestlings in 1973. This indicates that there is a clear distinction between

male and female nestlings at 23 days old, in both wing and weight measurements, and suggests that the three chicks with the longest wing length and highest mass at that age can be sexed accurately as females, while the two with the shortest wing and the lowest mass were males. Similar results were obtained in 1974.

Craighead & Craighead (1940) considered that it was possible to sex nestlings by body

Table 1. Mean weights of nestling Merlins *Falco columbarius* in Galloway, Dumfries & Galloway, 1971-77 (see also fig. 1).

Age (days)	Sample size	Mean weight (g)	Range	Standard deviation
1-2	6	13.7	11-16	2.1
3-4	11	26.2	19-34	4.7
5-6	7	46.3	37-50	5.6
7-8	6	72.7	57-90	11.4
9-10	11	97.1	81-140	16.9
11-12	3	130.7	127-136	3.9
13-14	7	154.4	135-168	12.8
15-16	9	184.1	139-221	24.1
17-18	8	179.5	165-234	29.8
19-20	5	213.4	203-231	10.8
21-22	9	226.8	187-272	30.7
23-24	4	217.8	189-234	17.3
25-26	4	216.3	186-260	27.2

weight and size of feet at 5-6 days old. The sex of nestlings in this study could not, however, be determined by weight alone at an early age. In fact, some lighter nestlings gained weight faster to overtake siblings which had been heavier initially. The average mass for males at 17 days was 180 g in Orkney and 192 g in urban Canada, and for females 230 g and 250 g respectively (Picozzi 1983; Sodhi 1992). In this study, the average mass at 17 days was 193 g for males and 225 g for females, and therefore comparable with the results in Orkney and Canada. Consequently, the sex of nestling Merlins in Dumfries & Galloway was estimated fairly accurately

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using Sodhi's equation of $(WCL + 22.482)/8.568$. Although this equation was derived from a population of a different subspecies, it would appear that it can be used to assess the age and sex of nestling Merlins accurately in other parts of their range.

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Pair-hunting by large falcons

The recent notes on this topic (*Brit. Birds* 96: 39-43) made no specific mention of Saker Falcons *Falco cherrug*, which prompts the following comment. Gorman (1998) described a pair of Sakers hunting co-operatively in Hungary, and pursuing species including Little Egret *Egretta garzetta*, Avocet *Recurvirostra avosetta*, Spotted Redshank *Tringa erythropus*, Black-headed Gull *Larus ridibundus*, Northern Lapwing *Vanellus vanellus*, Feral Pigeon *Columba livia* and Stock Dove *C. oenas*. I per-

sonally observed a pair of Sakers unsuccessfully hunting the first four prey species on 9th October 1997, at the Csaj-tó fishponds in southeast Hungary. By contrast, the attacks on the other three species reported by Gorman, in different parts of Hungary, were successful.

Reference

- Gorman, G. (1998). Saker (*Falco cherrug*) using a co-operative hunting strategy. *Buteo* 10: 103-104.

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Juvenile Herring Gulls picking up pebbles

Recent notes concerning Black-headed Gulls *Larus ridibundus* aerial-skimming (*Brit. Birds* 94: 437, 95: 392) made me recall somewhat similar behaviour among a party of juvenile Herring Gulls *L. argentatus*, on 22nd August 2000, at Portreath, Cornwall. Towards dusk, about 100 Herring Gulls, including 20 juveniles, were loafing near the shoreline. Three juveniles were flying slowly into the light breeze, just above the sea surface and within a few metres of the shore, almost stalling, dropping to retrieve objects, then walking out of the water and placing them on the shore. At first I thought

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they were feeding, but closer inspection revealed that they were taking pebbles. Soon all of the juveniles joined in the activity, perhaps half of them at one time would either be taking pebbles or chasing and harassing those carrying them. Once a pebble was placed on the shore or dislodged from the carrier's bill, it would cease to be of any interest. The adult gulls took no interest in the activity at all, which continued for at least 30 minutes. *BWP* briefly mentions gulls picking up objects but gives no further details.

EDITORIAL COMMENT Such play-like behaviour has been recorded before (e.g. *Brit. Birds* 45: 74), and presumably involves young birds practising feeding.

Unusual food item of nestling Sandwich Tern

The food of the Sandwich Tern *Sterna sandvicensis*, both of the adult and that fed to chicks, consists almost entirely of fish, with minor quantities of aquatic invertebrates and, more rarely, terrestrial arthropods such as beetles (Coleoptera) and bush-crickets (Tettigoniidae) (*BWP*). On 13th June 1965, while ringing terns on Horse Island, Ardrossan, Ayrshire, I picked up a well-grown Sandwich Tern chick, which promptly regurgitated a much smaller – almost newly hatched – Common Tern *S. hirundo* nestling. The Common Tern chick had obvi-

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ously been recently swallowed, since it was in near-pristine condition. It was not possible to determine whether it had been dead or alive when swallowed – although it bore no signs of injury – nor whether it had been fed to the Sandwich Tern by a parent or had been eaten unaided. At that time, however, the nesting areas of the two species on Horse Island were largely non-contiguous, suggesting that it may have been brought to the nest site by an adult. As far as I know, there are no other records of Sandwich Tern taking warm-blooded prey.

Fieldfares roosting in Heather

In their discussion of roosting, Clement & Hathway (2000, *Thrushes*) mention Fieldfares *Turdus pilaris* 'roosting on heather moors in the Pennines of England... presumably where trees were absent', while on the same topic *BWP* states 'and once in heather'. It could be inferred from this that roosting in Heather *Calluna vulgaris* is rare or unusual, but this is not the case.

In the New Forest, Hampshire, during the 1970s and early 1980s, the northernmost heaths

were extensively covered with Heather and clumps of Scots Pine *Pinus sylvestris*, and it was common in late autumn and early winter to see several hundred Fieldfares appear at dusk. Although young pines were used by roosting Fieldfares, most preferred areas of deep Heather, which were sometimes shared with a few Redwings *T. iliacus*. These observations are not surprising, given that Witherby *et al.* (1938, *The Handbook of British Birds*) record that

Fieldfare 'Roosts... largely on ground', while Gilbert White (in *The Natural History of Selborne*, Letter XXVII, 22nd February 1770) noted

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'They are seen to come in flocks just before it is dark, and to settle and nestle among the heath on our forest.'

European Nuthatch foraging on brickwork

At 14.45 hours on 24th February 2002, I saw a European Nuthatch *Sitta europaea* fly to and alight upon the brickwork of a modern two-storey building at Upper Bucklebury, Berkshire. From about 1 m above ground, the bird worked its way up the brickwork at the side of the property, constantly moving its head in search of food, and on several occasions it took a prey item from the mortar between the bricks. Nearing the top of the building, the bird flew off and landed at the base of a small tree where it resumed foraging.

In *The Nuthatches* (Matthysen 1998) and *BWP*, it is stated that the European Nuthatch takes most of its food from the trunks, branches

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and twigs of trees, although both works also mention prey being taken from the ground and in the air. The only references to man-made structures in the foraging behaviour of this arboreal species concern its habit of hiding food items in crevices in walls.

On a separate matter, it seems noteworthy that neither of the above works mention this species taking peanuts from suspended feeders, a phenomenon which I assumed was extremely well-known and something which I have witnessed at countless sites in southern Britain over the past 20 years (and see, for example, *Brit. Birds* 95: 532).

The Red-billed Chough and the Hen Harrier: when did they last nest in Cornwall?

It is remarkable that both Red-billed Chough *Pyrhlorax pyrrhlorax* and Hen Harrier *Circus cyaneus* nested successfully in west Cornwall in 2002 for the first time in the county for many years. But since when? And, indeed, has the Hen Harrier ever previously nested in Cornwall?

Red-billed Choughs last bred in the county in 1957 (not 1952, as suggested in a recent issue of the RSPB's magazine *Birds*). This breeding attempt is documented in the Cornwall Bird-watching & Preservation Society's *Annual Report* of that year: young were 'hatched on 31st May, but within a week the adults lost interest, suggesting they [the young] had perished'. The last successful breeding was in 1947, when the same report lists that 'three pairs reared broods, and a fourth pair bred, but results are not definitely known'. The solitary survivor of the breeding population was last sighted at Stem Cove, St Mawgan-in-Pydar, on 17th June 1973.

While it is possible that the Hen Harrier bred

in Cornwall before 2002, the evidence is highly suspect. The claim is based on Prof. James Clark's notes (1906, *Victoria County History of Cornwall* Vol. 1: 337; and also in the *Zoologist* of 1907) that it bred on 'Goonhilly Downs till about 1841', querying the date in his general account of breeding birds in his 1906 Introduction. Clark credits F. V. Hill of Helston for the information, which he presumably obtained from him personally. Clark came to Cornwall in only 1899, and in his paper *The Birds of Cornwall* (1902, *J. Royal Institution of Cornwall* XV: 202) he says nothing about breeding except to mention Montagu's Harrier *C. pygargus*. In 1863, Hill published a *Catalogue of Birds observed in the Lizard Peninsula* (in: Johns, C. A., *A Week at The Lizard*), compiled with 'much care and from authentic records', which states: 'Hen Harrier (*Circus cyaneus*). Rather rare – occasionally breeding on the borders of Goonhilly Downs.' No dates or other information are given.

The inference is that Hill, who would have only been ten years old in 1841, later relied on the memory of country people for whom names such as 'kitt' and 'furze-kite' could refer to several similar species. 'Moor Buzzard' (Marsh Harrier *C. aeruginosus*) is equally likely to have been used indiscriminately, accounting for the supposed abundance of Marsh Harrier in the early nineteenth century and its subsequent rarity in both Cornwall and Devon. Hill did not mention Marsh Harrier, whereas, in 1808, Samuel James (published anonymously in *The Monthly Magazine* XVII: 433), who lived on the Lizard peninsula, called the Moor Buzzard 'frequent', without further comment or entries for similar species.

Neither E. H. Rodd nor any other nineteenth-century ornithologist in Cornwall noted breeding Hen Harriers, only their occurrence in autumn and winter. Moreover, Montagu's Harriers did nest in various parts of Cornwall, including the Lizard peninsula, though records for the early part of the nineteenth century are lacking, Hill only stating that it was 'rare'. Writing in the *Zoologist* of 12th September 1872, Rodd observed that 'it is scarcely worth noting specimens of this [Montagu's] harrier in the Land's End district for their occurrence is now quite frequent... They breed every year in the Lizard district, where several have from time to time been trapped.'

Subsequent nesting of Hen Harriers was claimed by H. P. O. Cleave in the *Zoologist* of 1906, who claimed that he knew of two (unnamed) sites where Hen Harriers bred. At one of these, three young were reared in 1904, and while two eggs were laid in May 1905, they had disappeared by June. 'The nest was a large one, built in an oak-tree about 25 yards from the ground. This species is supposed to nest on the ground, but a local man said the large nest

in question was used by the harriers. I first noticed these rare birds in November 1903, again in 1904, and several times last summer [1905]... There are only a few trees... and about two acres of gorse and brake on the steep side of a short valley about four miles from the north coast.' This must be the Cornish account accepted in 1939 by Witherby *et al.* in *The Handbook of British Birds*, among several reports of nesting in England and Wales in the previous 30 years. Since all harriers are ground-nesters, the tree nest was most likely to have been that of a Common Buzzard *Buteo buteo*. Hen Harriers will, however, very occasionally use trees.

Cleave was born and spent most of his life at Trevanion, near Wadebridge. His sightings of harriers in winter were probably of Hen, those in summer were surely Montagu's. Indeed, in company with T. J. Willcocks of Tregorden, Wadebridge, he located a Montagu's Harrier on St Breock Downs in 1922, where a successful nest was found the following year. In fact, St Breock Downs became the principal breeding area for Montagu's in the county during the following 25 years. Sites at Longstone, Music Water and Blable lay only 6-8 km from the north coast, the same distance from the sea as Cleave's unnamed locality in the early 1900s.

A similar situation to that in Cornwall arose in Devon. Moor (1969, *The Birds of Devon*) asserted that, of about 100 records of Hen Harriers since 1900, some of the summer sightings 'could well refer to Montagu's', including one at Welsford Moor, Hartland, on 11th July 1925, 'as the latter bred in this locality during the 1930s and probably earlier'. The conclusion is that Hen Harriers were less widespread nesters in southwest England than is generally supposed, and may never have nested in Cornwall during the period for which harrier records exist.

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Letters

Breeding European Honey-buzzards in Britain

Part of the glamour of European Honey-buzzards *Pernis apivorus* (hereafter referred to simply as 'Honey-buzzards') seems to lie in the haziness of their status as rare summer visitors to Britain, where they have, however, been present for more than two centuries (e.g. White 1789). Roberts *et al.* (1999) claimed 'a real increase in numbers over the past 30 years' and asserted that 'at the current rate of expansion... 100 pairs will be reached in the not too distant future', and Wernham *et al.* (2002) noted 'a suspected expansion' away from 'traditional breeding areas of southeast and southern England'. Kostrzewa (published 1999) stated that 8-15 pairs bred in the 1980s, increasing to 50-60 pairs in the 1990s, citing the paper by Roberts *et al.* as the source. Before these speculations become widely accepted as fact, it seems worthwhile to make the following points.

Away from the New Forest, Hampshire, Honey-buzzards bred in Scotland and in north-east and midland England in the nineteenth century (e.g. Holloway 1996), and Witherby *et al.* (1939) reported breeding 'in one locality near Welsh border' during 1928-32, but records 'in Wales go back as far as the early 19th century, and it would appear that a few pairs may have nested... during this period' (Lovegrove *et al.* 1994). Nesting may also have taken place in Fife in 1949 (e.g. Thom 1986). Although persecution led to an apparent reduction in numbers in the New Forest in the second half of the nineteenth century (see Clark & Eyre 1993), Colin R. Tubbs (quoted in Holloway 1996) believed that, during Gerald Lascelles's term of office as Deputy Surveyor of the New Forest from 1880 to 1915, 'much information' was withheld, so that 'the species was more numerous than the literature suggests'.

Roberts *et al.* (1999) quoted a number of population estimates in an attempt to show that Honey-buzzards had increased in Britain by some 500% (to 50-60 pairs) during the last 30 years, but the evidence is less certain. The earliest estimate which they gave, of 'probably less than ten pairs' (Brown 1976), was based on 'what is actually published', although Brown also reported opinions that the species 'must be commoner than generally admitted in its main haunt' [the New Forest] and 'probably breeds

unobserved in other parts of England'. They then cited Spencer *et al.* (1990) as evidence that numbers had roughly doubled (to 'possibly twenty or more breeding pairs') by 1988, but what Spencer *et al.* suggested was a maximum of just ten pairs, with the caveat that 'Once again we must regretfully report that the account... is very incomplete. No information has been forthcoming... for two important areas... We think it possible that the true population could amount to 20 or more breeding pairs.' In short, Roberts *et al.* have selectively contrasted an earlier figure derived from *published information* with a later one based on *opinion*.

Reports of the Rare Breeding Birds Panel (RBBP) show that a proper assessment of the numbers, distribution and trends of Honey-buzzards breeding in Britain during the latter half of the twentieth century has been hampered by a reluctance on the part of certain observers to report relevant data (see e.g. Ferguson-Lees *et al.* 1977). The effects of this reluctance extended to the two BTO breeding atlases: Sharrock (1976), on the basis of records received, thought the population unlikely to exceed 12 pairs during 1968-72, but Tubbs (in Gibbons *et al.* 1993) admitted that details from the New Forest, where six to nine pairs were present during 1961-80, had been withheld and that data were equally incomplete for the 1988-91 *New Atlas*, when Honey-buzzards occurred 'in at least six British counties'. In 2000, the RBBP organised the first national survey (which confirmed 33 breeding pairs plus another 36 probable/possible pairs), and subsequently commented that the result 'reinforces the belief that this species has been considerably under-reported in the past' (Ogilvie *et al.* 2002; Ogilvie 2003). Thus, it is misleading for Roberts *et al.* to claim that 'a real increase' is evident in the earlier estimates, particularly as such factors as better coverage and better reporting by new observers will have played a part.

Tubbs (in Gibbons *et al.* 1993) noted that between 1982 and 1985 numbers in the New Forest fell to just two pairs, whereas we believe that the population in 2002 was similar to that reported by Tubbs for 1961-80 (i.e. six to nine pairs). This indicates a fluctuation over 40 years

in the New Forest. Might not the same have occurred in Britain as a whole?

The 2000 survey clarifies the species' current status and provides a baseline from which to document future trends, but it seems a pity that much past information is in danger of being lost. We believe that it would be eminently sensible for details previously withheld to be deposited with the RBBP for analysis: the Honey-buzzard is Amber-listed on the grounds of its rarity in Britain (Gregory *et al.* 2002), and a fuller picture of numbers and trends during the second half of the twentieth century would at least show whether numbers had really increased or had simply fluctuated, and would be valuable for conservation purposes. Such use of previously withheld data would be a fitting tribute to those who have quietly devoted much time and effort to protecting breeding Honey-buzzards in Britain.

Finally, we must comment on the recent contribution by Roberts & Lewis (2003), published while this letter was in draft. It seems to us unremarkable that Honey-buzzards nest in mature conifer plantations in upland Britain, for this habit is not unknown in lowland southern England. If the population did indeed decrease in Britain as a whole during the 1980s, it would not be unexpected for a small but recovering population to utilise maturing upland conifers in the 1990s.

There is a discrepancy between the results of the RBBP 2000 survey and the speculation by Roberts & Lewis that numbers (presumably of breeding pairs) are 'likely to be in the low hundreds', which appears also to contradict their earlier statement that 'We do not suggest that British forests contain large numbers of undetected honey-buzzards'. It is unlikely that significant numbers are missed in well-watched southern England, where many woodlands, perhaps for ecological reasons, do not support nesting pairs. It is also hard to reconcile the result of the RBBP survey in Scotland (14 pairs, of which four breeding; Ogilvie 2003) with the claim that 'the minimum Scottish population could be 30-50 pairs', quoted by Roberts & Lewis from an anonymous verbal source. This statement is also ambiguous: it could mean either that the *current* Scottish population is thought possibly to number at least 30-50 breeding pairs or that it is believed to have the *potential* to reach that level.

If there really are 'low hundreds' of pairs of

Honey-buzzards breeding in Britain, this should be possible to prove. Although pairs can be unobtrusive when isolated, they are obvious in areas supporting two or more, as much aerial display is then evident during the breeding cycle. Perhaps a survey targeting those areas where the alleged extra pairs are suspected to lurk undetected would be in order?

We have all been involved in producing population estimates of certain bird species, and believe that these serve a useful purpose. They do, however, need to be well considered, as inflated estimates may give a false sense of security which does not best serve the conservation of the species concerned. We believe that, without firm evidence that numbers of Honey-buzzards are increasing, as claimed by Roberts & Lewis, the question of population trends should be considered uncertain, and that, for the moment, the results of the RBBP 2000 survey should be used as the base measure of numbers unless the speculation that 'low hundreds' breed can be substantiated.

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Zino's Petrel

In the past, it was customary to make sure of the facts before mounting conservation campaigns, and to establish whether they were likely to lead to a useful result. There seems to have been increasing disregard for such considerations recently, culminating in the agitation to prevent disturbance of the breeding site of 'Europe's rarest bird', Zino's Petrel *Pterodroma madeira*, by the construction and operation of a NATO radar station in Madeira (e.g. *Brit. Birds* 96: 50).

I have been interested in these birds for over half a century, and have known the Zino family, who rediscovered them, and been familiar with the site, for more than half this time. Nobody else was interested in them until 1983 when I suggested that they are a distinct species (*Bull. BOC* 103: 52-58). The father, Alec Zino, rediscovered them, and then had to rescue seven breeding birds from a collector (*Bol. Mus. Mun. Funchal* 38: 141-165). For decades, the son, Dr Frank Zino, and friends in the Museu Municipal do Funchal and Parque Natural da Madeira, continued to make the dangerous descent of the breeding cliffs to control the rats and cats which are the main threat to the petrels; this was largely done at their own expense, although with some financial and other assistance from ICI via Alan Buckle. Then, recently, a large grant was secured to preserve the area, and the family were informed that their activities were now past history. The family have also conserved and studied Cory's Shearwaters *Calonectris diomedea* on the Salvages and traced their movements by satellite.

The people who put out a press release about a threat to these birds appear not to have

checked the facts. There is already a road up to the Pico do Areeiro, where there is a hotel, and it seems unlikely that a NATO radar site will cause any more disturbance. I studied bird migration with RAF distant early warning radar during 1958-61 and 1978-79, and never found any evidence that it had an adverse effect on birds, even when a Goldcrest *Regulus regulus* hopped onto the transmitter. Zino's Petrels are strictly nocturnal, and are attracted by lights on misty nights far below in Funchal, but, if construction is carried out by day and security maintained by other means than the use of unshaded floodlights by night, a radar station should cause no harm to the birds.

Indeed, many of our own military installations are informal nature reserves, and I was once startled upon going up on the bridge of a ship in a large naval base to see a Herring Gull *Larus argentatus* eyeing me from its nest about 10 m away, and on looking round to find an unrecorded rooftop colony of many hundreds of pairs of at least three gull species. To quote another, inadequately reported example of unexpected nature conservation, when we displaced the largest North Sea gas terminal from the Loch of Strathbeg to St Fergus in Northeast Scotland, we feared it was at the expense of a colony of some 70 pairs of Arctic Terns *Sterna paradisaea*. Later, however, on looking inside its predator-proof perimeter fence, we found that they had increased ten times, and a colony of Common Terns *S. hirundo* had also become established on the roof of one of the buildings. It seems possible that some well-organised military security is just what Zino's Petrel needs.

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News and comment

Compiled by Adrian Pitches

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

One for sorrow

As the culling frenzy grips the official agencies (*Brit. Birds* 96: 205), it appears to be catching on with unofficial agencies too. Defra is targeting Ruddy Ducks *Oxyura jamaicensis*, the Environment Agency is gunning for American Mink *Mustela vison*, while a cull of European Hedgehogs *Erinaceus europaeus* on the Western Isles is being planned by a partnership between RSPB, Scottish Natural Heritage and the Scottish Executive. But it was the one-woman massacre of Magpies *Pica pica* in a Scottish garden which made national headlines on BBC Radio Four on 1st April. And no, this wasn't an April Fool skit. Mrs Lesley McKighan has taken it upon herself to use a Larsen trap in her garden to control the local Magpie population, and claims to have despatched 100 birds. The *Today* programme and its listeners got very excited about this lady, partic-

ularly when it transpired that she was taking her expertise – and Larsen traps – with her and her friends on a trip to Colonsay in the Inner Hebrides, where Magpie control seems to be part of the holiday experience. Magpies are classed as pests under Part 1 of the Wildlife and Countryside Act 1981, and there is a 'general licence' to kill them – but only if you are the landowner, or have the landowner's permission. So it is a moot point if tourist vigilantes have a licence to kill on their holidays.

What this episode does highlight is how dated Part 1 of the Act has become in terms of the list of species for which there is a general licence to exterminate. Another corvid on that list is the Rook *Corvus frugilegus*, which is there as an agricultural pest. But anyone who has seen this species foraging forlornly beside motorways will realise that leatherjackets *Tipula*

are so hard to come by in modern farmland that Rooks have been driven from the fields. Common Starling *Sturnus vulgaris* and House Sparrow *Passer domesticus* are also on the list of pest species, yet, in the past 20 years, their populations have fallen so dramatically that they now feature on the 'Red List' of species of conservation concern.

