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The **ORNITHOLOGICAL SOCIETY OF THE MIDDLE EAST** was formed in April 1978 and is a successor to the Ornithological Society of Turkey.

Aims:

1. To collect, collate and publish ornithological data on the birds of the Middle East.
2. To encourage an interest in and conservation of the birds of the Middle East.
3. To develop a mutually beneficial working relationship with all environmental and conservation bodies and natural history societies in and concerned with the Middle East.

Membership is open to all and spans over 40 countries.

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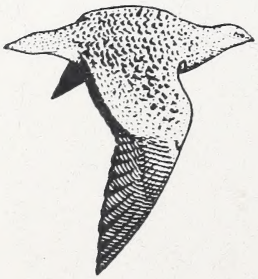

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FOREWORD

It is a pleasure to welcome the speedy appearance of *Sandgrouse 2* so soon after the belated first number. With the two issues before us it is possible to assess fully the importance of this new periodical for ornithological studies in a fascinating region of outstanding biological importance. There have been a few great pioneers, from Tristram and Meinertzhagen to Kumerloeve and Paludan, but inevitably their travels could cover only a part of this considerable area. Still, they were able to publish their invaluable results, while the much greater number of skilled field observers travelling widely in these regions in recent years have found outlets more and more difficult, and the few countries there which possess keen professional and amateur ornithologists are limited in their regular publications. *Sandgrouse* is designed to fill this gap at least in part. The first two numbers contain a most useful Check-list, migration studies, regional surveys, and a number of papers on little known species. They almost certainly represent only a small portion of the valuable observations locked away in field notebooks, and with *Sandgrouse* now planned on a regular yearly basis it is to be hoped that some of these will be disinterred and brought into the light of day. The other crying need is for more up to date Checklists and it is heartening that at least four are being prepared—on Afghanistan, Egypt, Iran and eastern Saudi Arabia, while for the few countries with a wealth of material, especially Israel, it is to be hoped that regular, if not annual, reports may soon be started. For not only are there still large tracts which are little known (some not getting any easier to visit under present conditions) and species crying out for detailed studies, but modern developments could bring considerable changes in the exciting avifauna, as the paper on central Arabia in *Sandgrouse 1* suggested.

There is a wealth of new discoveries to be made and changes to be charted. Publication of these is essential if our ornithological ignorance is to be dispelled. I believe that *Sandgrouse* has a key role to play and I welcome its most encouraging start.

Stanley Cramp

EDITORIAL

With the publication of *Sandgrouse 2* early in 1981, we are well on the way to achieving our declared objective in 1979, of producing an annual scientific journal dedicated to the birds of the Middle East. Number 3, which we hope to publish in the autumn of 1981, will represent the third issue covering the three years 1979-1981. Thereafter, we aim for a regular autumn publication.

The time, therefore, is now ripe to solicit papers from members. The field is vast, the opportunity great and the Editorial Committee confidently looks for a regular flow of material. The future is in your hands; the health and vigour of the society will depend to a large extent on the way members respond to this challenge.

The papers in this present number cover a wider geographical range and greater variety of topics than in the previous issue. The contributions on Jordan and Oman complement the papers in *Sandgrouse 1*; the paper by Duncan Brooks and Bill Sutherland represents the first of a series of papers on raptor migration through Turkey and other areas of the Middle East; several of the papers reflect the new-found interest in the birds of Israel and Sinai, following the advent of easier access to that region; notes on field recognition are represented while Michael Walters' paper on Güldenstdät's Redstart *Phoenicurus erythrogaster* is a stimulating challenge to all.

The order of the systematic lists and the scientific names used in the papers follow the *List of Recent Holarctic Bird Species* by K. H. Voous (1977) and in general the vernacular names also follow that authority (apart from occasional instances where common usage suggests a minor alteration [as, for instance, the omission of the word 'European' from European Wigeon]). Where Voous cites alternative vernacular names, one only has been used and that being the one thought to be more generally acceptable and in common use by field workers.

Finally I would like to place on record my appreciation and thanks to my wife, Joyce, for encouragement and help, to Mrs. F. E. Warr and M. D. Gallagher for practical help and advice and to all members of the Editorial Committee for their assistance, guidance and cooperation.

Donald Parr

THE AUTUMN MIGRATION OF RAPTORS, STORKS, PELICANS AND SPOONBILLS AT THE BELEN PASS, SOUTHERN TURKEY

by

William J. Sutherland and Duncan J. Brooks

INTRODUCTION

The autumn migration of soaring birds through the Bosphorus, Lebanon, Eilat and Suez has been known for a long time and, in the first case at least, is now well documented: at the Bosphorus by Nisbet and Smout (1957), Ballance and Lee (1961), Porter and Willis (1968) in the Bird Reports of the O.S.T. (1969, 1972, 1975 & 1978); in Lebanon by Cameron *et al.* (1967) and Nielsen and Christensen (1970); at Eilat by Safriel (1968) and Christensen *et al. in prep.*; at Suez by Marchant (1941), Goodwin (1949) and Simmons (1951). The recently discovered route around the eastern end of the Black Sea has so far only been documented in O.S.T. (1977) and under individual species in Cramp and Simmons (1980).

Between 1963 and 1965 three expeditions to southern Turkey and the Lebanon (Cameron *et al.* 1967) showed that in autumn a stream of birds pass around the Gulf of Iskenderun and through the pass at Belen (see *Figure 1*). A large raptor passage was also seen from Topbogazi passing down the 'Syrian' Valley to the east of the Gävur Daglari. Cameron *et al.* spent only one full day and an evening at Topbogazi and six days at Belen, but further short periods of observation confirmed the importance of these routes (M. Beaman, R. F. Porter *pers. comm.*). In the autumn of 1976, as the major aim of the University of East Anglia Mediterranean Basin Expedition, we undertook a two month study of migration through the Belen Pass and, to a lesser extent, the surrounding area.

LOCAL TOPOGRAPHY AND METHODS

The Gävur Daglari range of mountains in which the Belen Pass is situated extends for 160 km., with about a third of its length along the south-eastern side of the Gulf of Iskenderun (*Figure 1*). On the inland side of the range lies a wide flat-bottomed fertile valley. The southern two-thirds of the range rises frequently to over 1400 metres, the major break being at the Belen Pass which carries the main Iskenderun - Antakya road. The sides of the pass are poorly defined but its width at its highest point, near the village of Belen, is about 10 km. It is an area of cultivation, stony scrub and trees, the latter largely on the south-western side.

Finding a site within the pass that commanded a good view proved difficult. Subsequent events were to indicate that our final choice was possibly not ideal, but it seemed desirable to avoid the inevitable loss of coherence in results which would have been a consequence not only of the change of site but also of the diversion of manpower necessary to look for one. From 2 to 4 August observations were made from a quite unsatisfactory site near the road about 1 km. north-west of Belen; the view of the north-eastern side of the pass from here proved to be very restricted. From 5 August to 23 September watching was done from the head of a short steep-sided ridge in the centre of the pass above and just west of Belen, at about 600 metres. The view here was restricted only to the south-east, by the head of the pass.

Observations were made from 06.00 to 19.00 hrs. (local time, = G.M.T. + 2 hrs.), each day between 2 August and 23 September. There were always at least two people on watch; during periods of heavy passage this increased to four with another recording the observations. Large flocks, especially those of White Storks *Ciconia ciconia* and White Pelicans *Pelecanus onocrotalus*, often could not be counted accurately, so individual estimates were made then a figure agreed upon. It was often possible to obtain accurate counts of White Storks by counting birds as they peeled off the top of the column formed by a soaring flock. In every case, flock composition, route taken and time of passage were noted.

SYSTEMATIC LIST

It is stressed that *all birds recorded here were considered to be migrants.* Most followed similar routes within the pass and showed a decided purposefulness of flight; birds seen hunting or otherwise deviating from a direct route were not recorded as migrants. Individuals of species whose migratory status was in doubt or which were possibly resident in the area were watched for as long as possible to ensure the absence of any non-migratory behaviour, such doubtfuls often being in view over a flight path of 5 km. or more. Species involved were Griffon Vulture *Gyps fulvus*, Short-toed Eagle *Circaetus gallicus*, Sparrowhawk *Accipiter nisus*, Long-legged Buzzard *Buteo rufinus*, Golden Eagle *Aquila chrysaetos*, Bonelli's Eagle *Hieraaetus fasciatus* and all falcons *Falco spp.*

Pelecanus onocrotalus White Pelican

A total of 7,273 with no well-marked peak within the study period. The species is regularly recorded on passage in the Bosphorus area from late August to early October (O.S.T. 1975) but not on the scale noted at Belen where the bulk of the passage presumably consists of the population which summers and breeds in the Central Plateau region of Turkey—probably over 5,000 birds (O.S.T. 1975). However, with around 8,000 birds (including unidentified pelicans) being recorded during the study, and with no sign of a decline in the movement at the end of our observations (see TABLE 1), it seems likely that practically the whole West Palearctic population (except that of eastern Turkey) passes through the Belen area (see population data in Cramp & Simmons 1977). Occurred in flocks of up to 670 (mean 93.2). Flocks were recorded containing Dalmatian Pelicans *Pelecanus crispus* (three times), Black Storks *C. nigra* (once) and White Storks (four times); the only other mixed flock was one which included a male Wigeon *Anas penelope*.

White Pelicans and White Storks have similar plumage patterns and, at a distance, a similar shape, though we found that they could be separated by their behaviour. Both species were irregularly arranged whilst soaring but pelicans usually arranged themselves in lines when flying between thermals. All flocks which formed such lines subsequently proved to be pelicans and every flock watched for 5-10 minutes which did not behave in this manner proved to be storks.

The flocks in which the number of birds of each age could be accurately counted contained 1,636 adults and 251 juveniles. Juveniles were not specifically identified but are assumed here to have been White. A further 733 pelicans were neither aged nor specifically identified.

Pelecanus crispus Dalmatian Pelican

Six between 13 and 31 Aug. All except one were with White Pelicans.

Platalea leucorodia Spoonbill

A total of 816 recorded, with 515 of these between 24 Aug. and 10 Sep. Spoonbills differed from all other species considered here in that they flew by flapping with only brief glides, not soaring at all; on a few occasions birds circled once or twice (whilst flapping) to gain height. This behaviour is surprising in view of the impression commonly given in the literature (e.g. Cramp & Simmons 1977) that Spoonbills use soaring flight freely. A further difference from other species was that all birds flew straight up the centre of the pass at a considerable height; thus this is probably the only species of which individuals may have been missed purely due to their altitude. Flock size varied between five and 58 (mean 17.0). One flock included an egret *Egretta* (probably a Little Egret *E. garzetta*); and another, two White Storks. Flock formation was always line-astern, not transverse line (*contra* Cramp & Simmons 1977). Of 336 seen well enough to be aged, only 14 were in juvenile plumage. Post-juvenile moult is not normally started until December and only exceptionally as early as October (Cramp & Simmons 1977); thus this small proportion seems surprising. It is possible that breeding success was low that season or that the main passage of juveniles occurred after our observations ceased, although the 14 recorded were evenly spread over the study period.

Since central European breeders apparently winter largely in Tunisia, and those from the Caspian area move largely to the south-east (Cramp & Simmons 1977), migrants over Belen seem likely to be from the Turkish or western Black Sea (possibly also Greek) colonies. Ringing results from the Manyas Gölü colony are consistent with this, birds being recovered south to south-east from Egypt and Sudan to Pakistan (Schüz 1957).

Ciconia ciconia White Stork

Total recorded was 103,576; 103,168 passed between 4 Aug. and 13 Sep. and 23,590 between 2 and 7 Sep. Occurred in flocks of up to 4,000 birds (mean 287.7). At Eilat, Israel, flocks are smaller, usually of several scores (Safriel 1968), though at the Bosphorus flocks of up to 7,000 or more are common (M. Beaman & R. F. Porter *pers. comm.*). Of the 360 flocks recorded, 17 were mixed with raptors and 12 with Black Storks.

Ciconia niger Black Stork

Out of a total of 3,303, 2,868 occurred between 11 and 23 Sep.; thus, as at the Bosphorus (Porter & Willis 1968; O.S.T. 1969, 1972, 1975, 1978), Black Stork passage was later than that of the White Stork. As with White Storks, most flocks did not contain any other species. Of 271 Black Stork flocks, 37 were mixed with raptors (particularly Honey Buzzards *Pernis apivorus*); this proportion is greater than for White Storks. Occurred in much smaller flocks than White Stork (mean size 12.2).

The daily peak of Black Stork passage was earlier than that of White Storks (10.00-11.00 and 12.00-13.00 hrs. respectively) and, more than any other soaring migrants, Black Storks would continue to pass during the early evening, being frequently recorded after sunset.

Pernis apivorus Honey Buzzard

One of the earliest raptors, this and Black Kite *Milvus migrans* being the only species for which practically the whole passage period was recorded. Most were seen between 25 Aug. and 13 Sep. (15,624 of the 15,971). Occurred in flocks of up to 570 individuals (mean 13.3) and was often seen with other species of raptors (13 per cent of flocks).

Milvus migrans Black Kite

A total of 506, all between 25 Aug. and 13 Sep. This figure is much lower than that recorded for the Bosphorus (see TABLE III). Porter and Willis (1968) suggested the population had declined after comparing their results with those obtained by Ballance and Lee (1961) for a 20-day period in 1959. Considering the difference in raptor counts there between the adjacent years 1971 and 1972 (no doubt due to birds taking slightly different routes, variation in the period of the passage and the differing abilities of the observing teams), it seems unwise to have speculated on population changes with the small differences observed (872 in 1966; 1,074 in 1959 with less complete coverage). Occurred in flocks of up to 27 (mean 2.3). 30.6 per cent of flocks and individuals were associated with other raptors (usually Honey Buzzards), a greater proportion than for any other species.

Milvus milvus Red Kite

One passed directly overhead on 13 Sep. in association with Black Kites; its longer wings and longer, more deeply forked tail were readily apparent. A scarce migrant at the Bosphorus, this species is a winter visitor to Turkey (O.S.T. 1975) and rarely winters further south; Levant records are rare (Cramp & Simmons 1980).

Neophron percnopterus Egyptian Vulture

A total of 874 between 20 Aug. and 23 Sep. with 670 of these between 5 and 18 Sep. Peak passage at the Bosphorus from 1966 to 1975 was also during mid-September (Porter & Willis 1968; O.S.T. 1969, 1972, 1975, 1978). Of 620 seen well enough to be aged, 78.1 per cent were adult, 5.6 per cent sub-adult (probably 3-4 years old) and 16.3 per cent juvenile or immature.

The proportion of juveniles seems low but because of their dark plumage they were probably under-recorded as birds which were considered to be seen well enough for ageing and were also more likely to remain unidentified altogether. Some immatures are known to remain in their winter quarters (Riddel 1945). There was no difference apparent within the season in the time at which the different ages migrated. Over twice as many were seen as have been noted at the Bosphorus up to a comparable date during 1966, 1971 and 1972; numbers are no doubt supplemented by Turkish breeders. 18.4 per cent of flocks in this study incorporated other species of raptors, a proportion exceeded only by the Black Kite.

Gyps fulvus Griffon Vulture

Fifteen seen, 11 from 19 Sep. onwards. This is similar to the number seen at the Bosphorus during the comparable period (TABLE III). Peak passage occurs in late September and October at the Bosphorus (Porter & Willis 1968; O.S.T. 1969, 1972, 1975, & 1978), in Lebanon (Nielsen & Christensen 1970) and in Israel (Safriel 1968). Cameron *et al.* (1967) saw 125 in six days in early September in the Belen Pass (TABLE II); this result contrasts sharply with our observations and other studies and is rather puzzling, as even resident birds were seen only occasionally in 1976.

Circaetus gallicus Short-toed Eagle

A total of 727, with 114 on the 18 Sep. Usually seen singly or in very small flocks (maximum nine). Some birds were resident in the area throughout the study period. On occasion, individually recognisable birds were seen regularly for a few days before disappearing—these may have been birds involved in more leisurely migration or dispersal.

Circus spp. Harriers

A total of 244 harriers were seen of which 31 were identified as Marsh *C. aeruginosus*, four as Pallid *C. macrourus*, 27 as Montagu's *C. pygargus* and one as Hen *C. cyaneus*. Of 181 not specifically identified, 32 were considered to be Montagu's/Pallid and 118 Montagu's/Pallid/Hen; the remaining 31 were identified only to genus. Maximum flock size was nine but most birds were alone (mean 1.1) and rarely (6.7 per cent of flocks and single birds) associated with other species.

Harriers normally flew straight up the pass making only minimal use of thermals, suggesting that they may have flown across the Gulf of Iskenderun—harriers are known elsewhere to cross wide areas of sea (Beaman & Galea 1974, Cramp & Simmons 1980). This independence of thermals presumably contributed to the harriers' position as the earliest of the migrants within the day (see *Figure 2*).

Accipiter gentilis Goshawk

One on 18 Sep. A few regularly noted on passage at the Bosphorus from mid-August to late September (O.S.T. 1975).

Accipiter nisus Sparrowhawk

None identified until 31 Aug. Nine of the 11 birds seen were alone.

Accipiter brevipes Levant Sparrowhawk

A late migrant with practically all of the total of 2,951 after 12 Sep. Unlike the Sparrowhawk it was usually seen in flocks of up to 173 birds (mean 12.0), sometimes with other raptors. As on the Bosphorus, birds migrated early in the day (Porter & Willis 1968). Migrating Bee-eaters *Merops apiaster*, which were commonly recorded, presented an unexpected identification problem, for the compact, tightly whirling flocks which both these species form proved very difficult to separate at long range.

A further 115 unidentified sparrowhawks *A. nisus/brevipes* were recorded.

Buteo buteo Buzzard

Two hundred and seven were seen from 11 Aug. 193 of these from 5 Sep. Usually occurred singly but also in flocks of up to six. The timing of the passage within the day was later than in all other studies considered, the peak at Belen being between 15.00 and 16.00 hrs. (see *Figure 2*).

Maximum numbers at the Bosphorus occur in late September and early October (Porter & Willis 1968; O.S.T. 1969, 1972, 1975 & 1978) so the bulk of the passage at Belen was undoubtedly missed. Cameron *et al.* (1967) recorded far more in early September than the present study (see TABLE II), and suggested that, as Buzzards were abundant at Belen and yet infrequently recorded on the Bosphorus, the birds at Belen must be of northern Turkish and Russian origin. Since the species is now known to be common at the Bosphorus, however, the origin of those at Belen would again be speculative but for recent evidence which, as discussed later, suggests that they do not come via that route.

Most of the birds were not seen well, but the few whose race could be determined appeared to be *vulpinus*, as at the Bosphorus at that time of year—birds resembling the nominate western race and intermediate between it and *vulpinus* mostly appear on the Bosphorus after the third week of September (Porter & Willis 1968; O.S.T. 1969, 1972, 1975 & 1978). All birds recorded on the eastern Black Sea route resembled typical *vulpinus* (O.S.T. 1977).

Buteo rufinus Long-legged Buzzard

Two separate birds within 10 minutes on 22 Sep. Very small numbers are seen on the Bosphorus, mainly in the second half of September (O.S.T. 1969, 1972, 1975 & 1978).

Aquila pomarina Lesser Spotted Eagle

Of the 3,875 *A. clanga/pomarina* seen, 33.5 per cent were identified and these were all *A. pomarina*. Spotted Eagles *A. clanga* pass through the Bosphorus mainly from late September to early November (Porter & Willis 1968; O.S.T. 1969, 1972, 1975 & 1978) and Nielsen & Christensen (1969), as well as these authors, stress their rarity; none were seen on the eastern Black Sea route until 23 Sep. (M. Beaman *pers. comm.*). It is not therefore surprising that none were recorded in this study.

Aquila chrysaetos Golden Eagle

A total of six, from 7 Sep.; all were adults. A resident adult was easily recognisable by its ragged plumage. Also, the behaviour of those recorded as migrants differed: None showed any suggestion of hunting and instead maintained a direct heading along typical migrant flight paths. A very scarce migrant on the Bosphorus, not even recorded annually (O.S.T. 1969, 1972, 1975 & 1978).

Hieraaetus pennatus Booted Eagle

A total of 588, with 334 between 12 and 18 Sep. This is similar to the peak period at the Bosphorus (Porter & Willis 1968; O.S.T. 1969, 1972, 1975 & 1978). As at the Bosphorus, birds flew alone or in twos or threes (mean 1.2) and rarely (7.9 per cent of flocks and single birds) with other species. Unlike many other species the bulk were seen after 12.00 hrs. with a peak between 13.00 and 14.00 (see *Figure 2*).

Of 565 whose colour morph was determined, 33.7 per cent were dark. 40 per cent was recorded at the Bosphorus (Porter & Willis 1968) and 45 per cent on the eastern Black Sea route (M. Beaman *pers. comm.*).

Hieraaetus fasciatus Bonelli's Eagle

Single immature birds on 2, 13 and 18 Sep. behaved as typical migrants. A resident immature was occasionally seen. There are scattered August and September reports from the Bosphorus (Nisbet & Smout 1957; Ballance & Lee 1961) and Topbogazi (Cameron *et al.* 1967) in Turkey and from Harissa in Lebanon (Cameron *et al.* 1967, Nielsen & Christensen 1970).

It has been suggested, at least for the Bosphorus, that some earlier identifications are perhaps incorrect, as none was identified there during the autumns of 1966-1975 (O.S.T. 1969, 1972, 1975 & 1978).

Pandion haliaetus Osprey

Six were seen, including three single birds within 12 minutes on 7 Sep. Not commonly recorded at narrow sea-crossings as it migrates on a broad front across the Mediterranean (Osterlof 1977).

Falco naumanni/tinnunculus Lesser Kestrel/Kestrel

Twenty one seen of which three were identified as Lesser Kestrels on 11, 12 and 22 Sep. and one as a Kestrel on 12 Sep. Lesser Kestrels are usually recorded comparatively infrequently around the Mediterranean in the autumn, probably because they undertake a non-stop high-altitude flight to the northern tropics of Africa (Moreau 1961).

Falco vespertinus Red-footed Falcon

Singles on 19 (probably an adult female) and 20 Sep. (adult female).

Falco subbuteo Hobby

Nine single birds between 4 and 21 Sep. and two together on 12 Sep. This is considerably fewer than seen in the equivalent period at the Bosphorus (TABLE III), but there the situation is complicated by the presence of local summer residents. (M. Beaman & R. F. Porter *pers. comm.*).

Falco cherrug Saker

One on 28 Aug. Small numbers are seen at the Bosphorus from mid-August to late September (O.S.T. 1975).

Unidentified Raptors

Unidentified raptors totalling 2,610 and 41 unidentified falcons were recorded, a large proportion of the former undoubtedly being Honey Buzzards and Lesser Spotted Eagles.

COMPARISONS WITH OTHER STUDIES

Cameron *et al.* (1967) counted the migrants between 2 and 7 September in the Belen Pass. TABLE II compares their data with our data for the same period in 1976. Cameron *et al.* watched for an average of 6.9 hours a day (usually covering the period of peak passage) compared with 13 hours a day in the present study. The results differ remarkably and suggest in particular that almost all the Buzzards they recorded may in fact have been Honey Buzzards.

TABLE III compares the results from this study between 20 Aug. and 23 Sep. and data from the Bosphorus in north-west Turkey in 1966, 1971 and 1972 and from Arhavi in north-east Turkey in 1976 between 17 Aug. and 20 Sep. These figures are broadly comparable if we assume that migrants take about three days to cross Turkey. (The cross-country flight-speeds of White Pelican, White Stork and four species of vulture were all about 40-50 km./hr. during the dry season in the Serengeti, Tanzania (Pennycuick 1972). Assuming this speed to be maintained on migration for about six hours per day, then a figure of three days seems reasonable.) Most of the variation between the Belen and Bosphorus counts is comparable to the variation between years for the Bosphorus. The exceptions are the harriers, Spoonbills and White Pelicans, all of which are probably present in greater numbers at Belen, presumably due to the additional migrants from the Turkish breeding populations—although in the case of harriers the local topography at Belen also seems more likely than that at the Bosphorus to provide a favourable leading line for the concentration of these broad-front migrants. White Stork numbers did not reach those normally recorded at the Bosphorus and in particular the very large flocks (of up to 11,000) and days of heavy passage (up to 50,000) recorded there were not met with at Belen.

On three occasions we recorded large flocks of this species (of 2,000-3,000 birds) about 5 km. away passing by almost out of sight, low along the south-west side of the pass; it may well have been that large numbers used this route and escaped detection completely. It is impossible to state whether the differences in the numbers of Buzzards and Black Kites are due to variation in the seasonal timing of migration, whether they indicate population changes, or whether (as certainly happens) they are merely a consequence of an unknown proportion of the passage being missed at each site.

THE ORIGIN OF THE BIRDS

Most soaring raptors appear to enter Turkey by two routes: across the Bosphorus and around the eastern end of the Black Sea. The proportion of the dark morph of the Booted Eagle at Belen was low (see Systematic List). Eastern populations are said to contain a higher proportion of dark-morph birds than those of Europe (Cramp & Simmons 1980) and if many birds from the eastern Black Sea route were present a higher proportion of dark birds might have been expected but much more data is needed from both Belen and the eastern Black Sea before conclusions on this point can be confidently reached. The comparison of numbers of Honey Buzzard and Buzzard at Belen and at Arhavi (TABLE III) affords the strongest evidence that only a small proportion of birds (if any) from the eastern Black Sea route can be using the Belen Pass.

Nielsen & Christensen (1969) recorded 2,585 Lesser Spotted Eagles on 15-17 and 21 Sep. 1968 at Harissa, Lebanon. Few birds had been seen crossing the Bosphorus at a comparable period that year so they suggested that many of the birds may have been of Caucasian or Anatolian origin. However, coverage at the Bosphorus was incomplete in 1968 and many may well have been missed (M. Beaman *pers. comm.*)—large numbers have certainly been recorded there in other years (O.S.T. 1969, 1972, 1975 & 1978) and the scale of passage now known from the eastern Black Sea route could, in any case, have only partially accounted for the Harissa observation. The results of the present study are comparable with those of the Bosphorus in previous years (TABLE III) but the number of Lesser Spotted Eagles passing through the Bosphorus in 1976 is unfortunately not known.

Nielsen & Christensen (1970) compared a total of 14 days' data in Lebanon in 1968-9 with data from the Bosphorus in 1966 and suggested differences were due to the presence of birds from the eastern Black Sea route. However, the vast variations between different studies at the same site (TABLES II and III) suggest that only massive differences in counts at different sites are significant, especially if the studies are of short duration and carried out by different teams of observers in different years.

Steppe Eagles *A. rapax* are not uncommon in Lebanon (Nielsen & Christensen 1970) but very rare at the Bosphorus (O.S.T. 1969, 1972, 1975 & 1978); this provides the best evidence for eastern Black Sea raptors using the Levant route, at least to the south of Belen where further studies are clearly needed in late September and October to look for this late-migrating species.

ROUTES TAKEN THROUGH THE BELEN AREA

At Belen (even more so than seems to be the case at the Bosphorus) it was difficult to guess what proportion of birds passing through the area was being seen. The geography of the Gulf of Iskenderun area obviously has a much weaker effect in concentrating soaring migrants but, this apart, raptors and storks in the area are still left with several alternative routes. It was assumed at the outset that birds would be taking one of two major routes through the area: (1) east around the Gulf then turning south-west between the sea and the Gâvur Daglari to cross the range at Belen and continue southwards; (2) down the Syrian valley, presumably having come from much further north or having crossed the Taurus somewhere north of the Aladag. This proved much too simple a picture.

We were able to confirm the observations of Cameron *et al.* (1967) on the existence of a stream of raptors (and storks) down the Syrian valley. As no watching was done further north than 3-4 km. north of Kirikhan, we are unable to say from how far north they had come;

observations here were on clear days and it is possible that birds were crossing the Gâvur Daglari further north—as four Black Storks were seen to do on 17 Sep. Some birds flew close to the hillside on the west (see TABLE IV) but, as Cameron *et al.* (1967) also noted, many kept well out over the flat valley floor (TABLE V).

In an attempt to understand the movements of birds on the west of the Gâvur Daglari, short observations were carried out at various points along that side of the range. A more thorough coverage was intended here but circumstances conspired against us.

Dörtyol

Observations were made on 18 Sep. from the roadside about 10 km. from the coast and about 3 km. from the edge of the range (see TABLE VI). Raptors and Black Storks at no great height were seen coming over the flat plain at the head of the Gulf heading south-east towards the range. Observation was difficult, but on nearing the range most appeared to turn south and fly alongside it.

Sariseki

Again from the roadside, a strong passage was noted during short periods of observation on 18 and 22 Sep. Birds were flying high, at about 1,100 metres, and apparently very close to the hillside. Those that were visible were continuing down the side of the range but, as the top is not visible from this point, it is possible that many were out of sight. Comparing the totals seen here with those subsequently recorded at Belen (TABLE VII) indicates that, at least on occasions, only a fraction of the actual passage through the area was recorded at Belen. The missed birds could either have continued along the coast or taken a route within the Belen Pass that was out of sight of the observation point.

Near Nergizlik

Observation here was intended to provide evidence for or against birds avoiding Belen by continuing southwards along the costal side of the range and past the entrance to the pass. Four hours continuous watching from 13.00 hrs. on 22 Sep. produced only two migrants: a Hobby/Red-footed Falcon and a large unidentified raptor. Had there been a good passage at Belen during this period, evidence would have been strong for the bulk of the migrant stream turning inland at or before the pass, but this was unfortunately not the case on this date (see TABLE VII) and we did not have time to repeat the exercise on a day of heavy passage. However, the topography of the area and such data as were collected suggests this hypothesis to be reasonable; Cameron *et al.* (1967) also held this view.

At Belen, movements during the day took the following typical pattern. In the early morning birds flew south-east up the pass or else were on a rather more southerly heading, then passing somewhat to the east of us; on reaching a point level with the camp, birds were normally 20-50 metres higher than our position. As the day progressed, birds flew higher reaching a maximum about midday, being then as much as an estimated 600-800 metres above our position. The main consequence of this was that birds coming down the coastal side of the range were now following a higher contour (1,000 metres or more above sea level) and consequently passing well to the east of us, often too distant to be seen from the observation site (see *Figure 1.*) At this point the southern corner of the pass was certainly visible to them and those that could be seen were gliding off in that direction, passing out of our sight behind the head of the pass. Brief observations were made from a point in the centre of the inland half of the pass which confirmed that this route was being followed and some birds were recorded here which were not seen from the permanent observation site at Belen.

Cameron *et al.* (1967) recorded several parties of White Storks crossing the range north of Belen but gave no details of time, route or weather. Except for a party of four Black Storks seen crossing 3-4 km. north of Kirikhan on 17 Sep., when a heavy passage was observed at Belen, shortage of time unfortunately left us unable to make useful observations on this point. *Figure 1* shows, however, that on a clear day with some birds seen to be travelling at close to

1,500 metres it would be quite possible for them to cross the range at Sariseki, thus never coming within sight of Belen.

Cameron *et al.* (1967) also recorded birds crossing the Gulf of Iskenderun, both flying out to sea from Karatas, and coming ashore near Sariseki and Iskenderun. We made no attempt to confirm these observations. Most birds apparently entered the pass at quite a height, following the edge of the range into the pass, but on several occasions whilst watching from Belen large flocks of White Storks and White Pelicans were located soaring low over the coastal plain about 10 km. distant. These birds gradually gained height and made their way up the pass usually quite close to the middle. Also, as previously described, a few large flocks of White Storks were recorded flying low, very distantly along the south-west side of the pass. It seems likely that birds in both these circumstances had come directly across the Gulf and it may be that all birds travelling along the south-west side of the pass had done likewise, making straight for the pass as being visibly the easiest place to cross the hills which confronted them. Birds travelling directly up the pass or along the south-west side were generally lower than those passing to the east of us. This accords well with the foregoing suggestion if it is borne in mind that those in the latter stream have probably been flying down the range in strong up-draught conditions for an hour or so at least and thus had plenty of time to gain height (indeed by early afternoon, most on this course had reached a height far greater than was needed to cross the Belen Pass when they reached its vicinity). For birds having just made a short (30 km.), but presumably tiring, sea-crossing, height would be at more of a premium and their main objective simply to clear the pass. Harriers are noted to be largely reliant upon flapping flight during migration and are known to be more given to sea-crossings than most other large raptors; it is thus probably significant that most were recorded flying directly up the pass or along the south-western side. Days with clear weather and visibility across the Gulf may have increased the attractiveness of this route. All Spoonbills seen flew straight up the centre of the pass at a considerable height. They do not depend upon thermals and had almost certainly flown straight across the Gulf of Iskenderun.

The situation, then, is that in clear weather birds stayed nearer to the north-eastern side of the pass where many undoubtedly went unrecorded; conditions also seem to have been more favourable then for birds to have crossed the range north of the Belen Pass or to have crossed the Gulf, possibly passing out of sight to the west. Clearly, on such a day only an unknown fraction of the total passage through the Gâvur Daglari is being observed from Belen. There may yet be a more satisfactory observation site to be found on the hills above Sariseki (although all birds crossing the Gulf would then pass unseen) or on the landward side of the range south of the Belen pass (if the migration stream is still concentrated there), thus hopefully covering a confluence of all the migrant streams through the area.

DIURNAL TIMING OF MIGRATION

The bulk of migration occurred between 10.00 and 13.00 hrs. (see *Figure 2*), although this data is unfortunately complicated by diurnal changes in route. As already discussed, birds migrating later in the day tended to be further from the observation site where many remained unidentified and others were probably missed. The peak of large unidentified raptors (13.00-14.00 hrs.) was consequently later than that for those which were identified. Similarly the bulk of the Lesser Spotted Eagle passage was at 10.00-11.00 hrs. and yet a large proportion of the unidentified spotted eagles (the majority of which were undoubtedly Lesser Spotted) were recorded in the afternoon. The actual time of peak passage of many species may therefore be later than the diagrams indicate.

The presence of this late morning peak in the number of migrants seen can be attributed to three factors which are of general application in studies of this nature:

1. **The time birds leave and enter their roosts** If the largest number of birds are migrating at midday then, all other things being equal, there will be a midday peak in observed passage.

2. **The speed at which they migrate** If birds are moving faster then more will pass a given point in a given time. If thermals and other updraughts enable birds to fly faster, then the time of peak passage will be related to the periods at which these are present.

3. **Siting of roosts** The distance of the roosts from the observation point will affect the timing —e.g. Black Kites pass the Bosphorus in the early morning after roosting in nearby Istanbul and Uskudar (Porter & Willis 1968). Birds with specialised roosting requirements might have a restricted choice of sites; the timing of peak passage then depends on the time the birds take to fly from such a roost to the observation point. Conversely, those with generalised roosting requirements should show more of a spread through the day.

The timing of birds entering and leaving roosts can only produce a pronounced peak in activity if most birds only migrate for a very short period each day, e.g. about 2-3 hours for the Honey Buzzard whose period of peak passage at Belen lasts for about this length of time (though not at the Bosphorus, Porter & Willis 1968).

It was our impression that birds flew faster up the pass around midday—no doubt due to the presence of good thermals. However, Spoonbills were never seen to soar yet the timing of their passage was similar to that of soaring species. In addition, if flight speed is the major factor it would necessitate White Storks flying 10 times as fast at 12.00 than at 10.00 or 16.00 hrs. (and similarly for other species). This seems unlikely.

Practically nothing is known of the positioning of roosts of soaring migrants but this theory does not explain why peak passage tends to be around midday at all raptor migration watch-points.

Thus, a combination of the three factors is probably needed to explain the observed peak, though (1) and (2) seem likely to be of greatest general importance. This may not be so, however, for one species with rather precise roosting requirements, the White Pelican, which shows two pronounced peaks in the diurnal timing of its passage at Belen (*Figure 2*). The fact that some birds, having perhaps roosted on the sea nearby, were recorded from 09.00-10.00 hrs. onwards, suggests that this may be about the time that migrant flocks normally resume their journeys. Pennycuick (1972) recorded the cross-country flight speed of one flock of White Pelicans as 45 km./hr. under normal (East African) conditions. Taking these as working figures suggests that birds passing Belen during the peaks of 11.00-12.00 and 16.00-17.00 hrs. had come from about 90 and 315 km. away respectively. The Eregli/Hotamis wetlands and the Göksu delta normally hold White Pelicans in autumn and there are also records from the Seyhan/Ceyhan delta (O.S.T. 1975). Distances of these areas from Belen (TABLE VIII) suggest that they could be the roosting areas for the bulk of birds seen there, the diurnal pattern of movement observed being a result of synchronous departure from these sites.

General help in elucidating the relative importance of the three factors discussed would come from further information on (a) roosting (sites used, times of arrival and departure), (b) migration speeds at different times of day and (c) time taken to cover large distances, e.g. the Bosphorus to Belen. Thus, knowledge of (b) and (c) would permit calculation of time spent travelling per day.

Two Lesser Spotted Eagles seen flying into a wood south-west of the camp at 18.46 hrs. on 16 Sep. were the only obvious migrants seen roosting at Belen. A few Honey Buzzards were seen on the ground in farmland around Hamam at 09.00 hrs. on 16 Sep.; they may have roosted there due to lack of trees.

INFLUENCE OF WEATHER

Meteorological details (wind speed and direction, cloud cover and relative height, temperature, relative humidity) were recorded each hour throughout the observations at Belen. Cloud height proved a considerable influence on the route taken through the pass and hence numbers recorded. When the cloud base was low birds tended to cross the pass diagonally and in so doing fly close to the observation site. With no low cloud birds flew mainly along

the north-eastern edge of the pass. It is likely that many of the distant birds taking this route were missed or out of sight and the heaviest passage was therefore seen on those days with low cloud. There were three main periods of heavy migration (25-29 Aug., 4-8 Sep., 12-23 Sep.) which were all within the main cloudy periods (3-9 Aug., 19-29 Aug., 1-8 Sep., 12-23 Sep.). There were cloudy days with little visible migration but these were all prior to the start of the main passage period.

At the observation site at least, wind speed and direction were remarkably constant throughout the study: a moderate breeze from the north-northwest, directly off the sea. There was a slight indication that poor passage was recorded on days of low winds, perhaps related either to its effect on upcurrents or, more probably, on cloud height.

