

NOTES ON SOME REPTILES AND AMPHIBIANS FROM WESTERN OKLAHOMA*

A. I. ORTENBURGER AND BERYL FREEMAN

The following list of reptiles and amphibians was compiled from the collections made June and July, 1926 by the University of Oklahoma Museum of Zoology Expedition. Work was done in twelve counties, eleven of them in southwestern and western Oklahoma, including the panhandle. In Comanche County collecting was done in and near the Wichita National Forest and Game Preserve; in Harmon County, 7 miles southwest of Hollis; in Texas County, on Coldwater Creek, 8 miles southeast of Guymon; in Cimarron County, on the North Canadian River 7 miles south of Boise City, and near Black Mesa 3 miles north of Kenton. Smaller collections were made in Beckham, Greer, Roger Mills, Beaver, Harper, Woodward, and Alfalfa counties, and in the central part of the State in Cleveland County.

Some of the records which are of particular interest may be noted here. A snake new to the State, *Rhinocheilus lecontei*, the Long-nosed Snake, was taken in Harmon County 9 miles southwest of Hollis. This species is known from Texas and Kansas but apparently has not previously been recorded from Oklahoma.

To the known forms of Garter Snakes occurring in Oklahoma another species, *Thamnophis ordinoides elegans*, was added; a series was obtained in northwestern Cimarron County.

The range of the Texas Diamond-Back Rattlesnake, *Crotalus atrox atrox*, was materially extended within the State—from southern to northern Oklahoma, by the finding of a specimen in Woods County.

Three forms of *Sceloporus* are now known in the State—*Sceloporus undulatus undulatus* from the eastern half, *S. undulatus thayerii* from the western half through Texas County, and *S. undulatus tristichus* in Cimarron County. The addition of *S. u. tristichus* to the known lizard species of the State resulted from the summer's collecting. It has been recorded however from Walsenburg and Trinidad, Colorado, and the type locality is Taos, New Mexico, so while the range has been extended to the east it was, perhaps, not unexpected. We have then in Oklahoma intergradation between *S. u. undulatus* and *S. u. thayerii* roughly along the 97th meridian, while the intergradation between *S. u. thayerii* and *S. u. tristichus* is known to occur in New Mexico and Arizona.

We now know two species of the Spadefoot Toad from the State. Both were taken in Cimarron County—*Scaphiopus hammondi* on the North Canadian River and *Scaphiopus holbrookii* near Black Mesa. The finding of *Pseudacris ornata* in Cleveland County is worthy of mention as the first record from Oklahoma so far as we know.

A detailed account of the habits, habitat preferences, ranges and variation of the different forms will be published at a later date. Meanwhile

*Contribution from the Zoological Laboratory of the University of Oklahoma, Second Series, No. 82.

the present list with a few notes will indicate our additional knowledge of the distribution of the reptiles and amphibians of the State.

In a few cases distribution maps are given showing our present (March, 1930) knowledge of distribution. The solid circles indicate records based on specimens in the University of Oklahoma Museum of Zoology.

The locality records listed in the text for each species are those obtained by the University of Oklahoma Biological Survey expedition of 1926, only. Most of the other locality records indicated upon the maps have been cited in one of the lists already published. (Ortenburger, 1925, 83; 1926a, 89; 1926b, 197; 1926c, 137; 1926d, 145; 1927, 46; 1930, 94)

LIST OF SPECIES

1. *Ambystoma tigrinum mavortium* (Baird).

Beaver County, 2 miles east of Gate.

Beckham County, 5 miles south of Sayre.

Cimarron County, 5 miles north of Kenton.

6 miles east of Kenton.

About 100 specimens of this large salamander were taken from many different situations, but commonly in the "cattle tanks," overflow ponds from windmills and artificial ponds made by damming up natural ravines or gullies to collect the scanty rain. One good series was taken from the bottom of a dug well which we were informed contained no water at any time of the year. In this instance they were found in tunnels apparently made by the salamanders themselves some inches below the surface of the bottom of the well. The soil was a sandy loam and only slightly moist. These salamanders were found in the greatest numbers in a pond about 20 feet in diameter which was almost filled with a very thick mass of filamentous green algae.

