ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN

MINISTERIE VAN CULTUUR, RECREATIE EN MAATSCHAPPELIJK WERK)

Deel 48 no. 17 24 oktober 1974

ZOOGEOGRAPHIC AND TAXONOMIC STATUS OF THE SOUTH AMERICAN SNAKE *TACHYMENIS SURINAMENSIS* (COLUBRIDAE)

by

CHARLES W. MYERS

The American Museum of Natural History, New York

and

M. S. HOOGMOED

Rijksmuseum van Natuurlijke Historie, Leiden

With one plate

Introduction

Tachymenis is a characteristic genus of colubrid snakes inhabiting extreme western South America, from coastal Peru and Chile east to Bolivia (Walker, 1945; Peters & Orejas-Miranda, 1970). An extralimital species in Brazil, *Tachymenis brasiliensis* Gomes, was referred to its own genus (*Gomesophis*) by Hoge & Mertens (1959). One additional outlying species, *Tachymenis surinamensis,* was described from "Surinam" by Dunn in 1922, and, until now, has seemed a zoogeographic anomaly. In the present paper, we suggest that the type specimens of *T. surinamensis* bear erroneous locality data, and we refer the name to the synonymy of *Philodryas elegans* (Tschudi, 1845), a species of the coastal deserts of western South America.

For lending specimens and for permitting us to work in their respective institutions, we are grateful to Dr. James E. Böhlke and Mr. Edmond V. Malnate (ANSP), Mr. Hymen Marx (FMNH), and Dr. Ernest E. Williams (MCZ). Institutional abbreviations used in the present paper are as follows:

AMNH, American Museum of Natural History, New York

ANSP, Academy of Natural Sciences of Philadelphia

FMNH, Field Museum of Natural History, Chicago

MCZ, Museum of Comparative Zoology, Harvard University, Cambridge

THE TYPE SPECIMENS OF TACHYMENIS SURINAMENSIS DUNN

The holotype of *Tachymenis surinamensis* is registered as MCZ 5133, incorrectly cited as no. "5123" in the original description (Dunn, 1922); the specimen is a juvenile male (hemipenial spines not ossified), for which "Surinam" is the only datum recorded in the catalogues of the Museum of Comparative Zoology at Harvard University. The second specimen, the paratype, on which Dunn based his concept of *surinamensis*, now FMNH 65343, is a juvenile female; this specimen originally was associated with the holotype, but later it was recatalogued as MCZ 16714, and, in 1955, it was sent on exchange to the Field Museum of Natural History.

TABLE 1

Scale counts and measurements (in mm) of the type specimens of *Tachymenis surinamensis* Dunn.

	Holotype ♂ MCZ 5133	Paratype ♀ FMNH 65343
Dorsal scale rows	19-19-17	19-19-17
Method of scale-row reduction (at ventral)	--- *	3+4 (131/132)
Preventrals (undivided gulars)	0	1
Ventrals	194	199
Subcaudals	96	89
Anal plate	÷	÷
Supralabials	8	8
Supralabials touching loreal	2-3	2-3
Supralabials touching eye	4-5	4-5
Preoculars	1	1
Postoculars	2	2
Temporals	1+1+3	1+1+2
Infralabials	10	10
Infralabials touching anterior genials	1-5	1-5
Infralabials touching posterior genials	5-6	5-6
Total length	415	299
Tail length	115	74
Tail length as a percentage	27.7	24.7

* Body damaged.

Standard scale counts and measurements of the type specimens are given in table 1. There are a few slight differences in the scale counts published by Dunn (partly due to slightly different methods of making counts), who particularly erred in stating that *surinamensis* lacked scale pits (see below). The following notes on the type specimens are largely supplemental to the abbreviate, original description.

Both specimens have 12 + 2 maxillary teeth (right side, counted in situ); the offset, grooved fangs are separated from the other teeth by a broad diastema, and the ultimate prediastemal socket lies anterior to the ectopterygoid process. The pupil of the eye is round. The body is slightly higher than wide, with a slightly angulate ventrolateral edge. The frontal plate is narrow and much longer than distance from its anterior edge to tip of snout; canthus rostralis rounded. The dorsal body scales are smooth; the holotype has single, median apical pits, whereas in the paratype there are one (usually) or two (occasionally) pits — with the single pits being positioned either on the midline of the scale or slightly off center.

