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February / février 2010

THE BIRDS OF THE OUADI RIME - OUADI ACHIM FAUNAL RESERVE
A CONTRIBUTION TO THE STUDY OF THE CHADIAN AVIFAUNA

by John E. Newby

(*Continued from Vol. 1 p. 109*)

QUAIL-PLOVER *Ortyxelos meiffrenii* Information about the Quail-Plover is hard to come by due to its diminutive size and secretive habits, but it seems to be widespread at least as far north as 16°N. Its favourite habitat is undoubtedly the rich sub-saharan pasture up of several *Aristida* grasses, *A. funiculata, A. mutabilis* and especially, *A. papposa*. The bird's special association with this latter is indicated by its colloquial arabic name *a'bun bai-at*, literally the "father of *Aristida papposa*". I have yet to see the supposed association, mentioned by Bannerman (1953), between the Quail-Plover and the grass *Cenchrus biflora* (*catharcticus*), which may however occur further south.

The behaviour of a bird flushed in January 1974 indicated that it had a nest in the vicinity. A careful search revealed nothing but I imagine that Praed & Grant's (1970) cool-season breeding data from the Sudan apply to Chad also. Morel (pers. comm.) has found nesting in Senegal also during October and January.

BUTTON-QUAIL *Turnix sylvatica* Not recorded by Salvan (1967-69) or Vielliard (1972). I have seen Button-Quails a dozen times, but do not yet have a specimen as definite proof.

My observations suggest that it is a wet-season visitor to the southernmost part of the reserve, preferring tall, grass-covered dunes, with *Cenchrus biflora* and *Brachiaria deflexa* predominating.

ROCK PIGEON *Columbia livia targia* This bird can be seen all year around Eléla and Goummeur (16°45'N). Although apparently resident, prolonged searches have failed to produce any sign of breeding.

TURTLE DOVE *Streptopelia turtur turtur* A regular passage migrant across the reserve, evidently not overwintering here. First arrivals are in late September and the peak arrival period is mid October to mid November. I believe that a far greater number pass over the western half of the reserve than the eastern.

VINACEOUS DOVE *Streptopelia vinacea* Within the reserve, which is typical of and indeed takes up most of central Chad, the Vinaceous Dove can be seen only outside the southernmost wadi (Rimé) during the

wet season, no further north than 15°N (*cf.* Praed & Grant 1970).

NIGER MOURNING DOVE *Streptopelia decipiens shelleyi* The commonest dove. Its northern limit is the smaller receptive wadis lying north of wadis Achim and Sofaya, but in the wet season it penetrates desert country. Peaks of breeding occur both before and after the wet season, and my records corroborate those of Morel (1962) from the Senegal valley. During the latter part of the wet season flocks of 1000+ drink at the pools west of Arada every morning and evening. The diet is large and medium-sized grains, with cultivated cereals forming the bulk.

ROSY-GREY DOVE *Streptopelia r. roseogrisea* Not common, although more common than the Vinaceous Dove. Resident south of 15°N; it extends to 16°N in August and September. It is commonest around human habitation and millet fields.

LAUGHING DOVE *Streptopelia s. senegalensis* Mainly a wet season visitor, breeding south of 15°N from August to October. Eats small grass seeds.

LONG-TAILED DOVE *Oena capensis* Almost as ubiquitous as the Mourning Dove. At the northern edge of its range, along the wadis Achim, Sofaya and Tefi Basal, it is confined to the most wooded parts. While water remains available its morning and evening flights to drink are impressive. It also drinks during the hottest hours of the day. Where available, cereal grains form the bulk of the dove's diet although elsewhere small grass grains such as *Panicum laetum* and *Eragrostis pilosa* are probably the mainstay.

Morel (1962) found the Long-tailed Dove breeding throughout the year, but my observations point to a peak in the late wet season, from September to December.

GREATER SPOTTED CUCKOO *Clamator glandarius* The most audible and probably the commonest cuckoo. Earliest arrivals are in late July; they depart in late September and early October. The northern limit the wadis Achim and Sofaya in the east and the Depression of Dumbour, somewhat further south, in the west.

BLACK AND WHITE CUCKOO *Clamator jacobinus pica* A scarce but regular wet season visitor to the southern half of the reserve. I have yet to record one north of the O. Haddat. Earliest: 7 August 1974.

COMMON CUCKOO *Cuculus canorus* The African *C. c. gularis* arrives in late July and early August. I am certain that 20-30 birds seen moving southwards in the Kossoma Trama (16°30'N) on 21 September 1976

were the Palaearctic *C. c. canorus*.

AFRICAN BARN OWL *Tyto alba affinis* The commonest owl south of 16°N. Hollow trees, especially *Acacia albida*, *Maerua crassifolia* and *Capparis decidua*, are favoured for nesting, which is in the cooler months. I conclude from pellet examination that the favourite food is small rodents. Bird remains make up about 5% of pellet contents, and insects (especially scarabaeid beetles) another 5%.

SCOPS OWL *Otus scops* Reasonably common in the northern half of the reserve in winter. Particularly fond of open, sparsely-wooded steppe-land, roosting in the thinly-wooded inter-dunal depressions. An area of that type between the Ragabta Matari and the wadi Kelib produced 24 different owls in 16 wooded depressions and included a group of five roosting side by side in a low *Acacia raddiana* tree. The absence of this species, other than during the winter, points to it being of the Palaearctic race, *O. s. scops*, although confirmatory specimens are required.

WHITE-FACED SCOPS OWL *Otus l. leucotis* Less common but more wide-spread than the Barn Owl. Its limit is north of 16°N and it inhabits wooded depressions between the wadis Hawach and Oum Hadger. Its diet is like the Barn Owls', small rodent remains being abundant in pellets. I once watched one catching many of the beautiful "eyed" moth *Epiphora bauhiniae* on an August evening.

DESERT EAGLE-OWL *Bubo bubo ascalaphus* As I have remarked elsewhere (Newby 1977), the Desert Eagle-Owl has benefitted from the effects of desertification of sub-desert habitats. Its range has expanded over the last seven years and is in places now 100 km beyond its 1971 limit. The number of annual observations has also increased markedly: one in 1971, one in 1972, six in 1973, 11 in 1974, 11 in 1975 and 18 in 1976. Apart from the increase in available habitat, an enormous augmentation in the small rodent population between 1973 and 1975 has favoured the expansion of desert-living, rodent predators like this and the Fennec, *Fennecus zerda*. With the expansion from the Eagle-Owl's traditional saharan massif habitats into open semi-desert terrain, it has taken to nesting in hollow trees. One such nest found in the Tefi Basal in an ancient and partly hollow *Maerua crassifolia* tree on 17 January 1976 contained two eggs.

