NUMBER 179 DECEMBER 20, 1926

OCCASIONAL PAPERS OF THE MUSEUM OF ZOOLOGY

UNIVERSITY OF MICHIGAN

ANN ARBOR, MICHIGAN PUBLISHED BY THE UNIVERSITY

NOTES ON UTAH REPTILES

BY ALEXANDER G. RUTHVEN

The Museum of Zoology, University of Michigan, has for the past two years carried on field work on the reptiles and amphibians of Utah. The investigations have been supported by Dr. Bryant Walker and Mr. Edgar M. Ledyard, and will, it is planned, be continued. In the course of the field studies on distribution and habits, data have been secured which extend the ranges and add to our knowledge of the variations of several species. Some of these data are recorded in this paper.

Sceloporus elongatus Stejneger.—In the summer of 1925 the species was found to be abundant in the canyons about Helper, Carbon County. The species was found only among rocks in the pinyon-cedar zone.

Sceloporus magister Hallowell.—This Sceloporus seems to have been overlooked, by collectors, in the region of Greenriver, Emery County. It is rather common in the greasewood

association on the flats, where the bushes are large, and it also occurs in the cottonwood-willow zone along the streams and washes.

Liopeltis vernalis (Harlan).—A single specimen of the green snake, taken on the eastern slope of Mt. Timpanogos, materially extends the range of the species to the west. The specimen seems to be typical of the species as it exists west of the 100 Meridian.

Charina bottae (Blainville).—Van Denburgh,[1] in 1915, listed seven specimens of the rubber boa from Utah, and later,[2] 1920, on the basis of this material, he proposed a new subspecies, *Charina bottae utahensis,* differing from the typical species in having 41 rows of dorsal scales. Two specimens from Idaho, also with 41 rows, were referred to the same form. In 1921, Ortenburger[3] listed a specimen from Shoshone Valley, Wyoming, as *Charina bottae,* that had 43 rows, and noted that a specimen from Chico, Montana, in the United States National Museum, also had 43 rows. Van Denburgh and Slevin,[4] in 1921, and Van Denburgh,[5] in 1922, subsequently recognized the subspecies, and Van Denburgh referred Ortenburger's record to the form with a question. On the other hand, Stejneger and Barbour did not recognize the subspecies in the second edition of the Check List in 1923.

In 1924, the writer collected three specimens in Provo Canyon, Wasatch County, Utah, the locality of four of Van Denburgh's specimens and near the type locality (Little Cottonwood Canyon). These specimens have 42, 44, and 45 scale rows. In other words, one is intermediate between 41 and 43, having an extra row on one side, and one is intermediate between 43 and 45. A variation of 4 rows may, therefore, be expected in this locality.

The finding of a specimen with 45 rows does not, of course, necessarily indicate that the Utah boas will be found to have the same average and extreme numbers of scales as the Cali-

[1] Proc. Calif. Acad. Sci., Ser. 4, Vol. V, p. 106.
[2] Proc. Calif. Acad. Sci., Ser. 4, Vol. X, pp. 31–32.
[3] Copeia, 1921, p. 84.
[4] Proc. Calif. Acad. Sci., Ser. 4, Vol. XI, p. 44.
[5] The Reptiles of Western North America, II, pp. 642–643.

fornia specimens, when a larger series is available for study. Indeed, the fact that only two specimens in a much larger series from California, Nevada, Oregon, and Washington have, according to Van Denburgh's counts,[6] as few as 41 scale rows suggests that the mean number for the Utah specimens will be found to be lower than in the California population. Using Van Denburgh's counts, the limits of variation in 49 California specimens are 41 and 49, and the variations are distributed as follows: 41 in 2 specimens, 43 in 15 specimens, 45 in 20 specimens, 47 in 6 specimens, and 49 in 6 specimens; average, 45 rows.

Through the courtesy of Mr. Joseph R. Slevin and the California Academy of Sciences, the writer has examined five of the Utah specimens cited by Van Denburgh, and Dr. Thomas Barbour has kindly counted the scales in a sixth, now in the Museum of Comparative Zoology. The maximum number of scale rows varies from 40 to 43, as follows: 2 specimens, 40; 3 specimens, 42; and 1 specimen, 43. In 8 Utah specimens loaned by Dr. H. J. Pack, 7 from Cache County and 1 from Salt Lake, the scale rows are 40, 2 specimens; 41, 3 specimens; and 43, 2 specimens.

When the scale counts of all the Utah specimens are combined, omitting one recorded by Van Denburgh but not examined in this study, the limit of variation in 17 specimens is found to be 40–45, and the variations have the following distribution: 40 in 4 specimens, 41 in 3 specimens, 42 in 4 specimens, 43 in 4 specimens, 44 in 1 specimen, 45 in 1 specimen; average, 41.88.

The Utah and California specimens may be compared, in respect to the dorsal scales, as follows:

Number of specimens	Dorsal scale rows								Average
	40	41	42	43	44	45	47	49	
California (49)[7]	0	2	0	15	0	20	6	6	44.95
Utah (17)	4	3	4	4	1	1	0	0	41.88

[6] The Reptiles of Western North America, II, p. 640.

[7] These specimens are, according to Van Denburgh, from California, Oregon, Washington, and Nevada.

The variations in the California specimens form a frequency curve with the mode at 45, and the average practically at 45. The curve for the Utah specimens does not have a distinct mode, being nearly straight from the minimum to 43 scales. This is evidently due to the small number of specimens from Utah, and the fact that collectors have not chanced to find more reduced specimens. Specimens with a maximum number of 39 rows may be expected in Utah, and it may be as confidently expected that future material will result in a variation curve, with a distinct mode somewhere between 41 and 43 rows.

The recognition of the Utah specimens as a subspecies should probably be deferred until other distinctive characters are found. Geographic variation in the number of dorsal scale rows in snakes is of rather common occurrence, and, unless distinctly discontinuous, or accompanied by other differences, cannot well be used as a subspecific character.