

OCCASIONAL PAPERS OF THE MUSEUM OF
ZOOLOGY

UNIVERSITY OF MICHIGAN

ANN ARBOR, MICHIGAN

UNIVERSITY OF MICHIGAN PRESS

A CONTRIBUTION TO THE HERPETOLOGY OF THE
ISTHMUS OF TEHUANTEPEC

II. THE TEIIDS OF THE PACIFIC SLOPE

BY NORMAN HARTWEG AND JAMES OLIVER

OUR collection of reptiles made in the vicinity of the village of Tehuantepec, Oaxaca, Mexico, during the summer of 1936, includes two representatives of the genus *Cnemidophorus* and one each of *Ameiva* and *Gymnophthalmus*. The confusion existing concerning the status of some of these forms has led us to believe that a summary of the characteristics found useful in our study should be placed on record.

Cnemidophorus deppii deppii Wiegmann

Basing our opinion on the evidence secured from a study of 36 specimens collected by the junior author in Colima, Mexico, during the summer of 1935, on our specimens collected in Oaxaca, and on the evidence offered by Gadow (1906: 308-320) and Burt (1931: 56-63), we are convinced of the validity of Cope's (1877: 94) *Cnemidophorus lineatissimus*. However, the nature of the overlap in the characters of these specimens and the nature of the forms of this species (as described by Gadow) from Guerrero, Mexico, prompt us to believe that Cope's form should properly be called *Cnemidophorus deppii lineatissimus*, a designation he himself made in a later paper (1892: 31).

MAILED

NOV 5 1937

The Tehuantepec *C. deppii deppii* shows but rarely the broad middorsal band which is very characteristic of *deppii lineatissimus*. The *deppii deppii* males of Tehuantepec are solid black ventrally, including all of the throat (2 exceptions), the collar, chest, abdomen, and the femoral region. The males of *d. lineatissimus* have a black collar, and about half or more of the throat, posteriorly, is black. Occasionally the chest may be tinted or slightly streaked with black, but the abdomen and femoral region of the specimens on hand are constantly blue, never black. In addition, *d. lineatissimus* has usually a striking mottled bar pattern on the sides of the body, a condition not apparent in the Tehuantepec specimens. Most of the characters used in this study, with the exception of color, overlap to such an extent that they are useless as key characters. For instance, the number of femoral pores ranges from 15 to 20 in the Colima form and from 15 to 22 in the Tehuantepec form. The degree of overlap causes this characteristic to be quite useless practically, but when the occurrence of femoral pores is tabulated (Table I) an apparent genetic significance is indicated.

TABLE I
THE MODE OF DISTRIBUTION OF FEMORAL PORES IN *CNEMIDOPHORUS*
DEPPII DEPPII [TEHUANTEPEC] AND *CNEMIDOPHORUS DEPPII*
LINEATISSIMUS [COLIMA]

Locality	Sex	Range	Average	15-17 Per cent	18 or above Per cent	19 or above Per cent	20 or above Per cent
Tehuantepec .	♂	17-22	19.7	9.7	90.3	71.0	58.0
Colima	♂	15-20	16.7	81.0	18.5	7.4	1.9
Tehuantepec .	♀	15-22	18.8	15.4	84.6	46.2	38.5
Colima	♀	15-18	16.4	89.0	11.1	00.0	00.0

The maximum size (mm.) of the two forms is contrasted as follows: Colima, ♂ 92, ♀ 74; Tehuantepec, ♂ 80, ♀ 75.

There is also an average difference indicated in the number of scales between the mid-ventral rows and the anus (Fig. 1), and the number of scales in a line from the post-supraocular

region to the point of termination of the row between the supraoculars and the median head scales (Fig. 2). These differences are very small and may well be chance resultants.

Cnemidophorus deppii deppii is very common in the Pacific plains of the Isthmus of Tehuantepec. Its abundance is rivaled only by that of *Cnemidophorus guttatus immutabilis* and *Sceloporus siniferus*. It is strictly a ground-inhabiting form and is very common in the open plains and along paths and roads. It appears to avoid shady places. It is very partial to the characteristic glaring sunshine of the Tehuantepec area, appearing to be most numerous and most active on the brightest, hottest days. On cloudy days this lizard is nowhere to be seen.

Of our series of 44 specimens 40, MZUM. Nos. 81859-65, 81868-73, were taken in the immediate vicinity of Tehuantepec, including the village of San Blas, and 4, MZUM. Nos. 81866-67, at Salina Cruz.

Cnemidophorus guttatus immutabilis Cope

We are convinced also that the Tehuantepec form of *C. guttatus* Wiegmann should be given the ranking of subspecies, reviving the name *immutabilis* of Cope (1877: 93) for this designation. Again we base our opinion on the evidence offered by Burt (1931: 66-74) and by Gadow (1906: 320-327), on the series consisting of 54 specimens which we collected during our stay on the Isthmus, and on three specimens of *Cnemidophorus guttatus guttatus* from Vera Cruz, which are in the Museum of Zoology collections.