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SUMMARY

From 2 August to 23 September 1976, 28,641 raptors were recorded as migrants at the Belen Pass, near the Gulf of Iskenderun, southern Turkey; these included 15,971 Honey Buzzards *Pernis apivorus*, 874 Egyptian Vultures *Neophron percnopterus*, 728 Short-toed Eagles *Circaetus gallicus*, 2,951 Levant Sparrowhawks *Accipiter brevipes*, 3,873 spotted eagles *Aquila clanga/pomarina* and 588 Booted Eagles *Hieraaetus pennatus*. 7,273 White Pelicans *Pelecanus onocrotalus*, 103,576 White Storks *Ciconia ciconia* and 816 Spoonbills *Platalea leucorodia* were also recorded. The importance of the area for White Pelicans and Spoonbills was not previously known. Fewer migrants were seen on days of high cloud and cloudless days when a significant fraction migrated out of view along the north-east side of the pass; others may have crossed the mountain range to the north. All Spoonbills, many harriers and some storks and other species had undoubtedly flown across the Gulf, the remainder flew around it. All birds had probably crossed the Bosphorus or were Turkish breeders. Factors influencing the diurnal timing of soaring migration are discussed.

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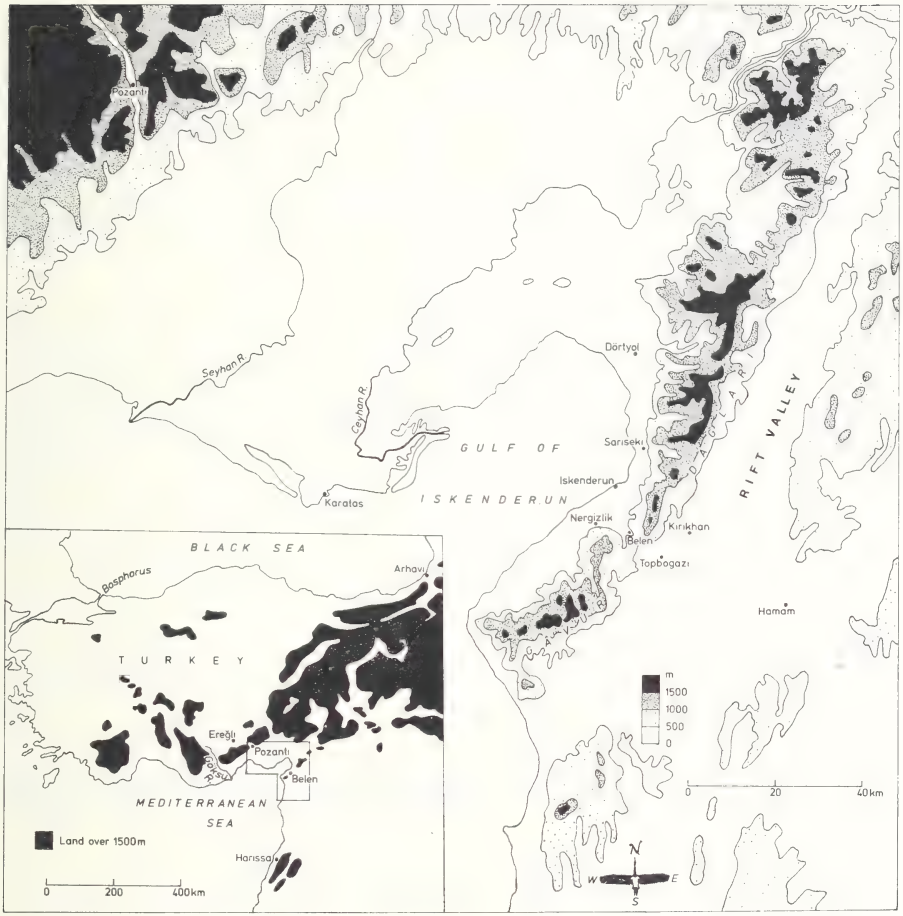
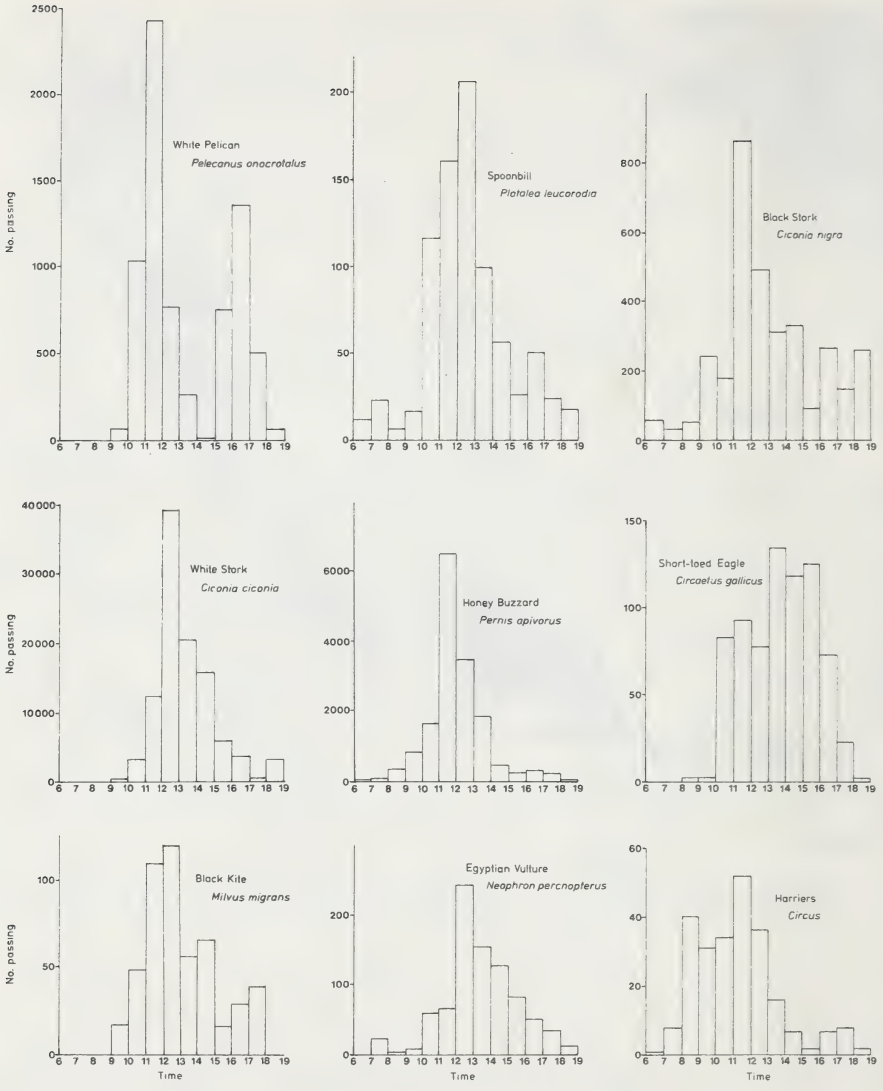


Figure 1. The Gulf of Iskenderun, Southern Turkey and surrounding area.



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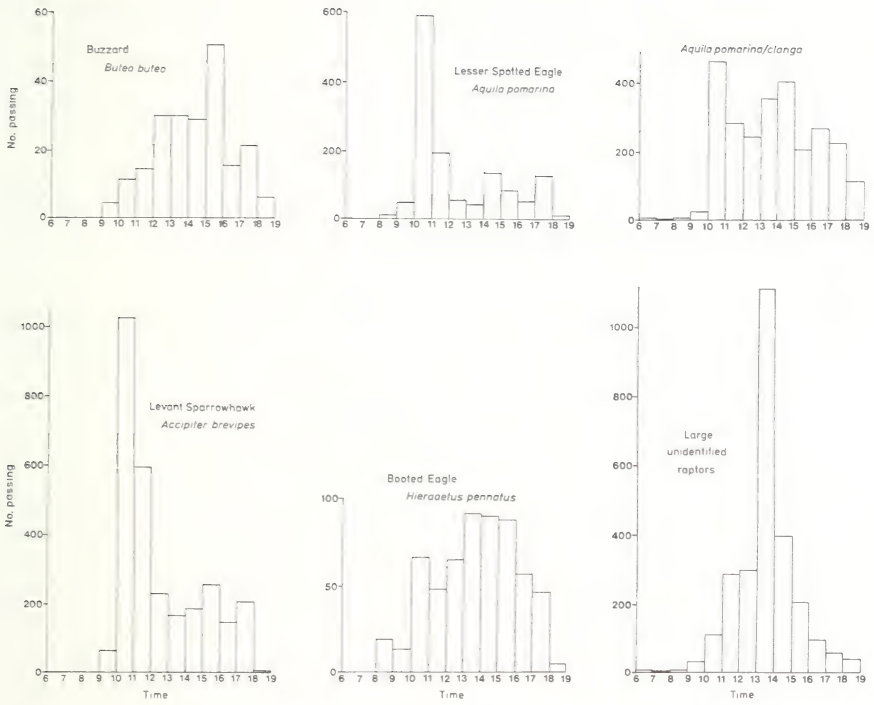


Sutherland and Brooks, Raptor Paper, Figure 2, Part 2.

Figure 2. Total numbers of large migrants observed over the Belen Pass, Southern Turkey, in each hour period, 2 August-23 September 1976.

TABLE I. DAILY TOTALS OF LARGE MIGRANTS AT BELEN, 1976

	AUGUST										
	2	3	4	5	6	7	8	9	10	11	12
White Pelican *Pelecanus onocrotalus*		32			10		250	35			150
Dalmatian Pelican *Pelecanus crispus*											
Black Stork *Ciconia nigra*											
White Stork *Ciconia ciconia*			50	956	302	7	4,783	475	8	3,095	1,648
Spoonbill *Platalea leucorodia*					13	36	66	11		10	21
Honey Buzzard *Pernis apivorus*											
Black Kite *Milvus migrans*											
Egyptian Vulture *Neophron percnopterus*											
Griffon Vulture *Gyps fulvus*											
Short-toed Eagle *Circaetus gallicus*								2			
Marsh Harrier *Circus aeruginosus*											
Pallid Harrier *Circus macrourus*											
Montagu's Harrier *Circus pygargus*											
Unidentified harriers *Circus spp.*											
Sparrowhawk *Accipiter nisus*											
Levant Sparrowhawk *Accipiter brevipes*											
Unidentified sparrowhawks *Accipiter nisus/brevipes*											
Buzzard *Buteo buteo*										8	
Lesser-Spotted Eagle *Aquila pomarina*											
Unidentified spotted eagles *Aquila pomarina/clanga*											
Golden Eagle *Aquila chrysaetos*											
Booted Eagle *Hieraaetus pennatus*								1			
Osprey *Pandion haliaetus*											
Lesser Kestrel/Kestrel *Falco naumanni/tinnunculus*											
Hobby *Falco subbuteo*											
Unidentified falcons *Falco spp.*											
Large unidentified raptors								1		4	

	SEPTEMBER										
	1	2	3	4	5	6	7	8	9	10	11
White Pelican *Pelecanus onocrotalus*		165	121	691		350	2	90	150		260
Dalmatian Pelican *Pelecanus crispus*											
Black Stork *Ciconia nigra*		18	20	35	53	58	42	42	77	14	153
White Stork *Ciconia ciconia*	8	1,196	2,430	2,881	36	264	1,500	9,238	935	302	1,247
Spoonbill *Platalea leucorodia*	26			55	34	40	65	7	10	6	
Honey Buzzard *Pernis apivorus*	670	305	501	584	350	337	282	217	3	105	91
Black Kite *Milvus migrans*			1	34	9	10	7	3			
Egyptian Vulture *Neophron percnopterus*		5	12	10	46	24	120	73			
Griffon Vulture *Gyps fulvus*					1						
Short-toed Eagle *Circaetus gallicus*	2		11	18	77	22	12	34		1	3
Marsh Harrier *Circus aeruginosus*											
Pallid Harrier *Circus macrourus*						1	1				
Montagu's Harrier *Circus pygargus*				3	1		3	1			
Unidentified harriers *Circus spp.*	1	3	2	18	8	4	3	4	2		1
Sparrowhawk *Accipiter nisus*		1		2	1						
Levant Sparrowhawk *Accipiter brevipes*		1			1	2	1	6			
Unidentified sparrowhawks *Accipiter nisus/brevipes*				1	3	1	6	4			1
Buzzard *Buteo buteo*	4				2	1	3	3	4	1	2
Lesser Spotted Eagle *Aquila pomarina*	1		2	5	5	5	9	12			
Unidentified spotted eagles *Aquila pomarina/clanga*			1	7	21	10	16	7		2	7
Golden Eagle *Aquila chrysaetos*							2				
Booted Eagle *Hieraaetus pennatus*	2	4	12	9	27	23	19	15			4
Osprey *Pandion haliaetus*							4				
Lesser Kestrel/Kestrel *Falco naumanni/tinnunculus*						2	1	1		1	1
Hobby *Falco subbuteo*				1			1				
Unidentified falcons *Falco spp.*		1	3		3	1	2				1
Large unidentified raptors	11		20	10	44	24	96	31	5	23	71

The following species are not included above (see text): Red Kite *Milus milvus* 1, Goshawk *Accipiter gentilis* 1, Long-legged Buzzard *Buteo rufinus* 2, Bonelli's Eagle *Hieraaetus fasciatus* 3, Red-footed Falcon *Falco vespertinus* 2, Saker *Falco cherrug* 1.

TABLE I (continued)

AUGUST continued

13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
225		220	33	110			431	32	200		443	63	38	189	37	36		183
1				2		1												2
							2						6	3	45	12	8	
90	2,860		1,200	4,203	1,002	10	9,487	158	1,099		8,180	5,945	5,512	1,960	17,806	5,578	2,050	3
57				16							13	47	33		145	34		
4									6	1	14	388	956	604	5,169	580	273	375
												13	150	20	127	30		5
							1			1		6	6	26	39	30		
																1		
									4			10	8	2	30	30		
												4	4		6	2	2	
				1	1		1	1			5	4	35	4	27	18	3	1
																		1
																1		
															2			
1																1		
															1	1		
							1	1				2	8	3	13	16	2	
													1		1			
												2		1	4	2		
	1						6	4	14	7	37	50	50	44	14	16	7	8

SEPTEMBER continued

12	13	14	15	16	17	18	19	20	21	22	23
180	251	516	6	1	723	56	290	430	73		201
514	147	119	63	188	238	434	343	142	134	106	287
4,441	223		72	3	160	54	65	4	8		42
				9	57				5		
3,632	202	2	63	36	147	42	2	4	14	5	7
48	49										
124	78	2	10	38	91	64	21	12	9	12	14
1	1						1	7	1		2
3	58	1	7	42	99	114	6	29	20	1	82
12	8		3		2			2	1	2	1
	2										
1											
11	5	3	2	3	2	1	3		1	1	2
			1		1	1			2		1
110	469		221	220	758	468	265	3	172	35	218
9	12	17	3	32	8		6	1	5	1	3
2	4	1	14	10	39	35	5	5	41	10	21
91	513	2	71	88	174	249	2	12	32	9	15
69	194	9	138	202	592	606	74	225	160	22	212
	1		1		1				1		
33	53	3	13	29	126	77	11	28	12	20	21
	1							1			
2			2	1	1		1	2	1	1	2
3	1		1		1	1		1	1		
1	1		1	2	3	4			3	1	5
594	53	40	24	94	136	55	145	182	12	49	628

TOTALS

August & September
7,273
6
3,303
103,576
816
15,971
506
874
15
728
31
4
27
181
11
2,951
115
207
1,299
2,574
6
588
6
21
11
41
2,610

TABLE II. A COMPARISON OF NUMBERS OF LARGE MIGRANTS AT BELEN DURING 2-7 SEPTEMBER IN 1965 (CAMERON *et al.* 1967) AND IN 1976

SPECIES	1965	1976
White Pelican *Pelecanus onocrotalus*	200	1,329
Black Stork *Ciconia nigra*	10	226
White Stork *Ciconia ciconia*	23,590	8,307
Honey Buzzard *Pernis apivorus*	519	2,359
Black Kite *Milvus migrans*	216	61
Egyptian Vulture *Neophron percnopterus*	329	217
Griffon Vulture *Gyps fulvus*	125	1
Short-toed Eagle *Circaetus gallicus*	38	140
Harriers *Circus spp.*	8	38
Buzzard *Buteo buteo*	470	6
Buteo/Pernis	976	*
Aquila spp.	19	83
Booted Eagle *Hieraaetus pennatus*	15	94
Large unidentified raptors	520	194*

*Large unidentified raptors and *Buteo/Pernis* were not recorded separately.

TABLE III. A COMPARISON OF NUMBERS OF LARGE MIGRANTS AT THE BOSPHORUS, NORTH-WEST TURKEY, AND ARHAVI, NORTH-EAST TURKEY, DURING 17 AUGUST-20 SEPTEMBER AND AT BELEN DURING 20 AUGUST-23 SEPTEMBER

	Bosphorus			Arhavi	Belen
SPECIES	1966(a)	1971(b)	1972(b)	1976(b)	1976
White Pelican *Pelecanus onocrotalus*					6,203
Black Stork *Ciconia nigra*	1,607	3,409	1,846	20	3,303
White Stork *Ciconia ciconia*	111,784	170,917	231,290		82,887
Spoonbill *Platalea leucorodia*					586
Honey Buzzard *Pernis apivorus*	8,963	25,745	23,638	137,006	15,967
Black Kite *Milvus migrans*	1,606	2,489	1,587	5,329	506
Red Kite *Milvus milvus*	3	2			1
Egyptian Vulture *Neophron percnopterus*	323	354	283	2	874
Griffon Vulture *Gyps fulvus*	18	6	9		15
Short-toed Eagle *Circaetus gallicus*	407	548	263	44	726
Marsh Harrier *Circus aeruginosus*	1	2	2	207	31
Hen Harrier *Circus cyaneus*				3	1
Pallid Harrier *Circus macrourus*		3	2	69	4
Montagu's Harrier *Circus pygarus*	2	11	12	122	27
Unidentified harriers *Circus spp.*	11	12	13	553	181
Goshawk *Accipiter gentilis*		2	1	2	1
Sparrowhawk *Accipiter nisus*	33	26	20	25	11
Levant Sparrowhawk *Accipiter brevipes*	4,616	4,971	2,218	259	2,951
Unidentified sparrowhawks *Accipiter nisus/brevipes*	19	102	181	96	115
Buzzard *Buteo buteo*	960	340	451	5,536	198
Long-legged Buzzard *Buteo rufinus*	2				2
Spotted eagles *Aquila pomarina/clanga*	1,438	2,458	1,343	407	1,886
Imperial Eagle *Aquila heliaca*	4	2	1		
Golden Eagle *Aquila chrysaetos*					6
Booted Eagle *Hieraaetus pennatus*	173	220	120	366	587
Bonelli's Eagle *Hieraaetus fasciatus*					3
Osprey *Pandion haliaetus*	1	10	1	14	6
Lesser Kestrel/Kestrel *Falco naumanni/tinnunculus*	117	35	14	37	21
Hobby *Falco subbuteo*	65	145	168	154	11
Unidentified falcons *Falco spp.*					41
Large/medium unidentified raptors	684	454	209	22,353	2,604

Sources: (a) Porter & Willis 1968 and R. F. Porter (*pers. comm.*).

(b) M. Beaman (*pers. comm.*).

TABLE IV. LARGE MIGRANTS RECORDED 3-4 km. NORTH OF KIRIKHAN, 07.50-11.00 hrs., 15 SEPTEMBER

Black Stork *Ciconia nigra*	7
Sparrowhawk *Accipiter nisus*	14
Levant Sparrowhawk *Accipiter brevipes*	2
Buzzard *Buteo buteo*	7
Booted Eagle *Hieraaetus pennatus*	1
Large unidentified raptors	15

TABLE V. LARGE MIGRANTS RECORDED 3-4 km. EAST OF KIRIKHAN, 11.45-12.30 hrs. 15 SEPTEMBER

Egyptian Vulture *Neophron percnopterus*	3
Unidentified sparrowhawks *Accipiter nisus/brevipes*	1
Unidentified spotted eagles *Aquila pomarina/clanga*	8
Large unidentified raptors	4

16.15-17.00 hrs. 15 SEPTEMBER

Black Stork *Ciconia nigra*	49
Unidentified storks *Circus spp.*	1

14.10-15.30 hrs., 16 SEPTEMBER

White Stork *Ciconia ciconia*	17
Egyptian Vulture *Neophron percnopterus*	2
Unidentified sparrowhawks *Accipiter nisus/brevipes*	1

TABLE VI. LARGE MIGRANTS RECORDED 9 km. NORTH OF DÖRTYOL, 12.45-14.30 hrs., 18 SEPTEMBER

Black Stork *Ciconia nigra*	48
White Stork *Ciconia ciconia*	80
Short-toed Eagle *Circaetus gallicus*	11
Unidentified sparrowhawks *Accipiter nisus/brevipes*	1
Buzzard *Buteo buteo*	2
Unidentified buzzards *Buteo spp.*	1
Unidentified spotted eagles *Aquila pomarina/clanga*	56
Booted Eagle *Hieraaetus pennatus*	3
Large unidentified raptors	31

TABLE VII. A COMPARISON OF LARGE MIGRANTS RECORDED AT SARISEKI AND THOSE SUBSEQUENTLY NOTED AT BELEN ON 22 SEPTEMBER 1976

	Sariseki	Belen			
hrs.	11.20-12.25	11.30-12.30	12.30-13.30	13.30-14.30	14.30-19.30
Black Stork *Ciconia nigra*	8	84			
Unidentified storks *Ciconia spp.*	110				
Griffon Vulture *Gyps fulvus*	1				
Levant Sparrowhawk *Accipiter brevipes*	30	1			
Unidentified sparrowhawks *Accipiter nisus/brevipes*	1				
Buzzard *Buteo buteo*	2	1			1
Spotted eagles *Aquila pomarina/clanga*	9				2
Booted Eagle *Hieraaetus pennatus*	1	2	1	1	5
Large unidentified raptors	36	19	1	2	2
Other raptors		1	1	1	1

TABLE VIII. DISTANCES FROM BELEN OF POSSIBLE ROOSTING AREAS OF WHITE PELICANS *Pelecanus onocrotalus*

	Distance (kilometres)	
	Direct	Avoiding the Gulf of Iskenderun
Seyhan/Ceyhan delta	80	135
Göksu delta (via Mediterranean coast)	230	270
Eregli/Hotamis wetlands (via Pozanti Pass)	240-300	250-310

BIRDS OF THE AZRAQ WETLAND RESERVE, JORDAN: JANUARY AND FEBRUARY 1979

by

Peter Conder

INTRODUCTION

Much has been written about the migratory and breeding birds of the Azraq Oasis but little about those that winter: Guy Mountfort (1965) described the results of two expeditions to Jordan in 1963 and 1965 during the last of which proposals were made to His Majesty King Hussein of Jordan that a desert national park and a biological research station should be established in this area of high scientific interest. In 1966 J. H. Hemsley and Dr. Martin George visited Azraq and drew up a draft management plan (1966) for the proposed national park and a team led by Dr. Morton Boyd prepared plans for the biological research station (1967). In 1968 Dr. Bryan Nelson became the biological research station's first director, but his stay was cut short on the orders of the Iraqi Army in 1969. His book (1973) summarises not only his own work but the reports of previous expeditions. Any further references to Nelson apply to this book. Sadly, there has been no attempt to restart the biological station which is still a viable proposition but it is clear that the possibility of the desert national park along the lines suggested by Mountford is as dead as the dodo. Since 1976 John E. Clarke has been working in Jordan on behalf of the International Union for the Conservation of Nature (IUCN) and the World Wildlife Fund (WWF) in conjunction with the Royal Society for the Conservation of Nature of Jordan (RSCN), first to establish the Shaumari Wildlife Reserve about 13 km. from Azraq for the captive breeding of Arabian Oryx *Oryx leucoryz*, and various species of gazelle, and their eventual release into their former habitats. The Shaumari Wildlife Reserve has since been extended from 60 km.^{2} to 600 km.^{2} to become the Azraq Desert Reserve. Whilst at Shaumari, Clarke carried out regular transects of the birds of Shaumari (Clarke 1980). At present he is reviewing the wildlife legislation of Jordan and the needs of conservation in Jordan.

In January 1977 the Hashemite Kingdom of Jordan signed *The Convention on Wetlands of International Importance especially as Waterfowl Habitat done at Ramsar, Iran, 1972* and listed the Azraq marsh and mudflats as a wetland of international importance. Although the Ministry of Agriculture is nominally responsible for conservation in Jordan it has delegated this responsibility to the RSCN. In 1977 the RSCN asked the IUCN and WWF for assistance in preparing a management plan for the wetland sites and I went to Jordan early in 1979 to prepare this plan under IUCN/WWF joint project 1267. The following paper is based on my ornithological observations at Azraq between my arrival there on 11 January and my departure for Amman on 1 March.

DESCRIPTION OF CENTRAL MARSH

I concentrated my work on 14 km.^{2} of marsh, silt dunes and mudflat pools which make up the first part of the Ramsar Convention site. I spent much less time on the 60 km.^{2} or so of the mudflat proper or the remaining 25 km.^{2} of silt dunes, basalt or hammada desert, and wadi spread which surround the mudflat and which together make up the second part of the Reserve and the Ramsar site.

The water which, according to Nelson, supplies the marsh apparently originates in the Jebel Druze in Syria and having travelled through underground aquifers emerges in the Azraq Oasis in two springs—Ain Qasiyah (from which water is pumped to Irbid in north Jordan) and Ain Soda. Pumping from Ain Qasiyah began in the 1950s. Worries were expressed at the time about the possible harmful effects of this pumping and whilst it has not been possible to make very accurate measurements, I believe that the aerial photographs which I was privileged to examine show that a number of dry stream beds indicate there has been some shrinkage of wet areas in the peripheral parts of the marsh since pumping began.

The vegetation of Azraq was surveyed by Hemsley and George (*loc. cit.*) and their work has been summarised by Nelson. The central marsh of the oasis occupies about 7 km.^{2} of which about 4 km.^{2} is covered with *Typha*, sometimes in pure stands or associated with *Arundo donax* as well as *Cyperus laevitigatus*, *Scirpus littoralis*, *Juncus acutus* and so on. The wind-drifted silt dunes which are partly covered with *Tamarix* spp. and *Nitraria retusa* occupy another 7 km.^{2}: the silt has been slowly engulfing the marsh for hundreds of years; the outer Roman wall which was said to have been built in about AD 350 to separate the salt water of the mudflats from the fresh water of the springs is now largely buried in silt and for the most part of its length is at least 800 metres from water.

The marsh contains 60 to 70 silt islands varying in size from about 8 hectares to a few square yards; these are slowly increasing in area as windblown silt accretes amongst the *Juncus acutus*, *Tamarix* and *Nitraria*. The growth of these islands is another factor reducing the size of the marsh.

From the central marsh five streams flow eastwards through the dunes out to the mudflats and into the pools Burgess, Monfilit and Ingilesi. In January 1979 these pools were only 10-20 cms. deep, but the water, having filled the shallow main pools, spilled over the impounding dams onto the mudflats wetting them patchily, filling other shallow depressions and thus creating a very favoured habitat for waterfowl and waders. Except for these pools and other damp depressions the mudflats are usually dry and do not flood every winter: according to Jean Clarke (*pers. comm.*) the last time they flooded was in January 1976. Since then Jordan has suffered two dry winters, and it is possible that the mudflats will never flood as much as they have in the past since Wadi Rajil which is the main source of the flood water has been dammed in Syria and the water diverted. Before the dam was built the 60 or 70 km.^{2} mudflat used to flood every two or three winters and some very large concentrations of waterfowl were recorded: in February 1967, for instance, the RSCN made an aerial survey and recorded 347,000 waterfowl on the flooded mudflats and on 25 February 1974 the flats were estimated to be holding 110,000 waterfowl (Qasem 1976).

In contrast to these figures the number of waterfowl that I counted in January and February 1979 hardly exceeded 2,500. Whilst these low numbers were due to the lack of flooding the marsh and the mudflat pools were excessively disturbed by shooting when as many as fifty guns were shooting legitimately on two days a week on the marsh part of the reserve from September to 31 March, and when the marsh was poached by up to six guns on a further three days in the week. Various recommendations to improve this situation have been made. But as may be imagined many bird species were extremely wary.

A second problem was caused by overgrazing by camels, water buffaloes, cows and horses; in January 1979 when I first came to the marsh I was unable to find a single sedge, rush or reed with a seed head and in much of the marsh it was impossible to find any great length of stem of sedges or rushes. Consequently the marsh itself was not particularly attractive as a feeding ground and indeed I only saw a maximum of *c.* 500 Teal *Anas crecca* and *c.* 20 Mallard *A. platyrhynchos* in the marsh at any time during the seven weeks that I was there. Even on the mudflat pools, horses were competing with the waterfowl for the submerged weeds, particularly *Ruppia maritima*.

My seven-week stay during the winter confirmed for me what has been known since 1963 and before, that the Azraq Oasis remains an extremely interesting place ornithologically. Whilst there is no hope of the establishment of the Desert National Park along the lines suggested by Guy Mountford because of various developments such as a new airfield, increased use of alluvial land for agriculture, extensive building in Azraq linked with the new main road, the potential for the Biological Research Station remains. Indeed with two extensive reserves and others proposed in the area, such a research station could, and should be, the focus of all the scientific and management work in the area of these reserves. However the impetus to restart the station would appear to be lacking in Jordan, and international help is really required to rekindle interest in it.

THE SYSTEMATIC LIST

The systematic list which follows is based on my observations at Azraq between my arrival there on 11 January and my departure for Amman on 1 March.

I should emphasise that the main point of my visit was to prepare a management plan for the Azraq Wetland Reserve and more particularly for the 14 km.^{2} of the marsh. For a variety of reasons the time available for bird watching was rather limited. I had to spend four weeks mapping the area from scratch since no suitable maps were available. Only two weeks before I left were strictly classified aerial photographs made available to me and the map accompanying this paper is based on these aerial photographs and my own rather elementary surveying.

Owing to local misunderstandings with the driver I was also rather starved of transport. This meant that I had to walk which was useful so far as birdwatching was concerned but wasted two to three hours of my day when I was working on various aspects of the management plan.

The Birds

The actual number of birds seen during the course of my stay was so small that it was possible to make a note of every individual bird and its habitat except for the flocks of waterfowl and waders. Because of over-shooting waterfowl and waders were extremely wary and became alarmed at a range of about 150 to 200 yards, and, unfortunately, refraction of the light distorted images at a shorter range than this on the mudflats so that I was rarely able to get a really satisfactory count of duck—species by species—although one could usually arrive at a total of the flock size. It was even more difficult and virtually impossible to get anything like an accurate count of the small waders.

An examination of the systematic list that follows shows that spring migration had just begun when I left, but no really big movements had been seen. Nelson says that the oasis attracts migrants from miles around. Except for swifts *Apus* spp., which were usually seen flying in a north westerly direction which was the commonest wind direction during my stay, the few diurnal migrants that I saw flying were usually heading towards the marsh and usually not more than a mile or so from it.

Several species were recorded in Azraq which appeared to be rather further south than they are usually recorded, of which six appeared to be new records for the area: White-fronted Goose, Fieldfare, Redwing, Penduline Tit, Reed Bunting and Corn Bunting. The Robin and the Redwing were first recorded on the same day at a time when particularly strong north-westerly winds were blowing. It occurred to me that the very hard winter which was gripping most of Europe might have been responsible for the appearance of these species at Azraq.

The two other species which had not apparently been recorded previously at Azraq were the Spectacled Warbler *Sylvia conspicillata* and the Desert Finch *Rhodospiza obsoleta*. Other species had not apparently been recorded at Azraq during the winter. On the other hand Great White Egret *Egretta alba*, Pochard *Aythya ferina* and Ferruginous Duck *A. nyroca* have been recorded as wintering by Nelson but were not recorded in January and February 1979. Azraq had not been covered so intensively before in winter; whilst Nelson had spent a winter there, he was covering a much wider area and his interest was not restricted to birds. In compiling the list that follows I have given a summary of all my records made during my stay at Azraq. The previous status as summarised by Nelson is placed in square brackets. The abbreviations he uses are as follows:—

B	Breeds or has bred.
(B)	Almost certainly breeds but no definite proof.
S	Summer resident.
(S)	May be summer resident.
W	Winter Resident.
M	Migrant (seen regularly on passage, usually in reasonable or large numbers but some grading into vagrant status).
V	Vagrant (irregular to scarce or very rare).

Tachybaptus ruficollis Little Grebe [(B), W]

Up to six seen in open pools in central marsh between 20 Jan. and 19 Feb.; but areas not checked in last half February.

Botaurus stellaris Bittern [V]

One found shot in the marsh on 24 Jan.; the corpse was probably a fortnight old.

Egretta garzetta Little Egret [M]

A single bird first recorded around Burgess pools on 17 Jan. then seen occasionally on mud flats and pools, until 15 Feb.

Ardea cinerea Grey Heron [M]

Up to four seen in central marsh and occasionally on mudflat pool throughout period of my stay. Apparently not previously recorded as wintering here.

Anser albifrons White-fronted Goose

Two seen regularly in Burgess area from 13 Jan. to 18 Jan. New record for Azraq.

Tadorna ferruginea Ruddy Shelduck [W]

Three seen between 13 and 30 Jan. in Ingilesi area.

Tadorna tadorna Shelduck [(B). W]

Present throughout: largest number recorded in reserve area: 590 on 18 Feb.

Anas penelope Wigeon [W. M]

Recorded throughout January and February with *c.* 40 present in January but increasing to *c.* 60 towards end-February.

Anas strepera Gadwall [W. M]

Up to about 25 recorded throughout period of visit.

Anas crecca Teal (W.M (B)]

Most numerous duck throughout my stay with maximum numbers *c.* 1,520 on 18 Jan., and a decrease apparently to *c.* 1,000 in last half-February. Mostly seen on mudflats but small flocks penetrated the hazards of the central marsh.

Anas platyrhynchos Mallard [W.S.B.]

Present through January and February. Maximum number estimated about 100—mostly on mudflats and less than 10 seen fairly regularly in marsh and possibly beginning to breed at end-February.

Anas acuta Pintail [W.M (B)]

Present throughout my visit. Less than 20 in January but 352 counted on 15 and *c.* 400 on 20 Feb. chiefly on mudflats, rarely coming on to marsh.

Anas querquedula Garganey [W? M (B)]

Twelve first recorded on 22 Feb. and at least two shot on following day on mudflat pools. Four with *c.* 20 Teal in central marsh on 26th.

Anas clypeata Shoveler [W.M]

Present throughout visit and maximum number estimated at *c.* 100 in mid-January on mudflat pools and no obvious change in February.

Netta rufina Red-crested Pochard [V]

Two shot on 12 Jan. on the mudflat pools; only record in January or February.

Aythya fuligula Tufted Duck [W.M]

Five on the mudflat pools on 11 Jan.; the only record in January and February.

Circus aeruginosus Marsh Harrier [B.M.W]

About four present throughout visit but eight seen together on 15 Jan. By end-February two pairs were displaying over the central marsh.

Circus cyaneus Hen Harrier [M]

A tailless male over central marsh seen between 13 Jan. and 3 Feb.

Circus macrourus Pallid Harrier [M]

One male over the Azraq North marshes on 23 Feb.

Buteo rufinus Long-legged Buzzard [M]

One adult circling over marsh and gradually moving northwards on 31 Jan.

Aquila heliaca Imperial Eagle [V]

An adult recorded from 29 Jan. until end of my stay, usually over mudflat pools, presumably seeking waterfowl damaged by shooting. On 31 Jan. one immature also recorded in same area.

Falco tinnunculus Kestrel [M.B]

One male recorded regularly hunting over marsh between 14 and 22 Jan.: single male over Burgess on 22 Feb.

Falco columbarius Merlin [W]

One male seen regularly throughout my stay usually on edge of silt dunes and mudflats and seemed to be preying on Lesser Short-toed Larks *Calandrella rufescens* as they came in to drink at the pools.

Rallus aquaticus Water Rail [B]

Up to twelve heard calling from marsh regularly throughout period of stay—possibly between 100-500 wintering.

Gallinula chloropus Moorhen [B]

Up to seven seen or heard during the period of my stay; extremely shy, no doubt because of shooting. Estimated 100-500 individuals wintering.

Fulica atra Coot [M.W? (B)]

One shot on 12 Jan., and three seen in pool in centre of marsh on 20 Jan. were the only records.

Recurvirostra avosetta Avocet [B.M]

Three on Monfilit from 20 Feb. until end of my stay.

Cursorius cursor Cream-coloured Courser [B]

One in Point Four marsh on 23 Feb.

Charadrius hiaticula Ringed Plover [M]

Recorded surprisingly irregularly and first recorded on 1 Feb. with maximum about ten in mid-February on Burgess pools.

Charadrius alexandrinus Kentish Plover [B.M]

Present throughout January and February on mudflat pools with maximum numbers about 100, but on 20 Feb. numbers at Burgess had increased to about 370.

Charadrius leschenaultii Greater Sand Plover [B]

One first recorded on 20 Feb. on Burgess pools but 12 from 22 to 28 February.

Vanellus vanellus Lapwing [M.W]

Present throughout January and February: *c.* 20 until 5 Feb. when total had increased to *c.* 70; further slight increases on 13 and 20 Feb. Mostly attracted to mudflats and pools and to a lesser extent central marsh, where possibly disturbed by overshooting.

Calidris minuta Little Stint [M]

Probably present throughout January and February but extreme shyness resulting from shooting coupled with distortion arising from refraction made identification at ranges of 150 yards or more very difficult. 30 recorded on 16 Jan.; 300 on 2 Feb. on mudflat pools and *c.* 600 on 20 Feb. Not seen in the last week of my visit but they may have gone out to newly wet areas on the mudflat.

Calidris alpina Dunlin [M.W]

Usually associating with Little Stint but generally in much smaller numbers: 20 on 5 Feb. but up to 150 on 20 Feb. on Burgess pools.

Philomachus pugnax Ruff [M]

Three in heavily-grazed part of marsh on 20 Jan. and three on mudflat edge on 20 Feb.

Lymnocryptes minimus Jack Snipe [M.W]

One on 22 and three on 25 Jan. in central marsh.

Gallinago gallinago Snipe [M.W]

Present throughout my stay: largest number recorded was *c.* 370 in central marsh, but total numbers probably between 500 and 1,000.

Scolopax rusticola Woodcock [W.M?]

One in central marsh on 31 Jan.

