

## First record of Blakeway's mountain snake, *Plagiopholis blakewayi* Boulenger, 1893, from Thailand, with remarks on the distribution of *Plagiopholis nuchalis* (Boulenger, 1893) (Reptilia: Squamata: Colubridae, Pseudoxenodontinae)

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### Abstract

We present a first record of *Plagiopholis blakewayi* from Thailand. The specimen was found at an altitude of about 2000 m a.s.l. on the margin of a primary alpine mist forest near the border with Myanmar. A detailed description of the specimen is provided. Compared with its sister species, *Plagiopholis nuchalis*, a substantial vicariance of the vertical distribution is notable. *P. blakewayi* inhabits regions above 1300 m a.s.l., whereas *P. nuchalis* lives mainly at lower levels, at least where both taxa share the same distribution range. The records of *P. nuchalis* for Vietnam require reexamination.

### Zusammenfassung

**Erstnachweis von Blakeway's Bergschlange, *Plagiopholis blakewayi* Boulenger, 1893, für Thailand, mit Bemerkungen zur Verbreitung von *Plagiopholis nuchalis* (Boulenger, 1893) (Reptilia: Squamata: Colubridae, Pseudoxenodontinae)**

Wir berichten über den ersten Nachweis von *Plagiopholis blakewayi* für Thailand. Das Tier wurde in einer Höhe von ca. 2000 m NN am Rand eines primären Hochgebirgsnebelwaldes nahe der Grenze zu Myanmar gefunden. Eine ausführliche Beschreibung des Exemplar ist gegeben. Zur Schwesternart *Plagiopholis nuchalis* zeichnet sich eine weitgehende Vikarianz in der Höhenverbreitung ab. *P. blakewayi* besiedelt Bereiche ab 1300 m NN, *P. nuchalis* lebt dagegen vorwiegend in tieferen Lagen, zumindest im gemeinsamen Verbreitungsgebiet. Die für Vietnam gemeldeten Vorkommen von *Plagiopholis nuchalis* bedürfen einer Überprüfung.

**Keywords:** Reptilia, Squamata, Colubridae, Pseudoxenodontinae, *Plagiopholis blakewayi*, morphology; *Plagiopholis nuchalis*, Thailand, faunistics

### Introduction

The genus *Plagiopholis* BOULENGER, 1893, comprises five species (*blakewayi*, *delacouri*, *nuchalis*, *styani* and *unipostocularis*), which are native to mountainous regions of Myanmar, China, Indochina (Laos and Vietnam) and Thailand (WELCH 1988). *Plagiopholis blakewayi* Boulenger, 1893, has been recorded from the Chinese provinces of Guizhou, Sichuan and Yunnan (ZHAO & JIANG 1966, WU et al. 1985, JIANG & ZHAO 1992, ZHAO et al. 1998, ZHAO 2003) as well as from Kachin and Shan States in Myanmar (SMITH 1943). For Thailand, only *Plagiopholis nuchalis* (Boulenger, 1893) had been known to date (NABHITABHATA et al. 2004, DAVID et al. 2004).

### Methods

The description of the body colouration is based on the preserved specimen. The numbers of dorsal scale rows are given for at a point one head length behind head, at midbody, and at one head length before the vent, respectively. Ventrals were counted according DOWLING (1951). Values for symmetric head scalation characters are given in left/right order. For a comparison of the variation of measurements and some scalation characteristics in *P. blakewayi*, data were summarized from literature (WALL 1925, SMITH 1943, ZHAO et al. 1998), and are given here in brackets behind our data. Abbreviations used are: SVL: snout-vent length; TaL: tail length; TL: total length; a.s.l.: above sea level.

### Results

During the course of an excursion conducted in September of 2005, *Plagiopholis blakewayi* was for the first time collected in Thailand. The respective specimen was found at the Doi Pha Hom Pok, Chiang



**Fig. 1:** *Plagiopholis blakewayi* from Doi Pha Hom Pok, Provinz Chiang Mai, Thailand, 2000 m a.s.l. (NME R 496/06).  
**Abb. 1:** *Plagiopholis blakewayi* vom Doi Pha Hom Pok, Provinz Chiang Mai, Thailand, 2000 m ü NN (NME R 496/06).



