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S. DILLON RIPLEY
GERD H. HEINRICH

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COMMENTS ON THE AVIFAUNA OF TANZANIA, II

S. DILLON RIPLEY
Smithsonian Institution, Washington, D.C.

GERD H. HEINRICH
Dryden, Maine

ABSTRACT

Buccanodon olivaceum ulugurensis and *Viridubucco leucomystax meridionalis* (both Capitonidae), new subspecies, are described on the basis of morphological characters. Evidence is presented that *Dendropicos fuscescens* (Vieillot) and *Dendropicos lafresnayi* Malherbe (=*D. f. lafresnayi* Malherbe) are distinct taxa. The distribution of *Smithornis capensis* (Smith) is redefined based on an examination of a large series of specimens from eastern Africa. *Smithornis capensis meinertzhageni* van Someren, *S. c. suahelicus* Grote, *S. c. shimba* van Someren, and *S. c. chyulu* van Someren are reinstated as valid subspecies and a key to their identification is given. *Macrodipteryx longipennis* (Shaw) is recorded as new to Tanzania. New records of *Modulatrix stictigula stictigula* (Reichenow) from the Uzungwa Plateau show that this subspecies has a disjunct range in south-central Tanzania. Species and subspecies representing extensions of geographic range in Tanzania are *Caprimulgus poliocephalus* Rüppell, *Tricholaema lacrymosum lacrymosum* Cabanis and *T. l. ruahae* Neumann. Field data from specimens of *Alethe fuelleborni* (Reichenow) reveal that the breeding season coincides with the rainy season, October to March. Call notes and behavior of this species, based on field observations, are also recorded.

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Introduction

This paper discusses additional noteworthy material from the collection originally described in *Postilla* no. 96, 1966. The collection was procured by the junior author, his wife, and their son, Bernd Heinrich, for the Peabody Museum of Natural History in 1961-63 in Tanzania. For collecting stations, chronology and map see pages 1-3 of the earlier publication.

The following abbreviations are used to identify the institutions from which specimens were examined: AMNH—American Museum of Natural History, New York, N.Y.; YPM—Peabody Museum of Natural History, Yale University, New Haven, Conn.; and USNM—U.S. National Museum, Washington, D.C.

Annotated List

Caprimulgus poliocephalus poliocephalus Rüppell

MATERIAL. 3 ♂ adults, YPM 79209-11, eastern and southern slopes of Mt. Meru, 1500-2000 m alt., northern Tanzania, 16 June — 17 July, 1962. 1 ♀ adult, YPM 79212, Livingstone Forest Reserve, 32 km southeast of Mbeya, 2600 m alt., southwestern Tanzania, 11 Nov. 1962.

MEASUREMENTS. Wing: males, 144-155 (149.3) mm; female, 150 mm. Weight: males, 39-47.5 g; female, 23 g.

RANGE IN EASTERN AFRICA. Ethiopia, southeastern Sudan and Kenya to northern Tanzania (Mackworth-Praed and Grant, 1952; White, 1965).

BREEDING. 16 June: 1 ♂ with gonads distinctly enlarged, Mt. Meru. 11 Nov.: 1 ♀ on nest with two eggs, Livingstone Forest Reserve.

HABITAT. The nest in the Livingstone Forest was found in a bare clearing between two patches of forest in a stand of scattered Eagle-ferns *(Pteridion).*

REMARKS. We are not able to distinguish the female from the far southwestern part of Tanzania from the series of males from Mt. Meru, except by the normal sexual dimorphism evident in the restriction of white on the two exterior rectrices to their apices.

Macrodipteryx longipennis (Shaw)

MATERIAL. 1 ♀ adult, YPM 79213, Ufipa Plateau, near Sumbawanga, 2200 m alt., southwestern Tanzania, 6 Dec. 1962. 1 ♂ juvenal, YPM 79214, near Mbeya, 2000 m alt., southwestern Tanzania, 24 Dec. 1962.

MEASUREMENTS. Wing: female adult, 172 mm; male juvenal, 184 mm. (This is the maximum length as recorded by Mackworth-Praed and Grant, 1952.)

RANGE IN EASTERN AFRICA. The Sudan, Eritrea and Ethiopia to Uganda and western Kenya; but in non-breeding season a migrant only to central Sudan from Darfur to Kassala and northern Ethiopia (Mackworth-Praed and Grant, 1952).

REMARKS. The above records are apparently new for Tanzania and extend the limits of the distribution by about 1000 km to the south.

Buccanodon olivaceum ulugurensis, new subspecies

HOLOTYPE. ♂ adult, YPM 79050, Uluguru Mts., eastern Tanzania, 16 Dec. 1961, collected by Gerd Heinrich, original field no. 31908.

MATERIAL. 2 ♂ adults, 1 ♀ adult, YPM 79215-17, Uluguru Mts., eastern Tanzania, 1500-1800 m alt., 29 Nov. — 14 Dec. 1961. 1 ♂ adult, USNM 325600, Uluguru Mts., 14 Sept. 1928.

MEASUREMENTS. Wing: males, 89-93 (91.8) mm; female, 89 mm. Weight: males, 53-58 g.

