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RESULTS OF THE TAYLOR SOUTH WEST AFRICAN  
EXPEDITION 1972 ORNITHOLOGY

*By* HERBERT FRIEDMANN AND JAMES R. NORTHERN

NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY

CONTRIBUTIONS IN SCIENCE



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# RESULTS OF THE TAYLOR SOUTH WEST AFRICAN EXPEDITION 1972 ORNITHOLOGY<sup>1</sup>

By HERBERT FRIEDMANN<sup>2</sup> AND JAMES R. NORTHERN<sup>3</sup>

**ABSTRACT:** Over 700 specimens of 145 kinds of birds were collected in South West Africa by the Taylor Expedition of 1972. While no new birds were discovered and no species were added to the previously known fauna of the region, the data on the gonadal state of the specimens obtained suggest an important alteration of earlier attempts to correlate breeding activity with seasonal rainfall. It had been assumed that the first signs of gonadal activity were correlated with the onset of the seasonal precipitation, but it now appears that the critical consideration is the timing of the hatching of the young to coincide with the availability of rain-dependent food. Also, in addition to systematic notes on the taxonomy of a number of species, new observations are presented concerning the convergent patterns of the highly cryptic coloration of some of the small birds, particularly of six species of larks.

## INTRODUCTION

The Taylor South West African Expedition of 1972 had as its primary objective the gathering of specimens of the small mammals, birds, reptiles and amphibians, and insects of that country to supplement the large African research collections of the Natural History Museum of Los Angeles County. Until this expedition set out, the museum's holdings, while rich in material from southern, eastern, and central Africa, were extremely poor in specimens of the distinctively different fauna of South West Africa. Aside from this, the four museum staff members of the expedition, representing the fields of mammalogy, ornithology, herpetology, and entomology, all had an antecedent interest in tropical desert faunas.

The timing of the expedition was planned so that the party would be in the field at the very onset of the highly seasonal rains. It so happened that some unseasonal rains had occurred half a year earlier, in April and May, but of this very little evidence was to be seen when the field party arrived there on October 1. The rains that were anticipated for October and November did not materialize until well into the following March. During the stay of our party in South West Africa it was a repetitive experience to see the clouds build up slowly to a point where rain seemed imminent, only to see the skies become clear again, when the cycle would repeat itself every few days. It was not until five days before field work was terminated that the first rains fell to wet the ground to a depth of 6 or 7 millimeters!

<sup>1</sup>REVIEW COMMITTEE FOR THIS CONTRIBUTION

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Because of the extreme aridity of the country, the camps were located, out of necessity, near water boreholes and water storage tanks. These areas, all on large sectors of land, held as private farms, were ideal collecting grounds because of the presence of water, either in the form of livestock watering troughs or of puddles formed by leaks in the water storage tanks.

Expedition personnel consisted of Mrs. Reese H. Taylor, sponsor and field technician; Robert L. Bezy, herpetologist; Charles L. Hogue, entomologist; Lan A. Lester, mammalogist; James R. Northern, ornithologist; Mr. and Mrs. Basie Maartens, professional hunters (Basie Maartens Safaris); their assistant professional hunter, Charles Ward; and the Maartens' african staff of 12 men. The group was joined for short periods of time throughout the expedition by various staff members of the South West African Museum, including Cornelius G. Coetzee (Museum Director), Pieter G. Buys, Marie-Louise Penrith, Mike J. Penrith, Barbara A. Harding and Hermanus C. Strauss.

The expedition left Windhoek, South West Africa on October 1, 1973. From there it went south about 640 kilometers to the first campsite on a farm called Barby No. 26, 25 kms WNW of Helmeringhausen, Bethanie District. Work was continued here until October 11, when camp was broken and moved 350 kms almost due east to the western border of the Kalahari Gemsbok National Park, South Africa. Here camp was set up just about 2 kms from the Mata Mata entrance to the Park, in the shelter of the acacia trees bordering the dry Auob River, on Welverdiend Farm No. 328, 89 kms ENE of Koës, Keetmanshoop District. We had permits to collect specimens inside of the Park and some limited collecting was done there. This area was in the parallel red sand dunes of the Kalahari Desert, covered with dry grasses and scattered bushes. On October 22, camp was moved again, this time about 360 kms north to Arnhem Farm No. 222; 110 kms E of Windhoek, Windhoek District. A small amount of rain had fallen here about two weeks before our arrival, indicated by the greenness of the vegetation. Seven days were spent there and on October 31 a move was made 200 kms to the northwest to Okandukaseibe Farm No. 27; 47 kms S of Wilhelmstal, Karibib District. The camp here was located on the edge of the Swakop River (also dry) and sheltered in the shade of huge Annaboom trees (*Acacia albida*). On November 14, the party moved to Okosongomingo Farm No. 149; 52 kms ESE of Otjiwarongo, Otjiwarongo District. Here camp was pitched in the thorn scrub plains at the base of the Waterberg. This area, and the next, were the only places where there were huge fig trees (*Ficus*). These trees were growing around springs on the slopes of the Waterberg. The last camp, and most northerly point reached by the expedition, was at Ghaub Farm No. 40; 40 kms WNW of Grootfontein, Grootfontein District. Here the expedition camped in a grove of large acacia trees, adjoining an old Rhenish Mission. The gardens of the mission were still intact, although overgrown, and the flowers and various fruit trees attracted a large variety of birds. Here also was a scattered Mopane-type forest. We had our only rainfall here at Ghaub, on November 22, 1972. The expedition terminated when it arrived back in Windhoek on November 28, 1972.

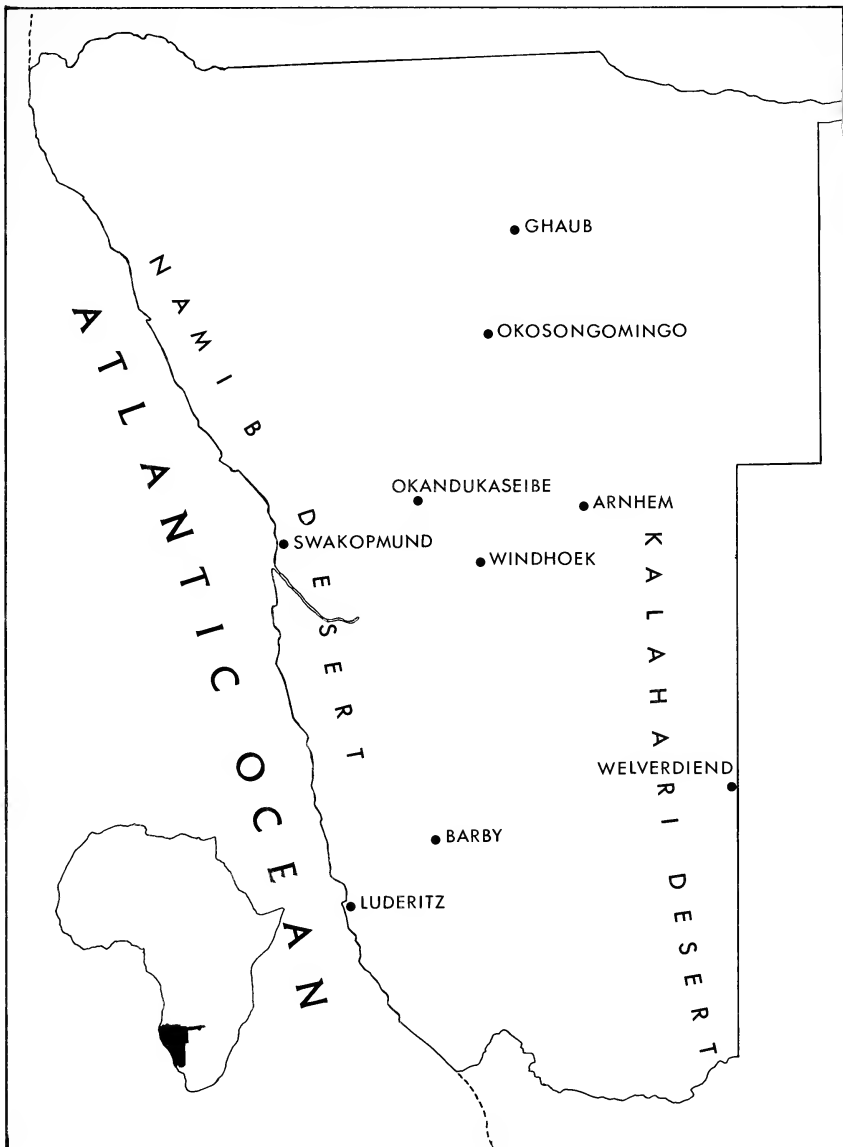


FIGURE 1. Collecting localities of the Taylor South West African Expedition 1972.



FIGURE 2. Highland savannah at Arnhem Farm.



FIGURE 3. Riverine vegetation: dry stream bed at Barby Farm.



FIGURE 4. Mountain savannah: approx. 18 miles west of Ghaub.





FIGURE 5. Annaboom (*Acacia albida*) in the Swakop riverbed.

The Natural History Museum wishes to express its deepest gratitude to Mrs. Taylor, not only for generously sponsoring and managing the expedition, but for prolonged and involved correspondence in advance of the trip, arranging for its organization, for the matter of obtaining the collecting permits, and the hiring of necessary local personnel. Without her work the expedition could not have progressed smoothly and effectively. Also, we thank her for the many long hours that she worked in the field, participating fully in all aspects of the expedition activities. Thanks are also due to Cornelius G. Coetzee, Director, South West Africa Museum, Windhoek, South West Africa, and to his staff for their wonderful cooperation and hospitality. We thank the Administration of the Republic of South Africa-South West Africa, Nature Conservation, and Tourism Branch for permission to carry out our research and collect specimens. We are also most grateful to the many German and Afrikaaner ranchers who graciously permitted us to camp and collect on their respective ranches.

For their kind cooperation in comparing two puzzling specimens with the material in their collections, we wish to thank Dean Amadon and Stuart Keith of the American Museum of Natural History, and George E. Watson and Richard Zusi of the National Museum of Natural History.

At the time the expedition was organized we believed that its ornithological results would probably fill more gaps in the museum's collections than in our knowledge, but, on study, the collections have yielded numerous additions to the sum total of our previous information. Ornithological knowledge of South West Africa was in a reasonably good state, due largely to the prolonged residence and activity in that country of the late Walter Hoesch, to his museum studies and other collections by Niethammer (Hoesch and Niethammer 1940), to the field work and museum studies by Macdonald (1957), and, more recently, to the studies by Winterbottom (1969, 1971, 1972), culminating in his 1971 distributional checklist of the birds of South West Africa.

When descriptive knowledge has reached such a satisfactory state it becomes a relatively simple matter to identify and to interpret additional material and data with the guidance of a reliable and up-to-date compendium as a ready reference. It is, indeed, largely due to the excellent earlier work, so well put together by Winterbottom, that it has been possible to complete a study of the birds brought back by the Taylor Expedition so much sooner than of any of the other groups of animals collected.

