

New and Noteworthy Reptiles from Oaxaca, Mexico

HOBART M. SMITH

Among specimens acquired by the Museum of Natural History of the University of Illinois during the past ten years from the state of Oaxaca, Mexico, are representatives of one new species of viper (*Bothrops*), a rare ground snake (*Geophis*), a turtle not previously recorded from the state, and a second record for a lizard from the state.

Kinosternon leucostomum Dumeril and Bibron. An adult obtained Aug., 1957, by Thomas MacDougall at Nueva Raza, Zacatepec, Oaxaca (UIMNH 46709), provides a basis for the first record of this species from the state, and a southward range extension of about seventy-five miles. The locality is of Gulf drainage, to which the species is limited in the Tehuantepec area.

Sceloporus grammicus microlepidotus Wiegmann. Thirteen, Cerro Chico de Humo, Cerro Pelón, E Maquiltianguis, Oax. These are typical small-scaled examples of the subspecies, not tending toward the large-scaled *g. grammicus* of southern Oaxaca, and they provide the second record for the state as well as a small range extension.

Geophis dubius Peters

Geophis dubius Peters, 1861, Monatsb. Akad. Wiss. Berlin: 923 ("Tehuantepec," Oax.); Bocourt, 1883, Miss. Sci. Mex., Rept., 9:532-3, pl. 31, fig. 9; Boulenger, 1894, Cat. Snakes Brit. Mus., 2:322-3; Smith, 1941, Smithsonian Misc. Coll., 99(19):6; Smith and Taylor, 1945, Bull. U. S. Nat. Mus., 187:67; Smith and Taylor, 1950, Univ. Kans. Sci. Bull., 33:340; Maldonado Koerdell, 1953, in Beltran, Vida Silv. Rec. Nat. Carr. Panamer.: 130.

Geophidium dubium, Cope, 1887, Bull. U. S. Nat. Mus., 32:86.

Atractus dubius, Cope, 1900, Ann. Rept. U. S. Nat. Mus., 1898:1230.

Catostoma dubium, Amaral, 1929, Mem. Inst. Butantan, 4:191.

Elapoides rostralis Jan, Icon. Gen., 12: pl. 2, fig. 2 ("Mexico").

Geophis rostralis, Bocourt, 1883, Miss. Sci. Mex., Rept. 9:533-4, pl. 31, fig. 10; Günther, 1893, Biol. Centr. Amer., Rept. Batr.: 89-90; Boulenger, 1894, Cat. Snakes Brit. Mus., 2:323-4; Smith, 1941, Smithsonian Misc. Coll., 99(19):6; Smith, 1943, Proc. U. S. Nat. Mus., 93:432; Smith and Taylor, 1945, Bull. U. S. Nat. Mus., 187:69; Smith and Taylor, 1950, Univ. Kans. Sci. Bull., 33:321; Maldonado Koerdell, 1953, in Beltran, Vida Silv. Rec. Nat. Carr. Panamer.: 126.

Rhabdosoma rostrale, Cope, 1887, Bull. U. S. Nat. Mus., 32:85.

Catostoma rostrale, Amaral, 1929, Mem. Inst. Butantan, 4:192.

Geophis fuscus, Fischer, 1886, Abh. Nat. Ver. Hamburg, 9:11-12, pl. 2, fig. 2 (type locality Jalapa, Ver.); Smith and Taylor, 1950, Univ. Kans. Sci. Bull., 33:348.

Geophis chalybea, Günther (part, in error), 1893, Biol. Centr. Amer., Rept. Batr.: 87.

A single male (UIMNH 46710) is from San Andrés Lovené, Oaxaca, Mexico, Nov. 8, 1957, Thomas MacDougall. Length of rostral visible from above barely half distance from frontal; mental and chinshields in contact; prefrontals distinct, large; 126 ventrals, 42 caudals; scale rows 17, smooth except for faint keels near base of tail; 5th supralabial contacting parietal; eye small, diameter less than distance from lip, half length of loreal; one postocular, a little smaller than supraocular; uniform dark brown above, color reaching edge of ventrals; venter whitish, somewhat pigmented posteriorly; subcaudal surface heavily pigmented especially on anterior edges of scales; total length 292 mm.; tail 62 mm.