DESCRIPTION. Compared with 21 specimens of *Buccanodon olivaceum olivaceum* (Shelley) from eastern Kenya and Tanzania (YPM 79218-24 and USNM 519347-60), this new subspecies has the upperparts paler and more yellowish olive. The underparts lack the faint suffusion of gray on the chest. The sides of neck, flanks and ear coverts have a faint yellowish wash. The cap is also lighter and more brownish, less blackish, than is that of *B. o. olivaceum*. Compared with three specimens of *B. o. rungweensis* Benson from southwestern Tanzania (YPM 79225-27), *B. o. ulugurensis* lacks the decidedly gray throat and breast

of the former subspecies, and the coloration of the upperparts is a more subdued, less intense olive green. We have not seen *B. o. belcheri* Sclater from Malawi and Mozambique, but the subspecific characters described by Mackworth-Praed and Grant (1952): ". . . whole head and neck to chest black, washed with bronze and green . . ." do not apply here. The measurements indicate that the new subspecies has a wing length similar to that of *B. o. olivaceum* and *B. o. rungweensis*. The wing is shorter, however, than that of *B. o. belcheri,* which, according to Mackworth-Praed and Grant (1952), is 94-97 mm.

RANGE. Known presently only from the Uluguru Mountains in eastern Tanzania.

ETYMOLOGY. The new subspecies' name is a Latinized word meaning "belonging to the Ulugurus."

Viridibucco leucomystax meridionalis, new subspecies

HOLOTYPE. ♂ adult, YPM 79051, Mdando Forest, Livingstone Mts., 48 km south of Njombe, southwestern Tanzania, 16 Oct. 1962, collected by Gerd Heinrich, original field no. 35526.

MATERIAL. 2 ♂ adults, 1 ♀ adult, YPM 79228-30, Mdando Forest, 48 km south of Njombe, southwestern Tanzania, Oct. 1962.

MEASUREMENTS. Wing: males, 55-57 (56) mm; female, 58 mm. Weight: males, 11-12.5 g; female: 14.5 g.

DESCRIPTION. Underside, particularly the belly and flanks, darker and grayer than that of *V. l. leucomystax* (Sharpe) and almost entirely lacking the light greenish tinge found in 17 examples of the nominate race from the mountains of northern and eastern Tanzania, i.e., Mt. Meru and the Paré, Uluguru and Usambara Mts. (YPM 79231-47).

RANGE. Presently known only from the Mdando Forest, Livingstone Mountains, southwestern Tanzania.

REMARKS. The Mdando Forest is an isolated patch of high mountain cloud-forest, covering the southern end of the Livingstone Mountains. It represents the most southern island of this type of habitat in Tanzania. Specimens of *Viridibucco leucomystax* (YPM

79248-51) collected farther north, in the Rungwe Mts. and Dabaga highlands, are somewhat intermediate between *V. l. meridionalis* and *V. l. leucomystax*.

ETYMOLOGY. The new subspecies name is a Latin word meaning "southern" and is proposed here to designate the particular location of the bird's habitat, which is the southernmost of its kind in Tanzania.

Tricholaema lacrymosum lacrymosum Cabanis

MATERIAL. 3 ♂ adults, 2 ♀ adults, 1 ♀ juvenal, YPM 79252-57, Morogoro, eastern Tanzania, 1 — 9 Feb. 1962. 2 ♂ adults, 3 ♀ juvenals, YPM 79258-62, Same, south of Paré Mts., northern Tanzania, 25-28 May 1962. 1 ♂ adult, YPM 79263, southern foot of Mt. Meru (near the Usa River), northern Tanzania, 12 June 1962.

MEASUREMENTS. Wing: Males, 68-70 (69) mm; females, 65-70 (68.1) mm. Weight: males, 25.5 — 27 g; females, 24.5-25.8 g.

RANGE IN EASTERN AFRICA. Southern Sudan, northern Uganda and Kenya (except southwestern), to east central Tanzania as far west as North Paré Mts. and Morogoro (Mackworth-Praed and Grant, 1952).

REMARKS. The localities from which our specimens were taken agree with the distribution of this subspecies as given above, except that we would extend the range slightly to the west in northeastern Tanzania to include Mt. Meru. Birds from that area are presently allocated to the subspecies *T. l. radcliffei* O. Grant, by these authors. Our specimen, however, agrees with the nominate subspecies in having drop-shaped black markings on the flanks, rather than the round ones that are diagnostic of *radcliffei*.

Tricholaema lacrymosum ruahae Neumann

MATERIAL. 2 ♂ adults, 1 ♀ adult, YPM 79264-66, Chimala (77 km east of Mbeya), southwestern Tanzania, 5 — 13 Jan. 1963. 4 ♂ adults, 4 ♀ adults, YPM 79267-74, Iringa, southcentral Tanzania, 22 Aug. — 2 Sept. 1962. 2 ♂ adults, 3 ♀ adults, YPM 79275-79,

Lake Manyara, western slope of Rift Valley, northern Tanzania, 2 — 4 Aug. 1922.

