

Catalogue of American Amphibians and Reptiles.

Camper, J.D. 1996. *Masticophis bilineatus*.

***Masticophis bilineatus* Jan**
Sonoran Whipsnake

Masticophis bilineatus Jan, 1863:65. Type-locality, "Messico occid. ?," restricted to Guaymas, Sonora, México by Smith and Taylor (1950). Holotype, Staatliches Museum für Tierkunde (MTKD) 15523, female (467 mm SVL), collector and date of collection unknown (examined by author).

Bascanium semilineatum Cope, 1891:626. Type-locality, "Colorado River, Arizona." Holotype, National Museum of Natural History (USNM) 1981, female (816 mm SVL), collected by A. Schott, date unknown (examined by author).

Zamenis semilineatus: Günther, 1894:121.

Bascanion semilineatum: Van Denburgh, 1896:347.

Coluber semilineatus: Stejneger and Barbour, 1917:80.

Masticophis semilineatus: Ortenburger, 1923:2.

Coluber bilineatus: Bogert and Oliver, 1945:362.

Masticophis bilineatus lineolatus Hensley, 1950:272.

Masticophis bilineatus slevini Lowe and Norris, 1955:93.

• **Content.** The species is monotypic.

• **Definition.** *Masticophis bilineatus* is a large (to 1353 mm SVL), long-tailed (to 40% TL) species of whipsnake with 17 anterior and midbody dorsal scale rows. Posterior dorsal scale rows number 13 in most specimens. Males have 182-221 ventrals and 120-167 subcaudals; females have 183-216 ventrals and 121-165 subcaudals. Two preoculars and 2 postoculars are present in most specimens. Temporals increase in size posteriorly and usually range from 5-9. Supralabials number 7-9 (mode 8), with supralabials 4 and 5 entering the orbit. Infralabials number 8-

11 (mode 9) and increase in size posteriorly. One loreal and one scale pit are present in most specimens. The eyes are large with a prominent supraorbital ridge. The hemipenis extends 5-14 subcaudals posterior to the vent. Maxillary teeth number 17-23 and increase in size posteriorly.

The dorsal ground color varies from olive green anteriorly to green posteriorly. Dark lateral stripes occur along the middle of scale row 1 and the adjacent halves of scale rows 2 and 3. Paired pale spots are found on the anterior corners of the dorsal scales. Head scales are uniformly dark with no light temporal spot. The venter is cream with dark spotting on the chin shields and anterior ventrals, dark pigment on the tips of the ventrals, and dark speckling on the subcaudals in specimens from the northern portion of the range.

• **Diagnosis.** This species is the only striped whipsnake having 17 midbody dorsal scale rows and paired pale spots on the anterior corners of the dorsal scales.

• **Descriptions.** Thorough descriptions were given by Ortenburger (1928) and Camper and Dixon (1994). Other descriptions are in Cope (1891, 1900), Günther (1894), Van Denburgh (1922), Smith (1941), Hensley (1950), Lowe and Norris (1955), Wright and Wright (1957), and Stebbins (1985). Ditmars (1936, 1939), Schmidt and Davis (1941), Fowle (1965), and Cochran and Goin (1970) contain additional descriptive information.

• **Illustrations.** Black and white drawings or photographs are in Jan and Sordelli (1867) and most of the references listed under Descriptions. Color illustrations are in Schmidt and Inger (1957), Shaw and Campbell (1974), and Behler and King (1979). Ortenburger (1928) and Lowe (1964) illustrated habitats. Van Denburgh (1922) illustrated a female with eggs.

