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## THE MACHRIS EXPEDITION TO TCHAD, AFRICA BIRDS

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DAVID K. CALDWELL

*Editor*



# THE MACHRIS EXPEDITION TO TCHAD, AFRICA

## BIRDS

By HERBERT FRIEDMANN<sup>1</sup>

ABSTRACT: A collection containing examples of 112 species and subspecies of birds, collected in various parts of the Republic of Tchad, is here listed and described. The data from this material, together with the information placed on record from earlier surveys by other authors, mentioned in the text, show that the resident avifauna of Tchad is purely Ethiopian in its composition and reveals no admixture, in its breeding species, of Palearctic elements. Even the high massif of the Ennedi Mountains in northeastern Tchad is purely African in its bird life, agreeing in this respect with that of Aïr to the west, and not with that of the Hoggar Mountains, farther to the northwest.

Mr. and Mrs. Maurice A. Machris sponsored and led a collecting expedition for the Los Angeles County Museum to the Republic of Tchad during the first two months of 1960. Dr. Charles A. McLaughlin, Curator of Mammals at the Museum, was in general charge of collecting, but as his time was devoted largely to mammals, the task of obtaining as many kinds of birds as possible was delegated to Mr. Stephen C. Bromley. The present report lists all bird specimens brought back to the Museum.

Inasmuch as the party was on the move much of the time, collecting had to be done under some difficulties. This, together with the fact that the entire field work lasted only a little over six weeks, precluded the possibility of a more complete coverage of the Tchad avifauna. However, in light of the numerous publications of fairly recent date on Tchad birds, it is possible to assess the data emanating from the present specimens and to make them useful as additions to our knowledge of the avifauna of the area of their origin. At the same time, because of the amount of published information, and also because of the lack of adequate comparative material available to me, I have reduced to a minimum my comments on the Machris specimens except where more detailed discussion seemed necessary. Unfortunately almost nothing in the way of field notes accompanied most of the specimens.

### ACKNOWLEDGMENTS

The thanks of the Museum go to Mr. and Mrs. Machris for this valuable and interesting collection, and to Mr. Bromley for his efforts in the field. For assistance in comparing a few specimens with the magnificent reference collections in the American Museum of Natural History, I am indebted to Dr. Charles Vaurie of that institution. For assistance to the expedition and for help in the matter of arranging for the necessary permits without which the collec-

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tion could not have been made, a word of thanks is due to Dr. Jean Delacour and Mr. François Edmond-Blanc. For assistance to Mr. Bromley in making some preliminary identification of his birds, I may express our appreciation to the authorities of the Museum du Histoire Naturelle, in Paris, and of the British Museum (Nat. Hist.) in London.

#### COLLECTING LOCALITIES

The descriptions of the various collecting localities are based on data from McLaughlin (1961) and Wake and Kluge (1961), but some additional information has been added from other sources, where needed. For easy, ready reference the localities are here given alphabetically, but their dates are given immediately following their description.

Abéché: a semi-desert area, dominated by scattered patches of short grass and thorny acacias; on a rolling plain at about 2000 feet elevation. February 13.

Abéché, 50 miles south: similar to above. February 14.

Fada: a town in the Ennedi Mountains. The surrounding area is pure sand; the vegetation consists of bunch grass and scattered low acacias; many limestone and volcanic outcroppings; water in small stream beds and in artificial ponds; elevation about 1800 feet. January 23-February 5.

Fada, 20 miles south. January 29-30.

Fada, 25 miles south. February 4.

Fada, 75 miles north. February 2.

Fada, 70 miles southeast. February 6.

Fort Archambault, 35 miles east: Guinean savanna, with tall grass interspersed with long lines of gallery forest and thick scrub; the grass is constantly burned by the natives to facilitate farming; altitude about 1300 feet. February 20.

Fort Archambault, 60 miles east. February 19-22.

Fort Archambault, 80 miles east. February 22.

Fort Lamy: on the bank of the Chari River; a semi-arid grassy area with numerous trees, the latter especially near the river.

Golongosso: on the Oubangi-Tchad border, in the savanna belt, characterized by more abundant grass and shrubs and scattered trees than in the semi-arid areas.

Goz Beïda, 50 miles south: essentially similar to the area around Abéché.

Goz Beïda, 50 miles north: February 15.

Goz Beïda, 30 miles north: February 16.

Koro Toro: a sand dune area about 350 miles northeast of Fort Lamy; the dunes are covered with fine bunch grass and melon vines; elevation about 700 feet. January 14-18.

Koro Toro, 100 miles south. January 13.

Koro Toro, 20 miles south. January 14.

Koro Toro, 75 miles east. January 21.

Koro Toro, 160 miles east. January 22.

Massakori: dry, sparse thorn bush country. January 10.



Oum Chalouba: semi-desert country with bunch grass as the dominant vegetation; numerous rocky outcrops; altitude about 1400 feet. February 7-10.

Oum Chalouba, 20 miles west. January 23.

Oum Chalouba, 80 miles south. February 11.

FAMILY STRUTHIONIDAE.      OSTRICHES.

*Struthio camelus camelus* LINNAEUS.      OSTRICH.

One male adult was taken 100 miles south of Koro Toro, January 13, 1960. The bird was in breeding condition. About 6 or 8 adult ostriches were noted, and also some young chicks, within a distance of about 10 miles.

FAMILY ANATIDAE.      DUCKS, GEESE AND SWANS.

*Anas capensis* GMELIN.      CAPE WIGEON.

A single, unsexed specimen. collected 75 miles north of Fada, February 2, 1960, was roughly prepared in the field but was found to be too grease-burned to be saved when examined at the Museum. The record may be taken as valid on the basis of this examination prior to its destruction.

*Anas querquedula* LINNAEUS.      GARGANEY.

An unsexed bird, probably a young female, was taken between Fada and Goz Beïda, in February, 1960. The entire underparts are extensively rust-stained.

*Sarkidiornis melanonotus* (PENNANT).      KNOB-BILLED GOOSE.

One male, 50 miles north of Goz Beïda, February 15, 1960, was prepared roughly as a salted skin, but proved to be unsalvagable later as a study skin.

*Plectropterus gambensis gambensis* (LINNAEUS).      SPUR-WINGED GOOSE.

Two male spur-winged geese were shot 50 miles north of Goz Beïda, on February 15, 1960, but only one was saved as a specimen.

FAMILY ACCIPITRIDAE.      HAWKS, EAGLES, KITES.

*Milvus migrans tenebrosus* GRANT AND MACKWORTH-PRAED.

AFRICAN BLACK KITE.

An adult male (with yellow bill) was taken 60 miles east of Fort Archambault, on February 22, 1960. It was in breeding condition.

*Cucuma vocifer clamans* (C. L. BREHM).      AFRICAN SEA EAGLE.

An adult male, in non-breeding condition, was collected 60 miles east of Fort Archambault, on February 20, 1960.

*Melierax metabates neumanni* HARTERT.      SAHARA CHANTING GOSHAWK.

An adult male chanting falcon, collected at Oum Chalouba, February 7, 1960, has the wings much vermiculated with white, agreeing with the charac-



ters of the race *neumanni*. It was not in breeding condition, but the testes were beginning to enlarge.

*Circus macrourus* (GMELIN).      BLACK HARRIER.