MEASUREMENTS. Wing: males and females, 68-75 (69.1) mm. Weight: males, 25.5-27.5 g; females: 23-26 g.

RANGE IN EASTERN AFRICA. Tanzania from Ufipa, Kahama, Shinyanga, Mt. Gerui (Hanang), and Dodoma to the Rovuma River (Mackworth-Praed and Grant, 1952; White, 1965).

REMARKS. The range given here may be extended 325 km. to the north, based on our specimens from Lake Manyara.

THE TAXONOMIC HISTORY OF DENDROPICOS FUSCESCENS AND D. LAFRESNAYI

Few African birds are taxonomically so puzzling (and therefore so interesting) and have caused so many controversial opinions among taxonomists as the two woodpeckers *Dendropicos fuscescens* (Vieillot) and *Dendropicos lafresnayi* Malherbe. The two names stand as the oldest ones for two groups of numerous subspecies, at present all considered to represent one and the same species (*fuscescens* Vieillot), distributed over almost the entire African continent. *D. fuscescens* represents forms with clearly black or blackish, white-barred mantles. *D. lafresnayi* represents forms with dark olive-green mantles with only faintly indicated or obsolescent barring. A short review of only the most important steps in the taxonomic consideration of these two groups, arranged in historical sequence, reveals the following picture:

Friedmann (1930, p. 483): "The whole question of the distinction of *fuscescens* and *lafresnayi* is exceedingly involved. If it did not happen that two forms occurred side by side in various places in south and east Africa, the two might readily be considered one species . . . It is necessary to use two binomials for the present . . ."

Bannerman (1933, p. 441, footnote): "The *fuscescens* and *lafresnayi* groups may have to be united under the former name, as Dr. Chapin has suggested."

Lynes (1934, p. 68): "The case for two different species appears to be derived from the idea that somewhere in equatorial

east and in south Africa two different colored aggregates are found on the same ground . . . I can see among the adults from the whole of the eastern side of the continent no evidence of there being more than the one species, viz. *fuscescens* . . . It looks not unlikely to be the same species *fuscescens,* which ranging westward from Kenya Colony with decreasingly barred, more mottled, back pattern, extends to west Africa, where the back pattern is practically a plain one and the form is *lafresnayi* . . ."

Someren (1939, p. 48-50) proves that the two groups are geographically widely interdigitated in east Africa, but are ecologically differentiated. He nevertheless concludes: "It appears reasonable that we are dealing with one species."

Chapin (1939, p. 579): "It has long been evident that *hartlaubi* and *lafresnayi* are not specifically distinct from *fuscescens,* and at last Admiral Lynes and Jack Vincent have arrived at this point of view . . . In southern and eastern Africa the back is boldly barred, toward the Congo this barring becomes weaker, and in Upper Guinea it practically disappears. The color of the back becomes greenish, too, in west Africa."

Peters (1948, p. 176) treats *lafresnayi* as a subspecies of *fuscescens.*

From then on the specific unity of *lafresnayi* and *fuscescens* is considered to be an established fact in ornithological literature, and White (1965) merely states that " there is much difference of opinion as to the number of forms worthy of recognition."

Dendropicos fuscescens hartlaubi Malherbe

MATERIAL. 3 ♂ adults, 2 ♀ adults, 1 ♀ juvenal, YPM 79280-85, Dar-es-Salaam, eastern Tanzania. 23 Oct. — 5 Nov. 1961. 1 ♂ adult, YPM 79286, Uluguru Mts., eastern Tanzania, 3 Jan. 1962. 1 ♂ adult, YPM no. 79287, Njombe, southwestern Tanzania, 19 Oct. 1962.

MEASUREMENTS. Wing: males, 85-88 (86) mm; females, 85-86 mm.

DESCRIPTION. One immature female from Dar-es-Salaam, 2 Nov. 1961, has the top of the head red, similar to the male. Lynes (1934) has already recorded several young females with the same plumage, mentioning that this may perhaps be the normal color

of the young female. Mackworth-Praed and Grant (1952) do not record this plumage of the young female. Nevertheless, it is probably normal.

RANGE IN EASTERN AFRICA. Central and eastern Kenya to the Zambesi River, also Zanzibar Island (Mackworth-Praed and Grant, 1952). White (1965) includes Mozambique, Malawi, Zambia, Rhodesia, northern Botswana, Angola except northwest, Katanga to Kwango and Lualaba, Tanzania and southeast Kenya in the range of this form.

REMARKS. We are attributing the populations of almost the whole of Tanzania to the subspecies *hartlaubi* (described from Zanzibar) in accordance with Lynes (1934) and with Mackworth-Praed and Grant (1952). According to the latter authors, the range of this subspecies also comprises central and eastern Kenya. Our material indicates, however, that specimens from extreme northeastern Tanzania are well differentiated from *hartlaubi* in color as well as in size. They are consequently attributed to other subspecies as follows.

