

*Tail*.—Much shorter than in *Rh. ferrum-equinum*, its length (31.3 mm. on average) being almost exactly the same as the 2nd joint of 3rd finger (30.7 mm.); in *Rh. ferrum-equinum* much longer (36.7 against 29.5 mm.). Hinder border of interfemoral, between tip of calcars, slightly triangular.

*Colour* (16 skins).—General colour above “drab,” with a tinge of fawn. Individual hairs “ecru-drab” at base, drab at tip. On the middle of the back an ill-defined (in some individuals scarcely perceptible) horseshoe-shaped patch, approaching “wood-brown”; branches of this patch on the shoulder-region, convexity backwards. Length of hairs on middle of back about 7.5 mm. Underside bright ecru-drab, more or less tinged with vinaceous buff on the breast and sides of the body. Ears (dried) transparent brown, membranes dark brown. Adult individuals vary but very slightly in colour, some being more greyish, others more fawn in hue. Young specimens (5 skins) are much duller coloured; fur above greyish brown; horseshoe-patch on back indicated, but rather indistinct; below bright grey, with a slight rosy tinge.

*Dentition*.—Essentially as in *Rh. ferrum-equinum*. Upper  $c$  and  $p^4$  closely approximated, their cingula actually touching each other or separated only by an almost hair-fine interspace. Upper  $p^2$  minute, blunt, placed in the outer angle formed by  $c$  and  $p^4$ , hardly rising to the level of the cingulum of the canine; this small tooth is present in all of the fourteen skulls examined, but will no doubt be found wanting in very old individuals with much-worn teeth (cf. *Rh. aurigazambesensis*). Upper  $p^4$  as high as two thirds of the canine. Lower  $p_2$  one third of  $p_4$ . Lower  $p_3$ , when present, extremely small, placed on the external side of the tooth-row, blunt, as high as the cingulum of  $p_4$ ; in nine out of fourteen skulls examined this tooth is wanting, and every trace of the alveole has disappeared; in a tenth specimen (adult) the tooth is wanting on both sides, but the left alveolus is still to be traced: in the remaining four skulls  $p_2$  is present on both sides; three of these latter are skulls of young bats, the fourth of an apparently adult individual, though still with almost unworn teeth. As proved by these facts, the presence or absence of  $p_3$  in this species varies *individually*, without any bearing on differences in geographical distribution: of six specimens from the same cave, taken by the same collector and in the same season of the year, two have lost both the tooth and every trace of the alveolus, while in four specimens it is present on both sides; evidently it is most often to be found



in *young* individuals, more rarely in full-grown, perhaps never in very old. Lower  $p_4$  a little higher than antero-exterior cusp of  $m_1$ .

*Measurements*.—Below under *Rh. augur zambesiensis*.

*Type*.—♂ ad. (skin). Kuruman, Bechuanaland, 4000 feet, collected by Mr. R. B. Woosnam, April 19th, 1904. B.M. no. 4. 10. 1. 1. Original no. 26. "Caught in an old mine; of fifteen taken there was only one female."

*Distribution*.—Specimens have been examined from the following localities:—Zuurbron, Wakkerstrom, S. Transvaal (1 specimen in alcohol); De Kaap, S. Transvaal (2, alcohol); near Krügersdorp, S. Transvaal, 4900 feet (6 skins); "Transvaal" (1, alcohol); Vredefort Road, N. Orange River Colony (1, alcohol; 2 skins); Kuruman, Bechuanaland, 4000 feet (8 skins). It will probably be found generally distributed over the whole of that part of South Africa which is irrigated by the Orange River and its confluent ("Orange River Area," in the zoogeographical sense of that term).

*Remarks*.—The present species has been confused with *Rh. ferrum-equinum* and *Rh. capensis* to such extent that it will be difficult to disentangle its synonymy without examination of the specimens recorded in literature. *Rh. capensis* differs mainly in the following points:—It is much smaller: forearm 49.5 mm. (average of eleven specimens), against 56 in *Rh. augur*; the ears much longer (20.5 mm. from base of inner border) and broader (16.7 mm.); tip of the ear obtusely pointed; sella only very slightly narrowed in the middle, its lateral margins subparallel in their upper half; posterior connecting-process shorter, its upper margin concave; all metacarpals and finger-joints much shorter, therefore the wing very much narrower in antero-posterior direction; even a badly prepared skin of *Rh. capensis*, in which the shape of the ears and nose-leaves is unrecognizable and the length of the tail not to be relied upon, can *always* be at once distinguished from *Rh. augur* by taking the measurement of the 2nd joint of the 3rd finger (22–26 mm., against 28.7–32 in *Rh. augur*); the tail remarkably short (20.8 mm.), only about the same length as the tibia, far shorter than the 2nd joint of 3rd finger, &c. The skull of *Rh. capensis* is slightly smaller; the nasals more swollen; the auditory bullæ larger; the basioccipital therefore still narrower; the tympanic ring larger. As far as the available material goes, *Rh. capensis* seems to be restricted to the *western part of the Cape Colony*, as far north as the mountains on which the coast-rivers spring, eastwards to Winter-Bergen.



*Rh. augur* bears, in fact, much more resemblance to *Rh. ferrum-equinum*. The differences between the two species have already been pointed out above. Whether, however, this resemblance is indicative of true relationship, or rather of convergence owing to similar habits and similar effects of natural surroundings, is open to question. It is in this connexion worth while mentioning that no doubt all the previous records of the occurrence of *Rh. ferrum-equinum* in Africa south of the Mediterranean subregion rest on confusion with other species; that, consequently, the two species, at the present time at least, are separated from each other by almost the whole of the tropical region of Africa.

*Rhinolophus augur zuluensis*, subsp. n.

*Short diagnosis.*—(A small and darker-coloured race of *Rh. augur*. Forearm 51·2–54·5 mm.)

*Colour* (8 skins).—Fur above approaching “wood-brown.” Horseshoe-patch on back nearest to “russet.” Beneath light “drab,” tinged with pinkish buff on the sides of the body.

*Measurements.*—See table under *Rh. augur zambesiensis*.

*Type.*—♀ ad. (skin). Jususie Valley, 20 miles N.W. of Eshowe, Zululand, 1000 feet, collected by Mr. C. H. B. Grant, Nov. 17th, 1903, presented by C. D. Rudd, Esq. B.M. no. 4. 5. 1. 8. Original no. 602. “Caught in old gold-driving.”

*Distribution.*—Specimens examined:—King William’s Town (1, in alcohol); Port Natal (1, alcohol); typical locality (8 skins). This race will probably be found generally distributed over the whole of the Natal Province, southwards to Winter-Bergen, northwards to about the latitude of Delagoa Bay, westwards to the mountain-range in which the coast-rivers rise.

*Remarks.*—The obvious difference in size and colour, combined with the distinct geographical distribution, entitle this form to subspecific rank. It cannot be confounded with young individuals of the typical form: young *Rh. augur* are greyish brown above, bright grey with a slight rosy tinge beneath; *Rh. a. zuluensis*, owing to a stronger development of the darker-coloured tips of the hairs, next to wood-brown above, light drab beneath.

*Rhinolophus augur zambesiensis*, subsp. n.

*Short diagnosis.*—(Very dark-coloured. In size somewhat intermediate between *Rh. augur* and *Rh. a. zuluensis*. Forearm 53·3–54·8 mm.)



Giard, Alfred. 1874. "On the embryogeny of the Rhizocephala." *The Annals and magazine of natural history; zoology, botany, and geology* 14, 381–383.

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