The Winterbottom checklist and its antecedent papers have also made it possible to reduce to a minimum, in the present report, discussions of purely taxonomic questions. In most species these have already been treated adequately by the Check List Committee of the South African Ornithological Society (1969) and by Winterbottom, who was not only actively involved in the committee's deliberations, but patterned his regional checklist in conformity with their broader results, based on large series of birds and critical material as well.

The present paper follows the sequence and the nomenclature of Winterbottom's book, except in a very few species, where it has been thought necessary to differ. Each of our differences is explained and documented. Aside from these,

the matter of following the 1971 list involves accepting some changes from current systematic usage, such as keeping the Estrildidae in the Ploceidae, the Emberizidae in the Fringillidae, and, in the other direction, retaining separate family status for the Turdidae, Sylviidae, and Muscicapidae, as well as a number of chronological placements of families in the unnatural, but unavoidable, linear sequence of a report. These are minor matters compared with the advantage of a paper readily relatable to a published reference book, especially since they affect merely the frame on which are arranged the discrete new data.

The complete listing of all the pre-1969 literature on the birds of South West Africa in Winterbottom's book has made it unnecessary to cite the majority of the papers whose contents are absorbed and condensed in his checklist. Only those papers that raised some special point, usually pertinent to one or two species, or to a particular locality, have had to be referred to in our present discussion. These are listed at the end of this report.

Before we list the annotated catalog of the birds collected, a word is in order regarding one portion of the information it contains. It seems that the data here reported concerning the gonadal state of the majority of the specimens will be of increasing significance as more such information becomes available for the birds of South West Africa. As it is, it presents too much variation to be sharply thought-directive. It is not more than suggestive, but eventually it should become a useful part of the larger evidence needed for an understanding of the environmental factors influencing the breeding biology of the local resident avifauna.

The data published by Immelmann and Immelmann (1968) suggest that there may be some factors, or relationship between factors, peculiar to that area. They found that most of the local bird species in their study area, the region immediately around Gobabeb, in the central Namib Desert, actually commenced nesting well before the first of the seasonal rains. They found, from behavioral observations of the birds and from histological examination of the gonads of their selectively collected specimens, that only one out of three species inhabiting the sand dunes and gravel flats, and not more than seven out of 17 species of the dry river beds, appeared to have been stimulated to reproductive activity by the rains. Rains, in the period of their study were exceptionally heavy. Most of the local bird species had already begun nesting before any possible rain-induced effect could have been involved. This absence of correlation between the advent of the rainy season and the commencement of breeding was quite the opposite of what the Immelmans had previously noted in similarly arid regions of Australia. There the first rains brought about the recrudescence of gonadal swelling and the start of nesting activities. It is true the species composing the Namib ornithofauna were very different from those of the Australian desert, but the degree of correlation in Australia and the absence of it in South West Africa suggests a basic ecological effect in the former, not present in the latter area.

In the present collection, comprising 145 species, 15 are Eurasian birds that pass the northern winter months in South West Africa. Of the remaining 130, more than half, 74, show significant gonadal enlargement in at least one specimen

of each, all taken in October and November, before the seasonal rains began. Except for one small rainfall at Arnhem Farm in mid-October, no rain had been experienced in any of the other collecting localities, until November 22 at Ghaub Farm. Of these 74 species, some 53 show a range of gonadal swelling from little to great in the various individuals; the remaining 21 species were in condition to breed, or very close to it, in all the examples of each procured. The number of specimens in some of these species was small, probably too small to be taken as indications of uniformity, but the total breeding implications do seem to bear out the findings of the two Immelmans. At the same time, the variation found within closely related species is such as to advise caution in accepting too sweeping a generalization. Thus, of the larks, a compact group of species all of which are fairly similar in their mode of life, in their nesting habits, and in their ecological and food requirements, some eight species were collected between October 5 and November 17. Each represented by examples with adequate records of their gonadal state. They show the following lack of uniformity in reproductive readiness. Five of them, *Mirafra sabota*, *Eremopteryx verticalis*, *Certhilauda curvirostris*, *Certhilauda albescens*, and *Calandrella cinerea*, show no indication of gonadal enlargement, but of three of them only a single example apiece was collected. One, *Mirafra africanoides*, shows sexual development in one out of nine specimens; another, *Alaemon grayi*, in one out of two, whereas the final one, *Certhilauda albofasciata*, shows such enlargement in two out of three individuals, including a nearly full-grown fledgling.

Five widely divergent, unrelated species of birds, *Glaucidium perlatum licua*, *Certhilauda albofasciata arenaria*, *Turdoides gymnogynys*, *Melaenornis mariquensis mariquensis*, and *Malaconotus zeylonus thermophilus*, had partly or largely grown birds of the year in October and November; evidence of breeding well before the rainy season.

As mentioned above, there are 21 species, all of whose individuals collected show breeding condition, or are very close to it. Five of these were collected either at Arnhem Farm where there had been some rainfall two weeks earlier, or at Ghaub Farm after the rain of November 22. Deleting these five, we still have the following list of definitely pre-rain breeders: *Francolinus sephaena*, *Otis ludwigii*, *Vanellus coronatus*, *Rhinoptilus africanus*, *Oena capensis*, *Otus leucotis*, *Colius colius*, *Campethera abingoni*, *Certhilauda albofasciata*, *Turdoides gymnogynys*, *Cercomela familiaris*, *Myrmecocichla formicivora*, *Erythropygia coryphaeus*, *Eremomela usticollis*, *Cisticola chiniana*, and *Nectarinia fusca*.

The lack of strict uniformity in the available data on the resident birds of South West Africa makes it a little premature to attempt a firm interpretation, but the following thought does emerge from the foregoing discussion. While it is understandable that a correlation may exist between rainfall and breeding behavior, the most critical part of such a correlation might be, not the onset of reproductive activities, but the timing of nesting to assure the ample presence of rain-dependent food supply at the time the young are hatched. We still do not know, for any of the species mentioned above, how long a period is involved from the start of gonadal swelling to the hatching of the eggs. Furthermore, in a situa-

tion that may be said to be ecologically restrictive and "difficult" and where it would be "convenient" (to the theorizer) to find a strong correlation between seasonal climate and behavior, there remains the possibility that some of the most successful species of the local fauna may be those that are not rigidly controlled in this way. The five species that were found to have nearly full-grown young before the rains set in may well be such instances.

#### FAMILY ACCIPITRIDAE

##### *Accipiter minullus minullus* (Daudin).

One immature male of the little sparrowhawk was collected at Ghaub Farm, November 23; skull not ossified, weight 76 grams, the outer primaries still basally enclosed in their sheaths.

##### *Melierax canorus argentior* Clancey.

Six specimens of the chanting goshawk were collected at the following localities: Barby Farm, October 3 to 6; Welverdiend Farm, October 14; Arnhem Farm, October 24. Two of the Barby Farm specimens had enlarged gonads. One of these is puzzling as it is an immature, or at most a subadult, female molting into adult plumage. This suggests that ovarian swelling may (must have in this case) become noticeable prior to the acquisition of the first adult plumage as the specimen is in a relatively early stage of the pre-adult molt, certainly not near the end of the process. The stomach contents of two of the specimens included lizards, a small viper, a large grasshopper, and a large rat. The others had nothing in their stomachs.

The Welverdiend Farm specimen, a female in immature plumage, is unusually dark above, much darker than any of a series in the museum collection. It is fuscous as contrasted with hair brown to dusky buffy brown in other examples (Ridgway 1912). Regardless, it is clearly a *Melierax*, confirmed for us by Amadon and Keith by comparison with material in the American Museum of Natural History, and probably *M. canorus*. We assume this because *canorus*, *poliopterus*, and *metabates* are thought to form a superspecies, which would imply that they do not overlap geographically, and *canorus* is the species to which the rest of the present specimens belong.

##### *Melierax gabar gabar* (Daudin).

Two specimens of this hawk were taken, both in the so-called normal, i.e. pale, plumage phase: an adult female, Okandukaseibe Farm, October 3, ovary slightly enlarged, weight 205 grams; and an immature male, Welverdiend Farm, October 16, testes not enlarged, weight 140 grams. The stomach contents include the remains of a small passerine bird in the first specimen, and hair and small seeds in the second.

##### *Polyboroides radiatus typus* Smith.

One young, unsexed bird was taken at Ghaub Farm November 21; weight 620 grams, skull fully ossified. The stomach contained one wattled starling. Ap-

parently, there are only a small number of records of this hawk in South West Africa, which caused Winterbottom (1971:68) to consider its status there uncertain. Every additional specimen record, such as the present one, makes the picture more definite. There is no reason why this hawk should not be considered a regular, if scarce, resident of the area.

#### FAMILY FALCONIDAE

*Falco tinnunculus rupicolus* Daudin.

A male kestrel was collected on the Okosongomingo Farm on November 16; testes slightly enlarged, weight 145 grams, plumage fairly abraded. This species is not uncommon in South West Africa, and is fairly widely distributed as the number of records indicate.

*Poliohierax semitorquatus semitorquatus* Smith.

The pygmy falcon is represented in our collection by a single example, an adult male taken at Welverdiend Farm October 13; testes slightly enlarged, weight 54 grams. The pygmy falcon, as a species, has a far greater geographic range than does the social weaver, *Philetairus socius*, and, therefore, lives in most of its range without the latter bird. In South West Africa the occurrence of the little falcon seems to be correlated with that of the weaver, in whose colonial nests it often occupies a nesting chamber. As was pointed out long ago by Friedmann (1930), there seems to be a symbiotic relationship between the tiny falcon and its weaver hosts. Prolonged observation at sizeable compound nests never revealed the least sign of hostility between the two species, which were often seen perching close together on the same branch. While the falcon did feed on small birds it did not molest the social weavers. In several individual falcons examined, there were feathers and bird bones in the stomachs, but none of the feathers were of *Philetairus*.

#### FAMILY PHASIANIDAE

*Francolinus sephaena zambesiae* Mackworth-Praed.

The common crested francolin, so widely distributed over southern and eastern Africa, was encountered by the expedition only on Ghaub Farm, November 23 and 27, when two birds, one of each sex, were captured. Both are in worn plumage with enlarged gonads, and each had small seeds in their stomachs. The weight of the male was 415 grams.

*Francolinus adspersus* Waterhouse.

Whereas the previous species, *F. sephaena*, is one of the geographically widest ranging of all the members of its genus, *F. adspersus* is confined to southwestern Africa. It was found to be common, and five males, two females, and one example of unrecorded sex, were collected October 27 to November 28. One male, taken on November 17, had enlarged testes; the other specimens show little or no gonadal enlargement. The localities of capture were Arnhem Farm, Okosongomingo Farm, and Ghaub Farm. Body weights were recorded for five

males as 385 to 580 (average 452), for two females as 340 and 455 grams, respectively.

*Francolinus swainsonii damarensis* (Roberts).