A subadult male of this European winter visitor to Tchad was collected 20 miles west of Oum Chalouba, on January 23.

*Trigonoceps occipitalis* (BURCHELL).      WHITE-HEADED VULTURE.

The head of one of these vultures, preserved in formalin, was brought back by the expedition. Neither the locality nor the date of capture were recorded.

*Neophron percnopterus percnopterus* (LINNAEUS).      EGYPTIAN VULTURE.

Bromley shot one of these vultures at Koro Toro on January 18. Only a few of the birds were seen there. Of the specimen shot, the head was preserved in formalin, and the rest was discarded.

*Necrosyrtes monachus monachus* (TEMMINCK).      HOODED VULTURE.

The head of one of these vultures was preserved in formalin for anatomical study. No entry was made in the field catalogue, and hence no locality or date may be assigned to this specimen.

FAMILY FALCONIDAE.      FALCONS.

*Falco tinnunculus tinnunculus* LINNAEUS.      EUROPEAN KESTREL.

Of this European race, wintering in Africa, two specimens were collected; a female, 20 miles south of Koro Toro, January 14, and one labeled "male," Oum Chalouba, February 7, 1960. The latter specimen is in female plumage and is probably wrongly sexed on the label. It is also somewhat darker, more richly colored than the first specimen, but is not as darkly rufescent as the next subspecies. Both birds were labeled as not in breeding condition.

*Falco tinnunculus rufescens* SWAINSON.      AFRICAN KESTREL.

A female, taken at Fada, February 5, had the ovary and oviduct enlarged, and was apparently a breeding bird.

FAMILY PHASIANIDAE.      QUAILS, PHEASANTS, ETC.

*Francolinus clappertoni* CHILDREN.      CLAPPERTON'S FRANCOLIN.

Two females of this francolin were obtained by the expedition, one at about 70 miles southeast of Fada, on February 6, and one on February 17 near Golongosso. The former specimen is of the nominate race, and is much paler than the southern example from near the Oubangi-Tchad border. The latter is, on geographic grounds and in its darker coloration, to be identified with the race *T. c. heuglini* Neumann. Bromley compared it with specimens of *heuglini* in Paris and found it to agree closely with them, but to have shorter toes and tarsi than any others examined.



The specimen of typical *clappertoni* is in very abraded plumage. Bromley compared it with birds from Fort Lamy and found it to be somewhat paler but this may have been due to its worn condition. The bird had a partially formed white egg in the oviduct.

*Ptilopachus petrosus brehmi* NEUMANN. KORDOFAN STONE-PARTRIDGE.

Three females of this stone-partridge were collected: one on February 14, 50 miles southeast of Abéché, and two on February 20 and 26, respectively, 60 miles east of Fort Archambault. The specimens, which were not in breeding condition, were compared with Darfur birds in the British Museum by Bromley, and were found to agree well with them.

Bannerman (1953:327) refers birds from the vicinity of Lake Chad to *butleri*, intermediate between that form and *petrosus*, and makes no mention of *brehmi*, but in this he is in error. Cave and Macdonald (1955:116) consider *brehmi* the race of Darfur southeast to Bahr-el-Ghazal.

*Coturnix coturnix coturnix* (LINNAEUS). COMMON QUAIL.

A male was collected on January 23, 20 miles west of Oum Chalouba. It had the testes somewhat enlarged, an early date for this condition in a European bird wintering in Tchad.

FAMILY RALLIDAE. RAILS, COOTS, GALLINULES.

*Gallinula chloropus brachyptera* (BREHM). COMMON GALLINULE.

A subadult male, collected at Fada, on January 28, has the small dimensions (wing 171.5; tail 69.7 mm.) of the resident African race of this species.

FAMILY OTIDIDAE. BUSTARDS.

*Ardeotis arabs stieberi* (NEUMANN). SUDAN PAAUW.

One adult male was collected 20 miles south of Koro Toro, on January 14. According to the collector's field book, the species was fairly common there.

*Neotis nuba* (CRETZSCHMAR). NUBIAN BUSTARD.

The Nubian bustard, a bird still rare in museums because it is seldom collected, is represented in the present collection by a male taken 160 miles east of Koro Toro on January 22.

Recently Vaurie (1961a:26) has described a western race of this bird under the name *N. n. agaze*, based on a single example collected at Taberghi, south of Agades, Niger Territory. The absence of comparative material makes it difficult to determine the affinities of our example with certainty, but in its dimensions it agrees with the nominate, eastern race *nuba* and not with *agaze*. It has the following measurements: wing 445 (Vaurie gives 418 for *agaze*, 425-455 for *nuba*); tail 240 (Vaurie gives 177 for *agaze*, 252-278 for *nuba*); tarsus 120 (Vaurie gives 114 for *agaze*, 119-122 mm., for *nuba*). As to the color char-



acters, it is not possible to make any definite statement without seeing actual specimens. However, it may be noted that among the alleged color characters of *agaze* is that it is, "... banded with blue-gray on the upper breast beneath the chestnut band, with a few feathers speckled slightly with pale brown, whereas this grey band is lacking in the specimen from Kordofan, the feathers in the latter beneath the chestnut band being barred or well speckled with darker brown. . . ." In our specimen the condition agrees with what Vaurie found in typical *nuba*, but the anterior portion of this "band" of vermiculated feathers, almost hidden by the chestnut band, has a bluish gray wash. It may be that this is a slight sign of intermediacy between the nominate form and *agaze*, but it is very slight.

Geographically the present Tchad bird is much closer to the type of *agaze* than were any of Vaurie's examples of *nuba*, and the fact that it does not agree with the description of the former suggests that either *agaze* has a restricted range, or that it still needs to be corroborated by additional material. Under the present circumstances it seems better to record our bird binomially.

The bird was not in breeding condition. The collector noted that the bustard was fairly common in the area.

FAMILY CHARADRIIDAE. PLOVERS.

*Xiphidiopterus albiceps* (GOULD). WHITE-HEADED PLOVER.

On February 20, a female in breeding condition was collected 35 miles east of Fort Archambault on the Chari River.

FAMILY BURHINIDAE. THICK-KNEES.

*Burhinus capensis maculosus* TEMMINCK. SPOTTED THICK-KNEE.

Two specimens of this thick-knee were obtained, a non-breeding male, 20 miles south of Fada, on January 29, and a male in breeding condition 60 miles east of Fort Archambault, on February 21. The latter example has the dark markings on the upper parts and also the pectoral streaks slightly darker and larger than the former bird, but the difference appears to be within the range of individual variation.

At Fada the collector saw a group of 3 or 4 of these birds, and it was from among this little assemblage that he shot the non-breeding male. The breeding example taken nearly a month later was a solitary bird.

FAMILY GLAREOLIDAE. PRATINCOLES AND COURSERS.

*Cursorius cursor cursor* (LATHAM). CREAM-COLORED COURSER.

At Koro Toro, on January 18, an adult male courser was collected. It was not in breeding condition, and had much subcutaneous fat. The collector found the species to be fairly common in that area.

The tips of the four outermost primaries have a sharply demarcated area



of blackish sheen or gloss, very different from the soft, dull black of the rest of the feathers, this area extending proximally in a V shape with the apex of the V on the rhachis, suggesting that it does not cut across but rather follows in their entirety the barbs of which it is composed.