The ventral count (126) is eight lower than any previously recorded for either *dubius* (134–146) or *rostralis* (136–151). The present specimen may actually represent a different species, but only a re-evaluation of all features of a larger series of specimens of this complex than is now available will provide reliable conclusions. For the present it seems necessary to admit the existence of considerable variation in a single species represented by the UIMNH specimen and all others hitherto referred to *dubius* and *rostralis*.

These two nominal species were regarded valid by Boulenger (1894, Cat. Snakes Brit. Mus., 2:322–3) on the sole basis of mental-chinshield contact in *rostralis*, separation in *dubius*. Bocourt (1883, Miss. Sci. Mex., Rept., 9:532–533, pl. 1, fig. 9) states (p. 532) that the contact does not occur in *dubius* (first infralabials in contact with each other medially), but his figure shows a mental-chinshield contact. He had ten specimens available to him at the time, including the two types of *dubius*, seven others from "Mexico", and one from "western Guatemala." It may be inferred that the mental character is variable in that series, thus eliminating its diagnostic value.

As a matter of fact, Bocourt distinguished *dubius* and *rostralis* on the basis of (1) prefrontals present in the latter, absent in the former; (2) frontal a little longer in *rostralis*; and (3) weak keeling of scales near anus in *rostralis* (absolutely smooth in *dubius*). It should be noted that in making this comparison he not only had the largest series ever assembled of *dubius*, but also the types of both species—the single type of *rostralis*, which he re-illustrated, and the two types of *dubius* (whether the illustrations were drawn from the types is not stated). Boulenger (*loc. cit.*) has shown that certain specimens he referred to each species have the internasals absent or asymmetrical (present on one side, absent on the other); this character is thus of no diagnostic value. The size of frontal, or length of part of rostral visible from above, is

seemingly of little value, since (1) the variation in one series collected by Sallé in "Mexico" embraces two specimens (referred by Boulenger to *dubius*) with the shorter rostral and frontal, one (referred by Boulenger to *rostralis*) with the longer rostral and frontal; since (2) all of Bocourt's specimens, including the types of both species, were lumped by Boulenger under *rostralis*; and since (3) the differences shown by Bocourt in these characters in examples of both "species" are so slight as reasonably to be held as within the range of variation of a single species.

Smith and Taylor (1945, Bull. U. S. Nat. Mus., 187:66) utilized the character of rostral length in separating the two species, following Bocourt. The UIMNH specimen agrees with Boulenger's *dubius* in length of rostral, but with his *rostralis* in mental-chinshield contact.

The variations now known are so extensive that *dubius* and *rostralis* cannot reasonably be maintained as distinct species, at least on the basis of criteria now known. It may also be pointed out that the types of *dubius* are from "Tehuantepec," from which same general area the present specimen was taken, and where *rostralis* may well have been collected (Smith and Taylor, *op. cit.*: 69). The only localities of record distant from this area are Jalapa (type of *fuscus*) and "western Guatemala" (one of Bocourt's "*dubius*"); on geographic grounds both could prove acceptable, especially the Jalapa record.

The only grounds for suspicion that more than one species actually is involved is the extraordinary range in ventral count. However, Bocourt's extreme of 151 may possibly be in error, or based upon another species (if, for example, the aberrant specimen is from Guatemala, whence the species has not been rediscovered). Without that extreme, the range is 126-146—still an exceptionally large range but not totally incredible for snakes with this approximate number of ventrals (see for example *Carphophis amoenus vermis*, range 127-148).

Bothrops sphenophrys sp. nov.

Holotype. Male, UIMNH 6262, La Soledad, Oaxaca, Mexico, about 6,000 ft., July 22, 1949, W. Leslie Burger.

