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TWO NEW COLUBRID SNAKES OF THE GENUS *RHADINAEA*
FROM SOUTHERN MEXICO¹

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AMONG THE SPECIMENS in a small but important herpetological collection made by Laurence C. Binford in the mountains of Oaxaca, México, are two small colubrid snakes, each representing an undescribed species of the genus *Rhadinaea*. I take great pleasure in naming one of these new forms for my friend and colleague Charles W. Myers, who is presently revising this genus.

RHADINAEA MYERSI new species

Holotype.—LSUMZ 7566, an adult male from the ecotone between pine and cloud forests (5,000 feet) 3 mi. N Pluma Hidalgo, Oaxaca, collected 2 May 1964 by L. C. Binford; original no. 1137.

Paratype.—AMNH 19783, a juvenile female from Pluma Hidalgo, Oaxaca, collected in 1919 by P. Ruthling.

Diagnosis.—A species of *Rhadinaea* characterized by 17 dorsal scale rows, relatively few ventrals (132 in only known male, 139 in only known female) and subcaudals (80 in only known male, 72 in only known female), a large preocular and a small subpreocular, 8 supralabials, supraanal ridges in only known male, 19 + 2 maxillary teeth with a prominent diastema preceding the two rear teeth, a light temporal stripe that is separated from a light nape spot (the latter is continuous with a poorly defined dorsolateral light stripe on scale row 5), side of the body below row 5 darker than dorsum, and an irregular black vertebral stripe.

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Description of holotype.—Dorsal scales in 17 rows throughout, smooth except for distinct supraanal ridges (each ridge occupies only the antero-medial portion of a scale) 7 or 8 scales in greatest longitudinal extent; ventrals 132; subcaudals 80; anal divided. Supralabials 8, fourth and fifth entering orbit; infralabials 10, 5 in contact with anterior genials; preoculars 2, including a small subpreocular; postoculars 2; temporals 1-2. Head scales normal; internasal suture about 50 per cent length of prefrontal suture; frontal nearly 21 per cent longer than its distance from tip of snout, but 25 per cent shorter than parietals. Total length 388 mm, tail length 136 (35.1 per cent of total length).

Maxilla with 19 slender, strongly curved teeth followed by a prominent diastema and 2 enlarged, weakly curved teeth.

In situ hemipenis extending to sixth subcaudal; distal third of organ calyculate and capitate, median third with about 25 spines of various sizes, and proximal third with numerous tiny spinules.

Outer edges of ventrals to middle of row 4 gray, becoming increasingly darker posteriorly and predominantly black on tail; tips of scales in row 4 and extreme lower edge of row 5 black, upper portion of row 5 forming dorsolateral light stripe on neck, but becoming indistinguishable within 2 head lengths; rows 6 through 8 light brown; vertebral and paravertebral rows dark gray brown; black pigment at junction of adjacent scales in vertebral row forming linear series of spots, the pigment more extensive posteriorly and becoming a solid black vertebral stripe on the tail.

Top of head light brown, with a pair of light, black-rimmed parietal spots; a dark stripe occupying side of head, extending from rostral through eye and angle of mouth to become continuous with the dark lower side of body (see Figure 1); black-rimmed light temporal stripe extending from upper postocular through outer edge of parietal and middle of anterior temporal and terminating in middle of lower posterior temporal; light temporal stripe followed by short gap, then a light oval nape spot tapering posteriorly into the dorsolateral light stripe; infralabials, and supralabials below dark head stripe, light with a scattering of irregular black flecks. Ventrals light, immaculate except for tips onto which extends dark pigment from sides of body.

Variation.—The paratype, a juvenile female, is essentially like the holotype. It has 139 ventrals and 72 subcaudals, and measures 185 mm in total length (tail 55). The only conspicuous differences in color pattern are the absence of light parietal spots and the persistence of a faint dorsolateral light stripe on row 5 throughout the length of the body and onto the tail.