• **Distribution.** *Masticophis bilineatus* occurs in desert, grass-

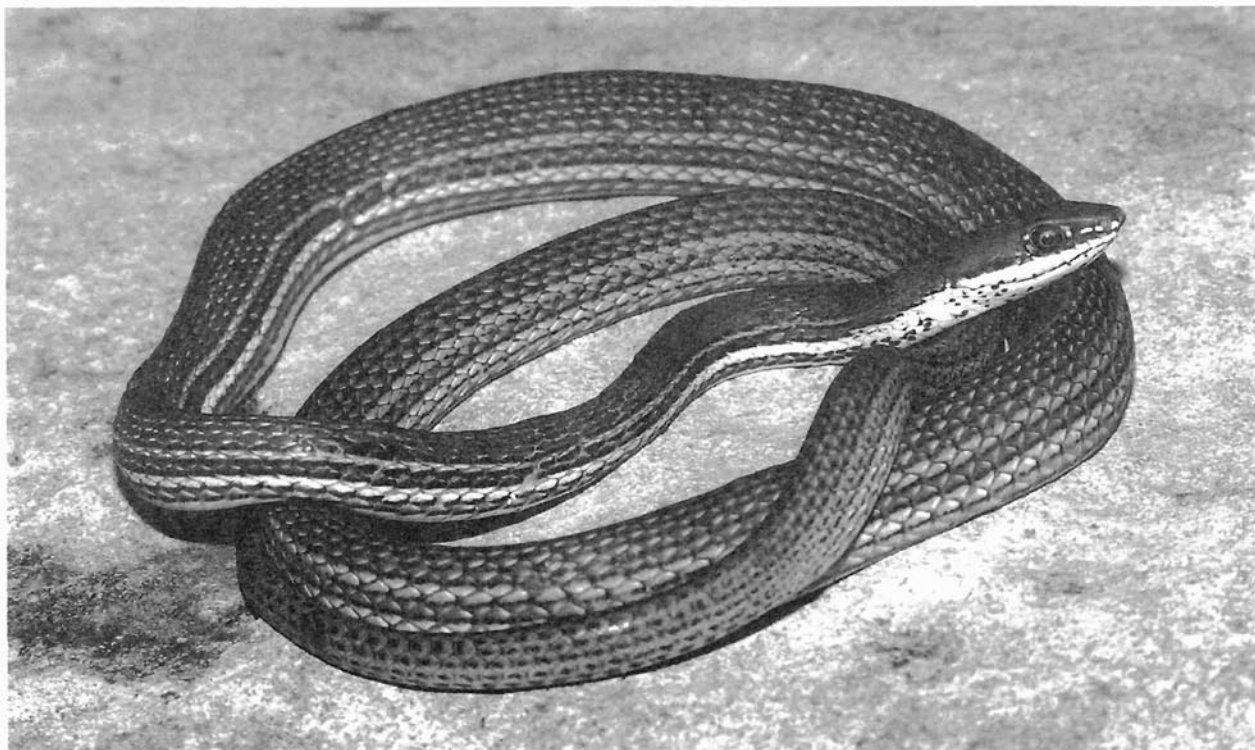


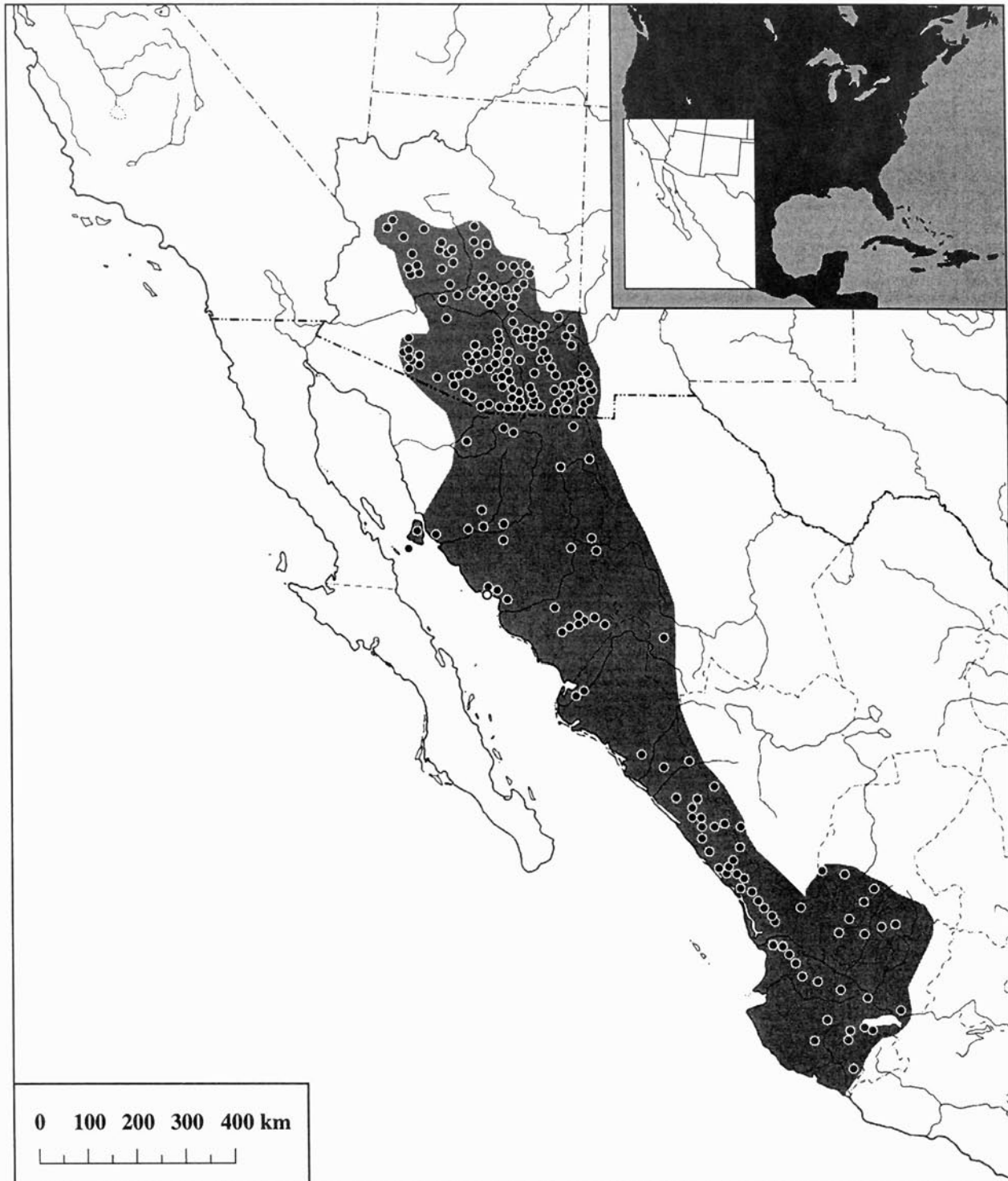
Figure 1. Adult male *Masticophis bilineatus* from northern Sinaloa, México. Photograph by L. Lee Grismer.

land, and montane forest habitats to elevations of about 2300 m from extreme southwestern New Mexico and, in Arizona, south of the Mogollon Plateau (excepting the southwestern corner of the state), south through Sonora, southwestern Chihuahua, Sinaloa, western Durango, Nayarit, Jalisco, southern Zacatecas, Aguascalientes, and south to Colima. The eastern range limits of *M. bilineatus* follow the continental divide and the Sierra Madre Occidental. The species is known from both Islas Tiburón and San Esteban in the Golfo de California. Range maps have been published in Morafka (1977), Smith and Brodie (1982),

and Stebbins (1985).

Additional locality and habitat records are as follows: Arizona — Medica and Maza (1974), Jones et al. (1981), Short (1983), Boundy and Ford (1989), and Anderson and Anderson (1995); New Mexico — Williamson et al. (1994); Mexico — Smith (1941, 1943), Bogert and Oliver (1945), Smith and Taylor (1945), Cliff (1954), Duellman (1958), Smith and Smith (1973, 1976), Webb (1982), and Murphy and Ottley (1984).

• **Fossil Record.** Late Pleistocene fossils of either *Masticophis*



Map. Range of *Masticophis bilineatus*. The large circle marks the type-locality; dots indicate other records.