AFRICAN EAGLE-OWL *Bubo africanus cinerascens* Its northern limits are along the wadis Haddat and Lidey. This owl benefits from the hundreds of used and disused burrows of Aardvarks *Orycteropus afer* in which to shelter from the midday sun; a burrow in the wadi Haddat produced two Dorcas Gazelles, a monitor lizard and an African Eagle-Owl!

LONG-TAILED NIGHTJAR *Caprimulgus c. climacurus* Locally migratory, the small resident population being augmented during the wet season by birds from the south. The nightjar is then extremely common along the northern wadis and its unmistakable churring and twanging sounds typify August evenings. Breeding takes place in the rains; the nests are hard to find.

STANDARD-WINGED NIGHTJAR *Macrodipteryx longipennis* A wet season visitor to the southern wadis of the reserve only. Much less common than the Long-tailed Nightjar. I have not yet found *Caprimulgus aegyptius, C. eximius* or *C. inornatus* in the reserve but they are highly likely to occur.

COMMON SWIFT *Apus apus* Occurs transiently during its post-putial migration in September. Salvan (1967-69) recorded *Apus a. pekinensis* in Chad, of Asio-indian origin.

PALLID SWIFT *Apus pallidus* The Pallid Swift appears *from the north* in early July. I am sure that it is not present all year, nor breeds within the reserve, although Gillet has found it breeding in the Ennedi. Most have disappeared by October/November although a few remain until January.

LITTLE AFRICAN SWIFT *Apus a. affinis* Common. The absence of rocks or cliffs means that it is restricted to permanent human habitation for nesting sites. Arada and Oum Chalouba are its most northern stations; 200-300 pairs nest in the old school buildings at Arada. Out of the breeding season the nests are used for roosting, mainly in autumn.

PALM SWIFT *Cypsiurus p. parvus* Apart from vagrants from Biltine to the Ganatir area, Haraz Djombo is the only station in the reserve where Palm Swifts can be seen regularly. Here a small colony breeds in the Borassus Palms *Borassus flabellifer.*

BLUE-NAPED MOUSEBIRD *Colius m. macrourus* Common in the larger wadis. A mobile bird, rarely staying long in one place. Its diet consists mainly of the berries of *Grewia villosa, Salvadora persica, Capparis decidua* and the young fruits of the Desert Date *Balanites aegyptiaca.* Around settlements, it is inordinately fond of the yellow berries of the *neem* or Chinaberry Tree *Azadirachta indica* and flocks in excess of fifty birds can be seen.

PYGMY KINGFISHER *Ceyx p. picta* Every year one or two pairs can be found along the wadis Enne and Zornam in the wet season. Earliest: 29 June 1977.

WOODLAND KINGFISHER *Halcyon senegalensis* A little commoner than the Grey-headed Kingfisher, at least at the northern limits of its range (wadi Achim). Both species nest beside the large wet season pools. In 1977 Abou Hadger had at least five pairs of Woodland and two of Grey-headed Kingfisher breeding.

GREY-HEADED KINGFISHER *Halcyon l. leucocephala* A wet season visitor. It breeds regularly as far north as the wadi Kharma, where a pair nest every year on the Rahad Lidey, in the rotted trunk of a long-dead but still-standing *Acacia nilotica* tree.

EUROPEAN BEE-EATER *Merops apiaster* Three records, two groups of about fifteen flying north over Arada on their pre-nuptial migration, and seven hawking over the Rahad al-Afee in September 1975.

LITTLE GREEN BEE-EATER *Merops orientalis viridissimus* A sparse but widespread resident population seems to be augmented during the wet season by birds that have already bred further south. The resident population nests in sandy, argillaceous wadi banks during the mid to latter part of the hot season.

WHITE-THROATED BEE-EATER *Merops albicollis* Arrival dates at Arada in 1972-1977 were 16, 24, 11, 18, 17 and 26 May. They frequent the few early wet season water-holes until July, when they begin to move into their breeding grounds: areas of open, sandy and sparsely-wooded steppe. Such areas around the wadis Ouayley and Kelib attract hundreds of pairs each year. Most have departed by early October.

CARMINE BEE-EATER *Merops n. nubicus* One in Ouadi Enne on 15 July 1974.

ABYSSINIAN ROLLER *Coracias abyssinica* Represented by a resident population restricted to the more wooded dunes and wadis, and by a large number of partial migrants during the wet season. Its northern limits are the wadis Achim, Oum Chalouba and Sofaya. Breeding takes place in the wet season and noisy parties of young and adult birds can be seen during September and early October, before the migrant birds depart.

HOOPOE *Upupa epops* Both the Palaearctic and African races *epops* and *senegalensis* occur, the former being considerably more common. *U. e. senegalensis* is for the most part a partial migrant although some may be sedentary in the southern. A pair were seen feeding young at a nest in August.

U. e. epops start to arrive in August with the bulk migrating in September and October. A few seem to over-winter, favouring the

wooded steppe south of the Ouadi Haddat. Spring migration is apparent and between 11 and 13 April 1977 about 300 Hoopoes were seen moving northwards at Arada.

GREEN WOOD-HOOPOE *Phoeniculus purpureus guineensis* Represented both by a small resident population and a larger population of wet season immigrants. During the wetter months, there is a northward shift in its range, although it remains restricted to better wooded areas.

It nests in the wet season and its tree hole nest is fairly easy to locate. Both young and adults, at least during the breeding season, have a very musty smell.

BLACK WOOD-HOOPOE *Phoeniculus a. aterrimus* Rare; with any regularity only in the southernmost wadis.

GREY HORNBILL *Tockus n. nasutus* A widespread and common visitor in the wetter months, appearing first in July, with most arriving in early August. Diurnal migration is obvious and generally on a broad front. The birds usually move during the early or late afternoon, and especially before storms. Over 250 hornbills passed over Arada on 4 August 1977, half-an-hour before a violent storm hit the village from the south.