Dendropicos fuscescens hemprichi (Ehrenberg)

MATERIAL. ♀ adult, YPM 79288, Same, northeastern Tanzania, 26 May 1962. ♀ adult, YPM 79289, Mt. Meru (near Usa River) northern Tanzania, 17 June 1962. ♀ adult, YPM 79290, Mt. Meru (near Engare Namyuki) northern Tanzania, 19 July 1962. 2 ♂ adults,1 ♀ adult, USNM 519416-18, Sokoke Forest, eastern Kenya, 2-4 Dec. 1964.

MEASUREMENTS. Wing: 80-82 (81.3) mm. Weight: 21-27 g.

RANGE IN EASTERN AFRICA. Eritrea, central and southern Ethiopia and the Somalis to north-eastern Kenya, as far south as the Lorian Swamp (Mackworth-Praed and Grant, 1952). White (1965) lists range in Kenya as ". . . north Kenya west to Marsabit and south to Tana River."

REMARKS. The specimens listed above differ from *D. f. hartlaubi* by their distinctly smaller size and by a total lack of yellowish wash on underparts. In the specimens from Sokoke Forest the mantle is barred black and white and also lacks completely the

yellowish wash characteristic of *hartlaubi;* the specimen from Same is identical with the ones from Sokoke Forest. In all four specimens from the latter area the innermost secondaries are conspicuously white-barred and the lesser and median wing coverts are apically conspicuously white-spotted, both characters also distinguish them at the first glance from *hartlaubi.* In the two birds from south and north of Mt. Meru the mantle shows a faint, scarcely perceptible, olive-yellowish tinge. They are thus intermediate between *D. f. hemprichi* and *D. f. massaicus* Neumann.

Dendropicos lafresnayi lepidus (Cabanis and Heine)

MATERIAL. 2 ♂ adults, 4 ♀ adults, USNM 519427-32, Kakamega Forest, 2100 m alt., western Kenya, 20-22 March, 7 June and 4-16 Dec. 1965. 2 ♂ adults, 1 ♀ adult, USNM 519419-21, Kiptogot Forest, northeast Mt. Elgon, 2600 m alt., western Kenya, 27-29 April, 1965. 3 ♂ adults, 2 ♀ adults, USNM 519422-26, nr. Kapenguria, W. Pokot, W. Cherangani Mts., 2300 m alt., western Kenya, 18 May-21 June 1965. 1 ♂ adult, 1 ♀ adult, 1 ♀ juvenal, YPM nos. 79291-93, eastern Usambara Mts., 500-1150 m alt., northeastern Tanzania, 28 March-13 April 1962.

MEASUREMENTS. Wing: 82-89 (85.5) mm. Weight: 20-31 g.

DESCRIPTION. All specimens listed above belong clearly to the green-backed group of subspecies, the mantle being olive-green with indistinct to obsolescent barring. They also differ from *Dendropicos fuscescens hemprichi* (Ehrenberg) by larger size, distinctly yellowish-green tinged chest and belly and by less extensive and not clear white but olive-tinged barring of innermost secondaries.

RANGE IN EASTERN AFRICA. Western Ethiopia, southern Sudan, Uganda and western Kenya (Mackworth-Praed and Grant, 1952). White (1965) includes Kenya only west of the Rift, and northeast Congo from Lake Albert to Kivu.

REMARKS. These new records from the eastern Usambara Mts. (near Amani; Ugambo and Muheza) extend the range of the green-backed forms far to the east, almost to the east coast of Africa. In addition, our new records of the smaller form with

black-and-white-barred mantle, *D. f. hemprichi,* from semiarid regions, interspersed between the ranges of the green-backed ones, confirms the ecological separation of the two groups in East Africa, beyond a shadow of doubt. The question is only which conclusion and which taxonomic consequence should be drawn from this fact. Friedmann (1930) concluded that ". . . it is necessary to use two binomials . . .". Someren (1939), after having meticulously explained that the separation of the two groups of forms is ecological rather than geographical, concluded: "It appears reasonable that we are dealing with one species."

On the evidence that both groups of forms are transcontinental, but are ecologically differentiated in such a way that the one occurs only in dry or semiarid regions, the other in areas with denser and moister forests, we are convinced that *Dendropicos fuscescens* and *Dendropicos lafresnayi* should be considered distinct species. The case is a perfect parallel to the one of *Prodotiscus zambesiae* Shelley and *P. insignis* Cassin, as treated previously by Ripley and Heinrich (1966a), in which a green-backed form *(P. insignis)* and a non-green backed form *(P. zambesiae)* were ecologically separated and their ranges interdigitated where the two different habitats were interspersed. In the case of *Dendropicos* the two forms are each also geographically slightly differentiated. To treat all the green-backed together with the dorsally white-and-black-barred subspecies as subspecies of one and the same species would hide the underlying facts and confuse the issue. Geographical subspecies would be mixed on the same level with so-called ecological ones, the mere subspecific status of the latter being highly hypothetical and doubtful.

