

# ON THE OCCURRENCE OF THE WATERSNAKE *SINONATRIX AEFUIFASCIATA* (BARBOUR, 1908) (SERPENTES, COLUBRIDAE, NATRICINAE) IN VIETNAM

Gernot Vogel<sup>1</sup>, Patrick David<sup>2</sup>, Olivier S. G. Pauwels<sup>3</sup> and Norbert Brachtel<sup>4</sup>

<sup>1</sup>Society for Southeast Asian Herpetology, Im Sand 3, D-69115 Heidelberg, Germany  
Email: Gernot.Vogel@t-online.de

<sup>2</sup>Département Systématique et Evolution, USM 602 Taxonomie-collection - Reptiles & Amphibiens,  
Case Postale 30, Muséum National d'Histoire Naturelle, 57 rue Cuvier, F-75231 Paris Cedex 05, France  
Email: pdavid@mnhn.fr

<sup>3</sup>Department of Recent Vertebrates, Institut Royal des Sciences Naturelles de Belgique,  
Rue Vautier 29, B-1000 Brussels, Belgium  
Email: osgpauwels@hotmail.com

<sup>4</sup>Kaiserstrasse 16a, D-55116 Mainz, Germany  
(with one text-figure)

**ABSTRACT.**— The collection of an adult specimen of the natricine water snake *Sinonatrix aequifasciata* (Barbour, 1908) near Tam Đảo, northern Vietnam, confirms the occurrence of this species in Vietnam; this species was previously known only from south-eastern China. The specimen is described and compared with Chinese specimens of *Sinonatrix aequifasciata* and with *Sinonatrix yunnanensis* Rao and Yang, 1998, a species recently described from Yunnan. An artificial key to the genus *Sinonatrix* is provided.

**KEY WORDS.**— Serpentes, Colubridae, Natricinae, *Sinonatrix aequifasciata*, *Sinonatrix yunnanensis*, China, Vietnam, Tam Đảo.

## INTRODUCTION

The genus *Sinonatrix* Rossman and Eberle, 1977 (type species *Tropidonotus annularis* Hallowell, 1856, by original designation), as presently conceived (Malnate and Underwood, 1988; Rao and Yang, 1998), includes four species: *Sinonatrix annularis* (Hallowell, 1856), *Sinonatrix aequifasciata* (Barbour, 1908), both mostly found in China (including Taiwan in the case of *S. annularis*), *Sinonatrix yunnanensis* Rao and Yang, 1998, currently known only from the Chinese province of Yunnan, and *Sinonatrix percarinata* (Boulenger, 1899), ranging from north-eastern India through northern Myanmar to eastern China, to Vietnam and northern Thailand. These relatively large (up to 1.4 m for *S. aequifasciata*) snakes are primarily semiaquatic.

During a trip to Vietnam in 1998 in the region of Tam Đảo Hill Station, Province of Vinh Phú, two of the authors (NB and GV) obtained a specimen of *Sinonatrix aequifasciata*, which proved at that time to be the first one recorded in Vietnam. This species, originally described as

*Natrix aequifasciata* (Barbour, 1908: 317. Type locality: “Mt. Wuchi”, now Mt. Wuzhi, Hainan Island, People’s Republic of China), has a large range in southern China, being known from the provinces of Fujian, Guizhou, Guangdong, Hong Kong, Guangxi Huang Autonomous Region, Hainan Island, Hunan, Jiangxi, Sichuan and Zhejiang (Zhao et al., 1999). Specimens from Yunnan (Jingdong, Menglian, Yongde) were referred to *Sinonatrix yunnanensis* by Rao and Yang (1998) on the basis of differences in dentition and scalation.

For some reason, the publication of the discovery of this species in Vietnam was delayed. Subsequently, *Sinonatrix aequifasciata* was first cited from Vietnam by Orlov et al. (2000), also from Tam Đảo Hill Station, but without further information on the collected specimen(s) or description. This species was no longer mentioned again in the Vietnamese fauna, including in a paper on rare snakes of Vietnam by Orlov et al. (2003). In the present note, our Vietnamese specimen is described and compared with

Chinese specimens of *Sinonatrix aequifasciata* and *Sinonatrix yunnanensis*. A key to the four known species of the genus is provided.