2. *Scaphiopus hammondii* (Baird).

Cimarron County, 7 miles south of Boise City.

All of the 8 specimens of this form were taken on the low sand bank along the north side of the North Canadian River. None were seen except after the sun had gone down in the evening. These specimens were of an unusually light coloration, very much the same color as the sand upon which they were found and obviously lighter than those of the same species which the senior author has collected in large numbers in Arizona.

3. *Scaphiopus holbrookii* (Harlan).

Cimarron County, 5 miles north of Kenton.

Only three specimens of this species were taken. One was in the well mentioned under *Ambystoma* and the other two in a pond surrounded by a thick growth of willows.

4. *Bufo woodhousii* (Girard).

Beaver County, 2 miles east of Gate.

Cimarron County, 3 miles north of Kenton.

Comanche County, 9 miles northwest of Cache.

Harmon County, 7 miles southwest of Hollis.

Texas County, 8 miles southeast of Guymon.

In all, 71 specimens of these toads secured were in many different lo-

calities and habitats. In the Wichita National Forest and Game Preserve most of them were found near the small streams, commonly on the mud or sand banks or under bushes along the sides of the streams. Some were taken under the cedar trees in the small canyons some distance from the water and well above it; others were found crossing the road at night and many were taken along the shore of Lost Lake, an artificial body of water. Along the Red River in Harmon County most of the individuals were seen in the evening almost anywhere in the sparse grass or on the bare sand itself. Several were also taken, even during the middle of the day, from the thick sedge areas at the edge of the water of the river. In Texas County all were found near the banks of Coldwater Creek, the only stream in the vicinity of our camp. In Cimarron County, most specimens were found in or on the wet sand of the bed of the Cimarron River or near the edges of the artificial ponds. In few cases are they found over 50 feet from water except in one instance where they were taken from the same dry well where the salamanders were found. It is interesting that instead of being in the earth at the bottom of the well they were all in cavities made in the vertical sides of the well, 2 or 3 feet up from the bottom.

5. *Acris gryllus* (Le Conte).

Comanche County, Wichita National Forest—Camp Boulder.
Harmon County, 7 miles southwest of Hollis.

This is one of the commonest forms found in the Wichita National Forest and if an effort were made large numbers could be taken. Several dozen were preserved on this trip and some hundreds are in the collections as the result of many short collecting trips which have been taken to this forest. They were found almost anywhere that water was available and in this region were plentiful along most parts of the streams and particularly around the edge of Lost Lake and other slow-flowing water areas. Their abundance along West Cache Creek in spite of numerous campers was very noticeable. In Harmon County they were seen only near the cut-off pools of the river-bed proper and along a small creek flowing into the Red River at the very southwest corner of Oklahoma. They were also found to be quite plentiful along the low banks of the Salt Fork of the Red River.

6. *Pseudacris ornata* (Holbrook).

Cleveland County, ½ mile south of Norman.

So far the only record for this form in Oklahoma is from Cleveland County a short distance south of the University campus. All the specimens were taken at night quite early in the spring (April 20, 1927). They were found mainly in partially flooded corn fields in the same water with *Acris gryllus* and *Bufo woodhousii*. The note is noticeably different from that of these other species but as they are much more timid and less plentiful they are quite difficult to locate and catch. Practically all were found sitting among the grass from a few inches to a few feet from the edge of the water.

7. *Rana catesbeiana* (Shaw).

Comanche County, Wichita National Forest—Camp Boulder.
Roger Mills County, 7 miles northwest of Durham.

This is a very common form along almost all of the many streams in the eastern and southern parts of the State. With careful night collecting

hundreds of specimens could be taken with ease in nearly any locality. Almost always these frogs are found sitting just at the edge of the water. They apparently reach their largest size along the streams of the southeastern part of the State.

8. *Rana pipiens* (Schreber).

Cimarron County, 3 miles north of Kenton.