Three examples of the Damara race of Swainson's francolin were collected on Ghaub Farm on November 25; all with slightly enlarged gonads, two males weighed 650 and 690 grams, respectively, one female 365 grams, all with small seeds in their stomachs.

*Coturnix coturnix africana* Temminck and Schlegel.

One specimen, an adult male with its testes not enlarged, was captured at Barby Farm; weight 100 grams, stomach contents small seeds, plumage abraded.

*Numida meleagris damarensis* Roberts.

The guinea fowl is widely distributed and fairly common in the areas visited by the expedition. Six specimens were taken October 25 to November 24: gonads, where recorded, slightly to greatly enlarged; weight of one male 1350 grams, two females 1150 and 1600 grams, respectively; three birds of unrecorded sex 1350, 1400, and 1600 grams. Localities of capture are Arnhem Farm, Okosongomingo Farm, and Ghaub Farm.

#### FAMILY OTIDIDAE

*Otis kori kori* Burchell.

One adult male, testes not enlarged and weighing 8100 grams, was collected on Arnhem Farm, October 24. Its stomach contained bits of wild melon and grasshoppers.

*Otis ludwigii* Rüppell.

Ludwig's bustard was obtained on Barby Farm on October 3; one adult male with enlarged testes, weight 3100 grams. Winterbottom (1971:82) informs us that this species breeds in March, but the gonadal condition of the present specimen seems to imply a considerably longer breeding season, starting many (six) months earlier than March.

*Eupodotis vigorsii fitzsimonsi* (Roberts).

Three examples of this race of the Karoo korhaan were collected on Barby Farm, October 4 to 9; one adult male with testes about 20 mm in length, weight 1400 grams, and two birds of unrecorded sex, one of which, by plumage, seems to be a female, one a male. The black of the throat extends down to the breast where it widens a little, and also the black of the occiput extends well down on the back of the neck in these examples, agreeing with the characters given for the race *fitzsimonsi*. The pale feathers of the breast and abdomen have markedly rosy vinaceous bases, usually concealed by the overlapping feathers.

*Eupodotis ruficrista ruficrista* Andersson.

Four adult males of the red-crested korhaan were collected as follows: Welverdiend Farm, October 18, testes greatly enlarged, weight 550 grams,

stomach contents large beetles; Arnhem Farm, October 26, testes enlarged, stomach contents seeds; Okandukaseibe Farm, November 8, testes slightly enlarged, weight 710 grams, stomach contents pulpy fruit and seeds; Ghaub Farm, November 24, testes enlarged, weight 770 grams, stomach contents insect fragments.

*Eupodotis afra damarensis* (Roberts).

The black korhaan was collected in two areas in South West Africa and also near the Gemsbok National Park, in South Africa. The specimen data are as follows: Arnhem Farm, October 24, 25, two males, both with greatly enlarged testes, weight 730 and 800 grams, respectively, stomach contents plant fibers, ants, and large termites; Welverdiend Farm, October 18, one male, testes greatly enlarged, weight 800 grams, stomach contents large beetles and stones, and one female, ovary greatly enlarged, incubating, flushed from the nest (egg collected), weight 595 grams, stomach contents large beetles; near the Mata Mata entrance of the Gemsbok National Park, South Africa, October 18, one female, ovary not enlarged, weight 525 grams, stomach contents include chiefly grasshoppers and large beetles. It is somewhat strange that the two hens collected on the same day, October 18, should be so divergent in their gonadal condition. The abdomen of the Welverdiend Farm example is paler and less deep bluish black than the one from the Gemsbok Park.

#### FAMILY CHARADRIIDAE

*Vanellus coronatus xerophilus* Clancey.

One adult female crowned plover was taken near the Mata Mata entrance to the Gemsbok National Park, South Africa, October 13; ovary enlarged, weight 155 grams, stomach contents small insects, plumage abraded.

*Vanellus armatus* (Burchell).

One female was captured at Okosongomingo Farm, November 16; ovary not enlarged, weight 160 grams, stomach contents insect fragments.

#### FAMILY SCOLOPACIDAE

*Tringa hypoleucos* Linnaeus.

One female, ovary not enlarged and weighing 41 grams, was taken at Welverdiend Farm, October 16. This palearctic sandpiper is considered a visitor to South West Africa during the northern winter (southern summer). According to Winterbottom (1971:92) there is only one record from the Kalahari sandveld, but there is no reason to think that this common species is at all unusual in South West Africa.

*Calidris minuta* (Leisler).

The little stint was collected at Arnhem Farm October 27; one female, ovary



not enlarged, weight 16 grams; plumage much abraded. Winterbottom (1971:95) records it as occasional in winter in South West Africa.

*Calidris ferruginea* (Pontoppidan).

One specimen, a female in abraded plumage, ovary not enlarged, weight 45 grams, was collected at Arnhem Farm, October 27.

*Philomachus pugnax* (Linnaeus).

Three ruffs were collected: a female, ovary not enlarged; a bird sexed as a male but, from its very small size probably a female; and one of unrecorded sex, a male by size; October 17 to November 16, at Welverdiend Farm, Arnhem Farm, and Okandukaseibe Farm. The female weighed 73 grams; the probable female (ticketed as a male) 60 grams; the probable male (unrecorded sex) 125 grams. The Welverdiend bird, assumed to be a female, is extremely small, so small in fact that to be certain we sent it to the National Museum for comparison with their ample material. Both Drs. Watson and Zusi kindly examined it and agreed that it was a "tiny reeve." Its wing length is only 137 mm, the smallest definitely sexed female having a wing length of 150 mm.

#### FAMILY BURHINIDAE

*Burhinus capensis damarensis* (Reichenow).

Three specimens of the Cape dikkop were obtained, as follows: near Mata Mata entrance, Gemsbok National Park, South Africa, October 17, male, testes slightly enlarged, weight 505 grams, very abraded plumage; Welverdiend Farm, October 18, male, testes not enlarged, weight 505 grams, very abraded plumage; Arnhem Farm, October 24, female, ovary enlarged, weight 420 grams, stomach contents insect fragments, plumage much abraded. Winterbottom (1971:100) indicates that in South West Africa this species does not occur far from water as a rule.

#### FAMILY CURSORIIDAE

*Cursorius rufus theresae* Meinertzhagen.

Burchell's courser was met with on Barby Farm October 4, when a young male, weight 75 grams, was collected. The white belly and undertail coverts of this specimen proclaim it to be of this species and not of *C. temminckii*, but no immature examples of either were otherwise available for direct comparison.

*Rhinoptilus africanus erlangeri* Niethammer and Wolters.

One adult female, ovary enlarged, weight 88 grams, stomach contents insects and gravel, was collected on Arnhem Farm, October 29. In the absence of comparative material of *erlangeri* and of nominate *africanus*, the present subspecific identification is based on Winterbottom's statement (1971:101-102) that *erlangeri* is the race resident in the Windhoek District. Our specimen agrees with the description of that subspecies.

## FAMILY PTEROCLIDAE

*Pterocles namaqua namaqua* (Gmelin).

Seven specimens of the Namaqua sandgrouse were collected at Barby Farm, October 3 to 9; three adult males, testes slightly enlarged, weight of one recorded as 200 grams, stomach contents small seeds, bullthorn seeds, and thorns; three adult females, all with small ovaries, weight of one 185 grams, stomach contents bullthorn seeds; one juvenile male, weight 54 grams, skull not ossified. There is considerable color variation in the males, one of which has the upper abdomen just posterior to the deep chestnut band mouse gray as contrasted with pale wood brown to grayish Saccardo's umber in the other two. The first specimen also has less of a vinous tinge on the breast than the others. All of these specimens were collected during the daytime, from flocks of six to fifteen birds, which were resting in grass covered plains. Numerous single females were seen, each with a very small chick. Morning flights were seen, but none in the evening.

*Pterocles burchelli burchelli* Sclater.

The spotted sandgrouse was met with in two locations: Arnhem Farm October 29, when six specimens were taken — three males and three females, none in breeding condition; weights 160, 180, and 185 grams in the females, 180, 195, and 200 grams in the males; and at Welverdiend Farm, October 18, when one bird, marked as female, but male by plumage, was taken, weight 160 grams. One of the Arnhem Farm males is much darker and richer brown below than the other examples of its sex. All were collected from early morning watering flights.

*Pterocles bicinctus bicinctus* (Temminck).

The double-banded sandgrouse was found on the Okandukaseibe Farm, where seven specimens were taken, October 31 and November 7; three males, one with small testes, one with enlarged gonads, and one with an intermediate degree of testicular swelling, weights 190, 200, and 225 grams; and four females with similar range of ovarian development from slightly to greatly enlarged, weights 185, 190, 190, and 210 grams. All the birds had seeds in their stomachs. Specimens were collected at a watering place in almost complete darkness. They would land five to 10 meters away from the water, freeze in position for about one minute, and then run en masse to the water's edge.

## FAMILY COLUMBIDAE

*Streptopelia capicola damarensis* (Finsch and Hartlaub).

The Cape turtle dove was found to be common and specimens were collected as follows: Barby Farm, October 9, one male, testes not enlarged; Arnhem Farm, October 27, one female with greatly enlarged ovary; Okandukaseibe Farm, November 2 to 9, one male, testes greatly enlarged, and two females, with small or only slightly enlarged ovaries; Okosongomingo Farm, November 16, one female, ovary slightly enlarged; Ghaub Farm, November 20 to 22, two males, with greatly enlarged testes; weights of males 130, 140, 140, 140 grams; females

95, 115, 125, and 140 grams; stomach contents seeds in all cases. The disparity in gonadal swelling exhibited by these specimens suggests a prolonged breeding season and, indeed, this is in agreement with Winterbottom's conclusion (1971:113) that it extends from August to January.

*Streptopelia senegalensis senegalensis* (Linnaeus).

The laughing dove was a common bird in the collecting areas visited. Specimen data are as follows: Barby Farm, October 3 to 8, three males and two females, with gonads varying from small to much enlarged; Welverdiend Farm, October 13 and 17, two males with small testes; Arnhem Farm, October 25 and 27, two females, one with a small, one with a large, ovary; Okandukaseibe Farm, November 9, one female with ovary slightly enlarged and one male with "huge" testes; Ghaub Farm, November 24 and 25, two females, one with small, one with enlarged ovary; weights of males 83, 87, 88, 94, 94, and 112 grams; of females 78, 83, 83, 86, 90, 97, and 103 grams; stomach contents small seeds in all cases.

*Oena capensis anonyma* Oberholser.

The Namaqua dove generally was present; the specimen data are as follows: Barby Farm, October 2 and 5, one male with testes 10 mm long, one female; Welverdiend Farm, October 14 and 16, three males, all with enlarged gonads; Okandukaseibe Farm, November 9, one female with small ovary; weights of males 37, 39, and 41 grams (one marked 11 grams, undoubtedly in error); females 32 and 43 grams; stomach contents small seeds in all. One of the males (October 16) is in molt, growing in the new rectrices.

