

OCCASIONAL PAPERS OF THE MUSEUM OF
ZOOLOGY

UNIVERSITY OF MICHIGAN

ANN ARBOR, MICHIGAN

PUBLISHED BY THE UNIVERSITY

THE SUBSPECIES OF *AMEIVA BIFRONTATA*

BY ALEXANDER G. RUTHVEN

Ameiva bifrontata was described by Cope,¹ in 1862, on the basis of specimens said to have come from St. Thomas and Colombia. The type and three other specimens were labeled St. Thomas, and these differ from the specimens described as females (according to Cope "labeled as coming from New Grenada, probably incorrectly") in having the supraocular granules continued entirely around the last three supraoculars.

The species was not subsequently found on St. Thomas, but a single specimen was recorded from Venezuela by Boulenger² in 1885. In the meantime (1879) Fischer³ described a specimen from Colombia under the name *Cnemidophorus divisus*, called attention to the similarity between this form and the females described by Cope, and suggested that the latter should be referred to his species. Boulenger, however (*loc. cit.*), provisionally placed *divisa* in the synonymy of *bifrontata*.

¹ *Proc. Acad. Nat. Sci. Phila.*, 1862, 67.

² *Cat. Lizards Brit. Mus.*, II, 351.

³ *Verh. Naturw. Ver. Hamb.* (2) III, 99-102, pl. V.

In 1885 Cope⁴ listed *A. bifrontata* from Aruba, with the remark, "The species is now well known to be a New Grenadian species, and not to be found in the Virgin Islands as was originally suspected."

The writer,⁵ in 1913, showed that specimens from the west end of the Santa Marta Range in Colombia represent a distinct subspecies which is identical with Fischer's *divisus*. He concluded that typical *bifrontata* probably occurred in Venezuela and was not to be found on St. Thomas. Barbour and Noble⁶ concurred in this opinion.

The study⁷ of a collection made in northeastern Colombia in 1920 revealed the fact that specimens from the region between the Santa Marta Mountains and the Goajira Peninsula are intermediate between *bifrontata*, as known from the type, and *divisa*, as described by Fischer and as represented at the west end of the range. In the extent to which the supraocular granules are continued forward on the inner side of the supraocular region, 42% of the specimens from this region are like the type of *bifrontata*, 8% agree with *divisa*, and 50% are actually intermediate. On the supposition that *bifrontata*, as represented by the type, exists, although its range is not known, *divisa* was given subspecific rank. Barbour and Noble (*loc. cit.*) had given this status to the form in 1915, probably because of the character of the differences.

In 1923 the writer⁸ found that all of the specimens (10) in a collection from Aruba were typical *bifrontata*, showing no tendency toward *divisus*; and in 1924⁹ he described a new and closely allied species, *A. insulana*, from Testigos Island, which was given specific rank because of its geographical position. This form is now reduced to subspecific rank to indicate its probable relationships with the subspecies of *bifrontata*.

⁴ *Proc. Amer. Phil. Soc.*, 1884 (1885), 181.

⁵ *Occ. Papers Mus. Zool., Univ. Mich.*, no. 2.

⁶ *Bul. Mus. Comp. Zool.*, LIX, 471.

⁷ *Misc. Pub. Mus. Zool., Univ. Mich.*, no. 8, 60-61.

⁸ *Occ. Papers Mus. Zool., Univ. Mich.*, 143, 7-8.

⁹ *Occ. Papers Mus. Zool., Univ. Mich.*, 149.

The Museum of Zoology received, in 1924, a collection of reptiles obtained by N. E. Pearson in Peru. In the collection there are four specimens of an *Ameiva* which is evidently related to *bifrontata*, *divisus*, and *insulana*, but is apparently sufficiently different to warrant recognition as a subspecies. The description follows.

***Ameiva bifrontata concolor*, new subspecies**

Diagnosis: Ten longitudinal rows of ventral scales, in the abdominal region the scales of the outer row large, as long as those of the adjacent scutes, not separated from the preceding scutes by granules; head scales as in *Ameiva bifrontata*, except that the supraocular granules on the inner side of the supraoculars do not extend beyond the anterior angle of the postfrontals; brachials and antebrachials continuous or discontinuous; postbrachials not dilated. Caudal scales keeled. Hind leg reaching to ear.

Type Specimen: Cat. No. 59192, Museum of Zoology, University of Michigan; Paipoy, Rio Crisnejas (elevation 3,500 feet), Peru; September, 1923; N. E. Pearson, collector.

Range: Canyons of the Crisnejas and Marañon rivers near the junction of these streams.

Description of Type Specimen: Nostril between the nasals; five occipitals, the middle one wider than the adjacent ones; frontal divided transversely, a single, low, median keel; four supraoculars, the last very small; postocular granules continued forward on the inner margin of the supraoculars to the anterior angle of the postfrontals; six or seven supraciliaries; loreal undivided; supralabials five and six to below middle of eye; chin-shields one anterior and seven pairs, the first pair in contact. Dorsal granules small; ventrals in ten longitudinal rows, in the abdominal region the scales of the outer row as long, and nearly as wide, as those of the adjacent row, in thirty-two transverse rows; three enlarged anals forming a triangle with enlarged but smaller adjoining scutes. Postbrachials a little enlarged, not dilated; one row of enlarged brachials not continuous with the enlarged antebrachials.

