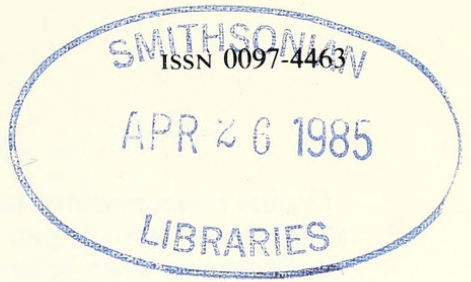


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ARTICLE 1

TAXONOMIC STATUS OF DORMICE (GENUS *GRAPHIURUS*) FROM WEST AND CENTRAL AFRICA

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ABSTRACT

Additional records of occurrence, measurements, and life history data are given for five species of dormice, genus *Graphiurus*, from northwestern Zaire and Cameroon. For the first time *Graphiurus olga* (Thomas, 1925) is reported from Cameroon and *G. christyi* Dollman, 1914, from northwestern Zaire. Nomenclatural relationships of the nominal taxa of small species of *Graphiurus*, including *G. coupeii* (Cuvier, 1822), *G. orobinus* (Wagner, 1845), and *G. kelleni* (Reuvens, 1890), are discussed.

INTRODUCTION

The species of *Graphiurus* occurring in southern Cameroon were reviewed by Robbins and Schlitter (1981). Their interpretation of the systematic status of the species of dormice in this region differed from that expressed by Genest-Villard (1979) in her revision of the genus. Studies of recent additions to the collections of dormice (genus *Graphiurus*) contribute to our knowledge of the geographic distribution and taxonomic relationships of the species occurring in the northwestern Zaire and Cameroon.

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MATERIALS AND METHODS

Cranial measurements, based on those listed by Robbins and Schlitter (1981), were taken to the nearest 0.1 mm with dial calipers. Length of hind foot includes claws; height of rostrum was taken behind incisors. All specimens are deposited in the collection of mammals at Carnegie Museum of Natural History (CM), unless indicated otherwise. Also, specimens were examined in the collection of the British Museum (Natural History), London (BMNH); The Museum, Texas Tech University, Lubbock (TTU); and the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM).

ACCOUNTS OF SPECIES

Graphiurus christyi Dollman, 1914

Graphiurus christyi Dollman, Revue Zool. Africain, 4:80, 25 July 1914.

Type locality.—Mambaka and Mambo, Belgian Congo [=Zaire].

Specimens examined (8).—ZAIRE: Bumba Zone, Yalosemba (7 CM, 1 TTU).

Measurements.—See Table 1.

Remarks.—*Graphiurus christyi* was reported from Lolodorf, Cameroon (Robbins and Schlitter, 1981:282). The nearest localities in Zaire are from Buta (Schouteden, 1946:464) and Gambi, southeast of Angu (Robbins and Schlitter, 1981:282). The specimens from Yalosemba reported here help bridge the hiatus in the geographic distribution in this species (Fig. 1).

The eight specimens from Yalosemba in northwestern Zaire are measurably larger than those from eastern Zaire and Cameroon reported (Table 1) by Robbins and Schlitter (1981:274–276). However, the characteristic shape of the skull, especially the projecting nasal and premaxillae region, and the color of the pelage of the Yalosemba specimens are identical to specimens of this species from northeastern Zaire.

All of the specimens from Zaire show the dark brownish staining of the forelegs and chest described by Hatt (1940:474) for a number of species of dormice from throughout the range of the genus.

Graphiurus crassicaudatus (Jentink, 1888)

Claviglis crassicaudatus Jentink, Notes Leyden Mus., 10:41, April 1888.

Type locality.—Oban District, southwestern Nigeria.

Specimens examined (1).—CAMEROON: 4 km S, 2 km E Eseka (1 CM).

