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THREE NEW AFRICAN SHREWS OF THE GENUS CROCIDURA

By N. HOLLISTER

Since the publication of Mr. Guy Dollman's synopsis of the African shrews of the genus *Crocidura*,¹ the East African specimens of this group contained in the United States National Museum, over 500 in number, have been critically examined. Three hitherto unnamed forms have been found in this collection. Of these, one was collected by the Smithsonian African Expedition, 1910; one by the Rainey African Expedition, 1912; and one was sent to the museum by Mr. H. J. A. Turner, of Nairobi.

CROCIDURA DAPHNIA, sp. nov.

Type from Gondokoro, Uganda. U. S. National Museum No. 164898, skin and skull of adult ♀ (teeth moderately worn). Collected February 19, 1910, by J. Alden Loring. Orig. No. 9009.

Description.—Like specimens of the brown phase of *Crocidura nyansæ* Neumann, but somewhat paler in color, the sides especially paler, and line of demarcation between color of upperparts and underparts more sharply drawn. Upperparts grayish buffy-brown or drab buff, with a pale cinnamon wash; sides paler, with a more buffy wash; hairs of side glands almost white; underparts yellowish buff, the chin, throat, and patches of new pelage buffy white; feet buffy-brown; tail blackish-brown above, lighter below, the hairs on basal third below whitish buff. The tail is closely haired and has many longer bristles on basal two-thirds. Skull and teeth essentially as in *nyansæ*, and size as in that form.

Measurements of type.—Head and body, 142 millimeters; tail vertebrae, 79; hind foot, dry without claws, 19. Skull (braincase broken): maxillary breadth, 9.4; palatal length, 12.8; length of mandible, 15.5; upper tooth row, entire, 13.6.

Remarks.—This new shrew is probably a connecting link between *Crocidura nyansæ* Neumann and *C. doriana* Dobson. It is the

¹ Annals and Mag. Nat. Hist., Ser. 8, Vol. 15, pp. 508-527, May; pp. 562-575, June, 1915; Vol. 16, pp. 66-80, July; pp. 124-146, August; pp. 357-380, October; pp. 506-514, December, 1915; and Vol. 17, pp. 188-209, February, 1916.

species referred by Dollman¹ to *C. sururæ* Heller, of Lado, but it is quite a different form of the same group, larger and lighter colored. The Nile is apparently a barrier between these two forms and the specimens from Wadelai and Mongalla mentioned by Dollman under *sururæ* seem to represent this new species. Dollman mentions a very pale colored example of the *C. nyansæ* group from Unyoro as in some ways intermediate between *nyansæ* and the specimens from east of the Nile which he referred to *sururæ*. Two similar specimens from Unyoro (Hoima and Butiaba) in our collection indicate the strong probability of direct intergradation between these forms.

CROCIDURA PARVIPES NISA, subsp. nov.

Type from Kibabe, Kisumu, British East Africa. U. S. National Museum No. 182440, skin and skull of adult ♀ (teeth moderately worn). Collected January 20, 1912, by Edmund Heller. Orig. No. 5126.

Description.—A small, short-tailed form related to *Crocidura lutrella* Heller and to *C. parvipes* Osgood. Color almost precisely as in the type of *parvipes*, but upperparts slightly darker; tail darker, more blackish, above; and outer side of arms same color as upperparts of body, not whitish as in *parvipes*. Skull about same size as in *parvipes* but with heavier rostrum and wider palate, the unicuspid rows further apart; small upper unicuspid teeth of approximately same size and well overlapped, as in *parvipes*.

Measurements of type.—Head and body, 80; tail vertebrae, 38; hind foot, dry, 11.3. Skull: condylobasal length, 19.6; maxillary breadth, 6.9; breadth of braincase, 9.0; median depth of braincase, 5.3; mandible, 11.0; upper toothrow, entire, 8.9.

Remarks.—Only a single specimen of this new subspecies is in the collection. The locality from which it came is almost exactly half way between the widely separated regions, Lado Enclave and the Taita Hills district of southeastern British East Africa, which are the type localities of the only obviously closely related forms (*lutrella* and *parvipes*). The Field Museum of Natural History has kindly lent me, through Mr. W. H. Osgood, the type specimens of *Crocidura parvipes* and other African shrews for study in this connection. A specimen from Fort Hall, British East Africa, in the National Museum collection, which I refer to *parvipes* rather than to *nisa*, is clearly intermediate between the two.

¹ Ann. and Mag. Nat. Hist., Ser. 8, Vol. 15, pp. 571-573. June, 1915.

The two forms most closely related to *C. p. nisa* (*parvipes* and *lutrella*) were placed by Dollman in different groups, *parvipes* in the *jacksoni* group, and *lutrella* in the *beiræ* (*hindei*) group. Both obviously belong with the *hindei*-like shrews with the massive maxillary processes and long, narrow rostra.

***CROCIDURA SIMIOLUS*, sp. nov.**

Type from Kisumu, British East Africa. U. S. National Museum No. 197959, skin and skull of adult ♀ (basal suture obliterated but teeth little worn). Collected September 25, 1913, by H. J. A. Turner. Collector's No. 3.

Description.—Related to *Crocidura mutesæ* Heller and *C. suahelæ* Heller, but slightly larger than either of these forms. Upperparts of the type specimen uniform rich Prout's-brown, except on nose and tail which are much darker brown; underparts paler, grayish brown. Other skins from Kaimosi and Kibabe are darker than the type. Skull like that of *C. mutesæ* but larger, with larger teeth.

Measurements of type.—Head and body, 113; tail vertebrae, 60; hind foot, dry, 17. Skull: condylobasal length, 26.1; maxillary breadth, 8.3; breadth of braincase, 11.1; median depth of braincase, 6.4; mandible, 13.7; upper tooth row, entire, 12.3.

Remarks.—Four specimens of this new shrew are in the collection. All are from the vicinity of Kavirondo Gulf, in the Kisumu district, and were taken in localities where the larger *C. nyansæ* is common. Skins of this species might readily be confused with *nyansæ* or *kijabæ*, but specimens may be easily separated by the small skull and teeth. Young examples of *nyansæ* always have much larger teeth than adults of *simiolus*. The coast species, *C. suahelæ*, and the Uganda *C. mutesæ* were placed in widely separate groups by Dollman in his recent synopsis of the African species of *Crocidura*, but they are very closely related forms and are the nearest relatives of *C. simiolus*. While perhaps best placed for the present in the *fischeri* group, where Dollman considered *suahelæ* to belong, these three species show many characteristics of the *nyansæ* group, and approach in size the Lado form, *C. sururæ*.