Limosa limosa Black-tailed Godwit [M]

Nine feeding hard in Monfilit on 20 Feb.

Tringa totanus Redshank [M]

Present throughout my stay: usually less than 30 in January but increasing to *c.* 250 on 3 Feb. and dropping again to 70 on 6 Feb. and to less than 10 in last week of February.

Tringa ochropus Green Sandpiper [M]

Between 10 and 20 present throughout my stay.

Tringa glareola Wood Sandpiper [M]

Two recorded from 5 Feb. on Burgess until end of my stay with three on 22 Feb.

Larus ridibundus Black-headed Gull [M]

One in Burgess area between 15 Jan. to 1 Feb. and two in immature plumage at Ingilesi from 13 to 20 Feb.

Pterocles orientalis Black-bellied Sandgrouse [B]

Up to 85 in two flocks seen on five days throughout period of visit usually near mudflat pools.

Pterocles alchata Pin-tailed Sandgrouse [B.S]

Up to 50 in two flocks seen on three occasions throughout my visit usually near mudflat pools.

Columba livia Rock Dove [B]

Eleven on 17 Jan. and 37 on 20 Jan. were the only records of this species during my visit.

Athene noctua Little Owl [B]

One seen on 28 and 29 Jan. in *Nitraria* silt dunes.

Apus apus Swift [M]

From 15 Feb. when five recorded, up to nine seen together on five dates—except when hunting over marsh they were usually seen flying in north-westerly direction which was usually the wind direction.

Apus melba Alpine Swift [V]

One on 1 Mar. flying NW over desert 400 metres from the marsh.

Apus affinis Little Swift [V]

Three flying in north westerly direction towards marsh on 15 Feb. with some Swifts.

Alcedo atthis Kingfisher [M]

About five individuals present in the marsh throughout my stay.

Upupa epops Hoopoe [M]

First recorded on 12 Feb., from then until end February up to four seen almost daily in village.

Jynx torquilla Wryneck [M]

One on 18 Feb. in village garden.

Calandrella brachydactyla Short-toed Lark [B. (M)]

One seen near Ingilesi on 28 Feb.

Calandrella rufescens Lesser Short-toed Lark [B]

Seen almost daily but only on mudflats where hundreds came to damp ground on edge of pools to drink. Wing measurement of an individual found recently dead on 16 Jan.: 95 mm., 1-2 primaries longest, 3rd 1 mm. shorter, 4th 3.5 mm. shorter, 5th 7 mm. shorter, 2nd-4th had emarginated outer webs and 1st to 4th emarginated inner webs. This individual was very thin with breast bone like a knife.

Galerida cristata Crested Lark [B]

Present throughout my stay in village or on silt dunes: normally about ten seen in course of a day.

Eremophila bilopha Temminck's Horned Lark [B]

In January and February up to 18 seen together on 11 days near Lodge and on mudflats.

Riparia riparia Sand Martin [M (B)]

None recorded at Azraq during my stay although recorded in February in Jordan valley.

Hirundo rustica Swallow [M]

One male first recorded on 20 Jan. and one or two recorded on five days until 7 Feb., from which date recorded almost daily: a tailless bird recorded between 5 and 9 Feb. Peak days: 19 on 18 Feb. and 35 on 19 Feb.

Hirundo daurica Red-rumped Swallow [M]

Three over Shishan pools on 26 Feb.

Delichon urbica House Martin [M]

Two on 12 Feb. and up to 10 on another five days in February.

Anthus campestris Tawny Pipit [(B)]

Two recorded in *Juncus* and silt area in northern part of the reserve on 19 Feb.

Anthus cervinus Red-throated Pipit [M]

Present throughout my stay, and up to eight seen either in marsh or on mudflat pools: but I guessed that between 50 and 100 could have been present in the whole reserve. Numbers decreased in last half of February.

Anthus spinoletta Water Pipit [W.M.]

Present throughout my stay both in central marsh but even more abundantly on the mudflat pools when 100 or 200 were seen.

Motacilla cinerea Grey Wagtail [V]

One individual first recorded on 30 Jan. as immature and from that date until 28 Feb. when it was clearly assuming male plumage; it was always in same muddy pool near the village.

Motacilla alba White Wagtail [M.W]

Present daily throughout my stay in most habitats but in largest numbers on edge of mudflat pools where at least 500 were present on 20 Feb. Estimated numbers on whole reserve about 700.

Erithacus rubecula Robin [V]

Two recorded on 23 Jan. and one last seen on 31 Jan.; possibly drifted southwards on strong north-western winds.

Luscinia svecica Bluethroat [M]

Present throughout my stay usually in *Tamarix* spp or *Typha angustata* on edges of marsh: those in maturer plumage were red-spotted. Estimated population about 50 to 100.

Phoenicurus ochruros Black Redstart [M]

Present throughout my stay and at least three individuals occupying same village gardens throughout; about 10 to 20 individuals wintering.

Phoenicurus phoenicurus Common Redstart [M]

One female in *Tamarix* in Burgess stream area on 1 Feb.

Saxicola torquata Stonechat [M]

Present throughout my stay and population on the marsh probably between 50-100 individuals with a marked preponderance of mature males; ratio 2:1 of males to females and immature individuals. Mostly on *Tamarix*, *Nitraria* and *Typha* on edge of wet areas.

Oenanthe isabellina Isabelline Wheatear [W.M (B)]

Ten to 20 present throughout January and February but numbers increasing about mid-February and 28 recorded on 28 Feb. Distributed throughout silt dunes and even on to the marshy areas.

Oenanthe deserti Desert Wheatear [B]

One and occasionally two recorded on six days throughout my stay; on edge of silt dunes and usually in same locality.

Oenanthe finschii Finsch's Wheatear [V]

C. 10-20 present throughout my stay usually in silt dunes and particularly on edges where ground was level. At least three well-marked individuals restricted themselves to certain localities.

Oenanthe moesta Red-rumped Wheatear [(B)]

Up to three present throughout my stay, on edge of mudflats and silt dunes.

Turdus merula Blackbird [M]

Up to three seen in *Tamarix* bushes close to Shishan pools throughout my stay.

Turdus pilaris Fieldfare

One in *Tamarix* near Ingilesi on 28 Feb. New record for Azraq.

Turdus philomelos Song Thrush [M]

Up to ten recorded daily from *Tamarix* and edge of Azraq south village throughout my stay.

Turdus iliacus Redwing

One in *Tamarix* on silt dunes on 23 Jan. New record for Azraq.

Cettia cetti Cetti's Warbler [V]

First recorded when one was heard singing on 13 Feb. near Shishan pools, and probably same bird on three other dates, and with a second singer on 19 Feb.

Cisticola juncidis Fan-tailed Warbler [B]

One on 14 Feb. foraging amongst *Typha*.

Prinia gracilis Graceful Warbler [B]

Present throughout stay, usually seen in pairs and first heard singing on 6 Feb.

Scotocerca inquieta Scrub Warbler [B]

Recorded on 13, 19 and 28 Feb. in same locality in silt dunes and on last date seen carrying nest material.

Acrocephalus melanopogon Moustached Warbler [B]

Probably *c*. 25-50 individuals present throughout my stay: first heard singing on 13 Feb.

Acrocephalus schoenobaenus Sedge Warbler [M. (B)]

One recorded in *Juncus* area on 26 Feb.

Sylvia conspicillata Spectacled Warbler

One seen at regular intervals between 31 Jan. and 28 Feb. in heavily grazed *Tamarix* on the edge of Burgess. New record for Azraq.

Sylvia melanocephala Sardinian Warbler [B]

About 10-20 present throughout my stay, usually seen in *Tamarix* and *Nitraria* and occasionally in village. Two seen behaving as pair on 7 Feb.

Sylvia curruca Lesser Whitethroat [M]

One on 29 Jan., 21 and 26 Feb.; usually in *Tamarix*.

Sylvia communis Common Whitethroat [M]

One near Shishan pools on 18 Feb.

Sylvia atricapilla Blackcap [M]

One male near Shishan pools on 18 Feb.

Phylloscopus collybita Chiffchaff [M]

Present throughout my stay, usually in *Tamarix* close to water's edge. In January 10-20 usually recorded every day but increasing in mid-February with 58 on 21 Feb., *c.* 100 on 26 Feb. and more again on 28 Feb. Possibly two races involved with distinct call notes, the commoner race calling "see-ip" note and the less common and rather paler in colour a "hoo-eet" note. Both sang "chiffchaff" song.

Remiz pendulinus Penduline Tit

Up to four seen on six dates between 15 Jan. and 26 Feb. and therefore spending at least six weeks of winter there. This is apparently a first record for the Azraq oasis. The race involved was apparently either *R.p.pendulinus* or *mengbieri*. This record would appear to have been a 500 km. southward extension of winter range.

Lanius excubitor Great Grey Shrike [W.B.M.]

About five individuals in the silt dunes throughout my stay.

Corvus ruficollis Brown-necked Raven [B]

Three on edge of Reserve at Point Four marsh on 28 Jan.

Sturnus vulgaris Starling [W]

About 30-50 in village of Azraq South and occasionally in marsh throughout my stay.

Passer domesticus House Sparrow [B]

Estimated 250-500 in village and occasionally on edge of marsh with Spanish Sparrows.

Passer hispaniolensis Spanish Sparrow [V]

About 100-250 throughout my stay; more in marsh than House Sparrow but also in village.

Carduelis carduelis Goldfinch [M (B)]

One in *Tamarix* near Shishan pools on 6 Feb.

Rhodospiza obsoleta Desert Finch

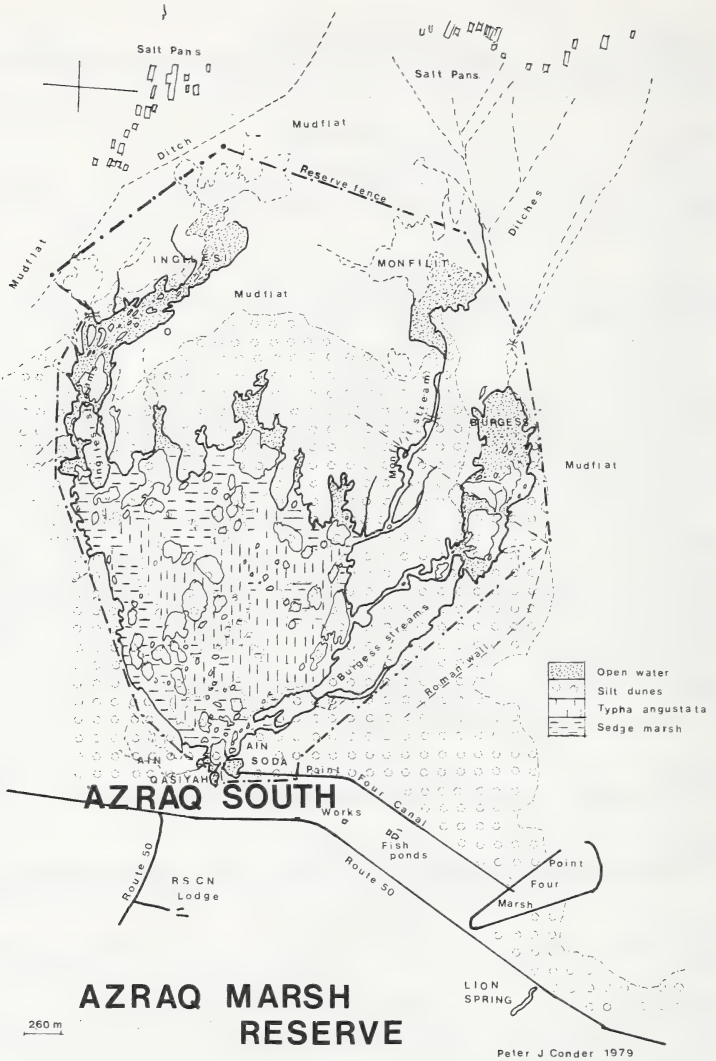
Up to 12 recorded on six dates during my stay; during January seen chiefly in silt zones; first recorded singing on 12 Feb. and thereafter more in village gardens. Apparently new record for Azraq Wetland Reserve.

Emberiza schoeniclus Reed Bunting

One on 29 Jan. in central marsh. Apparently a new record for Azraq.

Miliaria calandra Corn Bunting

A party of nine amongst the irrigated trees near the Azraq North Resthouse. Not recorded by Nelson but more recently recorded by Clarke (1980) from Shaumari.



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NOTES ON THE BIRDS OF NORTHERN OMAN

by

F. J. Walker

INTRODUCTION

Ornithological observations in Northern Oman have until recently been extremely limited. The few records published up to the middle of this century are summarised in Meinertzhagen (1954) and much more comprehensively by Warr (1976), who also lists many more recent records. Gallagher (1977) should be consulted for recent records from the Jebel Akhdar not included by Warr. A full treatment of the avifauna of Oman is currently in preparation (Gallagher & Woodcock in prep.*), but the only book covering part of the area currently available (Honeywell & Honeywell 1976) is quite inadequate and indeed erroneous.

These notes cover a period from 2 October 1975 until 7 January 1978, except for short periods spent on leave and detachments to Thumrait in the Dhofar Province, Southern Oman and a short period (6-7 April) in 1979. The order and nomenclature follow Voous (1977).

I was very parochial in my choice of areas covered, primarily because of the lack of reliable transport, so spent much of my time in an area from Sib to Azaiba, and inland to the foothills behind Muaskar al Murtafa'a (hereafter known as MAM). This area lies on the Batinah plain (or coast) which covers the whole of the low outwash plain between the mountains and the sea. Much time was spent at the sewage outflows and the rubbish tips at the various military and civilian camps in the area, and in the first year I made almost daily visits to the coast at Awamir and Azaiba in order to count, where possible, the numbers of migrating sea birds. Brief visits were made to Saiq, at *c.* 6,500 feet in the Jebel Akhdar and to Khassab (Musandam Peninsula). Regular visits were made to the khors west of Sib, to the mangrove swamps at Qurm and to Wadi al Khawd. Primarily, however, these notes cover a radius of *c.* ten miles around MAM (*Figure 1*).

Very important ecological changes are taking place in the areas covered, with tarmac and dirt roads cutting through the virgin scrub and foothills. On the Batinah plain, where there is a coastal strip of date palms and small gardens, bulldozers are rapidly clearing scrub for large market gardens, which are already producing fruit and vegetables for the local markets. Domestic buildings, factories and military establishments are rapidly being constructed and it will not be long before buildings stretch from Sib to Muttrah. On the coast the dunes disappear as sand is removed for further building projects; the once quiet sandy beaches now resound with the roar of beach-buggies and in many places are crowded with sunbathers and swimmers.

The Sultanate of Oman lies on the eastern edge of the Arabian peninsula. To the north the mountains of Musandam divide the Arabian (or Persian) Gulf and the Gulf of Oman; to the east lies the Arabian Sea, whilst to the west, the great sands of Rub al Khali edge into Oman. To the south, the mountains sweep across into Yemen and the entrance to the Red Sea. Much of the terrain is gravel and limestone desert or barren mountain ranges, but there are considerable areas of cultivation along the wadis and on the Batinah Coast. The areas I covered were mostly eroded limestone foothills that run from Muscat north-westwards to Musandam, and coastal plain, a mixture of sand, gravel, broken limestone and salt marshes, much of it covered in scrub and thorn. The coastal beaches are almost wholly sand, with muddy khors, shallow tidal inlets, that attract a host of sea birds, herons and waders. The sewage farm at MAM, covering about four acres, has two large settling tanks and the overflow runs into a shallow wadi nearby. The resultant growth of reed, king mace and indigenous vegetation formed a focal point for residents and migrants alike. I tried to cover this area daily and over one hundred and sixty species were recorded there; no doubt with mist-netting, others would have been identified, especially warblers.

*[published 1980 Ed.].

MIGRATION

In spring, sea birds and waders were observed coasting north-west, but large northerly movements of terns and gulls also took place, birds leaving the beaches between Sib and Azaiba on a northerly heading into the light prevailing winds, directly towards the Iranian coast. Passerines move north out of the mountain passes, flitting from bush to bush, feeding as they go, and roosting in the heat of the day. After they reach the coastal plain, they seem to move out to sea about thirty minutes after dusk. In autumn the reverse takes place and large numbers of gulls and terns can be seen coming in off the sea from due north; they either settle on the beaches and khors, or turn onto a south-easterly heading down the coast. Passerines were often seen coming off the sea from just before dawn until about 0930 hrs. (local time), they then moved south across the coastal plain or turned to coast south-eastwards. Autumn raptor movements appear to follow the mountain range south-east from Musandam, using the lift from the prevailing northerly winds, then probably turn south over the Jebel Akhdar and Jebel Bani Jabir ranges to enter the central plain of Oman. The overall pattern of migration over north-east Oman appears to be orientated on a south-west to north-east axis in spring, and on a reverse heading in autumn.

GAZETTEER & KEY

Khor/Khawr	Shallow inlet or tidal pools, often extensive with sand or mud bottom, behind sand banks on coast
Jebel/Jabal	Mountain(s)
Wadi	Wet or dry river bed, usually rocky or pebble bottom. Sometimes in form of ravines, others shallow (especially across coastal plain)

Locality	*Lat.*	*Long.*	*Locality*	*Lat.*	*Long.*
Awamir	23°37′N	58°16′E	Muscat	23°38′N	58°34′E
Azaiba	23°36′N	58°23′E	Qurm	23°29′N	58°27′E
Bid-bid	23°26′N	58°07′E	Ras Suwadi	23°45′H	57°47′E
Fanja	23°27′N	58°07′E	Rusail	23°33′N	58°12′E
Ghubrah	23°15′N	54°42′E	Saiq	23°04′N	57°39′E
Khassab	26°12′N	56°15′E	Seeb	23°35′N	58°18′E
Manumah	23°43′N	58°07′E	Sib	23°40′N	58°08′E
Mina al Fahal	23°36′N	58°23′E	Sohar	24°18′N	56°41′E
Muaskar al			Sumail gap	23°08′N	57°51′E
Murtafa'a (MAM)	23°34′N	58°12′E	Wadi al Khawd	23°34′N	58°08′E
Murayrat	23°28′N	58°08′E			

Tachybaptus ruficollis Little Grebe
One or two birds at MAM from 3 Sep. 1977 to 7 Jan. 1978. One at Seeb lagoon 4 Sep. 1977.

Puffinus lherminieri Audubon's Sheatwater
One dead at Azaiba 19 Jul. 1976. One at Awamir 12 Feb. 1977.

Phaethon aethereus Red-billed Tropicbird
One at Ras Suwadi 18 Mar. 1977.

Phalacrocorax carbo Cormorant
Recorded from 7 Nov. to 18 Feb. on northern coasts.

Phalacrocorax nigrogularis Socotra Cormorant
An adult and an immature at Ras Suwadi 18 Mar. 1977.

Ixobrychus minutus Little Bittern
Single birds at MAM and Awamir 14-25 Sep. 1976. Up to two at MAM 9-13 May 1977. One at MAM 13-22 Sep. 1977.

Nycticorax nycticorax Night Heron
Up to six at MAM, Awamir and Qurm from 4 Aug. to 11 Nov.

Butorides striatus Green-backed Heron
Resident maximum recorded at Qurm mangroves; four adults and four immatures 14 Jul. 1976.

Ardeola ralloides Squacco Heron
One at Sib 30 Mar. 1976; one at MAM 22-24 Oct. 1977.

Ardeola grayii Indian Pond Heron
Three at Qurm mangroves 21 Oct. 1976 and one there 3 Feb. 1977.

Egretta gularis Western Reef Heron
Recorded in every month from coastal areas. No evidence of breeding. Increase in numbers from 8 Mar. to 24 Jun. (max. *c.* 20 on 4 Apr.) and 9 Aug. to 2 Nov. (max. 37 on 2 Oct.). Grey form outnumbered white 3:1. A great deal of variation on soft parts recorded. Bill colours Mar. to Aug.—flesh (3), yellow (2), pink (2), orange (2), dark red (2), black (1); Oct. to Feb.—black (2), flesh (2), horn (1). Leg colours Mar. to Aug.—lemon-yellow (9), dark olive-green (4), dark red (1), deep pinkish-red (1), sooty-black with basal third yellow (3), grey with feet yellow (1); Oct. to Feb.—black with basal third yellow (3), lemon (1), flesh (1). Facial colours grey, flesh and lemon.

Egretta garzetta Little Egret
In small numbers from 14 Jul. to 1 May, with a maximum of 24 on 18 Sep. 1976. Found at coastal khors and at MAM.

Egretta alba Great White Egret
Up to three recorded from coastal khors between 30 Sep. and 24 May.

Ardea cinerea Grey Heron
Recorded in every month from north-eastern khors and MAM. Parties of up to 14 were seen coasting south-east in Sep. and Oct.

Ardea purpurea Purple Heron
Small numbers at MAM and coastal khors from 3 Sep. to 5 Nov.; max. 9 on 4 Sep. Single birds at Qurm 24 May 1976 and at Sib 15 Jul. 1976.

Mycteria leucocephala Painted Stork
A single bird seen and photographed at Sib, Azaiba and MAM from 20 Jun. to 15 Sep. 1977. Two at Seeb lagoons 7 Apr. 1979. It is known however that some birds escaped from a zoo at Sib and were not recaptured.

Ciconia ciconia White Stork
One at Three Tree Well (22°20′N, 58°40′E) 17 Feb. 1977; four overhead at Qurm, drifting south-east, 5 Sep. 1977.

Plegadis falcinellus Glossy Ibis
One at MAM 6 Oct. 1977.

Platalea leucorodia Spoonbill
One at Awamir 18 Sep. 1976, one at Sib 21 Oct. 1976 and three at Awamir 6 Dec. 1977.

Phoenicopterus ruber Greater Flamingo
An immature at Seeb from 14 Oct. to 2 Nov. 1977.

Anas penelope Wigeon
Small numbers at MAM and Seeb from 22 Oct. to 30 Nov. One at Azaiba 8 Mar. 1977.

Anas strepera Gadwall
Maximum of three birds recorded from Seeb and MAM from 10 Nov. to 25 Dec.

Anas crecca Teal
Recorded from coastal khors and lagoons, and from MAM, between 9 Aug. and 21 Mar. Maximum *c.* 40 on 24 Oct. and 1 Nov. in Seeb and MAM area.

Anas platyrhynchos Mallard
Up to 10 recorded from Qurm, Awamir and Seeb between 2 Oct. and 16 Jan.

Anas acuta Pintail
Small parties at MAM and Seeb from 9 Oct. to 15 Dec. 22 at Qurm 23 Oct. 1977.

Anas querquedula Garganey
Up to 16 birds at MAM from 1 Sep. to 9 Apr.

Anas clypeata Shoveler
One or two at MAM from 7 Oct. to 4 Dec.

Marmaronetta angustirostris Marbled Teal
A single bird seen and photographed at Seeb Lagoons 19 and 23 Sep. 1977; first record for Oman.

Aythya ferina Pochard
Single birds recorded from MAM 7 Nov. to 2 Dec.

Milvus migrans Black Kite
Single birds at Azaiba 5 Apr. 1976, Seeb 25 Apr. 1976 and MAM 17 Dec. 1977.

Neophron percnopterus Egyptian Vulture

Numbers appear to vary considerably from year to year. In 1975 maximum *c.* 75 roosting on pylons west of MAM 21 Dec. 1975. After the wettest winter on record, at rainwater pools west of MAM numbers increased from 76 on 20 Apr. 1976 to *c.* 175 on 8 May. On 26 Jun., 96 counted of which *c.* 90 were immature/sub-adult. Numbers remained high during summer, with 180 on 18 Jul. and *c.* 120 in early Aug. On my return from leave in early Sep. numbers remained 20 to 30 until build-up to 100+ on 8 Oct. at MAM. In Nov. over 260 birds roosted in pylons west of MAM, then numbers fell sharply in early Dec. to only tens daily. Numbers in 1977 were very much lower, with a maximum of *c.* 60 at MAM on 29 Jul. Migrating birds were recorded moving south-east along the coast from 31 Jul. until 10 Oct. 1977, with a large movement from the north-east off the sea at 09.00 hrs. on 15 Aug. 1977. The birds were initially very high, drifting south-east, reducing altitude after crossing the coast. Probable breeding at Ras Suwadi 18 Mar. 1977, and also at inland localities, but only a few pairs involved.

Gyps fulvus Griffon Vulture

Two at MAM 6 Oct. 1977.

Circaetus gallicus Short-toed Eagle

Recorded in most months but not between 20 May and 6 Sep.

Circus aeruginosus Marsh Harrier

Single birds recorded from MAM, Awamir and Qurm from 14 Sep. to 6 Dec.

Circus macrourus Pallid Harrier

A male at Awamir 6 Dec. 1977.

Circus spp.

Single birds at MAM and in coastal areas from 14 Sep. to 26 Nov. and from 10-25 Apr.

Accipiter nisus Sparrowhawk

Single birds seen throughout the area from 9 Nov. to 18 Feb.

Buteo buteo Buzzard

One at Azaiba 15 Apr. 1976 and one there 17 Apr. 1976.

Buteo rufinus Long-legged Buzzard

One at MAM 10 Oct. 1977.

Aquila clanga Spotted Eagle

Max. nine seen drifting south-east with *A. rapax* along foothills south of MAM on 7 Dec. 1976. Earliest 19 Nov. 1976 and 14 Oct. 1977; last 22 Apr. 1976 and 4 Apr. 1977.

Aquila rapax Tawny/Steppe Eagle

Up to 15 together at MAM from Oct. to Mar. Earliest dates 26 Oct. 1976 and 5 Oct. 1977, with main arrival 18 Nov. 1976 and 7 Dec. 1977. Last dates 23 Mar. 1976 and 25 Mar. 1977. A sub-adult at MAM 19 Jul. 1976.

Aquila heliaca Imperial Eagle

One or two present throughout the winter at MAM and Ghubrah tips. Earliest dates 4 Dec. 1976 and 5 Dec. 1977. Last dates 31 Mar. 1976 and 12 Mar. 1977.

Hieraaetus pennatus Booted Eagle
Recorded from Awamir, Azaiba and MAM from 16 Oct. to 31 Dec. One at Azaiba 31 Mar. 1977 and one at MAM 19 Apr. 1977. All birds were light phase.

Hieraaetus fasciatus Bonelli's Eagle
Single birds at MAM, Ghubrah and Seeb on 27 Dec. 1975, 16 Oct. 1976, 4 Nov. 1976 and 26 Oct. 1977.

Pandion haliaetus Osprey
Recorded at Awamir, Qurm, Khassab (Musandam peninsula) and Ras Suwadi between 19 Sep. and 18 Mar.

Falco tinnunculus Kestrel
Not recorded in May, Jul. or Aug. Single birds from 1 Sep. to 25 Apr. One at Awamir 11-16 Jun. 1976.

Falco subbuteo Hobby
Single birds on the coast and at MAM between 4 Aug. and 21 Dec. A bird put up at Azaiba sand dunes on 25 Jun. 1977 flew north-west out to sea.

Falco biarmicus Lanner
One at Saiq (Jebel Akhdar) on 7 Mar. 1977. Single birds at MAM on 14 Sep., 5-18 Oct., 26-28 Oct. and 11 Nov. 1977. One at Azaiba 24 Oct. 1977. Lanner/Saker (*biarmicus/cherrug*)—one at Seeb 30 Jan. 1977; one at Saiq 22 Feb. 1977; one at MAM 14 Dec. 1977.

Falco cherrug Saker
One at Seeb 2 Feb. 1977, one at MAM 10 Apr. 1977 and two adults there 20 Apr. 1977. An immature with jesses at MAM 21 Feb. to 30 Mar. 1977.

Falco peregrinus Peregrine
First dates 17 Oct. 1976 and 15 Aug. 1977. Last 24 Mar. 1976, 14 Mar. 1977 and 7 Apr. 1979. Single birds at Awamir, MAM, Khassab (Musandam peninsula) etc. One with jesses at Awamir 11 Dec. 1977.

Falco pelegrinoides Barbary Falcon
Single birds at MAM from 14 Sep. to 16 Dec. 1976 and from 19 Sep. to 11 Nov. 1977. One at Azaiba 22 Mar. 1976; one at MAM 26 Jun. and 20 Jul. 1976.

Ammoperdix heyi Sand Partridge
Common and widespread resident in interior hills and wadis.

Francolinus pondicerianus Grey Francolin
Common and widespread resident on coastal plain. Adults seen with young from May.

Coturnix coturnix Quail
Up to three between 22 Sep. and 3 Dec. 1976 and 19 Sep. and 16 Dec. 1977 at Azaiba and MAM.

Rallus aquaticus Water Rail
One at MAM from 14-22 Oct. 1977.

Porzana porzana Spotted Crake
Up to three birds present at MAM from 3 Sep. to 18 Oct. 1977.

Porzana parva Little Crake
One at MAM on 15 Sep., 18 and 30 Oct. 1977 (Possibly all the same bird.)

Porzana pusilla Baillon's Crake
One at MAM from 18 Oct. to 2 Dec. 1976; one or two there from 20 Oct. to 7 Nov. 1977. One at Qurm 21 Oct. 1976.

Gallinula chloropus Moorhen
Small numbers at MAM from 18 Jul. to 5 Dec.

Fulica atra Coot
Up to seven recorded from MAM between 3 Nov. and 25 Feb.

Hydrophasianus chirurgus Pheasant-tailed Jacana
One at MAM from 7 Nov. to 23 Dec. 1977.

Haematopus ostralegus Oystercatcher
Recorded in every month. Spring peaks from 15 Feb. to 6 May (max. 30 on 30 Mar. 1976, 42 on 9 Mar. 1977). Autumn peaks from 26 Sep. to 23 Nov. (max. 22 on 4 Oct. 1976).

Himantopus himantopus Black-winged Stilt
Recorded from MAM in small numbers every month from Sep. 1976 to Oct. 1977, with a maximum of four there from 28 Sep. to 19 Dec. 1976. Seven at Awamir 9 Nov. 1976; one Azaiba 26 Oct. 1977. Three on 27 Aug. 1977 flew high, across the wind, from Awamir on a heading of 120° towards the mountains (see Long-tailed Skua *S. longicaudus*).

Recurvirostra avosetta Avocet
Up to four birds at Awamir, Seeb lagoons and MAM from 13 Sep. to 28 Dec. 1977.

Dromas ardeola Crab Plover
Sixteen at Sib 17 May 1976; one at Awamir 18 Sep. 1976. One at Sib 25 Jun. 1977 with blackish-brown flight feathers was probably an immature.

Burhinus oedicnemus Stone Curlew
One at MAM 7 Oct. 1975.

Cursorius cursor Cream-coloured Courser
Up to three at Awamir from 11-18 Nov. 1975; one at Seeb 16 May 1976; one at MAM 10 Oct. 1976; two at MAM 9 May 1977 and four at Seeb lagoons 4 Aug. 1977.

Glareola pratincola Collared Pratincole
Up to three recorded from Awamir, Azaiba and MAM between 3 Jun. and 26 Oct.

Glareola nordmanni Black-winged Pratincole
One at MAM from 21-23 Oct. 1976.

Glareola lactea Little Pratincole
One at MAM 17 and 18 Nov. 1976; two at Awamir 11 Dec. 1977. Call recorded as hard "kuck kuck".

Charadrius dubius Little Ringed Plover
Small numbers from 9 Jul. to 31 Mar. Increase in numbers noted from 12-26 Mar. 1977 and from 17 Oct. to 5 Nov. 1976. Max. 17 at Awamir 20 Oct. 1976.

Charadrius hiaticula Ringed Plover
Recorded from 28 Jul. to 11 May. Max. 15 at Awamir 29 Mar. 1977. Small peaks in March and October.

Charadrius alexandrinus Kentish Plover
Recorded in all months except April. Pair showing distraction display on 2 May 1977.

Charadrius mongolus Lesser Sand Plover
Recorded in every month from coast and khors. No marked spring passage, but marked autumn passage which lasted until 27 Nov. Separated from *C. leschenaultii* by slighter build, smaller bill and low quiet calls—"cher-ruk"; "wit-wit"; light "tirr-tirup".

Charadrius leschenaultii Greater Sand Plover
Commoner than *C. mongolus* on the coast and khors. Recorded in every month, with an increase in numbers from mid-June to early March. Species looks bulkier, with heavier bill; calls harsher than *C. mongolus*—a hard sharp "ker-rick"; "ter-rick-rick"; "ru-up".

Charadrius asiaticus Caspian Plover
Up to two at Awamir from 25 Sep. to 6 Oct. 1976; one at Azaiba 12-13 Aug. 1977; up to four at Awamir from 27 Aug. to 10 Sep. 1977. Easily separated from other plovers by slimmer bill, longer legs and continuous breast band; closest to *P. dominica* in stance and flight. Call a harsh "check"; alarm a hard "cric". First acceptable records for northern Oman.

Pluvialis dominica Lesser Golden Plover
Small numbers every month except Feb., May and Jun. Recorded from 23 Jul. to 17 Apr. Call a hoarse "kle-eep", a hard "kerick" and a scratchy "kee-ee".

Pluvialis apricaria Golden Plover
One at MAM 6-8 Oct. 1975; two at Awamir 18 Oct. 1975 with *P. dominica*; one at Awamir 4 Jan. 1976. Best separated from *P. dominica* by liquid call note, heavier build, paler underwing etc.

Pluvialis squatarola Grey Plover
Recorded in every month from coastal khors. Passage from 31 Jul. 1977, seven with 27 *L. lapponica* (Bar-tailed Godwit) flew in from the north at Azaiba on 21 Aug. 1977.

Hoplopterus indicus Red-wattled Lapwing
Resident with local movements in non-breeding season. With the increase in building and road traffic through the Batinah, appears to be becoming scarcer. A pair at MAM made three attempts to breed, finally fledging young in Jul. 1977.

Chettusia leucura White-tailed Lapwing
Two at Bid-bid 4 Oct. 1977; one at MAM from 8 Oct. to 11 Nov. 1977 and one there 5-7 Jan. 1978. Call a thin "ter-wick" and "chuck-terwick".

Vanellus vanellus Lapwing
Up to two at MAM from 15-21 Dec. 1976.

Calidris alba Sanderling
Recorded on the coast in every month. Peak spring movement 22 Apr. to 3 Jun., with max. *c.* 120 on 11 May 1976 and *c.* 350 on 1 May 1977 at Awamir.

Calidris ruficollis Red-necked Stint

Four birds considered to be of this species seen feeding in a muddy gutter at Seeb lagoons on 4 Aug. 1977. Head, throat and upper breast bright reddish-brown; pale eye-stripe; mantle blackish-brown edged bright rufous-brown; whitish scapular markings not meeting; primaries and secondaries blackish edged reddish-buff; crown considerably darker than nape and back; lower breast and belly white, perhaps with a few dark spots. Silent. Stumpier and shorter build than *C. minuta*. If accepted this would be the first record for Oman.

Calidris minuta Little Stint

Recorded in every month except June from coastal khors and inland sewage outflows: none between 23 May and 24 July. Max. spring numbers 28 on 30 Apr. 1976 at Awamir; max. autumn numbers *c.* 60 on 2 Oct. 1976 at MAM.

Calidris temminckii Temminck's Stint

Up to 16 recorded from coastal khors, sewage outflows and wadis between 25 Aug. and 1 May.

Calidris subminuta Long-toed Stint

One at Azaiba from 4-31 Jan. 1976. One at MAM 25 and 26 Sep. 1976 and another on 13 May 1977. Dark upper parts, dark streaking on breast and flanks; leg colours recorded as dull straw, yellowish-ochre, greenish and dirty yellowish-green. Bill black; dull straw at base of lower mandible. Calls recorded as tri-syllabic "d'wit" or "trit"; a quiet "churrup"; a low "chu-lip", the latter mostly a single call, but sometimes repeated three or more times in rapid succession. Flight fast and swerving, towering with *C. temminckii*, but sometimes like a Jack Snipe *L. minimus* flying low and dropping quickly. Stance upright, neck extending once or twice after landing. If acceptable, first records for Oman.

Calidris ferruginea Curlew Sandpiper

Small numbers recorded from coastal khors and sewage outflows from 19 Jul. to 18 Nov. 1976 and from 22 Jun. to 6 Dec. 1977. Only one spring record—one at Ras Suwadi 18 Mar. 1977.

Calidris alpina Dunlin

Present at coastal khors and sewage outflows from 28 Aug. to 20 Apr. Spring passage poorly marked; autumn peak of *c.* 60 at Awamir 9 Nov. 1975.

Limicola falcinellus Broad-billed Sandpiper

One or two at Awamir and Seeb from 13 Aug. to 27 Oct.

Philomachus pugnax Ruff

Recorded mostly in small numbers from coast and MAM, but 70 recorded at Awamir and MAM 19 Sep. 1976. Earliest dates 4 Jul. 1976 and 28 Jul. 1977; latest 11 Apr. 1976 and 2 Apr. 1977.

Lymnocryptes minimus Jack Snipe

One or two at sewage outflows from 14 Oct. to 1 Feb.

Gallinago gallinago Common Snipe

Up to 10 recorded from sewage outflows at Azaiba and MAM from 13 Aug. to 15 Apr.

Limosa limosa Black-tailed Godwit

Three at Awamir 21 Sep. 1976; 26 off sea from north at dusk at Azaiba 21 Aug. 1977. Single birds at Azaiba and MAM 26 Oct. and 7 Nov. 1977.

Limosa lapponica Bar-tailed Godwit
Recorded in every month from coastal khors. Max. numbers *c.* 34 at Awamir 14 Sep. 1976 and *c.* 40 at Sib 1 Aug. 1977.

Numenius phaeopus Whimbrel
Recorded in small numbers from coast in every month.

Numenius tenuirostris Slender-billed Curlew
One at Seeb beach 25 and 28 Apr. 1976 was probably the same bird. One with *N. phaeopus* at Awamir on 19 May 1976. First acceptable records for Oman. Head as *N. arquata*, except for faint buff patch around eye; upperparts paler brown than *N. phaeopus*; lower back and rump purer white; tail white, barred brown; primaries darker than pale secondaries and upper wing coverts; underwing appeared very white when bird in flight; underparts pure white, heavily spotted on breast, giving way to heavier spotting on lower breast and flanks; call a quiet "kurlew". A wild bird, flying off with much swerving and jinking, very aggressive to *N. phaeopus* driving it off the khor pool each time it returned. Had an unusual "short sighted" approach to feeding, peering down its bill, bill tucked in under chin, neck kinked, causing occiput to stand out prominently.