### MATERIAL AND METHODS

Specimens used for comparison are listed in the Appendix. Measurements, except body and tail lengths, were taken with a slide-caliper to the nearest 0.1 mm; measurements on body (all in millimetres) were measured to the nearest millimetre. Ventral scales were counted according to Dowling (1951). The terminal scute is excluded from the number of subcaudals. The number of dorsal scale rows is given at one head length behind head, at midbody (i.e., at the level of the ventral plate corresponding to half of the total number of ventrals), and at one head length before vent, respectively. Values for symmetric head characters are given in left/right order.

Museum abbreviation. MNHN: Muséum National d'Histoire Naturelle, Paris, France.

### RESULTS

Specimen MNHN 1998.0549, adult male, collected by native people in early June 1997 in the vicinity of the Tam Đảo Hill Station (Tram Tam Đảo), north of the city of Tam Đảo, Vinh Phú Province, Vietnam.

This animal was found in a forested area, but the exact elevation and biotope were unfortunately not recorded. The Tam Đảo Hill Station is located near the south-western extremity of the Tam Đảo mountain ridge, a narrow range extending on 80 km, with a maximal width of 10 km. The maximum elevation of the ridge is 1,591 m asl, the Tam Đảo Hill Station being perched at 930 m asl. This ridge, largely karstic in topography, is heavily forested with mountain tropical and subtropical monsoon broad-leaved and bamboo forests (see Orlov, 1997, for a description), although uncontrolled logging has severely damaged large areas close to its human settlements.

Description.- Body stout, cylindrical; head oval, strongly elongate, rather narrow, barely distinct from neck; snout long, accounting for 29.2 % of total head length, 2.0 as long as horizontal diameter of eye, slightly flattened, narrowing at its tip which is nearly blunt when seen

from above, rounded seen from side, with no defined canthus rostralis; nostril dorsolateral, directed upwards; eye large, its diameter much greater than distance between its inferior margin and upper lip edge; pupil rounded; tail long, cylindrical and clearly progressively tapering.

Maxillary teeth 23, gradually enlarged posteriorly.

Snout-vent length 485 mm; tail length 152 mm; total length 637 mm.

Ventrals (3 preventrals) + 149 ; subcaudals 78, all paired; anal divided.

Dorsal scale rows 19-19-17, strongly keeled except those in outermost row which are smooth.

Dorsal scale rows reduction:

left: 3rd + 4th → 3rd (ventral 89)

right: 3rd + 4th → 3rd (ventral 90)

Rostral twice as wide as high; internasals subtriangular, longer than wide, distinctly anteriorly narrowed; prefrontals only slightly larger than internasals, reaching loreal; one large, undivided supraocular on each side; nasal rectangular, much longer than high, divided into two parts, with a dorsolateral nostril piercing upwards near upper edge of the limit between nostril parts; one subrectangular, gothic-shaped loreal; 9/9 supralabials, 5th entering orbit, 4th and 6th separated from orbit by only a small scale, 7th largest; 1/1 preocular; no subocular; 3/3 postoculars; 2 + 2 + 3 temporals on both sides; 10/9 infralabials.

In life and preservative, dorsal and upper tail surfaces are dark grey, marked on each side of body with 21 and on each side of tail with 13 wide, regular, distinct vertical black bands encircling body, which are strongly constricted in their middle at mid-height of flanks; wider lower and upper parts of each band marked with an oval blotch of dorsum ground colour, giving the appearance of conspicuous, broad rounded X-shaped markings on each flank, the X more or less contacting each other by their upper branches on the vertebral line; bands immediately behind head and towards the tail end indistinct. Head uniformly dark olive grey, without any marking. Venter dirty whitish yellow, darker towards tail, marked with irregular double (sometimes single) black bands coming from lateral

X-shaped markings, separated by a more or less wide amount of venter ground colour.