Harmon County, 7 miles southwest of Hollis.

Texas County, 8 miles southeast of Guymon.

Rana pipiens is apparently confined to the western half of the State and to the panhandle, whereas *R. sphenoccephala* is statewide in its distribution. Altogether 25 specimens were taken. Most of these were in the water rather than on the bank; one specimen was found about 100 yards from the water.

9. *Rana sphenoccephala* (Cope).

Cimarron County, 3 miles north of Kenton.

Comanche County, Wichita National Forest—Camp Boulder.

Texas County, 8 miles southeast of Guymon.

This form occurs throughout Oklahoma except in the southwestern-most counties. It is obviously much more common than *R. pipiens* even in the western part of the State where the two ranges overlap. Large numbers were collected; in many places the young of this species are found by the hundreds and huge series could be taken. *R. sphenoccephala* and *Acris gryllus* are the two commonest frogs in the State.

10. *Crotaphytus collaris collaris* (Say).

Cimarron County, 3 miles north of Kenton.

Comanche County, Wichita National Forest—Camp Boulder.

Greer County, 4½ miles north of Mangum.

Harmon County, 7 miles southwest of Hollis.

Harper County, 16 miles southwest of Freedom.

Texas County, 8 miles southeast of Guymon.

The Mountain Boomer occurs in all parts of the State where there is sufficient rock outcrop to form a suitable habitat for it. Without much doubt it is most common in the Wichita Mountains in Comanche County. This handsome lizard is considerably feared by the people in general as they believe it to be a poisonous reptile. It is seen in the summer time mainly in the first part of the morning and in the late afternoon. Few are seen during mid-day because of the heat of the sun. Quite often they will be found to occupy the same piles of rocks as *Crotalus a. atrox*.

11. *Holbrookia maculata maculata* (Girard).

Cimarron County, 7 miles south of Boise City.

3 miles north of Kenton.

Greer County, 4 miles north of Mangum.

Harmon County, 7 miles southwest of Hollis.

Roger Mills County, Antelope Hills, 6 miles northeast of Durham.

Texas County, 8 miles southeast of Guymon.

9 miles southeast of Hooker.

This little lizard was found to be common in only two of the several regions in western Oklahoma where collecting was done on this expedition.

Altogether 70 specimens were taken; 39 of these (over half) were collected near the north branch of Coldwater Creek about 8 miles southeast of Guymon, Texas County; 21 were taken near the North Canadian River, 7 miles south of Boise City, Cimarron County. Other than these two localities they were most abundant along the north side of the Red River, 7 miles southwest of Hollis.

They were always seen in the shade of some small bit of vegetation and unless driven out they are usually not seen or taken. The female is regularly frightened from shelter first; then commonly the male will follow the female as she runs away. The male often will lie at least partially buried in the dry sand.

Usually they were found in pairs and once, (June 28) a pair was found copulating. They ran for over a yard before disengaging themselves. In all instances where pairs were observed the two individuals were within a foot or two of each other.

Individuals were taken in many different situations; one at the edge of a cotton field (Harmon County), one among dead tumble-weeds; another in grass growing on a sandy soil with many rocks; others in short grass—cactus-mesquite country (Harmon County); others in furrows of newly plowed fields; many on sand which supported very sparse vegetation (Texas County); many others on a dry sand bar of Coldwater Creek among small willows, sedges, and ragweed.

12. *Sceloporus undulatus thayerii* (Baird and Girard).

Comanche County, Wichita National Forest—Camp Boulder.

Harmon County, 7 miles southwest of Hollis.

Roger Mills County, 5 miles north of Cheyenne.

Antelope Hills, 6 miles northeast of Durham.

Texas County, 8 miles southeast of Guymon.

A large series of this very common lizard was taken especially in Comanche County where, with the possible exception of *Crotaphytus collaris* it is the commonest form. The preferred habitat is the open oak forest where it is commonly found on the trunks of the trees. The specimens taken in Texas County were all found in the low hills northwest of our camp on Coldwater Creek and all were secured early in the morning on Yuccas.