Numenius arquata Curlew
Recorded in small numbers at coastal khors every month. Max. 14 at Awamir 17 Mar. 1976 and 17 coasting at Awamir 11 May 1976.

Tringa erythropus Spotted Redshank
Single birds at MAM from 28 Nov. to 1 Dec. 1976 and on 22-23 Oct. 1977. One at Wadi al Khawd 31 Dec. 1977.

Tringa totanus Redshank
Recorded from coastal khors and sewage outflows from 14 Jun. to 10 Apr. Max. *c.* 40 at Awamir 13 Aug. 1977.

Tringa stagnatilis Marsh Sandpiper
One at MAM from 15-24 Aug. 1977; two at Awamir 30 Aug. 1977.

Tringa nebularia Greenshank
Up to 15 recorded from coastal khors in every month. Occasional birds recorded inland from wadis and sewage outflows.

Tringa ochropus Green Sandpiper
Small numbers recorded from inland wadis, coastal khors and sewage outflows from 3 Jul. until 17 Apr. Peak numbers in mid-Sep.

Tringa glareola Wood Sandpiper
Not recorded in February or June. Spring passage from 7 Mar. to 8 May; return from 7 Jul. to 9 Dec. One at MAM 1 Jan. 1978 and seven at Seeb Lagoons 2 Jan. 1978.

Xenus cinereus Terek Sandpiper
Recorded in every month. Max. *c.* 25 at Ras Suwadi 18 Mar. 1977.

Actitis hypoleucos Common Sandpiper
Recorded in small numbers from all suitable areas from 20 Jul. to 11 May.

Arenaria interpres Turnstone
Recorded in every month. Peak spring numbers between 9 Mar. and 22 May (max. 43 at Sib on 29 Mar. 1976). Autumn peak from 10 Aug. to 13 Oct. (max. 100+ at Awamir 19 Sep. 1976).

Phalaropus lobatus Red-necked Phalarope
Small numbers on coastal khors and at MAM from 14 Sep. until 23 May. Up to 10,000 birds at sea off Azaiba between 1 and 6 Feb.

Stercorarius parasiticus Arctic Skua
Three off Azaiba 15 Sep. 1976; two at Awamir 23 Sep. 1976. Single birds off coast between Sib and Azaiba on 5 and 11 May and on 22 and 25 Jun. 1977.

Stercorarius longicaudus Long-tailed Skua
Four adults flew in off the sea at Azaiba at 17.00 hrs. on 10 May 1977 and flew across the wind on a heading of 100° towards the mountains. (See Black-winged Stilt *H. himantopus*.) First record for Oman.

Larus hemprichii Sooty Gull
At Awamir numbers increased from the winter population of 20 to *c.* 40 on 20 Mar. and to 3,000+ on 28 Apr., falling off to *c.* 500 by 28 May, 400 on 16 Jun. and 300 on 18 Jul. Then small numbers in September dropping to winter levels by mid-October. Twenty-two birds moving south overland recorded from MAM on 10 Aug. 1977 and one on 11 Aug. 1977. Birds of the year were noted begging for food from 10 Jul. 1976 and from 24 Jul. 1977. Courtship calls in April included a repeated goose-like "gar-gar", repeated up to eight times, a wailing "corr-ga" up to seven times on rising scale, and a painful "owhaa". Flight call a hard "garkekkekk".

Larus ichythyaetus Great Black-headed Gull
Recorded in small numbers from the coast between 1 Feb. and 7 Apr., with single birds on 19 Sep. 1976, 21 Sep. 1976 and from 16-22 Jun. 1976. Two at Sib 29 Dec. 1977.

Larus ridibundus Black-headed Gull
Recorded in all months. Main arrivals 7 Nov. 1976 and 8 Nov. 1977, with flocks of up to 10,000 at rubbish tips throughout winter. Numbers fell off dramatically in mid-March, but up to 20 summered at Awamir. Probably 20,000 birds wintering between Sib and Qurm in Feb. 1977.

Larus genei Slender-billed Gull
Recorded in every month except September. Many hundreds winter offshore, leaving in late April, with return passage early October. A few summer on the coast.

Larus canus Common Gull
An adult at Awamir 2-8 Jan. 1976 and an immature there 29 Jan. 1976; an immature at Azaiba 25 Dec. 1977. First acceptable records for Oman.

Larus argentatus Herring Gull
Recorded in every month except June. Numbers build up rapidly from mid-Sep. to Dec. North to north-west movement commences early Feb. with numbers falling off by mid-Apr. Max. *c.* 500 at Awamir 28 Dec. 1977. This species is virtually inseparable from the Lesser Black-backed Gull *Larus fuscus* in Oman and a few records of *Larus argentatus* are undoubtedly *Larus fuscus*.

Gelochelidon nilotica Gull-billed Tern
Five at Qurm 17 Oct. 1975; one at Awamir 21 May 1976.

Sterna caspia Caspian Tern

Up to 10 together recorded from khors between 13 Aug. and 13 Oct., then single birds noted to 29 Dec. Up to 12 between 8 Mar. and 17 Apr.

Sterna bergii Swift Tern

Recorded every month off the coast, but only a few offshore throughout summer. Juveniles crouching and begging for food, with shrill trilling, recorded from October to March. All adult birds appear to have black legs, many juveniles had yellowish legs.

Sterna bengalensis Lesser Crested Tern

Recorded in every month off coast, but only a few offshore in summer. Spring movement 9 Mar. to 23 Apr., with autumn movement from 13 Sep. Max. *c.* 100 at Awamir 15 Nov. 1976 reflected stormy weather. Juveniles seen from 13 Sep.

Sterna sandvicensis Sandwich Tern

Recorded in every month. In 1976 strong north-westerly movement from January, rising to *c.* 1,000 on 4 Apr. and *c.* 2,500 on 23 Apr.: up to 100 in May and June, with numbers falling off sharply after 29 June. Basically the same pattern in 1977, but in much smaller numbers. Up to 20 summered off Awamir. Weak return passage from 24 Sep.

Sterna dougallii Roseate Tern

Four at Awamir 24 Mar. 1976, four there 28 May, 22 there on 1 Jun., then almost daily at Sib and Awamir until 2 Jul. 1976. One or two at Awamir 30 Jul. and 6 Aug. 1976. One at Awamir 24 Jun., two on 25 Jun. and up to six between 13 Aug. and 16 Sep. 1977.

Sterna hirundo Common Tern

Recorded in every month. Large movement in 1976, with *c.* 600 moving north to north-east on 24 Mar., increasing to *c.* 2,500 on 23 Apr., *c.* 100 on 8 May, with a few birds until 29 Jun. Five at Sib on 15 Jul., up to 10 in Aug., then build up with *c.* 40 on 18 Sep., 400 on 26 Sep., *c.* 1,000 on 2 and 22 Oct., but only one in Nov. and 12 on 5 Dec. Numbers very much smaller in 1977. Occasional inland at MAM.

Sterna repressa White-cheeked Tern

Recorded from coast from 15 Mar. to 17 Oct. Peak numbers in 1976, *c.* 400 on 24 Mar., *c.* 500 on 4 Apr., 1,000 on 23 Apr., 250 on 7 May, 85 on 1 Jun., 120 on 15 Jul., 80 on 6 Aug., 600 on 26 Sep. (*c.* 500 on 17 Oct. 1975). Numbers smaller in 1977.

Sterna anaethetus Bridled Tern

One at Azaiba 9 May 1976; two at Awamir 25 Oct. 1976.

Sterna albifrons Little Tern

Three between Azaiba and Awamir 15 Apr. 1976; one Azaiba 17 Apr. with *c.* 500 *S. saundersi.*

Sterna saundersi Saunder's Little Tern

First dates 15 Mar. 1976 and 28 Mar. 1977: latest 15 Nov. 1976 and 10 Oct. 1977. Strong spring movements between 8 Apr. and 12 May 1976, with peak of *c.* 1,500 on 23 Apr. Small movement 2 Apr. to 1 May 1977, peak *c.* 100 on 2 Apr. Few seen between 18 May and 27 Jul.

Chlidonias hybridus Whiskered Tern

One at MAM from 15-19 Aug. 1977 and 1-17 Sep. 1977. One at Seeb lagoon 19 Sep. 1977.

Chlidonias niger Black Tern

A bird in summer plumage at Awamir on 24 Mar. 1976. First acceptable record for Oman.

Chlidonias leucopterus White-winged Black Tern
Recorded from MAM from 25-29 Sep. 1976 and 3 Sep. to 3 Nov. 1977, usually in ones or twos.

Pterocles coronatus Coronetted Sandgrouse
Eleven at Wadi al Khawd 20 Jan. 1976.

Pterocles exustus Chestnut-bellied Sandgrouse
Breeding resident. Recorded from coastal plain between Awamir and Azaiba every month except March and June, with numbers dropping from *c.* 100 in Jan. 1976 to *c.* 45 in Sep. 1977, possibly reflecting increased building and disturbance. An unusual increase in numbers was noted from 27 Aug. to 23 Sep. 1977 on the coast at Awamir, with birds moving south-east along the sand dunes.

Columba livia Rock Dove
Leaves the coastal plain in early March to breed in the wadis and hills and returns in June and July. Largest flocks *c.* 200 at Ghubrah 22 Nov. 1976 and *c.* 160 at MAM 30 Nov. 1976.

Streptopelia decaocto Collared Dove
Birds recorded from Sib to Qurm from 26 Aug. to 9 May. Flocks of up to *c.* 100 seen wintering at Ghubrah from December to February. 80 at MAM on 8 Dec. 1977. Small parties seen moving south-west at dawn across MAM plains towards the Sumail gap between 14 Oct. and 25 Dec. 1977.

Streptopelia turtur Turtle Dove
Small spring movement 15 Apr. to 10 May 1977; return passage 4 Sep. to 1 Nov. 1977. South-westerly movement towards Sumail gap noted at dawn on 14 Oct. 1977.

Streptopelia orientalis Rufous Turtle Dove
Three at MAM 12 Oct. 1976 and one or two at MAM and Ghubrah from 23 Sep. to 7 Nov. 1977.

Streptopelia senegalensis Palm Dove
Numbers increased sharply in the coastal areas from July, with a flock at Qurm of *c.* 80 birds on 27 July 1977. Flocks of *c.* 100+ at MAM from September, then numbers stabilising around 40 from late November until January, with further brief increase in February (*c.* 80 MAM 20 Feb. 1977). Breeding commences late February.

Psittacula krameri Rose-ringed Parakeet
Small numbers recorded throughout the year from Sib to Awamir. Probably breeds locally.

Clamator jacobinus Jacobin Cuckoo
One at Azaiba 28 Oct. 1977.

Otus brucei Striated Scops Owl
One dead on road at MAM 8 Oct. 1977.

Otus scops Scops Owl
An owl calling behind MAM on 21 Feb. 1977 was thought to be of this species. Three day-roosting on the Seeb plain on 23 Oct. 1977 were considered to be migrants.

Athene noctua Little Owl
One dead on road near Rusail 14 Jun. 1976.

Caprimulgus europaeus Nightjar

One or two recorded from MAM, Seeb and Awamir from 28 Apr. to 15 May 1976 and 28 Apr. to 5 May 1977.

Apus apus Swift

Recorded from the Batinah from 7 Feb. to 28 Apr. 1976 and from 26 Feb. to 10 Apr. 1977, heading north-west. Twelve at Seeb on 31 Dec. 1977 and two at Awamir 3 Jan. 1978 heading west-north-west. The possibility of *A. a. pekinensis* being present may have been overlooked. M. C. Jennings (*pers. comm.*) wrote, "the only consistent plumage difference in skins is that *pekinensis* are generally darker on the mantle, lower breast and abdomen, and this darker colouration was, especially on the mantle, slightly glossy, whereas there was no glossy area on *A. pallidus*." Meinertzhagen (1954) says *pekinensis* looks entirely black on the wing. I consider the best field characteristic to be the fact that in *pekinensis* the underwing coverts are darker than the flight feathers, whereas with *pallidus*, the reverse holds true.

Apus pallidus Pallid Swift

Recorded from Muscat to Sib between 11 Dec. 1975 and 17 Apr. 1976 and from 18 Mar. to 30 Apr. 1977. About 80 birds flying into cracks and crevices on an overhanging rock face at Ras Suwadi on 18 Mar. 1977 may well have been prospecting sites for breeding.

Apus melba Alpine Swift

One with *A. pallidus* and *A. apus* on 16 Mar. 1976 at MAM. First record for Oman.

Apus affinis Little Swift

One at MAM with *P. fuligula* and *H. rustica* on 20 Oct. 1977. Apparently the first Oman record since 23 Feb. 1872 (Warr 1976).

Alcedo atthis Kingfisher

One or two records each from Qurm, Wadi al Khawd, Seeb and MAM between 26 Aug. and 26 Mar.

Merops orientalis Little Green Bee-eater

Resident in the area. Birds considered to be migrants were as follows: Three flying north-west at Azaiba 13 Apr. 1976; 17 on 14 Sep., seven on 15 Sep. and 5+ on 28 Oct. 1976, all on a south-easterly heading; small numbers with *M. superciliosus* at MAM on 17 and 19 Apr. 1977; three coasting on the Seeb coast 16 Aug. 1977 and up to 40 hawking over the Seeb and Azaiba coastal plains 26 Aug. 1977; five fresh plumaged birds moving south-east at Azaiba 30 Sep. 1977.

Merops superciliosus Blue-cheeked Bee-eater

Up to 35 at Sib and Awamir from 18 Sep. to 8 Oct. 1976. Up to 10 flying south-east between MAM and Sib from 15 Sep. to 25 Oct. 1977. One at Awamir 6 May 1977.

Merops apiaster Bee-eater

Only one positive record: 12 birds hawking over sand dunes at Azaiba 17 Apr. 1977. The birds flew out to sea on a heading of 50° (wind NW, 10 knots) and were watched until lost to sight.

Coracias garrulus Roller

Loose parties of up to 13 birds recorded from MAM and Sib from 8 Apr. to 12 May. Single birds in autumn at MAM and Qurm 24 Sep. and 21 Oct. 1976 and from 24 Aug. to 1 Sep. 1977.

Coracias benghalensis Indian Roller

Resident. Birds at breeding sites in the Batinah from late January. Young birds disperse from the Batinah cultivated areas into surrounding plains and lower foothills in late June. Up to four birds at Wadi al Khawd from January to April.

Upupa epops Hoopoe
Recorded from Sib to Azaiba at MAM and at Khassab (Mussandam peninsula) from 10 Aug. to 22 Mar.

Jynx torquilla Wryneck
Birds were recorded from almost exactly the same location at Awamir; two on 15 Nov. 1975, two on 13 Oct. 1976 and one on 23 Oct. 1977. One at Seeb 18-22 Dec. 1977. One at MAM on 7 Apr. 1979.

Eremopterix nigriceps Black-crowned Finch Lark
Spring movement of up to 60 birds between 2 Apr. and 24 Jun. Small numbers in the Batinah throughout the summer. Breeding not proved, but female with food gave distraction display, with male fluttering around my feet at Awamir on 23 Apr. 1977. In May, with temperatures in the lower forties (centigrade), parties of migrants were sitting high in dead trees, wings half open, taking advantage of the light sea breeze. Autumn passage noted from 30 Jul. to 30 Dec., with peaks of *c.* 80 on 2 Oct. 1976 and *c.* 50 on 3 Dec. 1976. Small scattered flocks in winter.

Ammomanes cincturus Bar-tailed Desert Lark
Two at Mina al Fahal on 30 Apr. 1977.

Ammomanes deserti Desert Lark
Resident. Birds paired and copulation observed from 7 Feb. Prefers foothills to open gravel plain.

Alaemon alaudipes Hoopoe Lark
The only records were single birds at Ghubrah 16 Oct. 1976, Ras Suwadi 18 Mar. 1977, MAM 13 Sep. 1977 and Awamir 17 Oct. 1977.

Melanocorypha bimaculata Bimaculated Lark
One at Azaiba 22 Nov. 1976; one at MAM 8 Nov. 1977. Call a Skylark-like "chup-turrup".

Calandrella brachydactyla Short-toed Lark
Small numbers at MAM, Awamir and Azaiba, on 7 Apr., from 1-11 May, on 24 Jun. and from 11 Sep. to 19 Nov.

Calandrella rufescens Lesser Short-toed Lark
Up to five recorded from MAM, Awamir and Azaiba from 4 Oct. to 12 Jan.

Galerida cristata Crested Lark
Widespread and common resident. A party of eight very dark, heavily marked birds, flew south-east when flushed at Awamir on 4 Sep. 1977. Nests found at Seeb and at Awamir contained four eggs (5 Apr. 1977); three well-grown pulli (8 Apr. 1977) and six eggs (11 Apr. 1977). A great mimic, taking off to perfection Grey Francolin *F. pondicerianus*, Wood Sandpiper *T. glareola*, Bee-Eater *M. apiaster*, Swift *A. apus* and Graceful Warbler *P. gracilis*.

Alauda gulgula Small Skylark
One at MAM from 6-11 Nov. 1977. If accepted, the first record for Oman.

Alauda arvensis Skylark
Recorded from MAM and Azaiba between 8 Nov. and 8 Feb.; largest flock *c.* 25.

Riparia paludicola Brown-throated Sand Martin
One at Awamir on 10 Sep. 1977 feeding over rubbish tip with *R. riparia* and *P. fuligula*.

Riparia riparia Sand Martin
Up to 40+ recorded from Qurm to Sib between 23 Aug. and 6 May.

Ptyonoprogne fuligula Pale Crag Martin
Movement recorded from 11 Aug. until 24 Mar. Autumn migrants moved south-west from coast towards Sumail gap. Small numbers resident inland. A nest found at Khassab (Mussandam peninsula) on 14 Mar. 1977 was about four feet above high tide mark on a small ledge under a deep overhang. Nest constructed of coarse gobbets of mud, lined with feathers. Two freshly fledged young, one egg with chalky-white background and irregular pale brown spots.

Ptyonoprogne rupestris Crag Martin
Two at Awamir 5 Oct. 1976; three at MAM 24 Apr. 1977 and one there on 2 May 1977.

Hirundo rustica Swallow
Spring movement out to sea on a north-westerly heading was noted from Qurm to Sib. Autumn birds appeared to come in off sea and continue due south. Recorded in every month except August. Peak numbers *c.* 25 on 6 May and 100+ on 20 Oct.

Hirundo daurica Red-rumped Swallow
One flew north-west towards Sumail gap at Seeb on 23 Apr. 1976.

Delichon urbica House Martin
One at Awamir 17 Apr. 1977; three at MAM 16 Sep. 1977 and one at Azaiba 19 Sep. 1977.

Anthus novaeseelandiae Richard's Pipit
One at MAM 12-16 Oct. 1976.

Anthus campestris Tawny Pipit
Small numbers throughout the area from 16 Sep. to 10 Apr. Up to six birds coasting south-east from 17-29 Oct. at Awamir.

Anthus similis Long-billed Pipit
One at MAM 16 Dec. 1976; 14 there on 2 Jan. 1978.

Anthus trivialis Tree Pipit
Up to nine records each from Azaiba, MAM and Awamir between 14 Sep. and 11 Nov. One at MAM on 2 May 1977 is the only spring record. Four in off sea at dawn on 2 Oct. at Awamir flew inland on a south-westerly heading.

Anthus pratensis Meadow Pipit
One at MAM on 2 and 8 Nov. 1976. One at Saiq (Jebel Akhdar) 22 Feb. 1977.

Anthus cervinus Red-throated Pipit
Recorded in small numbers from Azaiba, MAM and Awamir from 11 Oct. until 22 Apr. In 1977 there was increase from eight on 15 Feb. to *c.* 40 on 11 Apr. at MAM. Summer plumage noted from 23 Feb., sub-song from 21 Mar.: a thin scratchy unmusical warble interspersed with the thin, high "zee" of the normal flight note.

Anthus spinoletta Water Pipit
Recorded from MAM, Awamir, Azaiba and Wadi al Khawd from 4 Nov. to 20 Jan. A roost of up to 35 birds noted at Azaiba in December 1977.

Motacilla flava Yellow Wagtail
Small numbers recorded from sewage outflows and pools from 27 Aug. to 30 Jan. Max. *c.* 15 at Seeb lagoons 23 Sep. 1977. One *M. f. feldegg* in summer plumage at MAM 19 Mar. 1976.

Motacilla citreola Citrine Wagtail
Single birds at MAM from 5-14 Nov. 1976 and 31 Oct. 1977 to 7 Jan. 1978. Harsh "zeet-zeet" call immediately separated these birds from *M. flava*.

Motacilla cinerea Grey Wagtail
One or two recorded from Awamir, Muscat and MAM from 8-12 Nov. 1975, on 28 Sep. 1976 on 25 Oct. 1976 and on 20 Dec. 1977. One at Khassab (Mussandam peninsula) 14 Mar. 1977.

Motacilla alba White Wagtail
Earliest dates: 7 Oct. 1975, 13 Oct. 1976, 13 Sep. 1977. Up to 100 wintered in MAM sewage and tip area. Last dates: 9 Apr. 1976, 13 Apr. 1977. Single birds having the characteristics of *M. a. personata* were seen at MAM on 4 Nov. 1976 and 17 Sep. 1977.

Pycnonotus xanthopygos Black-capped Bulbul
Widespread and common resident. A nest with two eggs and two pulli at Seeb 23 Apr. 1977.

Cercotrichas galactotes Rufous Bush Chat
Very common in the coastal scrub during spring migration. Recorded from 8 Apr. to 12 May. Noisy and active, alarm or anger note a sharp squeaky "pzeet-pzeet-pzeet". Song a quiet Redstart (*P. phoenicurus*)-like warble, interspersed with odd rising notes. One at Seeb on 1 Sep. 1977 was the only autumn record. Two birds at Awamir on 1 May 1977 had crown, mantle, back and rump bright chestnut-red and thus resembled the western form *C.g. galactotes*.

Luscinia megarhynchos Nightingale
One at MAM on 6 Oct. 1976.

Luscinia svecica Bluethroat
Single birds recorded from Awamir, Azaiba and MAM from 2 Oct. to 25 Nov. 1976.

Phoenicurus erythronotus Eversmann's Redstart
A male at Saiq (Jebel Akhdar), *c.* 6,500 feet, on 22 Feb. 1977. First record for Oman.

Phoenicurus ochruros Black Redstart
A common bird, found in the Batinah cultivation, on the coastal plains and in inland wadis. Recorded from 13 Oct. to 18 Mar., with one late record from Awamir on 14 Apr. 1976.

Phoenicurus phoenicurus Redstart
A male at Seeb on 11 Apr. 1977.

Saxicola rubetra Whinchat
One at MAM 28 Sep. 1976 and 17 Oct. 1977. One at Azaiba 17 Oct. 1977.

Saxicola torquata Stonechat
One at Saiq (Jebel Akdhar) 22 Feb. 1977. Single birds at MAM and Azaiba from 30 Sep. to 5 Nov. 1977.

Oenanthe isabellina Isabelline Wheatear
Widespread and fairly common from 1 Sep. to 1 May.

Oenanthe oenanthe Wheatear
Up to three recorded from coastal plains and foothills from 7-12 Apr. and from 20 Sep. to 18 Nov.

Oenanthe pleschanka Pied Wheatear
A bird in intermediate plumage at MAM from 19 Oct. to 6 Nov. 1977. One at MAM 6 Apr. 1979.

Oenanthe deserti Desert Wheatear
Widespread and common throughout the areas covered from 5 Oct. to 21 Apr.

Oenanthe xanthoprymna Red-tailed Wheatear
Recorded from all areas from 20 Sep. to 19 Mar.

Oenanthe alboniger Hume's Wheatear
Widespread and common resident in the foothills and the interior. Fledged young birds were being fed at MAM on 27 Mar. 1976 and at Murayrat on 21 Apr. 1977. Song a cheerful, rounded "chew-de-dew-twit" on a rising scale. Alarm note at nest site a quiet "chit-tit-tit". When I approached fledged young, an adult bird moved between us, with wings thrown forward, fluttering them rapidly, tail open and depressed, with white rump fully exposed.

Monticola saxatilis Rock Thrush
One at Seeb 10 Oct. 1977.

Monticola solitarius Blue Rock Thrush
Small numbers recorded from Qurm, Fanja, Wadi al Khawd and MAM from 17 Oct. to 6 Feb.

Turdus philomelos Song Thrush
One at Awamir 30 Dec. 1975 and two there 7 Feb. 1976. Two at Khassab (Mussandam peninsula) 14 Mar. 1977. One at MAM 4 and 15 Dec. 1977.

Prinia gracilis Graceful Warbler
Common and widespread resident. Recorded up to *c.* 6,500 feet in Jebel Akhdar. Fully fledged young caught at MAM 27 Jan. 1977. Appears to breed throughout the year. Clutch average four. Subspecies occuring in northern Oman is pale, sandy-brown, faintly streaked on upper parts.

Scotocerca inquieta Scrub Warbler
Resident in wadis and foothills, descending to the 300 feet level in winter. Fledged young birds were being fed at Murayrat 21 Apr. 1977. Song a cheerful repeated "cher-lit". Call a high penetrating drawn out "pee . . . ep" followed by a hard "tch-titter". Birds in northern Oman are heavily streaked on head and throat.

Locustella luscinioides Savi's Warbler
Two at Seeb 16 May 1976 were the only *Locustella* positively identified. First acceptable record for Oman. Small numbers of *Locustella* spp. were present at Seeb 23 Apr. to 16 May.

Acrocephalus melanopogon Moustached Warbler
One at MAM from 12-14 Oct. 1977. A very shy bird. Notes read: "Dark brown cap, perhaps spotted rather than streaked black; white supercillium from lores over eye, widening to an abrupt square end behind eye; mantle, rump and wing coverts reddish-brown, slightly streaked darker; chin, throat to under tail coverts creamy white; sides of neck and flanks rusty-red. Primaries, secondaries and retrices dark brown. Tail cocked, not fanned. Silent". First record for Oman.

Acrocephalus palustris Marsh Warbler
Four collected out of *c.* 20 *Acrocephalus* spp. at MAM 9 May 1977.

Acrocephalus stentoreus Clamorous Reed Warbler
Birds considered to be of this species were present at Qurm from 21 Oct. to 26 Mar. One at MAM 27 Oct. 1977. Plumage generally grey-brown; underparts off-white, grey throat streaks; legs lead; upper mandible horn, lower pink flesh; gape orange-red. Call a low growling "graaa", and a harsh "tac-tac". Song slow, harsh and grating.

Acrocephalus arundinaceus Great Reed Warbler
Single birds considered to be of this species were recorded at MAM from 23 Aug. to 13 Sep.

Acrocephalus spp.
One at Awamir 13 Oct. 1976. A small 'fall' of *c.* 26 birds at Seeb and MAM on 9 May 1977, otherwise only recorded in ones or twos between 29 Apr. and 9 May and from 1 Sep. to 14 Oct.

Hippolais pallida Olivaceous Warbler
Recorded throughout the Sib, Awamir and MAM areas from 8 Apr. to 12 May and from 22 Aug. to 21 Oct. One at Bid-bid on 4 Oct. 1977.

Hippolais caligata Booted Warbler
Single birds at MAM from 5-16 May. One at MAM 4 Sep. 1977 and also a 'probable' there on 14 Sep. 1976.

Hippolais languida Upcher's Warbler
Fairly common on spring passage; recorded from 5 Apr. to 18 May. In autumn, one at Seeb on 3 Sep. 1977. Song a gentle, almost Whitethroat-like warble, without harsher notes, sometimes an almost Nightingale-like phrase to start the song cycle.

Hippolais olivetorum Olive-tree Warbler
Single birds at Seeb on 17 Apr. 1976 and 28 Apr. 1977. Identified by large size, grey upperparts, olive-grey underparts; well marked supercilium from loral area to well behind eye; fairly conspicuous wing panel on both birds; tail dark, outer feathers with white outer webs, inner tipped white. Legs bluish-grey. Large heavy bill, upper mandible dark horn, lower yellowish. Call a loud sharp "tirr". If acceptable these would be the first records for Oman.

Sylvia mystacea Ménétries' Warbler
Fairly common in the coastal scrub and Batinah from 10 Oct. to 7 Apr. Very noisy, with a low, scratchy, scolding note, broken like bursts of morse. Song a disjointed warble, interspersed with harsh *Acrocephalus*-like notes.

Sylvia nana Desert Warbler
Widespread and fairly common, especially on the coastal plain, from 16 Oct. to 21 Feb. Call a harsh "zee-zee-zee" and a hard "chic-chic-chic". Subsong noted on 5 Dec. was a harsh repeated "chur-ur-ur-zick".

Sylvia hortensis Orphean Warbler
Single birds found wintering at Awamir, MAM and Seeb from 5 Nov. to 7 Feb.

Sylvia curruca Lesser Whitethroat
Common in winter throughout the coastal plains and foothills. Recorded from 14 Sep. to 5 May. *S.c. minula* (Desert Lesser Whitethroat) found in small numbers in coastal scrub and foothills from 19 Sep. to 5 Apr. Call a harsh rapid "drr-drit-drit".

Sylvia communis Whitethroat

Up to 50 recorded in spring from the Seeb area. Recorded from 23 Apr. to 11 May and from 9 Sep. to 28 Oct. A late bird in heavy moult at MAM 17-19 Nov. 1976.

Phylloscopus trochiloides Greenish Warbler

One about 6 km. east of Sib, feeding in the canopy of a well grown thorn tree on 20 Dec. 1977. If acceptable, first record for Oman. Upper parts olive brown with greyish tinge, looked a darker brown in the shade; head possibly darker than mantle when bird in sunlight; yellowish-buff supercillium; dark eye-stripe from lores to behind eye; ear coverts greyish-white. Under parts buff, with obscure yellowish markings, flanks greyer; wings olive-brown, narrow whitish tips to greater coverts forming a fairly conspicuous wing bar; tail brown, no grey or white seen. Legs dark brown; upper mandible horn brown, lower flesh. Silent.

Phylloscopus collybita Chiffchaff

Recorded from all localities from 8 Sep. to 9 May. *P.c. abietinus* singing at MAM on 5 and 6 Feb. *P.c. abietinus* identified by call, a low sad "peet", present from at least 5 Dec. to 26 Mar. Song a sad vague warble.

Phylloscopus trochilus Willow Warbler

Not always separable from *P. collybita* but thought to be a passage migrant only and less common than *P. collybita.*

Muscicapa striata Spotted Flycatcher

Recorded between 28 Apr. and 10 May and between 1 Sep. and 27 Oct.; max. *c.* 30 at Seeb and Awamir 5 May 1977.

Turdoides squamiceps Arabian Babbler

Common and widespread resident on coastal plain, in foothills and in inland wadis. A nest at Awamir on 5 Apr. contained two eggs; another at Seeb on 8 Apr. contained one pullus and one egg; a third at Awamir on 20 Apr. had four eggs. Nests roughly constructed of coarse grass with a fairly deep cup, lined with a few feathers and animal hairs. Built between four and five feet high in the fork of camel thorn bushes. The eggs were Starling (*S. vulgaris*) blue with an oily-like gloss.

Nectarinia asiatica Purple Sunbird

Resident throughout the Batinah, with local movements during the non-breeding season. Transition to breeding plumage commences mid-December.

Oriolus oriolus Golden Oriole

Up to three on coastal plain and at MAM from 4 Sep. to 25 Sep. Majority were female or immatures.

Lanius isabellinus Isabelline Shrike

Birds considered to be of the form *L. i. isabellinus* were seen at Awamir on 15 Nov. 1975 and 11 Apr. 1977 and the form *L. i. phoenicuroides* was recorded throughout coastal plain between 3 Sep. and 29 Apr. A melanistic shrike at MAM 4 Nov. 1976 was probably this species.

Lanius collurio Red-backed Shrike

Males at MAM 2 Oct. 1976 and 4 Sep. 1977.

Lanius minor Lesser Grey Shrike

Up to three recorded from MAM, Awamir and Azaiba between 2 Oct. and 8 Nov. 1976. Not seen in 1977.

Lanius excubitor Great Grey Shrike
Resident. Birds take up territory in early February. Young seen being fed at Seeb on 26 Mar. 1977; nest seen with six eggs at MAM 2 Apr. 1976. Many fledged young in the Seeb and Azaiba areas from early April.

Lanius senator Woodchat Shrike
A male at MAM 7 Apr. 1979.

Corvus splendens House Crow
Found mostly along the coastal strip from Muscat to Sohar, but with extensive building taking place further inland, expansion appears to be taking place. Four in foothills behind MAM 16 Dec. 1977. Large nursery flights take place over the marshes between Seeb and Azaiba in April.

Corvus ruficollis Brown-necked Raven
Resident. Small numbers seen throughout the area; birds disperse into the foothills and mountains in late December. Pair with one unfledged young behind MAM 21 Feb. 1977 and young being fed there 7 Mar. Flocks at tips from September.

Corvus corax Raven
Two at Ghubra 23-27 Jan. 1976. Two at Azaiba tip 31 Jan. 1976. Seven at Ghubra 1 Feb. 1976. Two at Qurm tip 3 Feb. 1977 and two at Awamir 12 Feb. 1977. Separated from *C. ruficollis* by large size (about the same as Egyptian Vulture *N. percnopterus*), heavier bill, shaggy throat and deep, throaty "pruk" calls. *C. ruficollis* has a hoarse rook-like call, a low "caw-caw" being the commonest. If acceptable these are the first records for Oman.

Sturnus vulgaris Starling
Up to 300 birds wintering between Sib and Azaiba in 1977. Recorded from 5 Oct. until 21 Feb. A late record of a single bird at Awamir from 13-26 Apr. 1977.

Sturnus roseus Rose-coloured Starling
An immature on 10 Sep. 1977 and an adult on 4 Dec. 1977 at MAM.

Passer domesticus House Sparrow
Resident throughout the areas covered; large pre-roost flocks recorded from 20 Aug. until 20 Feb. (max. *c.* 200) at MAM, after which birds disperse to breeding quarters. Nest material gathered from 26 Feb., fledged young seen by 23 Mar.

Petronia xanthocollis Yellow-throated Sparrow
Common in the Batinah, at Seeb and around old villages, from 21 Mar. to 1 Oct. Nesting material was being carried to fence support pipes at Seeb Airport on 26 Apr. On 4 Aug. 1977 a north-westerly movement was recorded at Seeb sand dunes between 09.50 and 10.05 hrs., with 86 birds in small parties passing through. On 25 Aug. a flock of 200+ was closely followed by a further 100+.

Euodice malabarica Indian Silverbill
A common resident, recorded in flocks of up to 60 birds in Mar. and unto 120 in Aug. Fledged young were being fed from 29 Apr. until 13 Oct. At 07.30 hrs. on 13 Oct. 1976 three birds came in off the sea at Awamir, moving south-east and coasting, fairly high, until lost to sight.

Fringilla montifringilla Brambling
A male at MAM 28 Nov. 1976 and a female/immature there on 16 Dec. 1977.

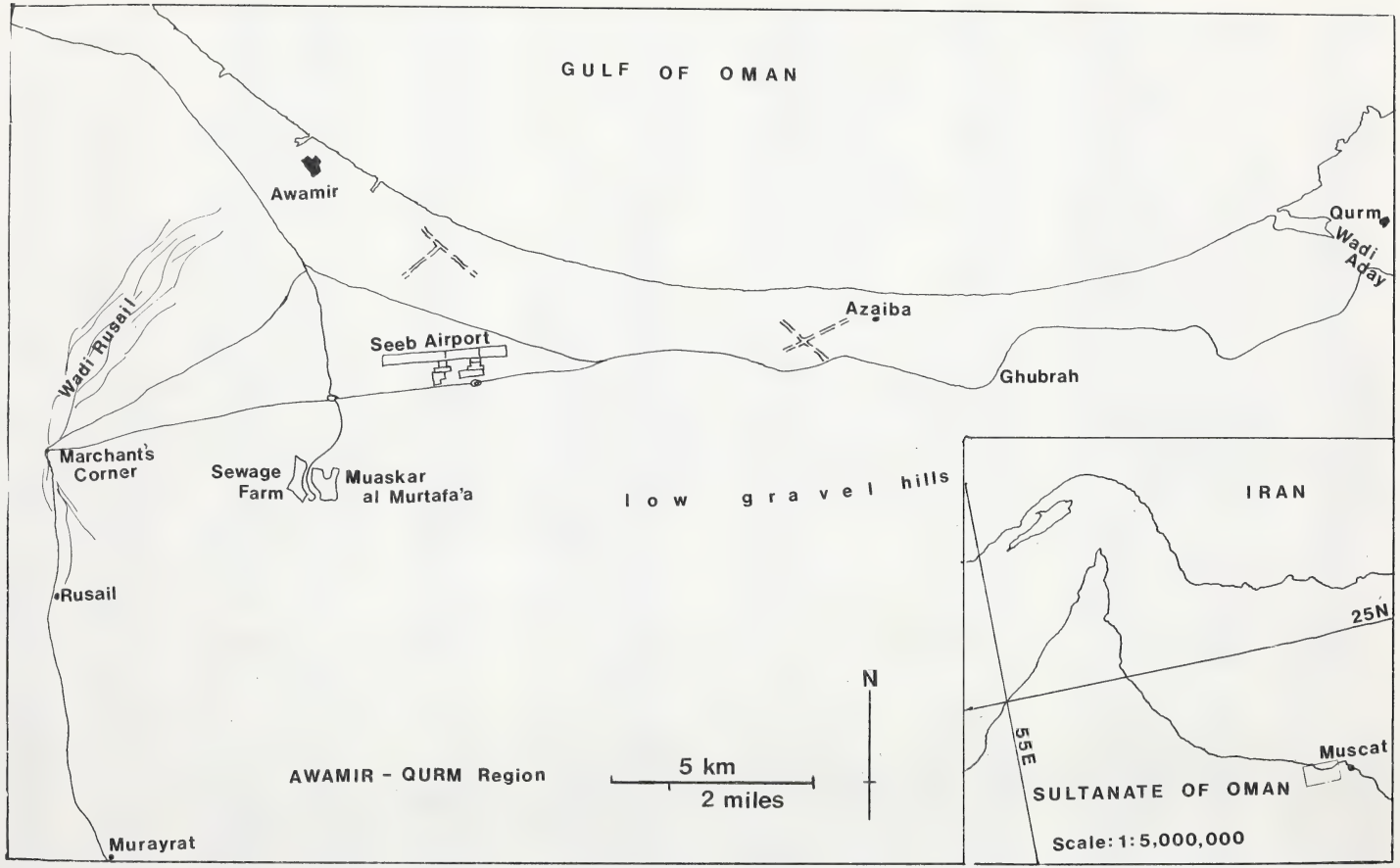

Figure 1. Map of the principal study area in Northern Oman

Carpodacus erythrinus Common Rosefinch
Two on 11 Sep. 1977 and one on 15 Sep. 1977 at MAM. One at Seeb 18 Dec. 1977.