It is, therefore, timely that Defra has launched a review of Part 1 of the 1981 Act. The consultation period is drawing to a close, so if you have a view on what constitutes a pest species, please contact Defra. It may be 'One for sorrow' for the Magpie, which is unlikely to lose its pest status, but it could be 'Two for joy' for Common Starling and House Sparrow if they are removed from the list.

Link: Defra (www.defra.gov.uk).

Starling stays top of the league – just

The results of this year's Big Garden Birdwatch underline the need for greater protection for both Common Starling and House Sparrow. This year's event was another record breaker with 303,000 people, including 44,000 children, taking part in the annual RSPB survey in January. This beats last year's figure of 262,000, and also the world record, previously held by BirdLife International's 2001 World Bird Festival, for the biggest bird event.

Once again, Common Starling came out on top, being recorded from the largest number of gardens nationwide. The survey revealed, however, that the number of starlings seen per garden has plummeted to an average of just 4.9, compared with an average of 15 in 1979, the first year of Big Garden

Birdwatch. House Sparrows were the second most common bird with an average of 4.8 birds seen per garden, compared with the 1979 average of 10.

The top ten garden birds in this year's survey were, in descending order: Common Starling, House Sparrow, Blue Tit *Parus caeruleus*, Blackbird *Turdus merula*, Common Chaffinch *Fringilla coelebs*, Greenfinch *Carduelis chloris*, Collared Dove *Streptopelia decaocto*, Great Tit *P. major*, Robin *Erithacus rubecula* and Wood Pigeon *Columba palumbus*. In Scotland, Common Chaffinch took top spot, with House Sparrow second and Common Starling third. It may also be noteworthy for readers in Scotland, particularly those with Larsen traps, that Magpie does not figure in the top ten...

Focus on sparrows

The RSPB will be seeking to build on its Big Garden Birdwatch with 'Sparrowwatch' during May 3rd-11th, when the public will be encouraged to log their sightings of House Sparrows nationwide. This coincides with the BTO's own House Sparrow survey, which has proved to be its most popular ever. Tens of thousands have responded to the BTO's request for help, and 50,000 survey forms had been sent out by the end of March. The form has questions about the way houses are built and maintained, the plants and foods which are available in gardens, the amount of local traffic and the numbers of cats, Magpies, Eurasian Sparrowhawks *Accipiter nisus* and radio masts. It is hoped that the responses will help to narrow down the causes of the House Sparrow's decline. BTO House Sparrow

Officer Rosie Cleary said: 'The situation is becoming critical in London, but there are also huge numbers of gardens elsewhere in the UK from which House Spar-

rows have disappeared. We need help both from people who still have House Sparrows and, probably more importantly, from homeowners who have lost them.' If you

haven't already registered for the survey, you can still do so by contacting Rosie at: BTO, The Nunnery, Thetford, Norfolk, IP24 2PU; e-mail: sparrows@bto.org

Of cormorants and fishermen

Returning to the culling theme and what constitutes a pest species, this despatch comes from Suffolk, where, following an absence of over 170 years, Great Cormorants *Phalacrocorax carbo* returned to breed in the county in 1998. This tree-nesting colony chose to stage their comeback at Loompit Lake, a County Wildlife Site located within an Area of Outstanding Natural Beauty and bordering the northern shore of the River Orwell SSSI. By 2000, breeding numbers had stabilised at 65 pairs, while a large winter roost peaked at 228 birds in January 2003. This gathering attracted increasing numbers of roosting Little Egrets *Egretta garzetta*, which have over-summered and might well breed in the future.

Unfortunately, Loompit Lake is also a well-stocked trout lake managed by the Suffolk Fly Fishers

Club (SFFC). In recent years, falling catches and damaged fish were perceived by SFFC members to result from the depredations of Great Cormorants, and action was demanded. The SFFC made an application to Defra for a licence to shoot the cormorants, which was declined. Disturbance prior to the start of the breeding season was, however, deemed acceptable. With the SFFC unwilling to discuss the situation with Suffolk Wildlife Trust or English Nature, conflict seemed inevitable.

On 1st February 2003, an irresponsible minority took the law into their own hands and shot a Great Cormorant in flight which had been disturbed from the roost. Although the police were informed, the gunmen unfortunately escaped. The following evening, massive disturbance to the entire roost occurred when an

'industrial' firework exploded directly overhead, causing panic among the roosting Great Cormorants as well as to hundreds of waterfowl and thousands of shorebirds. This was immediately followed by a second, similarly sized firework launched directly into the swirling mass of birds. Although the Great Cormorants returned to their roost shortly afterwards, the many ducks and waders feeding along the adjacent River Orwell SSSI did not. With the breeding season now underway, disturbance has ceased. Tree preservation orders are in place to prevent felling of the nesting trees, and English Nature is in the process of incorporating Loompit Lake into the River Orwell SSSI. It is hoped that the future for this site can be secured and the cormorants will return.

(Contributed by Mick Wright)

Of Double-crested Cormorants and fishermen

Although Defra has resisted fishermen's calls for a cormorant cull in Britain, its American equivalent has bowed to similar pressure and agreed to allow the killing of Double-crested Cormorants *P. auritus* in 24 states. The Double-crested Cormorant is one of approximately 800 species protected under the federal Migratory Bird Treaty Act of 1918 and subsequent amendments. That treaty was actually signed by Great Britain (on behalf of Canada) as well as the USA.

But the US Fish and Wildlife Service is proposing to grant 24 state fish and wildlife agencies, Native American tribes, and the Agriculture Department 'greater flexibility to manage Double-crested Cormorants to reduce con-

flicts with human activities such as recreational fishing and commercial aquaculture'. It is believed that removal of the legislative protection first granted in the early 1970s is appropriate, following a substantial increase in cormorant numbers in the past 30 years. Protection was introduced after the population fell precipitously, largely because of DDT-induced eggshell thinning and human persecution.

The current high population reflects, in large part, the presence of ample food in their summer and winter ranges, federal and state protection, and reduced contaminant levels. Between 1970 and 1991, in the Great Lakes region of the USA and Canada, the number of Double-crested Cormorant nests increased from 89 to 38,000.

By 1997, the Great Lakes population had reached approximately 93,000 pairs and was most recently estimated at 115,000 pairs. The total North American population of Double-crested Cormorants is now approximately two million birds. The 24 states in which culls may now take place are largely in the eastern USA. Will this reduce the likelihood of another transatlantic vagrant? There is currently only one accepted British record of Double-crested Cormorant (in Cleveland, in 1989) and one Irish record (in Co. Galway, in 1995/96).

Link: US Fish and Wildlife Service (<http://migratorybirds.fws.gov/issues/cormorant/cormorant.html>).

Reward for capture of condor killer

One species which remains firmly on the protected list in the USA – indeed, the critical list – is the California Condor *Gymnogyps californianus*. But the reintroduction programme in California has suffered a serious setback after its matriarch was shot dead in Kern County. 'AC-8' – who weighed around 9 kg, had a wingspan of 3 m and was thought to be 30-40 years old – was one of the last of the original

population. She was captured, along with the other five remaining wild birds, in 1986-87 for the captive breeding programme designed to prevent the condor from becoming extinct. A further 22 captive-bred birds were also used. AC-8 hatched 12 eggs in captivity – helping to swell the condor population to 147 birds – and was the first of the original condors to be released back into the wild, in

April 2000. Her carcass was discovered on a ranch in Kern County on 13th February, and a reward of \$30,000 has been offered by conservationists for information leading to the conviction of her killer. The California Condor is an endangered species protected by federal and state law. Killing a condor carries a maximum penalty of one year's imprisonment and a \$100,000 fine.

Alaska victory

Happier news from the USA concerns a victory for conservation over oil in Alaska. Just as the war in Iraq – which many see as a war over oil – was starting, President Bush's plans to drill for oil in the Arctic National Wildlife Refuge were defeated in the Senate: the plans to open the refuge for drilling were defeated by 52 votes to 48. This may, however, be just a temporary setback for the President, whose election campaign was bankrolled by the oil industry. The

President believed that war in Iraq, together with the uncertain situation in Venezuela, would be a convincing argument that America's domestic oil supply should be expanded. He was opposed by environmental groups and by the local Native American people, the Gwich'in, who warned that it would cause ecological damage to the area which hosts important breeding populations of shorebirds.

The USA uses around 7bn

barrels of oil a year, and the government had estimated that as many as 16bn barrels could have been found in Alaska. Opponents suggested that only around 3bn could have been recovered without causing major damage. The Bush plan would have allowed for drilling over 600,000 ha of the 8 million-ha refuge.

Link: www.guardian.co.uk/oil/story/0,11319,918874,00.html

Loggers in Europe's last primeval forest

The independent environmental group Proact is campaigning on the border between Poland and Belarus, where the last primeval forest in Europe is under threat in the latter country. Situated on the watershed of the Baltic and Black Seas, Belovezhskaya Pushcha is an immense lowland forest range which is home to Grey Wolf *Canis lupus*, Eurasian Lynx *Lynx lynx* and 300 European Bison *Bison bonasus*, the latter species having been reintroduced into the region. As in the neighbouring Białowieża National Park in Poland, between 170 to 200 bird species breed here, with owls (including Eagle Owl *Bubo bubo*, Pygmy Owl *Glaucidium passerinum*, Ural Owl *Strix uralensis* and Tengmalm's Owl *Aegolius funereus*) and woodpeckers (Picidae) among the specialities.

Although the forests have been protected since the end of the fourteenth century, and were designated a World Heritage Site in 1992, the economic crisis in Belarus means that the forest is now an important financial asset. The decisive step was the construction of a large timber-processing workshop, with a processing capability far exceeding the calculated timber resource base of the Pushcha, in the centre of the reserve in 1998. In the second half of 2002 alone, more than 100,000 cubic metres of wood (over 300 ha of forest) were logged in Belovezhskaya Pushcha. President Lukashenko of Belarus is the key figure in the decision-making process, since the management of the National Park is directly responsible to his office. Conservationists in Belarus, Ukraine and Russia have appealed for international help; you can assist them by e-mailing your support via the Proact website.

Link: www.proactnow.org/ppsi/id27.html



I. V. Kuzmin

185. Ural Owl *Strix uralensis*, one of the species threatened by destruction of primeval forest in Belarus.

Thyme for action

The last refuge of Dupont's Lark *Chersophilus duponti* in Catalonia, Spain, is under threat from a proposal to build a regional airport there (No Airport @ Catalonia?). The 100-ha Timoneda d'Alfés ('Thyme' in Spanish) reserve is the only place in northeast Spain where Dupont's Lark still breeds, although the number of breeding pairs has decreased from 40-60 pairs in 1990 to fewer than 20 pairs in 2001. This decline is due to aircraft activity, habitat loss and other local problems. Pin-tailed Sandgrouse *Pterocles alchata*, Calandra Lark *Melanocorypha calandra*, Short-toed Lark *Calandrella brachydactyla* and Thekla Lark *Galerida theklae* also breed in the area, while the 5-7 pairs of Lesser

Grey Shrikes *Lanius minor* represent another endangered breeding species. The grass airstrip and ground facilities of the former military aerodrome situated in the Timoneda d'Alfés were taken into use a few years ago by the Royal Lleida Flying Club. Local politicians now plan to develop the site for business and tourist traffic, which would include asphaltting and extending the runway, building new hangars and generally transforming the aerodrome into a fully functioning regional airport. Conservation campaigners Proact have more details on their website – including how you can protest to the Catalan authorities.

Link: www.proactnow.org/localcampaigns/id23.html

Sounds on the BB website

By visiting the BB website, readers can now hear the song of 'Black-throated Thrush' *Turdus ruficollis atrogularis* (see Arkhipov *et al.* 2003, *Brit. Birds* 96: 79-83) and compare the calls of Pintail *Gallinago stenura* and Swinhoe's Snipes *G. megala* (see Leader & Carey 2003, *Brit. Birds* 96: 178-198). Click on the 'sounds' menu when you log on to the BB website home page. And when you download the thrush song, see if you can spot the Lanceolated Warbler *Locustella lanceolata* in the background...

Link: *British Birds*
(www.britishbirds.co.uk).

Younger birders

A website created specifically for younger British birders has been launched recently by 16-year-old Will Bowell from Cambridgeshire. The Teen Birders UK website – which is still under construction – includes birding sites, trip reports and bird-finding accounts. The mailing list and website, aimed at birders aged from 10 to 21, are monitored by adults to ensure that there are no inappropriate postings. To register, either send a blank e-mail to teenbirders_uksubscribe@yahoo.com or visit their website (below).

Link: Teen Birders UK (www.geocities.com/birder_dsj/teenbirders_uk).

Older birders

For an older audience (are there any teenage members of the BOU?) the BOU has also set up a new e-mail discussion group for ornithologists around the world. The aim of BOU BirdTalk is to encourage the discussion of scientific research and to provide a noticeboard for meetings, conferences, jobs, expeditions and publications. To join BOU BirdTalk send a blank e-mail to BOU_birdtalk-subscribe@yahoo.com with the word 'subscribe' in the subject field.

The Eric Hosking Trust

The aim of the Eric Hosking Trust is to sponsor ornithological research through the media of writing, photography, painting or illustration. In 2002, the Trust awarded one bursary, to Steve Votier, to help fund the photographic part of his project to produce a comprehensive identification guide to all the warblers (Sylviidae) recorded in the Western Palearctic. The Trust is now seeking applications for up to £500 for the 2003 bursary. The closing date for applications is 30th September 2003, and details are available from the Eric Hosking Charitable Trust, Pages Green House, Wetheringsett, Stowmarket, Suffolk IP14 5QA; e-mail: david@hosking-tours.co.uk

Memorable bird calls

All birders will have been frustrated at some point by an elusive bird with an unfamiliar call or song. But it appears that some species are far more straightforward than others when you 'get your ear in'. An article in the excellent *Bulletin of the African Bird Club*, 'The jizz of doves in the Sahel and how to remember their calls', by Joost Brouwer (Vol. 10 No. 1: 43-46), is a salutary lesson for us all. Apparently, the ten species of doves which Joost encountered in Niger are exceptionally co-operative – they call out their own name in English, French or Latin! The African Collared Dove *Streptopelia roseogrisea* calls 'ROSE GRRREY' to British ears or 'ROSE GRRRIS' to French-speakers. Red-eyed Dove *Streptopelia semitorquata* ('Tourterelle a collier' in French) is even more helpful: its call is transcribed as 'I AM a red-eyed-dove' or 'J'AI UN col-lier-er-er'. Perhaps we should all listen more carefully as we patrol coastal scrub this month. If the *Sylvia* warblers can also be decoded in this fashion, listen out for 'I AM an Orphean War-bler'!

STOP PRESS

new e-mail address for N&c
adrianpitches@blueyonder.co.uk

Reviews

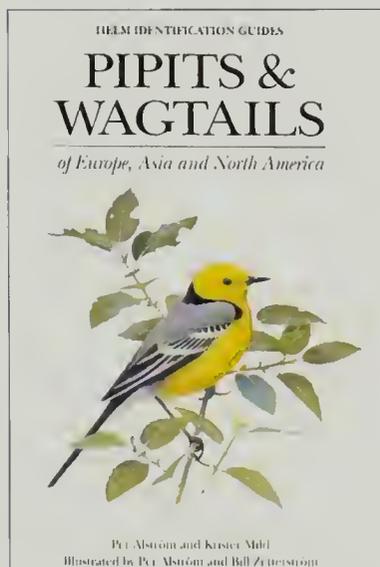
PIPITS & WAGTAILS OF EUROPE, ASIA AND NORTH AMERICA

By Per Alström and Krister Mild, illustrated by Per Alström and Bill Zetterström. Christopher Helm, A&C Black, London, 2003. 496 pages; 30 colour plates; 250 colour photographs; line-drawings and distribution maps. ISBN 0-691-08834-9. Hardback, £48.00.

Eagerly awaited for several years, this book is surely destined to become one of the finest in the Helm Identification Guides series, and closely follows the mould of the widely acclaimed *Sylvia Warblers*. The text is both authoritative and exhaustive, the plates generally excellent, and the liberal use of photographs and black-and-white illustrations add significantly to its value. The authors' stated objectives were to deal with all aspects of the identification of pipits and wagtails (Motacillidae) in the region and to provide a complete taxonomic review. If you are looking for information on breeding biology or behaviour then look elsewhere. All forms of pipits and wagtails found in Europe, Asia, North America and North Africa south to the Tropic of Cancer, including the Cape Verde and Atlantic Islands, are included: a total of 65 taxa. Other relevant taxa, such as the African races of Long-billed Pipit *Anthus similis* and the African and Antipodean 'Richard's pipits' *A. cinnamomeus* and *A. novaeseelandiae* (sic) are treated more briefly.

Taxonomic issues are very much to the fore and in one of the introductory chapters the implications of adopting different species concepts for the group are discussed: for example, White Wagtail *Motacilla alba* could be treated as one, two or even nine species! The authors adopt a monophyletic species concept, which allows polytypic species, and recognise 18 species of pipit and nine species of wagtail. Some may be disappointed that White Wagtail and Yellow Wagtail *M. flava* are both treated as single species, with nine and 13 subspecies respectively, although

recent molecular work suggests that the eastern group of Yellow Wagtails is quite distinct from the western group. The authors recognise only those taxa for which they could identify, in series, at least 75% of specimens of at least one plumage type – usually adult males. This means that fewer forms of Yellow Wagtail are recognised than in most recent reviews.



Other introductory chapters covering identification, moult and ageing highlight a number of useful points: the effect of wear on plumage; the impact of viewing angle on the prominence of some features, such as the loreal bar; and the variability in the extent of post-juvenile moult, both within and between species.

The species accounts themselves vary in length from just three pages for Berthelot's Pipit *A. berthelotii* to 50 pages for the White Wagtail complex. An identification section summarises the key features of each species (and subspecies where relevant) and the likely confusion species, and this is followed by

detailed descriptions. Although much of this information has now been published elsewhere, there is still plenty of new material, while treatment of some lesser-known species of Asian pipits far exceeds that available elsewhere.

Other sections cover systematics, measurements, wing-formulae, moult, ageing, sexing, voice, behaviour, distribution, habitat and a summary of other relevant identification literature. Several pages of sonograms, covering both song and call-notes, are presented for most species, including no fewer than 18 pages in the Yellow Wagtail chapter! Being something of a technophobe I find it easier to relate to renditions of calls and those provided here are among the best I have seen – an illustration of just how well the authors know their subject matter. Calls are, of course, critically important for the identification of some species, e.g. Blyth's Pipit *A. godlewskii*. I suspect that the claim that Richard's Pipits *A. richardii* never give a 'chep' or 'chip' call will, however, prove to be controversial.

The 30 colour plates are grouped together before the main systematic section. Typically, there are one or two species per plate, with an adult and first-winter illustrated in profile, and fresh and worn adults illustrated from the front and back. For comparative purposes, a few plates show a suite of species of the same age at the same time of year. The plates are generally outstanding, although the variation displayed by autumn Richard's Pipits is not really captured and some Rock Pipits *A. petrosus* of the form *littoralis* can certainly appear far greyer-toned on the upperparts than illustrated.

Forty pages of colour photographs are grouped towards the end of the book, with six photos to a page. These have been chosen specifically to highlight key identification features and, for example, there are 42 photographs of Yellow Wagtails and a dozen each of Buff-

bellied *A. rubescens*, Blyth's and Richard's Pipits.

One of the highlights for me is the wealth of information on the Yellow Wagtail complex, where intergrades receive a thorough treatment (although there is still much to learn about the identification of first-winters of many

forms). The authors urge considerable caution when identifying extralimital Yellow Wagtail taxa and almost go as far as to say that records of the forms *iberiae* and *cinereocapilla* should not be accepted from northwest Europe without ringing recoveries.

If you enjoy pipits and wagtails,

in particular the challenge of identifying them, then buy this book. Initially, it was envisaged that larks too would be included, but they will now be treated in another volume. If its quality matches this one, let's hope it follows soon.

Paul Harvey

GREBES OF THE WORLD

By Malcolm Ogilvie,
illustrated by Chris Rose.
Bruce Coleman, Uxbridge,
2003. 112 pages; 24 colour
plates; colour inserts; line-
drawings; distribution maps.
ISBN 1-872842-03-8.
Hardback, £49.95.

I find it hard to categorise this slim, large-format book. It hardly fits the mould of modern 'identification guides', yet to dismiss it as a mere coffee-table book (whatever that may be) would be grossly unfair. On the one hand, I think it is distinctly bookshelf-unfriendly, but, on the other, I find it quite superb in terms of its text and pictures. For those of you unlucky enough not to have a review copy, it is, unfortunately, frighteningly expensive.

The book deals with the 22 modern grebes, including two recently extinct species, Atitlan Grebe *Podilymbus gigas* and Colombian Grebe *Podiceps audiuus*. One further species, Junin Flightless Grebe *Podiceps taczanowskii*, is teetering on the brink of extinction and may soon join them. Tedious repetition of similar facts has been skilfully avoided by discussing aspects of grebe biology and ecology within the 11 introductory pages, while thorough appendices covering measurements and weights, breeding statistics, status and conservation priority follow. Next comes a section on the meanings and derivation of grebe names and, finally, a handy bibliography.

This has left the way open for Malcolm Ogilvie to use an essay

treatment for the 22 species accounts and, as you would expect from this author, these are authoritative, packed full of interesting information and highly readable. I learned a lot from them, even about the species I thought I knew reasonably well. Some of this is mouth-watering stuff indeed. I had no idea, for instance, that up to 1.6 million Black-necked Grebes *Podiceps nigricollis* have been estimated on Mono Lake in California. As a self-confessed dinosaur when it comes to changing and standardising vernacular names, I was brought up short by the discovery that 'Horned Grebe' is a much older English name than 'Slavonian Grebe' *Podiceps auritus*.

Excellent though the text is, it is probably Chris Rose's paintings that make this such a desirable volume, and they are obviously the reason for the large format. There is a double-page spread illustrating winter plumages, and some nice line-drawings, but these are overwhelmed by the big colour plates presenting portraits of each species in breeding dress. Grebes are very handsome birds, and the paintings more than do them justice. The artist's bold and adventurous treatment of light and shade, and especially of reflections in the water, has produced some quite remarkable results. It seems churlish to criticise any of them, but I do wish the Pied-billed Grebe *Podilymbus podiceps* was not disappearing into the centre fold of the book.

This, then, is a fine book. It is probably overpriced, but it would not surprise me at all if many people with a soft spot for these fascinating birds decide to buy it.

Mike Everett

BIRDS OF VENEZUELA

By Steven L. Hilty, Christopher
Helm, A&C Black, London,
2003. 878 pages; 60 colour
plates; 7 black-and-white
plates; 44 colour photographs;
numerous maps.
ISBN 0-7136-6418-5.
Paperback, £40.00.

Although technically the second edition of De Schauensee and Phelps's *A Guide to the Birds of Venezuela*, this is effectively an entirely new book which simply incorporates Guy Tudor's colour plates and some other illustrations from the original. Steve Hilty has written a marvellous new text, while new colour plates have been painted primarily by John Gwynne, but also by Alejandro Grajal, Larry McQueen and Sophie Webb. Steve Hilty co-authored the first of the modern South American field guides in 1986 (*A Guide to the Birds of Colombia*), which has subsequently been the main reference for birders visiting most of the surrounding countries. Now, this splendid new guide is all that is required for travellers to Venezuela.

Introductory chapters cover topography, climate, biogeography, vegetation zones and habitat, conservation and national parks, migration, and a history of ornithological exploration in Venezuela. The 67 plates then follow, each opposite a page giving the captions and summarising the main identification features, preceded by the species accounts, most of which include distribution maps. The taxonomy is up to date, and acknowledges the 'splits' proposed by various authors, including those in

the *Handbook of the Birds of the World*. Species for which there is no specimen, photograph or sound recording (i.e. sight records only) are treated as hypothetical. Several species are thus 'square bracketed', including some of Hilty's own sight records (e.g. the only record of Red-tailed Hawk *Buteo jamaicensis*), but given full treatment nonetheless. For species such as Ring-billed Gull *Larus delawarensis* there are now multiple sight records and Venezuela badly needs a records committee to assess such reports.