13. *Sceloporus undulatus tristichus* (Cope).

Cimarron County, 3 miles north of Kenton.

Most of these specimens were either on the basalt of Black Mesa, or on sandstone at 101 Gap. A few however were observed near small springs. This subspecies has been taken in Colorado and New Mexico (see page 175) but this is probably the first record from Oklahoma and as such constitutes an eastward extension of its range.

14. *Phrynosoma cornutum* (Harlan).

Cimarron County, 7 miles south of Boise City.

3 miles north of Kenton.

Greer County, 2 miles north of Willow.

Roger Mills County, 5 miles northeast of Durham.

Texas County, 8 miles southeast of Guymon.

While *Phrynosoma douglassii ornatissimum* is probably to be expected

in the Oklahoma panhandle, as yet we have found no specimens of it. At present *cornutum* is the only species we know in Oklahoma and it is not very plentiful in the regions visited. In the vicinity of Black Mesa where eight days work was done, only eleven individuals were taken.

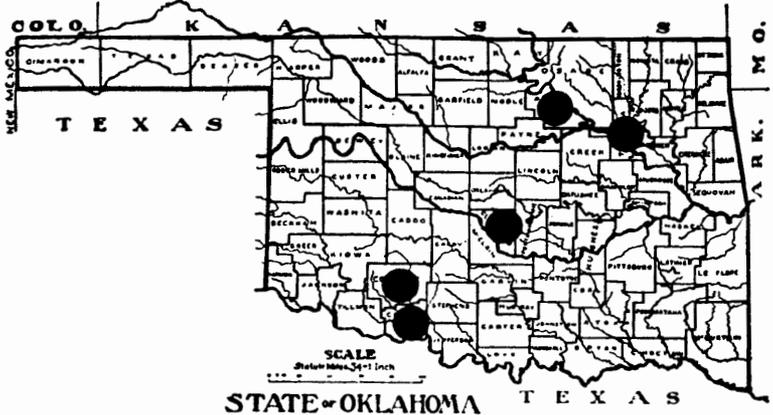
15. *Ophisaurus ventralis* (Linné).

Cleveland County.

Comanche County, Wichita National Forest—Camp Boulder.

Cotton County.

According to our present knowledge this interesting lizard has an unusual distribution in Oklahoma. This seems to be borne out by the known range in Kansas as shown by our own records and those of Burt (1928, 36). This is shown by the accompanying map.



16. *Cnemidophorus gularis gularis* (Baird and Girard).

Greer County, 4 miles west of Mangum.

Harmon County, 7 miles southwest of Hollis.

This form has a distribution in Oklahoma which at present the author is unable to explain. It is found in the extreme southwestern part of the State and in some other parts as well (see map).



While *gularis* is not uncommon (25 specimens were secured on this trip) yet it is noticeably less numerous than *C. sexlineatus*. In Oklahoma we have thus far detected no difference in habitat preference between *C. gularis* and *C. sexlineatus*. Both forms were repeatedly taken within the same few square yards. After having observed the difference in habitat preferences of *C. gularis* and *C. melanostethus* in Arizona (Ortenburger, A. I. and Ortenburger, R. D. 1926, 110-111), the senior author finds the situation in Oklahoma very curious. However, habits and actions of the two species are quite dissimilar. *Gularis* is much slower and more deliberate in all of its movements than is *sexlineatus*. When disturbed *gularis* does not run so far before it stops; it then commonly turns its head and in a leisurely manner looks all around, thus giving the collector a good opportunity to shoot. It is hoped that a later detailed study of the two forms may result in more information.

17. *Cnemidophorus sexlineatus* (Linné).

Alfalfa County, 6½ miles northeast of Ingersoll.

Cimarron County, 7 miles south of Boise City.

3 miles north of Kenton.

Comanche County, Wichita National Forest—Camp Boulder.

Harmon County, 7 miles southwest of Hollis.

Roger Mills County, 2 miles north of Cheyenne.

6 miles northeast of Durham, Antelope Hills.

Texas County, 8 miles southeast of Guymon.