The types are a light gray above, probably somewhat faded, with an elongate dark gray blotch on the nape followed by a double row of irregular dark spots (pl. 1, fig. 1); posteriorly, the dark spots tend to fuse, forming the blackish edges of a median gray stripe that runs from the rear of the body almost to the end of the tail. A thin, dark lateral line or row of dots forms toward the middle of the body on row 4 and extends to the tail, with the body being somewhat darker below the line than above. On the head there is a pair of close-set white parietal dots and, on the holotype, a dark-edged white mark down the center of the frontal plate. A dark stripe along the side of the head, from nostril to neck, acquires a conspicuously darker lower edge posterior to the eye. The supralabials are basically white, with an oblique suborbital dark marking; the aforesaid mark is short and confined to supralabial 5 in the holotype, but the paratype has the marking extending also across supralabial 6 and to the mouth. The ventral surfaces are white, with blotches of light grayish brown under the head and with four rows of small dark dots on the belly; the two outer rows of dots, one along each side of the ventral plates, are darker and more conspicuous than the two inner rows of belly dots.

Dunn failed to record the sex of the two types. The paratype (table 1) is a small female, evidently a juvenile. The larger holotype, a male, is also a juvenile specimen as indicated by the soft, unossified hemipenial spines. The retracted right hemipenis extends in situ to the level of subcaudal 11 and is bifurcated from the level of subcaudal 8; the two slips of major retractor muscle fuse at subcaudal 14 and the muscle originates at subcaudal 38. This

organ was slit ventrally and removed from the snake for better examination: The lobes comprise the distal one-fourth of the organ. The sulcus spermaticus forks at a point slightly more than two-fifths of the total length of the organ above its base, with the ventral branch extending to the end of the ventral lobe (dorsal lobe not opened). There is a basal naked "pocket" on the lower two-fifths of the organ, and a section of small to medium-sized spines just below the lobes and onto the basal, asulcate side of the lobes. The sulcate side of the lobe is calyculate; the asulcate side of the lobe is largely nude, with a median, longitudinal ridge of tissue and a distal cluster of tiny spines on the tip of the lobe.

Characteristics of Philodryas elegans (Tschudi)

The following brief description is based on 16 Peruvian specimens, including part of the material discussed by Schmidt & Walker (1943). Structural characteristics are fairly constant in the sample, but variation in colour pattern is complex, seeming to vary both ontogenetically and geographically. Although a thorough variational study conceivably might show *Philodryas elegans* to be a composite, the following notes are sufficient for present comparison with the nominal *Tachymenis surinamensis*.

Philodryas elegans is a slender snake, with head slightly wider than neck, attaining a total length in excess of 900 mm; tail length 22.4-29.6 percent of total. Dorsal scales in 19-19-17 or 19-19-15 rows, smooth, with single. median apical pits that may be hard to see on poorly preserved specimens. Dorsal scale-row reduction from 19 to 17 rows noted for two specimens as follows: in AMNH 69646, reduction occurs by loss of row 4 on both sides at level of ventral 115; in FMNH 8388, reduction is by fusion of rows 3 + 4 at ventrals 129 (right side) and 133 (left). Ventrals 187-213 (187-213, five males; 198-213, 11 females); subcaudals 87-119 (97-119, males; 87-111, females); anal and subcaudal plates divided. Normally eight supralabials (8/7 in one), second and third touching loreal, fourth and fifth touching eye. Usually 10 infralabials (9 or 11 in a few), first five touching anterior genials (first four if infralabials = 9), fifth and sixth (or fourth and fifth) in contact with posterior genials. One preocular; two postoculars (4/3 in one); temporals usually 1 + 1 + 2, or 1 + 1 + 3 or 1 + 2. Frontal plate conspicuously long and relatively narrow, much longer than distance from its anterior edge to tip of snout. Pupil of eye round. Canthus rostralis rounded, not angular. Body slightly higher than wide, with slightly angulate ventrolateral edges (these features especially evident in young, well preserved specimens). Maxillary teeth usually 12 + 2 (12 specimens) or 10 + 2 (two specimens); diastema broad; prediastemal teeth subequal, strongly recurved,

with ultimate prediastemal socket lying anterior to front edge of ectopterygoid process. Enlarged rear fangs moderately to weakly grooved on basal half to two-thirds, with last fang being offset laterad (from plane connecting prediastemal teeth and first fang).

