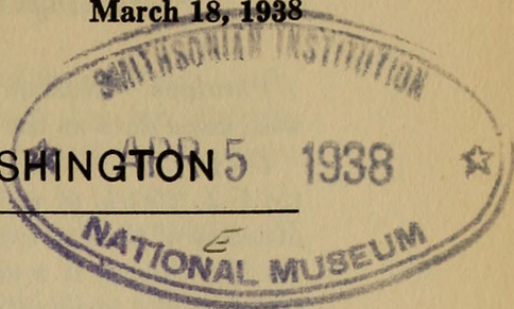


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTONNEW SNAKES OF THE GENERA CALAMARIA,
BUNGARUS AND TRIMERESURUS FROM
MOUNT KINABALU, NORTH BORNEO.

BY ARTHUR LOVERIDGE.

Recently Mr. J. A. Griswold, Jr., as a member of the Harvard Primate Expedition, visited Mount Kinabalu (13,455 feet), British North Borneo, where he made a very fine collection of mammals and birds. Incidental to this work, in which he was primarily interested, he gathered a remarkably representative collection of lower vertebrates.

Some idea of the completeness of the survey which he accomplished in the short space of two and a half months (June 9 to August 26, 1937), may be gathered from the fact that of the 35 species of snakes known from the mountain, and listed by Dr. Malcolm Smith (1931, Bull. Raffles Mus., Singapore, p. 32), Griswold secured 25, including such choice things as *Opisthotropis typica* (Mocquard) and *Oreocalamus hanitschi* (Boulenger).

In addition, however, he obtained six species as yet unrecorded from the mountain though four were known to occur in Borneo. These snakes are:

Amblycephalus vertebralis Boulenger (of Perak).

Elaphe melanura (Schlegel).

Dendrelaphis caudolineatus (Gray).

Dendrophis pictus (Gmelin).

Calamaria ? *leucocephala* Duméril & Bibron (damaged).

The sixth appears to be an undescribed montane race of a species known from Java, Sumatra, Nias and the Celebes, which I propose to name after its discoverer—

***Calamaria lumbricoidea griswoldi*, subsp. nov.**

Type.—Museum of Comparative Zoölogy, No. 43580. An adult ♀ from Luidan River, near Bundutuan, Mount Kinabalu, British North Borneo, at an altitude *circa* 3,340 feet. Collected by J. A. Griswold, Jr., July 14, 1937.

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Paratype.—Museum of Comparative Zoölogy, No. 43581. A gravid ♀ with same data as the type except that it was collected on July 23, 1937.

Diagnosis.—Closely related to *C. lumbricoidea* Boie, with a Javan example (M.C.Z. 25894) of which it has been compared. It definitely differs in the distance of the eye from the buccal border; fewer subcaudals (13, as against 16–23), though it must be remembered that both type and paratype are females; and strikingly in coloration.

Description.—Diameter of the eye *equal* to its distance from the mouth; rostral markedly broader than deep, visible from above; frontal slightly longer than broad, almost, though not, twice as broad as a supraocular, much shorter than a parietal; preocular 1; postocular 1; upper labials 5, the third and fourth entering the orbit, fifth much the largest; mental in contact with the anterior sublinguals, which are in contact with the first three infralabials; posterior sublinguals in contact with one another. Scales in 13 rows; ventrals 186 (192 in paratype); anal single; subcaudals 13 (12 in paratype but tip of tail slightly damaged) pairs; tip of tail pointed.

Coloration.—(In alcohol.) Above, head brown with a dark-edged light streak commencing posteriorly on each parietal and descending obliquely to the nape, a dark descending streak behind the eye, lower portion of upper labials white; body white, the central axis of each scale purplish black resulting in 11 (9 on nape) longitudinal lines on dorsum and tail; scales of lowest lateral row white, with or without a black mark. Below, uniformly white (pink or red in life), a dusky median line beneath the tail.

Measurements.—Type ♀. Head and body 481 (of gravid paratype 422) mm., tail 24 (of paratype 17) mm.

***Bungarus flaviceps baluensis*, subsp. nov.**

Type.—Museum of Comparative Zoölogy, No. 43601. An adult ♂ from Kenokok River, near Kiau, Mount Kinabalu, British North Borneo, at an altitude *circa* 3,300 feet. Collected by J. A. Griswold, Jr., July 23, 1937.