This is one of the commonest lizards of the State possibly owing to its adaptability to many kinds of habitats. In many places where no other lizards are to be found *C. sexlineatus* will still be seen quite often. It is not restricted to a saxicolous habitat as for example, *Crotaphytus collaris collaris*, nor is it confined to regions at least partly covered with trees, as for example, *Sceloporus undulatus*.

Large collections of statewide distribution have been made of this species and it is known from all parts of Oklahoma except the extreme northeast where however it undoubtedly occurs as indicated by records of Burt in Kansas (1928, 38, 46).

18. *Leiolopisma laterale* (Say).

Comanche County, Wichita National Forest—Camp Boulder.

The distribution of this small lizard is definitely confined to the eastern two-thirds of the State and agrees very well in this part of its range with that defined by Stejneger and Barbour (1923, 74). It is found almost exclusively in wooded regions where there is a forest floor cover of dead leaves and where the land is not very dry. It is most abundant in the counties in the southeastern part of Oklahoma; it has been found in Pike and Polk counties, Arkansas. In Comanche County, the western extreme of its range as we know it, *Leiolopisma* is found only in the oak forest.

19. *Eumeces guttulatus* (Hallowell).=(*obsoletus*, fide Burt).

Comanche County, Wichita National Forest—Camp Boulder.

20. *Eumeces obsoletus* (Baird and Girard).

Cimarron County, 8 miles southwest of Boise City.

Comanche County, Wichita National Forest—Camp Boulder.

Harper County, 16 miles southwest of Freedom.

21. *Leptotyphlops dulcis* (Baird and Girard).

This tiny rare snake was hitherto known from only two counties in Oklahoma—Kiowa County in the western part and Cleveland County in the central part of the State. As its range extends south and west of Oklahoma, our Cleveland County specimen is the extreme northeastern record for this species. The single specimen taken by the Biological Survey in 1926 was found about one half mile north of the Red River just east of the western boundary line of Oklahoma (as it was considered to exist in 1926). This region was a rolling upland plain of red, sandy, very dry, clay. There was a heavy sod of fine grass as well as a thick mat of low-growing herbs. Clumps of mesquite were very numerous usually from 4 to 7 feet tall; *Opuntia* sp. was also abundant, especially near the patches of mesquite.

This little snake was first seen about 6 inches from the edge of a small ant hill crawling through the grass. It was very difficult to distinguish it from its surroundings; it greatly resembled an earthworm except for the rapidity of locomotion. The specimen upon close examination appeared to be at least partially transparent; the dorsal side was noticeably darker than the ventral and the anterior part of the body especially just behind the head was darker than the remainder of the back, except above the anal plate. The rostral was very light; the entire dorsal surface of the head was lighter than any other part of the back. The color of the dorsal surface of the body was Vinaceous brown, and that of the belly light Congo pink. (Ridgway, 1912).

22. *Diadophis punctatus arnyi* (Kennicott).

Cleveland County.

Comanche County, Wichita National Forest—Camp Boulder.

This species has never been taken west of Comanche County; in the northern part of the State apparently it does not occur west of the Arkansas River.

It is usually seen in the evening as it is getting dark, and most commonly on old unused roads or paths through the woods.

23. *Heterodon contortrix* (Linné).

Comanche County, Wichita National Forest—Camp Boulder.

Harmon County, 7 miles southwest of Hollis.

Texas County, 8 miles southeast of Guymon.

This Hog-nose Snake is apparently fairly common in Oklahoma but probably is largely replaced by *H. nasicus* in the panhandle. In Cleveland County for example, fifteen specimens of *contortrix* have been given to the Museum collection mainly by students curious to learn about this "deadly" Puff Adder.

During the summer of 1926, only three specimens were collected by the Survey, possibly indicating that it is not as common as some of the other snakes of the State. They were all taken on sandy soil. Two were near the Red River in Harmon County and one near the base of the hills north of Coldwater Creek in Texas County. The latter is the only record known from the panhandle.

