

Rediscovery and redescription of the type specimens of *Ophites ruhstrati* FISCHER, 1886 (Squamata: Serpentes: Colubridae)

Wiederfund und Neubeschreibung der Typusexemplare
von *Ophites ruhstrati* FISCHER, 1886
(Squamata: Serpentes: Colubridae)

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KURZFASSUNG

Im Zuge einer Bestandsaufnahme und Neuinventarisierung der herpetologischen Sammlung des Landesmuseums für Natur und Mensch in Oldenburg, Deutschland (LMNMO) wurden die beiden Syntypen der von FISCHER (1886) beschriebenen Colubriden-Art *Ophites ruhstrati* (heute *Lycodon ruhstrati ruhstrati*) wiedergefunden. In der vorliegenden Arbeit werden diese ausführlich neubeschrieben.

ABSTRACT

During reinventory work within the Herpetological Collection of the Landesmuseum für Natur und Mensch in Oldenburg, Germany (LMNMO), the authors rediscovered the two syntypes of the colubrid snake species *Ophites ruhstrati* (currently *Lycodon ruhstrati ruhstrati*) which was described in 1886 by FISCHER. In the present work, a detailed redescription is given for the syntypes.

KEY WORDS

Squamata: Serpentes: Colubridae: Colubrinae: *Lycodon ruhstrati*; *Ophites ruhstrati*; redescription of syntypes; systematics, taxonomy; Taiwan

INTRODUCTION

The colubrid snake species *Ophites ruhstrati* was described by Johann Gustav FISCHER (1886) based on two specimens from “Süd-Formosa” [Southern Taiwan]. It was named in honor of Ernst RUHSTRAT (1856–1913) who worked in China as an assistant of the “Kaiserlich Chinesischer Seezolldienst” [Royal Chinese Marine Custom Service]. According to FUHRMANN & KUCHARZEWSKI (2008) the Grossherzogliche Museum Oldenburg (now Landesmuseum für Natur und Mensch, Oldenburg) received snakes several times and at least one lizard sent by RUHSTRAT from China (Shanghai and Chinkiang [= Zhengjiang Shi, Jiangsu Province]) and Taiwan at the end of the 19th century.

The Oldenburg herpetological collection was first reviewed by J. G. FISCHER (1819–1889), one of the most renowned German herpetologists of that time. In his 1886 paper he listed four reptile species from that collection and described two of

them – *Euprepes (Tiliqua) ruhstrati* and *Ophites ruhstrati* – as new species. HOLTZINGER-TENEVER (1919b) published a list of the Oldenburg herpetological collection including the RUHSTRAT-material but without mention of the species described by FISCHER. After that, the collection was stored on shelves in the attic of the museum building, and fell into oblivion for nearly 90 years. In 2006 it was “rediscovered” and reviewed by German herpetologists (e.g., A. KWET [Amphibia], J. HALLERMANN [Sauria], U. FRITZ [Testudines]), and newly catalogued (FUHRMANN & KUCHARZEWSKI 2008). During this project the well conserved type material of *Ophites ruhstrati* was rediscovered whereas the holotype of *Euprepes (Tiliqua) ruhstrati* [regarded as synonym of *Eutropis longicaudata* (HALLOWELL, 1857) by STEJNEGER (1907: 214)] could not be located and must be regarded as lost.

The systematic position of *Lycodon ruhstrati* was discussed controversially by

several authors and some confusion exists about the status of the mainland and insular populations in Southeast and East Asia.

Soon after its description, the species was synonymized with *Dinodon septentrionale* (GÜNTHER, 1875) by BOULENGER (1893: 363) or treated as a variation of the latter, respectively (BOULENGER 1899: 65 “*Dinodon septentrionalis* var. *ruhstrati*”). STEJNEGER (1907: 370) listed the taxon as *Dinodon septentrionale ruhstrati* (FISCHER). POPE (1929: 428) elevated it to species rank within the genus *Dinodon*. Comparative analyses with *Lycodon fasciatus* (ANDERSON, 1879) led him to use the combination *Lycodon ruhstrati* for the first time and he synonymized *Dinodon futsingensis* POPE, 1928 [locus typicus “Futsing Hsien, Fukien”] with *Lycodon ruhstrati* (POPE, 1935: 191 ff). In 1931 MAKI described the subspecies *Dinodon septentrionale multifasciatum* from the southern Ryu Kyu Archipelago (Japan) which was considered a subspecies of *Lycodon ruhstrati* by TORIBA (1982). According