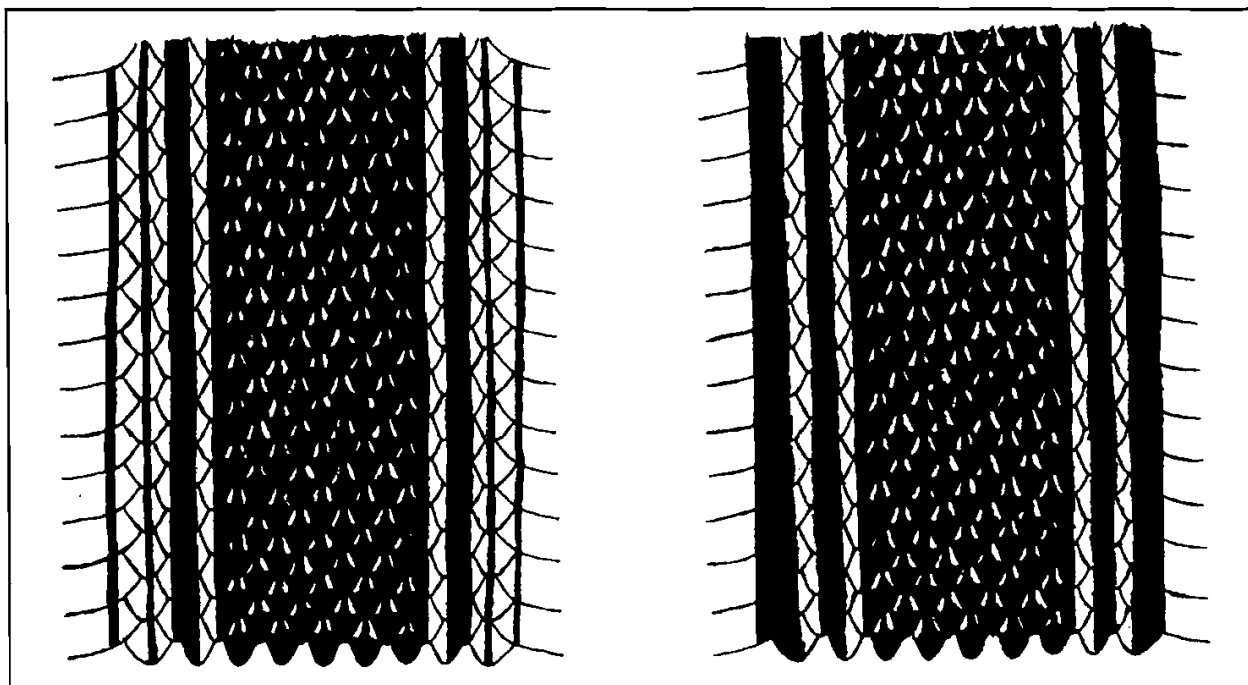


Figure 2. Dorsal pattern of adult *Masticophis bilineatus* (from Camper and Dixon, 1994): (A) paler pattern more common in larger specimens, (B) darker pattern more common in smaller specimens.

bilineatus or *M. flagellum* are known from Deadman Cave, Pima County, Arizona (Mead et al., 1984). See Holman (1995) for additional information.

• **Pertinent Literature.** Comprehensive taxonomic treatments are in Ortenburger (1928) and Camper and Dixon (1994). No detailed ecological information exists. Elements of the biology receiving attention include insular endemism (Case, 1978, 1983), use as an outgroup in phylogenetic analyses (Grismer, 1990), dorsal pigmentation as an antipredator strategy (Jackson et al., 1976), Duvernoy's gland (Taub, 1967), food habits (Stejneger, 1902; Klauber, 1972; Camper, 1990), reproduction (Vitt, 1975), and nocturnal activity (Hardy and McDiarmid, 1969).

• **Remarks.** Schmidt (1953) apparently was in error in restricting the type locality of *M. bilineatus* to Casas Grandes, Chihuahua, México. This locality is east of the continental divide, where this species does not occur.

• **Etymology.** The name *bilineatus*, from the Latin *bi* (= two) and *linea* (= line), refers to the two-striped pattern typical of this snake.

• **Comments.** This species is in need of a thorough ecological study like that of *M. taeniatus* by Parker and Brown (1980).

Populations of *M. bilineatus* south of the Río Fuerte in northern Sinaloa, México, have lower numbers of ventral scales (Camper and Dixon, 1994) and may be described as a distinct subspecies (Charles H. Lowe, pers. comm.).

• **Acknowledgments.** I thank James R. Dixon for help with the literature and the Carnegie Museum of Natural History for permission to use the figure.

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