It breeds in the wet season, nesting in rotten tree trunks. The same site seems to be used year after year, although I cannot say whether by the same pair. During the post-nuptial migration, the hornbills often concentrate for a few days in large numbers in areas of good feeding. The stands of *Cordia sinensis*, south of Arada, is such an area, the bushes' abundant orange fruits much much sought after.

RED-BILLED HORNBILL *Tockus e. erythrorhynchus* A characteristic bird of the more wooded habitats. Its northern limit is formed by the wadis Tefi Basal, Achim, Sofaya and Babanoosa. It seems to be fairly sedentary. Praying Mantises are a favourite prey, especially for feeding the young at the nest.

GROUND HORNBILL *Bucorvus abyssinicus* Occurs only in the wet season, no further north than the wadi Haddat. It is nowhere common and is rarely seen in spite of its impressive size.

WEST AFRICAN BARBET *Lybius vieilloti rubescens* Common in the wooded areas south of 16°N. Within a small home-range it is quite mobile. A bird ringed on 28 October 1978 was retrapped nine days later in the same wadi but 8 km away. Ten days later, it was retrapped again at the original site.

Nesting is in the rainy season and family parties of five to six are common in the cool season, when a family party roosts in the nest hole.

The barbet is frugivorous; fruits of the jujube *Ziziphus mauritinia* and *Cordia sinensis* are favourites. During the wet season, the pulpy red fruits of the soft gourd *Coccinea grandis* are readily eaten.

YELLOW-FRONTED TINKER-BIRD *Pogoniulus c. chrysoconus* Has the same habitat as the previous species but is not as common.

PEARL-SPOTTED OR YELLOW-BREASTED BARBET *Trachyphonus m. margaritus* Quite common in better wooded habitats, and slightly more common than the other barbets at the northern limits of their range. Two or three pairs breed regularly every wet season in the extensive area of dead trees at the rahads Lidey and Morfazzy.

LITTLE GREY WOODPECKER *Dendropicos elachus* By far the commonest woodpecker, found in all the major wadi systems but seldom abundantly. In the southern part of the reserve it also inhabits open wooded steppe, favouring the stands of dead and dying *Acacia senegal* and *Balintes aegyptiaca*. It appears to be a late wet season breeder. A pair at Abou Hadger were feeding young on 9 October.

GREY WOODPECKER *Mesopicos goertae koenigi* Restricted to the southernmost wadis, with its northern limit probably at the Ouadi Haddat. Nowhere common.

RUSTY BUSH-LARK *Miafra rufa rufa* Fairly common only in the south-eastern quarter of the reserve. I have yet to record it north of 15°N. A nest found on 21 September 1974 at Ganatir contained one half-grown nestling.

HOOPOE-LARK *Alaemon a. alaudipes* A characteristic species of the sub-desert steppe, preferring open sandy areas. Over the last five years it has undergone a considerable extension of its range thanks to creeping desertification. In some parts it extends south to 15°N, 100 km south of its limits some years ago. The Hoopoe-Lark eats arthropods, taking a large number of grasshoppers, young locusts and, especially, ants.

A nest with two eggs, found on 28 August in a clump of the tussock-grass *Panicum turgidum*, almost certainly belonged to this species although no bird visited during my watch.

BLACK-TAILED SAND-LARK *Ammomanes cincturus arenicolor* Only recorded

in one region, the desolate lava-strewn area of the Mortcha, between Oum Chalouba and the Ouadi Sofaya. I have no breeding record.

DAMERGU SAND-LARK *Ammomanes deserti erythrochorus* Probably the commonest lark north of 16°N. It is widespread and especially common in the sandy depressions to the north and west of the Tefi Basal and in the region of Goz Burka.

WHITE-FRONTED FINCH-LARK *Eremopterix nigriceps albifrons* Characteristic of the north sahelian sub-desert steppe ecotone. It especially favours the flat sandy terrain bordering the northern wadis and is rarely found in any number deep into open steppe. It undertakes a small partial migration northwards during the wet season. This species' nest is often concealed amongst clumps of *Aristida funiculata* or in the pure pastures of *Dactyloctenium aegyptium* bordering the wadi habitat. Breeding takes place during the wet season.

CHESTNUT-BACKED FINCH-LARK *Eremopterix leucotis melanocephala* The northern limit is along the wadi Haddat in the dry season and the wadi Kharma in the wet. Its distribution intergrades with that of the previous species. In spite of its relative commonness, I have no definite breeding records for it.

SHORT-TOED LARK *Calandrella brachydactyla* An extremely common passage migrant in spring and autumn. A small number over-winters within the reserve. In autumn and winter it favours the muddy, marginal flood plains of the major wadis.

CRESTED LARK *Galerida cristata* One of the commonest of the sahelian larks, breeding during the hottest months of the year. The nest is usually concealed in or at the base of a tussock of grass.

SAND MARTIN *Riparia r. riparia* The Sand Martin occurs briefly during its spring and autumn migrations. As with most of the migrants, the autumnal or post-nuptial migration is much more obvious. This is especially so with the hirundines, attracted as they are to watery habitats.

EUROPEAN SWALLOW *Hirundo r. rustica* Passage migrant, often seen in desert areas, hunting insects or drinking at temporary water flacks. Earliest: 28 August 1977 (but most between mid September and mid October). Pre-nuptial migration: a large passage over Derbe, 7-9 April 1975.

ETHIOPIAN SWALLOW *Hirundo a. aethiopica* The only hirundine to nest within the reserve. Closely associated with the few areas of

permanent human settlement, where it nests in eaves and on roof-rafters. At Arada, breeding takes place in the wet and early cool season (July-November).

RED-RUMPED SWALLOW *Hirundo daurica rufula* This Palaearctic swallow is a regular visitor, at least on autumn migration, mostly singles or pairs.

HOUSE MARTIN *Delichon u. urbica* House Martins cross the reserve on spring and autumn migration. It seems somewhat less common than the other hirundines, but the rapidity of all their passages makes comparison difficult.