The species accounts are detailed and include sections on identification, similar species, voice, behaviour, status and habitat, range and, where relevant, taxonomic and other matters. I was particularly impressed by the voice sections,

which include onomatopoeic transcriptions of the author's own field recordings. These work very well and many readily brought to mind the vocalisations of the species with which I am familiar. The distribution maps are produced at a reasonable size and are easy to interpret, although I did notice a few records of which I am aware that were missing from the maps, mainly from the fishing camp of Junglaven, in Amazonas state.

As always, a guide of this nature is often judged primarily by its plates. When Guy Tudor's illustrations first appeared in 1978 they revolutionised our ability to identify many of Venezuela's birds accurately – especially those in such difficult families as the Furnariidae and Tyrannidae. Tudor

has moved on to even greater heights with his illustrations in *The Birds of South America*: presumably his commitment to that project prevented him from painting new plates for this book. The other artists involved here have done a commendable job. All the illustrations seem accurate and undoubtedly adequate for identification purposes, though the shapes of some seem a little odd to me. I was, however, particularly impressed by Sophie Webb's night birds, especially her larger owls.

In summary, this is another first-class book from Steve Hilty, which can be highly recommended.

David Fisher

**A BIRDER'S GUIDE
TO ALASKA**

By George C. West. American Birding Association, Colorado Springs, 2002. 586 pages; line-drawings; maps.

ISBN 1-878788-19-1.
Paperback, £21.95.

This guide comes in tough, spiral-bound, A5 format and opens with a 23-page introduction which, in addition to summarising Alaska's special birds, other animals and vegetation, contains useful information on the local inhabitants and their culture, on planning ahead and travel resources, climate

and clothing, as well as precautions and safety.

The real meat in this guide is contained within the 50 individual site chapters, which have been compiled by 40 specialists. Over 80 maps and 65 line-drawings support the detailed descriptions of over 200 of the most accessible and rewarding sites to be found in Alaska, and adjacent regions of the Yukon Territory and British Columbia, Canada, which border the Alaska Highway. Each chapter provides a site description, some relevant background history, recommendations on the best season to visit and, of course, the likely species to expect. In addition, information concerning logistics,

access, accommodation, vehicle rental, permits, contacts, etc. is included.

An extensively annotated checklist to the 500 or so species (and subspecies) recorded in Alaska provides a useful and quick reference. The guide concludes with three appendices: a detailed tabular checklist for 25 important sites listing the species likely to be seen in summer, a list of useful organisations, and an 11-page annotated gazetteer and pronunciation guide. Finally, a bibliography and checklist of mammals, reptiles, amphibians and fishes is followed by a species and localities index.

Oscar van Rootselaar

**THREATENED BIRDS OF ASIA:
THE BIRDLIFE INTERNATIONAL RED DATA BOOK**

Edited by Rudyanto & Neil Aldrin D. Mallari.
CD-ROM version by BirdLife International, Cambridge, 2001. £12.00.

Originally published as a monumental and authoritative two-volume hardback, this CD-ROM version is easy to access, and navigation is straightforward using Adobe Acrobat Reader (provided on the CD). Coverage extends from

Pakistan and Russia, east and south to Indonesia and East Timor, encompassing much of the Eastern Palearctic and Oriental regions: only western Asian countries are omitted. Every threatened species is treated, making this the most

detailed and complete inventory of Asia's endangered birds available.

On the opening page, the Table of Contents leads to the individual species accounts. For most species, these are the most detailed ever published. All run to several pages, with that for Black-faced Spoonbill *Platalea minor* extending to 24 pages. Each account begins with species status and is followed by distribution, which lists all recently published records. At least one map accompanies each account,

with the exact location of each documented record marked with a dot, which is invaluable for those unfamiliar with the many obscure locations. Further sections feature population, ecology, threats, conservation measures taken and proposed, and, finally, various remarks and facts not included elsewhere. A 116-page gazetteer lists all locations mentioned in the text, in country sequence. An interactive list of species recorded by territory enables quick access to each species account, while a section containing over 7,000 references comprises a further 264 pages.

Although aimed primarily at NGOs, researchers and conservationists, this is a gold mine of information and will undoubtedly interest anyone with a concern for Asia's birds. The facts make grim

reading, however. A total of 323 species, 12% of Asia's avifauna, are facing global extinction. Of these, 41 are considered Critically Endangered, their prospect of surviving the next 10 years being estimated at 50% or less, while eight may already be lost. A further 317 species are classified as Near Threatened and 11 as Data Deficient. Cherry-picking species accounts at random provides a fascinating insight into the uncertain future facing some of Asia's most exciting birds. The plight of Gurney's Pitta *Pitta gurneyi* is well documented, while recent population declines in Nordmann's Greenshank *Tringa guttifer* and Spoon-billed Sandpiper *Eurynorhynchus pygmeus* are brought into focus. Even seemingly well-protected species face unex-

pected threats. For example, the status of Christmas Island Frigatebird *Fregatta andrewsi* is described as critical, with an 80% population decline anticipated over the next 30 years, due to introduced Yellow Crazy Ants *Anoplolepis gracilipes* preying on nestlings.

Asia's avifauna faces mounting threats ranging from deforestation, land drainage, industrialisation and sprawling urbanisation to pollution and over-hunting. With additional pressure from the burgeoning human population, unsustainable demands on finite land resources can only put further pressure on Asia's birds. Only by acting now can change occur, and this publication represents a significant step forward.

Peter Kennerley

BIRDS OF THE WORLD

By Lars Larsson, Erling Larsson and Göran Ekström. Birds of the World HB, Väse, Sweden, 2002. Two CDs. US\$150.00.

These CDs, which can run on either a Macintosh or Windows operating system, require 1.5 Gb of free disk space and self-printing of the 66-page illustrated manual. Installation is easy and this (primarily taxonomic) database presents 9,970 species (16,500 subspecies), along with separate lists of 112 doubtful and 134 recently extinct species. The main menu has options for literature (a long but sortable list of references), gazetteer (4,595 entries), biography (1,989 entries on etymology and 751 authors), species inquierandae (hybrids, artefacts and new discoveries), recently extinct birds, birds in countries (over 240 country lists), personal checklists, figures (interesting statistics) and photog-

raphers (including a biography and photograph of all 64 photographers along with addresses and lists of species illustrated).

The layout can be switched from List to Base, with variable menus for each mode, all accessed by a single button-stroke or mouse-click. Generally, options are search, sort (five sequences) and combine, from which one can pick continents and select countries. The Base layout links to a wealth of information, e.g. the 14,479 photographs covering 3,872 species (c. 38.8%), 5,118 three-colour maps, subspecies details, taxonomic notes and conservation status, but no sound has been included. Additional data embrace 1,800 breeding tags (e.g. location

and type of nest, clutch size, brood size, and incubation period), longevity (occasionally), distribution (introductions, escapes and 7,400 altitude tags), and subspecies (range, year and synonyms).

The photographs (all by Swedish photographers) vary in quality from rather poor to really excellent. The selection clearly depended on availability; for example, there are 11 pictures of Ibisbill *Ibidorhyncha struthersii*, but only four of the 44 tinamous (Tinamidae). Despite this, the many data gaps and the small errors, inevitable for a first edition of such a work, this program provides an incredible collection of up-to-date facts and photographs in a single package and for a fair price.

Link: www.birdsoftheworld.org

Oscar van Rootselaar



Monthly Marathon

Photo no. 196: Greenish Warbler

The bird in photo number 196 (*Brit. Birds* 96: plate 59, repeated here as plate 186) is partially obscured by foliage and branches, which does not help us at all in our quest to identify it. Nevertheless, the photograph is quite realistic, being just the sort of brief glimpse you might get of a small warbler moving through low cover. And, of course, this is what 'Monthly Marathon' is all about. The combination of apparently fairly plain upperparts and underparts, with a long, striking supercilium and a prominent wing-bar clearly point us towards a *Phylloscopus* warbler (and indeed all the entrants this month got that far at least). The supercilium and wing-bar are, in fact, the key clues to our bird's identity. The effects of shadow and



Robin Chittenden

186. 'Green Warbler' *Phylloscopus trochiloides nitidus*, eastern Turkey, July 1991.

reflected light from the vegetation mean that the precise tone of the upperparts is difficult to determine with certainty, and even the leg colour is somewhat ambiguous,

although I am fairly sure the legs are dark.

So, if we are looking at a 'wing-barred phyllosc' zipping through the undergrowth ahead of us, what are our options? Well, the supercilium is long, slim and tapering; and the wing-bar, although quite prominent and well defined, is relatively narrow and there appears to be only a single, greater-covert wing-bar. In combination, these features point away from Pallas's Leaf *P. proregulus*, Yellow-browed *P. inornatus* and Hume's Warblers *P. humei*, since all of these show an obvious median-covert wing-bar and a relatively wide greater-covert wing-bar, at least in fresh plumage. Our bird also seems long and sleek rather than short and slightly 'dumpy', as the three species just mentioned often appear, although subjective jizz features are often much less relevant in a single photo than in the field. Crucially, we can see at least part of the innermost two tertials, and these appear to have just a narrow, pale fringe, rather than the prominent whitish tips of these three species.

I found this to be one of those solutions where you end up relying on gut feeling to a certain degree and by now I think most of us will have turned our thoughts to either Arctic *P. borealis* or Greenish



187. 'Monthly Marathon'. Photo no. 199. Fifteenth stage in twelfth 'Marathon'. Identify the species. Read the rules (see page 53), then send in your answer on a postcard to Monthly Marathon, c/o The Banks, Mountfield, Robertsbridge, East Sussex TN32 5JY, or by e-mail to editor@britishbirds.co.uk, to arrive by 30th June 2003.

Warbler *P. trochiloides*. This is a good time to get a magnifying glass out or, if you are geared up for such things, to scan in the photo and enlarge it on your computer. When you do this you can see that the supercilium seems to reach right down onto the forehead until it touches the top of the bill. Years ago, the separation of Arctic and Greenish was a real problem but, after much detailed study and the publication of various papers and notes, the identification of most individuals is nowadays reasonably straightforward – given a decent view! Nevertheless, odd-looking birds of both species do turn up and care is still needed. But we do know that in Arctic Warbler the supercilia do not reach down onto the forehead, whereas they do on Greenish, and I think that alone would make be plump for Greenish Warbler. There are some other pointers which support that decision. The upper breast is quite pale and plain and does not appear to show any of the diffuse, almost greyish streaking that Arctic Warblers so often show. The head pattern, besides the long supercilium in front of the eye, does not seem quite right for Arctic. In particular, the ear-coverts are quite plain, whereas Arctic Warbler's cheeks are often quite obviously mottled or blotched. The eye-stripe as a whole would also tend to be slightly darker and more solid on Arctic Warbler, whereas on Greenish Warbler it is typically the same colour as the crown – as it appears in this photograph. In particular, the loreal stripe of Arctic

Warbler is often more solid than that of Greenish, but a tiny piece of blurred foliage appears to be obscuring the lores, making this difficult to judge here. Last, but by no means least, the legs look both thin and dark, typical of Greenish Warbler (although they can occasionally be pale), while Arctic Warbler usually has pale, brownish-pink, and quite chunky-looking legs.

Coming back to our starting point, the one thing which concerns me about this photo is that if this is a Greenish Warbler, and the features mentioned above seem to indicate that it is, the wing-bar is actually quite broad. I always think of Greenish as having a wing-bar like a shallow depression made by a thumbnail: very thin, and tapering at the upper end. Our bird's wing-bar is, by comparison with most Greenish Warblers that we see in Europe (subspecies *viridanus*), quite wide and even. But Greenish Warbler also comprises two other subspecies which have been recorded in our region: 'Two-barred Greenish Warbler' *P. t. plumbeitarsus* and 'Green Warbler' *P. t. nitidus*. Both of these forms tend to show a more substantial wing-bar than *viridanus*, and if I really had to stick my neck out I would suggest that this is one of these.

Having got thus far, and daring to look at the solution, I now find that this bird is indeed a 'Green Warbler', photographed in eastern Turkey in July 1991 by Robin Chitenden. The fact that the bird is in worn plumage accounts for the rel-

atively narrow greater-covert wing-bar for a bird of this form, and for the absence of any trace of a median-covert bar. The typically brighter, yellow and green tints of this subspecies are not apparent in this photograph, however, being lost in the shade and reflection of the surrounding greenery, a useful reminder that *nitidus* can appear more similar to *viridanus* in many field situations.

Steve Rooke

As Steve mentioned, all entrants narrowed the bird in this photo down to being one of the wing-barred *Phylloscopus* warblers, and 85% went on to name it correctly, as a Greenish Warbler. The few remaining votes were for Arctic, Yellow-browed or Hume's Warbler. Several people also identified it as belonging to the subspecies *nitidus*, or 'Green Warbler'. Sadly, there are no extra points for this, just a sense of satisfaction for those that did so! All of our current leaders cleared this hurdle successfully, so that Nils van Duivendijk, Diederik Kok and Volker Konrad are still tied in first place, now with a sequence of five-in-a-row.

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Looking back

Twenty-five years ago:

'Rarities Committee: new secretary Following the resignation of John M. O'Sullivan for professional reasons, Michael J. Rogers has taken on the secretaryship of the Rarities Committee. Submissions should now be sent to him at 195 Vicarage Road, Sunbury-

on-Thames, Middlesex TW16 7TP.' (*Brit. Birds* 71: 229, May 1978)

We wish Mike a happy 25th anniversary! He has, of course, now moved to Cornwall, but is still the BBRC Secretary!

Recent reports

Compiled by Barry Nightingale and Anthony McGeehan

This summary of unchecked reports covers mid March to mid April 2003.

White-billed Diver *Gavia adamsii* Elie (Fife), found dead on 22nd March; North Ronaldsay (Orkney), 10th April. **Cattle Egret** *Bubulcus ibis* Abbotsbury Swannery (Dorset), 23rd March. **Red-breasted Goose** *Branta ruficollis* Denge Marshes (Kent), 24th March to 7th April. **Black Duck** *Anas rubripes* St Martin's (Scilly), 23rd March and 7th April (probably a long-stayer). **Lesser Scaup** *Aythya affinis* Long-stayer in Regent's Park (Greater London), seen intermittently to 7th April, and reported from Lea Valley Country Park (Hertfordshire) on 23rd-25th March; long-stayer South Uist (Western Isles), to 21st March; long-stayer Studland (Dorset), to 31st March; long-stayers (two) Milton Loch

(Dumfries & Galloway), to 31st March; Loch Leven (Perth & Kinross), 16th-20th March; Bishop Middleham (Co. Durham), 26th March to 11th April; Potterick Carr (South Yorkshire), 2nd and 7th-9th April. **King Eider** *Somateria spectabilis* Bluemull Sound (Shetland), 12th-20th March; long-stayer Loch Ryan (Dumfries & Galloway), to 27th March at least.

Black Kite *Milvus migrans* Minsmere (Suffolk), 31st March; Portland (Dorset), 8th April. **White-tailed Eagle** *Haliaeetus albicilla* Stocks Reservoir (Lancashire), 12th March (wing-tagged); Cat Firth (Shetland), 16th March, presumed same Cunningsburgh (Shetland), 24th March; Kingussie (Highland), 18th March; one flew north over North Ronaldsay, Fair Isle (Shetland), and Sumburgh Head (Shetland) on

10th April. **Pallid Harrier** *Circus macrourus* Sennen/Rissick area (Cornwall), 29th-31st March, possibly to 1st April; Spurn/Easington area (East Yorkshire), 1st-2nd April, possibly to 3rd; long-stayer Warham area (Norfolk), until 20th March, then other localities in Norfolk until at least 30th March. **Pacific Golden Plover** *Pluvialis fulva* Long-stayer on South Uist, to 29th March at least; Rye Harbour (East Sussex), 1st-13th April. **Bonaparte's Gull** *Larus philadelphia* Nimmo's Pier (Co. Galway), 5th April.

Hoopoe *Upupa epops* Influx during second half of March, including six on Scilly on 17th March, three remaining during 19th-23rd March and one until 8th April; Land's End (Cornwall), 17th March; two Rinsey Cove (Cornwall), 18th March, with possibly one of the same Germoe (Cornwall), 25th-26th



188. 'Black Brants' *Branta bernicla nigricans*, Titchwell, Norfolk, March 2003.



189. Male American Wigeon *Anas americana*, Manningtree, Essex, April 2003.

Gary Bellingham

Bill Baston

Marcus Lawson



190. First-winter male Lesser Scaup *Aythya affinis* Regent's Park, Greater London, March 2003.

George Reszeter



George Reszeter



191 & 192. Male Sardinian Warbler *Sylvia melanocephala*, Beeston, Sheringham, Norfolk, March 2003. Only recently (*Brit. Birds* 96: 90-91), we published photographs of this species coming to a bird table in Malta, where the species regularly takes food scraps provided by humans. Now, remarkable as it may seem, it is even doing so in Britain! A Sardinian Warbler remained near Hunstanton, Norfolk, until mid October 2002, and it is conceivable that this individual wintered in the area, before being seen later, in March 2003, at Holme and then Beeston (see text). If that was the case, then the supplementing of its diet by visiting bird tables may have helped the warbler to survive the winter.

March; Cross Inn (Ceredigion), 19th March; Sennen (Cornwall), 19th and 23rd-24th March; Polperro (Cornwall), 22nd March; near Sandown (Isle of Wight), 25th March; Skewjack/Polgigga (Cornwall), 27th-30th March; Ramsay Island (Pembrokeshire), 27th March and 8th-13th April at least; between Bilston and Darlaston (West Midlands), 27th March; Porthgwarra (Cornwall), 30th March; St Levan (Cornwall), 30th March; Portland, up to three 31st March; Wakeham (Dorset), 31st March; Calf of Man (Isle of Man), 31st March; Friston (Essex), 4th-6th April; Bracklesham Bay (West Sussex), found dead 8th April; Knockadoon Head (Co. Cork), 13th

April. **Red-rumped Swallow** *Hirundo daurica* Mayon Cliff (Cornwall), 13th-14th April.

Black Redstart *Phoenicurus ochruros* Large influx into southwest England in mid/late March, including 165 on Scilly on 17th-19th March; 25 between Land's End and Sennen, 20th March; and with smaller numbers elsewhere, including peaks of ten at Dungeness (Kent), 22nd March and six on Portland, 30th March.

Savi's Warbler *Locustella luscinioides* St Mary's (Scilly), 9th April. **Sardinian Warbler** *Sylvia melanocephala* Holme (Norfolk), 16th-25th March, with it or another at Sheringham (Norfolk), from 29th March to 8th April. **Penduline Tit** *Remiz pendulinus* Dungeness, 3rd April. **Woodchat Shrike** *Lanius senator* Tresco (Scilly), 30th March. **European Serin** *Serinus serinus* Dungeness, 12th March and 5th April; Durlleston Country Park (Dorset), 27th March; Nanjizal (Cornwall), 6th April; Portland Bill (Dorset), 9th-10th April; St Catherine's Point (Isle of Wight), 9th April; near Land's End, 11th April; Birling Gap (East Sussex), 12th April.



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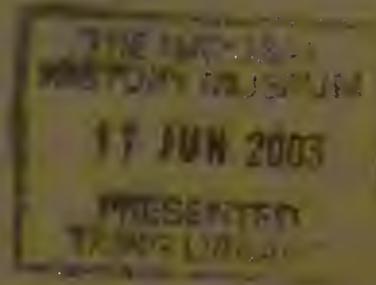
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June 2003 Vol.96 No.6



The taxonomic status of
Hooded and Carrion Crows

'Black-headed Wagtail' in Essex

'Black Brant' identification



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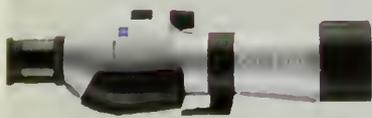
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The taxonomic status of Carrion and Hooded Crows

David T. Parkin, Martin Collinson,
Andreas J. Helbig, Alan G. Knox
and George Sangster



Steve McQueen

ABSTRACT The taxonomic status of Carrion *Corvus corone* and Hooded Crows *C. cornix* is reviewed. As well as the obvious differences in plumage between the two, there is good evidence for non-random mating and reduced fitness of hybrids between Carrion and Hooded Crows, which together provide sufficient evidence for them to be regarded as separate species under most species concepts. Differences in vocalisations and ecology support this distinction. It is therefore recommended that Carrion Crow and Hooded Crow be treated as separate species.

There are two distinct groups of crows *Corvus corone* in the Palearctic. The all-black *corone* group (the 'Carrion Crows') has two disjunct races: nominate *corone* in the

west and *orientalis* in the east. The grey-and-black *cornix* group (the 'Hooded Crows') comprises a number of races in northern and eastern Europe, from Corsica and Italy east-

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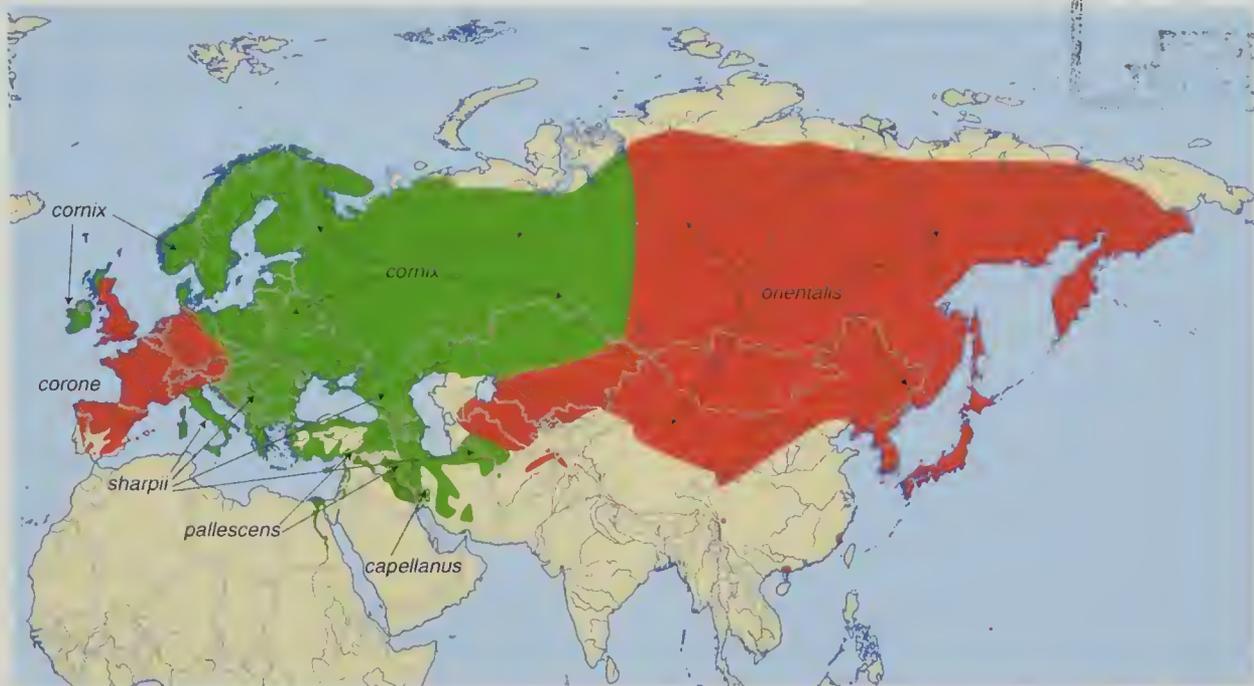


Fig. 1. The distribution of Carrion *Corvus corone* (red) and Hooded Crows *C. cornix* (green), showing the approximate extent of the various races of each species. For more details see text. Distribution based on the maps in BWP, with kind permission of Oxford University Press.

wards, through the Middle East to northern, western and central Asia. These include *cornix*, *capellanus*, *sharpii* and *pallescens*.