Diagnosis. Supraocular protuberant, wedged-shaped, hornlike, base almost twice as long as projecting part; subcaudals divided, 57; ventrals 171; two rows of scales between orbit and labials; ten scales across top of head between supraocular horns; scales bordering pit ventrally in contact with labials; pattern of two rows of dark paired rectangular spots on each side of body.

Description of holotype. Head flat, much wider than neck; dorsal

head scales with a low keel, those at sides with a protuberant keel; six scales from rostral to supraocular, next to canthal ridge; two small internasals bordering nasals laterally, rostral anteriorly and each other medially; a protuberant supranasal, as large as internasals; four scales contacting internasals posteriorly between supranasals; posterior to this row, another row of six scales, slightly larger than any other on snout, between canthals; two canthal scales between nasal and preocular; a large upper and a small lower preocular above meatus putealis; nasal large, in contact with supranasal and first labial, divided below nostril, separated from anterior pit scale by four or five very small scales; three scales bordering pit, anterior very large and in contact with first and second labials; rear ventral pit scale in contact with second and third labials; upper rear pit scale bordering both preoculars and both canthals; one small superciliary (or canthal) dorsal to preocular, bordering large supraocular posteriorly; base of latter scale, at attachment to head, as long (3 mm.) as eye, but placed somewhat forward of center of eye; 1-2 scales bordering eye above, posterior to supraocular; supraocular projecting half its basal length (1.5 mm.) over eye; two rows of scales between eye and labials, the scales in lower row as large as second supralabial,

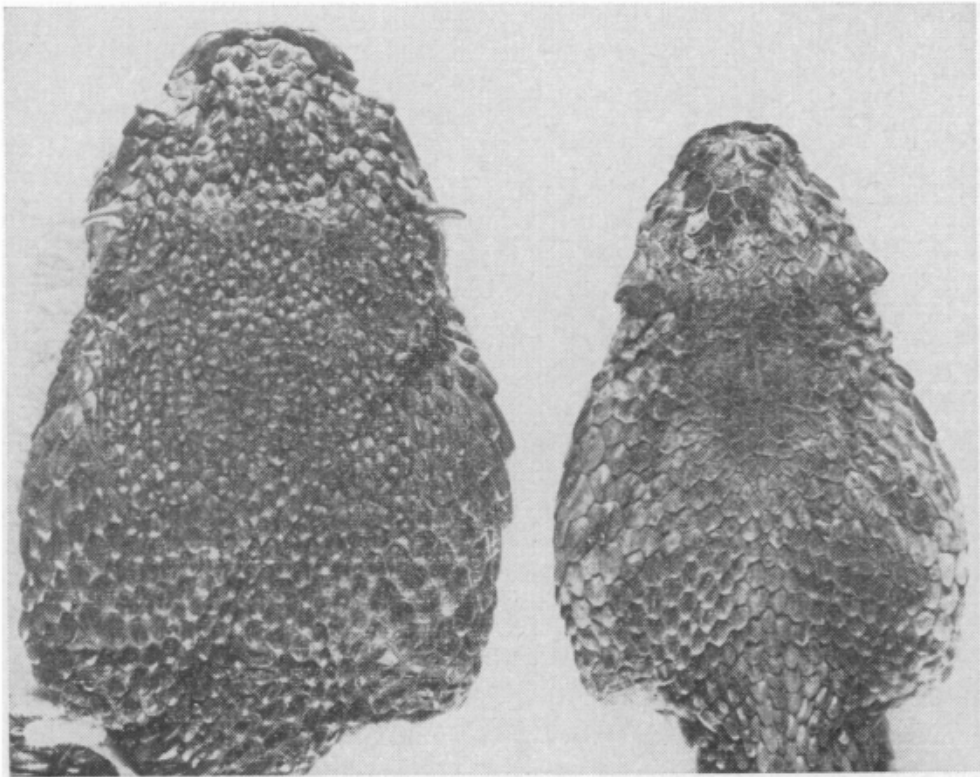


Plate 1. Dorsal surface of head of *Bothrops sphenophrys* (right, holotype) and *undulatus* (left, UIMNH 6262, Omilteme, Guerrero).