It should be added that the collection of the U.S. National Museum contains broad series of *Dendropicus fuscescens hemprichi* from many localities in the Ethiopian mountains, but not a single green-backed form from that area. On the other hand, *Dendropicos lafresnayi lepidus,* was clearly described (Cabanis and Heine, 1863, p. 118) as a green-backed form by the words "supra subflavido-olivaceo-virescens." The fact that in the Ethiopian mountains black-and-white-backed and green-backed forms are interspersed is proven beyond doubt by the material in the American Museum of Natural History, which contains numerous black-and-white-backed specimens from Ethiopia and a number of green-backed as well. In all probability, the separation of the

two forms in Ethiopia is ecological, as is already noted above for east-central Africa. The mountains of Ethiopia would probably be the area where the problem of the two forms could best be studied and solved.

Campethera abingoni smithii Malherbe

MATERIAL. ♂ juvenal, 1 ♀ adult, YPM 79294-95, Chimala, southwestern Tanzania, 3 Jan. 1962 and 13 Jan. 1963. 1 ♀ adult, YPM 79296, Ufipa Plateau, southwestern Tanzania, 3 Dec. 1962. 1 ♀ adult, YPM 79297, Abercorn, Zambia, 14 Dec. 1962.

MEASUREMENTS. Wing: 115-120 (117) mm. Weight: ♀ adult 70 g.

REMARKS. Clancey (1965, 1967) wishes to change the name of this subspecies by making it an absolute synonym of the nominate form, *abingoni*, which he points out should have its type locality corrected from "Durban, Natal" to the Zeerust district of the western Transvaal. White (1967) disagrees, pointing out that the original description by Smith was somewhat equivocal, as in a footnote the describer mentioned having encountered this woodpecker at "Port Natal" (=Durban). For the time being we would prefer to adhere to the present tradition of having *C. a. smithii* Malherbe recognized as the form we are dealing with in southwest Tanzania, and typical *C. a. abingoni* (Smith) of the coastal area of Natal as the form ranging north through eastern Transvaal to Mozambique. In this particular case we would prefer to preserve the status quo, *mutatis mutandis*.

The specimens we collected differ strongly from *Campethera abingoni abingoni* by (1) the black color on throat and breast prevailing over the white (instead of white, streaked black), (2) lack of yellowish wash on chest and belly, and (3) darker and duller basic color of dorsal side, with less distinct green tinge. They should be attributed to the subspecies *C. a. smithii*, the range of which thus extends from Angola, Rhodesia and Zambia northward into southwestern Tanzania. This fact has already been published by Lynes (1934) but was ignored by Mackworth-Praed and Grant (1952), who include most of Tanganyika from Mt. Kilimanjaro, Kilosa, Pugu Hills and Ufipa

Plateau to Mozambique in the range of *C. abingoni abingoni*. Lynes (1934) has recorded *smithii* as far west as Iringa, and White (1965) lists "west Tanzania from Ufipa to Kigoma."

COMMENTS ON THE SUBSPECIES OF SMITHORNIS CAPENSIS

Mackworth-Praed and Grant (1952) acknowledge only two subspecies of *Smithornis capensis* (Smith) in East Africa (Kenya, Tanzania and Mozambique): *Smithornis capensis capensis* (Smith) to which they attribute a wide range from southeastern South Africa north to southeastern Kenya, and *S. c. medianus* Hartert and van Someren ranging over Kenya and Tanzania (except western and coastal areas) as far east as the Uluguru Mts. and as far south as fifty miles south of Dar-es-Salaam. The subspecies *meinertzhageni* van Someren 1919, *suahelicus* Grote 1926, *shimba* van Someren 1941, and *chyulu* van Someren 1941 have all been synonymized by these authors, although not by White (1961). Our series at hand from Kenya and Tanzania show that these two countries are inhabited by at least four, perhaps five, subspecies distinguished either by color or by size. These are *S. c. medianus, meinertzhageni, suahelicus,* and *shimba*. The subspecies *chyulu* has been tentatively maintained in the following key although its validity has been questioned by Peters (1948) and denied by Mackworth-Praed and Grant (1952) and Clancey (1963). Topotypes of this form from the Chyulu Mts., Kenya, have not been available to us for examination. Based on the material we have examined from coastal Tanzania and southeastern Kenya, we are unable to support the contention of Mackworth-Praed and Grant (1952) and White (1961) that the nominate subspecies *S. c. capensis* is the resident form in these areas. It is apparently restricted to South Africa and includes perhaps southern Mozambique, but is replaced in northern Mozambique and eastern Tanzania by a considerably smaller subspecies, *suahelicus*.

We propose to divide the east African populations of *Smithornis capensis* as follows:

Central Kenya and northern Tanzania at the foot of Mt. Meru and of Mt. Kilimanjaro (and perhaps also the area east of Mt. Meru), are inhabited by a large form, *Smithornis capensis medianus*. From the coastal belt of southeastern Kenya to the

northern part of Mozambique, the large *medianus* is replaced by small forms with a wing length below 70 mm. Among these small forms the population of coastal southeastern Kenya appears to be well distinguished in color pattern and is called *shimba*. Specimens from eastern Tanzania south to about Beira, Mozambique, are tentatively united as *suahelicus*. A third, very distinct, small subspecies, equal in size to *shimba* and *suahelicus*, but quite different in color from the two, lives on the western fringes of the highlands of central Kenya, east of Lake Victoria. This is *meinertzhageni*. The range of this subspecies may extend to western Uganda (Toro District), although the only specimen (AMNH) examined from there has a wing a trifle larger than the average for that subspecies.