The colour pattern of *Philodryas elegans* is most variable in respect to the middorsal marking (pl. 1, fig. 2). At one extreme, there is a solid, middorsal dark stripe, anteriorly with wavy edges but otherwise straight-edged and unbroken (fig. 2c). Or the median stripe may have highly undulating edges for all or most of its length (e.g., see Tschudi, 1846 [1844-1846], pl. 6), or it may be broken into discrete blotches that are either single or paired (fig. 2b). One specimen (MCZ 28648) anteriorly has conspicuous, thin crossbars that are connected by a narrowed middorsal stripe. In some specimens, the middorsal stripe retains its form only in the tail region, being reduced on most of the body to a dark streak bounded by two parallel rows of dark dots (fig. 2a). According to Schmidt & Walker (1943, p. 317), who mention a unicoloured specimen of *elegans*, the dorsal stripe may be lost completely.

A dark lateral line, and/or rows of dark dots on the white venter, are present or absent; the underside of the head varies from nearly immaculate to black-spotted or lightly blotched with brown. Some individuals have close-set white parietal dots, and most have a white line down the middle of the frontal plate. Supralabials may be nearly immaculate or sparsely dark-spotted or blotched, and some specimens have a short, oblique subocular bar on supralabial 5 or 5 and 6.

Retracted right hemipenis of a young specimen (FMNH 8387; pl. 1, fig. 2b) extends in situ to level of subcaudal 15 and is deeply bifurcated, forking at level of subcaudal 11; the two slips of the major retractor muscle fuse at subcaudal 18 and the muscle originates at subcaudal 40. This organ was slit along its midventral plane, removed from the snake, and pinned flat for the following description. The lobes comprise the distal third of the organ. The sulcus spermaticus forks at a point two-fifths of the total length of the organ above its base, the ventral branch of the sulcus extending along the lateral wall virtually to the tip of the ventral lobe [other branch presumably extending to tip of unopened dorsal lobe]. The basal two-fifths of the organ, below division of sulcus spermaticus, is ornamented solely with spinules and with a naked basal "pocket" — a narrow, nude furrow that extends up the basal one-third of the organ. There are a few dozen medium to small, slightly recurved spines in an area above the middle of the hemipenis, from a short distance below the lobes up onto the basal, asulcate side of the lobes. The sulcate side of a lobe is ornamented with moderate-sized calyces that bear short, soft papillae; the calyculate areas of the two lobes are not, or just

barely, confluent at the bases of the lobes. There is a thick, elongated cluster of small, slender spines at the asulcate tip of a lobe; this cluster forms an overhang on either side where it fuses with adjacent calyces, probably giving the lobe a semicapitate appearance when the hemipenis is everted. The asulcate side of a lobe is mostly nude, except for a median ridge of tissue that bears papillae and which extends from the base of the lobe nearly to the distal cluster of tiny spines.

Specimens examined. — Sixteen specimens, all from Peru, as follows: ICA: Paracas Bay, AMNH 20740. LIBERTAD: Guañape in Viru Valley, about 40 km S Trujillo, AMNH 69646. LIMA: Infantas, MCZ 130283; mouth Río Fortaleza, Paramonga, AMNH 74741. PIURA: Quebrada Montero, Cerro de Illescas, 6° S., 81° W., FMNH 8387-8388; Quebrada Seca, FMNH 9807-9808. TUMBES: Quebrada Sal Grande, branch of Quebrada Plateros about 50 mi. N Negritos, FMNH 8386. No specific locality ("Peru"), AMNH 58023-58025, ANSP 11602-11604, MSZ 28648.

DISCUSSION

In scutelation and proportions (table 1), and in details of maxillary dentition, the juvenile types of *Tachymenis surinamensis* show no significant departure from Peruvian *Philodryas elegans*. The type specimens of *surinamensis* have the kind of *elegans* colour pattern in which the dorsal stripe is faint and its outer edges reduced to parallel rows of dark dots. In dorsal colour pattern, the types of *surinamensis* are nearly identical to some specimens of *elegans,* such as FMNH 8388 (pl. 1, fig. 2a). The hemipenes of *Philodryas elegans,* and of the holotype of *Tachymenis surinamensis,* are of the "alsophiine type" (sensu Myers, 1974: 236). There are slight differences in size and proportions between the one *elegans* hemipenis dissected and the organ of the *surinamensis* holotype (compare preceding descriptions), but no taxonomic significance can be given to these differences without knowledge of hemipenial variation in *elegans*. The structural details of the small *surinamensis* hemipenis are not very clear because the organ is not fully developed, but the arrangement of the various structures seems essentially identical to that of *elegans*.