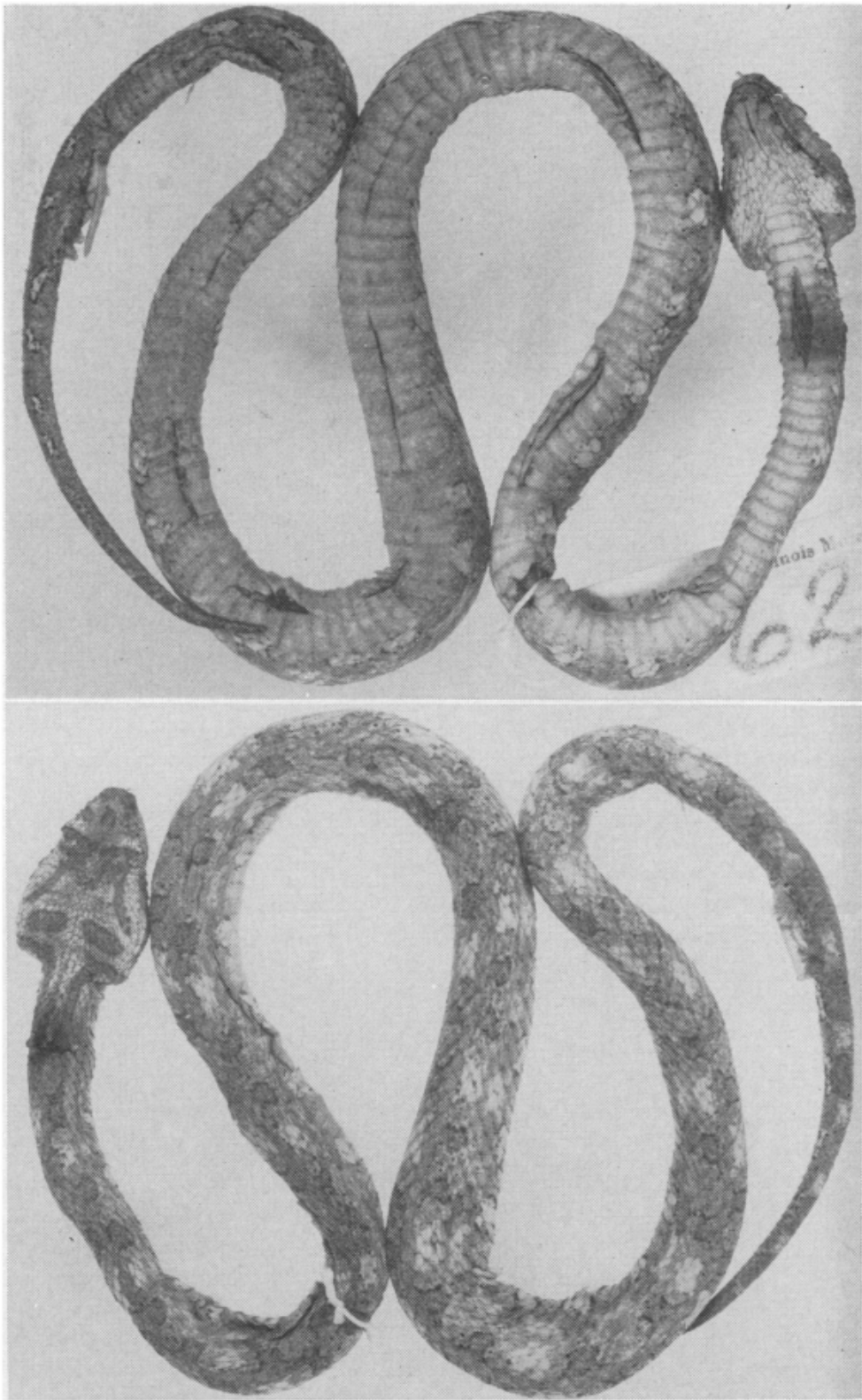


Plate 2. Upper and lower, ventral and dorsal views respectively of holotype of *B. sphenophrys*.