to comparisons between *ruhstrati* from Taiwan with *multifasciatum* OTA (1988) recognised two subspecies: *Lycodon ruhstrati ruhstrati* (FISCHER, 1886) and *Lycodon ruhstrati multifasciatus* (MAKI, 1931). According to the available information, the geographical distribution of *Lycodon r. ruhstrati* includes Taiwan, southern China (Hong Kong, north to Anhui, west to Sichuan and southeast Gansu), Laos and Vietnam (ZHAO & ADLER 1993; ZIEGLER 2002; VOGEL & BRACHTEL 2008). Records for Myanmar published by DEUVE (1970: 129 as *D. futsingense*) and ZIEGLER (2002) seem not to be based on voucher specimens because the references used by both authors do not include Burmese locality data. The authors are not aware of recent publications dealing with new material of *Lycodon r. ruhstrati* from Myanmar.

Currently the *Lycodon ruhstrati* complex is under revision and several changes in taxonomy and systematics must be expected (G. VOGEL pers. comm., September 2008).

METHODS

In our redescription of the type specimens of *O. ruhstrati* ventral scales were counted according to DOWLING (1951a), and the formal notation of the reduction of the longitudinal dorsal scale rows followed DOWLING (1951b). Counts of dorsal scale rows started at the level of the 10th and ended at the level of the last ventral plate. All distances were measured to the nearest millimeter. Measurements of the head were done with a slide-calliper. Snout-vent length (from tip of the snout to posterior margin of anal plate) and tail length were

taken with a thread along the ventral body side and measured with a tape measure. The head length was defined as the true distance from the tip of the snout to the posterior margin of the angle of the jaw. Head width was measured at its widest point. Bilateral scale characters were given in left/right order. The terminal scale was not included in the number of subcaudals. If there were differences between our data and FISCHER's (1886) original description the latter was added in brackets [...].

RESULTS

The handwritten inventory book of the Oldenburg herpetological collection established in 1881 by Carl Friedrich WIEPKEN and Eduard Wilhelm Johann GREVE “Verzeichnis der in Spiritus aufbewahrten und ausgestopften Reptilien und Amphibien” [Catalogue of the ethanol-preserved and stuffed reptiles and amphibians] (WIEPKEN

& GREVE without year) was the first to mention the species in the form of “*Ophites Ruhstrati*. Fischer (Spec. nov.; Type) Süd-Formosa”, under the number 37c. In addition there was a specimen of “*Lycodon Mülleri*. D. B. Süd-Formosa” catalogued under the number 37b. Like in all other specimens of the catalogue, their entries



Fig. 1: Dorsal view of LMNMO – REP 918, syntype of *Ophites ruhstrati* FISCHER, 1886.

Abb. 1: Dorsalansicht von LMNMO – REP 918, Syntypus von *Ophites ruhstrati* FISCHER, 1886.



Fig. 2: Dorsal view of LMNMO – REP 919, syntype of *Ophites ruhstrati* FISCHER, 1886.

Abb. 2: Dorsalansicht von LMNMO – REP 919, Syntypus von *Ophites ruhstrati* FISCHER, 1886.

lacked information about the collector or donor, respectively. In 1889 the herpetological collection was re-catalogued by WIEPKEN & GREVE based on their previous inventory book of 1881. The new edition included identical entries without changes. The Oldenburg herpetological collection was later reviewed again by Hans HOLTZINGER-TENEVER who established a type written catalogue of snakes based on the systematics of BOULENGER (HOLTZINGER-TENEVER 1919a). According to that, *Ophites ruhstrati* was listed as “*Dinodon septentrionalis* Gthr.” with the following data “alte No. 37c, neue No. 73. Type, China”. The specimen named “*Lycodon Mülleri*” which was catalogued originally under the old number 37b was now listed as “*Stegonotus dumerilii* Blgr.” under the new number 74 with the locality “Süd-Formosa” [Southern Taiwan]. Although in all catalogues only one specimen (No. 37c, alternatively No. 73) was marked as type, our re-examinations showed that the specimen listed under the name “*Lycodon Mülleri*” (No. 37b, alternatively No. 74) represented the second specimen of FISCHER’s original series of *Ophites ruhstrati*. Consequently both specimens had to be regarded as syntypes (following ICZN Art. 72.4.1, Art. 73.2). But there was some

doubt about the status of Ernst RUHSTRAT as collector/donor because none of the above three catalogues included these data. FISCHER’s source of knowledge about RUHSTRAT as collector remained obscure. Beyond that there was no obvious relation between RUHSTRAT and collecting activities on Taiwan. According to HOLTZINGER-TENEVER (1919b) the “Grossherzogliche Museum Oldenburg” (now “Landesmuseum für Natur und Mensch, Oldenburg”) received a total of 26 snakes sent by RUHSTRAT; they all, however, originated from China (Shanghai and Chinkiang [= Zhengjiang Shi, Jiangsu Province]).