YELLOW WAGTAIL *Motacilla flava* An abundant passage migrant, particularly obvious during its post-nuptial migration, frequenting wetter places, gardens and areas of agriculture. A few overwinter where conditions permit: among late, cool season crops of millet and sorghum that are not harvested until February or March and so stay verdant until the birds' return migration. This was the case at Arada during the winter of 1977/78; the cereal fields harboured a great number of overwintering migrants including a considerable number of wagtails.

At Arada, *M. f. thunbergi* is by far the commonest race in the early stages of the migration. Some *M. f. flava* are also present but do not predominate until September. Later in that month, *M. f. feldegg* starts to appear and by late October forms about 80% of the wagtails present. It is these Balkan birds which overwintered at Arada during 1977/78.

PIED WAGTAIL *Motacilla a. alba* A very common visitor to the reserve, overwintering in large numbers between the 13th and 16th parallels. It arrives some 15-20 days later than the Yellow Wagtail, towards the end of September. It is especially fond of well-sites and nomadic settlements, finding both water and an abundance of insects. At Arada, large numbers roost in the ornamental *neem* trees.

RICHARD'S PIPIT *Anthus novaesseelandiae* Seven mist-netted at the Rahad Hammoda on 27-29 September 1976 had the characteristics (plumage; wing, bill and hind claw measurements) of the Palaearctic *A. n. richardi*. That race differs considerably from the local *A. n. lynesi*, which I have not yet recorded from the reserve although Salvan observed it further south.

TREE PIPIT *Anthus t. trivialis* Tree Pipits pass briefly through the reserve, mostly in early October, but do not overwinter.

RED-THROATED PIPIT *Anthus cervinus* Contrary to Salvan's observation that it is "peu commun", I have found it common and extremely so in some habitats. It arrives at about the same time as the Yellow Wagtail and frequents much the same habitats. It is especially fond of cereal fields and overwinters among crops. Most pipits move southward as pools and fields dry up. It does not overwinter north of the wadi Haddat.

BLACK-CROWNED TCHAGRA *Tchagra senegala notha* Although restricted to the woodiest habitats, this bush-shrike is reasonably common along the major wadis as far north as the wadi Kharma and probably, the wadi Achim. It is a wet season breeder, the nest not very substantial but well concealed.

YELLOW-BILLED SHRIKE *Corvinella corvina togoensis* A very erratic wet season visitor. Only in 1975 was it at all common and could then be seen as far north as the wadi Achim. Its incursions into north-sahelian and sub-desert habitats seem unrelated with the amount and distribution of rainfall. Within these habitats it seems to be getting rarer because of the southward advance of arid environments.

RED-BACKED SHRIKE *Lanius c. collurio* A common passage migrant in the eastern half of the reserve; further west it is very rare. The main passage takes place in early October. Despite seemingly suitable habitat, the shrike neither overwinters nor stays long in any one place during its migration.

WHITE-RUMPED SHRIKE *Lanius excubitor leucopygos* A resident widespread in wooded steppe, as far north as 16°N. Particularly common in the western part of the reserve, where the numerous wooded depressions and the rough, open grassland suit it admirably. Breeding is in the wet season, from July to early October; according to Salvan somewhat later than birds further south. The nest is invariably built in a low *Balanites* or *Acacia* tree.

WOODCHAT SHRIKE *Lanius s. senator* Overwinters in small numbers, arriving somewhat later than the other Palaearctic shrikes, about late October and early November.

MASKED SHRIKE *Lanius nubicus* A regular passage migrant, and the most numerous over-wintering shrike in the reserve. The first birds, arriving in late September and early October, have worn plumage. Earliest: 28 September (1977), latest: 29 March (1978).

GOLDEN ORIOLE *Oriolus o. oriolus* A regular but transient passage migrant. In the eastern half of the reserve my observation is that young of the year are at least ten times as common as adults.

Earliest date: 10 September (1975); most arrive between 20 September and 15 October.

BLUE-EARED GLOSSY-STARLING *Lamprotornis c. chalybaeus* Resident, varying considerably from year to year in abundance - evidently coupled with the distribution of rainfall rather than its amount. A general northward shift of the population occurs during the wet season, when the northern limit lies about the wadis Achim and Sofaya. The starling breeds during the wet season on the wooded steppe, building in fairly short thorn trees, usually in cavities.

LONG-TAILED GLOSSY-STARLING *Lamprotornis c. caudatus* Found during the wet season as far north as the wadis Kharma and Achim. At other times its limit lies along the reserve's southern wadis, where it is resident. I also have records for every month at Lidey, where there appears to be a small sedentary group. Several pairs nest each year there in rotted tree trunks bordering a temporary pool and I saw a pair were feeding young at the nest during August 1975.

CHESTNUT-BELLIED GLOSSY-STARLING *Spreo pulcher* The reserve's commonest starling; although resident north as far as 16°N it is commonest south of 15°. It inhabits the same wooded steppe as other starlings, and also more arid country. Breeding is generally during the early wet season, with some in May, and the nest is invariably built in small thorn trees. The bird is omnivorous and feeds a great deal on the ground. It seems very fond of the orange berries of the bush *Cordia sinensis* and also of the pulpy *neem* fruits.

YELLOW-BILLED OXPECKER *Buphagus a. africanus* The Oxpecker's distribution and abundance corresponds with that of domestic cattle. It is a resident, but during the dry season very scarce and restricted to the south, notably around the nomadic settlements of Sherchreti and Zerumpty. With the influx of nomads and their herds of cattle during the wet season, the bird becomes much more common. Even though cattle herds do go further north, the Oxpecker seems to restrict itself to the herds that spend the summer on and around the wadi Haddat.

GLOSSY-BACKED DRONGO *Dicrurus adsimilis divaricatus* A regular but uncommon wet season visitor to the reserve's southernmost wadis. I feel certain that despite its rarity, it nests during its stay. On 15 October 1977 I mist-netted a young bird at Bir Salaam.

PIED CROW *Corvus albus* The Pied Crow's distribution is restricted, mainly to the south and east of the reserve. It does penetrate desert country during the rains but its largest concentration seem centred around the few permanent human settlements. During the dry season as many as a thousand crows occur at Arada, awaiting the opportunity to

drink from water-spills around the village's numerous wells.

The Pied Crow breeds in the late dry season and the early wet season. Very few nest within the reserve itself, preferring the more rocky and dissected terrain to the east and south.