2-3 very small scales scattered between rows; lower row of temporals as large as or larger than supralabials, heavily keeled; temporal scales becoming gradually smaller and less heavily keeled dorsad, in about five rows; parietals decreasing in size mediad, about $\frac{1}{2}$ to $\frac{1}{3}$ size of scales on top of snout back as far as rear interorbital level; ten scales (in least count, obtainable via several rows) across top of head between supraocular horns; supralabials 10-? (several fused below eye on one side), second smallest; a sharp indentation (possibly an artifact) in anterior part of upper lip, apex at suture between first and second supralabials; 14-14 infralabials, first in contact medially, first three in contact with chinshields; one pair of chinshields, reaching level of rear edge of fifth infralabial.

Scale rows 21-21-15; 171 ventrals; anal entire; 57 caudals, all divided. Total length 461 mm., tail 75 mm.

Pattern of two rows of small elongate rectangles on each side of body, the rhombs of the dorsal row in some areas staggered, in others coincident and fused (see plate); light areas at sides of body between blotches pinkish; dark markings a brownish gray, whole snake of pastel appearance, not intensely colored. Venter moderately pigmented; encroaching on edges of ventrals a series of distinct, incompletely darkened, oval light spots, each covering the area of about three lateral scales and extending onto second scale row, one placed at about every sixth ventral; subcaudal surface somewhat darker than belly; throat lighter than rest of venter; four or five dark marks in a row along lower labium.

Comparisons. *Bothrops undulatus* is most closely similar to *sphenophrys*; no other species could be confused with it. Differences between the two are numerous. Most conspicuous is the shape of the supraocular horn. In *undulatus* the horn is slender, elongate, and cylindrical, like a pinfeather, with a diameter at base one third to one half its projecting length. In *sphenophrys* the horn is large, wedgeshaped, its diameter at base twice its projecting length and almost the length of eye. The scales on top of head in *undulatus* are relatively small; three postrostral internasals (not 2); five to six scales in row behind internasals (not 4); 13-15 scales (least possible count) between horns (not 10); 3-4 rows of scales between eye and labials (not 2); one row of scales between pit border scale and labials (not 0); ventrals 149-166 except type with (?) 171 (171 in sole known *sphenophrys*); caudals 41-49 (not 57).

The existence of pattern differences is uncertain. Specimens at hand of *undulatus* (3) are extremely darkly pigmented above, showing dim evidence under fluid of median rhombs here and there fused and split so as to form a strongly undulant median stripe; the single juvenile has

oval light spots along sides of body much as in *sphenophrys*. The belly and subcaudal surface likewise are more darkly pigmented than in *sphenophrys*. More specimens are necessary to provide confidence in the constancy of the vague differences now suggested in color and pattern.

Although I have not re-examined the type of *undulatus*, the figure of the head of the type given by Jan (1859, *Prodrome Icon. Gen.*, pl. E) clearly shows the very distinctive, slender, protuberant supraocular horn characteristic of the species with which the name *undulatus* has been associated in subsequent literature, including the present paper.

Specimens examined. The type of *sphenophrys* and three *undulatus* were available for the present study. The latter are all UIMNH specimens, from Chilpancingo, Gro.; Santo Domingo Chontecomatlán, 6,000 ft., Dist. Yautepec, Oax; and San Juan Ozolotepec, 5,000 ft., Oax.