Emberiza striolata House Bunting
Common and widespread resident in foothills and wadis, moving into coastal plains in early December, leaving in late February. Song a quiet "cher-tit-cher-lit-twit". Call a harsh "cheb" or "crebb".

Emberiza hortulana Ortolan Bunting
One at Seeb 20 Apr. 1976. Up to three at MAM from 19 Sep. to 4 Nov.

Emberiza aureola Yellow-breasted Bunting
Four at MAM 10 Aug. 1977.

Emberiza melanocephala Black-headed Bunting
Birds recorded from MAM: single birds from 22-29 Sep. 1976 and on 23 Aug. 1977. One at Azaiba 23 Sep. 1977.

Miliaria calandra Corn Bunting
Not recorded in the winter of 1975-76. Up to 14 at MAM and at Azaiba between 4 Dec. 1977 and 7 Jan. 1978.

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NOTES ON THE BIRDS OF DHOFAR, OMAN

by
F. J. Walker

INTRODUCTION

I was based in the north of the Sultanate of Oman from 1 October 1975, until 7 January 1978, but made several visits to Thumrait and Salalah in Dhofar during that period. On 7 January 1978 I moved to Thumrait, where I remained until 4 April 1979.

The Sultanate of Oman is about the size of Great Britain, and the Province of Dhofar in the South, approximately the same area as Wales. Dhofar is separated from the main part of the country by over 500 miles of desert, but there is a graded dirt road (in the process of being surfaced with tarmac) from Thumrait to the Batinah in the north. Thumrait in the great gravel and stone steppes of southern Oman, is linked with Salalah in the south, by an 85 km. tarmac road, that winds its way across the Jebel Qara. It was from this road that I made the majority of my ornithological notes. Transport was relatively easy to come by, as were air flights to outlying airstrips, but movement by boat was strictly limited. This lack of sea-going transport is reflected in my sea-bird records.

The areas I covered in Dhofar can be roughly divided into three: the Salalah plain, coastal strip and khawrs; the Jebel Qara and its foothills and ravines; and the vast open gravel and rock steppe that stretches to the mountains in the north and the 'Sands' in the west.

Salalah plain is enclosed by a semi-circle of mountains (jebels), and the Arabian Sea to the south. Although Salalah town is rapidly expanding, there is much of the old coconut plantations and market gardens remaining. The plain itself is rather flat, and is being developed with low-cost housing projects, dairy farming, and some factories, mostly in the immediate vicinity of Salalah. The plains are covered with emerald green vegetation during the khariff or summer monsoon, but rapidly turn tawny-brown as the skies clear and the sun sears all vegetation a dun brown. Nevertheless, a large number of cattle, goats and camels find grazing throughout the year. A white sandy beach stretches from Rubkut to Tarqa in the east, pounded by monsoon seas in the summer, yet quiet and tranquil during the rest of the year. Behind the beaches are many khawrs, large areas of saline water surrounded either by tall dense reed beds, or mangrove. These khawrs or pools are the main areas for wildfowl and waders.

The Jebel Qara to the north, is part of a great range of mountains that stretch from the Kuria Muria bay in the east, westwards through Yemen, to end at the Red Sea. The jebel rises to about 3,000 feet (914 metres), with the escarpments along the coast and edge of the plains lifting as much as 1,000 feet (304 metres) in places. The jebel is very broken, with numerous vast, steep wadis, covered with scrub and trees in the south, giving way to the rolling grasslands on top of the flatter hills. Beyond this lies the broken rocky country, the Neg'd, which has virtually no vegetation except in deeper wadis.

This then gives way to the Hamada, a stony desert dotted with low scrub, which continues until it meets the sands of the Rub al Khali in the west, and the northerly salt plains of central Oman. There is a surprisingly large amount of vegetation scattered throughout the southern deserts, with tall thorn and *Acacias* giving shade, shelter and food to much of the wild life existing in the desert. An important feature of bird life in the desert, are the rubbish tips and sewage outflows in the vicinity of Thumrait Air Base, which attract a steady stream of resident and migrant wild life.

From June until September over Salalah, the Jebel Qara, and to about 10 miles (16 km.) into the desert, the khariff carries fine drizzle, low clouds, strong winds, with 98 per cent humidity that saturates the land, and turns the south of the jebel into an almost tropical climate. Constant drizzle makes movement in the jebel unpleasant and on the one-in-one slopes of the jebel proper impossible. This, with visibility down to a few feet, makes observations in the jebel extremely difficult. In addition, movement of the 'Adoob' terrorists, taking advantage of cover given by the khariff, add further restrictions and hazards to movement.

In the desert proper, a cool pleasant winter quickly gives way to searing temperatures, with shade readings of 45°C being commonplace, and strong arid winds that sear and burn everything in their path. In the early part of the year, occasional heavy thundery rains saturate the desert, and pools of water can be seen lying in man-made depressions, especially where heavy plant has been used on roads or camp sites, well into the spring.

MIGRATION

From visual and radar observations, the major axis of autumn migration across the desert is on a broad front from 010°-050° to 190°-230°; and on the reciprocal in spring. Small birds move both by day and by night; in the day time, from dawn plus four hours and sunset minus three hours, migrants flit from bush to shrub at a fast walking pace, moving steadily south-west in the autumn. At pre-dawn, passerines often drop out of the sky where there is water or cover, and day roost until the evening in any cover available. The focal point for migrants in the south, are the khawrs and gardens of Salalah, Tarqa, Rubkut etc., and the lower slopes of the jebel. Streams flow all the year round from the heights in certain wadis, filling large pools, mostly man-made, and even waterfalls, as at Shalnawt, grace the scene. Many resident birds come down from the heights of the jebel to these pools before the sun rises to touch the water, to drink and bathe communally. The most exotic of these is the Paradise Flycatcher *Terpsiphone viridis* which leaps from its perch in an overhanging tree, and plunges momentarily into the centre of the pool, quickly returning to its perch to preen. Often several flycatchers will follow each other down in procession, calling loudly on their return to cover. Sunbirds, bulbuls and buntings approach with much more decorum, sipping and splashing in tiny streams, before seeking shade to complete their toilet. At the first touch of the sun on the pools, the birds disappear back into the arid scrub-lined ravines. The Golden-winged Grosbeak *Rhynchostruthus socotranus* is also addicted to communal dawn and dusk bathing, but is more catholic in its choice of water, a cattle trough, tank or overflow, or a rocky pool all being acceptable.

DAY ROOSTS

In the extremes of the mid-day heat, many birds disappear into whatever cover is available. Fan-tailed Ravens crowd into the crowns of the coconut plantations at Salalah, gossiping in noisy groups, until the sun beats them into silent submission. Crested and Bush Larks make small 'forms' under tussocks of grass, or under rocks, and from the amount of droppings it is obvious that these day-roosts are in regular use. The Black-crowned Finch Lark on the other hand, sits on fences and trees, with wings half open, panting, facing whatever breeze there is.

Grackles, doves and buntings seek shade in the deep overhangs in the wadis, whilst other resident passerines seek shade in the crowns of bushes or trees, an exception being the Rüppell's Weaver, that appears to be active throughout the daylight hours.

True migrant passerines take advantage of whatever cover there is available, in the depth of isolated bushes in the desert, in camp gardens and buildings. At Thumrait, for instance, up to 25 Turtle Doves came in to day-roost in the beams of a covered play area in an abandoned school during the autumn migration.

Herons and egrets, where possible, find shelter in the reed beds or in the shade of the khawrs overhanging banks, whereas northern waders and ducks day-roost out in the open. Up to 10 'ring-tail' harriers were recorded day-roosting at mid-day on an area of open dunes near the coast in September, and falcons and eagles pass the hours of great heat in the sun.

Rubbish tips give shelter to large numbers of wagtails and larks that find shade in discarded boxes and tin cans during the heat of the day.

PRESENT DEVELOPMENTS AND THE PRESSURES ON WILDLIFE

The journeys described by Bertram Thomas in the early 1930s and by Wilfred Thesiger between 1945-50, of the difficulties, dangers and hardships of desert travel in Dhofar, are now

as ancient history. Since the end of the Dhofar war, December 1975, 'civilisation' has arrived. The cutting edge of the bulldozer's blade, and perhaps even more destructive, the tyres of countless vehicles, have changed the face of the Dhofar deserts and jebels for a long time to come. Seen from the air, the whole area is criss-crossed by a web of vehicle tracks, from the sands of the southern ocean beaches, to the very edge of the 'Sands'. These tracks break up the desert crust, destroy scarce vegetation, and allow wind to erode the landscape.

In the desert, shooting and trapping round water holes is commonplace. Each Friday, hundreds of sandgrouse are shot from vehicles or hides as they come in to drink. Others are driven under fine nets pegged over the water's edge. This method is very destructive to vegetation, for the edge of the pools are lined with vegetation, excepting the entrance to the net; the result is that any cover planted round the pools is destroyed. Catapults, sling-shots and automatic weapons are used to kill any creature that is unfortunate enough to be seen. On the Salalah by-pass small boys with air rifles shoot bee-eaters, rollers, kestrels—in fact any bird that will sit still long enough on the overhead wires. On the beaches, I have often seen heavy automatic guns turned on flocks of gulls and terns. The situation is, however not altogether hopeless: the sanctuary at Salalah is a great success, giving haven and rest to large numbers of migrant waders, and wintering ducks and herons.

GAZETTEER

Ayn Arzat	17°07′N 54°14′E	Ramlat Rakhoth	18°31′N 51°59′E
Al Baleed	17°00′N 54°08′E	Raysut	16°58′N 54°05′E
Al Qurm	17°02′N 54°17′E	Salalah	16°58′N 54°05′E
Ayn Pools	17°16′N 53°55′E	Sahalnawt	17°09′N 54°11′E
East Khawr	17°00′N 54°11′E	Sawli Khawr	17°03′N 54°20′E
Forty Seven Km. Tip	17°28′N 54°05′E	Tarqa Khawr	17°03′N 54°24′E
		Thumrait	17°39′N 54°02′E
Ghrnout	17°08′N 54°07′E	Um Al Ghawrif	17°10′N 54°08′E
Hatab	17°15′N 54°05′E 887 metres	West Khawr	16°59′N 54°02′E
Mudhail	17°30′N 53°20′E	Zahran	17°20′N 54°06′E 600 metres

SYSTEMATIC LIST

The order, scientific and most vernacular names follow Voous (1977).

Struthio camelus syriacus Syrian Ostrich

A single egg, unpunctured and in excellent condition, was found half buried in sand near Ramlat Rakhoth (18°31′N, 51°59′E) on the 2 Mar. 1979, by Gordon Dawson, of Thumrait. Creamy-buff in colour, polished at one end, approximately 145 × 120 cm. This is, I believe, the first complete egg found in Oman. *S. camelus syriacus* was last recorded north of Ma'an in Jordan in February 1966 (*IUCN Red Data Book* 1967).

Tachybaptus ruficollis Little Grebe

At least two pairs breed on the Khawr Salalah. Young recorded from 18 Mar. 1979. One at Khawr Tarqa on 2 Jan. 1979.

Podiceps cristatus Great Crested Grebe

A single bird on the East Khawr on 2 Jan. was in summer plumage by 25 Feb. 1979. Last date 21 Mar. 1979.

Podiceps nigricollis Black-necked Grebe

A single bird at Khawr Salalah between 13 and 19 Feb. 1979.

Bulweria fallax Jouanin's Petrel

Two adults and one immature were found inland at Thumrait on 5 Dec. 1978. Adult plumage wholly sooty-black except for greyish tinge on forehead, lores, ear-coverts and chin. Bill black; pupil black; iris dark brown; legs, feet including webs, greyish-flesh. Bill 30 mm. Tarsus 30 mm., Wing 240 mm., Tail 118 mm.

Immature: whole of plumage sooty-black; feathers of forehead, lores and chin finely tipped greyish, giving a slight mottled effect; a little down on the occiput; whole of flanks, lower breast and belly a mass of disintegrated black down-like feathers. Bill blackish: legs, feet and webs greyish-flesh. Bill 28 mm., Tarsus 34 mm., Wing 235 mm., Tail 110 mm. There was no suggestion of bad weather or change of long-term average winds in the area to cause this small wreck. Adult and immature skins sent to Royal Scottish Museum.

Puffinus lherminieri Audubon's Shearwater

Many off Salalah between 25 Sep. and 4 Oct. 1978.

Oceanites oceanicus Wilson's Storm Petrel

Up to 50 off Salalah between 25 Sep and 4 Oct. 1978..

Sula dactylatra Masked Booby

An immature off Salalah on 25 Sep. 1978 is the only record.

Phalacrocorax carbo Cormorant

A scarce winter visitor from 14 Nov. to 6 Apr.

Phalacrocorax nigrogularis Socotra Cormorant

Common at sea, a few at the khawrs in winter. An immature on 24 Jan. 1978 had upper mandible, blackish-grey; lower, silver-horn; facial skin, silver; cheeks, yellowish. Throat and breast of immatures always spotted dark brown on lighter brown.

Botaurus stellaris Bittern

One resting on the edge of the West Khawr on 7 Oct. 1978.

Ixobrychus minutus Little Bittern

Single birds on the coastal khawrs recorded in July, October, December and January. Single birds at Thumrait 14 Sep. and 29 to 31 Oct. 1978.

Nycticorax nycticorax Night Heron

Up to three adult and immatures recorded at Salalah khawrs between 25 Jul. and 15 Nov. 1978, with one at Tarqa on 15 Mar. 1979. Inland, an immature at Thumrait 11 Sep., one immature dead 35 km. south of Thumrait, three immatures at Thumrait 19 Sep. 1978 and one immature there 31 Oct. 1978.

Butorides striatus Green-backed Heron

Resident in small numbers, especially in the mangrove-edged khawrs. Alarm note a short sharp "kilt", or a sneezing "ki-owa".

Ardeola ralloides Squacco Heron

Up to 26 at Salalah khawrs between 4 Jul. and 14 Apr. After southerly gales, one at Thumrait 6 Jul. 1978.

Bubulcus ibis Cattle Egret

Up to nine birds at the Salalah khawrs between 8 Oct. and 14 Apr.; a few birds flight inland at dawn and out at dusk to the dairy farms on the Salalah plains. Summer plumage from 24 Mar.

Egretta gularis Western Reef Heron

Recorded in every month from Salalah khawrs and coast. Increase in numbers 16 Feb. to 14 Apr. and 25 Sep. to 8 Dec.

Grey form outnumbers white 13 to 1 (132-10) (Seeb, N. Oman: 3-1; Masirah, RAFOS count: 4-3). Single birds at Thumrait on 4 May, 24 Sep. and 2-3 Oct. 1978.

Egretta garzetta Little Egret

Recorded at Salalah khawrs in every month, maximum counts 21 on 15 Mar., 25 on 25 Sep., 30 on 4 Oct. 1978. Two birds recorded 4 Oct. 1978 had pink bills, black legs and yellow feet; 2 on 13 Nov. 1978 had yellowish horn bills, greenish-yellow facial skin, greyish-black legs, yellow ankles and feet. (*E. gularis* available for comparison both times.) Inland at Thumrait single birds were recorded 8-12 Jun., 16 Sep., 29 Sep. and two on 31 Oct. 1978.

Egretta alba Great White Heron

One or two birds recorded from Salalah khawrs from 5 Nov. to 29 Mar. Of two birds in November, one had an orange-yellow bill and green facial skin, one a bright orange bill and yellow facial skin.

Ardea cinerea Grey Heron

Recorded throughout the year. Increase in numbers from 11 Feb. to 7 Apr. and 8 Sep. to 8 Nov. One dead Hatab 28 Sep. 1978. One at Thumrait 16 Jun. and a small passage of up to four birds there between September and October.

Ardea purpurea Purple Heron

Recorded from Salalah khawrs from 25 Jul. until 7 Apr. Maximum count 11 on 14 Nov. Inland: one at Thumrait 11 Sep. 1978.

Ardea melanocephala Black-headed Heron

One or two adult or immatures recorded from Salalah coastal areas and vegetable gardens from 25 Sep. to 15 Nov. 1978. (Can be immediately separated from *A. cinerea* at all ages by pure white underwing coverts and underparts.) These records appear to represent a considerable extension of the known range of this species.

Ciconia abdimii Abdim's Stork

Eight birds in the West khawr roosting in coconut plantation on 3 Feb. 1978, and a single bird near the Royal Stables at Um al Ghawarif from 28 Feb. to 3 Apr. 1979. The previous known range of this species in Arabia was a female obtained at Abu Arish (*c.* 17° 00′N 42°25′E).

Ciconia ciconia White Stork

Recorded from Thumrait, Hatab and the Salalah cultivation from 23 Sep. until 27 Mar. Maximum numbers *c.* 30 on 25 Jan. 1978, and 31 on 8 Nov. 1979; birds at Thumrait: one on 11 Oct., two on 25 Nov. 1978. Eleven at Salalah feeding in farmland were heavily stained reddish-brown on breast and belly.

Plegadis falcinellus Glossy Ibis

Fairly common on the Salalah khawrs from 8 Sep. until 14 Apr. One at the East Khawr on 28 Jun. 1978 and 10 on the West Khawr on 7 Jul. The latter, when put up, circled to a great height, then turned onto a heading of 180° and flew in echelon formation, still climbing, out of sight (10× 15 binoculars). Wind: south-easterly, five knots.

Threskiornis aethiopicus Sacred Ibis

An immature at the East Khawr on 1 Oct. 1978 and one, perhaps the same bird, at Salalah Khawr on 4 Oct. 1978.

Platalea leucorodia Spoonbill

Up to nine birds, mostly immature, recorded between 30 Oct. and 25 Jul. from the Salalah khawrs.

Phoenicopterus ruber Greater Flamingo

Recorded from Salalah khawr from 28 Jun. to 29 Apr. with 63 on 8 Nov., increasing to 82 on 22 Dec. 1978; maximum 12 on 13 Feb. 1979. Eighteen moving east out at sea at Tarqa on 15 Mar. 1979. One *c.* 35 km. south of Thumrait on 10 Feb. 1978.

Cygnus columbianus Bewick's Swan

Eight adult and two immatures at Salalah and West Khawr between 20 Jan. and 25 Feb. 1978. One on 6 Apr. on West Khawr and one on the Salalah khawr on 7 Jul. 1978 refer to the same bird. These records must considerably extend the southerly range of this species.

Nettapus coromandelianus Cotton Teal

A maximum of eight birds recorded from the Salalah khawrs between 8 Dec. and 6 Apr. It was noted that this species preferred to feed with Coot and Moorhen.

Anas penelope Wigeon

Recorded from the Salalah khawrs from 13 Nov. to 3 Apr., with a maximum of 150 on 20 Jan. 1978 and 80 on 5 Jan. 1979.

Anas crecca Teal

Up to 120 on the Salalah khawrs from 16 Sep. to 3 Apr. Sixteen at Thumrait pools from 28 Sep. to 31 Dec. 1978 until shot out.

Anas platyrhynchos Mallard

One or more at Salalah on 20 Jan. 1978, and two at the East Khawr on 19 Feb. 1979.

Anas acuta Pintail

Recorded from the Salalah khawrs from 30 Oct. to 7 Apr., with a maximum of 100+ on 20 Jan. 1978 and 108 on 2 Dec. 1978.

Anas querquedula Garganey

Upwards of 200 on the Salalah khawrs from 8 Sep. to 29 Apr. Single birds at Thumrait 2-8 Apr. 1978, 22-26 Sep. 1978.

Anas clypeata Shoveler

Recorded from Salalah khawrs from 16 Sep. until 6 Apr.; maximum numbers: 100+ 11 Feb. 1978, 110 on 2 Dec. 1978.

Aythya ferina Pochard

Three at Salalah Khawr on 25 Sep. 1978. Up to 20 there and East Khawr between 8 Dec. and 13 Feb.

Aythya nyroca Ferruginous Duck

Up to 12 recorded from Salalah and the East Khawr between 30 Oct. and 12 Mar.

Aythya fuligula Tufted Duck

Recorded only from the East Khawr, 5 Jan. to 6 Mar., with a maximum of *c.* 40 on 20 Jan. 1978.

Milvus migrans Black Kite

One pair resident in plantations near Royal Stables at Salalah; fledged young out of nest were being fed there 21 Jul. In winter wanders between Tarqa and Raysut. Migrants at Thumrait: one north 11 Apr., one 10 Jun. and one 23 Sep. 1978.

Neophron percnopterus Egyptian Vulture

Resident and recorded in every month in small numbers from Thumrait. Forty seven km. Tip and the Jebel Qara. On the Salalah plain, a build up from 22 on 26 Nov. to 70 on 8 Dec., then declining to 65 on 8 Dec., 65 on 2 Jan., 36 on 16 Feb., 30 on 25 Feb. and 12 on 21 Mar.

Gyps fulvus Griffon Vulture

Up to 12 at the Thumrait and Hatab tips between 18 Oct. and 4 Dec. 1975. One at Thumrait 1 Mar. 1977. One at Thumrait 19 Jan. and one there 26 Nov. to 4 Dec. 1978. Declining numbers reflect improved tip hygiene.

Torgos tracheliotus Lappet-faced Vulture

One at Thumrait 1 Mar. 1977, up to two there 19-21 Jan. 1978, one 14 Feb. 1978. One long dead Thumrait 27 Jun. 1977.

Aegypius monachus Black Vulture

Up to three birds at Thumrait tip from 18 Oct. to 28 Nov. 1975.

Circaetus gallicus Short-toed Eagle

One Hatab 28 Feb. 1977; one West Khawr 3 Feb.; one Thumrait 6 Apr. and 2 Sep. 1978; one Jebel Qara 14 Dec. 1978; one East Khawr 2 Jan. 1979.

Circus aeruginosus Marsh Harrier

A winter visitor to the Salalah khawrs from 8 Sep. until 14 Apr. Fourteen birds counted between Tarqa and West Khawr on 14 Nov. (winter average: six). An adult moving north across the desert *c.* 35 km. south of Thumrait on 3 Apr. 1979 only inland record.

Circus macrourus Pallid Harrier

A male at Thumrait on 25 Oct. 1978; a male and female/immature wintered on the Jebel Qara 8 Nov. to 6 Mar. 1979; a female at Khawr Sawli 14 Dec. to 28 Dec. 1978.

Circus pygargus Montagu's Harrier

A pair wintered at Khawr Tarqa 14 Nov. to 15 Mar. 1979. Migrants: one Thumrait 27 Feb. 1978, a male north across the Jebel Qara 13 Feb.; one north-east Hatab 3 Mar.; two north-east across Salalah plain 3 Apr. 1979.

Circus sp. Ring-tailed Harrier

Unidentified harrier species were recorded generally from the Thumrait, Jebel Qara and Salalah plains from 2 Sep. until 15 Mar., with a maximum of *c.* 10 per day roosting in open sand dunes near the East Khawr on 25 Sep. 1978.

Accipiter nisus Sparrowhawk

Birds recorded from Jebel Qara, Salalah and Tarqa between 10 Oct. and 15 Mar. One predating with Saker at dusk on doves at Salalah Palace gardens 4 Feb. 1978.

Buteo rufinus Long-legged Buzzard

Up to two birds recorded from Salalah town and khawrs, Jebel Qara and Thumrait 22 Sep. to 28 Feb. Single birds from same area on 5 and 19 May, 21 and 27 Jun.

Aquila pomarina Lesser Spotted Eagle

An immature at Salalah Khawr on 11 Dec. 1978. Whole of plumage sooty-black, with a single row of whitish spots on wing coverts, and a few small scattered spots above; small off-white patch on rump; underwing coverts not noticeably paler than flight feathers; wings held forward, with 'hands' drooping; tail long and rounded; perched in coconut trees when put up second time. More compact looking than *A. clanga*.

Aquila clanga Spotted Eagle

Invariably a solitary bird, and recorded almost daily from Salalah plains, Thumrait and 47 km. Tip from 18 Oct. to 18 Mar.

Aquila rapax Steppe Eagle

A very common eagle in the south of Dhofar, with birds being recorded from 25 Sep. to 24 Mar. An increase in numbers was recorded at Thumrait from 19 on 26 Nov. climbing to 24 on 29 Dec., 45 on 19 Jan., peaking to 65 on 30 Jan., decreasing to 16 on 15 Feb., 29 on 1 Mar. A single adult moving rapidly south over the desert near Thumrait on 17 Jul. 1977, compares with another unusual record of *A. rapax* at Muaskar al Murtafa on the south-east Batinah, in northern Oman, on 19 Jul. 1976.

Aquila heliaca Imperial Eagle

Recorded from Thumrait, desert tips, Jebel Qara and the Salalah plain from 23 Oct. to 15 Mar. Only one record of an adult, at Thumrait on 26 Nov. 1978.

Aquila chrysaetos Golden Eagle

An immature over Thumrait village on 21 Nov. 1975; an adult on a W.S.W. heading over Thumrait pools on 6 Dec. 1978; an adult at Hatab with *A. heliaca* and *H. pennatus* on 19 Feb. 1979. First records for Oman.

Aquila verreauxii Verreaux's Eagle

Sub-adults in the Hatab area on 13 Jan. and 22 Dec. 1978. This species is probably resident.

Hieraaetus pennatus Booted Eagle

First record, one at Ayn Arzat on 18 Oct., then wintering birds from 8 Dec. on the Salalah plain and Jebel Qara. One off the sea at the East Khawr on 13 Feb. continued north until out of sight. Only one record of a dark phase bird, at the East Khawr on 5 Jan.

Pandion haliaetus Osprey

Recorded from 7 Jul. to 14 Apr. from the coastal khawrs, with up to three birds together. One at dawn at Thumrait on 23 Oct. 1978. Probably resident.

Falco naumanni Lesser Kestrel

One adult on the southern slopes of the Jebel Qara on 27 Sep. 1977. First record for Dhofar.

Falco tinnunculus Kestrel

Resident and recorded in every month. Fairly common resident in Jebel Qara, with a noisy fully fledged young bird begging for food on 31 May 1978. Winter visitors to Salalah plains. Up to five crossing desert on N.W. heading recorded 27-28 Feb.; 11 birds south-west 10 Oct. 1978. A party of 20 to 25 birds (8-10 males) on the lower foothills of Jebel Qara at 0830D on 13 Feb. 1979 moving north against a strong northerly wind, none there four hours later.

Falco subbuteo Hobby

A single bird moving south over Jebel Qara on 26 Sep. 1977, one at Thumrait on 1 May 1978 and one resting on southern slopes of Jebel Qara on 16 Jul. 1978.

Falco concolor Sooty Falcon

A dark phase bird put up from shade at Hatab on 28 Nov. 1975, moved off south. First record for Dhofar. Breeds in northern Oman and is rare inland.

Falco biarmicus Lanner

A single bird recorded flying east at the same location on the north edge of the Jebel Qara at 16.00 hrs. on 9 Jul., 16.10 hrs. on 11 Jul. and 15.50 hrs. on 22 Jul. was probably leaving its day roost. Lanner/Saker falcon records were: two Salalah khawrs on 4 Feb., two Hatab 22 Apr.; one at Thumrait hunting sandgrouse 5 to 8 Jul.; one Salalah 8 Sep. and two there 4 Oct.

Falco cherrug Saker

One hunting doves at dusk in palace gardens, Salalah on 4 Feb. 1978, an immature east of Salalah 7 Jul. 1978 and one there 9 Oct. 1978.

Falco peregrinus Peregrine

One caught exhausted Thumrait 19 Jul. 1978, released. Recorded from Salalah plain and khawrs, and Thumrait between 7 Oct. and 31 Mar. Two feeding on freshly killed Pintail *A. acuta* 10 km. north of Salalah on 15 Nov. 1978.

Falco pelegrinoides Barbary Falcon

Single birds from Salalah plains and Jebel Qara from 14 Dec. to 3 Apr. 1979. One caught Jebel Qara 24 Jan. 1978 examined and skin sent to Royal Scottish Museum. Total length 373 mm.; wing (abraded) 300 mm.; tail 145 mm.; culmen from cere 23 mm.; tarso-metatarsus 53 mm. Bill, cutting edge and hook blue-black, rest blue-grey; cere pale grey; tarsi greyish-horn. Iris brown, pupil black, eyelids grey. An immature at Sahalnawt on 28 Sep. 1978. First records for Dhofar.

Alectoris melanocephala Arabian Red-legged Partridge

A common and widespread resident on the Jebel Qara. Spring covey sizes recorded as 15, 12, 10 and eight. One with four chicks on 13 May at Ghrnout (461 metres).

Ammoperdix heyi Sand Partridge

A common and widespread resident recorded from northern escarpment of Jebel Qara to Thumrait. Chicks from 13 May. A party of five males and three females with four chicks, and a female with nine chicks on 23 May 1978 *c.* 34 km. south of Thumrait. Call a "chow chow chow" or "watcha watcha watcha" on a rising scale. Alarm call anxious "chuck chuck".

Coturnix coturnix Common Quail

One Salalah 20 Jan.; one Hatab 14 and 18 Feb.; two there 3 Apr. 1978. One Thumrait pools 6 Jun.; one Hatab 13 Oct. 1978.

Porzana porzana Spotted Crake

One at Thumrait pools 28 Sep., 17 Oct., 31 Oct. 1978. Many crakes winter in thick reed beds around Salalah khawrs.

Porzana parva Little Crake

One at Ayn Arzat on 1 Oct.; one extremely dehydrated bird caught in a building at Thumrait on 25 Nov. 1978. Bill greyish-brown upper, dull green lower, reddish gape; legs dull olive yellow; iris brick red.

Gallinula chloropus Moorhen

A widespread and common resident on the Salalah khawrs and Jebel pools. First chicks 6 Mar. at Tarqa; last 25 Sep. An immature in an exhausted condition caught at Thumrait on 2 Oct. 1978.

Fulica atra Coot

Recorded from 16 Sep. until 29 Apr. A count on 2 Jan. 1979; 37 at Tarqa, 162 East Khawr, 20 Salalah Khawr, *c.* 20 West Khawr, 30 Sawli Khawr. Up to three present at Thumrait from 12 Nov. until shot by 27 Nov.

Anthropoides virgo Demoiselle Crane

An immature at the West Khawr on 4 Oct. 1978. Silver-grey forehead and crown; mantle and coverts silvery-grey, mantle with faint purplish tinge; foreneck from chin to base of neck blackish; dark line (shadow?) behind eye; flight feathers and tail blackish, secondaries giving bushy tail effect; whole of underparts, including under wing pale grey; bill pinkish tip to grey base; eye ring or iris red; legs and feet greyish-black, soles of feet yellowish. First record for Oman.

Chlamydotis undulata Houbara

One freshly dead *c.* 20 km. south of Thumrait at dawn on 13 Dec. 1978 obviously hit by a motor vehicle. Upper mandible blackish, lower greyish-black; legs and feet dirty yellowish-horn; iris straw yellow; tail much abraided, three bluish-grey bands. Now considered by locals to be very scarce.

Hydrophasianus chirurgus Pheasant-tailed Jacana

Recorded from 15 Nov. until 29 Apr. Up to eight birds at Tarqa throughout winter, with odd birds on other khawrs. A bird on 29 Apr. was moulting into summer plumage. Anger call a petulant harsh "gnor-nit".

Haematopus ostralegus Oystercatcher

Up to 16 recorded from coast between 8 Sep. and 6 Apr.

Himantopus himantopus Black-winged Stilt

Up to 18 recorded from Tarqa, Sawli and Salalah area Khawrs between 28 Jun. and 14 Apr. Inland, three at Thumrait on 19 Oct. 1978.

Recurvirostra avosetta Avocet

Parties of up to 10 birds along coast between 8 Sep. and 25 Feb.

Dromas ardeola Crab Plover

One at Tarqa beach on 25 Feb. 1979 was the only record.

Cursorius cursor Cream-coloured Courser

Two Hatab 15 Apr.; three Thumrait pools 3 Sep.; eight Hatab 12 Nov.; one Thumrait 27 Nov. 1978. Three Salalah plains 21 Mar. 1979.

Glareola pratincola Pratincole

One at Salalah on 8 Sep. and eight there 16 Sep. 1978. Single birds at Thumrait 6 Apr., 5 to 19 May and 1 Jun. 1978. Alarm call recorded as hard "tchi-tick".

Glareola nordmanni Black-winged Pratincole

One at Hatab on 5 Jul. 1977; one at Thumrait 25 Sep. 1977.

Glareola lactea Little Pratincole

Three at Khawr Tarqa on 14 Nov. and two at the West Khawr on 2 Dec. 1978.

Charadrius dubius Little Ringed Plover

Recorded from Salalah khawrs and Thumrait pools from 2 Sep. to 22 May. Maximum of 11 birds at Thumrait; eight at Salalah khawrs.

Charadrius hiaticula Ringed Plover

Present at Salalah khawrs and Thumrait pools between 25 Jul. and 14 Apr., with a maximum of 20+ at Salalah on 25 Sep., and five at Thumrait on 16 Oct.

Charadrius alexandrinus Kentish Plover

A fairly common resident on the Salalah coast with fledged young from May. Present at Thumrait pools between 16 Oct. and 3 Apr. with a maximum of 56 on 8 Jan.

Charadrius mongolus Lesser Sand Plover

At the Salalah khawrs from 25 Jul. to 14 Nov. peaking at 50+ on 25 Sep. Up to six there between 15 and 31 Mar. At Thumrait, two or three birds at the pools and water overflow from 16 Apr. to 1 Jun. 1978; 15 to 18 Jul. 1977 and one 25 Oct. 1975.

Charadrius leschenaultii Greater Sand Plover

One khawr Sawli 7 Apr.; 10+ on 14 Apr. khawrs Salalah; one summer plumage there 25 Sep.; one winter 14 Nov. 1978. Six in summer plumage East Khawr 24 Mar. 1979. One Thumrait pools 2 Apr. 1978.

Pluvialis dominica Lesser Golden Plover

Recorded from Salalah plain and khwars and Thumrait pools between 28 Feb. and 22 Apr., with a maximum of six on 14 Apr., and 8 Sep. to 13 Nov., with a maximum of *c.* 70 on 8 Nov. 1978.

Pluvialis squatarola Grey Plover

From Salalah beaches and Thumrait pools between 8 Sep. to 5 May. Probably 50 to 60 birds between Tarqa and Raysat in Jan. 1979. Maximum two at Thumrait.

Chettusia leucura White-tailed Lapwing

Up to two birds at Salalah Khawr 8 to 18 Oct. 1978. One at Thumrait 21 to 26 Oct. 1978.

Vanellus vanellus Lapwing

Seven at the Khawr Salalah on 19 Dec. 1978.

Calidris alba Sanderling

Recorded from Salalah coast 8 Sep. to 3 Apr. with maximum 35 on 25 Sep. Three at Thumrait pools 25 to 29 Apr.; two there 3 Oct. 1978.

Calidris ruficollis Red-necked Stint

On 8 Sep. 1978, on the East Khawr, four birds were watched feeding in a small stagnant pool between reed beds and banks of khawr side. Paler, cleaner, plumper, more like *C. alba* than *C. minuta*, which with *C. temminckii*, were available for comparison. Notes taken at time: forehead to back of nape whitish-buff; heavily streaked blackish central crown; brown outer, then broad whitish supercilium, commencing at lores, and widening behind eye; ear coverts, chin, throat, underparts a frosty or chalky greyish-white, with a very clear cut half moon of reddish-brown feathers on sides of breast; upperparts very black and white; mantle blackish or very dark brown; feathers edged whitish, clearly defined, heavier markings on primary

coverts; outer retrices appeared whitish, less than *C. temminckii*, more than *C. minuta*. Bill short and black, legs black. Call a thin squeaky trisyllabic "twick". If accepted, the first record for Dhofar.

Calidris minuta Little Stint

Present at Shalalah khawrs and Thumrait in every month, but not between 28 Jun. and 25 Jul. Autumn passage on coast commenced 8 Sep. (*c.* 60) rising to *c.* 120 birds on 25 Sep., 30 on 18 Oct., 25 on 30 Oct., 20 on 8 Nov.; winter population probably 20 to 30 on all khawrs. Spring movement commenced at Thumrait 4 May peaking at 22 on 14 May with last there 16 Jun.

Calidris temminckii Temminck's Stint

Recorded from Salalah khawrs from 8 Sep. to 3 Apr.; At Thumrait pools from 13 Sep. until 8 May. Maximum count at Salalah 14 on 12 Mar.; maximum Thumrait six on 9 Dec.

Calidris subminuta Long-toed Stint

Three at East Khawr 20 and 24 Jan. 1978; single birds at West Khawr on 25 Sep., Khawr Tarqa on 14 Nov., East Khawr on 19 Dec. 1978 and 5 Jan. 1979. Recorded from Thumrait 18 Sep., 23 Sep., 16 and 17 Nov. 1978. Can be separated from other stints by darker plumage, dark streaking on breast, yellowish legs, yellowish base to black bill, call a quiet, single or treble (almost sparrow-like) "churup" or "chulip". First records for Dhofar.

Calidris ferruginea Curlew Sandpiper

Autumn passage at Salalah khawrs from 25 Jul. until 14 Dec., with a peak number between 26 Sep. and 5 Nov., 70 birds on last date; three Salalah 11 Feb. At Thumrait, one on 21/22 Jul. 1977; one 16 Apr.; up to three between 4 and 19 May; one 27 Jul., 11 Sep., 26 Sep., 5 Oct., 31 Oct., and 20 Nov. 1978.

Calidris alpina Dunlin

Recorded in small numbers (maximum 26 on 2 Dec.) from Salalah khawrs from 25 Sep. to 3 Apr. At Thumrait, from 10 Sep. to 3 Apr. with maximum of 12 birds on 30 Nov.

Limicola falcinellus Broad-billed Sandpiper

One or two from Salalah khwars from 8 Sep. to 30 Oct., and one late record, 20 Jan., at the East Khawr.