*Rhinoptilus chalcopterus chalcopterus* (TEMMINCK).

BRONZE-WING COURSER.

One female, in breeding condition, was collected 60 miles east of Fort Archambault along the Chari River, on February 22. This courser appears to be a fairly uncommon bird in the western portions of its trans-African range.

*Pluvianus aegyptius* (LINNAEUS). EGYPTIAN PLOVER.

A breeding female of this courser, inaccurately, but persistently, called a plover, was obtained 35 miles east of Fort Archambault, on the Chari River, February 20.

FAMILY LARIDAE. GULLS, TERNS, AND SKIMMERS.

*Rynchops flavirostris* VIEILLOT. AFRICAN SKIMMER.

A male in breeding condition was taken on February 20, 35 miles east of Fort Archambault, on the Chari River.

FAMILY PTEROCLIDIDAE. SANDGROUSE.

*Pterocles coronatus coronatus* LICHSTENSTEIN. CROWNED SANDGROUSE.

On February 6, 70 miles southeast of Fada, a flock of a dozen or so crowned sandgrouse was seen, and 4 specimens, 2 males and 2 females, were collected. All were in breeding condition. The 2 females are quite different in the distinctness and darkness of their narrow dusky bars both above and below; the 2 males show no variation in this respect.

When comparing these 4 specimens with the material in the British Museum, Bromley found them to be darker than typical *coronatus*, and, in fact, more like examples of *atratus*, the race of Persia and Arabia, although he did find one Tripolitanian *coronatus* which agreed quite closely. Careful study with adequate series from all parts of the range is needed to clarify the subspecific trends and differences in this sandgrouse.

*Pterocles lichtensteinii targius* GEYER. LICHTENSTEIN'S SANDGROUSE.

On February 4, 25 miles southeast of Fada, a female of this sandgrouse was collected off its nest. It was sitting on three fresh eggs, which were described by the collector as measuring 37 x 28 mm., very light reddish tan flecked with lavender, light gray and dark reddish brown. The nest was a shallow depression in the sand, and was lined with grass and small stones.

The identification of this example to the subspecies *targius* is a geographic inference as no comparative material has been available. It may be mentioned that Niethammer (1955:40) lists *targius* as the race inhabiting the Ennedi area,



but admits that it is barely separable from nominate *lichtensteinii*. Malbrant (1954:12) mentions another example of *targius* taken at Fada by Carpenter and Edmond-Blanc on April 1, 1948, and states that it is common in the Borkou-Ennedi-Tibesti area.

When comparing the present specimen with the material in the British Museum, Bromley considered it close to *ingramsi* (of Hadramaut, Arabia!) but he found no specimens labeled *targius* with which to make more pertinent comparisons. It appears from this, however, that there may be more names than there are actual recognizable races of this sandgrouse. The three pale races *lichtensteinii*, *targius*, and *ingramsi* do form a desert group distinct from the darker group of steppe inhabitants—*nigricans*, *abessinicus*, and *sukensis*.

FAMILY COLUMBIDAE. PIGEONS AND DOVES.

*Streptopelia roseogrisea roseogrisea* (SUNDEVALL). ROSE-GRAY DOVE.

One male and one female were collected at Koro Toro, on January 16, and another female at Fada, on February 2. The Fada bird was in breeding condition; the other two were not. The species was common at Koro Toro.

The Fada specimen has a wing length of 160 mm., while the Koro Toro female measures 152 mm., but this may be purely a matter of individual variation. The Fada bird also has the brown back and rump and upper tail coverts slightly less brownish, more grayish than the Koro Toro hen.

There has been some disagreement in the literature as to the limits of the ranges of the northern Nigerian race *bornuensis* and of *roseogrisea*. Meyer de Schauensee (1949:4) identified a Fada bird as *S. r. bornuensis*, but it seems that in this he was mistaken. I note that Niethammer (1955:45) also doubted this, and considered his specimens from Ennedi as typical *roseogrisea*. Peters (1937:92) gave the range of *bornuensis* as from Timbuktu east to Lake Chad, north to Tabereshat and the Aïr Massif, south to Kano and Adamawa, while nominate *roseogrisea* extends from western Ethiopia, through Darfur to the east of Lake Chad. Our present material agrees with this. However, it must be admitted that the difference between the races is very slight, and Vaurie (1961b:2) may be correct when he writes (but does not follow his own suggestion) that "... it probably would be best not to recognize any subspecies..."

*Streptopelia senegalensis aequatorialis* (ERLANGER). LAUGHING DOVE.

This wide-ranging species is represented by two females taken at Fada, on January 26 and 29, respectively. The earlier of the two had an enlarged ovary; the later bird was marked as "not breeding." The collector noted it as fairly common around Fada.

*Oena capensis capensis* (LINNAEUS). CAPE PIGEON.

An immature male of this dove was collected at Fada on January 24, and an adult male 20 miles south of there on January 30. The latter bird was found to be in breeding condition when collected.



## FAMILY PSITTACIDAE.

## PARROTS.

*Psittacula krameri centralis* NEUMANN.      SENEGAL PARRAKEET.

At Fada a series of 6 specimens, including both males and females, were collected between January 24 and February 1. At a spot 80 miles east of Fort Archambault, on the Aouk River, a young male was obtained on February 22. All but one of the Fada birds were in breeding condition, or at least showed some sign of gonadal enlargement.

In the absence of comparative material these specimens have been identified as of the subspecies *centralis* on the basis of geography, and in accordance with the findings of Niethammer (1955:49) who, however, found some evidence of intermediacy between *centralis* and nominate *krameri* in his Ennedi examples.

## FAMILY MUSOPHAGIDAE.

## TOURACOS.

*Crinifer piscator piscator* (BODDAERT).      GRAY PLANTAIN-EATER.

An adult male, not in breeding condition, was collected 80 miles east of Fort Archambault, on the Aouk River, on February 22, 1960. Its outermost rectrices are not quite fully grown, and are basally still encased in their sheaths.

## FAMILY STRIGIDAE.

## OWLS.

*Asio flammeus flammeus* (PONTOPPIDAN).      SHORT-EARED OWL.

The short-eared owl is a winter visitor from Europe in the Tchad area as well as in northeastern Africa. One female was collected 25 miles east of Koro Toro, January 15.

## FAMILY APODIDAE.

## SWIFTS.

*Apus pallidus brehmorum* (HARTERT).      MOUSE-COLORED SWIFT.

A male in breeding condition was collected out of a flock of about 20 birds at Koro Toro, on January 17.

Bromley compared this specimen with examples of *brehmorum* in the British Museum and noted that they were very similar. Our present bird was, if anything, slightly more grayish than the majority of specimens he examined. Recently Vaurie (1959:15-16) has concluded that the specimens from Aïr and Asben and other Saharan localities, discussed by Hartert (1924:27) as intermediate between *brehmorum* and *pallidus* should all be called *pallidus*. He gives wing measurements of *pallidus* males as ranging from 164 to 170 mm., while *brehmorum* males vary from 168 to 180 mm. Our present example has a wing length of 171 mm., and might, on this character belong to either race, especially as the Saharan males Vaurie refers to *pallidus* range from 160 to 174 mm. in wing length. However, it has the forehead tinged with grayish and the chin and upper throat whitish as in *brehmorum*.