Distribution

'Carrion Crow' *C. c. corone* (Goodwin 1986; Cramp & Perrins 1994; Madge & Burn 1994) is found from England and Wales south to Iberia and the southern slopes of the Alps, and eastwards to Austria (fig. 1). It hybridises with *C. c. cornix* in several areas, including northern Scotland, southern Denmark, parts of eastern Germany and the Czech Republic, along the borders of Austria with Hungary and Slovakia, and in the southern foothills of the Alps. The eastern race, *orientalis*, occurs from Iran north to the Aral Sea, across to the western Altai. Elsewhere in Asia, it is found through south and east Kazakhstan to Kashmir, Sinkiang, Mongolia, central and northern China, Korea and Japan. Farther north, it occurs through the Yenisey valley eastwards to Kamchatka.

'Hooded Crow' *C. c. cornix* (Goodwin 1986; Cramp & Perrins 1994; Madge & Burn 1994) occurs in the Faeroes, Ireland and the Isle of Man, northern Scotland, Denmark and Fennoscandia, and east to the Yenisey valley (where it interbreeds with *orientalis*). It also occurs in eastern Germany, Hungary, northwest Romania, northern Croatia, northern Italy and Corsica, and northeast to about 49°N in Russia.

The race *sharpii* is found in Sardinia, Sicily and south mainland Italy; from coastal Croatia east to Romania, and Bulgaria south to Greece (including Crete); through Moldova and Turkey (except in the south), east through southern Ukraine and northern Kazakhstan to the western Altai; and through the Caucasus and northern Iran. It grades into *cornix* in Ukraine, European Russia, and Kazakhstan, overlapping and partly hybridising with *orientalis* in Turkmenistan and Kazakhstan. The race *pallescens* occurs from Cyprus and southeast Turkey to northern Iraq and Egypt. The race *capellanus* occurs in Iraq and southwest Iran.

Geographical variation

Within the Carrion Crow group, there is only slight variation (Cramp & Perrins 1994): *orientalis* differs from nominate *corone* by having longer wing, tail and tarsus. In Spain, *corone* is smaller than elsewhere in western Europe, especially in terms of bill depth. By contrast, those *orientalis* from the mountains and north average larger than elsewhere. The bill is slightly longer and more slender in the west, comparatively thicker and shorter in the east, but these differences are slight and clinal: no races other than *orientalis* are generally recognised in the east.

Within the Hooded Crow group, variation is also slight and clinal (Cramp & Perrins 1994),

involving the dimensions of wing, bill and tarsus, and tone of grey feathering. Birds are generally smaller in the south, and paler in the south and east. In northern Europe (including the Faeroes, Scotland and Ireland), *cornix* is typically large, close to nominate *corone* from western Europe in size, with a light ash-grey body. Those from southern and central Europe are slightly darker, and are sometimes separated as 'sub*cornix*'. In Siberia, *cornix* averages paler, but the differences are very slight. The race *sharpii* is equal in size to *cornix*, or slightly smaller, but the grey is distinctly paler. European *sharpii* are larger than those from Asia, especially in terms of bill size: those from the Don, Ural and lower Volga rivers are sometimes separated as 'khozanicus'. Farther south and west, the situation becomes more complex. Birds from Turkey, Caucasus ('caucasicus') and northern Iran are slightly smaller than *sharpii*, and the grey is slightly darker, intermediate between that of *cornix* and *sharpii*. Variation in the size and colour of birds from Italy through Turkey is slight and inconsistent, so all are usually included in *sharpii*. The race *pallescens* from southern Turkey through the Middle East to Egypt is the smallest race, and the grey can be even paler than on *sharpii*. Finally, *capellanus* forms the pale end of a cline in colour, being cream or pale silver rather than grey in fresh plumage, and almost white when worn. This taxon is larger than adjacent populations, espe-

cially in terms of bill, tarsus and foot size. The throat feathers are rather long, and, as in *orientalis*, the tail is long and graduated. It is, in fact, closely similar to Pied Crow *C. albus*, but the greyish-white is more extensive and the centre of the breast is black. The race *capellanus* is sometimes considered a separate species, but the plumage pattern is similar to that of other races of the *cornix* group, its proportions are rather similar to *orientalis*, and it is said to intergrade with *sharpii* in Iran (Meinertzhagen 1926; Meise 1928; Vaurie 1959).

Hybrid zones

The boundary between the *corone* and *cornix* groups is usually sharp, with a narrow zone of hybridisation where birds of both phenotypes and various hybrid forms occur. Outside this hybrid zone, a wider border or introgression zone occurs, in which most birds are typical of one form but where some individuals show influences of the other. Detailed maps of the hybridisation zones between nominate *corone* and *cornix* can be found in Meise (1928), Richter (1958), Cook (1975), Dybbro (1976), Picozzi (1976) and Bährmann (1978). In Asia, *orientalis* and *cornix/sharpii* were perhaps originally well separated and contemporary overlap may be a result of habitat change. The zone of hybridisation here is apparently not stable (see Meise 1928; Vaurie 1954; Korelov *et al.* 1974).

The introgression zone in Scotland has been



Robin Chittenden

193. Carrion Crows *Corvus corone*, London, November 1995.

mapped twice in the last 40 years, during field-work for the two Breeding Bird Atlases (Sharrock 1976; Gibbons *et al.* 1993). Additional observations were incorporated for the European Atlas (Hagemeijer & Blair 1997), but these are less detailed. Sharrock and Gibbons *et al.* both show that the hybrid zone is relatively narrow. It moved north and west during the twentieth century, with *corone* displacing *cornix* from the lower (agricultural) land around the North Sea coast of eastern Scotland and restricting it to more upland areas. Relatively little ecological or genetic research on crows has been carried out in this region, however (Picozzi 1975, 1976).

Hybrids show intermediate plumages, with every intergradation between typical all-black and 'hooded' birds, often with black dappling on the back and chest (Richter 1958; Melde 1984). Picozzi (1976) separated these into four categories, although the underlying variation is continuous:

1. Black crows. All-black, either pure Carrion Crows or hybrids indistinguishable from these.
2. Dark hybrids. Hybrids which have a dark grey back and/or belly, including those with a grey collar.
3. Pale hybrids. Hybrids with a pale back and belly. These are distinguished from Hooded Crow by uppertail- and undertail-coverts, which are concolorous with the back and belly in Hooded and darker in hybrids.
4. Grey crows. Hooded Crows or hybrids indistinguishable from these.

There is also a zone of hybridisation between *corone* and *cornix* in northern Italy, which was

extensively studied in the 1980s and 1990s. Italian researchers (e.g. Rolando 1993) recognised a fifth category of hybrid, between Picozzi's 2 and 3, for birds which are intermediate between pale and dark hybrids. The Italian studies investigated habitat, pair composition, vocalisations and reproductive success, and the results from these are discussed below. These and other studies have shown evidence of partial ecological segregation and slight behavioural differentiation between *cornix* and *corone*. There is strong evidence of non-random mating in the zones of hybridisation and, in Italy, hybrid progeny reproduce less successfully.

Habitat preference

There have been two studies of habitat preference in the Italian hybrid zone. The first (Saino 1992) was undertaken in two areas of Piedmont during the winter of 1989/90. The main habitats were meadows, grazed and ungrazed pastures, cereals and maize. Saino separated the birds into Carrion, Hooded and hybrids, and obtained very similar results in both study areas. Table 1 summarises the results of his highly detailed analyses in terms of the relative frequency of phenotypes in each habitat compared with that expected if the forms were distributed randomly, in an attempt to eliminate the problem of the relative abundance of the three forms. Saino found significant variation among the three types in their habitat use.

These results suggest that Hooded and Carrion Crows differ slightly, yet significantly, in their habitat use. In a separate part of the same hybrid zone, however, Rolando & Laiolo (1994) obtained rather different results. They found less difference between Hooded and Carrion Crows in winter, but marked differ-

Table 1. Habitat preference of Carrion *Corvus corone* and Hooded Crows *C. cornix*, and hybrids between the two studied at two sites in northern Italy in winter. Plus (or minus) signs indicate that the form was present at a frequency above (or below) that expected if the birds had been distributed randomly across habitats. * = $p < 0.05$ ** = $p < 0.01$. Data from Saino (1992).

	Carrion		Hybrid		Hooded	
	Site A	Site B	Site A	Site B	Site A	Site B
Meadows	+ / *	+ / **				
Ungrazed pasture					+ / **	+ / **
Maize stubble <15 cm						
Maize stubble >15 cm	- / *					
Recently seeded grass fields	- / **		- / *	- / **	- / **	
Cereal	- / **	- / **				- / **
Ploughed fields						
Others	- / **					

Table 2. The proportion of Carrion *Corvus corone* and Hooded Crows *C. cornix* observed feeding in a variety of habitats in northern Italy in spring/summer. * indicates that the frequencies are significantly different. Data from Rolando & Laiolo (1994).

	Carrion	significance	Hooded
Meadows	54.1%	*	69.3%
'Dunged' meadows	20.6%	*	3.8%
Maize fields	0.0%	*	4.1%
Maize stubble	8.7%	*	3.1%
Plough	9.5%	-	12.8%
Cereal shoots	7.1%	-	6.9%

ences during spring and summer. Table 2 summarises the spring/summer distribution of the two forms in their study. Carrion Crows were found significantly more frequently in maize stubble and meadows treated with manure. Hooded Crows, on the other hand, were significantly more abundant in non-manured meadows and maize fields. Manure treatment comprised scattering dung across the field so that pieces lay on the surface. Birds selectively examined these for the presence of invertebrates. Rolando & Laiolo (1994) noted that the differences between habitats disappeared when meadows were pooled irrespective of fertiliser treatment, and when maize crops were pooled independent of crop state. Since the differences are significant, it is questionable whether pooling these data is valid, and evidence of differential utilisation of habitat between the two taxa still remains. In summary, the results of both of these studies suggest that Hooded Crow is a bird of poorer quality land, a finding which is supported by its displacement by Carrion Crows in northern Scotland following changes in land use during the twentieth century. These ecological differences merit further study.

Pair composition

Mated pairs were identified during the breeding season and the phenotype of both partners recorded by Rolando (1993), although he could not distinguish the sexes. In the zone of hybridisation in Italy, there was clear evidence that pair composition was not random (table 3). Omitting the hybrid birds, of which there are small numbers and whose mating preferences are not *a priori* predictable, there is clear evidence of non-random pair composition between Hooded and Carrion Crows (or at least 'Grey' and 'Black' crows) (table 4). Random pair formation would result in far more mixed pairs than were observed.

Interestingly, fewer of the intermediate forms backcrossed to the black (9) than to the grey (24) crows. This would be expected to be equal, and the difference is significant ($p < 0.01$). This suggests that the visual appearance of the birds is important in mate selection. Hybrid individuals preferentially choose 'grey' rather than 'black' crows as mates. Since black is, genetically, at least partially dominant (see below), grey hybrids are likely to be closer to 'pure' Hoodeds, than black hybrids are to 'pure' Car-



194. Hooded Crows *Corvus cornix cornix*, Finland, February 2003.

Table 3. Composition of mated pairs of Carrion *Corvus corone* ('black') and Hooded Crows *C. cornix* ('grey'), and the hybrids between them, observed during the breeding season in northern Italy. The sexes could not be differentiated so that '51' indicates that there were 51 pairs comprising two black crows. Data from Rolando (1993).

	Black	B/H	Hybrid	G/H	Grey
Black	51				
B/H	5	0			
Hybrid	2	0	0		
G/H	2	0	0	1	
Grey	16	9	3	12	41

Table 4. This table shows the data from table 3, omitting birds of mixed plumage, rearranged to show a deficiency of pairs comprising one black (Carrion) and one grey (Hooded) crow. Data from Rolando (1993).

Pair composition	Black × Black	Black × Grey	Grey × Grey	Total	
Observed	51	16	41	108	$\chi^2 = 53.2, 1 \text{ df}$
Expected (random)	32.2	53.5	22.2	107.9	$p < 0.001$

rions. Since the progeny of mixed genetic composition are selectively disadvantaged (see below), hybrids which choose a Hooded Crow as a mate will maximise the proportion of 'Hooded' genes (~75%), and consequently the fitness, of their progeny. Those that choose a black crow may have a partner with a heterogeneous genetic constitution, and consequently may produce progeny of lower fitness.

Similar evidence for non-random pairing was reported in the zone of hybridisation between *cornix* and *orientalis* in central Siberia (Kryukov & Blinov 1989; Blinov & Kryukov 1992), and between *cornix* and *corone* in Schleswig-Holstein, Germany (Risch & Andersen 1998). In Siberia, Kryukov and Blinov found an excess of homotypic (like-with-like) pairs, and a deficiency of mixed pairs. Risch & Andersen (1998) recorded the phenotypes of pairs of birds on the island of Amrum, Germany. The island is in a region on the *corone* side of the hybrid zone, so that grey phenotypes were rare. They found that hybrids and black crows were paired assor-

tatively, again with fewer mixed pairs than would be expected if mating was simply random.

Saino (1992) also recorded the composition of groups of crows in the Italian hybrid zone, away from the nest. He examined the composition of groups of two and of more than two birds separately, and in both he found highly significant evidence for a lack of mixing compared with what would be expected at random. He extended this analysis to allow for differences in the distribution of phenotypes across habitats. Even when looking only at meadowland, there was still evidence that the association of phenotypes was not random, with a significant deficiency of mixed flocks of grey and black crows (table 5).

Composition of populations within the hybrid zone

When the individual colour patterns of the breeding birds reported by Rolando (1993) within the Italian hybrid zone are summed, there is evidence of a deficiency of hybrid

Table 5. The composition of flocks of Carrion *Corvus corone* and Hooded Crows *C. cornix* outside the breeding season in meadows in northern Italy, compared with that expected if the birds associated at random. Observations are separated into parties of two and more than two individuals. Data from Saino (1992).

	Groups of two		Groups of more than two	
	Observed	Expected	Observed	Expected
Carrion-Carrion	38	22.5	-	-
Hooded-Hooded	61	45.5	-	-
'Homotypic' (all the same)	-	-	46	29.7
Mixed	33	64.0	135	151.3
Total	132	132.0	181	181.0
	$\chi^2 = 31.0, 2 \text{ df}, p < 0.001$		$\chi^2 = 10.7, 1 \text{ df}, p < 0.005$	

phenotypes (table 6).

Little is known of the genetics of pigmentation in crows, but Picozzi (1976) recorded the phenotypes of some parents and their broods in the hybrid zone in northern Scotland (table 7). These nests came from the southern (i.e. Carrion Crow) end of the hybrid zone, so grey birds were sufficiently rare that pure Hooded Crows were not present in his study area. He recorded 36 nests over three years, and categorised the birds by phenotype as black ('Carrion'), dark hybrid, pale hybrid and grey ('Hooded'; see above). The majority of pale hybrid nestlings occurred in broods where at least one adult was also pale.

Although based on relatively little data, these results support the idea that there is genetic control of plumage colour, with black being dominant over grey. This conforms with other studies of plumage polymorphism where the darker phenotype usually seems to be dominant, for example in Snow Geese *Anser caerulescens* (Cooke *et al.* 1995), Arctic Skuas *Stercorarius parasiticus* (O'Donald 1983) and Rock Dove *Columba livia* (Murton *et al.* 1973). Recently, Theron *et al.* (2001) have shown that melanic plumage in Bananaquits *Coereba flaveola* (which is also dominant over non-melanic plumage; Wunderle 1981) is perfectly associated with a mutation in the melanocortin-1-receptor gene. It is not possible to be more precise about the finer details of genetic control in crows without information from controlled crosses, but the broad spread of intermediate patterns among hybrids suggests a degree of multi-gene control, rather than the simple pattern of inheritance in skuas, Bananaquits, etc.

With this rather limited knowledge of the

genetics of plumage pattern in crows, it is difficult to predict the likely array of phenotypes in a hybrid zone where random mating occurs, but there can be little doubt that, under any genetic model, intermediates should be more abundant. The 'deficiency' of hybrids in Rolando's (1993) data clearly suggests non-random mating and/or some selective disadvantage to the hybrid forms.

Aspects of reproductive biology

Saino & Villa (1992) recorded the breeding performance of pairs of crows across the hybrid zone in northern Italy over a number of years. They recorded the phenotype of each bird as 'Carrion Crow' (all black), 'Hooded Crow' (black head, throat, breast, wings and tail) or 'hybrid' (intermediate between the two in amount or extent of black feathers in the body plumage). They separated the area into three parts: the hybrid zone, and the areas on either side where only Hooded or Carrion Crows were found (i.e. 'in allopatry'). They recorded the composition of each pair, and (where possible) the clutch size and the number of chicks which fledged successfully (table 8).

a. Clutch size of Carrion and Hooded Crows in northern Italy

Saino & Villa (1992) found no evidence of variation in clutch size across years, so they pooled their data relating to clutch size of individual pairs (table 8, a). It is possible that, in some instances, the same pairs were recorded in successive years, so the data may not be entirely independent, but the effects of this are likely to be slight. Although there is evidence that hybrid females laid fewer eggs than either Carrion or Hooded Crows in the hybrid zone, the differ-

Table 6. The number of crows *Corvus corone* of five different colour classes observed in a hybrid zone in northern Italy. The classes are described in the text. Data from Rolando (1993).

Black	Black/hybrid	Hybrid	Grey/hybrid	Grey	Total
127	14	5	16	122	284

Table 7. The relationship between the plumage colour of parents and their progeny at a series of nests of crows *Corvus corone* in the hybrid zone in northern Scotland. Note the deficiency of pale progeny in the nests of dark parents. Data from Picozzi (1976).

	Dark/black progeny	Pale/grey progeny	Total	
Both adults dark/black	92	5	97	
One pale/grey (hybrid) adult	16	18	34	$\chi^2 = 39.7$ 1 df
Total	108	23	131	$p < 0.005$

Table 8. Five reproductive traits related to the adult plumage type across a hybrid zone of Carrion *Corvus corone* and Hooded Crows *C. cornix* in northern Italy comprising (a) clutch size; (b) egg volume (in ml); number of chicks reared (c) per female and (d) per male; and (e) probability of chick survival relative to female parent. Data show: mean (standard error) sample size.

Trait	CC allopatry	CC sympatry	Hybrids	HC sympatry	HC allopatry	Ref
a Clutch size	4.4 (0.09) 118	4.7 (0.13) 41	4.2 (0.20) 29	4.5 (0.09) 88	4.5 (0.09) 114	1
b Egg volume	18.7 (0.08) 447	18.2 (0.12) 163	17.3 (0.21) 104	17.9 (0.10) 334	17.7 (0.09) 459	2
c Chicks/female	3.1 (0.11) 91	2.5 (0.19) 37	1.6 (0.28) 24	2.6 (0.13) 89	2.6 (0.12) 118	1
d Chicks/male	3.1 (0.11) 91	2.3 (0.20) 41	2.7 (0.33) 20	2.5 (0.13) 84	2.6 (0.12) 118	1
e Survival/female	0.71 (0.027) 75	0.53 (0.045) 35	0.38 (0.067) 24	0.57 (0.030) 81	0.56 (0.027) 101	2

References:
1 Saino & Villa (1992); 2 Saino & Bolzern (1992)

ences are not statistically significant. The 'hybrid' category will be heterogeneous, including birds recorded by Rolando (1993) as pale or dark hybrids. It is interesting to note that the variance of clutch size for hybrids is higher than that for Carrion or Hooded Crows, either in allopatry or in the hybrid zone. 'Variance' is an estimate of variability which, in a trait such as this, can be genetic, environmental or (usually) a combination of the two.

b. Egg volume of Carrion and Hooded Crows in northern Italy

Using essentially the same criteria, Saino & Bolzern (1992) showed that, unlike clutch size, egg volume varies significantly among phenotypes (table 8, b). They found evidence of bimodality in hybrids and (again) the variance is higher in this category.

Comparing egg volume by phenotype shows that Carrion Crows outside the hybrid zone (in allopatry) laid significantly larger eggs than those in the hybrid zone. Furthermore, inside the hybrid zone, Carrion Crows laid significantly larger eggs than Hooded Crows, and both Hooded and Carrion Crows laid significantly larger eggs than the hybrids. As with clutch size, the variance of the egg volume of hybrids is greater than for either parental form, whether inside or outside the hybrid zone.

c. Reproductive success of Carrion and Hooded Crows in northern Italy

Saino & Villa (1992) reported the number of chicks which were reared to 'about the age of fledging' in the three areas. They found that female Carrion Crows outside the hybrid zone reared significantly more young than either hybrids or Hooded Crows, whether inside or outside the hybrid zone. Hybrids reared signifi-

cantly fewer young than Hooded Crows inside or outside the hybrid zone (table 8, c).

Male Carrion Crows outside the hybrid zone reared significantly more young than those inside the zone, and significantly more than Hooded Crows in either area, although other comparisons were not significant (table 8, d). In both sexes, hybrids showed a higher variance in brood size than did either parental form.

In a similar study, Saino & Bolzern (1992) reported chick survival in another part of the hybrid zone in Italy (table 8, e). They estimated the proportion of the clutch that survived to fledge, which is effectively the probability of each egg in the nest becoming a fledged bird. They related this back to the phenotype of the female parent, and again examined the areas separately across the hybrid zone. They found that the fledging success was significantly higher for Carrion Crows in allopatry; no other significant differences were found, although the value for hybrids was lower than for the other categories. Yet again, the variance was higher for hybrids. Interestingly, Saino & Villa (1992) described, albeit anecdotally, the presence of abnormal eggs in five nests of hybrid females. These included unusual, or even a complete lack of pigment in the shells. They also reported that shells were brittle, such that most of them broke during incubation and thus failed to hatch. Nothing akin to this was found among Hooded or Carrion Crow pairs nesting in the same hybrid zone. The sample sizes concerned were too small for these differences to be statistically significant.

Vocalisations

The acoustics of birds may give an indication of their phylogenetic relationships. In particular, playback experiments can assist in the clarifica-

tion of taxonomic status (e.g. Irwin *et al.* 2001). Playback studies have not been undertaken with Hooded and Carrion Crows, but sonogram analyses have been reported by Palestini & Rolando (1996), who examined the characteristics of a call comprising a short series of 'caws' separated by short intervals. These were analysed by dissection of the sonograms, recording caw duration, lowest and highest frequency, harmonic duration and total frequency range. These were then examined both individually and by discriminant function analysis (DFA). Data were collected from an area where Hooded and Carrion Crows occurred in sympatry, but insufficient recordings were available from hybrids for these to be included in the analysis. Palestini & Rolando found significant differences in five of the six parameters, and DFA permitted Hooded and Carrion Crows to be differentiated on their acoustic characters. They suggested that these differences might be ecological or geographic rather than taxonomic, but presented no evidence in support of this. In some species, acoustics have been shown to covary with body size (e.g. larger birds having deeper voices); there was no evidence of this for the crows, either within or between taxa. There is also no evidence as to whether the two taxa themselves can differentiate between their calls.