Philomachus pugnax Ruff

Recorded in every month. Autumn movement on coastal khawrs commenced 8 Sep. with 140 birds, increasing to 300 on 25 Sep., 300 on 4 Oct., 200 on 13 Nov., 120 on 2 Dec.; thereafter up to 40 to 60 wintering in small parties. No significant spring movement recorded. At Thumrait, recorded every month, usually ones and twos, but 15 on 24 Sep. 1977, and 13 on 3 Dec. 1978.

Lymnocryptes minimus Jack Snipe

Small passage through Thumrait 16 to 23 Nov. 1978. Single birds on Salalah plains on 2 Dec. and on 18 Jan.

Gallinago gallinago Common Snipe

Autumn movement commenced 11 Sep. at Thumrait, 16 Sep. at Salalah, with a maximum of 10+ birds on 5 Nov. at East Khawr. No marked spring passage. Last recorded Salalah 6 Apr. and Thumrait 22 Apr.

Gallinago stenura Pintail Snipe

Birds considered to be of this species recorded as follows: two at Salalah 25 Sep. 1978; two at Baleed on 14 Feb. 1979. Inland, Thumrait, one from 3 to 6 Jan. A darker and heavy-looking bird, underparts wholly brown. Flight more like Jack Snipe *Lymnocryptes minimus*: running more than Common Snipe: call a low harsh "snape". If accepted these are the first records for Dhofar.

Limosa limosa Black-tailed Godwit

Recorded from the Salalah khawrs from 7 Jul. to 6 Apr.; maximum counts: 15 on 8 Sep., 18 on 5 Mar.

Limosa lapponica Bar-tailed Godwit

Small numbers from 8 Sep. until 30 Oct. Single birds 5 and 31 Mar., 28 Jun., 25 Jul. at Salalah and East Khawrs.

Numenius phaeopus Whimbrel

Up to five birds on beach and khawrs at Salalah from 8 Sep. until 3 Apr. One Salalah 25 Jul. One at Thumrait 4 and 5 May 1978.

Numenius arquata Curlew

Recorded in small numbers from Salalah khawrs from 25 Jul. to 14 Apr., with small passage 16 Sep. to 22 Dec. No significant spring passage recorded. One at Thumrait on 2 Sep. 1978. On 22 Dec. 1978 21 Curlew flew off the West Khawr at 16.10 hrs. climbed gently on a northerly heading across the plain towards the Jebel. At great height, turned north-east across a 15 knot north-westerly wind, and still climbing, crossed the Jebel heading about 040°.

Tringa erythropus Spotted Redshank

Up to eight at Khawr Tarqa and Sawli between 2 Dec. and 24 Mar.

Tringa totanus Redshank

Recorded from Salalah khawrs from 25 Jul. until 6 Apr.; maximum of 20+ on 20 Jan. Maximum of four at Thumrait pools 6-18 Jul. 1977, 24-28 Sep. 1977, 13-22 Sep. and 21-30 Nov. 1978.

Tringa stagnatilis Marsh Sandpiper

One Thumrait 1 Mar. 1978; one Salalah Khawr 14 Apr. 1978; one Salalah 9 Oct.; one 2 Dec. at West Khawr and five on Khawr Sawli 14 Dec. 1978.

Tringa nebularia Greenshank

Recorded in every month but not between 8 May and 27 Jun., with a maximum of seven on 14 Dec. at Khawr Sawli, and 12 at Tarqa on 15 Mar. Up to two birds at Thumrait 27 Jun. 1977, one to 8 May, 28 Jun., 2 Sep., 27 Sep. and 16-17 Nov. 1978.

Tringa ochropus Green Sandpiper

Found in khawrs, mountain streams and pools and Thumrait pools. Coastal records: a maximum of six birds, from 27 Sep. to 13 Feb. At Thumrait, birds passing through from 3 Jul. 1977 and 3 Jul. 1978 (maximum of seven birds) until 4 Nov.; one or two birds wintered, with a small return passage from 15 Feb. until 8 Apr.

Tringa glareola Wood Sandpiper

Recorded from Salalah khawrs from 25 Jul. until 14 Apr., with a maximum of 10 on 25 Sep. Inland at Thumrait pools, single birds from 18 Jul. (maximum of four 24 Sep.) until 16 May.

Xenus cinereus Terek Sandpiper

Small autumn passage through Salalah khawrs from 8 Sep. to 5 Nov., and 6 to 14 Apr., with a maximum of 22 birds on 6 Apr. A late record of one at the East Khawr on 28 Jun. At Thumrait, up to six birds at the pools from 22 Apr. to 19 May, and one 8 to 10 Jun.

Actitis hypoleucos Common Sandpiper

Found at coastal khawrs, mountain streams and pools from 7 Jul. to 3 Apr., with a maximum of 12 on 8 Sep. At Thumrait, birds recorded every month but not between 1 Jun. and 20 Jul., with a maximum of six on 25 Sep.

Arenaria interpres Turnstone

A maximum of 12 birds recorded at Salalah between 8 Sep. and 13 Nov. One at Thumrait pools 17 to 19 Nov. 1978.

Phalaropus lobatus Red-necked Phalarope

Notes refer to Thumrait only. Up to six birds—two female in summer plumage between 20 and 22 Jul. 1977, three there 16 to 22 Apr., two 13 to 28 Sep. Not recorded from Salalah.

Larus hemprichii Sooty Gull

On southern coast, strong westerly passage from 16 Sep., with maximum count of 2,000 birds on 14 Nov. Few winter. Spring movement from 25 Feb., with large numbers moving east along the coast. Owing to the khariff, difficult to estimate summer numbers; flocks of 114 and 200+ on khawrs on 28 Jun., 400+ on 25 Jul. One north across the desert at Thumrait 26 Feb.

Larus ichthyaetus Great Black-headed Gull

Recorded from coastal khawrs from 24 Jan. until 3 Apr., with maximum of 17 on 24 Mar. Five winter/immature birds climbed purposefully to a great height in wide swinging circles across a southerly wind (200° 10-15 knots) moving on a heading of 030° towards the Jebel Qara *c.* 12.00 hrs., 24 Mar. 1979. Alarm and or anxiety call a barking "whe-ow".

Larus ridibundus Black-headed Gull

Recorded at Salalah khawrs from 15 Nov. to 3 Apr. Peak numbers in winter 1,000+ on 3 Feb. Up to 12 birds at Thumrait pools between 2 Sep. and 15 Jun.

Larus genei Slender-billed Gull

Probably birds present off Salalah coast throughout the year. Winter visitors start arriving 4 Oct.; 100+ on 24 Jan. A strong passage from 6 Mar. with 200+ on 24 Mar. Two at Thumrait 3 Jul. 1978 and one there 1 Apr. 1979.

Larus fuscus/argentatus Lesser Black-back/Herring Gull

Recorded in small numbers from Salalah coast from 28 Jun. until 2 Apr. Numbers increased with 40+ coasting west on 25 Sep. and hundreds wintering. Spring passage from 19 Feb., with flock of 260 adult *L. fuscus*. Up to 2,000 moving east along the coast 24 Mar. to 3 Apr. Inland at Thumrait: *L. fuscus*, one 2 to 13 Sep. (died); one 17 to 23 Nov. (died); one 2 Apr. *L. argentatus*: an adult dead in desert 30 km. south of Thumrait 25 Sep. 1977. On 29 Sep. 1977, about 15 minutes before sunrise, 17 flew in a slow ragged group on a heading of 190° across Thumrait Air Base. Immatures inland: one 4 Oct., quite exhausted, walking south down the Thumrait/Salalah black-top; one 21 Oct.; one 3-5 Nov. (died); two south at 08.00 hrs. on 16 Nov. An immature at Thumrait put up at dawn, climbed out of sight on a northerly heading on 1 Mar. 1977.

Gelochelidon nilotica Gull-billed Tern

Up to nine birds present on Salalah khawrs between 25 Sep. and 3 Apr.

Sterna caspia Caspian Tern

Passage commenced 8 Sep., with a maximum of 12 birds on 7 Oct. Odd individuals wintered; small spring passage 6 Mar. to 6 Apr. Two at Salalah Khawr on 7 Jul. A whistling call reminiscent of a Wigeon *Anas penelope* was often heard from this species.

Sterna bergii Swift Tern

Recorded in every month with large numbers present in summer and autumn, decreasing from early December. Few winter. Spring arrivals from 24 Mar. It was noted on 14 Nov. that among several immatures begging for food at Tarqa, several had orange legs and bill, whilst others had black legs.

Sterna bengalensis Lesser Crested Tern

On coast, three spring records between 6 and 31 Mar., with maximum of 10+ birds; two autumn records of single birds 8 Sep. and 9 Oct.; one on 20 Jan.

Sterna sandvicensis Sandwich Tern

Birds on coast almost throughout the year, but not between 28 Jun. and 25 Jul. Autumn movement commenced with 40 on 8 Sep., increasing to 1,000+ on 4 Oct., falling off to 200 on 14 Nov. One or two birds wintered. Small spring passage from 12 Mar. to 3 Apr.

Sterna hirundo Common Tern

Three on 28 Jun., 20 on 25 Jul. A few birds between 8 Sep. and 4 Oct., 100+ on 9 Oct., 10 on 30 Oct., 25 on 14 Nov. Spring, up to five present between 6 and 31 Mar. All records from Salalah coast.

Sterna repressa White-cheeked Tern

Four at Salalah on 8 Sep., four there 24 Mar. and five+ on 31 Mar. 1979.

Sterna anaethetus Bridled Tern

Twenty five+ feeding just beyond surf at Salalah on 25 Sep. 1978.

Sterna saundersi Saunders' Little Tern

One at the East Khawr on 28 Jun. A small passage of up to 15 birds at Salalah between 8 Sep. and 4 Oct.

Chlidonias niger Black Tern

One at Khawr Sawli on 28 Dec. 1978. If acceptable, first record for Dhofar.

Chlidonias leucopterus White-winged Black Tern

Recorded from Salalah khawrs between 28 Jun. and 29 Apr. Up to 24 birds in spring; moult into summer plumage from 6 Apr.; birds in summer plumage on 28 Jun. Maximum of 40+ on 14 Nov.; uo to 24 wintering. Inland, one at Thumrait on 4 Sep. 1978.

Anous stolidus Common Noddy

Up to four with *P. lherminieri*, *O. oceanicus* and *S. anaethetus* on 25 Sep. 1978 off Salalah.

Pterocles lichtensteinii Lichtenstein's Sandgrouse

Six on 25 Sep. 1977 and three on 28 Sep. 1977 about 45 km. south of Thumrait, were probably *P. l. ingramsi*. First records for Dhofar. Probably resident.

Pterocles coronatus Coronetted Sandgrouse

Common resident and hundreds flight in to the Thumrait pools daily. In winter, waters between 09.00-10.00 hrs. in summer 07.00-09.00 hrs. First fledged young 22 Apr.; average per pair three to four, sometimes five. Pitches 25 to 400 yards from water approaching with a cautious waddling walk. Commonest call "not a warple", also "wok tu wok kock".

Pterocles exustus Chestnut-bellied Sandgrouse

Resident, commonest sangrouse in Dhofar. Birds disperse to breeding quarters in March, returning in hundreds with young to water from mid-May until late September. In winter, waters between 08.00 and 09.00 hrs. in hot weather 07.00 to 09.30 hrs. and 16.30 to 17.30 hrs. Two adults with three freshly hatched young at 17°10′N 54°30′E on 8 May 1978. Pullus: forehead brown; line across brow whitish; crown brown, white line from behind eye over crown to eye; white line splitting sandy-brown occiput; nape unfeathered; back speckled black, brown and grey; scapulars white; rump lightly speckled brown and grey; primaries blackish, inner web of primaries sandy-brown; secondaries sandy-brown. Whole of underparts lightly feathered greyish-white; under-tail coverts white; legs feathered to 'ankle'; feet pinkish-brown, bill blue-grey, iris brown. (Skin to Royal Scottish Museum). First fledged young to water 20 May. Birds pitch straight into water. Commonest call "chocka chocka"; others "quock ca-car"; "wot worp wot worp".

Columba livia Rock Dove

Resident and found from base of southerly edge of Jebel Qara north to Thumrait. Flocks in winter averaged 40 birds in mountains; smaller numbers in south. A pair on 8 May 1978 appeared to have young in an inaccessible cave in a deep wadi east of Hatab.

Streptopelia decaocto Collared Dove

Average number at Salalah Palace roost was *c.* 40 increasing suddenly to 120 on 14 Nov., with 100+ on 22 Dec., dropping to *c.* 20 Jan/Feb.. One at Thumrait on 2 and 4 Sep. 1978. Resident.

Streptopelia turtur Turtle Dove

Birds commenced moving south through Thumrait area usually at dawn with four on 2 Sep. Numbers slowly increased to *c.* 25 on 19 Sep., falling off to last record of three on 29 Oct. Spring passage, a maximum of three birds, from 18 Apr. to 8 May.

Streptopelia orientalis Rufous Turtle Dove

Records from Thumrait, two on 2 Sep., one on 5 Sep. and one on 13 Sep. 1978. One on 28 Sep. 1977 and one on 28 May 1978. Separated from *S. turtur* by large size, dark reddish-brown head and breast, dark primaries and slightly darker underwing coverts. Song recorded as Woodpigeon—like "oo'oo car car". First records from Dhofar.

Streptopelia senegalensis Palm Dove

Resident Salalah plain and Jebel Qara to 17°15′N line. At Thumrait, one on 25 Sep. 1977; four south at dawn on 29 Sep. 1977. Six, day-roosting at Hatab on 19 Mar. were considered to be migrants.

Oena capensis Namaqua Dove

A female at Thumrait on 16 and 22 May 1978 probably same bird. A male and female at Al Baleed on 1 Jul. and a female there on 7 Jul. 1978.

Treron waalia Yellow-bellied Green Pigeon

Found in small numbers between 20 May and 1 Oct. 1978 from Salalah plantations north to Hatab in Jebel Qara.

Clamator jacobinus Jacobin Cuckoo

On 16 Nov. 1978 an extremely tired bird, squatting in a small thorn bush at Thumrait, allowed approach to within five feet. Black cap from lores, below eyes; small crest; sides of neck pale rufous-buff; mantle blackish; tail glossy black; underparts buff; conspicuous white wing panel only in flight. First record for Dhofar.

Chrysococcyx caprius Didric Cuckoo

Appears to be fairly common from 11 May until 25 Sep. from southern slopes of Jebel Qara to 17°15′N line. Probably parasitic on *Ploceus galbula.*

Cuculus canorus Cuckoo

One 45 km. south of Thumrait on 28 Sep. 1977. One put up at Thumrait pools on 14 Sep. 1978, climbed very high across strong wind and was drifted out of sight north-east. One at Thumrait 27 Sep. 1978 had very heavy black bands from flanks across breast and belly; one 45 km. south of Thumrait on 23 Oct. 1978.

Tyto alba Barn Owl

One freshly dead *c.* 10 km. north of Salalah on 6 Sep. 1978; wing 286 mm., bill 29 mm., tail 105 mm., tarsus 70 mm.; fourth longest, second equals third; bill dark horn; legs and claws brownish-horn. One long dead Al Baleed on 14 Feb. 1979. Locals inform me that this is resident on Salalah plains.

Otus brucei Straited Scops Owl

One flew into flood lights at Thumrait on 6 Oct. 1978. Wing 152 mm. First primary between fifth and sixth, third and fourth longest. If accepted, first record for Dhofar.

Otus scops Scops Owl

Fairly common on Salalah plains and Jebel Qara to 17°15′N line. One dead on road Jebel Qara 15 Oct. 1978. One calling at Thumrait on 10 Dec. 1978. Resident.

Bubo africanus Spotted Eagle Owl

Nine birds found dead on Jebel Qara road between 11 May and 26 Nov., all singletons, except pair on 600 foot level south side of Jebel. Haunts deep wadis in Jebels. One at Thumrait on 18 Sep., and one Rubkut, 12 km. south of Thumrait on 29 Sep. may have been wandering birds of the year. Resident.

Strix butleri Hume's Tawny Owl

An owl calling at dawn from a deep ravine in the Jebel Qara on 13 Jan. 1978, may well have been this species.

Caprimulgus europaeus Nightjar

Found at Thumrait, Jebel Qara and Salalah plain between 25 Sep. and 12 Nov. At least nine found dead on Jebel Qara/Salalah road between those dates.

Caprimulgus aegyptius Egyptian Nightjar

One found dead on roadside 23 Jan. 1978 near Salalah. Wing 210 mm., bill 10.5 mm., tarsus 29 mm., tail 131 mm. Skin to Royal Scottish Museum.

Apus apus Swift

First, eight at Tarqa on 16 Feb., with small numbers over Salalah and Jebel Qara, mostly on a north-easterly heading. On 13 May many hundreds drifting north-east from ground level to extreme height between 09.00 and 10.00 hrs. Last spring record: one at Hatab on 29 May. Return movement commenced 8 Sep., numbers increasing to 200+ on 27 Oct.; last autumn record *c.* 10 south-west over Salalah plain on 5 Nov. Inland, one at Thumrait on 3 Mar. 1979.

Apus pallidus Pallid Swift

Birds considered to be of this species, and not *A. a. pekinensis* seen and heard during khariff near Ghrnout on south escarpment of Jebel Qara, from 23 Apr. to 25 Sep.; many over Salalah plains on 30 Oct.

Halcyon leucocephala Grey-headed Kingfisher

First arrivals from 26 Apr. on southern edge of Jebel had reached the 17°15′N line by 8 May. Seen or heard throughout the khariff from coastal plains to the Jebel to a height of 886 metres. Song flight from 26 Apr., song a repetitious "chip" in circular flight close to female, and a loud ringing "tweedle" on a rising scale, mostly from perches. Birds visiting a hole in a deep wadi on the Jebel 26 Apr., and young observed during summer. Numbers fell off in all areas from 18 Oct.; last seen Salalah 14 Nov. A totally dehydrated dead bird of the year found in a derelict building at Thumrait on 27 Nov. 1978. The crown was brownish-grey and the breast mottled, i.e., feathers grey, tipped buff.

Alcedo atthis Kingfisher

Surprisingly scarce. One Salalah khawr 8 Sep.; one Ayn Arzat pools 1 Oct.; one khawr al Qarm on 8 Dec. 1978.

Merops orientalis Little Green Bee-eater

Three pairs resident in desert between Thumrait and Jebel Qara near black top. An adult feeding very pale freshly fledged young on 15 Jun. Young begging call an insistent low "tcheeb"; adult call a "chit chitty chit". Party of four adults at Ayn Arzat on 1 Oct. 1978, and one Tarqa 3 Apr. 1979 may have been migrants.

Merops superciliosus Blue-cheeked Bee-eater

Large numbers recorded over Salalah plain and Jebel Qara between 14 and 23 Apr., mostly on a north-easterly heading. Return passage, involving hundreds of birds from 4 Oct. to 14 Nov., the last record being of 60+ birds going to roost at Al Baleed. Four or more overhead at Thumrait pools on 16 Apr., and four north-east across desert 19 Apr. Three 10 miles north of Jebel 13 Nov.

Merops apiaster Bee-eater

Two at Hatab hawking around an escarpment at 887 metres on 31 Oct. 1975 was the only record.

Coracias garrulus Roller

Six or more counted Salalah plains and interior desert as far north as Thumrait between 3 Sep. and 11 Dec. and 8 to 14 Apr.

Upupa epops Hoopoe

One or two daily from Thumrait, Jebel and Salalah plain between 10 Aug. and 24 Nov., and 20 Feb. to 1 Apr.

Jynx torquilla Wryneck

One in desert *c.* 30 km. south of Thumrait 26 Sep. 1977, one at Hatab 28 Feb. and one at Tarqa 8 Dec. 1978.

Mirafra cantillans Singing Bush Lark

Breeding resident. A small round-headed lark, with a short tail and long secondaries giving a bat-like silhouette in flight. Found in large numbers from within 400 yards of the sea at Salalah, across plains and Jebel Qara to the 17°15′N line at 886 metres. Song flight, from 27 Mar. normally in a wide spiral, with rapidly fluttering wings, sometimes hovering. Song a lound clear "chui chui chui tit tit tit chui", from an hour before sunrise to 30 minutes after sunset; sings throughout the khariff in strong winds, heavy drizzle and nil visibility. Nesting commences early April, and first young about from mid-May. A nest was found near Zeak on 1 Jul. 1978, on the 17°15′N line, at about 830 metres, in rolling grass and shrub covered hills. The nest was built in the lee of a small shrub, with the side facing the southerly winds of the

khariff built up with a slight overhang. The nest was of simple construction, made of thin fibres and grass, with a little animal hair. The eggs (to Royal Scottish Museum) three in number were greenish-grey mottled darker, especially at thicker end. Song ceased in mid-October and birds became silent, flitting from almost under one's feet, to drop quickly behind a tussock or rock, or to creep mouse-like through cattle tracks. Small forms are used under tufts of grass as permanent day roosts.

Eremopterix nigriceps Black-crowned Finch Lark

Resident in small numbers on Salalah plains and the Thumrait—Jebel Qara steppe. Migrants commence passing south through Thumrait in early July, and become widespread and common in all areas by October. A party of 60+ on 30 Oct. sitting on a 12 foot chain link fence at midday, taking advantage of the sea breeze at East Khawr. Numbers on the Salalah plains had increased to 1,000+ on 15 Nov.; common thereafter until mid-March. Courtship and songflight from 3 Mar. First fledged young 7 Jun. 1978.

Eremalauda dunni Dunn's Lark

First recorded on 17 Jul. 1977 on steppe south of Thumrait, where, after the extremely heavy rains, there was abundance of grass. Fairly common until 22 July. I was absent after that date, but there was none in the area on my return in September. In 1978, only one record of a single bird 30 km. south of Thumrait on 17 May. Song a soft repeated "dree-dree-up"; alarm note "tu-wep"; flight call "tree-chup" or "two-weep". Tail separates from the other desert larks with central pair sandy-buff, next three blackish narrowly edged brownish-buff and tipped white, outer tail feathers brownish-black with outer webs edged white. Four immatures found dead on road (to Royal Scottish Museum) average wing 88.7 mm., tail 57.3 mm.; bill 14.6 mm.; tarsus 22 mm.; hind claw 8 mm.

Ammomanes cincturus Bar-tailed Desert Lark

Widespread and fair common resident on central gravel plain around Thumrait. Courtship song and flight on 22 Jan. 1978; young being fed from 4 Mar. until Jul. Song a clear liquid "tui chui tui", flight almost butterfly-like. One dead: wing 85 mm.; tail 47.5 mm.; bill 11.5 mm.; tarsus 23 mm.; hind claw 5.5 mm. (Meinertzhagen gives wing 92-98 mm.). (Skin to Royal Scottish Museum.)

Ammomanes deserti Desert Lark

Resident and a few pairs thinly and widely scattered in gravel plains, small hills and commonly on north Jebel Qara escarpment. Courtship from early January; song a liquid rounded "which two which". Birds carrying food or feeding young between 16 Jan. and 22 Jul. Four birds in all respects like *A. deserti*, excepting for streaked upperparts and extremely heavy bill, were seen and photographed at Thumrait on 30 Jan. 1978.

Alaemon alaudipes Hoopoe Lark

Widespread from Thumrait to northern base of Jebel Qara. Song flight from early March; song a long drawn out liquid "dreeeb", followed by a musical nightingale-like "tui tui tui" on a rising scale. Young birds with adults from 8 Apr. Flocking at rubbish tips recorded from 4 Sep. until 20 Feb., with maximum of *c.* 30 birds in loose party on 21 Sep. One dead showed, in common with most Dhofar birds, that black across the secondaries was missing. Wing 132 mm.; bill 35 mm.; tail 93 mm.; tarsus 35 mm. Legs whitish straw; upper mandible dark greyish-horn; lower light grey-horn; iris dark brown; gape black. A bird at Thumrait on 1 Mar., crouched in sand and allowed me to approach to within 10 feet before moving. Resident but not recorded south of Jebel.

Melanocorypha bimaculata Bimaculated Lark

One at Thumrait camp 16 to 19 Nov. 1978, and one at Thumrait pools on 29 Nov. 1978. Call a lark-like "tchup turrup".

Calandrella brachydactyla Short-toed Lark

Found at water and rubbish tips in desert, and at 830 metre level Jebel Qara. At Thumrait first birds from 4 Sep.; at Hatab, numbers increasing to 150+ on 14 Oct., winter average *c.*40; last 12 on 3 Mar.; last Thumrait 3 Apr.

Calandrella rufescens Lesser Short-toed Lark

One at Thrumrait on 17 Dec. 1978 is the only positive record.

Galerida cristata Crested Lark

Resident and recorded from beaches at Salalah to 887 metre level on Jebel Qara, but not north beyond 17°15′N line. Flocking commences October with maximum party of 40 in December; birds disperse last week in February. Two nests found at Al Baleed in July had three eggs each. Day roosts under grassy tussocks or ledges under rocks.

Riparia riparia Sand Martin

At Al Baleed roost, 12 on 2 Sep. increased to 100+ on 24 Oct., decreasing to *c.*10 on 30 Oct. Inland, small numbers at Thumrait from 2 Sep. until 3 Nov., with spring passage from 29 Mar. to 18 Jun.

Ptyonoprogne fuligula Pale Crag Martin

Resident in small numbers in Jebel Qara to 17°15′N line. First winter visitors at 25 mile tips from 18 Nov., increasing to 30+ on 5 Jan., 25 on 12 Feb., 20 on 12 Mar.; last 5 on 17 Mar. Widespread and common on Salalah plains and khawrs from 2 Dec. to 12 Mar.

Hirundo rustica Swallow

In coastal areas, one or two from 4 to 13 Jul.; *c.*20 on 8 Sep. Numbers at the Al Baleed roost, 200+ on 9 Oct., increasing to 1,200+ on 24 Oct.; 100+ on 30 Oct.; 50 on 5 Nov. and 12 on 13 Nov. A few records of individuals between 2 Dec. and 19 Feb. Small north-easterly movement from 6 Mar. to 14 Apr. Two at Salalah 28 Jun. At Thumrait, small southerly movement from 12 Jun. to 10 Dec.; north-east from 15 Feb. to 11 May.

Hirundo smithii Wire-tailed Swallow

Five birds at Tarqa on 7 Apr. 1978. Chin to vent wholely chalky white; upper parts bluish black; crown not clearly seen, but appeared brown. Tail slightly forked, no streamers. White under wing colour contrasted with blackish flight feathers. From below, looked like *D.urbica.* If acceptable, first record for Dhofar.

Hirundo daurica Red-rumped Swallow

Three at Salalah Khawr on 19 Feb.; one at Thumrait 2 Mar.; two Salalah on 12 Mar. 1979.

Delichon urbica House Martin

One on 3 Sep. 1978 and one 27 Oct. 1978 at Thumrait only records.

Anthus novaeseelandiae Richard's Pipit

One at Thumrait on 16 Apr., and one there 22-23 Jun. 1978.

Anthus campestris Tawny Pipit

A common bird throughout Salalah plain from 24 Sep. until 14 Apr. Smaller numbers in desert 24 Sep. to 25 Mar. On 14 Feb. 79, over 19 birds in to roost at Al Baleed.

Anthus similis Long-billed Pipit

Resident right across the Jebel Qara from 80 metre level in the south and 887 metre level in the north. Out of breeding season a quiet skulking bird, running and crouching rather than flying. Catholic in choice of habitat; open grassy slopes, tree lined wadis, scrub covered hills. Courtship and song from 30 Jan. Song flight like *A. trivialis*, a circular undulating flight, parachuting with wings and tail spread, landing in tree or on the ground. Song a repetitious "psweep cherup" or "chip treep". Alarm note a harsh "T'reep", anxiety a liquid "t'churrup", with young about a plaintive "peep", and a constant, mournful "chew". Young, being fed from 20 May, had a scruffy unfinished look, each mantle feather tipped greyish-buff, tail short, almost rounded, outer retrices buffish-white; begging call a short "tch'b". At Thumrait pools, five on 16 Jan.; one on 27 Jan.; three 14 to 23 Feb.; one on 1 Mar.

Anthus trivialis Tree Pipit

Widespread and common throughout Jebel at all levels and a few in the Salalah gardens from 26 Sep. to 14 Apr. At Thumrait and tips small numbers from 10 Sep. to 2 Nov., and one or two 1 to 12 Apr.

Anthus cervinus Red-throated Pipit

Recorded from Hatab, Al Baleed and Salalah khawrs and cultivation from 5 Nov. to 31 Mar. with a maximum of 40+ on 27 Mar. First records for Dhofar. Autumn birds at Thumrait 28 Oct. to 12 Dec.; spring passage there (maximum six) 12 Mar. to 3 Apr.

Anthus spinoletta Water Pipit

Up to three at the East Khawr between 19 Dec. and 6 Mar. One at Thumrait 25-28 Mar. 1979. First acceptable records for Dhofar.

Motacilla flava Yellow Wagtail

On the Salalah plains, farms and khawrs from 8 Sep. to 31 Mar. Numbers at Al Baleed roost; 4 Oct. 20+; 9 Oct. 500±25; 24 Oct. 2,500±100; 13 Nov. 2,700±100. Maximum December *c.* 40, January 110, February 40 and March 20. Few around cattle at Hatab 27 Sep. to 22 Apr. In desert tips and Thumrait, maximum 25+ between 2 Sep. and 25 Mar. *M. f. feldegg* fairly common between 24 Nov. and 25 Mar. Probable *M. f. beema* 16 Mar.—29 Apr; one dead (skin to Royal Scottish Museum) 12 Sep. *M. f. thunbergi* 28 Apr. and 2 May.

Motacilla citreola Citrine Wagtail

A maximum of six birds recorded at the Salalah khawrs from 7 Oct to 7 Apr. At Thumrait, one or two birds passing through from 15 Jan. until 2 Apr.

Motacilla cinerea Grey Wagtail

One or two birds at Jebel pools from 27 Sep. until 9 Feb. At Thumrait, one 24 Apr. 1978, one 12 and 21 Mar. 1979.

Motacilla alba White Wagtail

Widespread and common throughout Salalah plain, Jebel Qara and tips and camps in desert. First record 3 Oct.; last 10 Apr. A pre-roost count of 150+ at Thumrait 29 Nov. 1975; Al Baleed roost 300 ±25 on 13 Nov. 1978; 80 at 25 Tip on 4 Dec. 1978.

Pycnonotus xanthopygos Black-capped Bulbul

Resident and common throughout Salalah plains and farms throughout the year; common and widespread throughout the Jebel Qara from 98 to 887 metre level; scarce beyond 17°15′N line. Two birds at 25 Tip on 23 Dec., two 58 km. marker on 28 Sep., Dec. and Jan.; up to five at Thumrait 27 Jan. to 23 Feb. Young being fed in nest Jebel Qara 29 May.

Cercotrichas galactotes Rufous Bush Chat

Autumn passage throughout Thumrait and surrounding desert from 4 Sep. to 20 Oct., with a maximum of seven birds. Spring: one at Thumrait 22 Feb. 1978, 22 Feb. 1979. Main movement there, with a maximum of 16 on 19 Apr., from 11 Mar. to 8 May. One at East Khawr 16 Sep.; one Salalah 9 Oct. 1978 only coastal records.

Luscinia megarhynchos Nightingale

Birds commenced to pass through Thumrait from 13 Sep., with a maximum of five on 17 Sep., until 29 Sep. At Salalah one in song from coconut planatation at 12.00 hrs. on 15 Oct. one 21 Oct. On 27 and 28 Sep. 1977, and between 25 Sep. and 21 Oct. 1978, many birds heard singing in the daytime from deep cover at mid and southern heights of Jebel Qara. Song lacked richness and variety of British birds. (Skin to Royal Scottish Museum).

Luscinia svecica Bluethroat

Up to six at Salalah khawrs 23-26 Jan. 1978. One Tarqa 28 Dec. to 16 Feb. One Hatab 7 Oct. and 2 Nov. 78. Up to three birds passing through Thumrait between 5 Oct. and 5 Dec. One there 6 and 7 Mar. 1978. A male red-spotted form on 3 Nov. 1978; male white-spotted form 17 Nov. 1978.

Phoenicurus ochruros Black Redstart

Winters in small numbers throughout the Jebel Qara from 10 Jan. to 22 Feb. A male Thumrait 5 Mar. 1976; a small passage there between 28 Oct. and 1 Dec. 1978.

Cercomela melanura Blackstart

Fairly common and widespread breeding resident from the southerly wadis of Jebel Qara to 887 metre level. Very scrace north of 17°15′N line, with one pair at 58 km. marker and a pair at Mudhail. An immature at Thumrait on 2/3 Sep. 1978. Breeding from 14 Apr. to 27 Sep. Four nest sites in excavated holes or in deep cracks. Distraction display by female with unfledged young, wings fanned and open and projected forward, tail fanned and depressed, head held stiffly out and downwards, call a harsh "tweep dra". Song a quiet "chup chup t'chee chup ter tutcher". The call, a loud liquid "chura lit", is very characteristic of the Jebel wadis. A dead male 16 Jul. 1978, had an insignificant sooty-white half throat collar; in moult especially retrices. (Skin to Royal Scottish Museum).

Saxicola rubetra Whinchat

One at West Khawr on 7 Oct. 1978.

Saxicola torquata Stonechat

Few wintering Salalah khawrs 12 Nov. to 28 Feb. Minute passage through Jebel and desert 2 Nov. to 3 Apr.

Oenanthe isabellina Isabelline Wheatear

Widespread and fairly common in all areas covered between 11 Sep. and 5 May. Sub-song from 25 Nov., a mixture of starling-like whistles, a grating "cher we do", interspersed with chuckles and "dweets".

Oenanthe oenanthe Wheatear

A few birds at Thumrait pools and Hatab from 2 Sep. to 23 Oct. A male at Thumrait on 1 Apr. 1979.

Oenanthe pleschanka Pied Wheatear

Autumn passage at Thumrait and Hatab 15 Sep. until 24 Nov. Spring passage 10 Feb. until 2 Apr. Maximum five on 2 Apr.

Oenanthe hispanica Black-eared Wheatear

One at Thumrait 2 Sep. and two there on 11 Sep. 1978. First records for Dhofar.

Oenanthe deserti Desert Wheatear

One at Thumrait 3 Sep., then passage from 14 Sep., with falls on north escarpment of Jebel Qara of 100+ on 7 Oct., and 50+ on 11 Nov. 1978. Common throughout desert, jebel and plains until 4 Dec. Fairly common winter visitor Dhofar, no marked spring passage; last record 8 Apr. Many female or immature birds show a distinct orange-buff tint to lower back and rump. Sub-song from 17 Oct.; in spring a repetitious rattling song "der lit lit lit 'derlit' lit tac tac", and a warbling crackling "tlui lui lu", interspersed with "sweets" and "tac's".

Oenanthe xanthoprymna Red-tailed Wheatear

One or two birds at Thumrait and nearby tip from 16 Oct. to 14 Feb.

Oenanthe lugens Mourning Wheatear

Resident, breeding. Widespread from lower wadis in south jebel, throughout Jebel Qara to 887 metre level, to 10 km. north into desert. Song and courtship from 6 Feb.; young from 19 Apr. to 17 Jul. Song a quiet pleasant "dweet twa weedle dit"; alarm a low harsh "zeeb" or "dree". In threat posture and courtship flight and display, several males display distinct white wing bars.

Oenanthe monacha Hooded Wheatear

A male and female in shallow wadi at 800 metre level near Hatab on 14 and 16 Feb. 1978. Up to two males and one female at 25 mile Tip from 28 Nov. to 4 Dec. 1978, 25 to 29 Dec. 1978 and 5 Jan. to 29 Mar. 1979. Female on ground looks like a pale Tawny Pipit; in flight like a Spotted Flycatcher. Once hovered in updraught for several seconds like Kestrel, wings lifted and still, tail fanned. An aggressive bird; call a harsh "zack".

Monticola saxatilis Rock Thrush

Single females or immatures from Thumrait and Hatab between 13 Sep. and 16 Nov.

Turdus torquatus Ring Ouzel

A female watched for about ten minutes in small rocky ravine near Hatab on 10 Feb. 1978.

Turdus philomelos Song Thrush

One tired bird at Thumrait pools from 19 to 21 Nov. 1978.

Prinia gracilis Graceful Warbler

Resident and recorded from coastal khawrs, across Jebel Qara to 17°15'N line. An open nest on top of two foot succulent on coast contained four eggs 4 Jul. 1978. A domed nest containing three pulli being fed on caterpillars at Hatab on 26 Sep. 1977. Birds with chestnut forehead, reddish-brown lores, bright red eye or eye ring predominate at Salalah khawrs Jan. to Apr.

Locustella fluviatilis River Warbler

One freshly dead Thumrait 15 Sep. 1978. Wing 70 mm., tail 59 mm., bill 16 mm., tarsus 22 mm. Wing point: second primary, first primary: half length of primary coverts, third primary: 0.5 mm. less than tip, fourth primary equalled third and fifth equalled seventh. No emargination or notches. Legs: pinkish-brown; upper mandible: blackish, lower: horn. (Skin to Royal Scottish Museum). First confirmed record for Oman.

Locustella luscinioides Savi's Warbler

Two at Thumrait on 16 Apr. 1978 were the first records for Dhofar. Two 13 Sep., and one 26 Sep. 1978.

Acrocephalus melanopogon Moustached Warbler

On 4 Jul. 1978 an *Acrocephalus* warbler was singing deep in sedge and reed at Al Baleed. Song a quiet, fairly slow chatter "chac tac tac check check tui", the last note rising. Heard singing again on 7 and 13 Jul. On 21 Jul. 1978 a bird was watched collecting food at the water's edge on and off for *c.* 10 minutes. Crown blackish: broad eye-stripe ending in an abrupt square; back olive-brown; underparts washed rusty-buff; tail cocked over back. Last heard singing 8 Sep. Description appears to fit *A. m. mimica*. If accepted, first record for Dhofar.

Acrocephalus schoenobaenus Sedge Warbler

Up to three birds recorded at Thumrait between 14 May and 5 Jun. 1978. One at Hatab at 880 metre level on 1 Jun.

Acrocephalus palustris/scirpaceus Marsh/Reed Warbler

Common in deep reed beds surrounding the khawrs from 8 Sep. until 5 May. Song from 21 Mar. One Aynarzat 20 Apr., 20+ Sahalnawt 5 May, one Hatab 1 Jun. Odd single birds at Thumrait in February, March, April and October; almost daily from 29 Apr., with a maximum of 15-20 on 8 May, until last 31 May. *A. scirpaceus fuscus* taken on 19 May; *A. palustris*, examined in the hand on 14 Oct. 1978, was the first record for Dhofar.

