

FURTHER NOTES ON RANGE EXTENSIONS OF SALIENTIA

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Field studies during the winter and spring of 1950, supported jointly by the Department of Zoological Sciences and the Oklahoma Biological Survey, University of Oklahoma, resulted in several extensions of known ranges of our local frogs and toads. As in former reports, county records are given; but more exact locality data are furnished when there seems any reason for so doing. Notes on general distribution, habits and behavior are included whenever these seem pertinent. The italicized number in parenthesis after each county name indicates the number of specimens taken.

The author is indebted to Mr. Louis Bouchard, Mr. Harold A. Dundee, and Mr. Stanley Coppock for some of these records, and to his son, William N. Bragg, for another.

1. *Bufo terrestris americanus* Holbrook.

Wagner County (1) confirming a call record. Stephens County (1) giving an extension to the westward not unexpected because of the northward extension of the oak-hickory savannah into the county from the region of the Red River.

2. *B. woodhousii woodhousii* Girard.

Cherokee County (1) on Highway 10 just north of its junction with Highway 62, east of Tahlequah. This record is especially interesting since the location is almost on the bank of the Illinois River, which probably served as a highway for the northward dispersal of this sub-species from the valley of the Arkansas River. Only about ten miles up the Illinois from this point, Mr. Dundee and the author have found *Bufo w. fowleri* breeding in the river. Since the ranges of these two closely related sub-species are nowhere known to coincide and since both tend to maintain their largest populations along flood plains, it follows that the two forms must meet and probably intergrade somewhere within this ten mile stretch of the Illinois River. If intergradation does occur here, it must be in a very narrow zone. (See Blair (1) for another narrow zone separating the populations of the two Oklahoma forms of *Microhyla* in Cherokee County.)

3. *Hyla crucifer crucifer* Wied.

Ottawa County (1).

4. *Hyla versicolor versicolor* LeConte.

Ottawa County and Stephens County. The latter record puts this species some miles west of its present known range. It, like the American toad, apparently has followed the oak-hickory savannah northward from the Red River valley.

5. *Microhyla carolinensis olivacea* (Hallowell).

Calls heard in Stephens County. Mr. Dundee reported collection in Muskogee County of specimens (not seen by the writer) that seemed intermediate between *M. olivacea* (Hallowell) and *M. carolinensis* (Holbrook). Considerable difference of opinion has recently been expressed as to whether these two forms intergrade (1, 3, 4). If they do so, it might be expected to occur in eastern Muskogee County where prairie meets the wooded hills, even though both Blair (1) and the writer have reported both forms to the east of this area in Cherokee County.

6. *Pseudacris triseriata* Wied.

Typical calls were heard in McIntosh County and adults, confirming a former call record, were collected from a breeding congress in Adair County. Kiowa County (1); the only actual Oklahoma record west of Cleveland County.

7. *Ps. clarkii* Baird.

Typical calls heard in Stephens County. Pottawatomie County (1) confirming a former call record.

8. *Ps. streckeri* Wright and Wright.

Single adult calling January 3, Major County. Calling, McIntosh County, April.

9. *Rana brachycephala* Cope.

In a long ditch, 3 miles east of Snyder, Kiowa County, leopard frogs were calling on a bright afternoon in early May. The call was a continuous clucking sound given at the water surface and the movements of the vocal sacs caused ripples to extend out from each male. Over an hour's watching (sometimes with powerful field glasses which gave a very clear view of individual frogs) yielded no evidence of one individual chasing others (a common occurrence in excited congresses of *Rana berlandierii*). These were large individuals without markedly pointed snouts. Specimens were not then secured. Later in the month embryos and a single male were collected during an evening. Unfortunately, the adult specimen escaped before it was thoroughly examined. From behavior, difference in calls, and expectation on geographical grounds, these seemed to be the western leopard frog, *R. brachycephala*. Also early in May this same type of call was heard in Stephens County in one pool, though in another only *R. berlandierii* was calling. This is the third time, therefore, that overlapping of ranges of these two forms (with neither intergradation nor interbreeding occurring) has been reported (2, 6).

10. *R. sphenoccephala* Cope.

On an evening in April, frogs were calling in large numbers from two pools, one near Welsh, Craig County, the other near Miami, Ottawa County, both in prairie, the first in the valley of a creek, the second not far from the Neosho River. In each place at least 60 males were in an area of less than 35 square feet of surface in shallow water of a rather extensive pool. The call was variable and so like that of *R. berlandierii* that it was not distinguished when first heard through the snoring calls of many *R. a. circulosa* also present. While making a recording of the call of the latter in one of these pools, however, something stopped their calling and only the leopard frogs were heard for some time. The slight indescribable difference in this from the familiar call of *R. berlandierii* was then noted.

On investigation, these proved to be very small, slim, pointed-headed adults and the shyest leopard frogs which the writer has ever found.

Despite years of successful experience in collecting frogs in breeding congregations and their great concentration in a small area, the writer succeeded in securing only two specimens. At the second pool six were collected. These frogs are clearly different from those mentioned above as *R. brachycephala* and also different from the common *R. berlandieri*. The latter was present the same night in another pool near Miami and it had been previously collected at the edge of the Craig County pool.

Both Mittleman and Gier (5) and Bragg (2) have predicted the presence of *R. sphenoccephala* in Oklahoma, and it would have been expected in the Southeast. Finding it in the Northeast presupposes that they are there for some special reason not now clear. It is of interest also that several seasons of collecting have failed to reveal it to the south.

11. *Rana areolata* subsp.

Eggs of *R. areolata*, in one place accompanied by very young tadpoles, were taken from a ditch in Okmulgee County and a spring run in Cherokee County. The first was in typical prairie and probably represents the subspecies, *circulosa*. The second occurred in the valley of the Illinois River several miles north of the junction of Highways 10 and 62. These are thought, on ecological grounds, to represent the subspecies *areolata*. Either or both may be intergrades, however, since the regions are close to the expected intergrading zone (4).

12. *Rana catesbeiana* Shaw.

Stephens County (1).

13. *Scaphiopus hurterii* Strecker.

A very large congress of this species was heard in the western edge of Benton County, Arkansas, near the eastern end of Oklahoma Highway 33. This form has not previously been known this far north in Arkansas, but it might be expected since it has once been reported from the adjacent Delaware County, Oklahoma.

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