Remarks.—Although seldom encountered, *Graphiurus crassicaudatus* occurs throughout the forested region of Cameroon. A single adult male was captured by hand on 15 August 1978. The individual was living in a hole in a concrete culvert under a railroad. This and other similar holes resulted from trapped air next to the wooden frames when the concrete culvert was poured *in situ*. A small stream flowed

Table 1. —Selected cranial measurements of two species of *Graphiurus*. Measurements of the respective holotypes from the British Museum (Natural History) are listed.

| Specimens | Measurements | | | | | | | | | | | | |
|----------------------------|--------------------------|-----------------------|--------------------|-----------------------|-----------------------|---------------------------|--------------------------------------|------------------------------|---|-----------------|------------------|------------------|-------------------|
| | Greatest length of skull | Condylor-basal length | Zygo-matic breadth | Inter-orbital breadth | Breadth of brain-case | Greatest length of nasals | Length of anterior palatine foramina | Length of maxillary toothrow | Greatest breadth across second upper molars | Length of bulla | Breadth of bulla | Length of palate | Height of rostrum |
| <i>Graphiurus christyi</i> | | | | | | | | | | | | | |
| CM 86748 ♂ | 29.7 | 26.6 | 16.0 | 4.7 | 12.6 | 11.0 | 3.2 | 3.4 | 5.9 | 7.7 | 5.8 | 11.1 | 5.7 |
| CM 86749 ♂ | 29.8 | 26.7 | 16.6 | 4.8 | 13.1 | 11.0 | 3.2 | 3.2 | 6.2 | 7.7 | 6.1 | 11.2 | 5.9 |
| CM 86750 ♂ | 29.8 | 26.7 | 15.7 | 4.9 | 12.8 | 11.1 | 3.4 | 3.2 | 5.9 | 8.0 | 5.7 | 11.4 | 5.7 |
| CM 86751 ♂ | 29.1 | — | 16.2 | 5.0 | 13.1 | 10.8 | 3.1 | 3.3 | 6.3 | 7.8 | 5.9 | — | 5.6 |
| CM 86753 ♂ | 29.8 | 26.6 | 16.0 | 4.8 | 13.1 | 11.2 | 3.1 | 3.1 | 5.9 | 7.9 | 5.9 | 10.9 | 5.5 |
| BM(NH) 14.2.11.8 ♂ | — | — | 15.2 | 4.6 | 12.2 | 10.1 | 2.5 | 3.2 | — | 7.0 | 5.3 | 10.3 | 5.3 |
| <i>Graphiurus olga</i> | | | | | | | | | | | | | |
| CM 59454 ♂ | 21.6 | 19.1 | 11.9 | 3.8 | 10.8 | 7.6 | 2.7 | 2.5 | 4.4 | 6.1 | 4.6 | 8.1 | 3.7 |
| BM(NH) 25.55.12.32 ♀ | 23.0 | 20.7 | 12.6 | 3.8 | — | 8.2 | 2.8 | 2.6 | 4.9 | 6.5 | 5.2 | 8.3 | 3.9 |