The Tehuantepec forms are all striped although beads in the stripes occur in some of the largest specimens. In a specimen from Vera Cruz much below the maximum length of the Tehuantepec series there is no striping; the light color is in the form of distinct spots arranged in longitudinal rows.

It has been stated (Burt, 1931: 69) that apparently no differences in scutellation exist between *deppii* and *guttatus* and that the distinguishing characters are size and color pattern. We have found a character which holds without overlap in our

series of 54 *g. immutabilis* and 44 *d. deppii*: the number of scales between the mid-ventral plates and the anus (Fig. 1). In *deppii deppii* the complete range is 4 to 8; in *guttatus immutabilis* this range is 9 to 15. Table II has been arranged to

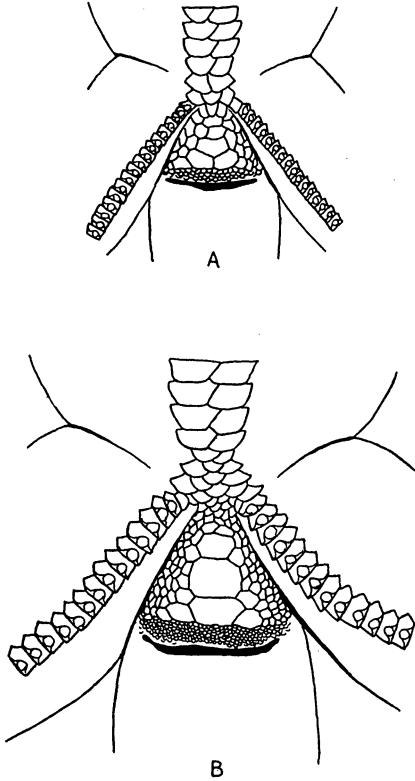


FIG. 1. *A*, view of the scales between the mid-ventral rows and the anus in *Cnemidophorus d. deppii*, MZUM. No. 81862. *B*, the same view in *Cnemidophorus g. immutabilis*, MZUM. No. 81882.

show the concentration modes in the range of characters noted. Some characters, though of little diagnostic value, imply genetic significance. The measurements of the Colima *d. lineatissimus* are also included to show the average differences mentioned on page 2.

TABLE II
SUMMARY OF MEASUREMENTS OF *CNEMIDOPHORUS DEPPII DEPPII* [DD], *C. DEPPII LINEATISSIMUS*
[DL], AND *C. GUTTATUS IMMUTABILIS* [GI]

Characters	Form	No.	Complete Range	Range of Median 90 Per Cent	Range of Median 75 Per Cent	Range of Median 50 Per Cent	Average
Number of lamellae on inner ventral surface of fourth toe	gi	53	28-37	31-36	31-35	32-35	33.5
	dd	44	28-36	29-34	30-33	30-32	31.6
	dl	37	28-36	29-34	29-33	31-33	31.7
Number of femoral pores ♂	gi	28	19-25	20-25	21-25	22-23	22.6
	dd	31	17-22	17-22	18-21	18-21	19.7
	dl	27	15-20	15-19	15-18	16-17	16.7
Number of femoral pores ♀	gi	26	19-25	19-24	19-23	20-23	21.6
	dd	13	15-22	17-21	17-20	18-20	18.8
	dl	9	15-18	15-18	15-17	16-17	16.4
Number of scales from mid-ventrals to anus	gi	54	9-15	9-14	10-14	10-12	11.5
	dd	44	4-8	5-7	5-7	5-6	6.1
	dl	37	6-11	6-10	7-9	7-9	7.9
Number of scales in a line from post-supraocular region to point of termination	gi	53	5-16	5-13	6-12	7-10	8.6*
	dd	44	3-8	4-8	4-7	5-6	5.4
	dl	37	6-11	6-11	7-10	7-9	8.3

* See Figure 2.

The maximum sizes (in mm.) of the forms examined are as follows: ♂ gi 143, dd 80, dl 92; ♀ gi 110, dd 75, dl 74.

This subspecies also is very abundant in the Pacific plains. It is usually found with *Cnemidophorus deppii deppii* along paths, ox roads, and in open parts of the wooded terrain. Although it appears to be as much of a sun-loving animal as *C. deppii deppii* it is seldom found more than a few yards from easily accessible bushes or brushy fences. No doubt its larger size causes it to be too conspicuous in the more or less completely open habitats.