The fact that our Koro Toro bird was in breeding condition on January



17 also seems to rule out its being a Mediterranean migrant, but this swift is not yet known to breed in the Tchad area.

*Apus affinis abyssinicus* (STREUBEL). LITTLE SWIFT.

One of each sex was collected at Koro Toro, January 10 and 15, another male was obtained 35 miles east of Fort Archambault, on the Chari River, February 20. The last named bird was in breeding condition; the other two were not.

When in the British Museum, Bromley compared these specimens with a series from Darfur, and found them to agree very closely.

FAMILY COLIIDAE. COLIES.

*Colius macrourus macrourus* (LINNAEUS). BLUE-NAPED COLY.

Three male and one female blue-naped colies were taken at Fada, January 24 to 27, two of them in breeding condition, one with gonads somewhat enlarged, and one in non-breeding condition.

In the absence of comparative material it is not possible to decide the status of Niethammer's proposed race, *C. m. laeneni* (1955:56; type locality Aïr), but his decision to separate the birds of the Aïr Massif from nominate *macrourus* seems difficult to reconcile with Hartert's (1921:106) earlier statement to the effect that birds from Asben and Zinder agree with Abyssinian examples, but are paler than *macrourus*. Niethammer seems to recognize *syntactus* Oberholser as the name for the Abyssinian birds; Hartert, Peters, and most recent authors have considered it a synonym of *macrourus*. If the latter course be followed *laeneni* would occupy a relatively small area with *macrourus* on both the east and west of it. Yet Hartert, while writing that the birds of the Asben area were identical with Abyssinian ones, found they were paler than typical *macrourus*, ostensibly from Senegal.

Many years ago I reviewed the races of this coly (Friedmann, 1930:331-334) with nearly a hundred specimens. Without seeing topotypical *laeneni*, I would be inclined to consider it still to be corroborated, and that, as far as our immediate problem is concerned, this name would not apply to Tchad birds.

FAMILY ALCEDINIDAE. KINGFISHERS.

*Ceryle rudis rudis* (LINNAEUS). PIED KINGFISHER.

One adult male was collected on the Chari River near Fort Lamy on January 9, a non-breeding bird in fresh plumage.

FAMILY MEROPIDAE. BEE-EATERS.

*Merops orientalis viridissimus* SWAINSON. LITTLE GREEN BEE-EATER.

Three males and two females of this bee-eater were collected at Fada, January 23 to February 2, all in non-breeding condition.

Both by geography and by their agreement with the characters advanced



by Niethammer (1955:53-54) for *flavoviridis*, these specimens should belong to this race, but it must be stated that no material of *viridissimus* has been available for direct comparison. However, Vaurie (1959a:9) has made such direct comparisons and finds that 15 specimens of *flavoviridis* are not separable from 15 topotypes and some 23 other examples of *viridissimus*.

*Melittophagus bullocki frenatus* (HARTLAUB).      SUDANESE  
RED-THROATED BEE-EATER.

Five adult male red-throated bee-eaters were collected 35 miles east of Fort Archambault, on the Chari River, on February 20; one female was obtained 80 miles east of Fort Archambault on February 22. All were in breeding condition.

All six specimens have the black area on the side of the head ventrally edged narrowly with blue, and thereby fit the characters of *frenatus*.

There was a breeding colony of these bee-eaters, comprising between 30 and 50 birds, nesting in holes in the face of a low cliff along the Chari River.

FAMILY UPUPIDAE.      HOOPES.

*Upupa epops* LINNAEUS.      HOOPOE.

Three subspecies of the hoopoe are represented in the present collection, as follows:

*U. e. senegalensis*: male, Fada, January 28, not in breeding condition; male, Oum Chalouba, February 10, not in breeding condition.

*U. e. major*: female, Fada, January 31, not in breeding condition.

*U. e. epops*: female, Fada, not in breeding condition.

It seems almost unlikely that of four specimens taken there should be representations of three races, all wintering in Tchad, but it may be pointed out that all three have been previously recorded there, *senegalensis* by Malbrant (1954:25) and by Gillet (1960:113), *major* by Niethammer (1955:55), and *epops* by Niethammer (1957:281).

FAMILY PHOENICULIDAE.      KAKELAARS.

*Scoptelus aterrimus aterrimus* (STEPHENS).      WOOD KAKELAAAR.

Two males were collected, one at Oum Chalouba, on February 8, and one 80 miles east of Fort Archambault, on February 22. Both were in non-breeding condition. Neither example have any white spots on their rectrices, thus agreeing with the Darfur birds reported by Lynes (1925:378).

FAMILY BUCEROTIDAE.      HORN BILLS.

*Tockus nasutus nasutus* (LINNAEUS).      GRAY HORNBILL.

Two examples, male and female, were collected at Massakori on January 10. This hornbill was found to be fairly common in the sparse, dry thornbush country there.



*Tockus erythrorhynchus erythrorhynchus* (TEMMINCK).

## RED-BEAKED HORNBILL.

At Fada, two males were collected, January 23 and 29 respectively. Neither was in breeding condition.

The red-beaked hornbill extends farther north in Tchad than does the gray hornbill, but both occur in similar types of country.

*Bucorvus abyssinicus* (BODDAERT). GROUND HORNBILL.

One adult male of this large terrestrial hornbill was taken 50 miles south of Goz Beïda on February 15. It was not in breeding condition.

## FAMILY CAPITONIDAE. BARBETS.

*Lybius rolleti* (DEFILIPPI). BLACK-BREASTED BARBET.

One adult male of this strikingly colored barbet was obtained 60 miles east of Fort Archambault, on February 20.

*Trachyphonus margaritatus margaritatus* (CRETZSCHMAR).

## YELLOW-BREASTED BARBET.

Three specimens of this barbet were collected: a male at Fada, February 2, and a male and female at Oum Chalouba February 7. The Fada male had somewhat enlarged gonads, the Oum Chalouba female was in breeding condition; all three birds are in worn plumage.

## FAMILY PICIDAE. WOODPECKERS.

*Dendropicos elachus* OBERHOLSER. LITTLE GRAY WOODPECKER.

Two specimens, one of each sex, of this little known woodpecker were collected on February 7 at Oum Chalouba. Both birds were in breeding condition, and both are in abraded plumage. Bromley found the present male agreed very closely with another from Senegal in the museum in Paris.

*Mesopicos goertae koenigi* (NEUMANN). BERBER GRAY WOODPECKER.

One male, in breeding condition, was collected at Fada, on January 29. This specimen was compared by Bromley with one from Fort Lamy in the museum in Paris and was found to agree closely. Otherwise, in the absence of adequate material, I am guided by Niethammer's recent discussion (1955:50-51), and refer this specimen to the race *koenigi*. It may be noted that another Fada specimen was similarly identified independently by Meyer de Schauensee (1949:8).

The distribution sketch map given by Cave and Macdonald (1955:220) is misleading as it restricts *koenigi* to the Nile valley below Khartoum, whereas it extends westward, north of the range of *centralis*, to Tchad.

*Jynx torquilla torquilla* LINNAEUS. EUROPEAN WRYNECK.

On January 27, at Fada, a male of this European migrant to Africa was



collected. As might be expected, it was not in breeding condition. The specimen agrees with the nominate race, but as Vaurie (1959a:2-13) has intimated, the subspecific variations of this wryneck are slight and are not always readily ascertained in individual examples.

