A NEW SPECIES OF MOUNTAIN STREAM SNAKE, GENUS Opisthotropis GUNTHER, 1872 (SERPENTES: COLOBRIDAE: NATRICINAE), FROM THE TROPICAL RAIN FORESTS OF SOUTHERN VIETNAM

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A new species of mountain stream snake, genus Opisthotropis Gunther, 1872 (Serpentes: Colubridae: Natricinae), from the tropical rain forests of southern Vietnam.

Key words: Snakes, Colubridae, Natricinae, Opisthotropis daovantieni, Vietnam.

The genus Opisthotropis Gunther, 1872 includes 14 species of relatively small colubrid snakes which are widely distributed in Southeast Asia, from southern China in the north southeastward to the Philippines and the Great Sunda Archipelago. The snakes occur mainly in rapidly flowing mountain streams and spend most of their lives under water. They are usually found in pools below cascades where they hide under stones and in rocks crevices. Food items include small fishes, and frogs and their tadpoles. Opisthotropis are oviparous, in contrast to the viviparous homalopsine colubrids.

Four species of mountain stream snakes occur in Vietnam: O. balteatus (Cope, 1895), O. jacobi Angel and Bourret, 1933; O. andersoni (Boulenger, 1888); and O. lateralis Boulenger, 1903 (Pope, 1935; Bourret, 1936; Smith, 1943; Taylor, 1965; Welch, 1988; Darevsky, 1990; Zhao and Adler, 1993). In addition, one species of natricine snake which is closely related to Opisthotropis – Parahelicops annamensis Bourret, 1934 – also occurs in Vietnam. Indeed, Smith (1943) considered P. annamensis to be a species of Opisthotropis. However, later the genus Parahelicops was restored by Taylor and Elbel (1958), when they described a second species from Thailand. Most subsequent authors have also recognized Parahelicops as a valid genus (e.g., Campden-Main, 1970; Welch, 1988; Williams and Wallach, 1989). Our ongoing field investigations in Vietnam have resulted in the collection of numerous specimens of Opisthotropis, among which are two specimens representing a new species which is described below.

Opisthotropis daovantieni sp. nov. (Figs. 1 and 2)


Paratype. FMNH 252008, adult male, the same data as for the holotype.

Diagnosis. A small snake (snout-vent length [SVL] up to 510 mm), with 20 maxillary teeth, the

Fig. 1. Head in dorsal (a), lateral (b), and ventral (c) view of the holotype FMNH 252009 of Opisthotropis daovantieni.

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Fig 2. Holotype of *Opisthotropis daovantieni*. a) Dorsal view, b) ventral view.

last two much enlarged, not grooved; internasals narrowed; a single prefrontal; two postoculars; one subocular; one preocular; nasals divided; all dorsal scale rows smooth; anal divided; uniform gray-olive dorsally; ventrals yellowish with separate small dark marks on subcaudals.

*Opisthotropis daovantieni* differs from all the species inhabiting Indochina by its relatively short tail: the average SVL/tail length (TL) ratio is 6.6 in *O. daovantieni*, 5.4 in *O. balteatus*, 4.3 in *O. premaxillaris*, 5.7 in *O. lateralis*, 5.4 in *O. andersoni*, 3.7 in *O. spenceri*, and 3.7 in *O. jacobi*.

**Description of holotype.** Head not distinct from neck; rostral broader than deep tapering to bluntly rounded point posteriorly; internasals triangular in contact with rostral, about as long as single prefrontal, markedly narrowed anteriorly; frontal pentagonal, slightly wider anteriorly than elsewhere; nasals separate; a suture from nostril to first supralabial; loreal longer than high in contact with internasal, prefrontal and second, third and fourth supralabials; a large preocular not reaching frontal; one large postocular; one small subocular; two temporals; eight supralabials, fifth contacting the orbit, sixth largest; mental wider than deep, as wide as rostral; 10 infralabials, five touching the first chinshields; first pair of chinshields distinctly longer than second pair; posterior chinshields separated from each other; scales in 17 rows throughout, smooth ventrals 189; subcaudals 39 pairs; anal divided; SVL 510 mm; tail length 68 mm; nearly uniform gray-olive above; ventrals yellowish; subcaudal region with grayish marks; live animal with an iridescent sheen.

**Description of the paratype.** An adult male resembling the holotype in all the major characters; snout-vent length 480 mm; tail length 82 mm; ventrals 194; subcaudals 47, paired. Hemipenes deeply forked, with shoulder spines on the base and numerous tiny spines on the lobes; sulcus spermaticus forked, extending to each apical tip. For comparison we illustrate the weakly forked hemipenes of a similar species, *Opisthotropis jacobi* (Royal Ontario Museum [ROM] 35001) from Ba Vi National Park, Ha Tay Province, northern Vietnam (Fig. 3).

**Distribution.** *Opisthotropis daovantieni* is known only from the type locality. Its distribution is probably limited to the northern part of Tai Nguyen Plateau in the Annam Mountains, southern Vietnam (Fig. 4). It is associated with several other new endemic species of amphibians and reptiles found from 1982—1997 (Darevsky and Orlov, 1994, 1997). This indicates that this area is likely a rather important center of endemism and speciation (Darevsky and Orlov, 1997; Lathrop et al., 1998).

**Etymology.** The species is named for the late senior Vietnamese zoologist, Professor Dao Van Tien (1920—1995) of Hanoi University in recognition of his numerous publications on Vietnamese vertebrates, and particularly those on reptiles and amphibians.

**Common Name.** Tien’s mountain stream snake.

**Field notes.** Both specimens of *O. daovantieni* were collected at night in small, stony canopy-covered streams flowing into the Cha River, a tributary of Ba River. These snakes appear to be aquatic obligates. They are so strongly adapted to water that their integument curls up from desiccation within 10 min of being taken out of the stream.
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**Fig. 3.** Hemipenes of *Opisthotropis daovantieni*, paratype FMNH 252008 (above) and *Opisthotropis jacobi* ROM 35001 (below). a) Asulcate side; b) sulcate side.

**KEY TO THE VIETNAMESE SPECIES OF Opisthotropis AND Parahelicops**

1a Midbody scales in 15 rows  
1b Midbody scales in 17 or 19 rows  
2a Body scales smooth; preocular 1  
2b Posterior dorsal scales keeled; preoculars 2  
3a Midbody scales in 17 rows; body not banded  
3b Midbody scales in 19 rows; body banded  
4a Supralabials 8 or 9  
4b Supralabials 10 or 11  
5a Internasals not touching of loreals; fourth supralabial below the eye  
5b Internasals in contact with loreals; fifth supralabial below he eye

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**References**