BROWN-NECKED RAVEN *Corvus r. ruficollis* While the Pied Crow is restricted mainly to the south and east, the Brown-necked Raven is commoner over the more arid northern and western quarters of the reserve. It is a bird of the open steppe and dune country, but being more adaptable than the Pied Crow can be encountered in ones and twos almost anywhere. I have yet to record its breeding. (The Fan-tailed Raven *C. rhipidurus* already recorded from the east by Salvan, is almost certain to occur from time to time on the reserve's eastern border.)

COMMON BULBUL *Pycnonotus barbatus arsinoe* Represented by a resident population and by more numerous wet season visitors. The residents are restricted to the wadi habitat, as far north as the wadis Haddat and Fama. In the rains there is an influx of partial migrants from the south and a general shift northward of the whole population. Breeding takes place at this time and family parties can be seen during October.

WHINCHAT *Saxicola rubetra* A rare but regular passage migrant; my earliest record was on the wadi Achim on 18 September (1973).

WHITE-RUMPED BLACK-CHAT *Oenanthe l. leucopyga* This chat is restricted to the more gravelly areas to the north and east of the Tefi Basal and wadi Achim. It is reasonably common between the lava-strewn country around Elela and the depressions of Bir Nassara (Yogoum).

BLACK-EARED WHEATEAR *Oenanthe hispanica melanoleuca* Common from October to March, and at Arada as common as the Common Wheatear and about twice as numerous as the Isabelline Wheatear.

DESERT WHEATEAR *Oenanthe deserti deserti* This chat inhabits the sandy areas north of a line running from Korotoro to Elela. The only place where I have found it with any regularity is the area of depressions lying to the north of the Kossoma Trama.

COMMON WHEATEAR *Oenanthe oe. oenanthe* A very common passage migrant from 15 September onwards, overwintering within the reserve's confines, and more common in the west than elsewhere.

ISABELLINE WHEATEAR *Oenanthe isabellina* This palaearctic migrant,

arriving during October and November, overwinters within the reserve. It is rare west of 19°E and I have seen it only twice. 30-40 are seen each year in the vicinity of Arada.

RED-BREASTED CHAT *Oenanthe bottae heuglini* Resident. It seems to be strictly sedentary, and is fairly widespread as far north as the wadi Kharma. Two or three pairs reside on the inundation zone of this wadi, inhabiting the extensive area of stubble from the sorghum fields.

BLACK-TAILED ROCK-CHAT *Cercomela melanura airensis* Only three records, all from north of Mortcha and Elela.

RED-TAILED ROCK-CHAT *Cercomela scotocerca furensis* Once, at Mougran on 12 December 1974, almost certainly a vagrant from the east, where I have found it fairly common.

ANT-CHAT *Myrmecocichla a. aethiops* Not at all widespread, but restricted to the area of dunes and wadi lying between the Ouadi Zornam and the Ouadi Djedit. Two young birds were mist-netted on 5 October 1977, pointing to a wet season breeding period.

ROCK-THRUSH *Monticola saxatilis* The Rock-Thrush crosses the reserve strictly as a passage migrant. It overwinters further east and south, in the highlands of the Kapka, Ouaddai and Ennedi massifs. Earliest observation: 14 October (1974).

BLUE ROCK-THRUSH *Monticola s. solitaria* This bird also passes through the reserve during late September and October and overwinters on higher terrain. Both rock-thrushes seem commoner in the eastern part of the reserve, but that is probably due to the concentration of flight paths on the rocky terrain of the western rim of the Chad Basin and the sudanese Darfur.

REDSTART *Phoenicurus p. phoenicurus* A common passage migrant, overwintering in the more wooded habitats south of 15°N. Birds start to arrive in mid September, the bulk appearing in the first and second weeks of October.

BLACK SCRUB-ROBIN *Cercotrichas p. podobe* The Black Scrub-Robin is a characteristic species of the north sahelian and sub-desert wadi habitat. It appears to be strictly sedentary, and in good habitat territories seem continuous with one another. Its northern limit is the wadis Achim and Sofaya, although I have seen it on the Ouadi Oum Hadger but consider its presence here more of an eastwards extension of its range along the favourable wadi habitat. (That applies to

other species too, for example Clapperton's Francolin, West African Barbet and the Little Grey Woodpecker.)

The scrub-robin breeds during the wet season; Morel (pers. comm.) has recorded nests with eggs from March to July. The bird's nest is usually built in a thorn-thicket or in the mass of tangled shoots characteristic of the leafless *Capparis decidua*. 2-4 eggs are laid and the young are flying in October. It takes a variety of insect food, either on the ground, where the bird spends much of its time rooting about among fallen leaves, or in low thickets.

RUFOUS SCRUB-ROBIN *Cercotrichas galactotes minor* It is restricted to the same sort of habitats as the Black Scrub-Robin, but is rarer, within the reserve less widespread, and limited to the north by the wadis Haddat and Fama.

NIGHTINGALE *Luscinia megarhynchos* A fairly erratic passage migrant. In 1974 and 1975 it was very common during its post-nuptial migration; in 1976 it was scarce and in 1977 I did not record any. Earliest: 19 September (1975); latest: 27 March (1973).

BLUETHROAT *Luscinia svecica* Both the White-spotted race *L. s. cyanecula* and the Red-spotted race *L. s. svecica* occur. The former is by far the most frequent, although neither can be considered common and seems to have its southern limit along the wadi Haddat. The white-spotted race is limited somewhat further north, along the wadis Kharma and Fama. My records point to an earlier arrival date for the White-spotted race, some time in October, while the Red-spotted Bluethroat turns up during November and early December. Its wintering range seems to be moving further southwards, due to the effects of increasing aridity on the habitat.

SUDAN BROWN BABBLER *Turdoides p. plebejus* I have recorded it from most of the southern wadis, and suspect that its limit north will be in the region of the wadi Haddat. I have no breeding records, but expect that it does breed within the reserve.

BUCHANAN'S BUSH-SKULKER *Turdoides fulvus acaciae* This bird is characteristic of most of the wooded steppe habitat in the reserve. I have seen it as far north as the Ouadi Achim where it is closely associated with the dense wadi habitat. Breeding takes place during the wet season and a nest found on the Ouadi Eridibé on 4 August 1977 contained three eggs.