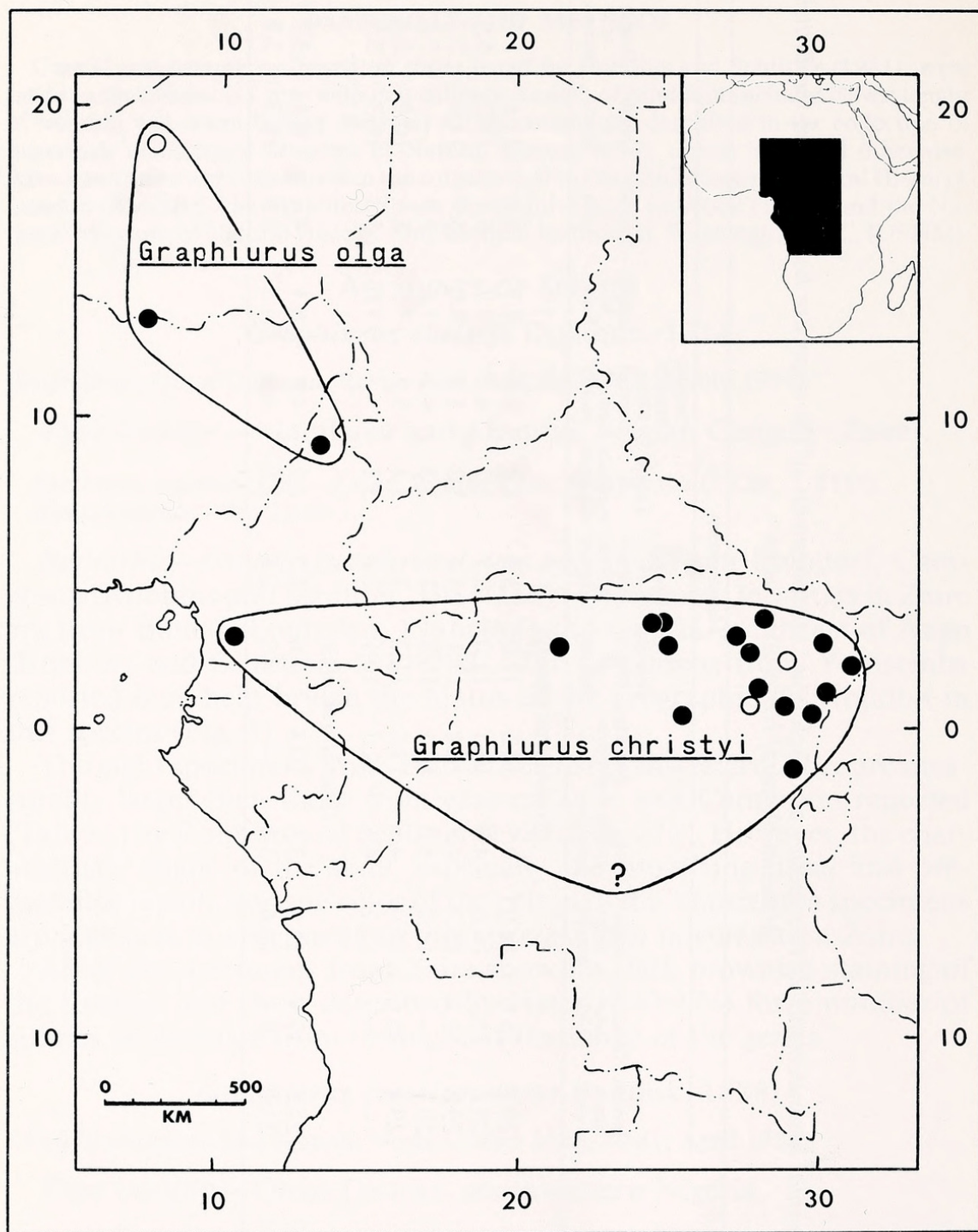


Fig. 1.—Map of Equatorial West Africa and adjacent region showing distributions of *Graphiurus christyi* and *G. olga*. Open circles represent type localities; type locality for *G. christyi* involves co-localities. Locality for Ikongo, Zaire, is queried as it represents a literature record of doubtful identity. Literature records for *G. olga* from Niger and Nigeria are from Thomas, 1925. Those for *G. christyi* are as follows: Cameroon, Robbins and Schlitter, 1981, and Zaire, Dollman, 1914; Thomas, 1915; Wettstein-Westersheim, 1923; Hatt, 1940; and Schouteden, 1946.

through the culvert. The animal had testes measuring 16 by 7 mm and it weighed 29 g. Another individual was sighted but escaped capture.

No specimens of this species of dormouse were collected in northwestern Zaire.

***Graphiurus hueti* (Rochebrune, 1883)**

Aethoglis hueti Rochebrune, Actes Soc. Linn. de Bordeaux, (4) 7:110, 1883.

Type locality.—Environs of St. Louis, Sorres, Senegal.

Specimens examined (4).—CAMEROON: 13 km S, 8 km E Ambam (1 CM); 18 km S, 9 km E Ambam (2 CM); 22 km S, 1 km E Ambam (1 CM).

Remarks.—Four specimens of *Graphiurus hueti* were taken from hollow trees while collecting the tree-roosting bats *Nycteris grandis* and *Hipposideros cyclops*. Two adult females, weighing 100 g and 87 g, were not pregnant when collected on 30 July and 1 August 1978. Two adult males collected on 31 July 1978 weighed 110 and 115 g and had testes measuring 20 and 21 mm, respectively.

Although local hunters examined numerous hollow trees at the localities in northwestern Zaire, no individuals of *Graphiurus hueti* were encountered. Neither Schouteden (1946) nor Misonne (1974) report this species from Zaire.