Thus, in view of all the similarities and seeming lack of taxonomically significant differences, we refer *Tachymenis surinamensis* Dunn, 1922, to the synonymy of *Philodryas elegans* (Tschudi, 1845), and, more specifically, to the synonymy of *Philodryas elegans rufidorsatus* (Günther, 1858) sensu Schmidt & Walker (see below). We can only conclude that the locality "Surinam" is erroneous for the two type specimens of *surinamensis*. One of

us has examined numerous snakes from Surinam and adjacent countries in the course of an ongoing faunal study, and no additional specimens have been seen. Inasmuch as *Philodryas elegans* occurs west of the Andes, along the dry Pacific coast from southern Ecuador to Chile, it is scarcely expected in the Guianas, where the native species of *Philodryas* (see Brongersma, 1957) are quite different.

Schmidt & Walker (1943) recognized two subspecies of *Philodryas elegans*, and, according to their criteria, the *surinamensis* types are assignable to *P. e. rufidorsatus* (Günther) because the dorsal scale rows posteriorly reduce to 17 (to 15 in *P. e. elegans*) and also because of the relatively low numbers of ventral and subcaudal plates. Schmidt & Walker also considered the nature of the middorsal stripe as having value in separating the two subspecies, and Peters & Orejas-Miranda (1970: 243) separated *P. e. elegans* and *P. e. rufidorsatus* solely by this character — on the basis of which the *surinamensis* types also key to *rufidorsatus*. However, variation in scutelation and in the middorsal stripe do not seem well correlated. For example, the three northern Peruvian snakes shown in pl. 1, fig. 2, all have 19-19-17 scale rows and were referred by Schmidt & Walker to *P. e. rufidorsatus*, but on the basis of the anteriorly continuous dorsal stripe, specimen "c" is identifiable as *P. e. elegans* according to the key provided by Peters & Orejas-Miranda.

Dunn (1922) compared his *Tachymenis surinamensis* with *Tachymenis elongata* Despax from Peru, and, in addition to a few seemingly minor differences, he indicated that *surinamensis* differed in lacking apical pits. As stated above, however, apical pits are present on both type specimens of *surinamensis*. Judging from the original description, especially the figures (Despax, 1911: 33-35, pl. 1, figs. 2, 2a), the nominal *Tachymenis elongata* also probably will have to be referred to the synonymy of *Philodryas elegans*. The genera *Philodryas* and *Tachymenis* seem closely related, and any thorough consideration of one will also have to take into account the other.

References

Brongersma, L. D., 1957. On two species of the genus Philodryas (Serpentes) from Surinam. — Proc. Koninkl. Nederl. Akad. Wetensch., ser. C, 60: 458-462.

Despax, M., 1911. Reptiles et batraciens de l'équateur recueillis par M. le Dr. Rivet. Mission du service géographique de l'armée pour la mesure d'un arc de méridien équatorial en Amérique du Sud, vol. 9 (2): 17-44, pls. 1-3. — Paris.

Dunn, E. R., 1922. Two new South American snakes. — Proc. Biol. Soc. Washington, 35: 219-220.

Günther, A., 1858. Catalogue of colubrine snakes in the collection of the British Museum: i-xvi, 1-281. — London.

Hoge, A. R. & R. Mertens, 1959. Eine neue Gattung opisthoglypher Nattern aus Brasilien. — Senckenbergiana Biol., 40: 241-243.

MYERS, C. W., 1974. The systematics of Rhadinaea (Colubridae), a genus of New World snakes. — Bull. Amer. Mus. Nat. Hist., 153: 1-262.

PETERS, J. A. & B. OREJAS-MIRANDA, 1970. Catalogue of the Neotropical Squamata Part 1. Snakes. — U.S. Natl. Mus. Bull., 297: i-viii, 1-347.

SCHMIDT, K. P. & W. F. WALKER, JR., 1943. Snakes of the Peruvian coastal region. — Zool. Ser. Field Mus. Nat. Hist., 24: 297-324.

TSCHUDI, J. J. VON, 1845. Reptilium conspectus quae in Republica Peruana reperiuntur et pleraque observata vel collecta sunt in itinere. — Arch. Naturgesch., 11 (1): 150-170.

——, 1844-1846. Untersuchungen über die Fauna Peruana. St. Gallen. Issued in parts: Herpetologie, pp. 1-80, pls. 1-12, "1845" [1846].