**Fig. 2:** Head close-up of *Plagiopholis blakewayi* (NME R 496/06).  
**Abb. 2:** Kopfstudie von *Plagiopholis blakewayi* (NME R 496/06).

Mai Province, northwestern Thailand, at an altitude of about 2000 m a.s.l.. It has been deposited in the reptile collection of the Naturkundemuseum Erfurt, Germany (NME R 496/06).

The morphological data and characteristics of both colouration and pattern correspond largely with those known from the literature (see, e.g., BOULENGER 1893, SMITH 1943, ZHAO et al. 1998, ZHAO 2003). Since detailed descriptions of *P. blakewayi* have been published only rarely in the past, we will give a thorough description of the Thai specimen (Fig. 1 + 2) in the following.

It is an adult male with a TL of 345 mm (SVL 307 mm, TaL 38 mm) [max. TL males 420 mm, TL females 500 mm]. The body is round in cross section and has a stout appearance. The tail is short (12.4% of the TL) and slightly flattened below. The head is little distinct from the neck. The dorsal ground colour is greyish brown with an iridescent sheen. An indistinct, narrow, blackish brown band is present on the nape of the neck; it has a chevron-shaped vertebral projection that points forward, with the tip touching the posterior margins of the parietals. A longitudinal dorsolateral row of small, blackish brown, irregularly shaped spots runs the length of body and tail, spaced at a distance of three dorsal scales. The majority of dorsals have light margins. In addition, the dorsals on the flanks have black lower margins. The overall effect is a finely reticulated pattern that covers the entire dorsal side. The ventral basic colouration is a greyish white from the head to the tip of the tail. Ventrals and subcaudals are speckled throughout with irregular spots of varying size and have dark outer margins that correspond to the dorsal ground colour. The upper side of the head is uniform greyish brown without any significant pattern. The rostral shield is lighter than the upper side of the head and exhibits a blackish brown spot on its tip. Both the supra- and infralabials are cream-coloured with almost all vertical sutures being dark. Another dark, elongate spot is situated beneath the eye in the upper portion of the third supralabial. The eye is small with a round pupil. The distance between the anterior margin of the eye and the tip of the snout equals more than twice the eye diameter.

The dorsal scales are smooth, arranged in 15:15:15 slightly sloping rows; they lack any apical pits. The dorsals are very homogenous in both size and shape, and only the outermost row is slightly enlarged. A few

dorsals in the sacral region are weakly keeled (supracloacal keels). The ventrals number 117 plus 1 preventral [ $\delta$  110-130, ♀ 113-136]. They are wider than long, unkeeled, and rounded at the outer margins. There are 24 divided subcaudals excluding the terminal scale [ $\delta$  22-31, ♀ 18-28]. The anal scute is entire. The rostral is wider than high, extending far onto the upper side of the head, and ending in a tip posteriorly. The portion of the rostral visible in dorsal view is longer by about 1/3 than the suture between the internasals. The two internasals are wider than long. The two prefrontals are distinctly wider than long, extend onto the sides of the head, and are in contact with the frontal, supraoculars, preoculars and the postnasal shields. The frontal is hexagonal in shape, longer than wide, and is in contact with the prefrontals, supraoculars and the parietals. The supraoculars are large and distinctly longer than wide. Both parietals are longer than wide. The nasal is completely divided. Pre- and postnasals are of about the same size. The lower suture meets with the first supralabial. The naris is situated in the prenasal and directed laterally and posteriorly. Loreal shields are wanting. The large preoculars number 1/1; they do not extend onto the upper side of the head. There are 2/2 postoculars, the upper one of which is larger than the lower one. There is one elongate anterior and posterior temporal shield each, with the posterior one being slightly larger than the anterior one. The supralabials number 5/5, with the 3rd being in contact with the eye. The first one is the smallest and the 4th the largest. Of the 6/6 infralabials, the 1st through 3rd are in contact with the anterior submaxillary. The infralabials of the first pair are separated from each other by the mental and the anterior pair of submaxillars. The mental is pentagonal in shape and distinctly wider than long. Submaxillars are present in two pairs, with the posterior one being only slightly longer than the anterior one. The two scales making up the posterior submaxillary pair are separated from each other by a single intruding large gular scale.