SEDGE WARBLER *Acrocephalus schoenobaenus* A common passage migrant seemingly with the most extended migration period of all the palaearctic passage migrants. I have recorded passages from August to December, and am certain that a small number of birds overwinter when conditions

allow.

REED WARBLER *Acrocephalus s. scirpaceus* An abundant passage migrant, overwintering in small numbers where conditions permit. The first birds arrive in late September, with the peak in October and early November. Return passage is heavy in March, especially the last ten days. At Arada hundreds passed between 21 and 26 March, 1977. I mist-netted a Reed Warbler on 2 June 1977; it was heavy with fat (see Fry 1970) and its plumage was ragged.

OLIVACEOUS WARBLER *Hippolais pallida* A common and regular passage migrant through September and October. It appears not to overwinter within the reserve, although it does so in the sudano-sahelian zone further south. Salvan recorded *H. p. pallida* and *H. p. opaca*, and I have mist-netted a typical example of *H. p. elaeica* of south-east European origin.

ICTERINE WARBLER *Hippolais icterina* Another common passage migrant. It passes early in the autumn and by mid October has completely disappeared from the reserve.

BOOTED WARBLER *Hippolais caligata* I mist-netted a warbler at Arada on 31 October 1977, and after much careful examination I decided that it was of this species and in all probability of the race *H. c. rama* ("Sykes' Warbler"). This species breeds in south-west Asia, and overwinters on the Arabian Peninsula (Williamson 1976).

Considering the easterly and north-easterly winds prevalent in autumn and winter, it is perhaps not that surprising that such a vagrant should turn up from time to time. The Booted Warbler appears not to have been recorded previously in Africa (F. Roux, pers. comm.). Measurements were: wing 61 mm, beak 31 mm, tail 55 mm, weight 9.0 g.

ORPHEAN WARBLER *Sylvia hortensis hortensis* Orphean Warblers arrive in October, and are a fairly common overwintering species as far south at least as Ouadi Haddat.

GARDEN WARBLER *Sylvia borin* Fairly common passage migrant in September, disappearing shortly afterwards.

COMMON WHITETHROAT *Sylvia c. communis* A relatively early passage migrant, present until late in the year, with some perhaps overwintering.

LESSER WHITETHROAT *Sylvia c. curruca* An abundant passage migrant, overwintering in large numbers. The first birds arrive in mid

October, and most depart in March and early April. Besides the nominal race I have identified two birds typical of the sub-species *S. c. blythi*.

SUBALPINE WARBLER *Sylvia c. cantillans* A common passage migrant, numbers varying considerably from year to year. It overwinters in the more wooded habitats and is a common visitor to gardens and areas of human habitation.

RUPPELL'S WARBLER *Sylvia ruppelli* Somewhat more widespread and common than the Orphean Warbler, with which it shares the same habitats. Arriving in October, Ruppell's Warbler overwinters at least as far south as the O. Enne.

An indication of the relative status of *Sylvia* species in the reserve is, in sequence of decreasing abundance, Passage Migrants: *S. curruca, S. communis, S. cantillans, S. ruppelli, S. hortensis, S. borin*, Wintering Visitors: *S. curruca, S. ruppelli, S. cantillans, S. hortensis, ?S. communis*.

WILLOW WARBLER *Phylloscopus t. trochilus* Probably the most abundant of the warblers passing through the reserve, but it passes quickly and does not overwinter. In contrast with Salvan's findings, this species is not a late arriver, at least at these latitudes, and most of my observations (especially of large scale movements) fall within the period 15 September to 10 October. My records also show a very high percentage of young birds passing before the bulk of the adults (but the young may be merely more susceptible to capture).

CHIFFCHAFF *Phylloscopus c. collybita* In general Chiffchaffs arrive later than Willow Warblers. I observed a substantial passage at Arada between 24 and 30 December, 1977, although the bulk of the birds normally pass through in October and November. The Chiffchaff overwinters throughout the reserve.

BONELLI'S WARBLER *Phylloscopus bonelli orientalis* A passage migrant in September and early October. Passage is rapid, and it does not overwinter. It is the least common *Phylloscopus* warbler here.

WOOD WARBLER *Phylloscopus sibilatrix* Fairly common on both post- and pre-nuptial migration. It does not overwinter. Earliest observation: 10 September (1977); latest: 14 April (1976).

RED-PATE GRASS WARBLER *Cisticola r. ruficeps* Widespread in the southern half of the reserve and evidently considerably more common in the west, where there is an abundance of thinly wooded steppe.

DESERT CISTICOLA *Cisticola a. aridula* Commoner, at least in the east, than the previous species. Its names notwithstanding, its northern limits are in typical *sub*-desert country, between the wadis Haddat and Achim. I have no nest record, but a young bird was trapped in November, suggesting wet season breeding.

WEST AFRICAN PRINIA *Prinia clamans* The most desert-loving of the resident warblers. It is widespread north of the gozs Arian and Ketrai, being fairly common as far north as the 16th parallel. It seems to be a wet season breeder, although Morel (pers. comm.) reports nests from nearly every month of the year, with a peak in the wet and early cold seasons. The tiny nest is built in a thorn bush or even amongst the stems of the tussock-grass, *Panicum turgidum*. 2-3 eggs are laid.

GREY-BACKED CAMAROPTERA *Camaroptera brachyura brevicaudata* Typical of wadi habitats, including the northerly Ouadi Oum Hadger. Breeding takes place in the wet season and 2-4 eggs are laid in the small, dome-shaped nest.

SPOTTED FLYCATCHER *Muscicapa s. striata* A regular passage migrant, very common at times but rarely staying long. It does not overwinter at these latitudes. Earliest: 9 September (1975); latest: 4 May (1977).

PIED FLYCATCHER *Ficedula h. hypoleuca* A fairly common passage migrant, not wintering. The bulk of the passage takes place during the last few days of September and during the first half of October. A bird mist-netted at the Rahad Hamoda on 29 September 1976, was almost certainly of the race *F. h. semitorquata*.

WHITE-COLLARED FLYCATCHER *Ficedula a. albicollis* Very much rarer than the other Palaearctic flycatchers, being represented by only a couple of observations each year.

SUDAN PENDULINE TIT *Remiz punctifrons* Present in all the reserve's major wadis, including the more wooded parts of the wadi Sofaya, breeding during the wet season.