WALKER, W. F., 1945. A study of the snake, Tachymenis peruviana Wiegmann and its allies. — Bull. Mus. Comp. Zool., Harvard, 96 (1): 1-55, pls. 1-5.

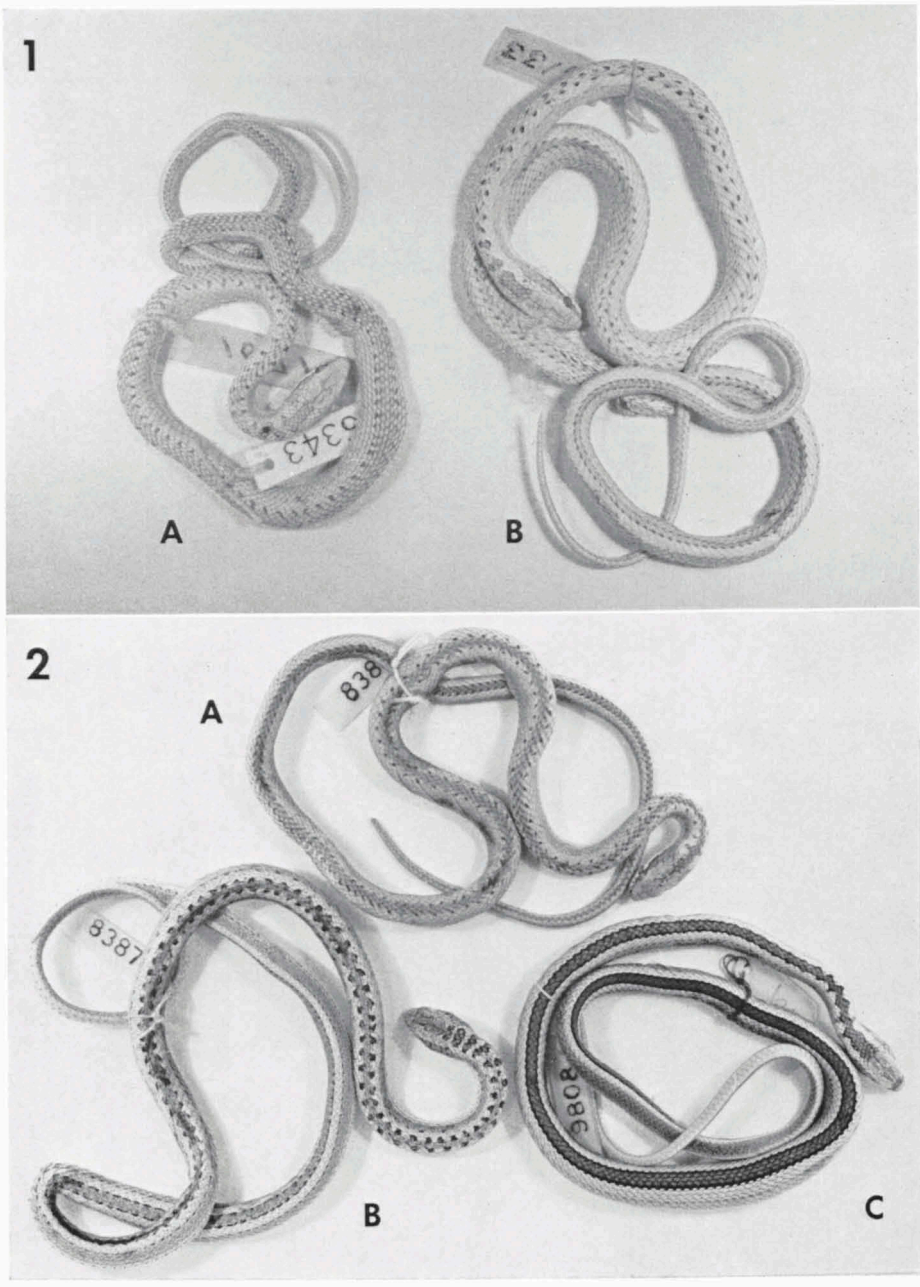

Fig. 1. Type specimens of *Tachymenis surinamensis* Dunn. A. Paratype, FMNH 65343. B. Holotype, MCZ 5133.
Fig. 2. *Philodryas elegans* (Tschudi), all young specimens from extreme north-western Peru. A. FMNH 8388. B. FMNH 8387. C. FMNH 9808.