Molecular studies

The molecular research undertaken into this group has been limited and piecemeal. Most

work has involved birds from Siberia in the hybrid zone between Hooded Crows of the race *cornix* and Carrion Crows of the race *orientalis*. Chelomina *et al.* (1991) examined restriction fragment variation in nuclear DNA from Hooded and Carrion Crows and their hybrids. A subsequent investigation (Kryukov *et al.* 1992) extended this to include an electrophoretic investigation of serum proteins. Neither they nor Saino *et al.* (1992) discovered any major differentiation between the parental forms, although Kryukov *et al.* (1992) reported that 'new variants' were identified among the hybrids in albumin, post-transferrin and esterase. It is, however, possible that these also occur among the parental forms but that the samples were simply too small to detect them. A further study, based upon DNA fingerprinting (Ufyrkina *et al.* 1995), found considerable variation among 15 Hooded and Carrion Crows and hybrids from the area of sympatry in Siberia. There were, however, no diagnostic DNA fragments, and the genetic structure of the hybrid population was consonant with panmixia, despite field evidence of assortative mating. Once again, however, the sample sizes were too small for detailed analysis to be possible. Chelomina *et al.* (1995) claimed to find further evidence of difference in patterns generated using a slightly different technology. They suggested that Hooded Crows (*cornix*) from Novosibirsk and Large-billed Crows *C. macrorhynchos* from Sakhalin were more similar



195. Carrion Crow *Corvus corone*.



Tom Ennis/Windrush

196. Hybrid Carrion *Corvus corone* x Hooded Crow *C. cornix*, Bangor, Co. Down, February 1991.

to each other than either was to Carrion Crows (*orientalis*) from Sakhalin. Although this suggests that Hooded and Carrion Crows might have diverged genetically, the sample sizes again are small and the data hard to interpret.

A more extensive study by Kryukov & Suzuki (2000) examined the DNA sequence of a short fragment (336 bp) of the cytochrome *b* gene in a series of individuals from Paris, France, to Hokkaido, Japan. They found uniformity in sequence from France (*corone*) across eastern Europe and western Siberia (*cornix*) and through to northern Sakhalin (*orientalis*). Inter-population differentiation was between 0 and 2.5%, although this is difficult to assess since they do not give detailed results. Birds from southern Sakhalin, from the far southeast of Siberia (Primorye) and from northern Japan showed similarly limited differentiation, although (again) the extent of this is not entirely clear from their data. Nonetheless, Kryukov & Suzuki reported that birds from the two regions (southern Sakhalin/Japan and the rest of Eurasia) are strikingly different in their DNA sequences. They found 4-8 substitutions (in c. 330 bases) between the birds on either side of a divide in central Sakhalin, although this is based upon fewer than ten individuals. It would be preferable to see more individuals in the analysis (especially since they also suggested that at least one sequence was found on both sides of the divide). A more detailed analysis, involving a longer sequence of the cytochrome *b* gene or a more variable region such as the 'D-

loop', is required.

To some extent, this has been provided by Kryukov & Odati (2000) in a phylogenetic analysis of various species of corvid, using about 1000 bp of cytochrome *b*, although again the number of individuals was limited. In a study which included 12 other species, they analysed one each of *corone* (Paris), *orientalis* (southern Primorskiy, Russia), *orientalis* (Sakhalin) and *cornix* (Moscow). Their analysis indicates that *corone* and *cornix* are sister-taxa, but that the two *orientalis* samples are not: the Sakhalin sequence clusters with *corone/cornix*, but that from Primorye is more different. 'Carrion Crows' from Japan and adjacent parts of eastern Asia may be genetically divergent from the rest of the taxon '*orientalis*', but much more research is needed to resolve this.

Diagnosability

The black and grey forms of adult *C. corone/cornix* are documented thoroughly in Cramp & Perrins (1994). In summary, *corone* is completely black, and the grey forms of the *cornix* group have the head, tail and wings black, while the nape, sides of neck, back and shorter uppertail-coverts are ash-grey. In juvenile *corone*, the entire body is dull, sooty black, apart from the head, which has a slight oily gloss. The mantle, scapulars, tail-coverts and median coverts have glossy purplish-black tips, and light grey feather-bases may be visible, especially on the mantle and rump. The underparts are matt black, although again grey



197. Hybrid Carrion *Corvus corone* x Hooded Crow *C. cornix*, Northeast Scotland, 1967. This photo shows a distinctive hybrid which somewhat resembles Collared Crow *C. torquatus*. This type is not common in the Northeast Scotland hybrid zone.

feather-bases may be visible. The remiges, rectrices, greater wing-coverts and alula are black, less intensively glossed than in adults. The head, tail and wing of juvenile *cornix* are similar to those of *corone*, but the lesser and median upper- and underwing-coverts are grey, with dull black towards the tips. The body is grey, tinged brown on the upperparts, and appears less uniform than in adults. The remainder of the underparts are light brownish-grey.

Discussion

Helbig *et al.* (2002) discussed operational criteria for the assignment of specific rank to avian taxa. They recognised that populations will remain distinct only if they are reproductively isolated to the extent that their gene pools do not merge. Such populations can be regarded as following separate evolutionary trajectories, in line with the Evolutionary Species Concept (Mayden 1997) or General Lineage Concept (de Queiroz 1998). Thus, Carrion and Hooded Crows should be regarded as separate species if barriers to gene flow can be demonstrated. These barriers might be prezygotic, such as differences in courtship behaviour or species recognition through vocalisations. Alternatively, they might be postzygotic, for example if hybrids show reduced fitness. Sympatric or parapatric taxa are easier to deal with since the frequency and consequences of hybridisation can sometimes be recorded directly. Care is needed, however, to distinguish between hybrid

zones and clinal variation. In the latter, when two morphologically differentiated taxa come into contact, there may be a smooth and clear transition from one through to the other. Such a situation is typified by a gradual change in the phenotypic composition of the populations from one extreme to the other, as exemplified by many species conforming to Bergmann's or Allen's biogeographic rules. A hybrid zone is clearly distinct when populations across the zone of transition include both parental forms as well as hybrids.

Diagnosability

'Pure' Hooded and Carrion Crows are diagnosable in both adult and juvenile plumages, but hybrids show varying degrees of intermediacy. It could be argued that hybridising taxa can never be 100% diagnosable since there will always be intermediates which do not meet the diagnostic criteria of either parental taxon. The hybrid zones of crows are somewhat mosaic, but it seems that many local populations within these zones contain not only hybrids, but also more or less of the 'pure' phenotypes, or at least birds which are indistinguishable from these, found outside the hybrid zone. Consequently, they differ from clines where the populations change progressively from one phenotype to the other, and are more akin to the 'bimodal hybrid zone' of Jiggins & Mallet (2000). In the light of this pattern of variation within a hybrid zone, the Biological Species Concept would regard

Hooded and Carrion Crows as semispecies, whereas the Evolutionary and Phylogenetic Species Concepts would treat them as specifically distinct.

The molecular studies are insufficient to support this, however. Nonetheless, the markers which have been used (enzymes, DNA fingerprinting and the mitochondrial cytochrome *b* gene) are less sensitive to slight genetic differentiation, and a lack of difference across the hybrid zone is unsurprising. More rapidly dif-

ferentiating markers, such as microsatellites or the mitochondrial control region, might be more appropriate to such relatively recent divergences.

Ecological/behavioural differentiation

Taxa can be regarded as specifically distinct if there are intrinsic barriers to gene flow which ensure that the gene pools do not merge. There is strong evidence for prezygotic barriers between Hooded and Carrion Crows, at least in



Nick Picozzi



Nick Picozzi

198 & 199. A range of hybrid crows Carrion *Corvus corone* x Hooded Crow *C. cornix*, Northeast Scotland, 1967. Although rather grisly, these two photos illustrate the variability of hybrid types in the Northeast Scotland hybrid zone, grading from black to grey. The dark hybrids in particular are subtle, and only close views reveal the evidence of mixed parentage.

northern Italy. Although sympatric, they show partial ecological separation at some times of the year. In two separate valley systems in the region, there were consistent and statistically significant differences in distribution between meadows and maize fields. There were differences in flock composition, with a deficiency of mixed flocks even within the same habitat (meadow). Finally, pair formation was distinctly non-random; in three different studies, fewer mixed pairs were recorded than would be expected given random mating patterns. In one study (Rolando 1993), birds of intermediate plumage mated preferentially with the grey phenotype rather than with the black.

We have argued that plumage colour is under genetic control. Consequently, the positive assortative mating which Rolando demonstrated would in itself produce a deficiency of intermediate phenotypes in the population, even without differences in fitness. Theoretical population genetics (e.g. Crow & Kimura 1970) tells us that positive assortative mating leads to a steady decrease in heterozygosity until an equilibrium is reached which depends upon the strength of the assortment. If the hybrids have reduced fitness, then any genetically determined behavioural attribute which reduces the likelihood of mixed pairings will be selectively advantageous. Such 'isolating mechanisms' will be favoured since progeny resulting from homotypic pairs will survive better and carry any genes which caused the positive assortative mating in the first place (e.g. Butlin 1989).

Fitness of the hybrids

The Italian studies examined several aspects of reproductive success, including clutch size, egg volume, number of chicks raised to fledging, and the probability of survival to fledging of individual eggs. Although there were no statis-

tical differences in clutch size, hybrid females laid fewer eggs than did either 'parental' form in the hybrid zone, and the variance of the hybrids was much higher. Egg volume differed significantly among phenotypes. Hybrid crows laid smaller eggs than did either parental form in the hybrid zone. There was no difference between Hooded Crows inside and outside the zone, but Carrion Crow eggs were significantly smaller inside the hybrid zone, compared with those outside it. If egg volume reflects the provision of nutrients for the developing embryo, these differences might have considerable biological significance. These results are summarised in table 9, where each character is ranked from 1 to 5 across the five categories of crow. For example, clutch size is highest for Carrion Crows inside the hybrid zone (rank = 1) and lowest for hybrids (rank = 5).

There is a degree of consistency in these rankings across fitness parameters which can be analysed statistically using Kendall's coefficient of concordance (W). Carrion Crows outside the hybrid zone tend to have the highest fitness and hybrids the lowest, although overall the result is not significant ($W = 0.40$, $p > 0.05$). The data are, however, slightly heterogeneous: four of the parameters are essentially 'female' – clutch size and egg volume are both maternal characters, and two of the measures of chick survivals (from different studies) are related to the phenotype of the mother. In addition, of course, there is non-random mating between the sexes so the phenotypes of the parents are correlated. If we omit the data relating to paternal phenotype, we have four aspects of female fitness, and these are significantly concordant ($W = 0.59$, $p < 0.05$). Female Carrion Crows outside the hybrid zone have the highest fitness; hybrids (which live inside the hybrid zone) have the lowest.

Table 9. This table shows the data from each row of table 8 converted to ranks: 1 = largest value, 5 = smallest. The mean rank for all five variables is given, and also the mean rank based upon the female parent only (i.e. rows a, b, c and e). See text for details.

	Trait	CC allopatry	CC sympatry	Hybrids	HC sympatry	HC allopatry
a	Clutch size	4	1	5	2.5	2.5
b	Egg volume	1	2	5	4	3
c	Chicks/female	1	4	5	2.5	2.5
d	Chicks/male	1	5	2	4	3
e	Survival/female	1	4	5	2	3
	Mean Rank	1.6	3.2	4.4	2.8	3.0
	Females only	1.75	2.75	5.0	2.5	3.0



Hugh Harrop

200. Hooded Crow *Corvus cornix cornix*, Maywick, Shetland, September 2002.

Ranking of variances

We can also examine the variation in reproductive characters within the five groups of birds (table 10). The best estimate of this is the variance, which reflects the variability of individuals within a sample, and can be determined from the data in the original papers. These also show a striking consistency ($W = 0.77$, $p < 0.01$), a result which is not affected by omitting the 'male' character. In general, hybrids have the highest variance (i.e. are most variable), followed by Hooded Crows outside the hybrid zone, Hooded Crows inside the hybrid zone are next, and the least variable (most uniform) are Carrion Crows, both inside and outside the hybrid zone.

It has long been known (e.g. Dobzhansky 1951) that crosses of individuals from different populations often show differences in 'fitness' (fecundity, fertility, longevity, etc.) compared with crosses within the same population. This has been demonstrated experimentally (e.g.

Vetukhiv 1956), and has been explained as follows. Populations become adapted to the area which they inhabit, owing to natural selection. One form (allele) of a gene (A) is favoured in locality L_A and spreads through that population, and another allele (B) in locality L_B spreads there. This may happen for several (or many) genes so that the two populations diverge in genetic structure. But genes do not act in isolation, and the effect of replacing A with B may have secondary effects upon other genes functioning elsewhere in the animal's body. These genes will also be selected, so that the entire genetic structure of the population evolves to produce a harmonious array of genes and alleles (a 'coadapted gene complex') which interact to produce a functioning organism, well adapted to exist in that place. Crossing individuals from different populations will result in 'hybrid' progeny and cause the coadapted complexes to begin to break up. In successive generations, progeny are produced

Table 10. This table shows the variances of the measures given in table 8 and the ranked values (in bold) for each row. Again, the mean rank, and the mean based upon female parents only are given. See text for details.

Trait	CC allopatry		CC sympatry		Hybrids		HC sympatry		HC allopatry	
Clutch size	0.956	2	0.693	5	1.160	1	0.713	4	0.923	3
Egg volume	2.861	4	2.347	5	4.586	1	3.340	3	3.718	2
Chicks/female	1.101	5	1.336	4	1.882	1	1.504	3	1.699	2
Chicks/male	1.101	5	1.640	3	2.178	1	1.420	4	1.699	2
Survival/female	0.0547	5	0.0709	4	0.1077	1	0.0729	3	0.0736	2
Mean Rank	4.2		4.2		1.0		3.6		2.2	
Female only	4.0		4.2		1.0		3.25		2.25	

which contain varying proportions of alleles from each parental population, to give increased variability. This disruption of the genetic structure in subsequent generations has been shown experimentally to have profoundly debilitating effects upon fitness. The situation which we observe in the crows is akin to this. Hybrids are much more variable, and often inferior – for example in clutch size, shell thickness and chick survival. It is strong evidence that the genetic structure of Hooded and Carrion Crows differs by more than just the colour of their feathers, and the increased variance within the area of overlap indicates a hybrid zone rather than a cline.

In the case of the crows, there are few data relating to the post-fledging survival of nestlings, but there is certainly evidence of differences prior to fledging. In separate studies, hybrid females have been shown to lay fewer and smaller eggs, and to rear fewer progeny to fledging than the parental forms. Although there was little difference in chick survival between Hooded (i.e. 'grey') Crows inside and outside the hybrid zone, it is striking that, in these studies, Carrion (i.e. 'black') Crows inside the hybrid zone performed less well than outside. If the genetic model suggested above is broadly correct, and black is at least partly dominant over grey in the hybrid zone, the black Carrion Crow phenotype might mask a variable fraction of recessive 'Hooded' genes. On the other hand, the recessive nature of the Hooded phenotype will be less likely to conceal

a genetic contribution from a Carrion Crow ancestor. It is, therefore, perhaps not surprising that black crows inside the hybrid zone will reveal a pattern of fitness intermediate between that of 'pure' Carrion Crows and undoubted hybrids. These patterns also lend support to the fitness differences observed between hybrids and parental forms. These again presumably reflect genetic differentiation between Hooded and Carrion Crows on either side of the hybrid zone. Where these birds come into contact, there is some hybridisation. The crows which are produced are likely to be intermediate in phenotype. The genetic dominance of the black alleles will mean that hybrid birds will tend towards the Carrion ('black') Crow phenotype, yet they contain alleles from both populations.

Whether the reduced viability of hybrid and 'backcross' crows extends beyond the nestling stage is not known. There was, however, a deficiency of intermediate phenotypes among the adults recorded in the hybrid zone by Rolando (1993). Perhaps it is not surprising that non-random mating has evolved in these regions. Hybrid progeny are selectively disadvantaged, so any behavioural characters which result in assortative mating will spread in the hybrid zone (Butlin 1989).

Conclusions and recommendations

The differences in plumage, the non-random mating and the reduced fitness of hybrids are sufficient to regard Hooded and Carrion Crows as specifically distinct under most species con-



Robin Chittenden

201. Hooded Crow *Corvus cornix pallescens*, Egypt, December 1992.



David Tipling/Windrush

202. Carrion Crow *Corvus corone*, Kingussie, Highland, November 1994.

cepts (Helbig *et al.* 2002). The differences in vocalisations and ecology support the differentiation but are, of themselves, not sufficient. Under the Biological Species Concept, they would be treated as 'semispecies', because gene flow occurs constantly between them, albeit counteracted by assortative mating and natural selection (the reduced fitness of hybrids). The deficiency of mixed pairs indicates a strong prezygotic barrier to gene flow which is reinforced by the fitness differences between the parental and hybrid phenotypes. These differences would also support taxonomic separation of the two types under most species concepts.

It is recommended that Hooded and Carrion Crow be treated as separate species. As they overlap locally with only limited hybridisation, Russian authors (e.g. Korelov *et al.* 1974, Stepanyan 1990) consider the two groups to be full species; *orientalis* is then usually combined with the *corone* group into a single species *C. corone*, which comprises two races. Nominate *corone* and *orientalis* may, however, be less closely related to each other than nominate *corone* is to *cornix* (Eck 1984); and the limited molecular results from eastern Asia (Kryukov & Odati 2000; Kryukov & Suzuki 2000) lend some support to this. The form *capellanus*, which in some structural characters is closer to *orientalis* than to *cornix*, may form a fourth group in the *corone* complex (Cramp & Perrins 1994), while Collared Crow *C. torquatus* (synonym *C. pectoralis*) from China, which is similar to *orientalis*, may form a fifth. There are, however, few

data at present to support these observations. Until further data emerge, it is perhaps wise to err on the side of conservatism and to retain *orientalis* as a subspecies of *C. corone*.

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From the Rarities Committee's files:

'Black-headed Wagtail' in
Essex in 1999 – a suspected
feldegg intergrade

Adam Rowlands



203. Male 'Black-headed Wagtail' *Motacilla flava feldegg*, Lesvos, Greece, 2001. Robin Chittenden

ABSTRACT A record of 'Black-headed Wagtail' *Motacilla flava feldegg* at Maylandsea, Essex, in May-June 1999, is discussed. The presence of a thin supercilium, in front of and behind the eye, suggests that this individual was perhaps most likely to have been an intergrade between *feldegg* and another form of Yellow Wagtail *M. flava*, rather than a pure *feldegg*. The characters of intergrades are examined, and observers are encouraged to submit full details of any such individuals which may occur in the future.



A Yellow Wagtail *Motacilla flava* showing many characters of the form *feldegg*, colloquially known as 'Black-headed Wagtail' was present near Maylandsea, Essex, from 24th May to 24th June 1999. The following description was submitted to BBRC by John C. Sutherby:

'24th May 1999, north side of Mundon Creek, near Brick House Farm, Maylandsea, Essex.

'After receiving a phone call from G. Smith yesterday informing me that a walker had seen what he thought could have been a "Black-headed Wagtail", R. Warwick and I decided to check it out. RW had arrived earlier than me and when I bumped into him along the sea wall he told me that he had seen it on the saltings near the farm. He returned with me and we soon relocated it. I have seen plenty of "Black-headed Wagtails" in my travels, and also the two possible confusion races *M. f. thunbergi* and *M. f. cinereocapilla*, and I soon established that this was indeed a *M. f. feldegg*. I rang the news out on my mobile phone. The bird was frequenting an area of saltmarsh with patches of green vegetation, where it was displaying like a scaled-down version of a Meadow Pipit *Anthus pratensis*.

'The jet-black cap (solidly black except for several small flecks of yellow on the lores and

over the eye, quite noticeable at close range) curved down from the base of the bill well below the eye and round to the nape. The underparts were bright yellow, the throat and chin with no white at all below the bill and cap. The mantle was bright olive-green with a small thin "finger" extending onto the breast from the shoulder. Tail and wings similar to those of the nearby Yellow Wagtails (*M. f. flavissima*) but with the wing-bars probably more pronounced. Bill, eye and legs black. It could be picked out from the accompanying *flavissimas* by its call, which could be described as "slightly harsher, slower and more deliberate".'

The bird was seen from 07.15 until 10.55, when it flew north. It was then relocated at the same spot in the evening by A. Malley and R. Neave. It was not present the following day, but was then rediscovered several days later, about 2 km southeast of the original site, where it lingered until 24th June, allowing many observers the opportunity to study and photograph the bird. (plates 204 & 205)

I visited the latter site on 5th and 12th June and saw the bird well on both occasions. It was watched singing from tall vegetation on the saltmarsh for prolonged periods, and also singing in flight with the head raised in combination with a rapid, fluttering wing action. It



Robin Chittender



Robin Chittender

204 & 205. The Maylandsea wagtail, perhaps an intergrade between 'Black-headed Wagtail' *Motacilla flava feldegg* and another form of Yellow Wagtail *M. flava*, Essex, June 1999. Note the thin yellow supra-orbital stripe, and the short white post-ocular stripe, which suggest that it may be an intergrade (see text).

also spent prolonged periods foraging on the saltmarsh. I observed the bird at ranges down to 30 m. Brian Small also saw the bird in early June (fig. 1) and the following description was compiled from our respective field notes, to complement the submission by JCS:

Head: Crown black, typically appearing glossy, but could appear matt black in dull light. Fore-crown slightly paler, sooty- or smoky-black, also glossy at a distance, but appearing more matt at close range. Narrow, yellow-toned supra-loral stripe, meeting across the forehead and extending back to just in front of eye. Thin off-white/grey post-ocular stripe above the ear-coverts, length approximately equal to width of eye. Ear-coverts appeared jet black at a distance, but finely mottled sooty-grey at close range. Nape sooty-black, admixed with patchy olive and grey feathering. This coloration extended onto the upper mantle to form a clearly defined 'shawl', well demarcated from the olive-green mantle.

Upperparts: Mantle olive-green, quite bright with almost yellow hue at times, and showing slightly darker feather centres at very close range. Rump and lower back brighter, yellowish

olive-green. Tail black with white outer tail-feathers. Median coverts dark grey with broad whitish fringes (appearing yellowish-grey at some viewing angles). Greater coverts with broad yellowish-grey tips and narrower fringes. Coloration of wing-bars formed by paler tips of median and greater coverts variable, depending upon light conditions. Tips to greater coverts could appear whiter, and tips to both feather tracts could appear more olive-grey in dull light. Tertials blackish-grey, with broad white fringes. No visible primary projection beyond longest tertial tip on folded wing.

Underparts: Entirely bright, 'buttercup' yellow, with slightly paler yellow sides to throat bordering the black ear-coverts, and becoming white on the malar close to the base of the lower mandible. Slight extension of green onto breast-sides above the bend of the wing.

Bare parts: Eye, bill and legs black. Lower mandible slightly upturned, culmen straight.

Voice: Song reminiscent of *M. f. flavissima*. Transcribed as a rasping, drawn-out 'brzzz...bzrrp' with the first note falling and the second note rising in pitch. The notes were



Fig. 1. The Maylandsea wagtail, perhaps an intergrade between 'Black-headed Wagtail' *Motacilla flava feldegg*, and another form of Yellow Wagtail *M. flava*. From original field sketches and notes.

sometimes repeated twice in succession. It was also heard calling with a rasping 'brzzzp', very similar to the first note of the song, and a 'dzeep' more reminiscent of *flavissima*.