***Graphiurus lorraineus* Dollman, 1910**

Graphiurus lorraineus Dollman, Ann. Mag. Nat. Hist., (8) 5:184, March 1910.

Type locality.—Molegue, south of Setema Rapids, Welle River, Belgian Congo [=Zaire].

Specimens examined (14).—CAMEROON: 11 km S, 1 km E Bamenda, 1900 m (5 CM). ZAIRE: Bumba Zone, Yalosemba (7 CM); Gemena Zone, Tandala (2 CM).

Remarks.—*Graphiurus lorraineus* is widely distributed and frequently common in forested and second growth situations in West and Equatorial Africa. Near Bamenda, five adults were captured in Sherman non-folding live traps set in low trees and undergrowth in a forested ravine. The same habitat harbored numerous individuals of *Aethosciurus cooperi*.

An adult female collected near Bamenda on 24 August 1978 had no embryos. A juvenile male and a subadult female were taken at Yalosemba on 10 and 18 June 1979, respectively. In northeastern Zaire, Hatt (1940:475) reported nestlings in mid-April and half-grown young from early January and mid-November.

Graphiurus olga (Thomas, 1925)

Claviglis olga Thomas, Ann. Mag. Nat. Hist., (9) 16:191, July 1925.

Type locality.—Tehsiderak [=Tassederek], Air, 2350 ft, Niger.

Specimens examined (2).—CAMEROON: 23 km S, 8 km E Garoua (1 CM). NIGER: Tehsiderak (1 BMNH, holotype).

Measurements.—See Table 1.

Remarks.—These are the first records of this small dormouse from Cameroon and this brings the number of species of *Graphiurus* known from Cameroon to six (Robbins and Schlitter, 1981). In the original description, Thomas (1925:191) reported two specimens from Dan Kaba, Nigeria, as well as three individuals from the type locality in Niger. We have not examined any additional specimens of this species. The single adult male was taken on 20 July 1978 in a Sherman folding aluminum live trap, set in a tree in a forested area in a marsh. The type locality of this species is also a seasonal marsh on the western side of the Air Mountains of Niger. Each of the specimens weighed 12 g.

DISCUSSION

The taxonomic relationships of the small dormice in the genus *Graphiurus* have become more confusing in recent years. In the early parts of the twentieth century, it was recognized that a large species (usually referred to as *G. murinus*) and a small species existed in the savannah zones from western Africa skirting the high forest zone to southern Africa. In eastern Africa for example, Hollister (1919:152) separated out the small species and called it *G. parvus*. In Angola, Hill and Carter (1941:78–81) referred to the small species as *G. kelleni*, with greatest skull length listed by them as (Hill and Carter, 1941:186) 23.2 mm, and the large species as *G. ansorgei* rather than *G. murinus*. However, further confusion was introduced by Ellerman (1940:610) who included *Myoxus coupeii* Cuvier, 1822, which was described from Senegal as a synonym of nominate *G. murinus* from the Cape of Good Hope. At the same time, he (Ellerman, 1940:610) separated *Eliomys microtis* Noack, 1887, which was described from the west side of Lake Tanganyika, as a distinct species even though Allen (1939:309) placed Noack's taxon as a junior synonym of *G. murinus*. Considering the number of nominal taxa described from the intervening areas, it seems unlikely that any of these taxa would be junior synonyms of *G. murinus* described from the Cape of Good Hope.

Until a number of the earlier described nominal taxa are identified, confusion will continue with these two groups. There are a number of available names for those small individuals with greatest length of skull between 21 and 25 mm. Genest-Villard (1979:399) considered *G. par-*

vus (True, 1893) as the oldest available name for these small individuals. Other nominal taxa which we believe refer to the small species are as follows: *G. kelleni* (Reuvens, 1890); *G. smithii* (Thomas, 1893); *G. nanus* (De Winton, 1897); *G. johnstoni* (Thomas, 1898); *G. brockmani* Dollman, 1910; *G. parvus dollmani* Osgood, 1910; *G. personatus* Heller, 1911; *G. brockmani internus* Dollman, 1912; and *G. olga* (Thomas, 1925).