Range. *B. sphenophrys* is known only from the type locality in extreme southern central Oaxaca, in many ways an area distinctive zoogeographically from the more northern areas whence *undulatus* is recorded. Apparently both species occur at moderately high to high altitudes, although the preceding records, in addition to Sumichrast's statements of "2,500 m." and "alpine region on Orizaba" are the only statements giving a clear idea of vertical range. The localities of record already in the literature for *undulatus* might support these indications: Actopan, Hidalgo; Orizaba, Veracruz; Omilteme, Guerrero; and Oaxaca (?), Oaxaca. These localities are all near the periphery of the central plateau in wooded mountainous areas containing alpine habitats, to which it may be presumed the species is limited. *B. sphenophrys* was taken in a vertical zone close to the alpine habitat.

The report by Altini (1942, *Atti Soc. Ital. Sci. Nat. Mus. Civ. Storia Nat.*, Milano, 81:190) of "*B. undulatus*" from Matamoros (presumably of Puebla) is certainly in error, and is almost certainly referable to *B. atrox*. The specimen was stated to have 240 ventrals, 40 subcaudals, 29 scale rows, 247 cm. total length.

The synonymy of *Bothrops undulatus* as now known is as follows:

- Atropos undulatus*, Jan, 1857, *Indice Sist. Rett. Anf. Milano*: 15 (*nomen nudum*); Jan, 1863, *Elenco Sist. degli Ofidi*: 127; Müller, 1865, *Reisen Vereinigten Staaten, Can., Mex.*: 615; Sumichrast, 1873, *Arch. Sci. Phys. Nat.*, 46:236, 249; Sumichrast, 1882, *La Naturaleza*, 6:45.
- Trigonocephalus (Atropos) undulatus* Jan, 1859, *Rev. Mag. Zool.*, 1859:157 (original description; type locality Mexico); Jan, 1859, *Prodrome Icon. Gen. Oph.*: 32, pl. E.
- Atropos undulatus*, Cope, 1864, *Proc. Acad. Nat. Sci. Phila.*, 16:179.
- Atropos mexicanus*, Sumichrast (in error), 1864, *Ann. Sci. Nat.*, 13:499.
- Teleuraspis undulatus*, Garman, 1883, *Mem. Mus. Comp. Zool.*, 8:126, 180.
- Ophryacus undulatus*, Ferrari-Perez, 1886, *Proc. U. S. Nat. Mus.*, 9:190; Cope, 1887, *Bull. U. S. Nat. Mus.*, 32:88; Cope, 1895, *Trans. Amer. Philos. Soc.*,

- 18:219, pl. 33, fig. 7 (hemipenis); Cope, 1896, Amer. Nat., 30:1023; Cope, 1900, Ann. Rept. U. S. Nat. Mus., 1898:1231, 1232, pl. 31, fig. 7 (hemipenis).
- Bothrops undulatus*, Günther, Biol. Centr.-Amer., Rept.-Batr.: 187; Terron, 1921, Mem. Soc. Ant. Alzate, 39:177-178; Terron, 1930, Anal. Inst. Biol., 1:192-3; Smith, 1943, Proc. U. S. Nat. Mus., 93:401; Smith and Taylor, 1945, Bull. U. S. Nat. Mus., 187:183; Smith and Taylor, 1950, Univ. Kans. Sci. Bull., 33:350 (type locality restricted to Orizaba, Veracruz); Maldonado Koerdell, 1953, in Beltran, Vida Silv. Rec. Nat. Carr. Panamer.: 128.
- Lachesis undulatus*, Boulenger, 1895, Cat. Snakes Brit. Mus., 3:565-6; Gadow, 1905, Proc. Zool. Soc. London: 233.
- Trimeresurus undulatus*, Mocquard, 1909, Miss. Sci. Mex., 17:946-7, pl. 77, fig. 1; Smith, 1941, Zoologica, 26:63.
- Lachesis (Trimeresurus) undulatus*, Werner, 1922, Arch. Naturg., 88A:229, 235.
- Bothrops undulata*, Amaral, 1929, Mem. Inst. Butantan, 4:240; Martín del Campo, 1935, Anal. Inst. Biol., 6:297; Martín del Campo, 1937, Foll. Div. Cient. Univ. Nac. Mex., 27:14.

—Department of Zoology and Museum of Natural History
University of Illinois, Urbana