Femoral pores 20–21. Tip of longest toe reaching the ear.

Color above light brownish-olive, with a trace of a pale vertebral streak, sides bluish-gray, a few tiny and indistinct black spots on the back, sides of the chest and shoulder region heavily spotted with black, no pale lateral stripes. Belly pale yellow, immaculate.

	mm.		mm.
Total length	404	Length of head and body	110
Length of head to ear.....	27	Length of hind limb	77
Length of fore limb	40	Length of tail	294

Notes on Paratypes: There are four specimens in the series at hand, and the characters are remarkably constant. In two of the three paratypes the femoral pores are 19 in one and 20 in the other. A specimen 88 mm. long (exclusive of tail) is the smallest one, and it is remarkable that this one also shows no trace of the pale lateral lines generally present in young Ameivas of this size. The measurements of the three specimens follow.

	mm.	mm.	mm.
Length of head and body	128	110	88
Length of head to ear	32	28	19
Length of fore limb	46	37	35
Length of hind limb	89	74	61

The tail is reproduced in each specimen.

Remarks: The more obvious differences between the forms of *bifrontata* are given in the synopsis at the end of this paper. The southern subspecies, *concolor*, differs from all of the related forms in the larger size of the scales making the outermost row of ventrals, from all except the southernmost (Perico, northern Peru) specimens of *divisus* by having the row of granules separating the supraoculars from the other head scales not continued farther forward than the anterior angle of the postfrontals, and from all except *insulana* by the non-dilated postbrachials. There seems also to be a difference in the number of femoral pores between *concolor* and the other forms, as shown by the following counts:

Insulana, Testigos, 1 specimen, 15.

Bifrontata, Aruba, 8 specimens, 11-15, average 13 +.

Bifrontata, Venezuela, 12 specimens, 13-16, average 14.5.

Bifrontata, eastern Colombia, 37 specimens, 13-20, average 13 +.

Divisus, Peru, 2 specimens, 16.

Concolor, Peru, 3 specimens, 19-21, average 20.

Many more specimens are needed from most of the localities to determine the average numbers, but there is strong evidence that the southern subspecies has the highest number of femoral pores in the species: twenty-one pores have not been found in other forms, 19 and 20 pores are possessed by only a very few examples in eastern Colombia, and the three specimens of *concolor* in which the pores can be counted have these numbers.

There is some possibility that in northern Peru and southwestern Colombia another race is distinguishable. Four Perico specimens differ from all other examples of *divisus* examined (northern Colombia) in having the supraocular granules discontinued about the middle of the postfrontals. Since in the other characters the specimens are like *divisus*, they should, at least for the present, be referred to that subspecies. From the condition in *concolor*, it is to be expected that the row of supraocular granules will be found to extend less far forward in the southern part of the range of *divisus* than in the northern part, and, although the Perico specimens would seem to indicate that the shortening has gone farther than in the next form to the south, it is quite probable that there will be found variations in *divisus* and *concolor* that will place the northern Peruvian specimens in an intermediate position in regard to this character.

As above stated, eastern Colombian and Venezuelan specimens of *bifrontata* are intermediate in structural characters between the subspecies *bifrontata* and *divisus*. Twelve specimens from Margarita Island, eleven in the British Museum and one in the University of Michigan, are also indistinguishable from eastern Colombian specimens, the supraocular granules surrounding or failing to surround the last three supraoculars, and the postbrachials being dilated.

Thirteen specimens from Sabana de Mendoza, Venezuela, while agreeing in structural characters with the *bifrontata-divisus* intermediates, may be recognized by the color of the ventral surface, the chest and most of the abdomen being black, and the throat a lighter or darker bluish-black. The pale lateral stripes are distinct on specimens having a body length of 105 mm. It does not seem advisable to name this form, as it is, apparently, merely a local race.

SYNOPSIS OF THE SUBSPECIES OF *Ameiva bifrontata*

- A. Scales of outer row of ventrals small, none of full length.
- a. Supraocular granules usually extending beyond anterior margin of third supraocular.
- a'. Supraocular granules entirely surrounding last three supraoculars.
- a". Postbrachials dilated, brachials and antebrachials continuous.....*bifrontata* s. s. (Aruba)
- b". Postbrachials not dilated, brachials and antebrachials discontinuous*insulana* (Testigos)
- b'. Supraocular granules extending at least to the anterior margin of the third supraocular, usually beyond, often entirely around the last three supraoculars, postbrachials dilated, brachials and antebrachials continuous or discontinuous.
- a". Belly pale bluish.....*bifrontata* (intermediate form, a, Eastern Colombia)
- b". Throat, chest and belly blackish.....*bifrontata* (intermediate form, b, Venezuela)
- b. Supraocular granules extending to and not beyond the anterior margin of the third supraocular, postbrachials dilated, brachials and antebrachials continuous or discontinuous.....*divisa* (Colombia, northern Peru)
- B. Scales of outer row of ventrals of full length on the abdominal region, the supraocular granules not extending beyond anterior margin of postfrontals, postbrachials not dilated, brachials and antebrachials continuous or discontinuous.....*concolor* (Peru)