However, until two of the oldest names available, namely *Myoxus coupeii* Cuvier, 1822, and *Myoxus orobinus* Wagner, 1845, are properly identified, the available name for this small species must remain in doubt. Although we have not examined the holotype of *G. kelleni* in Leiden, Hill and Carter (1941:186) show in their table of measurements that this is a small species. It would seem that *G. kelleni* is the oldest name of *Graphiurus* available at this time, at least for the southern and eastern African species of smallest dormouse.

Rosevear (1969:509) remarked on the taxonomic status of *G. coupeii* based on his examination of the original description and colored plate. He (1969:610) compared the *G. olga* material in the collections of the British Museum (Natural History) with the description of *G. coupeii*. From this comparison, Rosevear (1969:610) noted two differences—*G. olga* was noticeably smaller, and the description of *G. coupeii* clearly stated that the belly hairs of this taxon were pure white, not white-tipped as in *G. olga*. We believe this description of belly hairs of *G. coupeii* to probably be in error as we have seen no dormice from any part of Africa with totally white belly hairs.

We have examined two specimens from Kudang, Gambia (USNM 377688 and 377689). These two specimens are similar to other West African *G. lorraineus* as understood by Robbins and Schlitter (1981) and not with *G. olga* as understood in this report. If these two Gambian specimens do represent *G. coupeii*, then that name would become the oldest name for the West African *G. lorraineus*. Detailed study of specimens from western West Africa is required in order to properly identify *G. coupeii*. In any case, we believe that *G. olga* is a species distinct from *G. lorraineus* and *G. murinus*, although it may prove to be conspecific with *G. kelleni* and *G. parvus*.

Myoxus orobinus Wagner, 1845, was originally reported from Sennaar, Sudan. Setzer (1956) did not examine any specimens of this species and no additional specimens of dormice seem to have been collected from the Sennaar region. Setzer (1956:544) considered *G. orobinus* to be a species smaller than *G. mirinus* based on Wagner's (1845:149) description. We have examined the original description and are unable to allocate the taxon from the description. The description of color does not distinguish this taxon and the only measurement given is for body length, which is insufficient to separate these two

similar-sized species groups. Unless either a holotype is found or other specimens of dormice are collected in the Sennaar region, we believe that this name will prove unidentifiable if based only on its description.

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GAZETTEER

Coordinates are listed for localities for specimens examined, cited literature records, and places mapped in Fig. 1. Abbreviations for countries are as follows: C = Cameroon; G = Gambia; N = Nigeria; NR = Niger; and Z = Zaire.

| | | | |
|--------------------|------------------|------------------|------------------|
| Ambam (C) | 2°23'N, 11°16'E | Lolodorf (C) | 3°14'N, 10°48'E |
| Angu (Z) | 3°30'N, 24°27'E | Mambaka (Z) | 0°51'N, 27°33'E |
| Arebi (Z) | 2°47'N, 29°35'E | Mambo (Z) | 2°12'N, 28°20'E |
| Avakubi (Z) | 1°18'N, 27°35'E | Masisi (Z) | 1°25' S, 28°50'E |
| Bamenda (C) | 5°55'N, 10°12'E | Medje (Z) | 2°25'N, 27°18'E |
| Beni-Cartoushi (Z) | 0°44'N, 29°34'E | Niangara (Z) | 3°45'N, 27°52'E |
| Buta (Z) | 2°49'N, 24°50'E | Poko (Z) | 3°08'N, 26°58'E |
| Dan Kaba (N) | 13°12'N, 7°44'E | Selemani (Z) | 0°54'N, 29°52'E |
| Djugu (Z) | 1°55'N, 30°32'E | Stanleyville (Z) | 0°33'N, 25°14'E |
| Eseka (C) | 3°39'N, 10°46'E | Tandala (Z) | 2°58'N, 19°21'E |
| Gambi (Z) | 3°28'N, 24°31'E | Tehsiderak (NR) | 18°52'N, 7°43'E |
| Garoua (C) | 9°20'N, 13°20'E | Ukaika (Z) | 0°45'N, 28°45'E |
| Inkongo (Z) | 4°55' S, 23°15'E | Yalosemba (Z) | 2°35'N, 21°47'E |
| Kudang (G) | 13°40'N, 15°04'W | | |

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