## FAMILY ALAUDIDAE.

## LARKS.

*Galerida cristata alexanderi* NEUMANN.

## SAHARAN CRESTED LARK.

Three specimens of the crested lark were obtained; 2 males at Fada, January 28 and 31, and one male at Oum Chalouba, on February 8. All were in non-breeding condition, and all are in very abraded plumage; the Oum Chalouba bird is especially worn. It differs from the two Fada specimens in having a shorter wing (95.3 as against 108 mm.) and a longer hind claw (12.6 as against 9.5 mm.), and in having darker medial streaks on the feathers of the breast. These characters are mentioned because of the fact that Malbrant (1954:26) listed examples from Oum Chalouba and Fada as *isabellina*, while others from Fada were identified by him as *alexanderi*. Meinertzhagen (1951:122) gives the range of *alexanderi* as from northern Nigeria to Lake Chad, east to Darfur, and north to Aïr, and restricts *isabellina* to the Nile Valley west only to Kordofan and "towards Darfur."

In the absence of comparative material, and in spite of the differences noted within our three specimens, the present birds are referred to *alexanderi* in agreement with Meinertzhagen and with Vaurie (1959:47). It may be noted that even with the very extensive material studied by him, Vaurie's conclusions suggest some indefiniteness as he lists (p. 43) among apparently valid extralimital (*i. e.*, non Palearctic) races *zalingei* in, "western Sudan, Darfur," but in his list (p. 47) he omits this form but gives the range of *alexanderi* as, "... northern Nigeria north to the Aïr, east to Chad and Darfur." To add to the uncertainty as to the allocation of Tchad birds we may note that Gillet (1960:114) called Ennedi birds *isabellina*, while Meyer de Schauensee (1948:8) considered Fada birds to be *alexanderi*. When he examined our present three birds with the material in the British Museum, Bromley found them to be nearest to *zalingei* in coloration, but he considered them to have the dark centers of the feathers of the top and back of the head and of the mantle somewhat paler and less extensive than in *zalingei*. He also found the Fada birds were larger (wing length) than any *zalingei*, but noted that our three specimens did not agree with examples of *alexanderi* with which he compared them.

It appears from all these contradictory opinions that Tchad is an area of intermediacy, but that the majority of specimens from there have been identified as *alexanderi*.

*Eremopteryx nigriceps albifrons* (SUNDEVALL).

## PALLID FINCH LARK.

Two females and one male were collected 75 miles east of Koro Toro on January 21; another male was obtained at Oum Chalouba on February 9; all were in breeding condition.



*Calandrella cinerea brachydactyla* (LEISLER).      SHORT-TOED LARK.

Two males were collected at Koro Toro on January 14 and 15; one other 20 miles south of there January 14. Two of them are typical *brachydactyla* while one is more rufescent, less grayish, and recalls *hermonensis*. However, Meinelzhausen (1951:96) has shown that *hermonensis* is merely a plumage phase that occurs sporadically amid populations of *brachydactyla* and of *longipennis*, and is not a valid subspecies in itself.

One of the specimens has pectoral streaks better developed than the other two, forming almost a necklace of such marks. All three were in non-breeding condition and are in abraded plumage.

FAMILY HIRUNDINIDAE.      SWALLOWS.

*Riparia paludicola minor* (CABANIS).      AFRICAN SAND MARTIN.

One female was collected 35 miles each of Fort Archambault, on the Chari River, on February 20. The specimen is in fairly fresh plumage and was entered in the field catalogue as being in breeding condition.

*Ptyonoprogne fuligula pusilla* (ZEDLITZ).      AFRICAN ROCK MARTIN.

One male and two females, all in breeding condition, were collected at Fada, February 1 to 3. This swallow was previously reported from Fada by Meyer de Schauensee (1949:11-12). The female taken on February 3 had a nest on a building. The nest was a half cup of mud, lined with feathers, and contained one egg, 19 x 13 mm., very light tan, speckled with dark brown.

FAMILY CORVIDAE.      CROWS, JAYS AND MAGPIES.

*Corvus ruficollis ruficollis* LESSON.      BROWN-NECKED RAVEN.

At Koro Toro, on January 18, one adult female in non-breeding condition was collected. Bromley found the species to be tame and common there, and considered it to be the chief avian scavenger, replacing locally the pied crows and the vultures found farther to the south.

*Corvus albus* MÜLLER.      PIED CROW.

One female, in non-breeding condition, was obtained on January 26 at Fada, where it was fairly numerous although less common than *Corvus rhipidurus*.

*Corvus rhipidurus* HARTERT.      FAN-TAILED RAVEN.

One adult male, in non-breeding condition, was taken on January 25 at Fada, where it was very common around human habitations.

FAMILY TIMALIIDAE.      BABBLERS.

*Turdoides fulvus acaciae* (LICHTENSTEIN).      FULVOUS BABBLER.

Two males and four females were collected at or near Fada, January 21 to 31; one of each sex were collected at Oum Chalouba on February 9. All but one were in breeding condition; all are in worn plumage.



## FAMILY PYCNONOTIDAE. BULBULS.

*Pycnonotus barbatus goodi* RAND. WHITE-VENTED BULBUL.

One male, in non-breeding condition, and one female in breeding state were obtained at Fada on January 27 and 28. These specimens have a narrow white mark posterior to the auriculars, and thus seem to fit with the characters of *goodi*, of which race they are extreme northeastern examples, coming from near the area where *goodi* and *arsinoe* may be expected to meet. Malbrant (1954:37) called his Fada material *arsinoe*, but that was before *goodi* was separated by Rand.

*Pyconotus barbatus nigeriae* HARTERT. YELLOW-VENTED BULBUL.

One male was taken near Golongoso, Oubangi-Tchad border, February 18; two males and one female were collected 80 miles east of Fort Archambault, February 22. All were in non-breeding condition.

These four specimens are darker above than are the examples of *goodi*, and differ at a glance from them in having yellow, instead of white, under tail-coverts. In naming these bulbuls according to the recent arrangement of Rand (1958 and 1959), the picture in Tchad is found to be not too well clarified. Possibly a situation exists there similar to what was found in Gabon by Rand, Friedmann and Traylor (1959:317-318), where white-vented and yellow-vented birds occurred together. So far, at least, the two have not been found quite so mixed in Tchad.

## FAMILY TURDIDAE. THRUSHES.

*Oenanthe isabellina* (TEMMINCK AND LAUGIER). ISABELLINE WHEATEAR.

Three females of this winter visitor to Tchad were obtained; one at Fada, January 27, and two at Oum Chalouba, February 8.

*Oenanthe deserti atrogularis* (BLYTH). DESERT WHEATEAR.

Three males and one female were obtained at Koro Toro, January 5 to 18. The males have wing lengths of 92.2 to 93 mm., and thus fit with *atrogularis* rather than with *homochroa*, but they are almost intermediate in this character. In the absence of comparative material to test the color characters of this race, corroboration of the present identification may be sensed from the fact that Gillet (1960:122) identified a bird from Fada as *atrogularis*. Vaurie (1959c:347) also lists this race as a wintering in the Sudan from Darfur to Lake Chad.