The hemipenes of the specimen are nearly completely everted and 8.9 mm long. The everted outer genital organs are neither forked nor bilobed. At the lower pedicel, the sulcus spermaticus is undivided but from the truncal region onwards divided for more than two thirds of the organ. Both branches of the sperm groove are diverging and run towards the outer margins of the apex. Truncus and apex are covered with distinct



**Fig. 3.** Habitat of *Plagiopholis blakewayi* at the collecting side.  
**Abb. 3.** Habitaufnahme der Fundstelle von *Plagiopholis blakewayi*.

spines, that fade into spine-like skin papillae towards the apex tip (most probably corresponding to Smith's [1943: 326] term "calculate"). On the lower truncus there are some medium sized spines which fade into few rows of microspines. This microspine ornamentation fades into tiny skin lappets on the upper pedicel. Dentition: 20 short, homogenous maxillary teeth; 10 palatine teeth, curved in a fang-like manner, slightly larger than the maxillary teeth; 13 fang-like pterygoid teeth; 27 mandibular teeth, the anterior ones of which are curved in a fang-like manner, decreasing in size posteriorly.

#### Natural habitat

The specimen described above was encountered by T. Ihle at an altitude of about 2000 m a.s.l. on 18 September 2005 around 09.00 h while it was basking on the dirt road leading to the summit of the Doi Pha Hom Pok (Fig. 3). Temperatures were 15–18°C (25–28°C in the sun). The month of September sees this region mostly shrouded in clouds with fog prevailing, and maximum day temperatures of 15°C are exceeded only rarely. The immediate vicinity of the collection locality is marked by evergreen alpine mist forest, in which trees of the family Fagaceae dominate through representatives of the genera *Quercus*, *Castanopsis* and *Lithocarpus*. Many

trees are fairly densely overgrown with epiphytes such as mosses, curtain-forming lichens, orchids and ferns.

#### Altitudinal distributions of *Plagiopholis blakewayi* and *Plagiopholis nuchalis*

*Plagiopholis nuchalis* shows a distribution pattern that is similar to that of *P. blakewayi*. The latter species is, however, clearly distinguishable from the former by the absence of a loreal shield, the lower number of posterior temporals (0 or 1 vs. 2 in *P. nuchalis*), and a lower number of supralabials (5 vs. 6 in *P. nuchalis*). Other points of distinction include that in *P. blakewayi* only the 3rd supralabial touches the eye and the 4th is the largest one, whereas in *P. nuchalis* the 3rd and 4th supralabials are in contact with the eye and the 5th is largest. Even though *P. blakewayi* and *P. nuchalis* have been found in the same mountain chains in some parts of their distribution ranges, the two species do not appear to occur truly sympatrically. Respective data contained in the literature suggests these two species to be allopatric in their distributions. A narrow overlap of 300 m in altitudinal data exists only for some records from China, but it was impossible to determine whether the overlapping zone referred to a mountain system in which both species were found. Chinese locality records for *P. nuchalis* range from altitudes of 1000

to 1620 m in Yunnan Province (ZHAO & YANG 1997, ZHAO et al. 1998), while those for *P. blakewayi* stem from between 1300 and 2200 m (WU 1985, ZHAO et al. 1998). In Myanmar (Kachin and Shan States), *P. nuchalis* inhabits altitudes from 914 to 1370 m (WALL 1925, SMITH 1943) and is replaced by *P. blakewayi* at elevations from 1520 to 1980 m (WALL 1921, 1925). *P. nuchalis* is known from the Thai provinces of Mae Hong Son, Chiang Mai, Lampang, Loei and Kanchanaburi from altitudes between 600 and 1300 m (SMITH 1915a, b, 1943, CHEKE 1973, TAYLOR 1965, COX et al. 1998, NABHITABHATA et al. 2004). The record of *P. blakewayi* from 2000 m (this work) expands the known vertical range in Thailand.