KEY TO EAST AFRICAN SUBSPECIES OF SMITHORNIS CAPENSIS

1. Size smaller. Wing 66-69 mm (in female black streaks on cap well discernable) 2

   Size larger. Wing 70-78 mm (in females black streaks on cap denser, often rendering cap predominantly blackish) . 4

2. Chest, breast (including sides) and flanks heavily, extensively and densely streaked black, extent of black color on these parts almost equal to extent of basic light color; mantle, shoulders and back dark-brown, heavily streaked and mottled with black; cheeks blackish . . . . . *S. c. meinertzhageni*

   Chest, breast and flanks much more sparsely and more finely streaked black, extent of basic light color clearly prevailing over extent of black color; mantle, back and shoulders light brownish or brownish gray, sparsely and on shoulders indistinctly streaked with black, only area of white display feathers sometimes heavily mottled with black; cheeks grayish 3

3. Basic color of upper parts dark gray with only slight brownish tinge; area of display feathers fairly heavily mottled with black; streaks on underparts nearly equally long and very narrow, not at all widened from bases toward apices. ..... *S. c. shimba*

   Basic color of upper parts generally lighter and often distinctly brown-tinged or olive; area of display feathers usually less heavily, often scarcely, mottled with black; streaks on underparts, particularly on middle of chest, usually less regular, tending to be more abbreviated and often slightly widened toward the ends. .. *S. c. suahelicus*

4. Basal half of ear coverts dirty white and forming a patch. ..... *S. c. chyulu*
   Ear coverts differently colored 5

5. Sides of breast more or less markedly brownish-yellow or pale ochreous-tinged; basic color of upperparts distinctly brown or ferruginous. Streaks on underside fairly narrow and not very dense. ..... *S. c. medianus*

   Basic color of sides of breast not brownish or ochreous tinged; basic color of upperparts in majority of specimens gray to dark olive ..... *S. c. capensis*

Smithornis capensis medianus Hartert and van Someren

TYPE LOCALITY. Kyambu Forest, near Nairobi, Kenya.

MATERIAL. 1 ♂ adult, 1 ♀ adult, YPM 79299-300, Mt. Meru, near Usa River, 1500 m alt., northern Tanzania, 14-18 June 1962. 5 ♂ adults, 5 ♀ adults (AMNH), Kyambu Forest, Kenya. 3 ♂ adults, 2 ♀ adults (AMNH), foot of Mt. Kilimanjaro, northeastern Tanzania. (AMNH specimens examined but museum numbers not recorded by us.)

MEASUREMENTS. Wing: male, 72-77 (73.2) mm; female, 72-75 (74) mm. Weight: male (1), 27 g; female (1), 27.5 g.

DESCRIPTION. Distinguished in the first place by its considerable size in which character it agrees with the west African subspecies *S. c. albigularis* Hartert from Angola, which is similar also in color. Differs from *albigularis* by a more or less marked brownish-yellow tinge of the basic color on sides of breast, and by the upper parts being also more distinctly brown tinged. Differs from *camerunensis* Sharpe by less richly rufous upper side and sides of chest and by, on the average, narrower and less dense streaks on underside.

RANGE. Central Kenya and northern Tanzania at the foot of Mt. Meru and of Mt. Kilimanjaro (and perhaps also the area east of Mt. Meru).

Smithornis capensis meinertzhageni van Someren

TYPE LOCALITY. Lerundo, Kavirondo, Kenya.

MATERIAL. 7 ♂ adults, 3 ♀ adults, USNM 519643-52, Kakamega Forest, 1800 m alt., Kenya, 13-26 March, 14 June and 7-13 Dec. 1965.

MEASUREMENTS. Wing: males, 66-69 (68.1) mm; females, 67-68 (67.6) mm. Weight: males, 19-24 g, females, 20-21 g.

DESCRIPTION. Distinctive features of this subspecies are: small size, dark-brown basic color of upperside, very heavily and densely black-streaked breast, chest and flanks, and heavily black-marked white display feathers on back, with broad brown apical margins. Cheeks blackish; white between streaks on breast and flanks more or less distinctly gray-tinged, on sides of breast usually also with ochreous wash.

Differs from *S. c. medianus* markedly by minor size and darker brown basic color of upperside. The streaking on underside is denser and heavier than in all other subspecies.

RANGE. Western fringes of the highlands of western Kenya east of Lake Victoria.

BREEDING. 7-13 Dec.: 3 ♂ with testes enlarged; 2 ♂ and 1 ♀ with gonads moderately enlarged.

Smithornis capensis shimba van Someren

TYPE LOCALITY. Shimba Hills, Kenya.

MATERIALS. 3 ♂ adults, 1 ♀ adult, USNM 519638-41, Buda Forest, nr. Msambweni, Kenya, 21-24 Dec. 1964. 1 ♂ adult, USNM 519642, Muhaka Forest, nr. Ukunda, Kenya, 7 Dec. 1964.