Paratypes.—Museum of Comparative Zoölogy, No. 43602. An adult ♂ with the same data as the type except that it was collected on August 18, 1937. British Museum. A ♀ collected on Mount Kinabalu by A. Everett, Esq.

Diagnosis.—A montane race differing from typical *B. f. flaviceps* Reinhardt of Java in its striking coloration. Our lowland material of the typical form from Sumatra and Sarawak (topotypes of *formosus* Gray) possesses a well-defined light lateral line and yellow head and lack the handsome black and white annuli of the new race.

Description.—Midbody scale-rows 13; ventrals 218 (206–219 in paratypes); anal single; subcaudals 46 (42–45 in paratypes); upper labials 7, the third and fourth entering the orbit; preocular 1; postoculars 2; temporals 1 + 2.

Coloration.—Above, head and nape brown, anterior half of dorsum iridescent black, a cream colored vertebral line, one or two of the lowest lateral scale-rows white, each scale with a black centre, posterior half of dorsum and tail alternately banded with coral red and black, the six black annuli subdivided by from four to one pure white annuli, the lowest number

being on the tail. Below, anteriorly white, the ends of the ventrals black, posteriorly coral red interrupted by the annuli which are less sharply defined than on the dorsum, tip of tail coral red (black in ♂ paratype which, however, agrees with the rest of the description).

Measurements.—Type ♂. Head and body 1170 (1100 in paratype ♂) mm., tail 173 (160 in paratype ♂) mm.

Remarks.—The paratype ♀ is the individual referred to in 1896 by the late Dr. G. A. Boulenger in his "Catalogue of Snakes in the British Museum," 3, p. 372.

***Trimeresurus sumatranus malcolmi*, subsp. nov.**

Type.—Museum of Comparative Zoölogy. No. 43604. An adult ♂ from Sungii River, near Bundutuan, Mount Kinabalu, British North Borneo, at an altitude *circa* 3,000 feet. Collected by J. A. Griswold, Jr., July 20, 1937.

Paratypes.—Museum of Comparative Zoölogy, No. 43605. An adult ♀ from Kenokok River, near Kiau, Mount Kinabalu, *circa* 3,300 feet; and No. 43606. An adult ♀ from Kiau, *circa* 3,000 feet. Both collected by J. A. Griswold, Jr., on August 5 and 18, 1937, respectively.

Also a ♂ from Lumu Lumu, Mount Kinabalu, *circa* 5,500 feet. Collected by F. N. Chasen, Esq., of the Raffles Museum, Singapore.

Diagnosis.—A montane race differing from typical *T. s. sumatranus* (Raffles) of Sumatra (and the Sarawak lowlands, etc.) by its fewer midbody scale-rows (19 as against 21), fewer ventrals (168–174 as against 180–191), and constant absence of a white lateral line.

Description.—Midbody scale-rows 19; ventrals 170 (168–174 in paratypes); anal single; subcaudals 73 (61–64 in paratypes); upper labials 8 (8–9 in paratypes), separated from the orbit by a post-subocular; preoculars 3; postoculars plus subocular 3; temporals 2 + 2.

Coloration.—Above, black, tending to form indistinct transverse bands, each scale on head and back with a light green apical spot, the amount of green increasing towards the flanks where patches of wholly green scales occur; each scale on tail (except just behind the anus) with a red apical spot. Below, pale green, each ventral and subcaudal shield edged with black.

Measurements.—Type ♂. Head and body 870 mm., tail 190 mm. Exceeded by paratype ♂ from Lumu Lumu measuring 1220 (1025 + 195) mm. and paratype ♀ from Kenokok River measuring 1330 (1120 + 210) mm.

Remarks.—The paratype ♂ is the individual referred to in 1931 by Dr. Malcolm A. Smith in his report on "The Herpetology of Mt. Kinabalu, North Borneo." (Bull. Raffles Mus., Singapore, p. 29), a paper which has proved invaluable in working out Griswold's collection. This huge and handsome pit-viper is named in appreciation of Dr. Malcolm Smith's work for herpetology. I might add that Mr. Griswold secured a good series of Dr. Smith's recently described *T. chaseni* as well as what has been heretofore regarded as *gramineus* (Shaw), both of which would appear to be more abundant on Kinabalu than the race just described. The range of *T. gramineus* has recently been restricted to India.



Loveridge, Arthur. 1938. "New snakes of the genera Calamaria, Bungarus and Trimeresurus from Mt. Kinabalu, North Borneo." *Proceedings of the Biological Society of Washington* 51, 43–46.

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