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NEW COUNTY RECORDS OF SALIENTIA AND
A SUMMARY OF KNOWN DISTRIBUTION OF CAUDATA
IN OKLAHOMA

ARTHUR N. BRAGG¹ AND W. F. HUDSON

For several years one of us has traveled over eastern Oklahoma with the purpose of surveying the amphibian fauna. During the spring of 1951, the other took several trips to parts of this region as well as to portions of western and southwestern Oklahoma with the object of filling gaps in the records of the earlier work. We here pool our collections which seem to represent new county records of Salientia and take the opportunity to summarize the known county distribution of Caudata whether based on new records or not. We do this to get the many scattered records in the literature all in one place.

SALIENTIA

1. *Bufo cognatus* Say. Taken in Roger Mills, Pontotoc, and Johnston Counties. In the last two, it has been expected in "prairie islands" for some time but these specimens are the first reported from either.
2. *B terrestris charlesmithi* Bragg². Washington County (adults taken); heard calling in Noble County.
3. *Microhyla carolinensis olivacea* Hallowell. Adults collected in Jackson, Johnson, and Stephens Counties, each confirming a former calling record.³ Also heard calling in Cotton County.
4. *Pseudacris clarki* Baird. Taken in Stephens County, confirming a calling record; heard calling in Grady and Cotton Counties.
5. *Ps streckeri* Wright and Wright. Stephens County.
6. *Ps. triseriata* (Wied). Stephens County: these are the first adults taken so far west in Oklahoma.
7. *Rana brachycephala* Cope. Adults from Stephens County confirm earlier sight and calling records.
8. *Rana catesbeiana* Shaw. Adults taken in Jefferson County confirming sight records and in Choctaw County.
9. *Rana clamitans* Latr. Choctaw County.
10. *Spea bombifrons* Cope. Adults taken in Stephens and Noble Counties, tadpoles in Jefferson County.

CAUDATA

1. *Ambystoma annulatum* Cope. Adair County.

¹ Supported by the Dept. of Zool., the Oklahoma Biol. Surv. and the University Museum, University of Oklahoma, Norman.

² This toad is the one reported formerly as *B. t. americanus* Holb. In a separate paper it is being described under the above name.

³ For one of these we thank Mr. Louis Bouchard who collected a single specimen.

2. *A. maculatum* Shaw. Cherokee, Choctaw, Delaware, La Flore, McCurtain and Pushmataha counties certainly have local populations. It is considered probable in many other counties of the state.
3. *A. opocum* (Gravenh.) This species is very common in low, heavily wooded areas, especially near streams at least in Choctaw, Latimer, Mc Curtain and Pushmataha counties.
4. *A. talpiodium* (Holb.) Reported in Latimer and McCurtain counties but we have not personally collected it in Oklahoma.
5. *A. texanum* Matthes. This salamander is very abundant from east central Oklahoma eastward. It is known specifically from the following counties, mostly from our own collections; Adair, Choctaw, Cleveland, Cherokee, Atoka, Cotton, Craig, Haskell, Osage, Pawnee, Payne, Pottawatomie, Okfuskee, Hughes, Tulsa, Rogers, Mayes, Wagoner, Muskogee, Sequoyah, Mc Intosh, Pittsburg, Le Flore, Pushmataha and Mc Curtain.
6. *A. tigrinum morvortium* Baird. This is the only salamander known on the western plains of Oklahoma. It is very abundant over the western half of the state where it breeds in ditches, tanks, and playas during spring and summer rains. Larvae often metamorphose in July following a spring breeding period but in some places some of the larvae are neotenic. In the gypsum hill country of western Oklahoma, the larvae are often light cream colored with a black-fringed tail and golden gill bars. In central Oklahoma they are more often a mottled green and quite dark. In the same gypsum waters, tadpoles of spadefoots (*Spea bombifrons* and *S. hammondi*) show a similar variation in color. It has not been fully established as to why the color is so consistently light in some waters. The presence of gypsum is a suspected cause but may be only coincidental.
The subspecies is known in the following counties: Cimarron, Texas, Beaver, Harper, Woodward, Ellis, Roger Mills, Custer, Beckham, Greer, Harmond, Kiowa, Tillman, Caddo, Commanche, Cotton, Stephens, Murray, Cleveland, Oklahoma, Pottawatomie, Kay, and Osage.
7. *A. tigrinum tigrinum* Green.
Even though supposedly present throughout eastern Oklahoma (Bishop, 1943), only one specimen is known to us from Oklahoma. This was taken in a forest of southern pine just south of Tom, Mc Curtain county in the very northern edge of the Austroriparian life zone of Blair (1950).
8. *Amphiuma means tridactylum* Cuvier. Known in Mc Curtain county, at present from a single specimen only, recently reported. For several years, stories of local residents have indicated that it is quite common from Broken Bow southward.
9. *Desmognathus fuscus brimleyorum* Stej. Known in the Le Flore, Pushmataha, and Mc Curtain counties along rocky streams in hilly country.
10. *Eurycea griseogaster* Moore and Hughes. Locally abundant about small streams and intermittent springs in Adair, Cherokee, Delaware, and Sequoyah counties. In two regions, local areas have been watched through the months of February through July in an attempt to learn something of the breeding activities. Young larvae have been found from February through June and older ones from mid June into early July. From this it seems likely that individuals differ in their time of breeding and that most eggs are laid in fall or early winter. Eggs have never been found. A peculiarity of the very young larvae is their habit of lying on ledges over which water one to four inches in depth flows slowly and, when disturbed,