MEASUREMENTS. Wing: males, 66-68 (67) mm; female, 67 mm. Weight: males, 17-23 g; female: 27 g.

DESCRIPTION. This subspecies of the coastal belt of southeastern Kenya agrees in small size with the population of eastern Tanzania and Mozambique, *S. c. suahelicus* and also with subspecies *S. c. meinertzhageni* from western Kenya. From the latter it differs strikingly by much sparser and much narrower streaking on ventral side and by scarcely brown-tinged upper parts. The difference from the birds from eastern Tanzania and Mozambique, treated below under the name *suahelicus,* is less marked. It is apparent mainly in the shape of the dark streaks on chest and breast and in the shade of the basic color of the dorsal side as described for *suahelicus.*

RANGE. Coastal area of southeastern Kenya.

BREEDING. 1 ♂ with testes enlarged, Muhaka Forest. 1 ♂ with testes enlarged; 1 ♀ with shelled egg and soft egg in oviduct, Buda Forest.

Smithornis capensis suahelicus Grote

TYPE LOCALITY. Pangani River at Magagoni, Tanzania.

MATERIALS. 1 ♂ adult, YPM 79301, Pugu Hills, 50 km south of Dar-es-Salaam, Tanzania, 20 Oct. 1961. 5 ♂ adults, 3 ♀ adults (AMNH), Mozambique.

MEASUREMENTS. Wing: males, 66-70 (67.4) mm; females, 67-68 (67.3) mm.

RANGE. Coastal areas of Tanzania south to about Beira, Mozambique (*vide* Clancey, 1963).

REMARKS. The specimen listed above and, in addition, a few others from eastern Tanzania, Uluguru and Uguru Mts., examined and measured (AMNH), are all small, with an average wing length

below 70 mm. This character thus indicates clearly that the population from eastern Tanzania and at least parts of Mozambique are distinct from *S. c. medianus, albigularis* and *capensis.*

The name *suahelicus* is tentatively applied to this subspecies, because it is said in the original description of *suahelicus* (Grote, 1926, p. 17) that this form is "smaller than *medianus,*" and further that it is "near in size to *meinertzhageni.*" However, the type of *suahelicus* was not examined, and therefore the applicability of this name to the populations of eastern Tanzania and of northern Mozambique needs confirmation.

Specimens from these populations are equal in size and closely related in color to *S. c. shimba,* but differ as follows: streaks on breast on the average not quite as narrow, and often, particularly on median part of breast, not quite as long, here sometimes slightly approaching drop shape; basic color on dorsal side on the average distinctly browner. The latter applies mainly to Tanzania birds, while Mozambique birds appear to be on the average paler above, often close to pale olive-gray.

Modulatrix stictigula stictigula (Reichenow)

MATERIAL. 6 ♂ adults, 4 ♀ adults, YPM 79302-11, western Usambara Mts., near Lushoto and Shume, northern Tanzania, 16 Feb.-19 March 1962. 6 ♂ adults, 1 ♀ adult, YPM 79312-18, Uzungwa Plateau, Dabaga Mts., at Itanga, south central Tanzania, 15-22 Sept. 1962.

MEASUREMENTS. Wing: males, 76-82 (79.5) mm; females, 71-77 (73.7) mm. Weight: males, 29.5-35 g; females, 29-34 g.

RANGE IN EASTERN AFRICA. Eastern Tanzania from the Usambara to the Nguru Mountains (Mackworth-Praed and Grant, 1955).

BREEDING. 16 Feb.-19 March: 3 ♂ and 2 ♀ with gonads moderately enlarged, Usambara Mts. 15-22 Sept. 2 ♂ with testes slightly enlarged, Itanga.

REMARKS. In color Uzungwa birds from an area south of the Ulugurus are paler than *M. s. pressa* (Bangs and Loveridge) and should probably be kept with the form *stictigula,* thus creating a discontinuous distribution.

Modulatrix stictigula pressa (Bangs and Loveridge)

MATERIAL. 6 ♂ adults, 2 ♀ adults, YPM 79322-29, Rungwe Mts., 32 km south-southeast of Mbeya, southwestern Tanzania, 1-9 Nov. 1962. 5 ♂ adults, 1 ♂ juvenal, 3 ♀ adults, YPM 79330-38, Uluguru Mts., near Morogoro, eastern Tanzania, 27 Nov.-15 Dec. 1961. 3 ♀ adults, YPM 79339-41, Livingstone Mts., Mdando Forest, 48 km south of Njombe, southwestern Tanzania, 9-17 Oct. 1962.

MEASUREMENTS. Wing: males, 75-82 (78.4) mm; females, 71-79 (74.5) mm. Weight: males, 29.5-35 g; females, 29-34.5 g.

RANGE IN EASTERN AFRICA. Eastern to south-western Tanzania, from the Uluguru Mts., to Rungwe Mt., Njombe and Songea (Mackworth-Praed and Grant, 1955).

BREEDING. 1-9 Nov.: 4 ♂ and 1 ♀ with gonads enlarged, Rungwe Mts., 9-17 Oct.: 2 ♀ with ovaries slightly enlarged, Livingstone Mts.