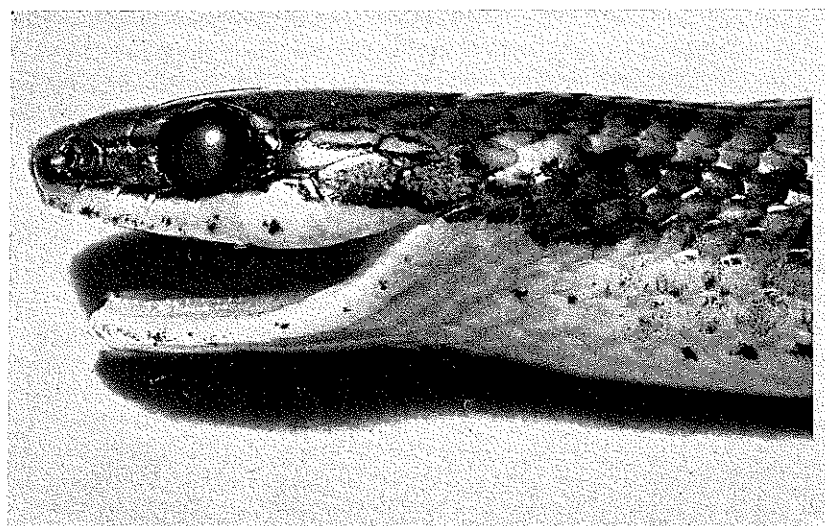


FIGURE 1. Lateral view of head of *Rhadinaea myersi* holotype, collected 3 miles N Pluma Hidalgo, Oaxaca, México. (Photo by J. H. Roberts.)

Remarks.—The relationships of *Rhadinaea myersi* are uncertain; the species appears to have affinities with *R. hesperia* Bailey on the one hand, *R. marcellae* Taylor and *R. macdougalli* Smith and Langebartel on the other, and may prove to be a connecting link. With the former it shares supraanal ridges in males, numerous prediastemal maxillary teeth (19 in *myersi*, 20 in *hesperia*), and basic color pattern (most similar to that of *R. hesperia baileyi* Smith). *R. myersi* differs markedly from *hesperia* in having far fewer ventrals (Bailey, 1940, gave the lower extremes of variation for *hesperia* as 151 in males, 157 in females) and subcaudals (lower extremes for *hesperia*: 117 in males, 109 in females).

The type, and only specimen, of *R. marcellae* is a male and agrees well with the male *myersi* in the number of ventrals and subcaudals and in color pattern of the dorsum; the male *marcellae*, however, lacks supraanal ridges, has only 4 infralabials in contact with anterior genials, has only 17 pre-diastemal teeth, and has a distinctive head pattern (light temporal stripe is continuous with dorsolateral light stripe, a light nuchal collar is present, and there is a light scroll-like pattern on top of the head).

The type, and only specimen, of *R. macdougalli* is also a male. It agrees with the holotype of *myersi* in general color pattern and number of sub-

caudals, but lacks supraanal ridges and a black vertebral stripe, has only 119 ventrals and 16 prediasternal teeth, and also has 3 preoculars and a slightly different head pattern (light temporal stripe extends to upper edge of last supralabial and is separated from light nape spot by 2 scale lengths). It may be of interest to note here that the light temporal stripe of *R. decorata*, which Smith and Langebartel (1949: 414) suggested as a possible relative of *macdougalli* and *marcellae*, differs from that found in either of those two species, in *hesperia*, or in *myersi*. In the latter four species the stripe is relatively narrow and directed slightly posteroventrally so that it passes through the temporals; the stripe in *decorata* is proportionately broader, directed posterodorsally, and situated only on the parietal (neither the upper postocular nor the temporals are involved).

The other new species is the eighth member of the *lachrymans* group and is the only species of the genus *Rhadinaea* occurring in Mexico that possesses more than 17 dorsal scale rows. This new form is named for Laurence C. Binford, who collected the holotypes of this and the preceding species.