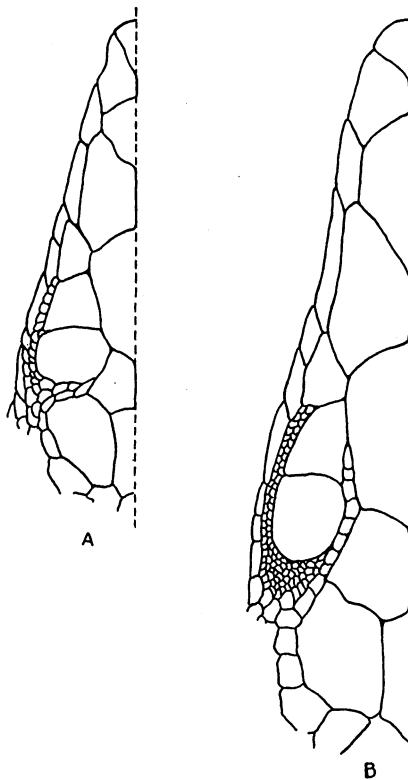


FIG. 2. *A*, view of the scales extending from postocular region to point of termination between supraoculars and median head scales in *Cnemidophorus d. deppii*, MZUM. No. 81862. *B*, the same view in *Cnemidophorus g. immutabilis*, MZUM. No. 81882.

Our specimens were taken in the vicinity of Tehuantepec, MZUM. Nos. 81874-93 (51) and at Salina Cruz, MZUM. No. 81894(3).

Ameiva undulata (Wiegmann)

A study of the literature and of the Mexican and Guatemalan forms of the *undulata* group, as now defined, in the collections of the Museum of Zoology definitely indicates that it is in need of revision. Our evidence indicates that Bocourt had both *undulata undulata* (from Tehuantepec) and *undulata parva* (from the Pacific slope of Guatemala) but did not recognize the differences; on the other hand he did recognize in his Variety A (which he believed to be the same as Wiegmann's Variety A) the form characteristic of Yucatán and the Petén area of Guatemala. *Ameiva undulata* as described by Wiegmann (1834: 27-28) and as redescribed and figured by Bocourt (1874: 254-258) is composed, we feel, of two forms, *undulata undulata* and *undulata parva*. The Variety A of both authors is characteristic of our Yucatán and Guatemala specimens.

The following data were taken from our series of 30 males and 17 females, MZUM. Nos. 81895-904, collected on the Isthmus during the summer of 1936. Femoral pores, ♂ 15 to 20 (17.7), ♀ 14 to 18 (16.1); ventrals to anus, 7 to 10 (7.7); lamellae on inner ventral surface of fourth toe, 25 to 30 (27.7). There is a single row of median, enlarged, preanal scales (3 to 4 in number) in 43 (91.5 per cent) specimens; the remaining 4 specimens each have anteriorly 2 median enlarged scales and the third (posterior) paired. There is a row of large median throat scales in 44 (93.6 per cent) specimens; in the remaining 3 the larger scales are grouped, but are more definitely enlarged than in the Yucatán form. In the females there is a faint indication of an upper lateral light line extending from the temporal region slightly beyond mid-body. This line is lacking in the adult males. An immature male (54 mm. from snout to anus) has a very faint trace of this line in the neck region. The maximum size for males, is 110 mm.; for females, 95 mm.

This form was never found in association with *Cnemidophorus deppii deppii* or with *C. guttatus immutabilis* in the dry open or dry brushy habitats. All of our specimens were collected in such higher or more humid mountains as Tres Cruces Mountain, 32 kilometers southwest of Tehuantepec (43) and Ranchería Lamanga, 20 kilometers south of Tehuantepec (4).

Gymnophthalmus sumichrasti (Cope)

One topotype, MZUM. No. 81905, collected on July 27, 1936, at the base of Quiengola Mountain. Mentals, 1-2-2; ventrals, 29; dorsals (occiput to base of tail), 37; scales around middle of body, 13.

LITERATURE CITED

- BOCOURT, F.
1874 Études sur les reptiles et les batraciens. Miss. Sci. Mex., 3: 1-1012.
- BURT, C. E.
1931 A Study of the Teiid Lizards of the Genus *Cnemidophorus* with Special Reference to Their Phylogenetic Relationships. Bull. U. S. N. M., 154: i-viii, 1-286.
- COPE, E. D.
1877 Tenth Contribution to the Herpetology of Tropical America. Proc. Amer. Phil. Soc., 17: 85-98.
1892 A Synopsis of the Species of the Teiid Genus *Cnemidophorus*. Trans. Amer. Phil. Soc., 17: 27-52.
- GADOW, HANS
1906 A Contribution to the Study of Evolution Based upon the Mexican Species of *Cnemidophorus*. Proc. Zool. Soc. London, 1: 277-375.
- RUTHVEN, A. G.
1912 The Amphibians and Reptiles Collected by the University of Michigan-Walker Expedition in Southern Vera Cruz, Mexico. Zool. Jahrb. 32: 295-332.
- WIEGMANN, A. F. A.
1834 Herpetologia Mexicana. Berlin: Lüderitz. Pp. 1-54.