REMARKS. The habits and distribution of *Modulatrix stictigula* agree closely with *Alethe fuelleborni* Reichenow. Both occur in the high mountain cloud forests of northern, eastern, central and southwestern Tanzania to Malawi, but neither of the two has so far been found on Mt. Meru and Mt. Kilimanjaro, nor on the highlands of Kenya.

The geographical variation of the two species shows a distinct parallel; the southern population of *Modulatrix stictigula,* around Lake Nyasa, being darker brown above (with denser and darker black spots on the throat), the northern population, on the Usambara Mts., having slightly lighter upperparts and paler and smaller spots on the throat.

The latter population represents the nominate subspecies *stictigula,* the former the subspecies *pressa.*

Alethe fulleborni fulleborni (Reichenow)

MATERIAL. 2 ♂ adults, 4 ♀ adults YPM 79342-47, Rungwe Mts., 20 km south-southeast of Mbeya, Tanzania, 28 Oct.-9 Nov. 1962. 5 ♂ adults, 2 ♀ adults, YPM 79348-54, Livingstone Mts., Mdando Forest, 30 km south of Njombe, Tanzania, 10-20 Oct. 1962.

MEASUREMENTS. Wing: males, 97-112 (105.3) mm; females, 96-103 (100) mm. Weight: males, 39.5-48.5 g; females, 44.5-47.5 g.

DESCRIPTION. This subspecies differs from *A. j. usambarae* Reichenow by the darker and warmer brown color of the upperparts and by smaller size. The sides of chest and breast are also more scaly in appearance, caused by the greyish apical margins on the otherwise white feathers.

RANGE IN EASTERN AFRICA. South-central and south-western Tanzania from Njombe to the Tukuyu district (Mackworth-Praed and Grant, 1955).

BREEDING. So far, according to Mackworth-Praed and Grant (1955) no definite breeding data have been recorded. However, a summary of all the records collected by the junior author in various months reveals clearly that the breeding season coincides, as in the other mountain thrushes, with the rainy season, October to March. This apparently applies to all localities within Tanzania. 28 Oct.-9 Nov.: 2 ♂ with testes enlarged; 3 ♀ with ovaries slightly enlarged, Rungwe Mts. 10-20 Oct.: 1 ♂ with testes enlarged; 1 ♂ and 3 ♀ with gonads moderately enlarged, Njombe.

HABITAT. This species inhabits only the evergreen mountain forests in altitudes between 1200 and 2600 m. Its distribution in Tanzania therefore is disconnected and confined to the scattered islands of cloud-forests covering the highest elevations of the country.

HABITS. The birds are extremely shy and elusive, staying always under cover of dense, low ground vegetation and never being seen more than a few feet above ground. Their movements on the ground are fast and vigorous. The flight is rapid and low. In common with all African mountain thrushes they like to feed on the armies of driver ants.

SONG. The song is composed of only two loud whistled notes, the first of which is slightly tremulous and a little deeper than the second. There is also a melodious, loud, one-syllabic call, repeated with moderate intervals for some time, and often answered by another bird at a distance. This call was confirmed beyond doubt as the voice of this species by direct observation at close range.

Alethe fulleborni usambarae Reichenow

MATERIAL. 2 ♂ adults, 4 ♀ adults, 1 ♂ juvenal, 2 ♀ juvenals, YPM 79355-63, western Usambara Mts. near Lushoto and Shume, northern Tanzania, 18 Feb.-22 March 1962. 5 ♂ adults, 1 ♀ adult, 1 ♂ juvenal, YPM 79364-70, eastern Usambara Mts., near Omain, northern Tanzania, 4-17 Apr. 1962. 3 ♂ adults, YPM 79371-73, Uluguru Mts., eastern Tanzania, 26 Nov.-14 Dec. 1961. 6 ♂ adults, 1 ♀ adult, YPM 79374-80, Uzungwa Plateau, Dabaga Mts. at Itanga, 30 km south-southeast of Iringa, south central Tanzania, 13-18 Sept. 1962.

MEASUREMENTS. (Northern and eastern specimens) Wing: males, 106-115 (110.2) mm; females, 104-116 (107.2) mm. Weight: males, 47.5-67 g; females 51-69 g. (Southern specimens) Wing: males, 101-111 (106.7) mm; female, 103 mm. Weight: males, 46-54 g; female, 50 g.

RANGE IN EASTERN AFRICA. Eastern Tanzania from the Usambara Mts. to the Uluguru Mts. and Mahenge (Mackworth-Praed and Grant, 1955).

BREEDING. 24 Feb.: 1 ♂ with testes enlarged; 1 ♀ with egg in oviduct, western Usambara Mts. 26 Nov.-14 Dec.: 3 ♂ with testes enlarged, Uluguru Mts. 13-18 Sept.: 2 ♂ with testes slightly enlarged, Itanga.

REMARKS. The population of the Uzungwa Plateau in south central Tanzania (a new locality) is similar in color but slightly smaller than populations of this subspecies collected farther north (see above).

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