RHADINAEA BINFORDI new species

Holotype.—LSUMZ 7565, an adult female from cloud forest (4,900 feet) 12 air mi. NNE Zanatepec, Oaxaca, collected 3 April 1964 by L. C. Binford; original no. 1081.

Paratype.—UIMNH 56142, an adult male from the Sierra Madre above Zanatepec, Oaxaca, collected sometime between 24 September and 3 October 1963 by T. MacDougall.

Diagnosis.—A member of the *lachrymans* group characterized by 21 dorsal scale rows, a moderate number of ventrals (160 in only known male, 168 in only known female), relatively few subcaudals (79 in only known male, 71 in only known female), a square loreal, 8 infralabials, anterior genials shorter than posterior genials, 19 maxillary teeth with no diastema preceding the enlarged rear teeth, a light stripe extending from the eye to the ultimate supralabial, a pair of large light spots on the frontal, 9 dark stripes on body including one on the common border of scale rows 1 and 2.

Description of holotype.—Dorsal scales smooth and in 19 rows on neck, increasing to 21 by the addition of row 4 at level of ventrals 10 (on left) and 22 (on right), respectively; ventrals 168; subcaudals 71; anal divided. Supralabials 8, fourth and fifth entering orbit; infralabials 8, 4 in contact with anterior genials, which are shorter than posterior genials ($A/P=0.786$); loreal subequally square; preocular single; postocular single; temporals 1-2.

Head scales normal; internasal suture slightly less than 50 per cent length of prefrontal suture; frontal 30 per cent longer than its distance from tip of snout, and nearly 29 per cent shorter than parietals. Total length 348 mm, tail length 91 (26.1 per cent of total length).

Maxilla with 15 slender, strongly curved teeth followed by a stouter, slightly curved tooth of only slightly greater length, then by 3 greatly enlarged, stout, slightly curved teeth; no diastema present.

Outer tips of ventrals black, forming an irregular but continuous dark stripe; row 1 nearly unpigmented; common border of rows 1 and 2 bearing a narrow, uneven dark stripe; row 2 and lower half of row 3 nearly unpigmented; a dark stripe on upper half of row 3, row 4, and lower half of row 5, the lower border irregular (scales in row 4, except for upper edge, brown with black mottling); upper half of row 5 and lower half of row 6 very lightly pigmented; upper half of row 6 to upper edge of row 10 light brown; a very narrow, uneven dark stripe on common border of rows 7 and 8 (the remnant of a black-bordered dark brown stripe present on row 7 for less than one head length behind head); black vertebral stripe involving extreme upper edge of row 10 as well as vertebral row (center of each scale in latter row mottled with brown); light stripes expanded at the nape.

Top of head dark brown with a pair of tiny light parietal spots and a pair of large light spots near the posterolateral margins of the frontal; supralabials with two broad white stripes (see Figure 2), one extending from the rostral across the anterior supralabials to the lip and the other extending from the eye across the posterior supralabials to the lip; anterior genials each with small black spot anteriorly, a pair of spots on the mental, and one on each infralabial near the lip (the more posterior markings broad and irregular). Ventrals immaculate except for black tips.

Variation.—The adult male paratype differs but little from the holotype. It has 160 ventrals and 79 subcaudals (the tip of the tail may be regenerated; if so, extremely little of the original tail is missing), and measures 371 mm in total length (tail 110). The frontal is slightly less than 24 per cent longer than its distance from tip of snout and only 21 per cent shorter than the parietals. The maxillary teeth agree with those of the holotype both in number and arrangement. The differences in color pattern reflect the fact that this specimen is much darker than the holotype, hence the dark stripes are more solidly black and the light stripes obscure. The black-bordered dark brown stripe on row 7 remains distinct for more than two head lengths behind the head, and the black line on the common border of rows 7 and 8 persists on the tail. The vertebral stripe is nearly solid black



FIGURE 2. Lateral view of head of *Rhadinaea binfordi* holotype, collected 12 air miles NNE Zanatepec, Oaxaca, México. (Photo by J. H. Roberts.)

but is confined to the vertebral row. Surprisingly, there is no dark pigment on the genials and a reduced amount on the infralabials.