PYGMY LONG-TAILED SUNBIRD *Anthreptes p. platura* Fairly common in wooded steppe. North of the Ouadi Haddat, rarer and restricted to wadis.

BEAUTIFUL LONG-TAILED SUNBIRD *Nectarinia p. pulchella* Somewhat more widespread than *A. platura* and at least twenty times as common in most wadis. It is restricted to wooded country. Breeding takes

place during the wet season and the hanging nest is built in a variety of trees, often *Ziziphus mauritania* and *Acacia raddiana*. A close relationship exists with *Z. mauritania* the jujube tree, for the sunbird also feeds to great extent on the nectar of a parasite, *Tapinanthus globiferus*, that has the jujube as its principal host. In addition, the tree's aromatic flowers attract a variety of small insects that the bird also feeds upon. The bird's Arabic name "*terr al-annaba*" literally the bird of *Tapinanthus*. The sunbird also feeds on the nectar of acacious and other trees.

YELLOW-BELLIED BUNTING *Emberiza flaviventris flavigaster* Not very common and restricted to the south-east quarter of the reserve. A pair breeds nearly every wet season in an abandoned house in Arada.

ROCK BUNTING *Emberiza tahapisi goslingi* During the wet season, when it breeds, there is an influx of birds from south of the reserve, and Rock Buntings then turn up as far north as the Ouadi Haddat. At other seasons it is not common and is restricted to the southernmost wadis.

SAHARAN HOUSE BUNTING *Emberiza striolata sahari* Not very common; I have found it with any regularity only in the region between the Ouadi Sofaya and Elela, probably representing the limit of the Ennedi population. I doubt if it breeds within the reserve.

WHITE-RUMPED SERIN *Serinus leucopygius riggenbachi* Fairly common, but restricted to the areas of permanent settlement where cereal growing is undertaken, i.e. south Goz Arian, Subbou and Arada.

LITTLE WEAVER *Ploceus l. luteolus* Locally common but not widespread; very rare north of 15°N. It seems commonest in the south-western quarter of the reserve, where small colonies live in the wooded depressions of the Soulou and Getti. Further east it is restricted to places where crops are grown along wadi margins, in the wet and cold seasons.

VITELLINE MASKED WEAVER *Ploceus velatus vitellinus* The commonest and most widespread weaver, breeding in the wet season. Breeding colonies are usually restricted to two or three trees and occur north to the wadis Achim and Sofaya.

VILLAGE WEAVER *Ploceus c. cucullatus* Restricted to the southernmost wadis. I have not seen it north of the Ouadi Haddat. In small settlements with few trees, colonies are close to those of Abdim's Storks, Sacred Ibises and Cattle Egrets.

BLACK-FACED DIOCH *Quelea q. quelea* In spite of its abundance in

Chad's sudanian and sahelo-sudanian zones, this species is rare within the reserve. Occasionally, at the beginning of the wet season, birds arrive in small parties from the south: for instance several large flocks of up to 1500 birds visited the region of Derbe towards the end of July, 1972. The lack of crops and wild grass seeds in the early part of the wet season result in emigration from the Dioch's habitual range.

BUFFALO-WEAVER *Bubalornis a. albirostris* Fairly widespread in the reserve, breeding in trees by wadis and flood-pools. On the southern dunes like Goz Arian and Mahaba, it also nests in stands of *Acacia senegal* and *Balanites aegyptiaca* away from water. An important pest of millet and sorghum.

DESERT SPARROW *Passer simplex simplex* The range of this species does not seem to have been effected by the increase in desert habitat over the last decade. It is restricted to areas of permanent or semi-permanent habitation, and is quite common around Faya, Korotoro and several of the permanent well sites in the Djourab erg. I have no breeding records.

GREY-HEADED SPARROW *Passer g. griseus* Ubiquitous in all more wooded regions, usually breeding in the wet season, but I have also found clutches in the cold season. Some pairs may nest twice a year. Nests are built in a variety of places from holes in trees to thick bushes and around villages; swallow and swift nests are often appropriated for roosting and nesting.

GOLDEN SPARROW *Passer l. luteus* Abundant in wadis and the more regularly inundated wooded zones. It rarely penetrates open steppe country, and then only to feed on cultivated crops. Breeding is in the wet season in large, loose colonies on flooded ground. I have some evidence that adults and young birds separate, especially in roosts. As a crop pest the Golden Sparrow is to the sahelo-saharan zone what the 'mange-mil', *Quelea quelea*, is to the regions further south.

SCALY-FRONTED WEAVER *Sporopipes f. frontalis* This attractive weaver can be found as far north as the wadi Achim and oum Chalouba. It is restricted to the wadi habitat and lives in small groups of 10-20. Breeding takes place during the wetter months, and the clutch size at the bird's northern limit is usually only two.

NEUMANN'S COMBASSOU *Vidua chalybeata ultramarina* Strictly a wet season visitor, to the southernmost wadis. The Ouadi Haddat forms its northern limit but even there the bird is rare. I have recorded it breeding in August in the wadis Enne and Djedit.

BROAD-TAILED PARADISE WHYDAH *Vidua orientalis acupum* The whydah is another bird that is more or less restricted to wadis, where however it is common. Breeding takes place during the wet season.

CUT-THROAT WEAVER *Amadina f. fasciata* Another species restricted to the wadis and adjacent areas of millet culture. Lives in small flocks, nowhere particularly common. The bird breeds in the wet season and the wadi Haddat is its northern limit.

MELBA FINCH *Pytelia melba citerior* Another characteristic bird of the wadi habitat, widespread but nowhere particularly common. I have recorded breeding only in the wet season.

RED-CHEEKED CORDON-BLEU *Estrilda b. bengala* Found as far north as the wadis Achim, Kharma and Oum Chalouba, where it is not especially common and lives in small flocks of 10-15 birds.

SENEGAL FIRE-FINCH *Lagonostica s. senegala* Entirely restricted to the wadi habitat and the few gardens in the reserve's permanent settlements. More or less sedentary, even during the wet season. It is gregarious and forms communal roosts; during the hottest months it roosts also by day. Breeding is mainly in the wet season although some birds nest in the cooler months. Four eggs are usually laid.