*Turtur chalcospilos volkmanni* (Reichenow).

The emerald spotted wood-dove was met with only on Ghaub Farm on November 25, when three examples were collected, one male with enlarged testes, weight 61 grams, one female with a large ovary, weight 63 grams, and one unsexed individual; stomach contents seeds. The male has emerald green spots on the inner secondaries; the female has some of these spots green and others purplish blue; the unsexed bird has them largely blue, edged with green! All three birds are in abraded plumage.

*Treron australis damarensis* (Reichenow).

The green pigeon was met with only on the Ghaub Farm, November 21 to 27, when seven specimens were obtained; two adult males with testes slightly to greatly enlarged, weights 195 and 200 grams; four adult females, all with large ovaries, weights 190, 195, 200, 220 grams; and one young female not fully grown. In the absence of comparative material of *vylderi* and of *ansorgei* the present specimens are identified as *damarensis* in agreement with the geographic range stated by Winterbottom (1971:115). The Ghaub Farm area seems to be too far east for *vylderi*, whereas *ansorgei* appears to be confined to the Kunene Valley, still farther to the northeast. However, it must be stated that the allocation of the present material to the race *damarensis* is not without some problems. Thus, Hoesch and Niethammer (1940:105) wrote that the rectrices are gray in *vylderi*

and green in *damarensis*, and that the dorsal neck band is gray in *vylderi* and grayish green in *damarensis*. Our specimens agree with *vylderi* in their rectricial color and with *damarensis* in the tone of their hind necks. It may be that the distinction in this one character between *vylderi* and *damarensis* as less trenchant than is implied in the terms "gray" versus "grayish-green." It may also suggest that the Ghaub Farm is an area of intermediacy between the two subspecies. All were collected from the top of a very large fruiting fig tree (*Ficus* sp).

#### FAMILY PSITTACIDAE

*Agapornis roseicollis roseicollis* (Vieillot).

The rosy-faced lovebird was met with in three localities. At Barby Farm, October 2 to 10, five birds of each sex were collected; at Arnhem Farm, October 24, one male and one female were taken; and at Okosongomingo Farm, November 16, two males and one female were obtained. Of these one male (October 24) had enlarged testes; all the others had small or only slightly swollen gonads. Weights of males varied from 46 to 59 grams, with an average of 52 grams; females 46 to 63 grams, with an average of 53.6 grams; stomach contents in all were seeds. This little parrot is widely distributed in South West Africa, but chiefly near water. Its distribution may be influenced by that of the social weaver, in whose colonial nests it sometimes breeds.

#### FAMILY MUSOPHAGIDAE

*Corythaixoides concolor pallidiceps* Neumann.

The goaway bird, an obtrusive and clamorous species is hard to miss where it occurs, and the expedition had many meetings with it. Specimens were taken as follows: Okandukaseibe Farm, October 31 to November 4, one male and three females; Okosongomingo Farm, November 16, one male and two females; Ghaub Farm, November 21 to 27, two males, two females and one bird of unrecorded sex. The gonadal condition of these specimens varied from small to greatly enlarged; weights of males 255 to 295 (average 273.7), of females 250 to 280 (average 263.5 grams); stomach contents pulpy fruits, figs, seeds, and tamarisk. Seven of the 12 examples showed molt in the tails and wings with the new rectrices and remiges basally enclosed in their sheaths.

#### FAMILY CUCULIDAE

*Cuculus canorus gularis* Stephens.

This cuckoo was collected on the Okosongomingo Farm on November 15, an adult male with slightly enlarged testes, weight 103 grams; stomach contents insect fragments.

## FAMILY STRIGIDAE

*Otus scops senegalensis* (Swainson).

Two male scops owls were collected on the Okandukaseibe Farm, November 6 and 10. They are very darkly and finely vermiculated, resembling the northeast African race *caecus* and, thus casting doubt on the validity of the subspecies. It seems that the scops owl varies greatly without regard to geography. One of the specimens had the testes enlarged, the other, only slightly swollen; weights 58 and 62 grams, respectively; stomach contents a large cockroach in one, a large beetle in the other.

*Otus leucotis granti* Kollibay.

A single example of the white-faced scops owl was obtained, on the Welverdiend Farm on October 18, a female with a much enlarged ovary, weight 270 grams, stomach contents, small rodent. This individual had large egg yolks in the oviduct and would have been laying soon. This specimen was collected during the daytime when it was found roosting on top of a nest of the tree rat, *Thallomys paeduleus* (Sundevall).

*Glaucidium perlatum licua* (Lichtenstein).

The experience of the expedition corroborated the statement of Hoesch and Niethammer (1940:176) that the pearl-spotted owl is the commonest species of its family in South West Africa. At Okandukaseibe Farm, October 31 to November 5, three adult males were collected; on the Ghaub Farm, November 20 to 23, one adult of each sex and three young females were taken. The Ghaub Farm birds were thought by the collector to have probably been one family as all were taken in the same tree during daylight hours, although over a period of three days. The adults involved had small gonads, as well they might by the time their (supposed) young were largely grown. One of the Okandukaseibe birds had much enlarged testes; the other two did not. Weights of the males varied from 75 to 82 grams (average 78.5); the female 66 gms; the three young birds 61 to 78 (average 72 gms). The young birds not only lack the white spotting on the crown and upper back but have the ground color of these areas dark, richer brown than the adults.

## FAMILY CAPRIMULGIDAE

*Caprimulgus rufigena damarensis* Strickland.

The rufous-cheeked nightjar is the commonest member of its family in South West Africa (Winterbottom 1971:127), and it is the only species of the group met with by the Taylor Expedition. Six specimens were collected, as follows: Welverdiend Farm, October 18 and 20, two males, both with enlarged gonads; Okandukaseibe Farm, November 4, one female with slightly enlarged ovary; Okosongomongo Farm, November 15, one male with "huge" testes; Ghaub Farm, November 27, two females, one with greatly enlarged ovary, the other only slightly so; weights of males 46 to 56 grams (average 50.2); females 56 and 58 gms; stomach contents moths, cockroaches, and insect fragments.

## FAMILY APODIDAE

*Apus apus apus* (Linnaeus).

The European swift is a common winter visitor to South West Africa, where the Asiatic race *A. a. pekinensis* also winters, the two races mixing in flocks during the southern summer. At Ghaub Farm, November 20 to 23, a dozen examples of the European swift were obtained, all, of course, with resting gonads; weights, males 31 to 40 grams (average 35.1); females 31 to 42 (average 36.2 grams); stomach contents insect fragments. Rain occurred on the 22nd of November and in the evening of the 23rd, huge swarms of flying termites appeared, which attracted the swifts.

*Apus apus pekinensis* Swinhoe.

Like the European race, the Asian one winters in South West Africa. The subspecies *pekinensis* is somewhat paler on the forehead and lores than nominate *apus*, but there is no sharp line of distinction between the two, the races being readily appreciated in series rather than in individual examples. The following specimens are considered to be *pekinensis*: Okandukaseibe Farm, November 11, one bird of unrecorded sex; Ghaub Farm, November 22 and 23, one male, four females, one bird of unrecorded sex; weights, male 36; females 30 to 46 (average 38.2 grams); stomach contents insect fragments. This subspecies as well as *Apus apus apus* were collected from a swarm feeding on flying termites.

*Apus caffer caffer* Lichtenstein.

One example of the white-rumped swift was collected on Arnhem Farm October 28, an adult male with testes slightly enlarged; weight 26 grams; stomach contents small insects. Winterbottom (1971:131) recognizes no races of this swift, but the material in our museum seems to support the validity of *streubelii*; accordingly we use a trinomial for the present specimen.

## FAMILY COLIIDAE

*Colius colius damarensis* Reichenow.

The Cape coly was found in two areas: Barby Farm, October 2 to 6, two adults of each sex, all with enlarged gonads, one of the females with an ovarian ovum 15 mm in length; weights, males 39 and 43, females 44 and 46 grams; stomach contents of one bird plant material; others empty; Okandukaseibe Farm, November 3, one male, testes enlarged, weight 43 grams, stomach contents plant materials. All the specimens were in abraded plumage.

*Colius indicus lacteifrons* Sharpe.

The red-faced coly was met with at Okandukaseibe Farm, November 3 to 8, when four adults, two of each sex were collected, all with slightly enlarged gonads; weights, males 54 and 58 grams; females 44 and 60 gms; stomach contents of one example seed pulp. The fact that none of these specimens were in breeding condition, whereas all of the individuals of *C. colius* had enlarged

gonads, makes one wonder if there may be a differential breeding season separating these two related species inhabiting the same environment and with similar food requirements.

#### FAMILY MEROPIDAE

*Merops hirundineus hirundineus* Lichtenstein.

The swallow-tailed bee-eater is widely distributed in the area covered by the expedition. Specimen data are as follows: near Mata Mata entrance, Gemsbok National Park, South Africa, October 17, one male with slight testicular enlargement, one female with greatly enlarged ovary; Welverdiend Farm, October 13 to 20, three males, two females, all with enlarged gonads; Arnhem Farm, October 24, one male, testes slightly enlarged; Okandukaseibe Farm, November 4 to 10, two of each sex, all with small or only slightly swollen gonads; weights, males 18 to 23 (average 20.1), females 19 to 27 (average 23.4 grams); stomach contents flies, bees, insect fragments.

#### FAMILY CORACIIDAE

*Coracias garrulus garrulus* Linnaeus.

One male, Ghaub Farm, November 26, weight 140 grams; stomach contents insect fragments. The common roller is a Palearctic bird that migrates to South West Africa.

*Coracias caudata caudata* Linnaeus.

The lilac-breasted roller is widely distributed as a resident, breeding bird in South West Africa. One female with small ovary was collected at Arnhem Farm, October 23, weight 95 grams, stomach contents insect fragments. A male, also in non-breeding state, was taken near the Mata Mata entrance of the Gemsbok National Park, South Africa, October 17, weight 110 grams.

#### FAMILY UPUPIDAE

*Upupa epops africana* Bechstein.

The hoopoe is represented in the collection by three examples: near Mata Mata entrance of the Gemsbok National Park, South Africa, October 17, one male with enlarged testes; Ghaub Farm, November 25 and 26, two males in non-breeding state. The weights of these three were 54, 57, and 57 grams respectively; stomach contents insect fragments.

#### FAMILY PHOENICULIDAE

*Phoeniculus purpureus damarensis* (Ogilvie-Grant).

The red-billed wood-hoopoe was collected only at Okandukaseibe Farm on November 8, when one male and two females were obtained, all with only slight

gonadal enlargement; weights 96 in the male, 74 and 75 grams in the females; stomach contents of all insect fragments. These three specimens were collected together, and were seen repeatedly following a small flock of pied babblers (*Turdoides bicolor*).

*Rhinopomastus cyanomelas cyanomelas* (Vieillot).