- darting quickly into cracks or under gravel. They have been seen lying in the open many times during both daylight and darkness.
11. *Eurycea longicauda melanoplura* (Cope) Common in cave mouths and about springs in Le Flore, Adair, Cherokee, Mayes, Delaware, and Ottawa counties.
 12. *E. multiplicata* (Cope) this species is very abundant locally along many tiny streams, especially if cool water is running over limestone rocks in Adair, Cherokee, Delaware, Choctaw, Le Flore, Pushmataha, Latimer, and Mc Curtain counties. Occasionally local variations in this species occur which are quite puzzling since some individuals closely approach *E. griseogaster* in appearance. Very dark individuals also sometimes occur.
 13. *E. tynerensis* Moore and Hughes. Known now from Mayes and Cherokee counties as well as from the type locally in Tyner Creek, Adair county. It is sometimes abundant in pools and in the gravel at the lower ends of ripples in Tyner Creek, but at other times a thorough search has failed to reveal it.
 14. *Necturus maculosus maculosus* (Raf.) Only a few specimens of this form have actually been collected in Oklahoma although it has long been known to occur in northeastern counties. A specimen from the Deep Fork River, Creek county, was recently taken by Mr. Jack Adair. Earlier records are from Tulsa, Rogers, Nowata, Delaware, Mayes, Cherokee, Adair, Haskell, and Latimer counties. It occurs in Grand Lake and, therefore, presumably in Grand River which was dammed to form it and is known as the Illinois river, both in Oklahoma and Arkansas.
 15. *Plethodon cinereus anausticlavius* Grobman. A few specimens have been taken in Sequoyah, Adair, and Cherokee counties. None are known south of the Arkansas river where it is presumably replaced by *P. c. serratus* (q.v.)
 16. *Plethodon c. serratus* Grobman. As mentioned above, this form is generally supposed to replace *P. c. anausticlavius* in the Ouachita Mts. south of the Arkansas River. It has long been known in Le Flore and Mc Curtain counties. We have recently taken a typical specimen in the Ozark Hills of Cherokee county, well north of the Arkansas, which fact does not fit with the theoretical expectation.
 17. *Plethodon glutinosus glutinosus* (Green). Abundant in Adair, Cherokee, Delaware, Ottawa, Le Flore, Mc Curtain, and Sequoyah counties. It seems to prefer valleys along streams where it hides beneath leaves, rocks, logs, etc. We have found it locally only in densely wooded areas. Some years ago, individuals were very abundant in the woods of the valley floor above Little River (Mc Curtain county) in May and June, very near the river. At another time in February and March two experienced collectors failed to find a single specimen here; but the animals were found on the steep sides of the valley, well above the river. Subsequent observations suggest that this salamander has a seasonal movement here upward away from the river in winter and early spring, downward toward the river in the hotter and drier later spring and summer. We have not observed them here in late summer, autumn or early winter.
 18. *Plethodon ouachitae* D. and H. Certain only in Le Flore county near the Arkansas line. Dundee (1947) reported it from Mc Curtain county but Pope and Pope (1951) declare Dundee's specimen to represent an undescribed form.
 19. *Siren intermedia nettingi* Goin. Known from Mc Curtain and Pushmataha counties.
 20. *Diemictylus viridescens louisianensis* (Walterst.) Common locally in Mayes, Wagner, Cherokee, Adair, Le Flore, and Mc Curtain coun-

ties; very recently reported from Tulsa county. Eggs and hatching larvae have been collected in May and breeding adults have been taken in April, May, and June. This suggests a breeding season of several months. Since several females have been found while clasped by males (usually by one, sometimes by two at once) it seems likely the breeding pattern is similar to that of the eastern form (Bishop, 1943).

21. *Typhotriton nereus* Bishop. Larvae are very abundant in spring-runs and gravelly streams in Ottawa, Mayes, Delaware, and Adair counties. Very large larviform individuals which are sometimes found suggest, but do not prove, neotemy.
22. *T. spelaeus* Stej. Larvae are abundant in springs and in streams issuing from caves in Ottawa, Mayes, Cherokee, and Adair counties. Adults had never been taken in Oklahoma prior to 1951, although we have visited caves several times in search of them. Blair (1951) has just reported adults from a cave habitat in Delaware county.

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