High altitude locality records of *P. nuchalis* have so far become known only from Vietnam, but our research indicated that the factual distribution range of this species in Vietnam might not be entirely resolved. The species was first mentioned from Vietnam by SMITH (1930: 681), on the basis of a single specimen from "Chapa, Lao-kay, Tonkin, 5000 ft." (= Sa Pa, Lào Cai, northwestern Vietnam). This record was again mentioned by Bourret (1936: 145) and uncritically carried forward to subsequent publications on the snake fauna of this country (e.g., TRẦN et al. 1981, NGUYỄN & HỘ 1996, ORLOV et al. 2003, NGUYỄN et al. 2005). All these authors appear to have overlooked, however, that SMITH (1943: 326) later changed his original identification of the mentioned specimen from "Chapa, Lao-kay, Tonkin" and continued to list it as *Plagiopholis delacouri* Angel, 1929, instead. *P. nuchalis* is believed to occur in northwestern Vietnam at altitudes between 1400 and 2500 m a.s.l. (N. Orlov in lit. September 2006), but the reexamination of a Vietnamese specimen (from Fan Si Pan, Sa Pa, Lào Cai, 1900 m a.s.l.) figured in ORLOV et al. (2003: 231, fig. 26) revealed that it in fact represented *P. delacouri*. Whether the northern Vietnamese provinces of Lao Cai, Lai Chau, Hoa Binh and Nghe are therefore really inhabited by *P. nuchalis*, as suggested by SZYNDLAR & NGUYỄN (1996: 93), ORLOV et al. (2003: 234) and NGUYỄN et al. (2005: 100), cannot be confirmed for the time being and must be left to further investigation. The present state of knowledge suggests that records of *P. nuchalis* from Vietnam may in fact be based on misidentified specimens of *Plagiopholis delacouri* or *Plagiopholis styani*.

DEUVE (1970: 116) made mention of the possibility that *P. nuchalis* might also be encountered in Laos, but as far as we know, no specimen has as yet been recorded from there. The inclusion of Assam, India, into the distribution range of *Plagiopholis nuchalis* by COX (1991), COX et al. (1998) and ISKANDAR & COLIJN (2002) is likely based on an error. Our intense research of both literature and collections did not unearth any record of a member of the genus *Plagiopholis* (including its synonym *Trirhinopholis* Boulenger, 1893) from India. It is possible that Cox and subsequent authors erroneously supposed that the records of *P. nuchalis* from the Kachin Hills had been made on Indian territory. However, all specimens of *P. nuchalis* and *P. blakewayi* known from the Kachin Hills actually originated from Burma (Myanmar) (WALL 1919, 1921, 1923a, b, 1925, 1926, SMITH 1940, 1943).

Leaving aside the presently uncertain distribution of *P. nuchalis* in Vietnam, the altitudinal distribution ranges of the two species can be summarized as follows: *P. nuchalis*: from 600 to 1620 m a.s.l.; *P. blakewayi* from 1300 to 2200 m a.s.l.

## Acknowledgements

We thank Thomas Ulber (Herprint International CC, Bredell, South Africa) for translating the manuscript into English, and Dr. Thomas Ziegler (Cologne Zoological Gardens, Cologne, Germany) for his assistance with the description of the hemipenis. Andreas Gumprecht (Troisdorf-Spich, Germany) and Jochen Bulian (Thung Tao, Thailand) were kind enough to make some literature available to us. Mrs. Xin Zhuang (Beijing, China) and Dr. Guo Peng (Yibia University, Sichuan, China) kindly supported us with translations of Chinese publications. We would like to express our appreciation to Ashok Captain (Pune, India) and Dr. Nikolai L. Orlov (Zoological Institute, St. Petersburg, Russia) for their personal communications and the discussions revolving around the distribution ranges of various species of *Plagiopholis* in India and Vietnam.

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