Bromley noted this species as fairly common, but very shy, and hence difficult to approach, at Koro Toro.

*Oenanthe leucopyga leucopyga* (BREHM).

## WHITE-RUMPED BLACK WHEATEAR.

One adult male was taken at Koro Toro on January 16 and an adult female at Fada on January 25. Vaurie's conclusion (1959c:353) that *aegra* is not separable from nominate *leucopyga* is accepted here. It may be noted that



Gillett (1960:122) recorded a specimen from Fada under the subspecific name *aegra*, but Vaurie had much more material for study when he came to his decision.

*Cercomela melanura äirensis* HARTERT.      BLACK-TAILED ROCK CHAT.

Two males and one female were collected at Fada, January 27 to February 1. They were not in breeding condition.

*Cercotrichas galactotes minor* (CABANIS).      RUFOUS BUSH ROBIN.

Two males were collected at Oum Chalouba on February 10; one female at Abéché, February 13. Vaurie's placing of this species in the genus *Cercotrichas*, instead of *Agrobates*, and of removing it from the warblers to the thrushes is here followed.

*Cercotrichas podobe podobe*. (MÜLLER).      BLACK BUSH ROBIN.

Two females in non-breeding condition and one male with somewhat enlarged gonads were collected at Fada, January 25 to February 2. The male has one albinistic, white feather on the mid-crown. All three birds have whitish tips to the under tail-coverts. The species was very common in the bushes at Fada.

*Luscinia svecica cyanecula* (WOLF).      BLUETHROAT.

Two birds, one of each sex, were collected at Fada, January 31 and February 1. This winter visitor from Europe appears not to have been recorded before from Tchad, although it has been reported from Darfur, not too far to the east.

FAMILY SYLVIIDAE.      WARBLERS.

*Sylvia hortensis hortensis* (GMELIN).      ORPHEAN WARBLER.

One male of this winter visitor from Europe was collected at Fada on January 28.

*Sylvia curruca curruca* (LINNEAUS).      LESSER WHITETHROAT.

One male, taken at Fada on February 2, in non-breeding condition, appears to be of the nominate race. For comparing it with named material in the American Museum of Natural History I am indebted to Dr. Charles Vaurie.

*Sylvia cantillans cantillans* (PALLAS).      SUBALPINE WARBLER.

Three adult males were taken at Fada on February 3; one other at Oum Chalouba on February 10; one immature male 75 miles east of Koro Toro, on January 21. For assistance in comparing these specimens with named material of the various subspecies possible in Tchad, I am indebted to Dr. Charles Vaurie.

*Sylvia ruppelli* TEMMINCK.      RÜPELL'S WARBLER.

Three males were taken at Fada, January 23 to 31, and a fourth one 20 miles south of there on January 30. Two of these specimens have some mixture of whitish on the black throat, the other two have this area pure black.



*Hippolais pallida pallida* (HEMPRICH AND EHRENBERG).

## OLIVACEOUS WARBLER.

One male and three females of this warbler were collected at Fada, January 24 to February 1. Dr. Charles Vaurie has kindly compared these specimens with named material in the American Museum of Natural History, and has informed me that they are of the nominate subspecies.

*Eremomela icteropygialis alexanderi* SCLATER AND MACKWORTH-PRAED.

## YELLOW-BELLIED EREMOMELA.

One male and one female were collected at Oum Chalouba on February 8 and 9; another female was taken at Abéché on February 13. The two Oum Chalouba birds were in breeding condition, the Abéché one was not.

*Eremomela canescens elegans* HEUGLIN. GREEN-BACKED EREMOMELA.

A male in breeding condition was taken on February 20, 60 miles east of Fort Archambault.

*Camaroptera brevicaudata brevicaudata* (CRETZSCHMAR).

## GRAY-HEADED CAMAROPTERA.

Two males in non-breeding condition and rather abraded plumage were collected at Oum Chalouba, on February 8 and 10. The breeding plumage, which is assumed in May and June is grayer, less brownish, and darker. One of the present specimens has some light yellowish tinge on the underparts and may be an immature bird. Lynes (1925:100-101) noted that his young birds from Darfur were sulphur-tinted below, although he was uncertain if this was a constant or an individual plumage trait.

*Cisticola brachyptera brachyptera* SHARPE. SIFFLING CISTICOLA.

Two non-breeding males were collected, one on February 18, at Golongosso on the Oubangi-Tchad border; one on February 20, 60 miles east of Fort Archambault. The latter example is smaller than the former. It has a wing length of only 43 mm. as opposed to 50 mm. in the other, and may be a younger bird although it does not have the yellowish tinge that the young are said to have.

*Cisticola rufocephalus rufocephalus* (CRETZSCHMAR). RED-PATE CISTICOLA.

One male, in non-breeding condition, was obtained at Abéché on February 13. Bromley compared this example with a series of non-breeding birds from Kordofan, Darfur, northern Cameroon, and northern Nigeria, in the British Museum, and found it to be a little less rufous, to have the light edges of the feathers of the mantle creamy buff instead of pale rufous, and the dark centers of these feathers to be more blackish brown, less tinged with rufous than the series in London.

*Spiloptila clamans* TEMMINCK. CRICKET WARBLER.

Six specimens were obtained, as follows: two males and one female, 75



miles east of Koro Toro, January 21; one male and one female, Fada, January 26; and one male, Oum Chalouba, February 9. All were in breeding condition.

FAMILY MUSCICAPIDAE. FLYCATCHERS.

*Muscicapa striata gambagae* (ALEXANDER).

BROWN SPOTTED FLYCATCHER.

One male was collected 60 miles east of Fort Archambault, on February 20. It had the testes somewhat enlarged and would have soon been in breeding condition. Cave and Macdonald (1955:252) prefer to keep *gambagae* as a species, but it seems entirely in keeping with its distribution and appearance to consider it a race of *striata* as other recent authors have done.

*Melaenornis edolioides edolioides* (SWAINSON). BLACK FLYCATCHER.

One adult female black flycatcher was collected 60 miles northeast of Fort Archambault, February 19.

This appears to be the first record for this flycatcher from Tchad.

*Batis minor chadensis* ALEXANDER. GRAY-HEADED BATIS.

One example of this flycatcher was collected at Abéché, on February 13. It was marked on the label as male, but in its plumage characters—deep chestnut breast band, it is a female. It was not in breeding condition.

FAMILY MOTACILLIDAE. PIPITS AND WAGTAILS.

*Motacilla flava* LINNAEUS. YELLOW WAGTAIL.

One female was collected at Golongosso, on the Oubangi-Tchad border, on February 18. The specimen is not in fully adult plumage and cannot be identified subspecifically. A number of races of this Eurasian migrant are possible winter visitors in Tchad.

*Motacilla alba alba* LINNAEUS. WHITE WAGTAIL.

Two females and one male was collected at Koro Toro, January 14 to 17. The species was very common there.

FAMILY LANIIDAE. SHRIKES.

*Lanius excubitor leucopygos* HEMPRICH AND EHRENBERG. GRAY SHRIKE.

One adult male was taken at Koro Toro on January 16; a female at Fada, February 3; and another female and an unsexed specimen at Oum Chalouba, on February 9. The Koro Toro and Fada examples were in breeding condition; the others were not.

*Lanius nubicus* LICHTENSTEIN. NUBIAN SHRIKE.