STEJNEGER (1907) was the only one besides FISCHER (1886) who mentioned that the syntypes were stored in the Oldenburg Museum. In recent studies dealing with the systematics of the genus *Lycodon* and the species *ruhstrati* (e.g., OTA 1988; LANZA 1999) the type material was not studied. FISCHER’s original description was exceptionally comprehensive for that time. Nonetheless, during the re-examination of the syntypes we noted that the data provided by him deviated in some aspects from ours, and we will list these in the following re-descriptions together with observations not published before.

Redescription of the syntypes of *Ophites ruhstrati* FISCHER, 1886

LMNMO – REP 918, Süd-Formosa, ? RUHSTRAT coll.; old inventory catalogue no. 37c; depicted on plate 2, figures 6a - 6d in FISCHER (1886); (Fig. 1):

An adult male; total length 583 mm, snout-vent length 525 mm, tail length 58 mm (incomplete) [total length 580 mm, tail length 60+ mm]; head length 163 mm; head width 96 mm; head very distinct from neck; body elongated and laterally compressed; eyes with vertical elliptical pupils, eye diameter same as the distance between the anterior margin of the eye and the middle of the nostril; supralabials 8/8, 3rd to 5th in contact with the orbit; infralabials 10/10, first pair in contact behind the mental, 1st to 5th in contact with the anterior inframaxillary, 5th and 6th touching the posterior inframaxillary; nasal divided, touching the 1st and 2nd supralabials and the prefrontal, postnasal

larger and higher than prenasal, nostril very large; loreal 1/1, about two times as long as high, touching the 2nd and 3rd supralabial, widely separated from the internasals, posterior angle deeply inserted between preocular and 3rd supra-labial; preocular 1/1, barely visible from above, not touching the frontal; postoculars 2/2, upper one larger, touches the parietal and the upper anterior temporal, the lower postocular touches the anterior temporals and the 5th + 6th supralabials; temporals 2+3/2+3; rostral broader than high, hardly visible from above; one pair of internasals, as long as broad, shorter than the prefrontals; one pair of prefrontals, broader than long; frontal pentagonal, only slightly longer than broad (ratio 1.08:1), little shorter than the supraoculars, slightly longer than the distance to the rostral; parietals longer than broad; two pairs of infra-

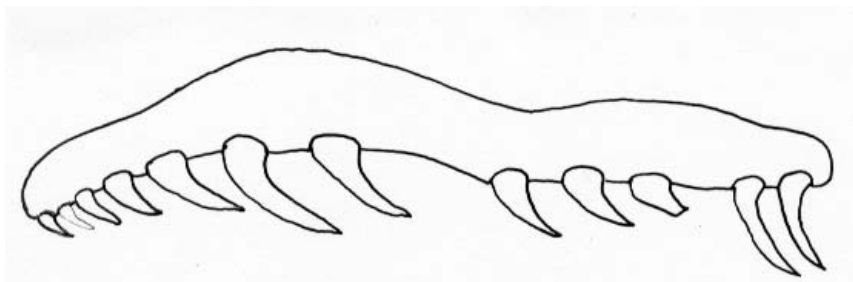


Fig. 3: Left maxilla of LMNMO – REP 918, syntype von *Ophites ruhstrati* FISCHER, 1886.
Apical end is on the left side.