The scimitarbill was met with in several places, as follows: Welverdiend Farm, October 13 to 20, one male and two females, all with enlarged gonads; Arnhem Farm, October 24, one female in non-breeding state; Okandukaseibe Farm, November 5 and 8, one male, one female, both with small gonads; Ghaub Farm, November 22, one male in non-breeding condition; weights, males 35 grams in each case, females 24 to 33 (average 27.8 gms); stomach contents insect fragments and caterpillars.

#### FAMILY BUCEROTIDAE

*Tockus nasutus dorsalis* Swift.

The gray hornbill was collected in two localities: Okandukaseibe Farm, November 4, one male with enlarged testes; Ghaub Farm, November 27, two males and one female, one of the males with enlarged testes, the other and the female with small gonads; weights, males 165, 165, 180; female 130 grams; stomach contents, figs, fruit seeds, and insects.

*Tockus erythrorhynchus damarensis* (Shelley).

This race of the red-billed hornbill is here recognized in conformity with Winterbottom's (1971:142) usage, but we lack material of the race *rufirostris* with which to compare it. The race *damarensis* was recognized by Hoesch and Niethammer (1940:193) as well as by the South African Ornithologists' Committee and seems securely established. Four specimens were taken at Ghaub Farm, November 20 and 21, two males with enlarged testes and two females with small ovaries; weights 200 and 220 in the males, 150 and 200 grams in the females; stomach contents figs, grasshoppers, and insect fragments. The birds are all in body molt.

*Tockus flavirostris leucomelas* (Lichtenstein).

The yellow-billed hornbill appears to be the commonest species of its family in the region covered by the Taylor Expedition. Specimen data are as follows: near Mata Mata entrance to the Gemsbok National Park, South Africa, October 17, two males with slight testicular swelling, one female with greatly enlarged ovary; Arnhem Farm, October 24, one female with slightly enlarged ovary; Okandukaseibe Farm, November 2 and 4, two females, one with the ovary enlarged, the other not; Okosongomingo Farm, November 17, one non-breeding male; weights of males 205 to 235 (average 223.3), females 155 to 215 (average 201.2 grams); stomach contents grasshoppers, beetles, other insect fragments, and seeds. Several of the birds show signs of body molt.



## FAMILY CAPITONIDAE

*Lybius leucomelas leucomelas* (Boddaert).

The pied barbet was met with in several localities, as follows: Barby Farm, October 8 and 9, one male with enlarged testes, one female with slight ovarian swelling; Welverdiend Farm, October 13 and 15, two males with slightly enlarged testes; Okandukaseibe Farm, November 1 and 3, one male and one female, both with enlarged gonads; Ghaub Farm November 28, one non-breeding female; weights 32 to 35 (average 33.2) in the males; 27 to 34 (average 30.7 grams) in the females; stomach contents seeds, fruit pulp, and insect fragments.

## FAMILY INDICATORIDAE

*Indicator minor minor* Stephens.

Two male lesser honey-guides, both with small resting gonads, were collected, one at Okandukaseibe Farm, November 5, and one at Okosongomingo Farm on November 15. By geography, and according to Winterbottom's list (1971:146), these should be of the race *I. m. damarensis* Roberts, which is supposed to differ from nominate *minor* in lacking the blackish moustachial streak in the male, in having the chin gray instead of white, and in being paler on the head. None of these characters seem to amount to much, and if these two examples are typical of *damarensis*, that race would seem doubtfully distinct from nominate *minor*. The present specimens have the dark moustachial markings, perhaps not as pronounced as in some *minor* but not less so than in others; they are not paler on the head than the paler examples of long series of *minor* from southern and eastern Africa. It is possible that the chin may be grayer, less whitish, in these two, but the difference is slight and it would seem that more than two examples would be necessary to demonstrate this character. Accordingly, we consider *damarensis* as not worthy of separation.

The two specimens weighed 23 and 26 grams, respectively, and had been feeding on beeswax and small insects.

## FAMILY PICIDAE

*Campethera abingoni anderssoni* (Roberts).

This very distinctly marked race of the golden-tailed woodpecker, with much black on the pectoral area, especially in the male, was collected in two localities: Welverdiend Farm, October 20, one female, ovary greatly enlarged, weight 63 grams; Okandukaseibe Farm, November 11, one male with large testes, weight 81 grams. Both birds had ants, ant larvae, and other insect larvae in their stomachs.

*Dendropicops fuscescens harei* Roberts.

The cardinal woodpecker was obtained only at Barby Farm on October 6; one male with slightly enlarged gonads, weight 32 grams, plumage much abraded.

## FAMILY ALAUDIDAE

*Mirafra africanoides harei* Roberts.

The fawn-colored lark was collected in three localities: Welverdiend Farm, October 13 to 19, three males and two females, gonads small in all but one case; Okandukaseibe Farm, October 21, one male with small testes; Arnhem Farm, October 22 to 25, two males, one female, one bird of unrecorded sex; weights, males 22 to 25 (average 24), females 20 to 26 (average 23.7 grams); stomach contents sand, seeds, and, in one case, insect fragments; all specimens are in somewhat abraded plumage. The specimen from Okandukaseibe Farm is slightly less rufescent, more sandy above, than the others, but cannot be considered as *M. a. sarwensis*, although the ranges of the two subspecies probably meet not very far from that locality. No material of *sarwensis* has been available for direct comparison, but a tendency toward intermediacy between races near their mutual boundaries is all that this specimen seems to suggest.

One of the Arnhem Farm males seems, by plumage, to be immature as it has the dusky median stripes of the feathers of the crown, nape, and mantle broadened to the extent that they seem almost like transverse, subterminal bars. In its general appearance it is surprisingly similar (with, however, a more slender bill and shorter wing) to the geographically remote *Calandrella rufescens somalica* of British Somaliland (!), a commentary on the adaptive convergence of larks in the arid regions of Africa. Hall and Moreau (1970:21) noted that all the species of larks in those areas were cryptically colored, adapted as they are to very similar ways of living, and tending to blend with the hues of the rock and earth of their substratum. Willoughby (1969) has also presented further observations and thoughts on the larks as well as other cryptic birds of the Namib Desert of South West Africa.

*Mirafra sabota naevia* (Strickland).

Three examples of this race of the sabota lark were taken on the Okandukaseibe Farm, October 31 to November 10, all males with small, resting gonads, weights 26, 27, and 28 grams respectively; stomach contents small seeds and some sand. In the absence of comparative material of some of the other races of this lark, reliance has been placed on Winterbottom's conclusions (1971:155), based on ample specimen data. He includes the Karibib area, where our specimens were taken, in the range of *M. s. naevia*. All three examples are in abraded plumage.

*Alaemon grayi grayi* (Wahlburg).

Gray's lark is represented in the collection by two specimens, one of each sex, taken 8 kms east of Swakopmund, Swakop River, November 8. The male had enlarged testes, the female only a slightly enlarged ovary, weight 22 in the male, 19 grams in the female; stomach contents seeds and sand; both specimens in abraded plumage. This is one of the most extreme instances of terrestrial birds whose plumage color blends well with its background.

*Eremopterix verticalis damarensis* Roberts.

One specimen, an injured bird caught by hand, Barby Farm, October 6, recorded as male (but female in plumage) "testes not enlarged," weight 21 grams; very worn plumage.

*Certhilauda curvirostris bradshawi* (Sharpe).

This lark was taken on Barby Farm, October 9, an adult male with small gonads, weight 31 grams; stomach contents fragments of grasshoppers; plumage much abraded.

*Certhilauda albescens erythrochlamys* (Strickland).

This interesting rufescent race of the karoo lark, noted for its very cryptic coloration, matching the reddish earth and rocks on which it lives, was met with only on the Barby Farm on October 6, when one female was collected. It was in non-breeding gonadal condition and weighed 21 grams. Hall and Moreau (1970:8) consider *erythrochlamys* as an incipient species.

*Certhilauda albofasciata arenaria* Reichenow.

The spike-heeled lark was met with only at Barby Farm, October 5 and 6, when two adult males with enlarged testes, one adult female with slightly enlarged ovary, and one recently fledged young male were collected; the two adult males weighed 30 and 32 grams, respectively, the female 23 grams; stomach contents insect remains and small seeds; plumage abraded in the adult birds.

*Calandrella cinerea anderssoni* (Tristram).

Three specimens of the red-capped lark were collected on the Okosongomongo Farm, November 17, one male and two females, all with small, resting gonads; weights 19 and 22 grams in the females, 23 grams in the male; stomach contents small seeds; plumage abraded.

## FAMILY HIRUNDINIDAE

*Hirundo rustica rustica* Linnaeus.

The common European swallow spends the northern winter months throughout South West Africa; two females were collected at Ghaub Farm, November 25; weights 17 and 19 grams; stomach contents insect fragments; both birds in worn plumage.

*Hirundo albigularis albigularis* Strickland.

One female white-throated swallow was collected at Welverdiend Farm on October 14; ovary not enlarged, weight 22 grams, stomach contents small insects; plumage somewhat abraded. This bird was netted over an open-top water storage tank.

*Hirundo dimidiata dimidiata* Sundevall.

The pearl-breasted swallow was met with only at Okandukaseibe Farm, November 9, when one male was taken; testes small, weight 13 grams, stomach contents insect fragments.

*Hirundo semirufa semirufa* Sundevall.

One specimen, Ghaub Farm, November 25, female with small ovary, weight 21 grams, stomach contents small insects. According to Winterbottom (1971:168) the red-breasted swallow is not numerous, but is sparingly distributed in South West Africa.

*Hirundo cucullata* Boddaert.

The greater striped swallow was collected at Arnhem Farm October 27 and 29, two males with enlarged gonads, 1 bird of unrecorded sex; weights 23 to 27 (average 25 grams). The birds were involved in nest building inside the doorway of a small shed.

*Riparia cincta xerica* Clancey and Irwin.

One female banded martin was collected at Ghaub Farm November 27; ovary small, weight 22 grams, stomach contents small insect fragments; plumage abraded. No comparative material of *xerica* has been available, but this is the only race included in Winterbottom's list of South West African birds (1971:170), based on numerous and widely scattered localities of record. This bird was found drinking from a small open pond of water.

## FAMILY DICRURIDAE

*Dicrurus adsimilis adsimilis* (Bechstein).

The fork-tailed drongo occurs throughout South West Africa except in the true desert areas. Specimen data are as follows: near Mata Mata entrance to the Gembok National Park, South Africa, October 13, one male, testes enlarged; Welverdiend Farm, October 16 to 20, four males and two females, with gonads ranging from small to huge; Okandukaseibe Farm, October 31 to November 7, one male, three females, one bird of unrecorded sex, with gonads varying from slightly enlarged to huge; weights, males 44 to 48 (average 45.1), females 40 to 51 (average 44.7 grams); stomach contents grasshoppers, beetles, and other small insects.

## FAMILY ORIOLIDAE

*Oriolus oriolus oriolus* (Linnaeus).