The *in situ* hemipenis extends to the thirteenth subcaudal; the distal 13 per cent of the organ is calyculate and capitate (the calyces are bordered with large papillae; the proximal margin of the cap bears small spines); the median 17 per cent bears more than 50 large spines; and the proximal 70 per cent appears to be without ornamentation.

Remarks.—In lacking both a light temporal stripe and anal ridges (in the adult male), and in possessing a light stripe from the eye to the lip, *Rhadinaea binfordi* clearly fits into the *lachrymans* group, heretofore known only from Central America and the Mexican state of Chiapas. From its Mexican congener, *R. lachrymans* (Cope), it is distinguished by its possession of 21 dorsal scale rows (17 in *lachrymans*), 8 infralabials (9 in *lachrymans*), a dark stripe on the common border of rows 1 and 2 (absent in *lachrymans*), and by its lack of a maxillary diastema (present in *lachrymans*).

Although *Rhadinaea binfordi* agrees with the other 6 members of this group in lacking a maxillary diastema, it differs from all 3 Guatemalan species (*godmani* Günther, *hempsteadae* Stuart and Bailey, *stadelmani* Stuart and Bailey) and from a Salvadoran species (*montecristi* Mertens) by its possession of 9 dark body stripes, including one on the common border of rows 1 and 2.

Although the second Salvadoran species, *Rhadinaea pinicola* Mertens, agrees with *binfordi* in having 9 dark body stripes, including one on the common border of rows 1 and 2, it differs in many other respects and the two species probably do not have very close affinities. The holotype, and only known specimen, of *pinicola* is a male and differs from the male paratype of *binfordi* by possessing 17 dorsal scale rows, supraanal ridges (a condition atypical of the species group), 150 ventrals, shorter internasals, a narrow dark stripe on the common border of rows 2 and 3 but none on 7 and 8, no light spots on the frontal, and 13 maxillary teeth.

Rhadinaea serperaster Cope, of lower Central America, most closely resembles *binfordi* in color pattern of the body (*serperaster*, too, has 9 dark body stripes with one on the common border of rows 1 and 2) but has all of the dark stripes slightly broader, much darker, and more sharply delineated than in *binfordi*. In the specimen of *serperaster* that I examined (MCZ 28069) there also are weakly developed, irregular dark stripes on the common borders of rows 6 and 7, 8 and 9. All dorsolateral dark stripes continue onto the temporal scales of the head. The supralabials of *serperaster* are predominantly black, with no anterior light stripe (only isolated spots) and with the posterior stripe terminating on the anterior half of the penultimate supralabial. *R. serperaster* also differs from *binfordi* by having 19 dorsal scale rows (occasionally 21 according to Stuart and Bailey, 1941), a rectangular loreal, the anterior genials longer than the posterior ones, shorter internasals (the suture only 30 per cent length of prefrontal suture), a longer snout (frontal only 19 per cent longer than its distance from tip of snout), a smaller eye (13.4 per cent of head length in *serperaster*, 14.7–17.3 per cent in *binfordi*), and apparently fewer maxillary teeth (Taylor, 1954, recorded 17, the same number I observed in the MCZ specimen).

Despite the fact that *R. serperaster* is not known to occur north of Costa Rica, that species appears to me to be the member of the *lachrymans* group that is most closely related to *binfordi*. This pattern of distribution presents the interesting zoogeographic phenomenon of two closely related members of a species group being situated at the two extremes of the range of the group (and nearly 700 miles apart), with the other less closely related members occupying the intervening area.

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