On February 7, a male of this shrike was collected at Oum Chalouba. It is a winter visitor from the Mediterranean area.



*Laniarius ferrugineus major* (HARTLAUB). BOUBOU SHRIKE.

An adult male, in non-breeding condition, was obtained 60 miles east of Fort Archambault, on February 19.

*Nilais afer afer* (LATHAM). BRUBRU SHRIKE.

A pair in breeding condition were collected at Oum Chalouba on February 10. Both birds are in fairly fresh plumage.

*Tchagra senegalus remigialis* (FINSCH AND HARTLAUB).

BLACK-HEADED TCHAGRA.

At Oum Chalouba, February 7 to 10, Bromley collected three of these shrikes; a female in breeding condition, a male in non-breeding condition, and an immature female. The immature bird has a faint pinkish wash on the throat, breast, and lower abdomen.

It appears that *remigialis* is the race occurring from Shendi and Fashoda in the Nile Valley west through Kordofan and Darfur and Tchad, and that it changes through greater pallor into *notha* west of Lake Chad.

FAMILY STURNIDAE. STARLINGS.

*Lamprotornis caudatus* (MÜLLER). LONG-TAILED GLOSSY STARLING.

A pair of these birds, in non-breeding condition, was taken 80 miles east of Fort Archambault, on the Aouk River, on February 22 and 23.

*Spreo pulcher pulcher* (MÜLLER). CHESTNUT-BELLIED STARLING.

Two males and two females were collected at Fada, January 23 to 28, and one other male 20 miles south of there on January 30. Both of the females were noted as in breeding condition; two of the males were not in breeding condition, and the third male is an immature bird molting into adult plumage.

FAMILY NECTARINIIDAE. SUNBIRDS.

*Hedydipna platura* (VIEILLOT). PYGMY LONG-TAILED SUNBIRD.

Five males and one female were collected at Fada, January 27 to February 2; one male was taken 60 miles northeast of Fort Archambault, on February 19. The last specimen differs from the other males in that it lacks the dark violet band at the lower end of the green pectoral area. It also has less purplish on the lower back and rump, and has the abdomen somewhat deeper orange than the Fada series. All the specimens were in breeding condition.

The five males from Fada vary in the degree and the extent to which they have a dark purplish band from the angle of the bill to, below, and behind the eye; in one example this area is glittering green like the rest of the head; in some others the purple color is well developed.

The bird from Fort Archambault is obviously of the nominate race *H. p. platura*, while the series from Fada agree with the characters of *H. p. metallica*. In the past literature *platura* and *metallica* have often been treated as species,



even as recently as in Gillet's (1960:126-127) discussion of the Ennedi avifauna. Cave and Macdonald (1955:350) have treated them as conspecific, which seems to give a much truer picture. They are certainly closely related, and the area of demarcation between the two must be in Tchad.

FAMILY PLOCEIDAE.      WEAVERBIRDS.

*Passer domesticus* (LINNAEUS).      HOUSE SPARROW.

One female in non-breeding condition was collected at Koro Toro on January 16. This specimen appears to constitute a new record for Tchad. Although it may be matched very closely by occasional specimens from North America, it is more than ordinarily marked with pale dusky streaks on the feathers of the throat, breast, sides, and upper abdomen; in fact these streaks darken almost suggesting a blackish spot in the mid throat, but all of these characters may be found equally well developed in North American examples. It is not possible to identify this lone specimen subspecifically.

*Passer griseus griseus* (VIEILLOT).      GRAY-HEADED SPARROW.

Three males of this common sparrow were collected at Fada, January 24 to February 1. All were in non-breeding condition.

*Passer simplex simplex* (LICHTENSTEIN).      DESERT SPARROW.

Five males and one female of this very pallid sparrow were collected at Koro Toro, January 15 to 17; all in non-breeding condition. One of the males is a young bird and resembles the female in that it lacks any sign of black on the throat. One other is molting into adult plumage. The fully adult males are noticeably more grayish, less vinaceous buffy, on the head and upper parts.

*Passer luteus* (LICHTENSTEIN).      GOLDEN SPARROW.

Three males were taken at Koro Toro, January 15 and 16; one other was collected 20 miles south of Fada, January 30. All were in non-breeding condition; all are whitish below, only tinged with yellow, and with a little buff on the sides and flanks. The crown is sandy buff, with a suggestion of yellow in only one example. In breeding plumage this species is bright yellow.

*Petronia dentata dentata* (SUNDEVALL).      BUSH PETRONIA.

One female, marked as in breeding condition, taken 60 miles east of Fort Archambault on February 19 appears to be of this species although it lacks all yellow on the throat. Inasmuch as no material was available with which to compare it, the bird was sent to the American Museum of Natural History where Dr. Vaurie and Dr. Chapin examined it, and pronounced it as probably *Petronia dentata*. There is still an unfortunate tinge of uncertainty about its identification because of the lack of yellow in its plumage.

*Sporopipes frontalis frontalis* (DAUDIN).      SPECKLE-FRONTED WEAVER.

Two males were taken at Oum Chalouba on February 8. One, marked



"juvenile?" resembles the other one except that it has the moustachial stripe less well developed.

The geographical limits of typical *frontalis* and of *pallidior* must meet not too far from Oum Chalouba, as Niethammer (1957:294) recorded the latter subspecies from Wadi Rei and from Guelta Basso.

*Ploceus capitalis capitalis* (LATHAM).      YELLOW-COLLARED WEAVER.

One male, in non-breeding plumage, taken on February 22, 80 miles east of Fort Archambault, on the Aouk River, fits the description of this species, and agrees in size and shape of bill, in wing length, etc., with a male of *capitalis* in breeding plumage.

*Euodice cantans cantans* (GMELIN).      SILVER-BILL.

One female was collected at Fada on January 25; a male was obtained at Oum Chalouba on February 8. Both were in breeding condition.

*Amadina fasciata fasciata* (GMELIN).      CUT-THROAT WEAVER.

Two males and one female were collected at Koro Toro on January 17. One of the males was in non-breeding condition; the other two birds had enlarged gonads. When comparing these specimens with others in the museum in Paris, Bromley found that toptotypical examples from Senegal were darker and a little larger than the Tchad birds. He also noted that the dark transverse bars in the feathers of the upper back were sometimes almost as dense as on the crown in some Senegal specimens. Others from the Ennedi mountains agreed with the Koro Toro birds in having the bars smaller and restricted very largely to the crown and occiput.

Bromley found these weavers came in numbers to a damp spot mornings and evenings at Koro Toro.

*Pytilia melba citerior* STRICKLAND.      MELBA FINCH.

One female was collected at Abéché, on February 13. It was in breeding condition and in fairly abraded plumage.

*Steganura paradisaea orientalis* (HEUGLIN).      SUDAN PARADISE WIDOWBIRD

One adult male in breeding condition was obtained by the expedition, but unfortunately neither the date nor the place of capture was recorded. Inasmuch as the collecting dates of the expedition were all between January 9 and February 22, it seems safe to assume a date in this time span for the specimen. This widowbird was recorded as common at Fada by Malbrant and Receveur (1955:100-101); it was also recorded from Guelta Basso by Niethammer (1957:284).

FAMILY FRINGILLIDAE.      SPARROWS, FINCHES, AND BUNTINGS.