The European golden oriole is a regular winter visitor to South West Africa. One female and one bird of unrecorded sex (female by plumage), were collected at Ghaub Farm, November 21 and 24; weight 71 (female) and 65 grams (unsexed bird); stomach contents fig pulp; both specimens in abraded plumage.

## FAMILY CORVIDAE

*Corvus capensis* Lichtenstein.

The black crow is widely distributed in South West Africa, but only one example was taken there, at Barby Farm, October 6, a bird of unrecorded sex, weight 600 grams. A female was taken near the Mata Mata entrance of the

Gemsbok National Park, South Africa, October 18; its stomach contained remains of grasshoppers.

#### FAMILY PARIDAE

##### *Parus afer cinerascens* Vieillot.

The grey tit was collected as follows: Welverdiend Farm, October 16 and 19, two males with enlarged testes; Arnhem Farm, October 28, one female with small ovary; Okandukaseibe Farm, one male with small gonads, one bird of unrecorded sex; weights, males 18, 18, and 20 grams, female 17 gms; stomach contents caterpillar and insect fragments.

##### *Parus niger niger* Vieillot.

Two specimens, one of each sex, Ghaub Farm, November 28, the male with large testes, the female with slight ovarian swelling; weights 21 grams each; stomach contents small seeds and small insects.

#### FAMILY TIMALIIDAE

##### *Turdoides bicolor* (Jardine).

The pied babbler was taken in two areas; Okandukaseibe Farm, November 5 and 8, two males with large testes, and one female with oviduct greatly distended, the female marked as "post laying;" Ghaub Farm, November 25, one male and two females, all with small, or only slightly swollen, gonads; weights, males 74, 80, and 84 grams, females 72, 72, and 77 grams; all stomachs held insect fragments. The three birds from Okandukaseibe Farm are in good plumage; the three from Ghaub Farm are soiled, and show signs of active molt. Only one flock of these birds was seen at Okandukaseibe Farm, and always with three Red-billed wood-hoopoes, which were also collected.

##### *Turdoides gymnogenys* (Hartlaub).

The bare-checked babbler was met with only once, at Ghaub Farm, November 20, when three adult males and one partly grown juvenile female were taken. The adults all had large gonads; weights 78, 81, 84 grams; stomach contents of all, including the fledgling, insect fragments.

#### FAMILY PYCNONOTIDAE

##### *Pycnonotus nigricans nigricans* (Vieillot).

The red-eyed bulbul is a common and generally distributed bird throughout South West Africa. Sixteen specimens were obtained, as follows: Barby Farm, October 3 to 9, one male with greatly enlarged testes, two females with slight ovarian swelling; Arnhem Farm, October 25 to 27, three males with gonads ranging from small to large, one bird of unrecorded sex; Okandukaseibe Farm,

November 2 to 8, three of each sex, with gonads ranging from small to large; Ghaub Farm, November 22, two males, one female, all with enlarged gonads; weights, males 28 to 34 (average 32), females 27 to 34 (average 29.6 grams); stomach contents insect fragments and fruit pulp. One of the males is partly albinistic, with a single white feather on the upper back; some are in worn plumage, but none show signs of molting.

#### FAMILY TURDIDAE

##### *Turdus litsitsirupa pauciguttatus* Clancey.

Two specimens: Okandukaseibe Farm, November 4, female, ovary slightly enlarged, weight 79 grams; stomach contents dipterous larvae; Ghaub Farm, November 24, male, testes enlarged, weight 83 gms; both examples in abraded plumage.

##### *Oenanthe monticola atmorii* (Tristram).

The mountain chat was common on the Barby Farm where one male and four females were collected, October 5 to 9, the male with very large testes, the females with ovaries ranging from small to greatly enlarged. Another female, with small ovary, was taken on Arnhem Farm, October 26. The male has only a narrow whitish line above the lores, the rest of its head solid black. Weights were recorded as follows: male 38, females 30 to 38 (average 33.2 grams); stomach contents included ants, and insect fragments. One of the females still had some of the outer primaries basally enclosed in sheaths.

##### *Cercomela familiaris galtoni* (Strickland).

One example of this race of the familiar chat, a male with enlarged testes, was collected on Okandukaseibe Farm, November 6; weight 15 grams; stomach contents small insects; plumage somewhat abraded.

##### *Myrmecocichla formicivora minor* Roberts.

The ant-eating chat was encountered only on the Welverdiend Farm, on October 18, when a male and a female, both with greatly enlarged gonads, were collected; weight 42 in the male, 38 grams in the female; stomach contents ants. On October 23, at Arnhem Farm, another male was shot, but was badly damaged and extremely fat; only its head was saved for the small ticks that were abundant on it.

##### *Erythropygia leucophrys ovambensis* Neumann.

One specimen; Ghaub Farm, November 25, male with slight testicular enlargement, weight 20 grams; stomach contents insect fragments. The white-browed scrub robin is essentially a denizen of riverine bush, a habitat in which the expedition spent little time. The present specimen appears to be an intermediate between typical *ovambensis* and *munda*, as it has a few dusky streaks on the breast. We follow Winterbottom (1971:187) in considering it *ovambensis*.

*Erythropygia paena paena* Smith.

The Kalahari scrub robin was found to be common. Specimen data are as follows: Barby Farm, October 5, one male with enlarged gonads; Welverdiend Farm, October 15 to 20, two males and two females, gonads from small to enlarged; Arnhem Farm, October 24 to 27, three males, one female; the males with small to large testes, the female with a small ovary; Okosongomingo Farm, November 18, one female with slight ovarian enlargement; weights, males 19 to 21 (average 20.1), females 18 to 20 (average 19 grams); stomach contents small insect fragments. The Barby Farm specimen is much tinged (possibly earth-stained) with tawny below; there is considerable variation in the color of the upper back. Two of the Welverdiend Farm examples are considerably grayer, less rufescent there than the others.

*Erythropygia coryphaeus abboti* Friedmann.

The Karoo robin was found only on the Barby Farm, October 6 and 7; three males and one female, all with enlarged gonads; weights 19 to 22 in the males (average 20.9), 19 grams in the female; stomach contents insect fragments. These birds were encountered in low bushes growing in the "streets" between rows of sand dunes.

## FAMILY SYLVIIDAE

*Acrocephalus arundinaceus arundinaceus* (Linnaeus).

The great reed warbler is a Eurasian bird that spends the northern winter in South West Africa. One female was taken at Ghaub Farm, November 21, weight 26 grams, stomach contents insect fragments. This specimen was collected in a small clump of introduced ornamental bamboo growing alongside a small stream.

*Phylloscopus trochilus trochilus* (Linnaeus).

Another Eurasian winterer in South West Africa that was collected twice: Okosongomingo Farm, November 16, one male; Ghaub Farm, November 25, one male; weights 7 grams each; stomach contents insect fragments.

*Achaetops pycnopygius* (P. L. Sclater).

The Damara rock jumper occurs in rocky areas and in one of the species peculiar to southwestern Africa, and north to southern Angola. Two specimens were collected: Okosongomingo Farm, November 15, one female with slight ovarian enlargement; Ghaub Farm, November 25, one male with enlarged testes; weights, male 24, female 30 grams; stomach contents insect fragments.

*Sylvietta rufescens ochrocar*a Oberholser.

Two specimens of the long-billed crombec were taken: Barby Farm, October 9, one male with enlarged testes; Ghaub Farm, November 21, one male in non-breeding state; weighs 11 grams each; stomach contents small insects. In the absence of comparative study material, the subspecific identification here used is

based on the racial ranges given by Winterbottom (1971:194). The two specimens are in abraded plumage.

*Eremomela icteropygialis icteropygialis* (Lafresnaye).

One specimen, a female with a small ovary, Welverdiend Farm, October 13, weight 8 grams, stomach contents insects; specimen in very worn plumage.

*Eremomela usticollis usticollis* Sundevall.

One specimen, Okosongomingo Farm, November 16, male, testes enlarged, weight 8 grams, stomach contents insect fragments, plumage abraded.

*Camaroptera brevicaudata sharpei* Zedlitz.

The gray-backed camaroptera was found to be common. Specimens were collected at Okandukaseibe Farm, October 31 to November 11, five males, one unsexed bird, testes slightly to much enlarged; Ghaub Farm, November 21 and 26, two males, one with small, one with enlarged, testes; weights 11 to 12 (average 11.5 grams); stomach contents insect fragments.

*Cisticola chiniana frater* Hoesch and Niethammer.

One specimen of the rattling cisticola was taken on Ghaub Farm, November 22, a male with enlarged testes, weight 18 grams, stomach contents insect fragments; plumage much abraded.

*Prinia pectoralis ocularia* (Smith).

One female rufous-eared warbler was taken on Barby Farm, October 5, small ovary; weight 10 grams; stomach contents insect fragments; plumage abraded.

*Prinia flavicans flavicans* (Vieillot).

The black-chested prinia was found to be common and collected as follows: Welverdiend Farm, October 14 to 20, two males with enlarged testes, one female with slight ovarian swelling; Okandukaseibe Farm, November 1 to 5, two males and one female, all with little or no gonadal enlargement; Okosongomingo Farm, November 18, one bird of unrecorded sex; weights of males 9 grams in each case; females 8 gms each; stomach contents only insect fragments.

## FAMILY MUSCICAPIDAE

*Muscicapa striata neumanni* Pocke.

Three specimens, two males, one of unrecorded sex, were taken on the Okandukaseibe Farm, November 4 and 6; weights 16 and 17 grams. These examples agree with *neumanni* in their dorsal pallor, not with nominate *striata*, which is somewhat darker. Winterbottom (1971:206) wrote that *neumanni* may prove to be the commonest race in South West Africa of this palearctic visitor, although he had apparently but a single example at the time, a bird from Okahandja. Our series bears out his statement well. Their strongly developed pectoral streaks rule out any possibility of their being *balearica*, a race still known from western



Damaraland on the strength of a single specimen. Our specimens have wing lengths of 85, 88, and 88 mm respectively, agreeing in this respect with *neumanni*; *balearica* is smaller, with wings 76 to 82 mm in length.

*Parisoma subcaeruleum cinerascens* Reichenow.

The tit-babbler was found to be very common, and a series of specimens was obtained, as follows: Barby Farm, October 4 to 10, one male, two females, three of unrecorded sex, with gonads varying from slightly to much enlarged; Welverdiend Farm, October 14 to 18, two males and two females, gonads small to large; Arnhem Farm, October 23 and 25, one male with large testes and one female with a small ovary; Okandukaseibe Farm, October 31 to November 6, two males and two females, gonads small to greatly enlarged. We here follow Winterbottom in placing this genus among the flycatchers, but recognize that this is a disputed point.

*Melaenornis mariquensis vinaceus* (Lawson).