**DISCUSSION**

*Sinonatrix aequifasciata* has been adequately described in the literature. We give below a comparison between major meristic characters of the Chinese specimens and values or state of our Vietnamese specimen, which are given in square brackets. The data of Chinese specimens are drawn from Pope (1935), Hu et al. (1980), Wu et al. (1985), Huang and Jin (1990), Rao and Yang (1998) and Zhao et al. (1998).

Ventrals 140-154 [149]; subcaudals 62-78 [78]; anal plate divided [divided]; dorsal scale rows 19-19-17, strongly keeled [idem]; supralabials 9-10 (rarely 8) [9/9]; supralabials entering orbit: 4th-5th or 5th (rarely 5th-6th, or 6th) [5th/5th]; preoculars 1 (rarely 2) [1/1]; postoculars 3 (rarely 2 or 4) [3/3]; anterior temporals 2 (rarely 1 or 3) [2/2], posterior temporals 3 (rarely 2 or 4) [2]; infralabials 10 (rarely 9 or 11)

[10/9]; colour of dorsum dark grey, olive grey or olive brown [dark grey]; presence of diagnostic X-shaped lateral markings [idem].

Our specimen from Tam Dáo agrees with the morphological and meristical characters reported for Chinese specimens of *Sinonatrix aequifasciata*, and does not show significant differences. We also compared our specimen with the description of *Sinonatrix yunnanensis* Rao and Yang, 1998. This species is endemic to Yunnan Province, China. On the basis of the original description, the numbers of maxillary teeth (23) and ventral plates (149) of the Vietnamese specimen differ distinctly from the diagnostic characters given by Rao and Yang (1998) for *Sinonatrix yunnanensis* (31-35 maxillary teeth and 156-165 ventrals, respectively).

The four known species of the genus *Sinonatrix* may be separated by the following key:

- 1. Over 30 vertical or Y-shaped black bars on sides of body . . . . . 2



**FIGURE 1:** *Sinonatrix aequifasciata* (MNHN 1998.0549), general view in life. Photograph by N. Brachtel.

- Under 30 broad, rounded X-shaped dark marks on sides of body . . . . . 3
2. Supralabials with black sutures; belly marked with red; usually one supralabial entering orbit. . . . . *Sinonatrix annularis*  
Supralabials without black sutures; belly not marked with red; usually two supralabials entering orbit . . . . . *Sinonatrix percarinata*
3. 142-154 ventral scales, 23-28 maxillary teeth . . . . . *Sinonatrix aequifasciata*  
156-165 ventral scales, 31-35 maxillary teeth . . . . . *Sinonatrix yunnanensis*

Bourret (1935, 1936) did not describe any specimen referable to *Sinonatrix aequifasciata*, and this species was not listed from Vietnam by Nguyễn and Hồ (1996). In China, *S. aequifasciata* is known from the province of Guangxi Zhuang Autonomous Region, which has a common border with Vietnam. According to Lu and Wen (1988), the species inhabits the whole of Guangxi, excepted the area around Nanning. As the Tam Đảo Hill Station is about 120 airline km from the Vietnam - Guangxi Zhuang border, the Vietnamese specimen represents a significant range extension for the species.

The genus *Sinonatrix* was until now represented in Vietnam only by *S. percarinata*, known from the north and centre of the country southwards up to Gia Lai Province (Nguyễn and Hồ, 1996; Ziegler, 2002). *Tropidonotus trianguligerus* Boie in Boie, 1827, a typical natricine long placed in the genus *Natrix*, was placed in the genus *Sinonatrix* by Orlov et al. (2000). This species is currently usually referred to as *Xenochrophis trianguligerus* (Boie, 1827) (see Malnate and Underwood, 1988).

*Sinonatrix aequifasciata* should be searched for in other hilly forested areas of northern Vietnam. David et al. (1998) reported the first Vietnamese specimen of *Amphiesma optatum*, another natricine snake previously also known only from southern China, also from the vicinity of the Tam Đảo Hill Station. Although the Tam Đảo mountain ridge is nearly entirely surrounded by lowlands, there is little discontinuity between hills of southern China and those of northern Vietnam.

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