ZOOLOGICAL SERIES

OF

FIELD MUSEUM OF NATURAL HISTORY

Volume 29 CHICAGO, FEBRUARY 29, 1944 No. 8

SNAKES OF THE HOOGSTRAAL EXPEDITIONS TO NORTHERN MEXICO

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During the summers of 1938, 1939, and 1940 parties of students of the University of Illinois under the leadership of Mr. Harry Hoogstraal collected a number of reptiles and amphibians in northeastern Mexico. These were secured either as an integral part of biological surveys (as in Nuevo León) undertaken by Mr. Hoogstraal, or as the party was en route to or from other areas where more intensive work was in progress. The specimens are now incorporated in the reference collections of Field Museum. This report concerns only the snakes. Although these are not numerous, 23 species are represented among the 53 specimens. Among them is an extraordinary number of very unusual or noteworthy specimens. One new race has already been described and a new species is named herein. Equally as important are notable range extensions of six species, and additional specimens that shed considerable light upon the variation and relationships of three other species. Knowing my interest in Mexican snakes, Mr. Karl P. Schmidt of Field Museum generously suggested that I submit a report on this collection. I am greatly indebted to him and to Mr. Clifford H. Pope, also of Field Museum, for the privilege of doing so.

Leptotyphlops dulcis Baird and Girard

Rena dulcis Baird and Girard, Cat. N. Amer. Rept., pt. 1, p. 142, 1853—between San Pedro and Comanche Springs, Texas.

Leptotyphlops dulcis Stejneger, Proc. U. S. Nat. Mus., **14**, p. 501, 1891.

Hidalgo: Jacala (34412).

infralabials, 1–1 preoculars, 2–2 postoculars, 1–2 temporals, 1–1 internasals; total length 168 mm., tail 24.5 mm. The spots on the body number 46, on the tail 11.

The ventral count of this specimen is four lower than the lowest given by Van Denburgh (129, presumably a male; 1922, p. 778), and nine lower than the males listed by Smith and Taylor (l.c.); yet the total range, 125 to 136, known for all males is not excessive. The number of spots on the body of the Galeana specimen is also five higher than the highest known in other specimens, giving a total range of seventeen for the whole species, yet this difference is scarcely great enough, on the basis of one specimen, to warrant the conclusion that the Galeana specimen represents a different race.

Still another male specimen, recently acquired by Field Museum, is of interest. It is No. 30429, from Mount Livermore, Jeff Davis County, Texas, collected by J. M. and R. G. Schmidt in July, 1938. It has 131 ventrals, 34 caudals, 2–2 temporals, 7–8 infralabials, 41 spots on the body and 12 on the tail, and is otherwise like the Galeana specimen.

Lampropeltis thayeri Loveridge

Lampropeltis thayeri Loveridge, Occ. Papers Bost. Soc. Nat. Hist., **5**, pp. 137–138, 1924—Miquihuana, Tamaulipas.

Nuevo León: Ojo de Agua, near Galeana (30819–21).

A choice item of the collection is a series of three young specimens of this species, previously known from the single male type. All are females; respectively the scale rows are 21–23–18, 21–22–17, 21–23–18; ventrals 212, 203, 206; caudals 55, 60, 57; supralabials 7–7; infralabials 9–9; preoculars 1–1; postoculars 2–2; temporals 2–2, 2–3, 2–3; total length (in mm.) 280, 255, 248; tail length (in mm.) 42, 44, 40; red bands on body and tail 28 + 7, 26 + 7, 27 + 9. The white bands on the body number the same as the red bands, but on the tail number one more than the red bands. The stomach of one specimen contained a half-grown lizard, *Sceloporus grammicus disparilis*.