*Serinus mozambicus barbatus* (HEUGLIN).      YELLOW-FRONTED CANARY.

One male in non-breeding condition was collected at Golongosso, on the Oubangi-Tchad border, on February 8, 1960. Meyer de Schauensee (1949:15)



had previously recorded this bird from Tchad on the basis of a specimen taken at N'délé by the W. K. Carpenter Expedition.

*Serinus leucopygius riggenbachi* NEUMANN. WHITE-RUMPED SEED-EATER.

One male, collected at Oum Chalouba, February 8, was in non-breeding condition. It is in fairly worn plumage.

*Emberiza flaviventris flavigastra* CRETZSCHMAR.

GOLDEN-BREASTED BUNTING.

Two males, in non-breeding condition, were obtained at Abéché on February 13. This race has a very extensive range, from Eritrea west to Tchad and to northern Nigeria.

*Fringillaria striolata sahari* J. LEVAILLANT. HOUSE BUNTING.

Two males and one female, in non-breeding condition, were collected at Fada, January 26 to February 3.

When comparing these specimens with others in Paris, Bromley found them to agree closely except for the refescent edges of the rectrices in the Fada birds. It may be noted that Vaurie (1959:686) found that the birds of the Ennedi, Aïr, and Zinder showed a trend to increased darkness and streakiness, suggesting a degree of intermediacy between typical *sahari* and the next subspecies to the east, *jebelmarrae*.

#### LITERATURE CITED

The birds of Tchad have a larger literature than one might expect from our still superficial knowledge of their distribution and habits. It is somewhat unfair to earlier writers to set a precise date as the starting point of our knowledge, but modern study of Tchad birds may be said to have begun with Grote's (1928) paper, which concentrated on the birds of the more southern and western parts of the present republic, and with Bates's (1927 and 1933-34) two publications, still useful for their rich field notes. While not concerned particularly with Tchad, Chapin's four volumes (1932-1954) are a most reliable and informative source of pertinent data, as is also Bannerman's two volume summary of west African ornithology (1953).

Aside from these I have listed only such publications as are actually cited in the body of this paper. Many other publications have been consulted in the present study, but there seems to be no need to include them here. A word of appreciation to their authors—Berlioz, Brunneau de Mire, Guichard, and Villiers, among others, must suffice.

Bannerman, David Armitage

1953. The birds of West and Equatorial Africa. London: Oliver and Boyd, 2 vols., 1526 pp.

Bates, George Latimer

1927. Notes on some birds of Cameroon and the Lake Chad region; their status and breeding times. *Ibis*, ser. 12, 3: 1-64.

1933-34. Birds of the southern Sahara and adjoining countries in French West Africa. *Ibis*, ser. 13, 3: 752-780; 4: 61-69, 213-239, 439-466, 685-717.



Cave, Francis O. and James D. Macdonald

1955. Birds of the Sudan. London: Oliver and Boyd, 444 pp., 1 map, 12 col., 12 black and white plates.

Chapin, James P.

- 1932-1954. The birds of the Belgian Congo. 4 vols., vol. 1, 756 pp., vol. 2, 632 pp., vol. 3, 821 pp., vol. 4, 846 pp. Bull. Amer. Mus. Nat. Hist.

Friedmann, Herbert

1930. Birds collected by the Childs Frick expedition to Ethiopia and Kenya Colony. Pt. I. Non-passeres. Bull. U. S. Natl. Mus., 153: 1-516, 12 pls.

Gillet, H.

1960. Observations sur l'Avifaune du Massif de L'Ennedi (Tchad). L'Oiseau et Revue Francaise d'Ornithologie, 30: 45-82, 99-134.

Grote, Hermann

1928. Uebersicht über die Vogelfauna des Tchadgebiets. Journal für Ornithologie, 76: 738-783, map.

Hartert, Ernst

1921. The birds collected by Capt. Angus Buchanan during his journey from Kano to Aïr or Asben, Novitates Zoologicae, Tring, 28: 78-141, pls. 1-9.  
1924. Ornithological results of Capt. Buchanan's second Sahara expedition. Novitates Zoologicae, Tring, 31: 1-48.

Lynes, Hubert

- 1924-1926. The birds of north and central Darfur, with notes on the west-central Kordofan and North Nuba Provinces of British Sudan. Ibis, ser. 11, 6: 399-446, 648-719; ser. 12, 1: 71-131, 541-590, 756-797; 2: 346-403.

Malbrant, R.

1954. Contribution à l'étude des oiseaux du Borkou-Ennedi-Tibesti. L'Oiseau et Revue Francaise d'Ornithologie, 24: 1-47.

Malbrandt, R. and P. Receveur

1955. Note complémentaire sur les oiseaux du Bordou-Ennedi-Tibesti. L'Oiseau et Revue, Francaise d'Ornithologie, 25: 87-101.

McLaughlin, Charles A.

1961. The Machris Expedition to Tchad, 1960. Los Angeles County Mus. Quar., 17(4): 14-18.

Meinertzhagen, Richard

1951. Review of the Alaudidae. Proc. Zool. Soc. London, 121(1): 81-132.

Meyer de Schauensee, Rudolph

1949. Results of the Carpenter African expedition, 1947-1948. Notulae Naturae, 219: 1-16.

Niethammer, G.

1955. Zur Vogelwelt des Ennedi-Gebirges. Bonner Zoologisches Beiträge, 6: 29-80.  
1957. Ein weiterer Beitrag zur Vogelwelt des Ennedi-Gebirges. Bonner Zoologisches Beiträge, 8: 275-284.

Peters, James Lee

1937. Check-list of Birds of the World. Cambridge: Harvard Univ., 3: 311 pp.



Rand, Austin L.

1958. Notes on African Bulbuls. *Fieldiana, Zool.*, 35(6): 145-220.

1959. African Bulbuls. *In* Peters, J. L. Check-list of birds of the World. Cambridge: Harvard Univ., 9: 221-300.

Rand, Austin L., Herbert Friedmann, and Melvin A. Traylor

1959. Birds from Gabon and Moyen Congo. *Fieldiana, Zool.*, 41(2): 223-411.

Vaurie, Charles

1959a. Systematic notes on palearctic birds. No. 37. Picidae: The subfamilies Jynginae and Picumninae. *Amer. Mus. Novitates*, 1963: 1-16.

1959b. Systematic notes on palearctic birds. No. 38. Alcedinidae, Meropidae, Upupidae and Apodidae. *Amer. Mus. Novitates*, 1971: 1-25.

1959c. The birds of the palearctic fauna. Passeriformes. London: Witherby, 762 pp.

1961a. A new subspecies of the Nubian Bustard. *Bull. British Ornithologists Club*, 81: 26-27.

1961b. Systematic notes on palearctic birds. No. 49. Columbidae: the genus *Streptopelia*. *Amer. Mus. Novitates*, 2058: 1-25.

Wake, David B., and Arnold J. Kluge

1961. The Machris Expedition to Tchad, Africa. Amphibians and Reptiles. *Los Angeles County Mus. Cont. in Sci.*, 40: 1-12.





Friedmann, Herbert. 1962. "The Machris Expedition to Tchad, Africa. Birds." *Contributions in science* 59, 1-27. <https://doi.org/10.5962/p.241054>.

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