The Marico flycatcher was found to be a very common bird, especially at Welverdiend Farm, October 12 to 19, when 17 examples were procured, including a partly grown fledgling; most of the birds with considerable to great gonadal swelling, but some with small, resting gonads. A single female was collected on the Okandukaseibe Farm, November 10, a bird with slight ovarian enlargement; weights of males 23 to 27 (average 24.4), females 22 to 28 (one marked 36!), (average 24 grams, not counting the 36 gm individual which may have been wrongly labeled for 26 gms); stomach contents insects; most of the specimens in worn plumage. No topo-typical specimens of *M. m. acaciae* have been available for comparison.

*Melaenornis infuscata namaquensis* (Macdonald).

One male of this race of the chat flycatcher was collected near the Mata Mata entrance of the Gemsbok National Park, South Africa, October 18, testes not enlarged, weight 39 grams; plumage much abraded.

*Batis pririt affinis* (Wahlberg).

This little flycatcher was collected at three localities, as follows: Barby Farm, October 3, one male with greatly enlarged testes; Welverdiend Farm, October 14, one male with large gonads; Okandukaseibe Farm, November 6, one male with slight testicular swelling; weights 9 to 10 (average 9.5 grams), stomach contents insect fragments.

*Terpsiphone viridis plumbeiceps* Reichenow.

The paradise flycatcher is said to be a scarce bird in South West Africa (Winterbottom 1971:210), so the following specimen records are all the more welcome: Okandukaseibe Farm, October 31, one male in mutilated, worn plumage, testes not enlarged; Ghaub Farm, November 23, one male with enlarged testes, one female with a small ovary; weights 12 and 15 grams for the males, 13 gms for the female.

## FAMILY MOTACILLIDAE

*Motacilla capensis capensis* Linnaeus.

One specimen, Barby Farm, October 8, male, testes slightly enlarged; weight 21 grams; stomach contents insect fragments; plumage abraded.

*Anthus novaeseelandiae rufuloides* Roberts.

This pipit was found only on the Ghaub Farm, November 27, when two males and one female were taken; all with enlarged gonads; weights 24 and 26 in the males, 22 grams in the female; stomach contents insect fragments; plumage fairly abraded in all three.

*Anthus vaalensis neumanni* Meinertzhagen.

One male, Okosongomingo Farm, November 17, testes slightly enlarged, weight 28 grams, stomach contents insect fragments, plumage worn.

## FAMILY LANIIDAE

*Lanius minor minor* Gmelin.

One immature female lesser gray shrike was collected on Ghaub Farm, November 25, weight 42 grams, stomach contents insect fragments; plumage, especially the remiges, abraded.

*Lanius collaris subcoronatus* Smith.

Fiscal shrikes were collected as follows: Barby Farm, October 4 and 10, two males, one with testes enlarged, the other slightly so; Welverdiend Farm, October 14 and 20, one male and one female, both with slight gonadal swelling; weights, males 36 to 42 (average 38.7), female 39 grams; stomach contents grasshopper and insect fragments. According to Winterbottom (1971:215) this shrike is scarce and local in Damaraland. The experience of the Taylor Expedition was otherwise.

*Lanius collurio collurio* Linnaeus.

One female red-backed shrike was taken on the Okosongomingo Farm, November 16, weight 25 grams, stomach contents insect fragments. This palearctic visitor is common in Damaraland during the Eurasian winter months.

*Laniarius atrococcineus* (Burchell).

The crimson-breasted shrike, one of the strikingly plumaged birds of South West Africa, was found to be common. Specimens were taken as follows: Welverdiend Farm, October 12 to 17, four males, two females, one of unrecorded sex, gonads slightly to greatly enlarged; Arnhem Farm, October 24, one male, one female, gonads slightly swollen; Okosongomingo Farm, November 16, ovary slightly enlarged; Ghaub Farm, November 22 to 26, one male, one female, gonads slightly to much enlarged; weights, males 49 to 52 (average 50.3), females 40 to 51 (average 45.2 grams); stomach contents insect fragments, plumage, especially the remiges, worn in most examples.

*Dryoscopus cubla okavangensis* Roberts.

The puff-backed shrike was met with only at Ghaub Farm, November 20 to 28; three males, one female, one bird of unrecorded sex, gonads slightly to greatly enlarged; weights, males 24 to 27 (average 25.9), female 28 grams; stomach contents insect fragments; plumage somewhat abraded.

*Nilaus afer brubru* (Latham).

The brubru was found at the Welverdiend Farm, October 14 and 19, two females, ovaries slightly to much enlarged; Okandukaseibe Farm, November 3 and 4, one male, testes slightly enlarged, one unsexed specimen; weights, male 22, females 24 grams each; stomach contents insect fragments. The specimen of unrecorded sex is a female in plumage.

*Eurocephalus anguitemens anguitemens* Smith.

The white-crowned shrike was collected only at Okandukaseibe Farm, November 1 to 11, three males and one female, gonads small to large; weights, males 61 to 70 (average 65.3), female 64 grams; stomach contents large beetle and other insect fragments; plumage much abraded. All specimens were collected from one small flock.

*Tchagra australis damarensis* (Reichenow).

The brown-headed tchagra was found in two areas: Okandukaseibe Farm, November 8, one bird of unrecorded sex; Ghaub Farm, November 21 to 25, two males and one female, the males with large testes, the female with a small ovary; weights of males 33 and 36, female 34 grams; stomach contents insect fragments; active caudal molt in two of the specimens.

*Malaconotus zeylonus thermophilus* (Clancey).

The bokmakierie was found only on Barby Farm, October 2 to 8, one male with slightly enlarged testes, one female with small, resting ovary, one half-grown juvenile male; weights 60 in the male, 48 grams in the female; stomach contents of the young bird, caterpillar and small beetle. The female is molting into full adult plumage. On the basis of geography these specimens must be considered *thermophilus*, which race has the top of the head and nape paler than in nominate *zeylonus*, but not as pale as in *phanus*. Our present adult male is barely, if at all, paler than several of the nominate race, from Cape Province, South Africa. Our comparative material is, however, too limited to upset the validity of *thermophilus*, but it should be rechecked by those with ampler series (as may have been done by the South African List Committee).

*Prionops plumata poliocephala* (Stanley).

The helmet shrike was collected only on the Okosongomongo Farm, November 17, when three males and two females were obtained, gonads slightly to much enlarged, weights, males 32 to 37 (average 34), females 36 to 39 grams, respectively; stomach contents insect fragments. These specimens were all collected from a small flock, the only flock seen during our stay.

## FAMILY STURNIDAE

*Creatophora cinerea* (Meuschen).

Wattled starlings were found near the Mata Mata entrance of the Gemsbok National Park, South Africa, October 17, one male with slight testicular enlargement, one female with ovary much enlarged; Okandukaseibe Farm, November 11, one male with slight gonadal swelling; and at Ghaub Farm, November 21 and 22, two males with greatly enlarged gonads; weights, males 63, 74, 77, and 82 grams respectively, female 64 gms. The light weight male is immature but seems to be fully grown. Stomach contents insect fragments only.

As noted under *Polyboroides radiatus*, a wattled starling was found in the stomach of this hawk.

*Lamprotornis nitens phoenicopterus* Swainson.

The red-shouldered glossy starling is widely distributed and common in the areas visited; it was the only species of its genus collected. Specimens were taken as follows: Welverdiend Farm, October 16, one male with large testes, one female with a small ovary; near Mata Mata entrance of Gemsbok National Park, South Africa, October 17, one male with large gonads; Arnhem Farm, October 25, one male with testes slightly enlarged; Okandukaseibe Farm, November 5 and 6, one male with slight gonadal enlargement; one female, post-laying; Okosongomingo Farm, November 16, three males, all with large testes; Ghaub Farm, November 21 to 25, two males and three females, gonads varying from small to large; weights, males 77 to 85 (average 80.9), females 67 to 80 (average 73.8 grams); stomach contents insect fragments, fig pulp, and fruit pulp.

*Onycognathus nabouroup* (Daudin).

This chestnut-winged starling was found only on the Barby Farm, October 9, a bird of unrecorded sex, weight 115 grams.

## FAMILY NECTARINIIDAE

*Nectarinia mariquensis mariquensis* (Smith).

The Marico sunbird was found to be a common bird. Specimen data are: Arnhem Farm, October 25 to 27, three males, one female, the males with greatly enlarged testes, the female with no ovarian enlargement; Okosongomingo Farm, November 16, one male with greatly enlarged gonads; Ghaub Farm, November 26, one male, testes small; weights, males 10 to 12 (average 11), female 10 grams; stomach contents small insect fragments.

*Nectarinia fusca* (Vieillot).

The dusky sunbird was found at Barby Farm, October 7; one male, testes enlarged, weight 9 grams, stomach contents insect fragments; very abraded plumage.

*Nectarinia senegalensis saturatior* (Reichenow).

One female, ovary not enlarged, was taken at Okosongomingo Farm, November 15; weight 13 grams, stomach contents insect fragments.

## FAMILY PLOCEIDAE

*Plocepasser mahali stentor* Clancey.

The white-browed sparrow weaver was very common at Barby Farm, where nine specimens were taken October 6 to 10, five males, three females, and one of unrecorded sex, gonads varying from small to large; also at Okandukaseibe Farm, November 3, one female in non-breeding state; Okosongomingo Farm, November 16, one male with slight testicular swelling; Ghaub Farm, November 25, one male, testes slightly enlarged; weights, males 36 to 42 (average 39.9), females 37 to 42 (average 40.5 grams); stomach contents small seeds; plumage abraded in most specimens.

*Philetairus socius socius* (Latham).

Because of its gregarious nesting and flocking habits the social weaver is numerous where it occurs. The species was met with in two areas: Barby Farm, October 7 to 13, six males and three females, gonads ranging from small to large; Welverdiend Farm, October 14, three males and one female, with a similar diversity of gonadal size; weights of males 27 to 40 (average 30.9), of females 25 to 28 (average 26.5 grams); stomach contents small seeds and sand. The heaviest bodied of the males is an immature bird in very worn plumage, but obviously fully grown in size. Both the pygmy falcon and the rosy-faced lovebird enjoy a symbiotic relationship with this weaver, using some of the latter's nesting chambers, but not interfering with their hosts.

We were asked by various farmers not to pull down any nests, as they use them for livestock feed in times of food shortage.

*Passer motitensis motitensis* (Smith).

The "great" sparrow was found at Barby Farm, October 8 to 10, two males and one female, all with small gonads; and Arnhem Farm, October 25, two males with no or little testicular enlargement; weight of males 26 to 34 (average 30.2), female 32 grams; stomach contents seeds.

*Passer melanurus damarensis* Reichenow.

The mossie was found on the Barby Farm, October 5 to 7, two males, one female, one bird of unrecorded sex, all with little or no gonadal swelling; and Welverdiend Farm, October 18, one male with small testes; weights of males 21 to 25 (average 23), female 24 grams; stomach contents small seeds and some plant fibers. This sparrow appears to have a locally discontinuous distribution in South West Africa. According to Winterbottom (1971:235) it seems to be absent (at least unrecorded) from much of central Damaraland.