Acrocephalus stentoreus/arundinaceus Clamorous/Great Reed Warbler

Probable *A. stentoreus* recorded from mangrove at Khawr Sawli 7 Apr. 1978. Al Qurm on 14 Nov. and 8 Dec., west Tarqa 15 Mar. Probable *A. arundinaceus* from reed beds at Salalah khawrs; one 8 Sep., 14 Nov., 8 Dec.; few each visit at Sawli, Tarqa etc., from 28 Dec. until 3 Apr. Singing birds from 21 Mar. At Thumrait, one on 19 Apr. and one 29 Apr. considered to be *A. arundinaceus*.

Hippolais pallida Olivaceous Warbler

One in song Salalah 15 Oct. 1978. A maximum of 12 counted at Thumrait between 2 Sep. to 16 Oct.; one 29 Apr., 11 May 1978; one 31 Mar., two or more 7 Apr. 1979. Five examined 16/17 Sep. were *H. p. elaeica* (one skin to Royal Scottish Museum).

Hippolais caligata Booted Warbler

One at Sahalnawt on 5 May 1978; two at Thumrait 2 Sep.; two there 28 Sep. 1978.

Hippolais languida Upcher's Warbler

At Thumrait one passage bird on 13 Sep. In spring, up to two from 11 Mar. until 25 Apr. Three there 8 Jun. and one 23 Jun. and 5 Jul.

Hippolais olivetorum Olive-tree Warbler

Two at Thumrait 8 Jun. and one 25 Jun. 1978. If accepted, first records for Dhofar.

Sylvia mystacea Menetries' Warbler

One Baleed 2-8 Feb. 1979. One at East Khawr 21 Mar. 1979. Thumrait, one or two birds almost daily between 16 Sep. and 23 Nov. 1978. Up to three daily 25 Feb. to 2 Apr. Sub-song from 3 Mar.

Sylvia nana Desert Warbler

Found from 16 Oct. until 3 Mar. in small numbers on desert scrub around Thumrait; maximum four together there on 9 Dec. Song in Dec., a rising tittering "tit cher wee wee", "tui lui lui" rising, followed by harsh "chur dit dit dit".

Sylvia leucomelaena Arabian Warbler

A single bird at Ayn Arzat on 26 and 29 Apr. 1978. Notes read: 26 Apr. "Looked like *Acrocephalus* warbler, with black cap merging into blackish upperparts. No white eye ring, underparts white; tail tipped white; seemed smaller, slimmer and scruffier than *S. hortensis*. Collecting and carrying food". 29 Apr. "Crown sooty-black, not clear cut at nape, rather merging into blue-grey of mantle, blackish lores and ear coverts clear cut below eye; underparts pure white from chin to undertail coverts; tail sooty black tipped white. Silent, flitting about in low scrub in rocky ravine."

Sylvia hortensis Orphean Warbler

One moving north-east through scrub Hatab area Jebel Qara 1 Mar. 1978.

Sylvis curruca Lesser Whitethroat

At Salalah, one on 19 Feb.; fairly common on 19 Oct. In desert, small passage 16 Sep. to 7 Nov. Few birds wintering; obscure passage 2 Feb. to 2 May. Birds believed to be *S. c. minula* at Thumrait 28 Sep. 1977, 18 Oct. 1975, 25 to 29 Dec. 1978. Two very dark birds at Thumrait 19 and 20 Oct. 1975.

Sylvia communis Whitethroat

Autumn passage from 2 Sep. (with a maximum of 50 at Thumrait on 27 Sep.) until 7 Nov. Spring: one at Thumrait 1 Apr. 1979; main passage from 29 Apr. (maximum of five on 19 May) until 14 Jun.

Sylvia atricapilla Blackcap

A male at Thumrait pools on 12 Nov. 1978. First acceptable record for Dhofar.

Phylloscopus neglectus Plain Leaf Warbler

On 7 Nov. 1978, a small fall of *Phylloscopus* sp. in the Thumrait area, one of which was this tiny warbler which fed briefly in my garden, dived into the bird bath, preened quickly and was away. One with three *Phylloscopus* sp. on 16 Nov. 1978 at Thumrait. First records for Dhofar.

Phylloscopus collybita/trochilus Chiffchaff/Willow Warbler

First autumn records: three at Thumrait on 2 Sep., increasing to 15+ on 7 Nov., then in small numbers until 20 Dec. Return passage from 6 Mar., with a maximum of 10+ on 16 May, last 10 Jun. Small numbers of *P. collybita/trochilus* winter in Jebel Qara and Slalah.

Phylloscopus trochilus Willow Warbler

Single birds handled at Thumrait 17 May and 28 Sep. 1978.

Phylloscopus collybita Chiffchaff

Small numbers at Thumrait, Jebel Qara and Salalah between 2 Sep. and 3 Mar. were though to be *P.c. abientinus*. Separated by the call, a thin plaintive "peet" or "peep".

Muscicapa striata Spotted Flycatcher

Autumn records from Thumrait and Jebel, 2 Sep. to 22 Oct., with a maximum of 15+ on 27 Sep. at Thumrait. Spring: 16 Apr. (maximum of six at Thumrait on 11 May) until 25 May.

Ficedula parva Red-breasted Flycatcher

One adult near Hatab, Jebel Qara on 13 Oct. 1978. First record for Dhofar.

Terpsiphone viridis African Paradise Flycatcher

Common and widespread resident from lower wadis on southern jebel, as far north as Zahran, at the 400 metre level. Calls quite characteristic of the dawn chorus in the jebel, aloud hard "t'wait" or "twank"; song a broken warble finished with a repeated 's'weet" rising to a crescendo. Communal bathing: pre-dawn at Ayn Arzat. Birds move down from ravines and wadis into bushes and trees around pools, then plunge into the pools, quickly returning to perches to preen. White form ratio 1:10. Odd birds winter in Salalah planations 9 Oct. to 5 Jan.

Turdoides squamiceps Arabian Babbler

Resident. Probably two adults and two immature birds were seen in a shallow wadi, with a few thorn trees at a point *c.* 17°28′N 54°03′E, on 19 Apr. 1978. On my next visit to this area on 2 May, a party of eight consisting of adult, immature and freshly fledged young. On 1 Jun., an adult with two newly fledged young (one Royal Scottish Museum). Last seen 19 Jun. It appears breeding commences early March with several clutches hatched off by early June; then birds disperse into desert returning to breeding area the following spring.

Nectarinia habessinica Shining Sunbird

Resident and commonly found in coconut groves, citrus orchards on coast and in deep wadis running into Salalah plain. Comes down out of the Jebel Qara wadis for pre-dawn bathing. A nest at Wadi Arzat, 14 Apr. 1978, on a thin branch *c.* 30 feet high on a leafless tree, on 1:1 slopes of a wadi *c.* 500 metre level. Purse-shaped, finely built of thin grasses and fibre, and appeared to be decorated with white petals of nearby *Acacia* tree. Only female building; male remained close by, singing and calling. Song best described as a neighing trill on a rising scale, "tweep peep peep . . .". Call a loud repetitive "chui tui"; also a sparrow-like "chup chup"; anxiety and alarm a hard "tac tac" and "wheet". Birds of the year with adults from 4 Jul.

Nectarinia osea Palestine Sunbird

Resident. Common in Jebel Qara and Salalah plain. In winter wanders into desert (28 Dec. to 26 Feb.). At least six birds pre-dawn bathing at Ayn Arzat 14 Apr. 1978. On 15 Apr. 1978 at the Ayn pools a female was watched building a nest on the uppermost branches of a 30 foot thorn bush overhanging a 600 foot drop to the pools. Nest was of a much coarser construction than *N. habessinica*, grasses not being neatly weaved into purse-shaped nest. Only female observed to build, though male present. Song "tacha tchew tchew" on rising scale. Calls: a hard repeated "tac"; a finch-like "che-ew". A party of 11 birds on the Jebel 8 Nov. 1978.

Zosterops abyssinica White-breasted White-eye

Resident and widespread and common in winter on Jebel Qara and Salalah plain, with odd birds as far north as Thumrait between 4 Feb. and 1 Mar. In summer, birds only found in deep steep wadis. Copulation observed 11 May 1978; fledged young from 1 Jul. A large influx throughout Jebel, from Hatab south to coastal areas, on 13 Nov. 1978. Song a thin drawn out "twee eee" followed by a hard "dreeep", rising in scale.

Oriolus oriolus Golden Oriole

Female or immature birds at Thumrait 18, 23 and 28 Sep. 1978.

Tchagra senegala Black-headed Bush Shrike

Resident and widespread and common throughout the Jebel Qara from southern wadis to 17°15′N line. Its song was recorded throughout the year as an explosive "pitchew pitchew pitchew chui chui chui" on a rising scale, a loud ringing "preet chow chow chow" on a rising scale. Alarm a harsh rapid "ter rac rac"; warning a harsh "gröw". Fledged young, plain babbler-like birds, at Hatab on 21 Jun. 1978.

Lanius isabellinus Isabelline Shrike

Four records of *L. i. isabellinus* from Salalah 14 Dec. to 24 Jan. *L. i. phoenicuroides* is a common passage migrant through Dhofar from 5 Sep. to 5 Dec., (with a maximum of 25+ on 27 Sep. at Thumrait), and from 22 Feb. to 25 May. Found wintering at Salalah khawrs in small numbers. Many of the passage birds show a broad conspicuous wing bar.

Lanius collurio Red-backed Shrike

A male and two females on 21 Nov. 1975. A small passage from 2 Sep. to 24 Sep.—all records from Thumrait.

Lanius excubitor Great Grey Shrike

Recorded from Salalah plains only on 2 Dec., 14 and 25 Feb. Resident in desert. A bird of the year dead on road 5 May 1978 (skin to Royal Scottish Museum). Young disperse from nest areas early June, wandering throughout desert. No records from Jebel.

Lanius senator Woodchat Shrike

An immature at Thumrait from 1 to 3 Mar. 1977. First record for Dhofar.

Corvus ruficollis Brown-necked Raven

Obscure movements and flocking recorded from Thumrait pools. A few birds around pools and tip until 27 Dec.; one 3 Jan.; up to eight from 12 Feb. to 22 Apr. May: 28 on 1st, 42 on 4th, 80 on 11th. June: 120 on 7th, 160 on 8th, 70 on 23rd. July: 80 on 22nd. August: average *c.* 30. September: 80 on 11th; none there from 12th to 26th. I consider that the Ravens disperse to breeding areas late November, returning with young (first 8 Apr.) to summer and moult communally. Away from Thumrait, a few at 25 Tip, the most southerly point the Brown-necked Ravens were recorded, from 14 Oct. to 28 Nov. In flight, pale whitish soles to feet; underwing coverts darker than flight feathers; call a hoarse "caw"; alarm a low throaty tri-syllabic "caw". Often feeds on parasites on camels' neck and hump.

Corvus rhipidurus Fan-tailed Raven

Resident and common throughout plains, Jebel Qara, and as far north as 25 Tip. Flocks break up in early December and pairs can be seen investigating holes in rocky ravines from 98 to 887 metre levels. Pullus probably being fed 12 Jan.; a freshly fledged young bird taken on 29 Jan. Calls recorded as a low liquid "craa craa", "kroole", a soft rounded "nock nock"; alarm a trumpet-like "parp parp". Often takes parasites from camels and cattle. Day roosts in coconut groves on Salalah plains.

Onychognathus tristramii Tristram's Grackle

Resident and common and widespread on plains and Jebel Qara. Wanders into desert between 10 Oct. and 12 Mar. as far north as Thumrait. Birds generally paired off by 21 Mar. and nest sites recorded from Sahalnawt to as far north as Wadi Hanun (17°28′N 54°20′E). Fledged young from 20 May. Courtship: male vibrates wings close to body making patches on wings a blurring chestnut flash in the sun. Song: a "will sweet you" followed by a harsh long drawn out "craa-a-a". Alarm at nest: a cat-like screech. Often takes parasites from camels and cattle.

Sturnus vulgaris Starling

Found on the Salalah plain, often near the Dairy Farm, from 13 Nov. to 16 Feb.; maximum 30+ last date. One at 25 Tip on 2 Nov. 1978; at Thumrait: two on 5 Jan., 11 on 22 Feb., eight on 27 Feb., two on 6 and 7 Nov.

Sturnus roseus Rose-coloured Starling

Up to seven in Salalah from 21 Oct. until 5 Jan. One with grackle at Hatab on 25 Dec.

Creatophora cineracea Wattled Starling

Four at Thumrait on 23 Jun., with an increase to 17 birds on 22 Jul.: then two or three birds until 10 Oct. 1978. Up to five at 25 Tip from 21 Oct. to 8 Dec. 1978. Three with grackle at Hatab on 12 Nov. Up to 50 at the Palace roost between 21 Oct. and 22 Dec. 1978. One previous record: a juvenile on board ship about 50 miles south-east of Salalah, 8 Aug. 1963 (Warr 1976). Probably flocks following locust swarms remaining until early winter.

Petronia brachydactyla Pale Rock Sparrow

Two at Hatab on 27 Sep. 1977; two at Thumrait on 2 Sep. 1978. Two (and a large cobra) at Sahalnawt 28 Sep. 1978. On 22 Feb. 1979 a single bird was observed for *c.* 30 minutes collecting dried grasses, and building a crude nest in the fork of a thorn tree. On 28 Feb., the nest was incomplete, and no birds observed. A party of *c.* 25 birds to the east of Salalah between 25 Feb. and 6 Mar. 1979. One dead (skin to Royal Scottish Museum).

Ploceus galbula Rüppell's Weaver

Resident; common and widespread from coastal plantations to Jebel wadis; fewer in open Jebel country to 887 metre level and north to 17°15′N line. Males commence to build nests 27 Mar. (before adult plumage is fully assumed) and continue throughout khariff until 8 Sep.; young in nest until 27 Sep. Male tests various twigs for resilience by hanging upside down and swinging. When satisfied, a few strands of grass are weaved around the twig, followed by a hanging circular loop *c.* two inches across. Birds always fly to the inside of this loop, building and weaving outwards and downwards. Materials are collected close to nest, and carried to thick cover near to side, then to nest. When finished, the male parachutes down with wings and tail open, legs dangling. Both sexes very vocal; male song an explosive "squaint . . .t", a long drawn out squeaky "dwit twit zeep zip zip zip". Alarm a parakeet "check"; anger a harsh repeated "zick". Large numbers arrive in mixed flocks at the Baleed roost from 21 Jul. onwards, with 1,000+ between 24 Oct. and 4 Feb. (One skin to Royal Scottish Museum).

Estrilda rufibarba Arabian Waxbill

A single bird thought to be of this species was at Al Baleed on 21 Jul. 1978 and had been heard singing on 7 Jul. A small finch-like bird: forehead, crown, nape, ear coverts, earthy-brown; rump reddish-brown; loral area, line through and to behind eye black, giving a masked effect; chin and throat creamy-white; rest of underparts creamy-buff, perhaps darker on flanks. Primaries and secondaries dark earth brown; tail strongly graduated, fairly short, black, each feather tipped white. Bill typical waxbill, rose coloured; legs brownish-red; eye dark. Song an almost 'Bush Lark' key, written as "tsip sip tit chew", and "sweet swip swip de de". Alarm or anxiety a repeated thin high "tsip".

Euodice cantans African Silverbill

Common and widespread resident from Salalah khawrs and farms; fewer in Jebel Qara as far as 17°15′N line. Nest being constructed at Salalah air base in late Jan.; young being fed 4 Jul. Small parties arriving at Al Baleed roost from 21 Jul.; 100+ there 24 Oct., and *c.* 160 on 13 Nov.

Rhynchostruthus socotranus Golden-winged Grosbeak

Resident and widespread in small numbers from lower wadis in the south as far north as Hatab. In winter it wanders across the higher levels of the Jebel Qara in parties of up to 12 birds, pairing off in late February and moving into the deep high tree-lined wadis. Small roosts in winter on one-in-one slopes of scrub covered hills. Pre-roost song richly melodious, reminiscent of a Goldfinch *Carduelis carduelis*, with variations on "dweet da dweet dada". At dawn, song explosive in quality "pitch tchower tchower"; alarm note a loud piercing "p'wick", and a round liquid "wit dit dit".

Emberiza striolata House Bunting

Resident and fairly widespread across Jebel from 80 to 887 metre level; co-habits with *E. tahapisi*. Song "chui it cher lit tit"; alarm a harsh "crebb". A tired tame bird at the Thumrait pools on 16 Nov. 1978 may have been a migrant.

Emberiza hortulana Ortolan Bunting

One at Thumrait pools 29 Apr. 1978; a small passage, with a maximum of two birds, in Thumrait camp gardens between 1 Oct and 2 Nov. 1978. A male north from the Thumrait pools on 1 Apr. 1979.

Emberiza tahapisi African Rock Bunting

Breeding resident. In April, the pre-dawn chorus of this bunting swamped all other bird song throughout the Jebel Qara. A nest on the 800 metre level at Hatab on 8 May contained two eggs and a freshly fledged pullus. Fledged young fairly general from 20 May. With the advent of the kharriff, song and general activity very quiet, but no real evidence of population shift to lower levels. From 8 Sep., tremendous activity, with males singing and disputing territory throughout the jebel. Nest with four eggs on 27 Oct. and many other birds collecting nesting material. Song throughout winter, recorded as "tit tit cher lit"; anger note a harsh "crebb"; male alarm to fledged young a thin "seeep". Nests under rocks, usually a shallow cup of dried grasses, lined with fine fibre and a few animal hairs. Eggs grey-brown, heavily marked reddish-brown at thicker end. Birds recorded away from Jebel was an exhausted immature male at Thumrait after southerly gales on 6 Jul. and a male at Al Baleed on 13 and 21 Jul.

Emberiza melanocephala Black-headed Bunting

Recorded five times from Thumrait from 5 Sep. to 25 Sep. One at Hatab 29 Dec.

Miliaria calandra Corn Bunting

One at Hatab on 14 Feb. 1978 was the only record. First record for Dhofar.

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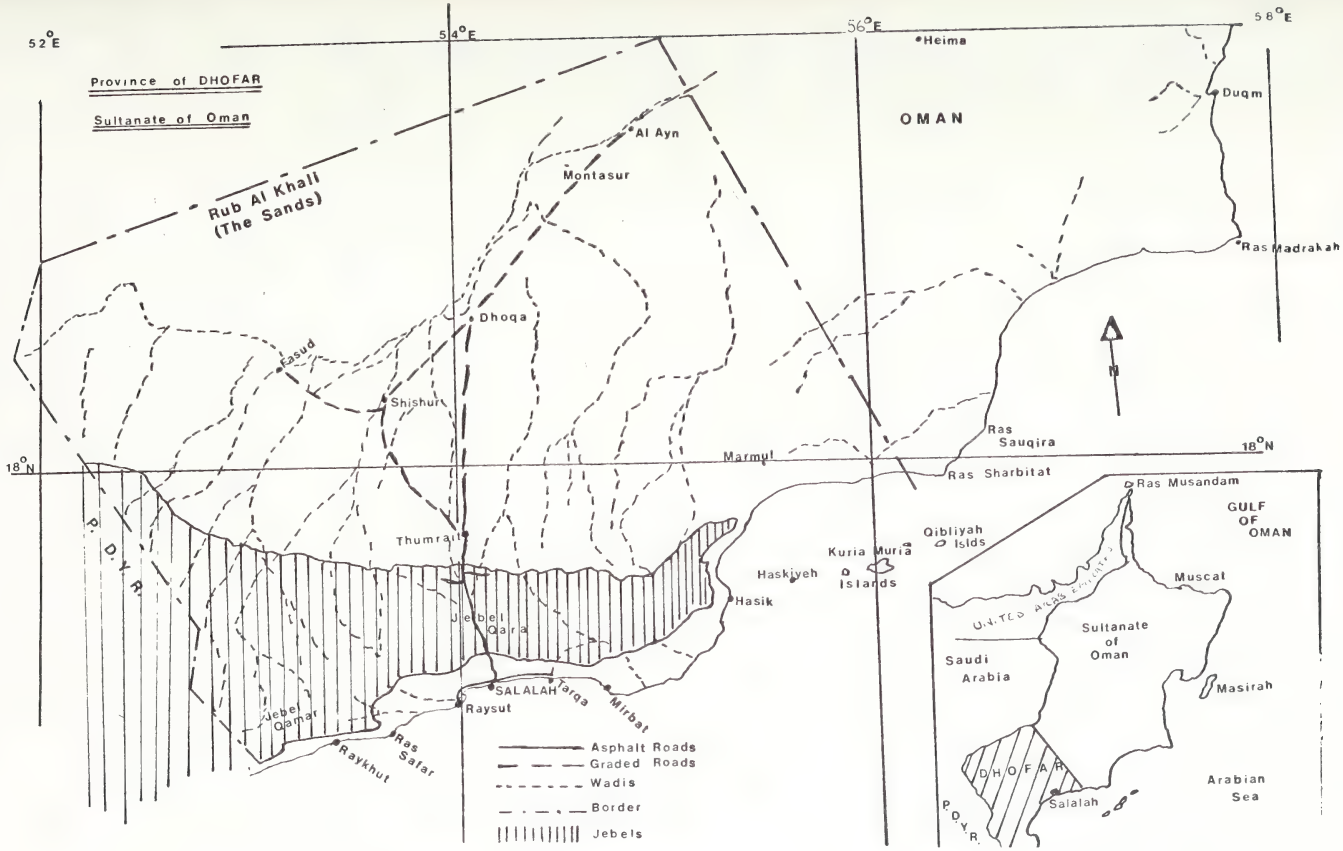

Figure 1. Map of the principal study area in Dhofar, Oman.

THE PROBLEM OF GÜLDENSTÄDT'S REDSTART

by
Michael Walters

INTRODUCTION

This note was prompted by a comment made at the first (1978) Annual General Meeting of the Ornithological Society of the Middle East by Steve Madge, that in 1970 he found Güldenstädt's Redstart *Phoenicurus erythrogaster* (Güldenstädt) probably breeding in Afghanistan, but did not find a nest. The species is a problematical one: comparatively little appears to have been written about it, and information on its distribution and breeding is scanty and conflicting.

DISTRIBUTION

Two populations occur. The typical race *P.e.erythrogaster* breeds in the Caucasus and, further, is supposed to have been found by Zarudny (1911) resident and breeding in the Elburz (or Alborz) Mountains in northern Iran, just south of the Caspian Sea. This record has never been confirmed (Scott 1973, Scott, Hamadani & Mirhosseyni 1975). Scott (*pers. comm.*) informed me that a large number of ornithologists including himself have visited the Elburz Mountains and have failed to find it. Zarudny, however, appends a query to the species, and it is possible that he did not find it himself, but was merely quoting from Blanford (1870-2) who said:—

"*R(uticilla) erythrogastra* (Güld) occurs both in the Caucasus to the north-west of Persia, and to the east in the Himalayas as far as Sikkim. It probably may be found in Persia, in the northern parts at least."

The eastern population, *P.e.grandis* occurs in Central Asia, but authorities differ as to the boundaries of its range. According to Dementiev *et al.* (1968) it extends from Afghanistan north-east through Issyk Kul and the mountains of Tian Shan to the Altai, and eastwards across the Himalayas and Tibet to Koko Nor and the Altyn Tagh on the Tibet-Sinkiang border, leaving Sinkiang outside the range. Dementiev also indicates that there may be an isolated population east of Lake Baikal. However, Cheng (1976) includes Sinkiang in the breeding range and extends the same eastwards into Kansu and north Szechwan. He also indicates that the species winters in the mountains on the Chinese-Burmese border and on the north China plain. Other authorities are a trifle vague about the wintering ranges of the species, merely commenting that it descends to lower altitudes in winter. Przewalsky (1877) states that it does not occur in China proper but that it occurs in Kansu in summer, where it is rare. He only found one pair the summer he was there, at an altitude of 13,000 feet; but in September and October it became quite common, and he found it frequently on migration on the Tetung-gol River and round Koko Nor. It is possible that the population of Transbaikalia migrates south to winter on the north China plain. The bird is recorded as a rare winter visitor in Hopei by Shaw (1936) and it was certainly known to the ancient Chinese, for a painting "Bird on a branch", attributed to the Emperor Hui-Tsung (1082-1135) and now in the British Museum, is recognisably of this species, although the tail is dark. The population shewn by Dementiev as isolated east of Lake Baikal may not be isolated at all, for Koslova (1933) stated that it was a common resident in the mountains of the Khangai Ranges in central Mongolia, and believed that it might occur in the Kentei and Ikhebogdo mountains. According to Stegman (1929 and 1936) it was found by Radde in 1856 at Onon, Taczanowski found it occurring rarely in the mountains of south-east Transbaikalia, and Turov found immature birds in the Baikal range on the north-west shore of Lake Baikal. That the bird may not breed throughout the so-called breeding range is suggested by Paludan (1959), who claimed that it was very rare in Afghanistan, and by Hugh Richardson of the Tibet Society of the United Kingdom, who informed me (*pers. comm.*) in 1975 that when he was resident in Lhasa, Tibet, many years ago, Güldenstädt's Redstart was very common in winter, but few birds remained during the summer and he never found a nest.

NEST AND EGGS

The nest and eggs of the typical race are unknown, and almost nothing appears to have been written of this race since Güldenstädt originally found it. Güldenstädt's work is rather inacessible, but subsequent authors have quoted (possibly paraphrasing) his essential comments. These include Latham (1823) and also Horsfield and Moore (1854), whose account is here quoted:— "It frequents the gravelly hollows of the Caucasian torrents during the whole of the summer, and migrates southward in search of food on the approach of winter; and that it runs along the banks of rivers; is restless, but not fearful; often moves its tail while sitting on the low shrubs, and makes its nest among the branches of the sea buckthorn, of the berries of which it is very fond." Dementiev *et al.* (1968) knew little more about the race, quoting as their only authority "Boehme (1926)". They gave the diet as unknown, though Boehme apparently found some small insect remains in the stomach, and they believed that the nest was probably in fissures in rocks. Nestlings have apparently been seen in June.

Authorities are confusing regarding the nest and eggs of *P.e.grandis*. Dementiev *et al.* say that the next is undescribed, that the eggs are blue and measure 22× 15 mm., this figure having been taken from Hartert (1910), and give various dates on which nestlings have been seen from early July to early August. Baker (1924) says that "the eggs are blue and measure about 22.0× 15.5 mm. The breeding season is June. Whistler took its nest in Lahul at 16,000 ft." Later Baker (1933) changed his mind on receiving two clutches from the collector B. B. Osmaston and considered that the earlier (blue) clutches must have been wrongly identified. These eggs, which are described by Osmaston (1927), are white marked with pale brownish and rather resemble the eggs of the Robin *Erithacus rubecula*. The two clutches are now in the British Museum (Natural History), ex the Stuart Baker collection. Ali and Ripley (1973) add nothing to what Baker had already said.

Eggs in the British Museum (Natural History)

There are ten clutches of eggs attributed to Güldenstädt's Redstart in the collection of the British Museum (Natural History), and it is probable that these represent most of the eggs which have ever been collected and attributed to the species. The clutch taken by Whistler referred to by Baker above, was not in the latter's collection, and has not so far come to light. The perplexing thing about these eggs is that they fall into no less than *five* distinct types, the variation being such that it is very difficult to believe that they could have been laid by the same species of bird. Apart from the two clutches collected by Osmaston, all the eggs of this species are probably referable to R. Tancré, a botanist-cum-ornithologist who collected widely in Central Asia. There are many eggs of Tancré's in the Museum, and I have found him to be normally a very reliable collector. I can see no reason to doubt the correctness of his identification any more than that of Osmaston, also a reliable collector.

Details of the clutches of eggs in the Museum collection are as follows (All measurements are given in millimetres).:—

Type 1. Small, medium-blue, unspotted, narrowly tapered, and similar to the eggs of *Phoenicurus phoenicurus* but larger. They are not certainly distinguishable from the eggs of some species of *Prunella*.

c/5 Altyn Tagh 30 May 1913 ?Tancré ex Jourdain Coll. BM(NH) 1973.1.952 20.9× 15.1; 21.0× 14.9; 20.6× 15.4; 21.1× 15.0; 20.8× 14.5.

c/5 Altyn Tagh 7 May 1903 Tancré ex Davidson Coll. BM(NH) 1925.12.27.82 20.7× 14.9; 21.7× 14.9; 21.3× 14.8; 21.5× 14.6; 20.9× 15.3.

c/5 Aksu, Tibet-Sinkiang border 3 May 1905 Tancré ex Davidson Coll. BM(NH) 1925.12.27.81 20.8× 14.7; 21.1× 14.4; 20.8× 14.3; 21.7× 14.6; 22.0× 14.7.

c/5 Issyk Kul Lake 20 May 1905 ?Tancré via Hanbury Barclay Coll. BM(NH) 1974.16.1. (The Museum does not appear to have received eggs directly from Barclay and is it unclear as to how this clutch reached us.) 20.1× 14.8; 21.3× 14.7; 21.2× 14.5; 20.7× 14.8; 20.3× 14.4.

Type 2. Pale milky-blue, unspotted, more broadly tapered than type 1, similar in colour to the eastern race of *P.ochrurus*, but slightly larger.

c/5 Altyn Tagh 8 May 1905 Tancré ex Stuart Baker Coll. BM(NH) 1973.32.89 "I purchased these eggs from Tancré who said he had received the bird with them. It may of course be that this redstart, like *P.aurorae* [ie *P.auroreus*] has two types of eggs, at the same time they cannot be accepted without doubt." E.C. Baker's manuscript catalogue.

22.0× 16.0; 22.2× 15.9; 21.4× 16.0; 21.5× 16.1; 21.8× 16.4.

Type 3. Pale milky-blue, similar to type 2 in shape and ground, but boldly speckled with brown.

c/4 *c.* Issyk Kul ?Tancré ex Rothschild Bequest BM(NH) 1941.9.4.1493.

20.2× 15.3; 21.6× 15.3; 20.9× 15.4; 19.7× 15.9.

Type 4. Larger than the others, and more rounded, white ground flecked finely with brownish.

c/3/4 Thunjé Tsokr Lake, Rupshu, 15,000 ft. B. B. Osmaston ex Stuart Baker Collection 9 June 1923 BM(NH) 1973.32.88.

21.9× 16.4; 23.6× 16.8; 23.4× 16.4. "Nest in hole in mané wall 4 ft. from ground, of dry grass lined wool and hair. Eggs (4) on the point of hatching" (manuscript note from Osmaston).

c/4 Debring (Rupshu) 15,000 ft. 7 June 1923 B. B. Osmaston ex Stuart Baker Collection BM(NH) 1973.32.87.

21.2× 17.4; 23.5× 17.4; 20.9× 16.9; 22.4× 17.5. "Nest in hole in mané wall, invisible until several stones had been removed, 5 ft. from ground, of dry grass and weeds profusely lined with wool and a little hair—also 2 or 3 feathers." (manuscript note from Osmaston).

Type 5. Milky-blue, broadly pointed, and finely flecked with brown, the flecking forming a cap at the large end; not unlike some eggs of *P.auroreus* but larger.

2 × c/4 Issyk Kul *c.* 1901 ?Tancré ex Rothschild Bequest BM(NH) 1941.9.4. 1491-2.

20.3× 14.6; 20.7× 15.4; 21.0× 15.5; 21.0× 14.5 (1941.9.4.1491).
19.5× 15.1; 19.5× 15.2; 20.5× 15.5; 20.5× 15.3 (1941.9.4.1492).

Schönwetter (1971-2) illustrates a clutch of four eggs of type 4 in the Museum Kreuger. The measurements of these eggs are given as 23.5× 16.4; 23.2× 16.2; 23.8× 16.2; 24.4× 16.3. mm.

It will probably be a long while before this problem can be satisfactorily settled, but I would urge any one who may be visiting the breeding range of this redstart to keep a particular look out for it, as it is a species on which we obviously need a lot more data.

ADDENDUM

One of the more interesting accounts of the species is that by P. Sushkin in *Birds of the Soviet Altai* (1938). As this book is available only in Russian, my friend Mr. L. S. Tillett, formerly of Peterhouse, Cambridge, very kindly translated the section on this species for me while I was preparing this note, and as it may be of interest to readers, I reproduce an abridged version of it here:—

The great redstart nests in the alpine zone of the central and South-Eastern Altai and in the part of the latter that borders on North-Western Mongolia; it probably nests too in the Southern Altai. It winters there. Its vertical distribution is from 2,000-2,200 metres, at most to

3,000 metres. The great redstart is one of the characteristic birds of the Alpine zone. The rocks and scree of this belt form its habitat. By reason of the nature of its habitat the great redstart is thinly distributed, but common in places. Of the zoological regions of the area, the great redstart nests specifically in the central and South-Eastern Altai and the region near to Mongolia, on the Mongolian side of Saibyugen. There is no detailed knowledge of the southern region; it should be noted that the Alpine zone of this region has been very badly investigated. In the remaining regions of the Altai this bird does not occur; and it is absent also from the Alpine zone of Altin-tu [?=Ala Tau] where from the nature of the terrain it might be expected.

The great redstart lives on vertical slopes [cliffs?], particularly if there is a lot of scree nearby. Its usual companions are the red-billed chough, the snowcock and the mountain finch. Occurring also on isolated slopes, the great redstart prefers places where slopes and scree predominate. One such place is the enormous ring of Kizil-oyók, left by glaciers, in the Kuraysky alps. Stony precipices, much scree at their base, a heap of rubble at the bottom of the ring, tiny little lakes here and there, patches of Alpine meadow and in many places the remains of former years' snow—such are the characters of this little nook [no doubt it loses something in translation! L.S.T.] and here the great redstart was quite common. The nesting region begins, in the wooded places, a little beyond the upper limit of the forest; in an unwooded place the nesting zone begins at the level where the steppe changes to Alpine meadow. Snowfalls sometimes chase the great redstart away and in summer it goes noticeably lower [sic]; after a very fierce snowstorm I found it in the valley of Chulishman at a height of little over 700 metres, but these were only single specimens, and after several days I came across many great redstarts, with broods, at a height upwards of 2,500 metres.

The emergence of the fledglings takes place very haphazardly. On 8th and 9th August in the Kraisky alps near Kizil-oyók the fledglings of several pairs had only just left the nests, and were hardly fluttering, while the majority were already full grown and some were even old enough to begin to moult. The short summer of these heights does not exert an even influence on the times of their emergence—it is likely, therefore that the great redstart does not fly away in the winter. Quite apart from this it is possible that the pairs who nest comparatively low move higher after the emergence of the chicks, and the emergence also takes place earlier with those pairs . . . The plumage of adult birds at the beginning of June is noticeably threadbare, particularly on the *tyemeni* [?tail-feathers]; the bird probably pulls these feathers out by climbing about beneath [sic] the rocks . . .

The great redstart is a typical bird of the crags. I have never seen it sitting on a tree or bush, although at the time of the great snowfall I had the opportunity to see these birds in the upper border of the wooded zone. This is a very lively bird, and a richly-coloured male brings itself to your attention [literally "throws itself at your eyes"] even from far away; the red-grey colour of the female, however, approaches very nearly the colour of the surrounding rocks, and so when the bird sits still it is not very easily seen. The male is far more cautious than the female, and does not allow one to approach far, so to obtain it is rather hard; the female, however, is comparatively trusting. This contrast is evident even among the chicks. Evidently the difference in instincts is tied up with the difference in colour, which has to do, in wing colour, with the nesting plumage. [This last sentence is rather obscure, it presumably means that juveniles are sexually distinguishable, the male having a white speculum and black remiges which features are absent in the female.] . . . I noticed that the redstart catches even daytime butterflies; a female I killed held in her beak *Erebia kindermanni* (Satyridae). I could not hear the song of the great redstart with any trustworthiness[?]. The call is less clear [less "bell-like"] than that of the ordinary redstart and never had more than two tones.

[Mr. Tillett points out that Sushkin writes in a very antiquated and cumbersome style which reads as awkwardly in Russian as it does in English.]

SUMMARY

The current state of knowledge on the distribution and the eggs of the two races of Güldenstädt's Redstart *Phoenicurus erythrogaster* is reviewed. The eggs held in the collection of the British Museum of Natural History are shown as falling into five distinct types and these are described. An account of the species by a Russian Ornithologist is reproduced in translation.

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THE LAPPET-FACED VULTURE IN THE MIDDLE EAST

by

Bertel Bruun

INTRODUCTION

The Lappet-faced Vulture *Torgos tracheliotus* is found breeding throughout Africa south of the Sahara, usually in arid or semi-arid areas. The African population is divided into two subspecies: *T.t. tracheliotus* in the south and *T.t. nubicus* in the north. The difference is usually given as being the lack of lappets in the northern subspecies and the border as being the Zambezi River. Recent evidence (Bruun *et al. in press*), however, points to other distinguishing features between the two subspecies, as well as to a different border between the two. *T.t. tracheliotus* is now thought to be found as far north as Ethiopia and the distribution of *T.t. nubicus* limited to the north-easternmost part of the species' African range. The two subspecies are told apart by the size of lappets (very large in *T.t. tracheliotus*, medium in *T.t. nubicus*), colour of head (bright red in *T.t. tracheliotus*, pink in *T.t. nubicus*) and in the colour of the thighs in adults (white in *T.t. tracheliotus*, light brown in *T.t. nubicus*). In the Middle East, there are two known breeding populations of the Lappet-faced Vulture: in the Negev in Israel and in the Gabel Elba in Upper Egypt. The Negev population was discovered in 1945 by Professor Heinrich Mendelssohn and is now being described as a separate subspecies *Torgos tracheliotus negevensis* (Bruun, Mendelssohn & Bull *in press*). This subspecies has virtually no lappets, greyish-brown head with pink nape and brown thighs. (See plates.) In the field the Lappet-faced Vulture of the Negev is very strikingly different from its African counterpart. It actually resembles the Cinereous or Eurasian Black Vulture *Aegypius monachus* closely. It is best distinguished from this species by the two faint bands of light brownish along the underwing coverts. The feet of the Lappet-faced Vulture are lead grey, yellow in the Cinereous Vulture. From above some contrast between the upper wing-converts and the darker flight feathers is noticeable in the Lappet-faced Vulture. (The Lappet-faced Vulture is best distinguished from the Griffon Vulture *Gyps fulvus* by its larger size, darker colour and flat silhouette when soaring. [The Griffon Vulture soars with wings in a shallow V]. The Griffon Vulture has a very strong contrast between the upper wing coverts and the darker flight feathers.) The redness present on the nape of the Negev birds during courtship or excitement is usually not distinguishable in the field, and the head looks uniformly pale brown.