Abb. 3: Linker Oberkieferknochen von LMNMO – REP 918, Syntypus von *Ophites ruhstrati* FISCHER, 1886.
Das Vorderende des Kiefers liegt links.

maxillars of equal length, the anterior pair a little broader than the posterior, the posterior pair partially divided by the inserted gulars; dorsal scales in 17-17-15 rows, lanceolate, only slightly imbricated, homogeneous in size and shape, the dorsal rows distinctly keeled, lateral rows weakly keeled, 3-4 outer rows without keels; dorsocaudals also keeled; two weakly developed apical pits present on all dorsals throughout body; ventral scales 2+229+1/2 [221], strongly angulated but not keeled; anal plate undivided; subcaudals 34+/33+ [36+/36+]; angulated. Dorsal scale row reduction formula:

$$17 (10) \frac{3+4 (146)}{3+4 (144)} 15 (229)$$

Dorsocaudal scale reduction formula:

$$10 \frac{3+4 (5)}{3+4 (4)} 8 \frac{3+4 (17)}{3+4 (17)} 6 \text{ (tail incomplete)}$$

Dentition. – Maxillary teeth on the left side (Fig. 3): 7(2nd missing)+3+2; maxillary teeth on the right side: 7(2nd+4th missing, 3rd incomplete)+3+2(1st missing). Anterior 7 maxillary teeth strongly curved backward and increasing in size posteriorly, 6th largest; the middle three smaller and stout; the posteriormost pair little longer than the middle ones, ungrooved; first diastema about three times as long as the second. The maxillary bone reaches beyond the palatine. The dentary teeth on the left side: 5+12, anterior 5 increasing in size posteriorly, 4th largest, followed after a diastema by 12 smaller teeth, which slightly decrease in size posteriorly.

Coloration. – Color and pattern have partly faded. The coloration of the head is completely uniform cream. The ground color is light cream. On the body there are 50 whitish outlined brown bands. In the anterior third of the body the bands touch the ventrals. The anteriormost bands are saddle-shaped and widened dorsally. The first dark band is the largest and covers 16 dorsal scales vertebally. The bands decrease in width posteriorly to the length of about two dorsal scales and show irregular margins. Most bands are horizontally interrupted by the dorsal ground color at the level of the 4th or 5th dorsal scale row. Ventrolaterally, in the posterior part of body, there are small irregular shaped brown markings between the bands. On the tail there are nine brown bands. Ventral coloration is uniform dirty cream with a few small irregular brown spots, subcaudals with dirty cream coloration and darker margins.

LMNMO - REP 919, Süd-Formosa, ? RUHSTRAT coll.; old inventory catalogue no. 37b; (Fig. 2):

This specimen generally corresponds with the former one (LMNMO - REP 918) in pholidotic features and shows the following differences: juvenile specimen; sex not determined; total length 248 mm, snout-vent length 191 mm, tail length 57 mm [total length 250 mm, tail length 60 mm]; head length 95 mm; head width 62 mm; loreal fused with postnasal on both sides; 1 pair of internasals, which are broader than long; temporals 2+3 / 2+1+2 (upper anterior elongate temporal above the remaining

lower ones); two pairs of inframaxillars, the anterior pair being a little broader and longer than the posterior pair; ventral scales 1+217 [223], subcaudals 102/102 [103/103]. Dorsal scale row reduction formula:

$$17 (10) \frac{3+4 (140)}{4+5 (139)} 15 (216)$$

Dorsocaudal scale reduction formula:

$$10 \frac{4+5 (2)}{2+3 (3)} 8 \frac{3+4 (10)}{3+4 (9)} 6 \frac{2+3 (31)}{2+3 (32)} 4 \frac{1+2 (66)}{1+2 (66)} 2$$

Dentition. – Maxillary teeth on the left side: 7(6th missing)+3(1st missing)+2 (1st missing); maxillary teeth on the right side: 7(2nd+4th missing, 3rd incomplete)+3 +2(1st missing). The dentary teeth were not counted in order to prevent the specimen from damage.

Coloration. – The coloration of the head shows a dark cap covering rostral, internasals, prefrontals, frontal, supraoculars, nasal/loreal, preocular, postoculars and the upper portion of 1st to 6th supralabial. On the anterior part of the parietals there is

a backward opened U-shaped pattern. The remaining head is cream colored. On light cream dorsal ground color there are 34 brown body bands, very weakly outlined with white. The first band covers 17 dorsal scales vertebrally and starts 3 dorsal scales behind the parietals. The bands decrease in width posteriorly to a length of about 1.5-2 dorsal scales and show irregular margins. The bands are horizontally notched or interrupted by the dorsal ground color at the level of the 5th dorsal scale row, after reduction at the level of the 4th row. Behind the 8th body band some of the cream colored interspaces have brown speckles in their centres, creating the impression of an irregular band. Ventrolaterally, beginning at the 5th light interspace, there are small irregular shaped brown markings between the bands. On the tail there are 18 brown rings with alternating dark spots on the outer margins of subcaudals. Except the tail, ventral coloration is uniform cream.

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