Before accepting a claim of 'Black-headed Wagtail', BBRC requires sufficient evidence to establish that the potential pitfall of a dark 'Grey-headed Wagtail' *M. f. thunbergi* can be eliminated (van den Berg & Oreel 1985). This possibility had clearly been ruled out in this instance. The glossy, jet-black crown, and the extent of the blackish nape, admixed with olive and grey tones, suggested that the bird was indeed a *feldegg*. The narrow but clearly defined pale supercilium was, however, a problem. This feature, albeit rather minimal, seemed to be at odds with pure *feldegg*. Van den Berg & Oreel stated that there is no supercilium in *feldegg*, although hybrids often show a white or yellow-toned supercilium, or pre- and post-ocular stripes or flecks. Such an individual, photographed in the former Yugoslavia, with a reduced superciliary stripe, is illustrated in plate 76 of their paper. Svensson (1992) stated that males with a complete or partial light supercilium 'represent "hybrids" [secondary intergradation] between *feldegg* and other races'.

The supercilium of the Essex bird was clearly not as well marked as on the males described by Svensson, and sometimes given the name '*superciliaris*' or '*dombrowskii*', but Cramp

(1988) notes that many different combinations occur in the zones of hybridisation between *flava*, *cinereocapilla* and *feldegg* in the former Yugoslavia, Romania, Ukraine and the Balkans. Indeed, many observers will be familiar with the significant variation in apparent *feldegg* and the other forms passing through the eastern Mediterranean in spring. A skin search of 185 male *feldegg* in the British Museum of Natural History (BMNH), Tring, revealed only one individual which showed a tiny post-ocular stripe. All the other individuals completely lacked any trace of a pale supercilium. The anomalous individual was collected within the breeding range of *feldegg* in Shiraz, Iran, in early May. This suggests that pure *feldegg* might occasionally show a trace of a superciliary stripe, and may be responsible for the comment in Beaman & Madge (1998) that black-headed males (*feldegg* and '*melanogrisea*') lack supercilia, but sometimes have a tiny spot behind the eye. This is further supported by the fact that none of the male specimens at Tring showed any pale supra-oral stripes. The Shiraz individual could, however, also represent an intergrade, possibly not first generation, and may not necessarily be a pure *feldegg*.

The Committee contacted Lars Svensson to establish whether the criteria published in his 1992 reference remained valid, in his opinion. He replied that, although birds with tiny yellow or white spots near the eye could be pure



D. W. Greenslade



Robin Chittenden

206 & 207. Male 'Black-headed Wagtails' *Motacilla flava feldegg*; (left) Greece, May 1979; (right) Turkey, July 1991. Although migrant 'Black-headed Wagtails' in the eastern Mediterranean frequently show variably extensive pale supercilia, these are thought to represent intergrades with other races. Pure *feldegg*, such as these individuals, lacks any evidence of a supercilium. Also note the small amount of white in the throat.

feldegg, he felt that until well substantiated such individuals were best considered as first- or later-generation hybrids with neighbouring races, rather than pure *feldegg*. Such birds have been treated as pure *feldegg*, however, in a paper by Corso (2001) relating to field observations in Sicily and around Italy. Dubois (2001) responded to this article, suggesting that the westward spread of *feldegg* favoured a degree of introgression with *flava* (or *cinereocapilla*). Indeed, Corso (2001) noted a hint of a white supercilium in about 12% of approximately 2,500 birds studied, and a yellow supercilium in about 3%. Although Corso proposed that birds with such markings may be pure first-summer *feldegg*, he also recorded that they were more prevalent in the west and northwest of the range in Italy, so may indicate further intergradation with *flava* and/or *cinereocapilla*. If these birds are genuine first-summer *feldegg*, they should be expected to occur at a similar frequency throughout the breeding range, and, crucially, in areas where no other forms breed and where intergrades would be less frequent. That such individuals may be intergrades is further suggested by the fact that about half the birds Corso studied showed at least some white in the throat, another feature which has been linked to evidence of intergradation with other forms.

Following a second circulation of the record around the Committee, this time including the comments by Lars Svensson, it was decided unanimously that the Maylandsea bird,

although clearly showing many characteristics which were compatible with *feldegg*, did not meet the criteria as an acceptable pure 'Black-headed Wagtail'. Committee members concluded that, at the present time, the proper course of action would be to accept only those individuals which completely lack any trace of superciliary stripes. It is interesting that in the newly produced guide *Pipits and Wagtails of Europe, Asia and North America*, published as this paper was in the final stages of preparation, Alström & Mild (2003) also suggest that apparent *feldegg* with traces of white supercilia are more likely to be intergrades than pure *feldegg*. Nonetheless, such birds are still extremely interesting, and detailed descriptions would help increase our knowledge of presumed intergrades which largely show characteristics of *feldegg*. BBRC would thus welcome any well-documented records of such individuals. With the westward range expansion of the form, it might be expected that an increasing proportion of overshooting spring vagrants will show signs of intergradation.

Observers of a potential pure *feldegg* should establish clearly the colour and extent of gloss on the crown and nape, and whether the bird shows any potential intergrade features. These would include the presence of any yellow, grey or white superciliary stripes and/or the presence of any extensive white in the throat. A restricted amount of white in the malar region would not necessarily be incompatible with true *feldegg*,



Adam Rowlands

208. Male 'Black-headed Wagtail' *Motacilla flava* 'melanogrisea', Ili Delta, Kazakhstan, June 1998. This form shows a more restricted black cap, not extending as far onto the lower nape/upper mantle as on *M. f. feldegg*, and has a more extensive white malar stripe than *feldegg*. Pure individuals apparently do not show a pale supercilium.

and many apparently pure *feldegg* appear to show a restricted area of white at the base of the bill (plates 206 & 207). The eastern form of 'Black-headed Wagtail' *M. f. 'melanogrisea'*, typically shows a narrow white malar stripe (plate 208), but also lacks a pale supercilium. Other supporting features which should be assessed carefully are the extent to which the blackish colour of the nape extends onto the mantle, the nature of the demarcation between the nape and the mantle, and the colour of the wing-bars. The wing-bars are frequently more yellow than on typical *flava* or *thunbergi* in fresh plumage, but become whiter than other forms owing to wear. This feature is particularly variable, however, and as with the Maylandsea individual, may be difficult to interpret in the field.

Acknowledgments

The Committee would like to thank John Sutherby, and the photographers who documented the Maylandsea bird

and thus gave many observers the opportunity to study it. We would also like to thank Lars Svensson for his input into the assessment process. I would like to thank Mark Adams for arranging access to the skins at the BMNH, and Colin Bradshaw, John Martin, Roger Riddington and Brian Small for their comments, which considerably improved my original text. I would also like to thank Brian Small for the use of his field artwork.

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Looking back

Fifty years ago:

'Black-headed Wagtail in East Lothian.—On July 2nd, 1952, at Aberlady Bay, East Lothian, we came across what proved to be a Black-headed Wagtail (*Motacilla flava feldegg*). The bird was watched for nearly ten minutes on an area of grassy saltings and the following description was taken on the spot: — forehead, crown, nape and ear coverts black with very small white crescents above the eyes; back olive-green with rump more yellowish-green; chin and throat creamy yellow; rest of under-parts bright yellow with faint buff band across breast; tail dark brown with white outer feathers; wings brown, primaries edged buff; bill and legs black.

'The bird spent much of the time in one place, preening, until it was chased by a Meadow Pipit (*Anthus pratensis*). Then, after landing on a log the

bird left of its own accord, flying high in a south-easterly direction without making any call. This is the first definite record for Scotland. K. S. MACGREGOR AND F. D. HAMILTON.

'[There could only be one good reason for failing to accept this clearly described record, and that is if there was any evidence that aberrant Yellow Wagtails showing the characteristics of *M. f. feldegg* had been known to occur in the West European populations, but we can find nothing to support such a suggestion and so consider the record perfectly valid. We have shown the details to Dr Stuart Smith who agrees that it would be most unlikely for a population of *flavissima* suddenly to throw up an aberrant of the *feldegg* type. He adds that the band across the breast points to its having been a bird moulting into first summer plumage.—Eds.]' (*Brit. Birds* 46: 219-220, June 1953)

[The remarkable coincidence of the above Note, which appeared in June 1953, and Adam Rowlands' thorough appraisal of the Maylandsea bird, fifty years later, was entirely unplanned... Eds]

Further developments in 'Black Brant' identification, including the effects of body moult on the wintering grounds

Russell B. Wynn

ABSTRACT In recent winters, several examples of apparent intergrades between dark-bellied Brent Geese *Branta bernicla bernicla* and 'Black Brants' *B. b. nigricans* have been documented in Britain and elsewhere in Europe. A bird in Norfolk during 1998/99 and 1999/2000, and thought perhaps to be an intergrade, showed a suite of features which were generally consistent with *nigricans*: only the neck collar was anomalous. The possibility of a poorly defined neck collar being a function of body moult in the early winter was not conclusively ruled out, and an example of this in another wintering *nigricans* in Britain is described here. Details of other apparent intergrades between *nigricans* and *bernicla* are also given. The observations presented here have implications for the future assessment of 'anomalous' *nigricans* by records committees.

A recent paper in *British Birds* (Martin 2002) discussed two unusual adult Brent Geese *Branta bernicla*, observed in winter in Norfolk and Hampshire, which showed some of the characteristics of the North American and east Siberian race, commonly known as 'Black Brant' *B. b. nigricans*. Martin concluded, however, that these two individuals were not safely acceptable as *nigricans* owing to discrepancies between their observed plumage features and those of 'classic' *nigricans*. The possibility that body moult affects the plumage characters of *nigricans* during autumn and early winter was also mentioned, but no examples describing actual temporal changes in plumage features at this time of year were provided. Here, I attempt to build upon the information in that paper by presenting an example of how the plumage of adult *nigricans* can change after

arrival on the wintering grounds as a result of progressive body moult. Attention is also drawn to recent observations which highlight additional possible identification features of pure *nigricans* and of intergrades between *nigricans* and dark-bellied Brent Geese *B. b. bernicla*. Since comprehensive descriptions of the distribution and current taxonomic status of *nigricans* have already been presented elsewhere (Millington 1997; Syroechkovski *et al.* 1998; Sangster 2000; Bloomfield & McCallum 2001; Martin 2002; Wynn 2002), these are not repeated here.

Norfolk and Hampshire birds

Martin (2002) suggested that the Norfolk and Hampshire birds may have been intergrades between *nigricans* and *bernicla*. The Norfolk bird showed a suite of features which fell within

the range of *nigricans* with the exception of the neck collar, which was restricted to the neck sides and was completely missing on the fore-neck (plate 209). It is not clear, however, whether this individual was photographed and/or described throughout the full duration of its stay, and consequently whether the observed deficiencies in the neck collar were really due to it being an intergrade, or were simply a function of plumage changes through seasonal body moult and/or feather wear. The photos in the paper were all taken in November, and the descriptions submitted to the BBRC were all apparently based upon observations made in November and December. It is notable that the November photos showed that the bird had two generations of scapulars and wing-coverts, so it must have been undergoing some moult at this time. The Hampshire bird differed in having a well-defined neck collar when it arrived in November 1999, but showed a slight contrast in relative tones between the paler body and the blackish neck. The finder suggested that subsequent accentuation of this contrast over the winter was caused by feather wear, but noted that the neck collar had not been affected (Crook 2002a). This bird was also thought to be an intergrade, and a detailed description of it was compiled (Crook 2002b). Both birds were deemed to be not safely acceptable by BBRC as they did not show the full suite of characters typical of 'classic' *nigricans*. Nonetheless, for the Norfolk bird at least, the possibility of seasonal plumage changes

affecting the single atypical feature was not clearly eliminated.

Plumage changes in wintering *nigricans*

So, can plumage changes be observed in adult *nigricans* during the course of a winter? Wynn (2002) discussed the influx of 'Black Brants' into southern and eastern England in late 2001, and focussed in particular on three adult *nigricans* which subsequently wintered in southwest Hampshire, within large flocks of dark-bellied Brent Geese. One of these three, later interpreted to be a female (based on size, structure and behaviour), displayed a marked change in plumage over a period of two months (fig. 1). This individual was first located in late November by the author, and initial observations revealed some features which were not consistent with 'classic' adult *nigricans*. Although the flank patch was a clean, 'frosty' white it was broken by several short brownish crescents, while the breast/belly and the upper-parts showed a slight contrast with the blackish neck and head. These features do, however, appear to fall within the natural variation for *nigricans* (Martin 2002). Of greater concern was the white neck collar. Although it was more distinct than those on any of the surrounding dark-bellied Brents, and almost joined on the hindneck, it was markedly less distinct on the foreneck. When the bird was relaxed, the neck collar looked weaker on the foreneck but still appeared to be joined at the front, although the classic 'necklace' pattern was not easily dis-



Julian Bhalerao

209. Adult Brent Goose *Branta bernicla* of undetermined race, possibly an intergrade between dark-bellied race *bernicla* and 'Black Brant' *B. b. nigricans*, Cley, Norfolk, November 1998.



Dec. 2001: Noticeably tatty around the head. Two tones of feather coloration suggesting moult. No upper band on the neck collar; while lower band and radiating spokes overall indistinct - especially towards front of neck.



Mar. 2002: Head almost uniform in overall coloration. Neck collar well defined, with upper band present and lower band much broader with radiating spokes of more even width.

Marc Moody

Fig. 1. Comparison of the female 'Black Brant' *Branta bernicla nigricans* at Keyhaven/Pennington Marshes, Hampshire, shortly after its arrival in early December 2001 (left), and again in March 2002 (right).

cernible. More worryingly, when the bird stood alert, with the neck extended, the neck collar broke up into a random series of white speckles at the front.

Further observations, however, revealed that the plumage of this individual was clearly changing. By late January, about two months after it first arrived, the white neck collar had become well defined and was more typical of a 'classic' *nigricans* (fig. 1, plate 210). The 'necklace' pattern was now clearly visible right around the foreneck, with both the lower horizontal white line and the diagonal 'webs' becoming thicker and bolder. Even when the neck was outstretched, the necklace pattern was still clearly visible.

Interestingly, the two other *nigricans* observed in southwest Hampshire during late 2001 did not show any marked plumage variation after their arrival in early December. Both of these were thought to be males, again based on size, structure and behaviour (Wynn 2002). If the plumage changes in the putative female were a result of progressive body moult, this raises the question of whether males and females moult at slightly different

times, one possibility being that males have to be in top breeding condition earlier in the winter to attract a mate. Martin (2002) also discussed body moult in *nigricans*, and noted a bird in California in September with a deep, bold neck collar which was nevertheless markedly indistinct on the foreneck. Again, this may be simply a function of body moult at this season. Martin also noted that the age of individual *nigricans* does not appear to affect the appearance of the neck collar significantly. It should be noted that adult dark-bellied Brent Geese renew their head and neck feathers in



Russell Wynn

210. Adult, presumed female, 'Black Brant' *Branta bernicla nigricans*, Keyhaven/Pennington Marshes, Hampshire, late January 2002. Two months after its arrival in late November 2001, this bird now shows a well-developed neck collar, with a thick lower band and a clear upper band, joined by well-defined 'spokes' of even thickness.

spring, prior to breeding, while juveniles undergo progressive body moult, including the head and neck, on the wintering grounds (Cramp & Simmons 1977); and it seems reasonable to assume that *nigricans* will follow a similar pattern.

Additional identification features of 'pure' *nigricans*

Martin (2002) and Wynn (2002) noted some additional features which may be relevant to identification of *nigricans* and which had not been noted in previous studies (e.g. Millington 1997). These include the presence of a rufous-brown or mahogany tone to the belly and upperparts of *nigricans*, even in the early winter, which is clearly different from the plainer brown tones of *berniclea* at this season. In addition, the white flank-patch of pure *nigricans* is always a clear, 'frosty' white (plate 210), whereas even the whitest of flank patches on dark-bellied Brents have a pale brownish wash. Some *nigricans* show increased bulk compared to adjacent *berniclea*, but variations in the age and sex of individual birds mean that this character is not diagnostic. Another interesting feature noted recently is that a male *nigricans* in southwest Hampshire in March 2002 was heard to give a call which was markedly different from those of nearby *berniclea*, being notably higher-pitched and disyllabic (Tim Parmenter, verbally).

An example of apparent intergrade offspring

A well-watched family party of Brent Geese at West Wittering, West Sussex, during the winter of 2001/02 was comprised of a 'classic' adult female *nigricans* and four first-winter birds which appeared to be intergrades between *nigricans* and *berniclea* (plate 211). There was some uncertainty as to whether the presumed *berniclea* male parent was ever observed with the family, but there were certainly observations of the female *nigricans* apparently paired with a male *berniclea* in the early spring, prior to the northward migration. In addition, the female *nigricans* had also been observed at the same site the previous winter, and was again seen paired with a male *berniclea* in the early spring.

The first-winter intergrades all varied slightly in plumage features, but generally appeared very slightly darker on the upperparts than accompanying first-winter *berniclea* (Mike Collins and Ewan Urquhart, verbally). All of the intergrades displayed much thicker and more striking neck collars than adjacent *berniclea*, particularly on the neck sides. The flank patches were also larger and paler than first-winter *berniclea*. The intergrades were, however, still clearly separable from pure first-winter *nigricans* as there was marked contrast between the black neck 'sock' and browner belly/upperparts, while the flank patches did not show the same clean 'frosty' white base colour. In addition, although the neck-collar pattern varied somewhat, and appeared to join on the foreneck on some, none showed the classic *nigricans* pattern of a thick lower and a thinner upper horizontal white band, sandwiching a series of diagonal white webs.

Bloomfield & McCallum (2001) also presented examples of family parties which consisted of first-winter intergrades accompanying mixed adult *berniclea* and *nigricans* pairs. In one case, at Thorney Deeps, West Sussex, two of the first-winter intergrades returned in subsequent winters in adult plumage, and were apparently identical to their *nigricans* parent in every way except for a slightly



Nigel Voorden

211. Adult, presumed female, 'Black Brant' *Branta berniclea nigricans*, West Wittering, West Sussex, mid February 2002 (front left) accompanied by two apparent intergrade young (front centre and right). The intergrades displayed a suite of features which made them separable from pure *nigricans*, including marked contrast between the black neck 'sock' and the browner mantle/belly, and a duller pale flank-patch. They differed from pure first-winter dark-bellied Brent Geese *B. b. berniclea* in having a bolder neck collar, which joined on the foreneck, and more extensive pale flanks.

weaker neck collar. These birds would almost certainly be inseparable from a pure *nigricans* showing a weak neck collar in the early winter (such as the bird in fig. 1), and it is likely that conclusive identification would only be achieved by prolonged observation and accompanying photographs.

Summary

The observations of 'Black Brants' presented here suggest that future assessment of this form by records committees should take into account the date and duration of observations. In addition, those observers fortunate enough to find a 'Black Brant' should be encouraged to describe, and if possible photograph, the individual throughout the duration of its stay in order to assess whether plumage changes have altered the bird's appearance, particularly in relation to the thickness and definition of the neck collar. Such details would help to eliminate well-marked intergrades. More data on the timing, duration and nature of seasonal body moult in both *nigricans* and *bernicla* would be welcome, as would further detailed observations and photographs of apparent mixed pairs and their intergrade offspring.

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Looking back

Seventy-five years ago:

'WILD-FOWL ON STAFFORDSHIRE RESERVOIRS. As in previous years, I send a number of observations made between October, 1927, and April, 1928, at the most westerly of the large Staffordshire reservoirs, and include a few made at Gailey Pool.

'There is not a great deal new to report. Ducks have, on the whole, been as plentiful as ever, but only one Gadwall (*Anas strepera*) was seen – on October 16th and 22nd and on April 7th and 29th. On April 7th, Mr J. R. B. Masfield, my wife and I, watched five Garganeys (*A. querquedula*) – two pairs and a third drake – at very close quarters; one pair fed in a few inches of muddy water with a pair of Teal (*A. c. crecca*), and all four birds were visible in the circle of a telescope at one time; the two pairs flew around for a time with the Gadwall. On April 29th there was still

Acknowledgments

I am especially grateful to Marc Moody for providing artwork and notes, Nigel Voaden, Ewan Urquhart and Mike Collins for providing slides and comments on the West Wittering family, and also to Tim Parmenter, Paul Winter and Glyn Horacek-Davis for providing information for this paper.

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one drake Garganey on the water...

'On December 29th there was one Slavonian Grebe (*Podiceps auritus*) – a bird with a rather more dusky face than normal, but undoubtedly a Slavonian from its size and from the straightness and *depth* of its bill in comparison with the Black-necked Grebes (*P. n. nigricollis*) seen here comparatively often. The latter species was seen on October 9th and 16th; on the 9th there were two birds which allowed a very close approach and varied slightly in size and in the amount of dusky colour on the neck; on the 16th there was only one to be seen.

'A small number of Black-headed Gulls (*Larus r. ridibundus*) was almost always present and increased in numbers to about fifty at the end of December and in February; with them were two Common Gulls (*Larus c. canus*) on October 9th. A. W. BOYD.' (*Brit. Birds* 22: 21-22, June 1928)

Notes

Hovering by Merlins while hunting

According to *BWP*, the Merlin *Falco columbarius* 'soars infrequently, hangs in wind occasionally, and can hover', while Forsman (1999) observed that they 'do not hover when hunting but they are capable of hovering in strong wind'. Likewise, Ferguson-Lees & Christie (2001) stated that Merlins hardly hover other than when 'kiting' into strong winds.

During long-term studies of Merlins in Dumfries & Galloway, the principal hunting method used, in both summer and winter, was a low flight attack from a perch (Dickson 1996). At times during such hunts, however, their prey would dive into cover and the pursuing Merlin would stop and hover for between 20 and 60 seconds. Between 1965 and 2000, of the 25 occasions on which I observed Merlins hovering, 17 were during a hunt (three in summer, 14 in winter), once by a male, and 16 times by a female/juvenile. They would hover with talons lowered and wings and tail spread, about 1-3 m above the ground, until their prey was flushed. They were successful in flushing their prey five times, before resuming pursuit in the normal manner, and only once dropped onto prey like a Common Kestrel *F. tinnunculus*. At their winter roosts they hovered five times: three during a hunt and twice Merlins hovered above me as I hid in heather overlooking their roost.

On other occasions in winter, I watched a female/juvenile hovering persistently above a domestic cat *Felis catus* which crept through the undergrowth, another hovering above a soaring

Hen Harrier *Circus cyaneus*, 20 m up in a fresh wind, and a male which hovered above a female/juvenile, trying to displace it from a fence post (Dickson 2002). At their breeding areas, during routine nest inspections, Merlins occasionally reacted by hovering directly above their nests, and this was observed twice by males, once by a female. Smaldon (1995) recorded a male Merlin hunting on Dartmoor which hovered three times in succession, apparently trying to flush Meadow Pipits *Anthus pratensis* from Heather *Calluna vulgaris*; there are several references of Merlins recovering prey from water by hovering (Galloway 1981; Boyce 1985; Duncan 1990); while Tulloch (1968) recorded a Merlin hovering over a nesting female Snowy Owl *Nyctea scandiaca* in Shetland.

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Collared Pratincoles feeding at night

Many waders, although not pratincoles *Glareola*, are known to feed nocturnally, but on two separate occasions in the United Arab Emirates, Collared Pratincoles *G. pratincola* have been observed apparently feeding at night. The observations described here suggest that successful aerial foraging by this species after dark may not be infrequent.

On 30th March 1999 and 25th October 2001, a number of observers were spot-lighting birds in irrigated fodder fields, in Al Ain and near

Abu Dhabi respectively, when single Collared Pratincoles flew into and out of view a number of times. Both were clearly hawking flying insects. On the first occasion the local time was 00.30, and on the second it was 20.00, about one hour after sunset. On neither occasion was there bright moonlight, although the glow of street lamps over 1 km distant was evident, as was starlight in otherwise typically cloudless desert skies. There was no evidence that the spotlight or car headlamps were either assisting

or interfering with the birds' hawking activities, or attracting insect prey.