WARBLING SILVERBILL *Lonchura malabarica cantans* Restricted to wadis and to millet crops. A little more common than the serin at their northern limits but patchily distributed. I have no nest records; Salvan reported it to breed during the cold season.

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SUMMARY

Previously little-studied, the avifauna of Central Chad is described in an annotated checklist of 267 species. The checklist, drawn up between 1971 and 1978, presents many observations of the resident, partial migrant and Palaearctic migrant bird populations of the Ouadi Rimé - Ouadi Achim Faunal Reserve. The reserve, 78000 km^2 in area, is representative of Chad's north-sahelian, sub-desert and desert habitats. Notes on the distribution, breeding biology, feeding habits and general ecology of species are given.

RESUME

Auparavant peu etudiés, les oiseaux du Tchad central, sont décrits dans une liste annotée de 267 espèces. La liste, etabliée entre 1971-78, présente bien des observations des oiseaux residents, migrateurs partiels et migrateurs palaearctiques se trouvants dans la Réserve de Faune de Ouadi Rimé - Ouadi Achim. La réserve, s'étendante sur 77.950 km^2, est representative des habitats nord-sahelien, sub-désertique et désertique au Tchad. Des notes sur la distribution, la biologie reproductrice, la nouriture et l'écologie générale des oiseaux sont présentées.

REFERENCES

FRY, C.H., ASH, J.S. & FERGUSON-LEES, I.J. (1970) Spring weights of some palaearctic migrants at Lake Chad. *Ibis* 112: 58-82

MALBRANT, R. (1937) (notes on Demoiselle Crane in Chad)

MALBRANT, R. (1952) Faune du Centre Africain Francais. Lechevalier, Paris

MOREL, G. & MOREL, M. (1962) La reproduction des oiseaux dans une région semi-aride: la vallée du Sénégal. *Alauda* 30: 161-203, 241-269

MOREL, G. & ROUX, F. (1966) Les migrateurs paléarctiques au Sénégal. *Terre et Vie* 113: 19-72, 143-176

MOREL, G. (1972) Liste commentée des oiseaux du Sénégal et de la Gambie. 139 pp. O.R.S.T.O.M., Dakar

NEWBY, J.E. (1974) The ecological resources of the Ouadi Rime - Ouadi Achim Faunal Reserve. Project CHD/004/69. F.A.O., Rome

NEWBY, J.E. (1977) I.U.C.N. Bull., New Ser. (8), 8/9. Morges, Switzerland

ROUX, F., MAHEO, R. & TAMISIER, A. (1978) L'exploitation de la basse vallée du Sénégal (quartier d'hiver tropicale) par trois espèces de canards paléarctiques et éthiopien. *Terre et Vie* 32: 387-416

SALVAN, J. (1967-69) Contribution à l'étude des oiseaux du Tchad. *Oiseaux et R.F.O.* 37(1967): 255-284, 38(1968): 53-85, 127-150, 249-273, 39(1969): 38-69

VIELLIARD, J. (1971-72) Données biogéographiques sur l'avifaune d'Afrique Centrale. *Alauda* 39: 277-248, 40:

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APPENDIX Gazetteer of place names mentioned in the text, with their co-ordinates.

Abou Hadger	15°00'N 20°39'E	Mougran	14°30'N 20°15'E
Abeché	13°50'N 20°50'E	Ouaddai	14°20'N 22°00'E
Am Dagasham	15°00'N 20°42'E	Ouadi Achim	15°50'N 19°45'E
Arada	15°01'N 20°39'E	O. Babanoosa	16°02'N 20°15'E
Bahr Salamat	10°00'N 19°40'E	O. Djedit	14°19'N 19°16'E
Biltine	14°31'N 20°55'E	O. Enne	13°30'N 20°30'E
Bir Haraz	15°52'N 19°34'E	O. Eridibi	15°00'N 20°37'E
B. Nassara	16°58'N 20°09'E	O. Fama	15°16'N 20°36'E
B. Panda	15°58'N 19°31'E	O. Haddat	14°32'N 19°53'E
B. Salaam	14°15'N 19°41'E	O. Hawach	16°30'N 20°00'E
Calla Id	14°36'N 19°48'E	O. Heméra	16°22'N 20°10'E
Doumbour Depression	14°50'N 18°10'E	O. Kelib	15°14'N 19°07'E
Derbé	14°47'N 19°24'E	O. Kharma	15°30'N 20°20'E
Djammous	14°33'N 19°29'E	O. Lidey	15°39'N 19°51'E
Djourab	16°40'N 19°00'E	O. Ouayley	15°29'N 19°47'E
Eléla	16°45'N 20°30'E	O. Oum Chalouba	15°42'N 20°25'E
Ennedi	17°50'N 22°50'E	O. Rimé	14°03'N 18°31'E
Erdi	19°00'N 22°50'E	O. Sofaya	15°55'N 20°30'E
Faya	17°55'N 19°10'E	O. Zornam	14°07'N 19°06'E
Ganatir	14°32'N 20°38'E	Oum Chalouba	15°48'N 20°07'E
Getti	14°30'N 20°38'E	Ragabta Matari	14°50'N 18°47'E
Goumeur	16°45'N 20°32'E	Rahad Abou Snett	15°10'N 20°40'E
Goz Arian	14°30'N 20°00'E	R. al-Afee	15°01'N 20°38'E
G. Burka	17°00'N 19°36'E	R. el-Doot	14°52'N 21°15'E
G. Kerky	14°50'N 18°30'E	R. Hamoda	14°38'N 19°30'E
G. Ketrai	14°30'N 19°10'E	R. Karnak	14°45'N 20°37'E
Haraz Djombo	13°52'N 19°55'E	R. Lidey	15°39'N 19°51'E
Kanem	14°40'N 17°00'E	R. Morfazzy	15°50'N 19°48'E
Kapka	15°10'N 21°50'E	R. Sara	15°01'N 20°39'E
Korotoro	16°05'N 19°29'E	Sherchreti	14°04'N 18°34'E
Kossoma Trama	17°05'N 19°50'E	Subbou	15°00'N 20°36'E
Lidey	15°39'N 19°50'E	Soulou	14°40'N 17°40'E
Maraoné	14°80'N 21°45'E	Tefi Basal	15°56'N 19°30'E
Mortcha	16°00'N 20°30'E	Tibesti	21°00'N 17°00'E