*Passer griseus diffusus* (Smith).

The gray-headed sparrow is common and widely distributed in South West Africa. Specimen data are: Welverdiend Farm, October 19 and 20, two females, both with small ovaries; Arnhem Farm, October 25 and 27, one male, one female, gonads small in both; Okandukaseibe Farm, November 3 to 8, one male, four females, one unsexed specimen, all with small, resting gonads; Okosongomingo

Farm, November 16, two males, both with small testes; weights of males 24 to 25 (average 24.7), females 22 to 26 (average 24.7); stomach contents small seeds; body plumage fairly abraded in the majority of specimens.

*Sporopipes squamifrons squamifrons* (Smith).

The little scaly-fronted weaver was met with chiefly at Welverdiend Farm, October 13 to 17, when six males and three females were collected, all with small or only slightly enlarged gonads; also at Arnhem Farm, October 23, one female with a small ovary; weights, males 11 to 12 (average 11.6), females 10 to 12 (average 11.2 grams); stomach contents small seeds. An active nest of this species was found at Okandukaseibe Farm with four newly hatched young in it. An adult was flushed from the nest.

*Ploceus velatus caurinus* Clancy.

The masked weaver was found to be very common. Specimens were collected as follows: Barby Farm, October 5, one male; Welverdiend Farm, October 12 to 19, seven males, five females, all with small or only slightly enlarged gonads; Arnhem Farm, October 25 and 26, one male with enlarged testes, one female with a small ovary; Okandukaseibe Farm, November 4 and 5, four males, four females, one unsexed specimen, all with small gonads; Okosongomingo Farm, November 16, four males, one female, with gonads varying from small to greatly enlarged; Ghaub Farm, November 21 and 23, two males with large testes; weights of males 21 to 26 (average 24.3), of females 16 to 23 (average 20.1 grams); stomach contents small seeds. Many of the males are in "off season" plumage. They and the females vary considerably in the amount of grayish or of greenish on the dorsal plumage.

*Ploceus rubiginosus trothae* Reichenow.

Two specimens of the chestnut weaver were obtained on the Okandukaseibe Farm on November 2, one male in non-breeding plumage, and one female, gonads small in both; weight 31 grams in the male, 26 gms in the female; stomach contents small seeds.

*Quelea quelea lathami* (Smith).

The red-billed quelea was very common; specimens were collected as follows: Arnhem Farm, October 27 and 28, three males, three females, all with small gonads; Okandukaseibe Farm, November 2 to 5, six males, three females, three birds of unrecorded sex, all with small gonads; Okosongomingo Farm, November 16, one bird of unrecorded sex; weights of males 17 to 19 (average 18.4), of females 17 to 20 (average 18.8 grams); stomach contents seeds. One of the males has an extensive suffusion of purplish pink on the breast; none of the birds are in breeding plumage.

*Amadina erythrocephala erythrocephala* (Linnaeus).

The red-headed finch was found to be fairly common in two localities: Arnhem Farm, October 27 and 29, two males and one female, all with small gonads; Okandukaseibe Farm, November 4 to 9, six males, one female, two of the

males with large testes, the others with small gonads; weights, males 20 to 24 (average 22), females 20 to 21 (average 20.5 grams); stomach contents small seeds; plumage abraded in the majority of specimens.

*Pytilia melba damarensis* Neunzig.

The melba finch is common and widely distributed. Specimens were collected as follows: Arnhem Farm, October 25, one male, testes small; Okandukaseibe Farm, November 1 to 7, seven males, one female, one specimen of unrecorded sex, gonads small or only slightly enlarged; Okosongomingo Farm, November 16, five males, all with small gonads; Ghaub Farm, November 25, one male, one female, gonads small; weights males 14 to 16 (average 14.7), females 14 to 15 (average 14.5 grams); stomach contents small seeds. Three of the birds, all taken on November 2, show signs of body molt.

*Estrilda erythronotos soligena* Clancey.

The black-checked waxbill was found to be common in three localities, especially numerous in the first one; Okandukaseibe Farm, November 2 to 9, six males, three females, one unsexed specimen, gonads large in one, small in all the others; Okosongomingo Farm, November 16, one male, one female, gonads small; Ghaub Farm, November 24, one male, gonads small; weights of males 8 to 10 (average 8.8), females 9 grams each; stomach contents small seeds.

*Uraeginthus angolensis angolensis* (Linnaeus).

The blue waxbill was met with only on the Ghaub Farm, November 25, when one male and three females were collected, all with small, resting gonads; weights 10 grams in each case; stomach contents small seeds.

*Uraeginthus granatina siccata* (Clancey).

The violet-eared waxbill was common on the Okandukaseibe Farm, November 2 to 9, when seven males and four females were collected, all with small, resting gonads; also on the Okosongomingo Farm, November 16, two males, both with small testes; weights of males 10 to 13 (average 11.25), females 10 to 11 (average 10.2 grams); stomach contents small seeds. The allocation of these specimens to the subspecies *siccata* is one in conformity with Winterbottom (1971:245), as our comparative material has not been sufficient for a critical assessment of the characters of this race. Winterbottom's treatment is in agreement with that of the official South African list.

*Vidua regia regia* (Linnaeus).

The shaft-tailed whydah generally is distributed in the areas visited. It is known to be a brood parasite on the violet-eared waxbill (its usual host, but not its only one). Neither the *Vidua* nor the *Uraeginthus* were in breeding state at the time of the Taylor Expedition visit, however. Specimens of the shaft-tailed whydah were taken as follows: Welverdiend Farm, October 15, one male in non-breeding plumage; Okandukaseibe Farm, November 2 to 11, one male molting into breeding plumage, testes slightly enlarged, and two unsexed specimens;

Ghaub Farm, November 27, one male in non-breeding plumage and gonadal state; weights of males 14 to 16 (average 15 grams); stomach contents small seeds.

*Steganura paradisea paradisea* (Linnaeus).

The paradise whydah was collected only on Ghaub Farm, November 25, two males with small gonads, both molting into breeding plumage; weight 20 and 29 grams respectively; stomach contents small seeds. This brood parasite usually selects the melba finch; *Pytilia melba*, as its host.

#### FAMILY FRINGILLIDAE

*Serinus atrogularis deserti* Reichenow.

The yellow-rumped canary was found in several areas: Arnhem Farm, October 25 to 29, two females with small ovaries; Okandukaseibe Farm, November 7, one male with no testicular enlargement; Okosongomingo Farm, November 16, two females with small ovaries; Ghaub Farm, November 25, one female, non-breeding state; weights, male 11; females 10 to 12 (average 11.2 grams); stomach contents small seeds.

*Serinus albogularis sordahlae* (Friedmann).

One specimen of the white-throated seed-eater was taken at Barby Farm, October 4, testes not enlarged; weight 25 grams.

*Serinus flaviventris damarensis* (Roberts).

The yellow canary was found in several areas: Barby Farm, October 7, one male with enlarged testes; Welverdiend Farm, October 17 and 20, two non-breeding females; Arnhem Farm, October 24 to 26, two males, two females, with gonads ranging from small to greatly enlarged; weights, males 16 to 20 (average 17.7), females 15 to 18 (average 16.5 grams); stomach contents seeds.

*Emberiza flaviventris princeps* Clancey and Winterbottom.

The golden-breasted bunting was collected in three areas: Arnhem Farm, October 25, two males, both with enlarged testes; Okandukaseibe Farm, November 2, one male with small gonads, and one unsexed specimen; Okosongomingo Farm, November 16, four males, two with slight, the other two with much to great gonadal enlargement; weights 17 to 20 (average 19 grams); stomach contents small seeds.

*Emberiza capensis bradfieldi* (Roberts).

Three specimens of the cape bunting taken at Barby Farm, October 3 to 10, are allocated to *bradfieldi* rather than to nominate *capensis* because they are slightly darker below than examples of the nominate race from western Cape Province, South Africa. There is no real difference in the length or the thickness of the bills in these two series of specimens (*bradfieldi* is supposed to have a somewhat heavier bill than has *capensis*). The capture locality is almost on the border of the ranges of the two subspecies, so it is not surprising if they show some intermediacy in their characters. Winterbottom (1971:250-251) gives the



range of typical *capensis* as extending north to the Tiraz Mountains, beyond which *bradfieldi* replaces it. Barby Farm is only a short distance north of the Tiraz Mountains.

The three examples, one male and two females, showed little or no gonadal enlargement; weight of the male 21, of the females 19 grams each; stomach contents seeds and sand.

*Emberiza tahapisi tahapisi* Smith.

The rock bunting was found in three localities at each of which a single specimen was taken: Okandukaseibe Farm, November 2, Okosongomingo Farm, November 16, and Ghaub Farm, November 25; no or little gonadal enlargement; weight 14 grams in a female, 15 gms each in a male and an unsexed specimen; stomach contents insect fragments and small seeds.

*Emberiza impetuani impetuani* Smith.

This bunting was found at Barby Farm, October 9 and 10, one male, two females, one bird of unrecorded sex; and at Okandukaseibe Farm, November 1, one male; all with small gonads; weights, males 13 and 14 grams, females 13 and 16 gms; the unsexed bird 18 gms; stomach contents seeds. One of the Barby Farm birds is in molt, the new rectrices still basally sheathed; the others are in abraded plumage.

#### LITERATURE CITED

- FRIEDMANN, H. 1930. The sociable weaver birds of South Africa. *Natural History* 30:205-212.
- HALL, B. P., AND R. E. MOREAU. 1970. An atlas of speciation in African passerine birds. London: British Museum. 423 pp.
- HOESCH, W., AND G. NIETHAMMER. 1940. Die Vogelwelt Deutsch - Südwestafrikas. *Journ. für Ornith.* 88 (Sonderheft):1-404.
- IMMELMANN, K., AND G. IMMELMANN. 1968. Zur fortpflanzungsbiologie einiger Vögel in der Namib. *Bonn Zoologisches Beiträge* 19:329-339.
- MACDONALD, J. D. 1957. A contribution to the ornithology of Western South Africa. Results of the British Museum (Natural History) South West Africa Expedition 1949-50. London: British Museum. 174 pp.
- RIDGWAY, R. 1912. Color standards and color nomenclature. Washington, D.C., 43 pp, 53 pls.
- SOUTH AFRICAN ORNITHOLOGICAL SOCIETY LIST COMMITTEE. 1969. Check list of the birds of South Africa. 338 pp.
- WILLOUGHBY, E. J. 1969. Desert colouration in birds of the central Namib Desert. *Sci. Pap. Namib Desert Research Station* 44:59-68.
- WINTERBOTTOM, J. H. 1969. On the birds of the sandveld Kalahari of South West Africa. *Ostrich* 40:182-204.
- . 1971. A preliminary check list of the birds of South West Africa. *South West African Scientific Society, Windhoek.* 268 pp.
- . 1972. Birds of the Maltahöhe District, South West Africa. *Ostrich* 43:217-227.
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