Collared Pratincole is a regular passage migrant in the UAE. At this time, the average daytime peak temperature usually exceeds 35°C around midday and aerial insect activity at low levels can be considerably reduced. Pratincoles also then become inactive, often sitting close to water, occasionally darting forward to pick off settled flies. At the sites mentioned, pratincoles typically feed until mid-morning and then again from late afternoon until dusk. Most feed on swarming insects and soar high overhead, often with hirundines and marsh terns *Chlidonias* (and even, on one occasion, with two

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Reed Warblers reusing nests

On 26th May 1997, at Chew Valley Lake, Somerset, I found the nest of a Reed Warbler *Acrocephalus scirpaceus* containing four eggs. On 14th June, there were four large young in the nest. The nest had been relined when I checked it on 3rd July, and had three eggs on 18th July, but was empty on 23rd July. During a long-term study of nesting Reed Warblers, this was the first time I had observed a nest being reused. Subsequently, I have recorded a number of instances where two broods have been reared successfully in the same nest and, owing to the

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Cream-coloured Coursers *Cursorins cursor*). Potential prey may actually be carried upwards out of reach during the hottest part of the day.

Flying insects are, however, invariably abundant at night, most numerous being micro-moths, and the pratincoles observed in the UAE appeared to be successfully taking advantage of this ubiquitous nocturnal prey. Although perhaps adapting to the local circumstances, the comparatively large eye and wide gape of pratincoles, akin to those of the *Caprimulgidae*, would seem to pre-dispose them to aerial foraging at night. Several species of the related coursers are strictly nocturnal, but feed entirely on foot and not aerially.

similarity of the egg type, I am confident that the same female was responsible. I believe that these observations are of interest because the nests were reused. Although Reed Warblers are regularly double-brooded (Brown & Davies 1949; Bibby 1978), Brown & Davies recorded that doubled-brooded pairs built new nests.

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Aggressive behaviour of Long-tailed Tits

At Priory Country Park, Bedford, on the morning of 29th March 2002, two Long-tailed Tits *Aegithalos caudatus* flew halfway across the path in front of me, grasped each other in the air and fell to the ground. Here they grappled with each other using feet and bills. After about half a minute, still holding on to each other, they stopped, presumably too exhausted to continue. After about ten seconds of inactivity they resumed the conflict. This continued with several pauses until, after a little more than three minutes, they were so exhausted that they remained motionless on the ground, tails vertical and wings spread out to support them-

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selves. After a further four minutes, two large dogs appeared, their owner trailing about 10 m behind. One of the dogs approached the two birds to within a metre but they still did not move. The dog approached closer and pushed the two birds with its nose: only then did they fly from the ground. Although I have heard of similar aggressive behaviour by Long-tailed Tits outside the breeding season, when flocks will defend winter territories from neighbouring flocks, this is an interesting example of how, on this occasion, the aggressive instincts of fighting animals far exceeded those of awareness of, and escape from, a potential predator.

Letters

The decline of the House Sparrow in Britain

In October 2000, the Department for the Environment, Transport and the Regions (DETR) commissioned a consortium (consisting of the BTO, the RSPB/Oxford University Farmland Bird Group, the Central Science Laboratory (CSL) and WildWings Bird Management) to undertake a study of the decline which has occurred in the populations of the Common Starling *Sturnus vulgaris* and House Sparrow *Passer domesticus* in Britain over the past 25 years, with particular reference to the urban situation. This is an important study, and the consortium, led by the BTO, has now submitted their report to the Department for Environment, Food and Rural Affairs (Defra), who took over the project from DETR (Crick *et al.* 2002). Although addressed to Defra, it is available in the public domain (www.defra.gov.uk) and, in view of the considerable public interest in these two species, warrants wider appraisal. Since I am particularly interested in the House Sparrow, the following comments relate primarily to that species.

The report is based largely on statistical analyses of archival data from surveys run by the BTO: Common Birds Census, Breeding Bird Survey, Garden Bird Feeding Survey, Garden BirdWatch, Nest Record Scheme and the Ringing Scheme, supplemented by results from a suburban nestbox breeding colony of Common Starlings by C. J. Feare and G. T. Forester, and studies carried out on four (not three as stated in the report's introduction) farms by the Oxford University Farmland Bird Group. Additional information was obtained by means of a questionnaire, circulated by CSL to farmers and local authorities, aimed at assessing the impact of legal control of both species. The statistical techniques employed are highly sophisticated and very hard for the non-specialist to understand. This makes it difficult to keep in mind that statistics by themselves prove nothing (or, indeed, can be made to prove anything). There is a real danger here, not of throwing out the baby with the bathwater, but of making the bathwater so murky that we can no longer see the baby!

One fascinating outcome of the inquiry is that the fine-scale analysis allows a sound estimate of the total number of House Sparrows in

Britain for the first time. The population is now placed at about 13 million birds (95% confidence limits 11.9-14.7 million) in the breeding season, compared with more than 25 million in the early 1970s, before the current decline began. It is interesting to me to compare this latter figure with my estimate of 9.5 million birds in 1959 (Summers-Smith 1959), which was treated at the time with some scepticism as a gross overestimate.

There is already a considerable published literature on the recent decline of the House Sparrow, providing quantitative data on the decline and speculating on possible causes. The House Sparrow occurs in both farmland and human-associated habitats (such as towns, villages and isolated houses). Although there has been a universal decline in Britain, this began earlier on farmland (about the mid 1970s) than in built-up areas (mid to late 1980s). Moreover, whereas the farmland population appears now to have stabilised at a lower level, the decline in human-associated habitats is not only more severe, but is still taking place, possibly even at an accelerating rate. This report and other studies suggest that there may be two distinct subpopulations of the House Sparrow. One of these occupies a habitat dominated by buildings, ranging from the centres of urban conurbations, through suburbs and intermediate small towns, to small villages and hamlets where human presence is still the dominant factor. The other subpopulation inhabits farmland and associated farm buildings where the presence of Man is less dominant. The House Sparrow is an extremely sedentary species and there is little evidence to suggest significant interchange between, or even within, these subpopulations, although clearly the rapid colonisation of areas to which the bird has been introduced shows that some movement must occur (Summers-Smith 1956a; Summers-Smith & Thomas 2002).

The study of the farmland populations is very thorough and based on a firm foundation of solid and extensive data. There are compelling correlations between the farmland decline and changes in farming practices causing reduced availability of food:

- Increased intensification, leading to the loss of weed seeds
- Change from spring to autumn sowing of cereals, causing the loss of food in winter stubble
- Decreased palatability of seeds treated with dressings
- Change from haymaking to silage production before grass has had time to set seed
- Increased size of farms leading to a reduction in the number of farmyards
- More efficient farming, with a reduction of spilt grain
- General increase in tidiness and storage standards (reflecting EU hygiene regulations)
- Increase of monoculture cultivation and pesticides, reducing availability of invertebrate food

The analyses suggest that the main factor responsible for the farmland decline is a reduction in the survival rate of first-years. This could well reflect a significant change in the demography of farmland House Sparrows. Earlier studies, albeit focused on breeding adults, have suggested that, unlike most birds, the major mortality of House Sparrows occurs during the breeding season when parent birds expose themselves to greater risk while collecting food for their young (Summers-Smith 1956b).

Although the farmland decline has been thoroughly explored, the same cannot be said of human habitats, where a major decline has occurred and is still happening. Unless the distinction between House Sparrows in farmland and human-associated habitats can be disproved, the demography of the two subpopulations should be considered separately. The quality of the data from human habitats is much less secure and the data are less amenable to rigorous statistical treatment. One criticism of the report is that the distinction between farmland populations and those in built-up areas tends to be blurred, and conditions which apply to the former tend by implication to be carried over to the latter. For example, there are a number of unsupported statements which do not appear to accept the distinction: 'Over-winter survival may be the limiting factor in population numbers in urban areas'; 'Urban populations can be viewed in the context of the changes across the wider countryside'; 'A factor other than breeding performance has driven the

population changes in suburban gardens'; and 'The use of gardens by House Sparrows in winter suggests they are a supplemental, rather than a primary food source. During the winter House Sparrows forage primarily on cereal grains and, to a lesser extent, larger weed seeds, which are likely to be abundant on farmland.'

A number of hypotheses have been advanced to account for the urban decline:

- Predation by cats and Eurasian Sparrowhawks *Accipiter nisus*
- Competition with feral pigeons *Columba livia* for food
- Loss of nesting sites resulting from changes in architectural design and rehabilitation of older housing
- 'Spill-over' effect from the farmland decline
- Pathogens and parasites
- Loss of food from:
 - pollution from unleaded petrol
 - increased cleanliness of urban streets
 - increased use of garden pesticides
 - increased planting of non-indigenous shrubs

Hard evidence to support any of these is lacking, but at least a thorough review of existing data should have helped to highlight those factors most likely to have had an increased impact and hence to have played a significant role in the decline. There are also a number of well-established differences which should have been examined. Human settlements form a complex and far from homogeneous habitat. Different effects in different areas could well provide important insights. For example: why has there been major decline in London, Edinburgh and Glasgow, but apparently not in Manchester? Surely some data is already available from other large conurbations, such as Birmingham, for comparison? Why has the decline apparently been much less in rural towns (da Prato 1989; Parsons 1999; Summers-Smith 1999)? Why is there a differential effect between socially deprived areas and leafy suburbs (Sussex 2000; Paston 2001; Tully & Bland *in litt.*, quoted in the report)? What is the reason for the difference between the urban areas of southeast England, where there has been a major decline, and Wales, where the species is increasing? Why have House Sparrows declined when that other major urban species, the feral pigeon has apparently not been affected? A comprehensive review of the human-associated habitat situation could have

identified more clearly those areas most requiring investigation.

On balance, it seems likely that different factors have varying impacts in different areas. It is possible with a social species like the House Sparrow, living in small loose colonies, that the key factor in the human habitats is that a major decline sets in when colony size falls below some crucial level of social stimulation. One thing that the study makes clear is that human control is not a significant factor. It is, however, perhaps surprising, in view of the alarming decrease in both House Sparrows and Common Starlings, that general licences for their culling are still in force.

These may seem minor criticisms, but they are of crucial importance in the context of this report in which the conclusions, by necessity, are based on data of widely varying quality. As a further minor point, I deprecate the use of initial lower-case letters for bird species names as used in this report. Why depart from a long-established and useful practice? The Tree Sparrow *P. montanus* is a 'house sparrow' in all but name in those parts of the Far East where the House Sparrow does not occur; any possible

confusion is neatly avoided by the use of initial capitals for the species.

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Urban House Sparrows

Denis Summers-Smith has written many important books and papers on sparrows over the years, generated by his enthusiasm for the group, which was recognised in 1992 by the Zoological Society's Stamford Raffles Award for distinguished contributions to zoology by amateur zoologists. He has, however, provided a rather selective review (above) of a report which is 300 pages in length. The report is undoubtedly the most comprehensive analysis of House Sparrow *Passer domesticus* data in the UK to date.

Summers-Smith's two main criticisms of the report seem to be that it blurs the distinction between farmland and urban populations, and that it says too little about the declines in urban populations. It is, however, incorrect to say that the report blurs the distinction between urban and rural populations of House Sparrow. In fact, the report contains many separate sections on these two major habitats and the final dis-

cussion chapter explicitly considers the two in sections entitled: 'House Sparrows in farmland' and 'House Sparrows in towns'.

We agree with him that the paucity of data on urban sparrow populations is deplorable. Nonetheless, the report does summarise a wide range of data on urban sparrows. For example, it shows that although nesting success in urban habitats is lower than in farmland, it has not declined. It also shows that House Sparrows are resorting to gardens in urban areas earlier in the winter than previously. This suggests that food supplies may have declined in non-garden urban habitats. From this and other evidence, the report suggests that diminishing food supplies are likely to be an important factor in House Sparrow declines, as has been shown to be the case in many other seed-eating birds, particularly in farmland areas. This conclusion is obviously still tentative, and to address the issue of declining urban sparrows, about which

Denis Summers-Smith is rightfully concerned, the BTO has organised a nationwide House Sparrow Survey to gather further information about the potential causes of the declines.

One of the strengths of the report is that it draws together results from a wide range of extensive national surveys, undertaken by generations of volunteer birdwatchers, as well as from intensive studies by professional researchers. It contains many novel analyses, with the advantage that the results are generally applicable to the UK as a whole, rather than to just one or two specific sites. It concludes that the main demographic factor behind the decline of House Sparrows is the lower survival rates of birds in their first year of life, although decreasing numbers of breeding attempts in suburban and urban habitats could not be ruled out as a potential influencing factor. In addi-

tion, declines in survival rates of adult birds and a lack of improvement in breeding performance in suburban areas (contrary to the increases in performance which have occurred in urban areas) have probably contributed to the continuing declines and may have helped to inhibit recovery.

As Summers-Smith points out, the report highlights the fact that currently too little is known about the suburban and urban habitats which support around 50% of sparrows in Britain at present. We would encourage birdwatchers to start their own studies of House Sparrows (and other urban birds), and, particularly, to contribute to the BTO's House Sparrow Survey in 2003 and 2004. Contact Rosie Cleary, the survey organiser, at the BTO address below, or by e-mail: rosie.cleary@bto.org

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Egg-switching is not new!

When searching an old medical text recently, published in the year of the Battle of Waterloo, I was surprised to come across a passage which referred to switching eggs in nests. It seems that such experiments were carried out at the beginning of the nineteenth century and, possibly, well before that time. In his 'Elements of Pathology and Therapeutics' (1815), Dr Caleb

Hillier Parry, a physician at Bath, wrote: 'The first movements of the animal are evidently automatic and instinctive... Who told the skylark, hatched by a sparrow, to fly to the ground, immediately on leaving its nest; and the sparrow, hatched by a lark, on its first flight, to attempt perching in a tree?'

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News and comment

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

Chris Mead Memorial Day

More than 250 friends joined the Mead family to celebrate the life of Chris Mead at a special Memorial Day held on 5th May, at the BTO headquarters in Norfolk. Chris died suddenly in January aged just 62 (see *Brit. Birds* 96: 203-204). Friends travelled from as far as Scotland to be with Chris's wife V (short for Verity), his three daughters and brother Stephen. Eleven speakers were specially selected to share their memories of Chris, including friends, family and colleagues. Ringers recounted tales of expeditions to Wales to ring Pied

Flycatchers *Ficedula hypoleuca*, to Iberia to study migration, early days of rocket-netting on the Wash and vast numbers of nets erected to catch Sand Martins *Riparia riparia* during the 'Enquiry' years. Barbara Young talked about Chris the conservationist and font of all knowledge, Dilys Breese revealed Chris's talents as a publicity man, and BTO staff talked about his scientific career, his contribution to ringing and his amazing ability to communicate science to everyone. Perhaps the most moving memories came from Chris's brother

Stephen and close family member Stephen Browne, who gave us a unique insight into the early life and adventures of Chris. Following Chris's death, V and the family worked closely with BTO colleagues to set up the Chris Mead Memorial Fund, to develop the Trust's library in his memory. Donations to the Memorial Fund should be sent to the BTO.

It was a day of sadness and celebration; Chris would have had a wonderful time.

(Contributed by Dawn Balmer)

Nature conservation loses three more giants

Chris Mead was, quite literally, a giant of a man and his untimely passing robbed British ornithology of one of its greatest ambassadors. His death has been followed by the deaths of three men whose achievements over the course of nearly a century made them giants of conservation in Europe and indeed worldwide. Guy Mountfort, co-author of the first field guide to the birds of Britain and Europe, and co-founder of WWF, now the World Wide Fund for Nature, died on 23rd April aged 97 (coincidentally, also the date on which William Shakespeare died). Guy Mountfort's contribution to literature was certainly more prosaic than Shakespeare's but *A Field Guide to the Birds of Britain and Europe*, written with Roger Tory Peterson and Phil Hollom and first published in 1954, was a ground-breaking publication. All subsequent developments in bird identification guides can be traced back to this book.

Nevertheless, it is probably Mountfort's *Portrait of a Wilderness* (1958) which remains the abiding inspiration for the generation of British birders who ventured abroad to 'bird' the world in the 1970s. The book is an account of the first bird surveys in the Coto Doñana in southern Spain, which he conducted alongside Max Nicholson (who died three days after Mountfort, on 26th April, aged 98) and José Antonio Valverde (the man credited with saving the Coto from developers during the 1960s, and who died on 13th April, aged 77). All three men made immense contributions to ornithology and conservation.

Max Nicholson had a remarkable record in public service: he headed the Nature Conservancy during 1952-66, having led Herbert Morrison's department in the post-war Labour Government of 1945-51. In 1932, he established the British Trust for Ornithology and, in 1938, helped

found the Edward Grey Institute of Field Ornithology at Oxford. In 1961, together with Mountfort, Peter Scott and others, he helped found the WWF. He was a member of the editorial team which delivered *BWP*, and, as recently as 2000, made a high-profile plea for research into the decline of the House Sparrow *Passer domesticus*, which is now being urgently pursued. Full obituaries for these three men will appear shortly in *BB*.

Links:

Guy Mountfort obituary
www.guardian.co.uk/obituaries/story/0,3604,946068,00.html

Max Nicholson obituary
www.guardian.co.uk/obituaries/story/0,3604,944664,00.html

José Antonio Valverde obituary (in Spanish)

<http://actualidad.eresmas.com/actualidad/noticias/91421.html>

In praise of H. G.

Continuing in an historic vein, most birdwatchers will surely know of the beginnings to field ornithology made in the early twentieth century

by three of the four brothers Alexander, of Tunbridge Wells, Kent. There should now be even fewer uninformed individuals owing to a remarkable testimony to the youngest of the four, H. G., or

Horace, which has been written by the nonagenarian Duncan Wood. *Horace Alexander: 1889 to 1989 Birds and Binoculars* describes not just Horace's wide ornithological interests but also their historical

contexts, not least of which was Horace's devotion to peacemaking, particularly in India. [A full review of the book is in press – Eds.]

Duncan's tribute to Horace was doubly launched at Woodbrooke Quaker College in Bournville on 23rd March this year, with the assistance of the West Midlands Bird Club (which Horace helped to found), and at Leighton Moss on 29th March, with the help of Duncan's favourite RSPB reserve. Robert Gillmor and Ian Wallace displayed the book's illustrations

and other works, but the star exhibits were produced by David Gray who had unearthed Horace's illustrated diaries from his years as a pupil at Bootham School (1903-06). Amazingly, these included notes on some odd-looking and -sounding chiffchaffs in southwest France, noted by Horace three decades before Ticehurst formally described the Iberian form which we now call Iberian Chiffchaff *Phylloscopus ibericus*.

To listen to John Wilson, Leighton Moss's legendary first

warden, being engaged by Duncan in a brisk discussion on the current quality of *BB* content was to be reminded that but for Duncan's unsung efforts as Assistant Editor (from 1948 to 1952) this journal might have followed Bernard Tucker to an untimely death. So to Duncan Wood, and his daughter and chief helper Rachel Malloch, go thanks for Horace Alexander's full accreditation in a fascinating piece of birdwatching history.

(Contributed by Ian Wallace)

Ruddies returned to sender

News and comment has learnt that the Wildfowl & Wetlands Trust is rounding up all the Ruddy Ducks *Oxyura jamaicensis* in its collections. These captive birds will not, however, suffer the same fate as the 3,400 or so feral Ruddies disporting themselves on reservoirs and gravel-pits in the UK. The Government has decreed that the latter will be culled to help safeguard the genetic purity of the endangered White-headed Duck *O. leucocephala* in Spain, Turkey and Central Asia (*Brit. Birds* 96: 205). The Ruddy Ducks in WWT collections are being concentrated at WWT headquarters, at Slimbridge, Gloucestershire. Of course, it was from Peter Scott's Slimbridge collection that the first Ruddy Ducks escaped in the 1950s, before they colonised the UK. So there is no little irony that they are being 'returned to sender'. Indeed, it conjures up the Hollywood image of Steve McQueen regularly escaping from a German prisoner-of-war camp before being captured yet again and returning to his Stalag to bounce his baseball off the cell wall in solitary confinement. For their sake, let's hope that his fellow Americans, the Slimbridge Ruddies, don't mount The Great Escape, because they might not make it back home unharmed.

Deadline looms for Cliffe hangar

Campaigners on the North Kent marshes, demanding 'No Airport @ Cliffe', are calling on their supporters for one final push as the Government's aviation consultation draws to a close on 30th June. The Department for Transport's consultation paper, 'The Future of Air Transport in the UK', extrapolates the recent boom in demand for cheap flights until 2030. It concludes that by 2030 there will be 500 million passengers clamouring for air transport from UK airports each year (three times current passenger numbers), and equates that with demand for five new airports, each the size of Heathrow, to meet that forecast growth.

Hopefully, the huge number of waders and wildfowl which use the Thames estuary should be Cliffe's salvation. The DfT has acknowledged that the displaced flocks would represent a substantial risk of bird-strikes and, therefore, of a plane crash caused by birds sucked into the plane's engines. To this end it suggests a 'no fly zone', with a radius of eight miles (12.8 km)

around the proposed Cliffe airport, in which migrant birds would be vigorously deterred from settling. The prospect of legions of DfT gunners shooting down ducks and geese – or concreting over vast areas of mudflats to remove their feeding grounds – is simply not credible.

And perhaps the DfT's passenger forecasts are not credible either, as the Council for the Protection of Rural England has demonstrated. They calculate that if there was a tax on aviation fuel (currently untaxed – unlike motorists' petrol and diesel) and the aviation industry actually paid VAT (they don't at present), then passenger numbers would fall to a level which could be accommodated at existing airports. There is still time to make your views known to the Transport Secretary, Alastair Darling. Go to the Department for Transport website www.airconsult.gov.uk

Links: RSPB No Airport @ Cliffe www.rspb.org.uk/noairport/index.asp
CPRE (www.cpre.org.uk).

Hen Harrier nesting sites burnt out

The chairman of English Nature, Sir Martin Doughty, has described it as 'dreadful news'. The burning of key areas of heather moorland around several known Hen Harrier *Circus cyaneus* breeding sites means that the future of England's tiny breeding population hangs in the

balance this spring, following some notable breeding successes last year. In 2002, seven breeding females successfully raised 22 chicks. At three of these successful sites, however, mature heather moorland has been set ablaze just as the harriers were settling on

their territories: at Bowland Fells Special Protection Area in Lancashire, and at both known nesting sites in the North Pennine Moors SPA in Cumbria and North Yorkshire. At Bowland Fells, an uncontrolled fire of around 250 ha has burnt out the most important moorland nesting area for breeding Hen Harriers in England. The fire destroyed two active nests, and possibly also a third nest as another female appeared to be settling in

the area. At least one of the burns in the North Pennines was intentionally targeted at last year's nest site in the Yorkshire Dales to prevent the birds becoming established again in 2003. Hen Harriers return each year to traditional nest sites, and it is unlikely that they will settle and nest in these newly burnt areas without deep heather cover. Burning is, of course, traditionally carried out in moorland areas to stimulate new heather

growth for sheep and Red Grouse *Lagopus lagopus* but it is also a useful tool for shooting interests to deter Hen Harriers which prey on grouse chicks. Under current guidelines, the heather burning season continues until 15th April, which means that patches of long heather can be destroyed even after Hen Harriers have settled at a potential breeding site.