The pattern is highly interesting. In two specimens each red band is split medially by a broad, lighter area irregularly bordered by a narrow black line much narrower than the primary black borders of the red bands; the red areas within the red bands are somewhat narrower than the central, lighter area; the lighter area and its dark borders extend laterally no farther than about the fifth or sixth scale rows. In the other specimen the light areas are not

evident, although the red bands are fully as broad as in the preceding specimens. The red bands in all specimens narrow greatly laterally, are separated from each other medially by two to two and one-half scale lengths, laterally by five or six; on the belly they are one or two ventrals wide but usually closed off by black areas, so that there is generally but little evidence of a ringed effect; in fact, many of the blotches are broken or actually terminate laterally on the outer

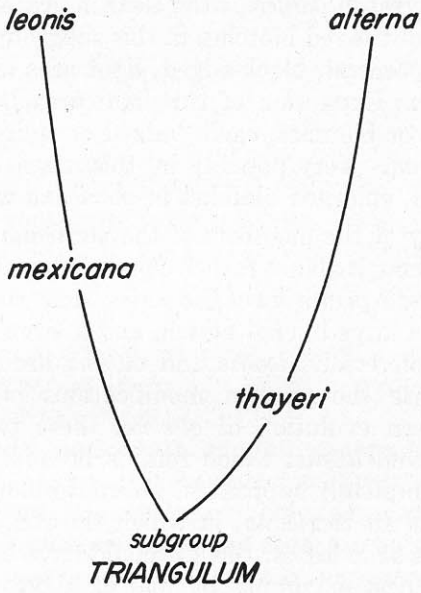

FIG. 18. Diagram of relations in the *triangulum* group.

dorsal scale rows (one to three). The belly is heavily marked with black; many ventrals are black over most of their width, and few are entirely unmarked.

As in *mexicana*, *alterna*, and *leonis*, the areas between the red blotches on the body, and most of the head, are heavily stippled with gray; likewise as in these species, there is a black-bordered, median dorsal red area on the head. In these specimens it is not divided and involves most of the frontal and the anterior edges of the parietals. A dark postocular spot is regularly present.

These specimens show that *thayeri* does not belong with the ringed species (*pyromelana* subgroup) as I recently concluded (1942, p. 206), but rather with the blotched species of the *mexicana* subgroup. It affords an important link between the *mexicana* and *triangulum* sub-

groups, having a pattern intermediate between the ringed one characteristic of the Mexican members of the *triangulum* group, and the blotched one characteristic of other members of the *mexicana* subgroup. The latter subgroup, in its tendency toward development of dorsal blotches from a primitive ringed pattern, has a close parallel in the northern United States members of the *triangulum* group, in which the same type of evolution has occurred.

Of further interest in *thayeri* is the clear indication of the manner of multiplication of the red blotches in this subgroup which is by the development of a central, black-edged, light area across the middle of each red band. Expansion of this light area laterally produces two narrow rings or blotches, each "mixed or split with red," as in *Lampropeltis alterna*. Very possibly by this means also the pattern of more numerous, enlarged blotches in *mexicana* was produced.

The phylogeny of the members of the *mexicana* subgroup is not entirely clear, although all are rather closely interrelated. *L. thayeri* is obviously the most primitive of the series, since the belly is heavily mottled, there is a large nuchal blotch, and a large median red area on the head. Conversely, *leonis* and *alterna* are the most highly modified. Because the pattern modifications of *thayeri* readily explain the pattern evolution of *alterna*, these two are probably directly related; and *leonis*, which retains broader red blotches at the expense of completely suppressed alternate blotches, appears to be directly related to *mexicana*, in which the red bands are about twice as numerous as in *leonis;* the last could have been derived from a *mexicana*-like ancestor simply by loss of about every other red blotch. Thus *alterna* and *leonis*, although closely related, remain as end forms of two different stocks; they parallel each other in the strong tendency toward pattern reduction; they differ from each other somewhat in the manner of the reduction.

The most puzzling question at present regarding the *mexicana* subgroup is as to its origin from and the identity of its closest relative in the *triangulum* subgroup; at present none appears very closely allied.

Leptodeira maculata Hallowell

Megalops maculatus Hallowell, Proc. Acad. Nat. Sci. Phila., p. 488, 1860—Tahiti, in error; probably Nicaragua.

Leptodeira maculata Taylor, Kans. Univ. Sci. Bull., **25**, pp. 337–342, pl. 31, fig. 1, pl. 32, figs. 1–4, pl. 33, figs. 1–3, text figs. 6–7, 1939.

San Luis Potosí: El Pujal (34372).