BREEDING

The Negev Population

The northernmost breeding population of the Lappet-faced Vulture is found in the Negev in Israel. When this population was discovered in 1945 by Professor Heinrich Mendelssohn, the large nests were a characteristic part of the landscape of the Avara Valley and Mendelssohn estimated the population to consist of at least 30 to 40 pairs. Since that time, however, the population has decreased markedly, and a count by the Israel Nature Reserves Authority in 1975 revealed six nests. Another count in 1979 showed only four active nests of which only three were successful in rearing young. The latest count, from 1980, showed three active nests. The wild population is believed to consist of 17 birds: eight adults, four immatures, three nestlings and two of undetermined age. As Lappet-faced Vultures always nest in trees any substantial under-count is unlikely.

The reason for the decline is unclear, but is thought to be due to a combination of factors. One is lack of food. The goat herds of the Bedouins have, after a marked increase in the 1960s, decreased considerably and the number of gazelles has also fallen in the Negev. The Nature Reserves Authority supports a feeding programme which, however, is inadequate. Recently an improved feeding programme has been instituted with help from the World Wildlife Fund. Another cause for the decline could be poisoning by eating thallium-killed rodents, thallium being known to have caused a marked decline in other Israeli raptors in recent years. Lastly, the Vultures might well be killed in substantial numbers outside the Negev breeding area where

they are strictly protected. The young stay with the adults in the breeding area for about six months, but after that time disappear from the Negev (H. Mendelssohn *in litt.*).

A captive breeding programme has been initiated by Mendelssohn in Tel Aviv to try to save the Negev subspecies from extinction. Four Lappet-faced Vultures from Negev are here kept in captivity to try to propagate the species. This programme is promising but suffers severely from lack of funds. The same is true of the feeding programme for the wild birds conducted by the Israel Nature Reserves Authority, and the future of the subspecies is very bleak indeed.

The Gabel Elba Population

The only other known breeding population in the Middle East is found in Upper Egypt in the Gabel Elba area near the Sudanese border (H. Hoogstraal *in litt.*). This very small population is associated and contiguous with a much larger Sudanese population and belongs to the subspecies *T.t. nubicus*. Both Meinertzhagen (1930) and Koenig (1936) describe the Lappet-faced Vulture as being common in Egypt although they were aware of no other breeding sites than the previously mentioned Upper Egyptian site. This is certainly not true any more and the Lappet-faced Vulture must be described as a rare vagrant north of Lake Nasser. That this decline, which in time seems to parallel the decline in the Negev population, is due to a decline in the Egyptian and Sudanese population and not in the Negev population is clear from Meinertzhagen's description of all Egyptian birds seen by him having lappets and pink heads characteristically not present in the Negev birds.

OCCURRENCES OUTSIDE DEFINITE BREEDING AREAS

In earlier years, when the Negev population was larger, immature birds could be found in the Jordan Valley north to Jericho. The species does not appear to occur in Sinai as there are no records of the species there (Meinertzhagen 1954). In Jordan the Lappet-faced Vulture is described as a vagrant (Boyd 1967). Undoubtedly birds from the Negev straggle into south-western Jordan and it is not impossible that one or two pair may even be found breeding there.

In the British Museum there are two skins of Lappet-faced Vultures from Saudi Arabia: one from Central Arabia and one from the Persian Gulf. Both are immatures and cannot be identified as to subspecies. These were shot in December and January.

Three sight observations from central Saudi Arabia do not give enough information to establish subspecies. These observations were from November, December and January (M. C. Jennings *in litt.*). Two sightings by King (1978), however, clearly concerned birds belonging to the *nubicus* subspecies (pink heads). These sightings occurred at Al Madinah and Al Ula in January 1977. Courtenay-Thompson (1972) described it as a vagrant in Saudi Arabia.

In Oman the Lappet-faced Vultures occur quite regularly throughout the year (Gallagher 1977). Colour photographs I have seen indicate most are immatures, which, however, have paler thighs and underwing lines than those of the Negev birds. Descriptions of adults by M. D. Gallagher clearly indicate that adult birds have pink heads and white thighs. This strongly suggests that these birds do not belong to the Negev population but are much more likely to be of the nominate race or possibly *T.t. nubicus*.

Attention should be brought to the possible occasional occurrence of Indian Black Vulture *Sarcogyps calvus* in Oman. This species is undoubtedly a vagrant from breeding areas in Pakistan. Its red head and white thigh patches could conceivably lead to misidentification, but red legs and much smaller size are diagnostic features.

There are indications that the Lappet-faced Vulture might be breeding in Oman, (M. D. Gallagher *in litt.*) but definite proof is lacking and further investigation is necessary. It would be of greatest interest to know if such a population exists in Oman. This could conceivably be considered an offspring of the Somali population which appears to belong to the nominate race, but may be *T.t. nubicus*. In the Arabian Gulf States the Lappet-faced Vulture has been observed only occasionally and excepting two January specimens identification has been questionable.

Plate I. T.t. tracheliotus: Note large lappets.
Photo: B. Bruun, Cairo Zoo, 1980.

Plate 2. T.t. nubicus: Note smaller but well-defined lappets.
Photo: B. Bruun, Regents Park Zoo, 1979.

Plate 3. T.t. negevensis: Note lack of lappets and small amount of down on crown. Photo: H. Mendelssohn, Tel Aviv University, 1978.

SUMMARY

The two known breeding populations in the Middle East of the Lappet-faced Vulture are described. One of these relates to a population in the Negev, in Israel, which is now considered a new subspecies. This is described and its present status and future prospects of the population reviewed. The occurrence of the species elsewhere in the Middle East is also reviewed.

ACKNOWLEDGEMENTS

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THE OCCURRENCE OF THE PINE BUNTING IN ISRAEL

by

Ehud Beidermann and Iain Robertson

Until recently the Pine Bunting *Emberiza leucocephalos* was known only as an accidental winter visitor to the north of Israel. In 1977, between 11 and 13 March, five Pine Buntings, three males and two females, were found in Jerusalem. The following autumn more birds were recorded in the same locality; the first sighting was on 30 November with up to 15 birds seen till mid-March 1978. The site was watched again in autumn and the first bird was noted on 14 November, the flock increased to 30 individuals and the last was recorded on 16 March, 1979.

The birds were seen in various plumages including those of non-breeding males, breeding males and females or immatures. Some males did not attain breeding plumage till March, whilst others were in full plumage throughout the winter.

The birds associated freely with Yellowhammers *E. citrinella*, favouring an apple orchard on the outskirts of the city. The orchard has built-up areas on one side and open country with wadis and rolling hills on the other. The Pine Buntings were seen most regularly shortly after dawn; they appeared to move away to a feeding area during the day. A few birds were seen in other areas of Jerusalem, including the grounds of the Knesset.

The voice of the two species is very similar, but the Pine Bunting has a somewhat sharper call. Apart from the rufous rump the two species have few plumage characters in common, and can be identified quite easily in all plumages.

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Figure 1 Pine Buntings Embriza leucocephalos.
Top left: breeding male. Top right: female or immature male. Bottom: non-breeding male.

THE OCCURRENCE OF STRICKLAND'S WHEATEAR IN JORDAN

by

J. E. Clarke

Nelson (1973) states that "The black-bellied form *opistholeuca* of the Eastern Pied *Oenanthe picata* called Strickland's Wheatear has been identified at Azraq by Wallace and Ferguson-Lees", but there have been no other published records until now.

The writer lived in Jordan from 1975 to 1979, for the first three years residing in the Azraq area—mostly at Shaumari Wildlife Reserve. During this period, a study of the reserve's birdlife was made (Clarke 1980), but many observations were also made outside, since the writer's work took him over the entire country. In the course of this work, 21 sightings were made of *Oenanthe picata opistholeuca*. Four of these were in the Azraq area, one on its northern boundary (the Trans-Arabian Pipeline) and the remainder well north of Azraq on the main road from the H5 to H4 pumping stations, which leads eventually to the Iraqi border and beyond. A list of the sightings follows:

1. 13 Feb. 1976. Shaumari. One seen only fleetingly at a range of 40 metres gave a superficial impression of being a female or immature *O. leucopyga*, which is common in parts of south-western Jordan.

2. 23 Feb. 1976. Shaumari. One was under observation for 12 minutes down to 8 metres range perching conveniently on the tops of bushes. The distribution of black and white on the tail clearly excluded *leucopyga*. The rump and undertail coverts were white and the remainder of the body black. The tip of the tail bore a broad black band of about 10 mm. depth extending from side to side. The central tail feathers were black, producing a narrow forward extension of the rear band for about 10-15 mm. The black band extended forward slightly on the outer tail feathers. The legs and bill were very dark.

3. 18 Mar. 1976. Shaumari. One under observation down to 15 metres and answering to the same description. No further sightings were made at Shaumari and it may be conjectured that these observations were of the same individual.

4. 7 Nov. 1976. Thirteen recorded along the main road from H5 to H4, the first time that the observer had made this journey. All birds seen were perched upon the telegraph wires parallel to the road and were observed at a range of 20 metres. All were recorded between Km. 8 and Km. 69 on the pumping station road.

5. 20 Jun. 1977. One along the Trans-Arabian Pipeline at Km. 900.

6. 20 Sep. 1977. One in the Qattafi hills, in the Azraq area.

7. 11 Feb. 1979. One between H5 and H4 between Km. 10-11.

8. 10 Jun. 1979. One between H5 and H4 between Km. 22-23 and another between Km. 48-49. The latter was observed from the underside and the black band across the tip of the tail was clearly visible as well as the slight lateral protrusions; but the central extension of black was not visible from below.

All but four of these sightings were made within the band of basaltic country that extends into north-eastern Jordan from the volcanic massif of Jebel Druz in Syria and these exceptions were not far away. The locations of all the sightings are marked with crosses in *Figure 1;* the stippling represents the area covered by the basaltic extrusion. In spite of travelling extensively throughout Jordan, the writer made no other sightings of this species. It appears that *O.p. opistholeuca* may be associated with basaltic country and its periphery. Apart from the main roads passing through it, this is one of the most inaccessible tracts of land in Jordan. This may partly account for the scarcity of records of this species.

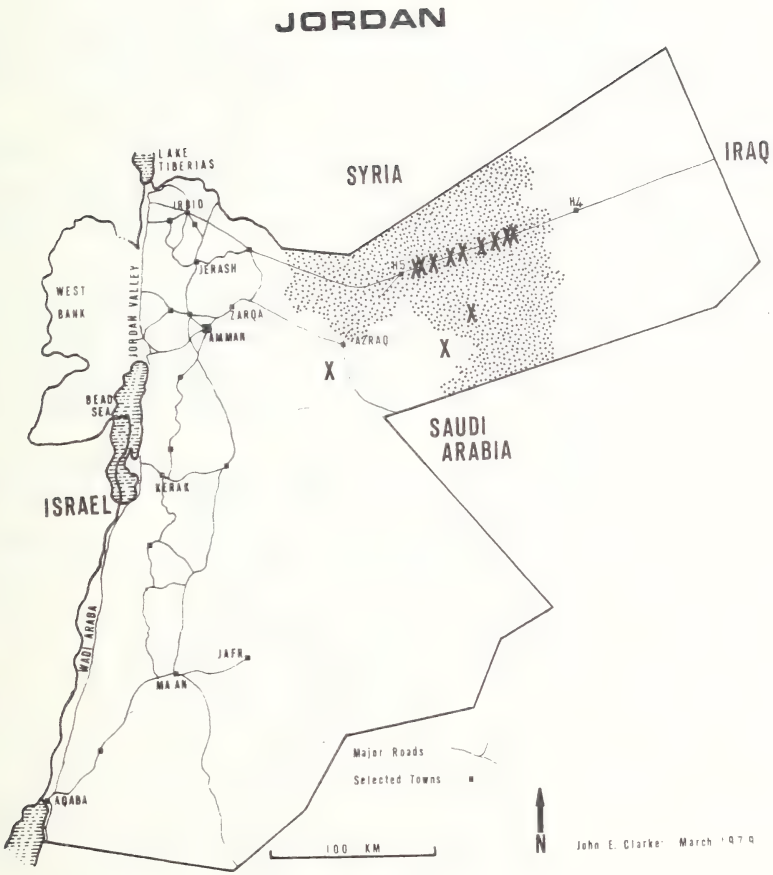

Figure 1. Distribution of Strickland's Wheatear sightings (X) *in Jordan.*

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THE OCCURRENCE OF HUME'S TAWNY OWL IN ISRAEL AND SINAI

by

Josi Leshem

Hume's Tawny Owl *Strix butleri* belongs to the genus *Strix* which contains about eleven species. In Israel there are two resident species: the Tawny Owl *Strix aluco* and Hume's Tawny Owl *Strix butleri*.

Meinertzhagen (1930) stated that *Strix butleri* is the rarest resident bird in Egypt and cited four known individuals elsewhere: one from the Mekran coast of Baluchistan, one from Wadi Kelt in the Judean desert, one from Wadi Firan in Sinai and one from the Mahd Dehab gold mines in Saudi Arabia.

Aharoni (1932), one of Israel's pioneer zoologists, wrote that *Strix butleri* was the most interesting and rarest bird that he had discovered in southern Israel.

In the past two decades this bird was still thought to be very rare and little information about its biology was available (Ali & Ripley 1969; Etchécopar & Hüe 1964; Heinzel, Fitter & Parslow 1972).

In March 1973 I climbed a 20 metres high cliff in Wadi Fatzael, which enters the Jordan Valley north to Jericho. Suddenly I heard the defensive bill clapping, that is characteristic of nocturnal birds of prey. Two metres above me, a young owl with orange-coloured irises, looked at me. The colour of the bird's back was cream to light yellow, dotted with clear, brown spots, while wing and tail feathers had broad, dark brown bars. Breast, belly and leg feathers were whitish and the ventral part of the tail barred in brown and white like the upper part, but with narrower bars.

I photographed the bird, and my initial identification that it was *Strix butleri*, was later confirmed by Prof. H. Mendelssohn. The photographs I had taken were probably the first ones that had been made of this bird in the wild (Leshem 1974 & 1975).

All available information about this bird in Israel was later collected and it was found that in the last fifteen years, with the increase of amateur and professional bird-watchers in Israel, quite an appreciable amount of information had been accumulated.

Mendelssohn, Yom-Tov and Safriel (1975) published what was then known, but as additional information is now available, it seems worthwhile to publish it.

Fifteen specimens are deposited in different collections in Israel: six at the Hebrew University in Jerusalem, five at Tel-Aviv University, one in the Schmitz collection in St. Paul's Hospis in Jerusalem and three others in private collections. Another bird was found poisoned in 1975 near the Ein-Gedi Field Study Center on the main road near the Dead Sea. It recovered and was kept in a private house in Jerusalem. (The photographs associated with this paper are of this specimen.)

Strix butleri has been observed in 31 different places in desert habitats in Israel: 18 localities in the Judean desert, nine localities in the Negev Arava and Eilat mountains and four localities in Sinai. (In order to avoid disturbance by egg and bird collectors, the exact localities of the observations are not being published.)

Strix butleri occurs in wadis with cliffs and water, either in springs or long lasting rain pools. Although many observations on *Strix butleri* have been collected, no active nest has been found so far. Recently this species has been observed by Michael Jennings (1977) in the Arabian Peninsula from Jedda along the shore of the Red Sea, around Riyadh, and in North Yemen.

The call of *Strix butleri* may be heard from January to April, a clear continuous "Hoo-hoo-hoo" sometimes broken by a short throaty cough. At the Ein-Gedi Field Study Center almost every night *Strix butleri* could be heard or seen perched on the fence or on one of the electricity poles.

Near the bird that had been photographed in 1973 three pellets were found, which contained remains of a spiny mouse (*Acomys sp.*), a scorpion (*Nebo hierochonticus*) and a grasshopper (Acrididae).

In March 1978, 52 pellets were collected from two roosting places in Wadi Nekarot; these contained the remains of 101 animals: 48 Mammalia, three Reptilia, three Aves and 47 Arthropoda:

1. Mammalia:
   a. 22 *Gerbillus dasyurus* (two of them only skeletons without a skull).
   b. five *Gerbillus henleyi*.
   c. 14 *Meriones crassus* (four of them only skeletons without a skull).
   d. three *Sekeetamys caluros* (two of them might be *Meriones crassus*).
   e. two *Acomys russatus*, one *Acomys sp.*
   f. two *Crocidura suaveolens*.
2. Reptilia:
   a. two *Ptyodactylus hasselquistii*.
   b. one unidentified.
3. Aves:
   a. one *Ammomanes deserti*.
   b. two unidentified passerines.
4. Arthropoda:
   a. 29 *Sphodromerus pilipes* (Acrididae).
   b. six *Nebo hierochonticus* (Scorpionidae).
   c. 12 unidentified Arthropoda.

It seems then to a large extent that *Strix butleri* is quite common rather than a very rare bird, and the fact that it is nocturnal as well as desert-coloured, caused the lack of information on this bird.

Last but not least it might be appropriate to mention that Isaiah the prophet who walked through the Judean desert 2,600 years ago saw or heard this bird and mentioned it in his prophecy:—

> "... And the wild cats shall meet with the jackals,
> And the satyr cry to his fellows;
> Yea, the owl shall repose there
> And shall find her a place of rest ..." *Isaiah* 34:14

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Josi Leshem, Har Gilo Field Study Center, Sak Na'ul, Jerusalem, ISRAEL.

Plate 1 Hume's Tawny Owl Strix butleri Photographs: Josi Leshem

THE FIELD IDENTIFICATION OF THE ARABIAN WARBLER

by

Steve Madge and Donald Parr

In view of the absence of a reference to the Arabian Warbler *Sylvia leucomelaena* in popular field guides of Western Palearctic species we think that it might be helpful to potential visitors to the Middle East to summarise the present known distribution of the species including its recent discovery in Israel and to clarify points of distinction from the rather similar Orphean Warbler *S. hortensis*.

DISTRIBUTION

Williamson (1968) describes the distribution of the Arabian Warbler as "Arabia, resident from Midian in the west through the Hejaz to Yemen and Aden; also Somalia in N.E. Africa." There is also a cleaner, greyer subspecies with a cleaner cap found in the Red Sea province of the Sudan; this is known as *S. l. blanfordi*. Hall and Moreau (1970) show the distribution of *S. leucomelaena* as a fairly narrow fringe on the Arabian and African sides of the Red Sea and place it "provisionally" in a "superspecies" with *S. hortensis*. Zahavi and Dudai (1974) describe the discovery of the first known breeding of the species in the Rift Valley 10 km. south of the southern end of the Dead Sea, Israel in April 1972. It was found to be "a relatively common species in the Arava valley found in stands of large *Acacia* trees". The song was described as "a melodious short-burst of typical sylvian quality". Several European ornithologists who have watched the species in Israel in recent springs have been struck by the clean, grey appearance of the birds with clean-cut black hoods and prominent pale eye rings and feel that these birds could refer to the race *blanfordi* rather than to the nominate form. The presence of this form in Israel would be in accord with the theory of Zahavi and Dudai (1974) that this species, in common with others such as the Lappet-faced Vulture *Torgos tracheliotus*, has spread along the Rift Valley from East Africa. Clearly there is field here for more research.

PLUMAGE DESCRIPTION

Williamson (1968) describes the species as having a dark grey-brown mantle, a sooty blackish-brown head merging with the mantle and not forming a clear-cut hood. The underparts: creamy, becoming whiter in the middle of the belly and washed with greyish-brown on the sides, flanks and vent. The undertail coverts: dark grey-brown with broad whitish fringes. The wings: dark brown; the tertials, inner secondaries and greater coverts: narrowly fringed greyish-white in fresh plumage. Tail: blackish-brown with the central pair darkest and the outer pair tipped white (unless very worn). There are three long rictal bristles and prominent nasal hairs (those of *S. hortensis* are much finer). The iris is described as dark brown or pale umber (although some observers have recorded a light grey iris as with typical *S. hortensis*), and light grey or whitish feathers may form an orbital ring. The wing is more rounded than that of *S. hortensis* with the wing point usually falling between the 4th and 5th primaries (equals 4th or between 3rd and 4th in *S. hortensis*). Tail is rounded with the outer feathers 7-9 mm. shorter than the longest (almost square in *S. hortensis*).

FIELD DESCRIPTION

Meinertzhagen (1949) claimed that *S. leucomelaena* could not be separated in the field from *S. hortensis*. Zahavi and Dudai (1974) describe *S. leucomelaena* as looking like a small *S. hortensis* and reference is made to its habit of flicking its jet black tail downwards, resembling the colour and movement of that of the Blackstart *Cercomela melanura*.

S. C. M., James Wolstencroft and a party of visiting ornithologists located two birds in a wadi to the west of Eilat on 3 April 1979 that were so obviously not *S. hortensis* that they came to the conclusion that they were Arabian Warblers. The birds were feeding in *Acacia* scrub, both low down and coming into view at the tops of the bushes.

The first glimpse that S.C.M. had was of the head amongst foliage of an *Acacia*. The black head and obvious white orbital ring immediately brought to mind the face of a Black-capped Bulbul *Pycnonotus xanthopygos*. The bird flitted out and down into some scrub showing a black tail, as black as that of a Blackstart. It was known that *S. leucomelaena* should have some white in the outer tail and the apparent lack of this was puzzling at first until better views were obtained. Then it was found that the birds differed from *S. hortensis* as follows:—

a. **Tail:** Slowly flicked continually during entire period of observation. The tail looked completely black, both in flight and when perched but close observation showed that there were white tips to the outermost tail feathers—however, the outer feathers were markedly shorter than the others and were not visible from above when in flight. In the bushes the white tips were clearly visible from below as a couple of white spots on an otherwise black tail some threequarters along its length.

b. **Head:** Black hood, clearly defined from both grey upperparts and white throat. A narrow, but very obvious white orbital ring with a dark iris. Forehead rather more rounded and bill slighter than in *S. hortensis*.

One of the pair, presumed to be the female, had a duller black head and a browner cast to the grey of the upperparts than the other. She still had the orbital ring and tail pattern of the other, and cocked her tail too. The two birds had a very distinctive appearance and the tail flicking gave them a very un-Sylvialike appearance. The two birds kept together constantly and were almost certainly in territory although no calls or song were heard.

During a visit to the Yemen Arab Republic in April 1980 S.C.M. saw a small number of Arabian Warblers of the nominate form. A singing bird, therefore sexed as male, differed markedly from the Israeli birds described above. By comparison the Yemeni bird was considerably browner grey on the upperparts, less clean greyish, with a darker hood shading paler on the rear head and nape; the flanks and under tail coverts were browner; the pale eye-ring was lacking and the iris was pale; tail pattern was similar but browner black. The song consisted of a series of short phrases of warbled, rather thrush-like notes. Another bird, which was not seen all that well, appeared to have a darker iris, but again lacked the pale eye-ring. These birds differed so much from the Israeli birds that it is difficult to believe that they were of the same subspecies, lending weight to the feeling that the Israeli birds are of the Sudanese race *S. l. blanfordi*.

CONFUSION WITH ORPHEAN WARBLER

In March and April when many *Sylvia* warblers are migrating through Israel there is a danger that *S. leucomelaena* may be confused with a dark form of *S. hortensis* which occurs on migration in some numbers. Typical *S.h.hortensis* specimens are seen in the Eilat area showing only a dark grey (not black) cap merging with the grey of the mantle and with a prominent whitish iris and a suffusion of pink on the breast. However, more typically the form most likely to be encountered in that area is *S.h.crassirostris* (Balkans to Turkestan). *The Handbook* (1948) refers to this form as having a longer bill, less buff on the underparts and grey under tail coverts. McGeoch (1954) described specimens of *S. hortensis* which he saw in Kurdistan in June 1954. These he described as dark grey above, paler on the rump, with a black head and nape extending over the sides of the face and merging into the grey back. The tail was nearly black, the sides of the throat were light greyish with a paler centre and the rest of the underparts were nearly white. The eye was dark. This description accords very well with a bird that D.P. and Francis Argyll caught in a wadi near Eilat, Israel on 26 March 1979. This was in an area where observers had been reporting Arabian Warblers and where the two birds described above had been seen. It had been thought that this might have been *S. leucomelaena* because of the lack of a light iris and the black head and tail but the wing formula clearly showed it to

The following sketches of the bird have been drawn by S.C.M.

Figure 1 Arabian Warbler S. leucomelaena, male, from field notes.

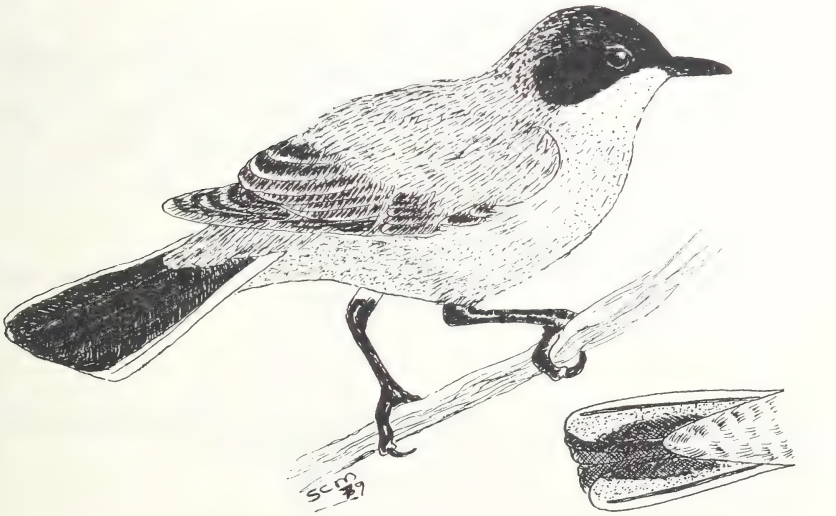

Figure 2 Orphean Warbler S.h. crassirostris, from photographs taken by D. Parr.

be *S. hortensis*. The wing was 82 mm., tail 66 mm. and the bill was noticeably heavy (17 mm. to skull, 4.75 mm. depth and 4 mm. wide at nostril). Breast was white, tinged buff and belly white, undertail coverts were grey/dirty white. Tail: square, the outer feathers were almost wholly white and the penultimate ones were tipped white, all the remainder were black. Iris: dark brown with a few light grey flecks on the feathers around the eye giving an indistinct orbital ring. This bird was photographed by D.P. and S.C.M. has drawn the accompanying sketch from the photographs.

S.C.M. has seen in the field and trapped a number of *S.h. jerdoni*—the race breeding in Iran, Transcaspia eastwards to Russian Turkestan, Afghanistan and Baluchistan (Williamson 1968) and a few of *S.h. crassirostris*, chiefly in north-east Iran and Afghanistan from July to September and not one of them showed a markedly pale iris, contrary to the general field guide statements. All had rather large bills and *S.h. jerdoni* especially had solid black hoods in the males. However, all had prominent white in the outer tail feathers along their entire length.

The iris colour and orbital ring of *S. leucomelaena* is clearly a variable feature which might vary between the two subspecies. Of three birds of the nominate form trapped in Saudi Arabia by Michael Jennings (*pers.comm.*) one had a dark brown iris with a lightish exterior and two were brown without an orbital ring.

SUMMARY

A summary is given of the distribution of the Arabian Warbler *Sylvia leucomelaena*, together with detailed plumage notes. An attempt has been made to clarify points of distinction between the species and the Orphean Warbler *Sylvia hortensis*. Mention is made of birds of the race *S.h.jerdoni* breeding in Iran and Afganistan and of the nominate race of the Arabian Warbler occurring in the Yemen; a description of the latter is thought to lend weight to the theory that the race present in Israel is that found in the Sudan *S.l. blanfordi*.

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THE SUBSPECIFIC IDENTITY OF THE LITTLE GREEN BEE-EATER IN SOUTHERN ISRAEL

by

Steve Madge

In Israel the Little Green Bee-eater *Merops orientalis* is a rather local resident of the lower Arava, between Yotvata and Eilat (Inbar 1977). Hüe and Etchécopar (1970) stated that the subspecific identity of these birds had not been determined but they suggested that the Israeli birds probably belonged to the form of Egypt and northern Sudan known as *M. o. cleopatra* and this is the subspecies illustrated in Heinzel, Fitter and Parslow (1972).

However, when I saw the species in the lower Arava at Yotvata and Eilat in April 1979 I was struck by their very different appearance to what I had expected from *cleopatra*. Whereas *cleopatra* has a chin, throat and forehead green, a black bar over the lower throat and very long central tail elongations (Vaurie 1965), the Eilat birds had the throat, upper breast and superciliary brilliant blue, the throat bar merely very much darker blue and rather short tail extensions.

Taking these features into consideration when consulting Vaurie (1965) it seems that the Israeli birds are referrable to the subspecies of western and southern Arabia which is known as *M. o. cyanophrys*.

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THE DIURNAL MASS MIGRATION OF THE LITTLE BITTERN

by

Y. Paran and P. Shluter

Cramp and Simmons (1977), describing the migration of the Little Bittern *Ixobrychus minutus*, state: "Migrates by night, spending daylight hours in reedbeds or swamps or, when preferred habitat not available, will alight in trees. Birds usually fly off individually at dusk; flock of 40-45 flying over Aboukir, Egypt, September 1944 (Bodenham 1945) quite exceptional".

This view is corroborated by (or perhaps based on) Dementiev and Gladkov (1969): "Passage flights carried out as single individuals, never in flocks. Birds fly at night, spending daylight hours in reedbeds and stands of rushes at lakesides, coppices of swamps and sometimes in less suitable situations, e.g. on South Crimean coast, where birds frequently pause for their day's rest in small chaparral-like oak and birch stands covering the dry hills".

Bodenham (1945), who was a Squadron Leader in the Royal Air Force at El Ballah airfield on the Suez Canal and observed at the airfield and in its vicinity, states: "At 11 a.m. 9 Sept., a flock of 40-45 seen some 600 feet up circling around the aerodrome and then proceeding south".

Meinertzhagen (1954) writes concerning the migration of this species: "On passage they may be met with by day resting in foliaged trees in small parties" and (1930): "Has been found resting in tree tops on passage; parties of fifteen to twenty being flushed".

Gooders (1969) seems to rely on Meinertzhagen: "Further east in Egypt and Arabia, there are a few records of off-passage birds sitting around in trees—an odd thing for the bird to do at any time of the year". Here also the noctural migration is stressed and the opinion voiced that "perhaps a direct Mediterranean-Sahara crossing is the explanation".

The information presented by Bauer and Blotzheim (1966) is different: Social behaviour: "On migration the Little Bittern is often observed in loose troops of 4-15 individuals; departure at dusk has been described repeatedly" (Authors' translation from German).

In view of the above quoted literature, it seems worthwhile to publish the following observations. These were made in the framework of a seven-year survey conducted by the Israel Nature Reserve Authority, a survey designed to follow the massive migration of waterbirds on the north coast of the Sinai peninsula. The location of these observations was the easternmost end of the Bardawil Lagoon, a place called by the Bedouin fishermen Zarnikh.

From 1972 to 1975 the Little Bittern did not appear on the list of species observed at Zarnikh. On 10 September 1976 P.S. identified some for the first time. These were some difficulties in verifying the identification. The birds were flying at a considerable distance and very low over the water, so that they were sometimes obscured by the waves. Later in the day more flocks were identified. By this time, although the distance was still very great, the birds flew above the waves and even at this range the white patch at the leading edge of the wing was very prominent. The birds flew parallel to the coast from east to west and did not change direction towards the lagoon, the way waders did. Fifty-four individuals were counted on this day.

The next day, 11 September 1976, a total of 1,861 Little Bitterns were counted. This time there could be no doubt about identification. Although some flocks continued to migrate parallel to the shore and at great distance from the coast, others passed much nearer and eventually some veered towards the lagoon and landed. A flock of 12 came in at a small pool of seawater some 100 metres from our observation post. These apparently acted as decoys for other flocks to land near them, until some 70-80 Little Bitterns stood around the pool. There was no preening or feeding; the birds seemed to be exhausted and stood motionless. They could be approached to a distance of 15 metres and numerous photographs were taken. If the author of the article in Gooders (1969) found it odd that Little Bitterns should sit in treetops, it was odder still to see such a large number of them on the ground in open desert. When approached, they did not adopt the head erect protective posture. It was as if the birds "knew" that there was no adequate background to merge with. We had the opportunity to

examine some birds in the hand. One specimen was brought to us by a Bedouin. This bird had a grassblade thrust through its nostril and then wound around its bill, in the words of the Bedouin "to prevent it from biting". After being released the bird was unable to fly and died later in the day. S. Zuarez of the Israel Nature Reserve Authority ringed and released five Little Bitterns, after taking them out from the quail nets of the Bedouin. This means of course that they must have flown very low in order to get caught in the nets.

On this day, 1,861 birds in 58 flocks were counted and seven more birds were observed the next day, 12 September 1976. El Balla, where Bodenham (1945) saw 40-45 birds in 1944, is 130 km. to the S.W. of Zarnikh. His date (9 Sep.) and the hour of observation (11.00 hrs.) agree to an astonishing degree with our sightings.

In 1976 observations were conducted only on three days, 10-12 Sep. In 1978 a continuous dawn to dusk watch was kept for an extended period (15 Aug.-7 Oct.) and particular attention was directed to the horizon. In this year Little Bitterns were observed on many days:

August 15 :	20
20	28
24	12
September 1 :	1
10	51
11	163
12	671
13	414
16	30
17	2,693
18	8
22	20
October 6 :	53
10	8

The diurnal distribution of birds observed on 11 September 1976 and on 12 September 1978 is shown in *Figure 1* and the flock size distribution on the same two days in *Figure 2*.

It could be assumed that the birds normally turn south well west of the Bardawil Lagoon and follow the coast so far out to sea that they have been missed in previous years. We have no explanation for the fact that the birds alighted at the Bardawil in 1976, nor do we know whether the concentration within such a short time of an extraordinarily large number of birds, as witnessed in both years, is normal. We can now state with some confidence that the Little Bittern, although departing for migratory flights at dusk, readily continues migrating in daylight. The species will often migrate socially, sometimes in large flocks, and not always or almost always singly, as stated by some authors. It prefers, of course, its natural habitat of reeds and swamps, but if these are not available rests on tree tops and in the absence of trees is prepared to land even in areas where no cover whatsoever is available.

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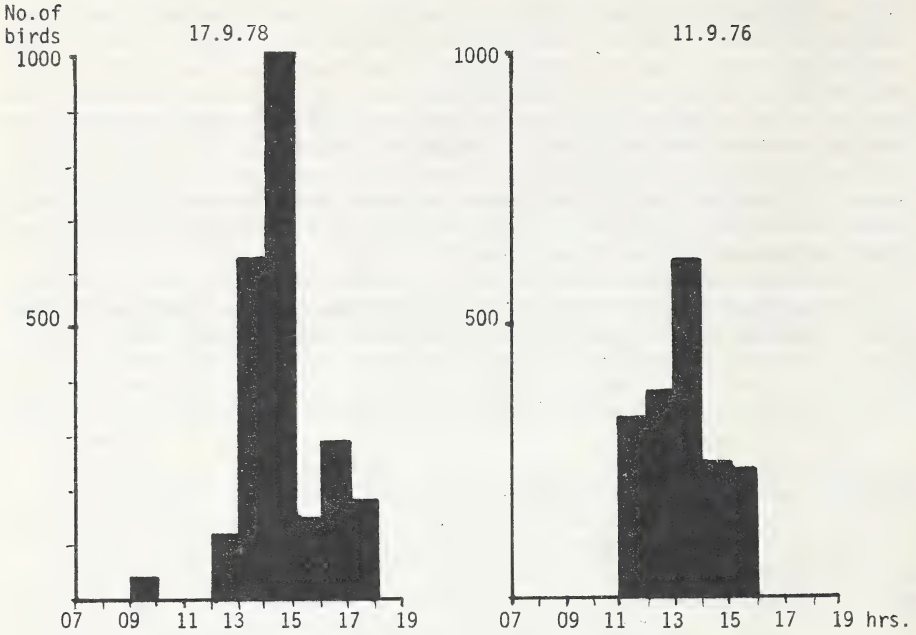

Figure 1 Diurnal distribution of Little Bitterns.

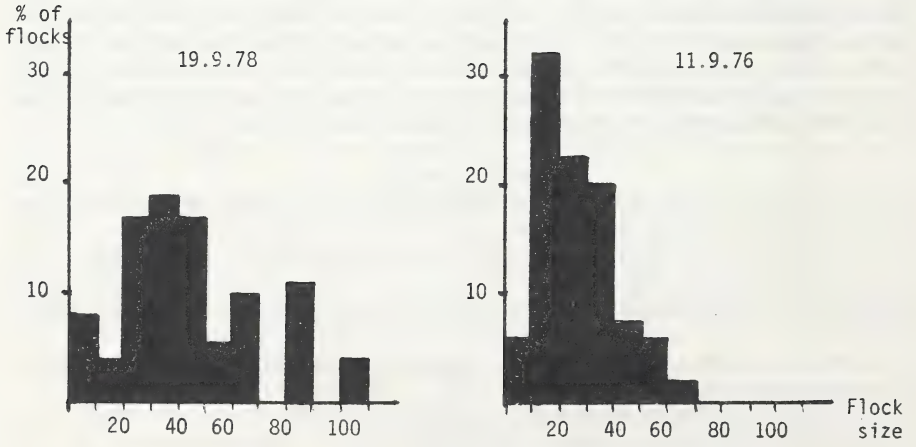

Figure 2 Flock size distribution of Little Bitterns.

ADDENDA and CORRIGENDA

A Check-list of the Birds of the Arabian Gulf States by Graham Bundy & Effie Warr. 1980. *Sandgrouse 1*: 4-49.

p. 6 line 9: *amend* '1941' to '1914'.

p. 33: *Add* after *Hippolais olivetorum*

Hippolais icterina Icterine Warbler (PM)

In Kuwait very scarce; single birds or twos mid Apr. to early May, three records Sep., one Oct. In E.Prov. one Apr. 1975 at Dhahran. In Bahrain two individuals Apr. and May. No confirmed records Qatar or U.A.E.

p. 49: *References to read:-*

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Breeding Birds in Central Arabia by M. C. Jennings. 1980. *Sandgrouse 1*: 71-81.

p. 75: *Galerida cristata* Crested Lark: *Delete* last sentence.

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