Raptorcams go live

There is better news for raptor enthusiasts who want to monitor breeding success from the comfort of their home or office. A number of raptor nest sites across the UK have webcams trained on them this spring. For the third year running, a pair of Ospreys *Pandion haliaetus* is nesting in England beside Bassenthwaite Lake in Cumbria. You can watch the nest on the web

at www.bbc.co.uk/cumbria Meanwhile, the (even) more famous Ospreys of Loch Garten on Speyside are also under 24-hour scrutiny via their own webcam. This is the tenth year running that 'Olive', the female, has returned to Loch Garten, but the young male courting her is not proving too attentive. It's a better soap opera than *EastEnders*! Watch the drama

unfold for yourselves on www.rspb.org.uk And what is being billed as the first webcam trained on a nest of Peregrine Falcons *Falco peregrinus* in a natural environment (i.e. not nesting on a building or man-made feature) has gone live in Devon. The birds are nesting in a disused quarry outside Plymouth, and you can see the action at www.plym-peregrines.co.uk

Birdfinder General

While readers mull over their nominations for Birder of the Year (*Brit. Birds* 96: 208), there may be some helpful hints on the Surfbirds website. Unlike the Swedish 300 Club or the UK400 Club, whose members celebrate the number of birds they've seen, the UK250 Club has a more elite membership – these people have found 250 or more species in the UK. Currently top of the list is BBRC member – and Shetland resident – Paul Harvey with an astonishing self-found list of 321 species. This includes not one but two Pallid Harriers *Circus macrourus*, plus Thick-billed Warbler *Acrocephalus aedon*, Red-flanked Bluetail *Tarsiger cyanurus*, Asian Brown Flycatcher *Muscicapa damrica*, Song Sparrow *Melospiza melodia*, etc., etc. Of course, it does help your 'find list' if you have a spell as warden on Fair Isle...

Link: www.surfbirds.com/cgi-bin/surfbirds/display.cgi?list=list11&lowVal=0&

Old Moor wins the Lottery

Yorkshire birders will be pleased to learn that they are £900,000 better off after the Heritage Lottery Fund awarded a grant for the restoration and regeneration of Old Moor and other wetland sites in the Dearne Valley. The legendary Wath Ings of yore is now set for a makeover which will build on the work of Barnsley Metropolitan Council since it took over the site in 1998. Despite its location in the industrial heartland of West Yorkshire, Old Moor turns up a stream of good birds, with both Spotted Crake *Porzana porzana* and Dotterel *Charadrius morinellus* recorded in autumn 2002. It is also a regular haunt for wintering Great Bitterns *Botaurus stellaris* with up to two birds present this past winter. The five-year project to renovate and extend Old Moor Wetland Centre will be led by the RSPB, and will create 12 full-time jobs.

There are no Magpies on Colonsay

Following the item in last month's N&C on Magpies *Pica pica* (*Brit. Birds* 96: 261), David Jardine has kindly pointed out that anyone visiting Colonsay, in the Inner Hebrides, armed with a Larsen trap and intent on despatching Magpies would have to search very hard. He writes: 'There are no Magpies on Colonsay, nor have there been any during the last quarter century, other than a single bird which was released after being used elsewhere in a Larsen trap... it did not stay long! Larsen traps are used on Colonsay by local residents (not visitors) and those involved in land management, with the blessing of many of the locals. They are used for Hooded Crows *Corvus cornix*.' Two other corvids breed on the island and in recent years there have been more successful pairs of Red-billed Chough *Pyrrhonorax pyrrhonorax* than either Common Raven *Corvus corax* or Hooded Crow. Colonsay also has a good breeding population of Corn Crakes *Crex crex*, and waders, which benefit from the low number of crows.

Birds Britannica – a last call for personal contributions

Birds Britannica is a major work on the cultural importance of birds and the many ways in which we respond to them. In a sense it is as much about us – our feelings, thoughts and attitudes towards birds – as it is about birds themselves.

We have enjoyed an excellent response, with many hundreds of public contributions. These have included personal stories and observations, snippets of folklore, recipes and old names (have you ever heard of 'stretchy' for Mistle Thrush *Turdus viscivorus*, or 'quists' for Wood Pigeon *Columba palumbus*?). People have told us how birds or bird songs evoke particular seasons or places. There have been many contributions on pub names (have you ever drunk in *The Dotterel* in Yorkshire?) or place names (did you know that Tranmere, in Lancashire, is named after Common Crane *Grus grus*?).

As the book nears completion, we are still looking for new material and would be delighted to hear from anyone. Most of the passerines, pigeons and owls are to be completed. If you have material or want further guidance on what could be included in the book, then please contact Mark Cocker at: The Hollies, The Street, Claxton, Norwich NR14 7AA; tel: (01508) 480546; e-mail: markcocker@btinternet.com All contributors will be fully credited.

(Contributed by Mark Cocker)

New website for the Rare Breeding Birds Panel

The Panel's website can now be found at www.rbbp.org.uk The official annual report of the RBBP will, as usual, be published in *BB* later this year.

Electronic bird records continued

Further to the ongoing debate among bird clubs about whether to opt for electronic submission of record slips in future, Tony Morris of the Sheffield Bird Study Group has sent this contribution. 'This is an issue which we at Sheffield Bird Study Group have been mulling over for some time. As the SBSG Web Manager, I receive lots of information from non-members and as such we don't know many of them from Adam. Consequently, until recently, although we have positively encouraged people to send records directly to our recorder, we have told them not to expect their records to be automatically transferred to our database. Quite recently, we have mooted the idea of an electronic recording form and I am currently looking into this. In actual fact, we have had a computerised recording system for over a decade now. The first full year of records on computer was 1990 and our Data Manager has entered more than 21,000 records for the year 2001 alone. He is still working on the records for 2002. I suspect that one benefit of accepting e-mail records in this way is that we now probably get more records from less experienced birders and thus possibly more records of the common birds.'

Link: Sheffield Bird Study Group (www.sbsg.org).

Size matters to BBRC!

BBRC is now happy to accept digital photos by e-mail, either as part of fully electronic submission, or sent as support for a record submitted as hard copy via the relevant County Recorder. It would, however, be appreciated if observers could make their images reasonably small, in order to minimise the time spent downloading them. For this reason, JPEGs are the preferred format. Please e-mail your pictures, and/or a full description, to Pete Fraser at secretary.bbrc@dial.pipex.co.uk If you are unsure of how to manipulate your images, then send Pete an e-mail and he will try to help you with the process.

Colour-marking co-ordinators

Seen a colour-ringed bird recently and not sure who to send the details to? The following list is an up-to-date guide of the people who have agreed to co-ordinate colour-marking on behalf of the BTO:

Great Cormorants *Phalacrocorax carbo* – Stuart Newson, BTO, The Nunnery, Thetford, Norfolk IP24 2PU; e-mail: stuart.newson@bto.org

Wildfowl – Richard Hearn, Wildfowl & Wetlands Trust, Slimbridge, Gloucestershire GL2 7BT; e-mail: richard.hearn@wwt.org.uk

Waders – Rob Robinson, BTO, The Nunnery, Thetford, Norfolk IP24 2PU; e-mail: rob.robinson@bto.org

Large gulls (Lesser Black-backed Gull *Larus fuscus*, Herring Gull *L. argentatus*, Great Black-backed Gull *L. uariatus*) – Peter Rock, 59 Concorde Drive, Westbury-on-Trym, Bristol BS10 6PX; e-mail: pete.rock@blueyonder.co.uk

Small gulls (Black-headed Gull *L. ridibundus*, Common Gull *L. canus*, Mediterranean Gull *L. melanocephalus*) – Kjeld Tommy Pedersen, Zoological Museum, Universitetsparken 15, DK-2100 Copenhagen, Denmark; e-mail: ktr@zmuc.ku.dk

Kittiwake *Rissa tridactyla* – John Coulson, 29 St Mary's Close, Shincliffe, Durham DH1 2ND

Other species – Jez Blackburn, BTO, The Nunnery, Thetford, Norfolk IP24 2PU; e-mail: jez.blackburn@bto.org

(Contributed by Dawu Balmer)



Monthly Marathon

Photo no. 197:
Thick-billed Warbler

Monthly Marathon photo number 197 (*Brit. Birds* 96: plate 98, repeated here as plate 212) shows an all-too-familiar view of a plain, brownish-looking passerine which is partly obscured by vegetation. In real life we would hope for, but not necessarily get, a better view, a different angle or a clear look at the bird's salient features.

Despite the initial impression that the bird is largely obscured, all is not lost as some of the most important features can, in fact, be seen. Our bird certainly appears to have short wings and a longish tail, dark legs, a heavy-looking and predominantly pale-based bill, and relatively uniform brown upperparts and off-white underparts.

With these features in mind, we can narrow the field of possibilities down quite considerably and are left with the unstreaked warblers (*Sylviidae*). In fact, taking the short wings and stout-looking bill, as



Colin Bradshaw

212. Thick-billed Warbler *Acrocephalus aedon*, China, May 1990.

well as the bird's apparent size, we should be left with the larger unstreaked warblers of the genera *Acrocephalus* and *Hippolais*. Although the bill may possibly appear suitable for one of the larger *Hippolais* warblers, i.e. Olive-tree Warbler *H. olivetorum* or Upcher's Warbler *H. languida*, neither of these would show such

brownish upperparts or such a short wing.

By a process of elimination, we are now left with the four larger 'acros' which breed or have occurred as vagrants in the Western Palearctic. Of these, the relatively small Basra Reed Warbler *A. griseldis* can be eliminated as our bird has a plain face and short wings: on Basra Reed we would expect to see longer wings, a slightly more pronounced loreal area and a thinner bill. Clamorous Reed Warbler *A. stentoreus* is short-winged and long-tailed like the mystery bird but would appear darker on the upperparts and duskier below. Clamorous Reed also has a prominent supercilium in front of the eye, and a thinner bill. The most commonly occurring large *Acrocephalus* warbler in the Western Palearctic is Great Reed Warbler *A. arundinaceus* but this species has longer wings than our bird and, like the other two species already mentioned, would show a stronger face pattern. In fact, our bird has a very distinctive feel to it without there being a great deal to say about it! The bland facial expression with its isolated dark eye, when combined with its uniform brown upperparts, short wings, long tail and stout looking, primarily pale bill leaves us only one option: Thick-



213. 'Monthly Marathon'. Photo no. 200. Sixteenth stage in twelfth 'Marathon'. Identify the species. Read the rules (see page 53), then send in your answer on a postcard to Monthly Marathon, c/o The Banks, Mountfield, Robertsbridge, East Sussex TN32 5JY, or by e-mail to editor@britishbirds.co.uk, to arrive by 31st July 2003.

Monthly Marathon

billed Warbler *A. aedon*. A Thick-billed Warbler is indeed what our mystery bird is, and it was photographed in China in May 1990. Without many discernible features you might imagine that seeing one is not very exciting? But just try telling that to the Editor! (See *Brit. Birds* 95: plate 303.)

James Lidster

Please note that the photos are

chosen by the *Sunbird* team and not the Editor: otherwise we may well have featured this species sooner! Most people followed the lines of reasoning which James has outlined above, and almost 82% of entries were correct. Once again, our current trio of leading contestants were not to be misled, and Nils van Duivendijk, Diederik Kok and Volker Konrad now have a sequence of six consecutive correct answers. There is then something

of a gap, before a large chasing pack, all of whom are on four-in-a-row.

Eds

For a free brochure, write to
SUNBIRD (MM), PO Box 76,
Sandy, Bedfordshire SG19 1DF,
or telephone 01767 682969



Recent reports

Compiled by Barry Nightingale and Anthony McGeehan

This summary of unchecked reports covers mid April to mid May 2003.

White-billed Diver *Gavia adamsii* Lewis (Western Isles), up to seven (!), 18th-20th April, with at least two remaining to 4th May; North Ronaldsay (Orkney), 20th and 23rd April; Unst (Shetland), 4th May; Foula (Shetland), 4th May; off Papa Stour (Shetland), 9th May. **Little Bittern** *Ixobrychus minutus* Dungeness (Kent), 11th-12th May. **Great White Egret** *Egretta alba* Rosslare (Co. Wexford), 6th May. **Purple Heron** *Ardea purpurea* Sandwich Bay (Kent), 15th April; Sutton Bingham Reservoir (Somerset/Dorset), 16th April; Upton Fen (Norfolk), 18th April; St Mary's and St Agnes (Scilly), 21st April; St Martin's (Scilly), 26th April; Attenborough (Nottinghamshire), 26th April to 2nd May; Marazion (Cornwall), 5th-11th May; Huttoft (Lincolnshire), 6th May; Slapton Bridge (Devon), 8th May. **Blue-winged Teal** *Anas discors* Goring Gap (West Sussex), 7th May. **King Eider** *Somateria spectabilis* Leven Beach (Fife), 1st-10th May.

Black Kite *Milvus migrans* A total of at least 17, possibly 20: Bodham (Norfolk), 15th April; Tresco/Bryher/St Mary's (Scilly), 17th-18th April; Land's End (Cornwall), 18th April; Sker Point/Kenfig Pool (Glamorgan), 18th April; Predannack area (Cornwall), 18th-20th April; Uplyme (Devon), 21st April; Brentwood Weald Country Park (Essex), 21st April; Shoeburyness (Essex), 24th April; Martham area (Norfolk), and then sightings at Winterton, Paston, Happisburgh, Sheringham (all Norfolk), 27th April,



214. First-winter Bonaparte's Gull *Larus philadelphia*, Fairburn Ings, West Yorkshire, April 2003.

Mike Malpass

Alan Tate



Alan Tate



215 & 216. Second-summer Audouin's Gull *Larus audouinii*, Dungeness, Kent, May 2003.

which could all relate to the same individual, with possibly the same at Breydon Water (Norfolk), 29th April; Burnham Overy Staithe (Norfolk), 28th April and possibly same Holme (Norfolk), 30th April; Westleton Heath (Suffolk), 29th April, probably same Dunwich Heath and Minsmere (Suffolk), 30th April; near Chelmsford (Essex), 2nd May; St Margaret's-at-Cliffe and Kingsdown (both Kent), 3rd May, with it or another at Swalecliff (Kent), 3rd May; Millersford Bottom (Hampshire), 6th May;

Little Marlow gravel-pits (Buckinghamshire), 8th May; Heligan (Cornwall), 8th May; Aspley Heath (Bedfordshire), 10th May; Wilstone Reservoir, then near Ivinghoe Beacon (both Hertfordshire), 10th May. **Eleonora's Falcon** *Falco eleonorae* Tiree (Argyll), 1st May.

Kentish Plover *Charadrius alexandrinus* Berney Marshes (Norfolk), 16th April; Pagham Harbour (West Sussex), 26th-27th April. **American Golden Plover** *Pluvialis dominica* Nosterfield gravel-pits (North Yorkshire), 5th May. **Buff-breasted Sandpiper** *Tryngites subruficollis* Aberlady Bay (Lothian), 7th May; Wicken Fen (Cambridgeshire), 10th-12th May. **Marsh Sandpiper** *Tringa stagnatilis* Elmley (Kent), 27th-28th April; Saltholme Pools (Cleveland), 5th-7th May. **Lesser Yellowlegs** *Tringa flavipes* Minsmere, 18th April; Thorne Moors (South Yorkshire), 27th April to 2nd May; Hauxley (Northumberland), 5th-11th May. **Spotted Sandpiper** *Actitis macularia* Ogston Reservoir (Derbyshire), 30th April to 1st May.

Laughing Gull *Larus atricilla* Near Loch of Kinnordy

(Angus), 26th April. **Little Gull** *Larus minutus* Noticeable passage through southern and eastern England during mid April, including 65 at Lackford Wildfowl Refuge (Suffolk), 52 at Staines Reservoir (Surrey), 43 at Little Paxton gravel-pits (Cambridgeshire), 41 at Wilstone Reservoir, 30 at Farmoor Reservoir (Oxfordshire), 27 at Brogborough Lake (Bedfordshire), 23 at Great Livermere Lake (Suffolk), all 16th April; then 26 at Daventry (Northamptonshire), and 50 at Farmoor Reservoir on 17th April, and

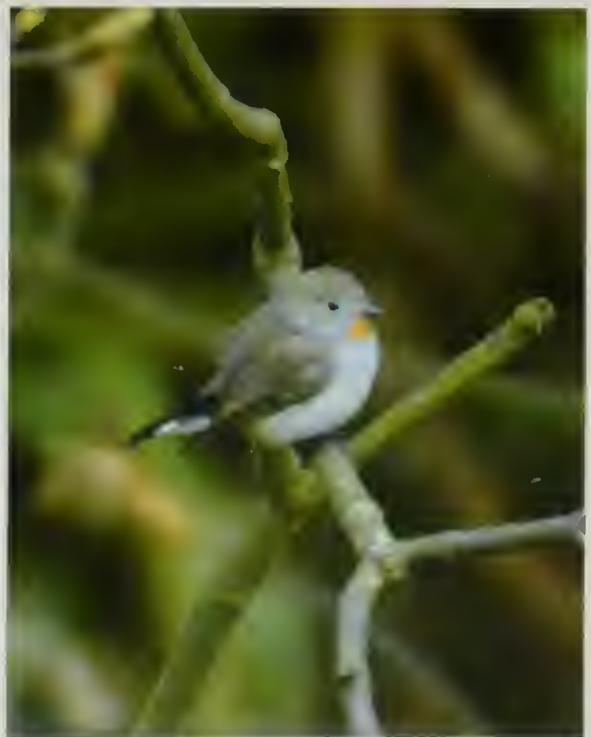
Recent reports

47 at Staines Reservoir on 20th April. **Bona-
parte's Gull** *Larus philadelphia* Fairburn Ings
(West Yorkshire), 18th April to 1st May and
9th-11th May; Bann Estuary (Co. Derry), 2nd-
7th May; Hickling Broad (Norfolk), 3rd-11th
May. **Audouin's Gull** *Larus audouinii* Dungeness,
5th-7th May. **Gull-billed Tern** *Sterna nilotica*
Landguard (Suffolk), 2nd May. **Forster's Tern**
Sterna forsteri Bann Estuary, 22nd April to at
least 9th May.

Alpine Swift *Tachymarptis melba* A total of 18
with no fewer than eight arriving on 27th April:
Lizard Point (Cornwall), 19th April; Millbrook
Lake (Cornwall), 23rd April; Otley gravel-pits
(West Yorkshire), 26th April; Grain (Kent), 27th
April; Fairlop (Greater London), 27th April;
Gibraltar Point (Lincolnshire), 27th April;
Holme (Norfolk), 27th April; Sea Palling
(Norfolk), 27th April; Scarborough (North
Yorkshire), 27th April; Thorpeness 27th April,
then Minsmere (both Suffolk), 27th April to 5th
May (this individual roosting on Sizewell Power
Station); Draycote Water (Warwickshire), 27th
April; Lodmoor (Dorset), 28th April; Wrays-
bury gravel-pits (Berkshire), 30th April;
Cotswold Water Park (Gloucestershire/Wilt-
shire), 30th April; The Cull (Co. Wexford), 1st
May; Abbotsbury Swannery (Dorset), 3rd May;
Brent Reservoir (Greater London), 5th May;
Fetlar (Shetland), 5th May. **Little Swift** *Apus*

affinis St Mary's, 28th April. **European Bee-eater**
Merops apiaster Salthouse Heath (Norfolk), 18th
and 23rd April; Chichester (West Sussex), 30th
April; Skomer (Pembrokeshire), 1st May; three,
Kirk Smeaton (South Yorkshire), 3rd May;
Drummore (Dumfries & Galloway), 9th May.
Hoopoe *Upupa epops* Following the influx
reported last month at least another 32, perhaps
35, were noted during the period with at least
12 found during 16th-18th April. The majority
were in the south and west, including 4-6 on
Scilly and 5-6 in Dorset, although two made it
to Scotland, at Altnaharra (Highland) on 18th
April and Lewis (Western Isles) on 20th April.

Short-toed Lark *Calandrella brachydactyla* St
Mary's, 16th and 24th-30th April; Conwy Morfa
(Conwy), 23rd April; Fair Isle (Shetland), 26th
April; St Agnes, 4th-6th May; St Martin's, 7th
May; Great Saltee (Co. Wexford), 8th May;
Northam Burrows (Devon), 8th-10th May. **Red-
rumped Swallow** *Hirundo daurica* A total of at
least 41, possibly 43, including four together in
Lincolnshire and three together in Essex.
Twenty-five arrived during 23rd-30th April,
including six on 27th and five on 29th, and 11
during 1st-8th May. St Martin's and St Mary's,
17th-18th April; Nanjizal (Cornwall), 18th-19th
April, and 8th May; Marazion (Cornwall), 19th-
21st April; Heswall (Merseyside), 19th-20th
April; Spurn (East Yorkshire), 23rd April; two,



217 & 218. First-summer male Red-breasted Flycatcher *Ficedula parva* of the eastern form *F. p. albicilla*, 'Taiga Flycatcher', Flamborough Head, East Yorkshire, April 2003.

Hurlestone Reservoir (Cheshire), 24th-25th April; Lodmoor, 25th-27th April; Bodenham Lake (Herefordshire), 25th April; Freiston (Lincolnshire), 26th-27th April; Wouldham (Kent), 26th April; Arlington Reservoir (East Sussex), 26th April, with two 30th April to 3rd May; Flamborough (East Yorkshire), 27th April; Boston (Lincolnshire), 27th April; Lady's Island Lake (Co. Wexford), 27th April; Dunstable (Bedfordshire), 27th-28th April; Priors Lee Lake (Shropshire), 27th-28th April; Dungeness, 27th April and 1st May, possibly same Denge Marsh (Kent), 1st May; Beddington (Surrey), 28th April; Staines Reservoir, 28th April; Hanningfield Reservoir (Essex), 28th April; Seaton Common (Cleveland), 29th April; Gibraltar Point, four, 29th-30th April with one to 2nd May; Minsmere, 30th April and 2nd-3rd May; Swithland Reservoir (Leicestershire), 30th April to 1st May; three near Ardeigh (Essex), 2nd May; Brading (Isle of Wight), 3rd-4th May; Lower Layham (Suffolk), 3rd-4th May; Prawle Point (Devon), 4th May; Capel-le-Ferne (Kent), 6th May; Cuckmere (East Sussex), 7th May; Land's End, 8th May. **Tawny Pipit** *Anthus campestris* Dursey Island (Co. Cork), 24th April. **Red-throated Pipit** *Anthus cervinus* Northam

Burrows (Devon), 3rd-4th May.

Subalpine Warbler *Sylvia cantillans* Flamborough, 18th April; Barnes (Greater London), 21st April; Higher Predannack Downs (Cornwall), 27th April; Gorran Haven (Cornwall), 3rd May; Skokholm (Pembrokeshire), 4th-5th May; Foula (Shetland), 4th-5th May. **Red-breasted Flycatcher** *Ficedula parva* One of the eastern subspecies (or species) *F. p. albicilla*, Flamborough, 26th-29th April. **Woodchat Shrike** *Lanius senator* Land's End, 17th-20th April; Mizen Head (Co. Cork), 22nd April; Old Head of Kinsale (Co. Cork), 22nd April; Langley Park (Buckinghamshire), 1st-2nd May; Donna Nook (Lincolnshire), 3rd-4th May; St Agnes, 4th-11th May; Great Saltee, 5th May; Bryher (Scilly), 6th-8th May.

European Serin *Serinus serinus* At least 15 were reported during the period, almost all along the south coast of England, with at least three on Scilly. **White-throated Sparrow** *Zonotrichia albicollis* Fetlar (Shetland), 11th May. **Dark-eyed Junco** *Junco hyemalis* Out Skerries (Shetland), 1st-9th May. **Little Bunting** *Emberiza pusilla* Great Saltee, 5th May.



Hugh Harrop

219. First-summer male Dark-eyed Junco *Junco hyemalis*, Out Skerries, Shetland, May 2003.



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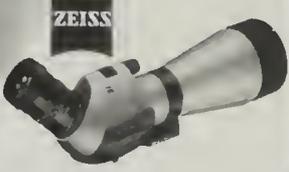


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