There are specimens in the U. S. N. M. from Creek County and one from Caddo.

24. *Heterodon nasicus* (Baird and Girard).

Cimarron County, 7 miles south of Boise City.
3 miles north of Kenton.

Texas County, 8 miles southeast of Guymon.

Woodward County, 11 miles southwest of Freedom.

While there are specimens of *H. nasicus* in the Museum from both Cleveland and Okmulgee counties, yet the form is commonest in the western part of the State, particularly in the panhandle. Ten individuals were taken in Cimarron and Texas counties in a few days collecting. *Nasicus* is a smaller snake than *contortrix* and in Oklahoma can usually be distinguished at a glance by the nearly black belly. *Contortrix* in Oklahoma seldom is dark below, although a specimen from Texas County does show the *nasicus* type of coloration. There is quite a constant difference in numbers of caudals between the two forms, *nasicus* averaging about 35 (in the female) whereas for the same sex *contortrix* averages 45. *Nasicus* also usually has 4 or 5 temporals; *contortrix* usually only 3. There is also the well-known scale row formula difference which seems to be constant, *nasicus* 23-19, *contortrix* 25-19.

25. *Ophedrys aestivus* (Linné).

Comanche County, Wichita National Forest—Camp Boulder.

The Rough Green-snake like some other forms is largely confined to the eastern two-thirds of the State. It is usually found either lying on the branches of bushes or skimming rapidly through them.

26. *Coluber constrictor flaviventris* (Say).

Cimarron County, 3 miles north of Kenton.

Comanche County, Wichita National Forest—Camp Boulder.

Harper County, 16 miles southwest of Freedom.

The familiar Blue Racer is known from nearly all parts of the State. A young specimen with juvenile coloration was taken near Black Mesa in Cimarron County. Only three individuals were seen on this trip and all were taken.

27. *Masticophis flagellum flavigularis* (Hallowell).

Cimarron County, 7 miles south of Boise City.

3 miles north of Kenton.

Cleveland County, 3 miles south of Norman.

Comanche County, Wichita National Forest—Camp Boulder.

Harmon County, 7 miles southwest of Hollis.

Texas County, 9 miles east of Guymon.

8 miles southeast of Guymon.

Flavigularis belongs definitely to the western half of Oklahoma. Since this form was discussed in detail in a monograph of this genus (Ortenburger, 1928, 92-103) little need be said here except in relation to its range in Oklahoma. At the time of the writing of that paper (1928) Oklahoma specimens were known only from the northwestern part of the State. We now know it to be a common form in the panhandle and all of western Oklahoma south to the Red River and east to the 97th meridian.

There is an area of overlapping in central and south-central Oklahoma where *M. f. flavigularis* and *M. f. flagellum* are very difficult to distinguish. This is particularly true in Cleveland and Comanche counties.

One specimen taken in the Wichita Mountains, a female containing 13 eggs, sought escape by very skillfully climbing a large tree (8 in. in diameter) and gliding out on a branch. Others were taken on the ground at the edge of Lost Lake, and still others in very dry places well away from water. They are known to feed on *Crotaphytus collaris* and other lizards in these mountains.

One individual taken in Cimarron County near the North Canadian River, south of Boise City had two *Holbrookia* in its stomach (eaten head first) as well as some grasshoppers (*Hippiscus* sp.). Possibly these swift little lizards were captured while still sluggish from the night temperature as the whipsnake was found at 7:30 A. M. stretched out on the sand among small tufts of short grass.

There is good reason to believe that this whipsnake hibernates with *Crotalus atrox atrox* as this was vouched for by the former Supervisor of the Wichita National Forest, S. M. Shanklin, and the rangers there, among them Earl Drummond. These whipsnakes were actually seen in 1925 in a rattlesnake "den."

28. *Elaphe obsoleta confinis* (Baird and Girard).

Comanche County, Wichita National Forest—Camp Boulder.

As elsewhere, the Pilot Black Snake is almost always seen up in bushes or near them. Some have been taken in large trees several feet above the ground. Like *Opheodrys*, *Diadophis*, and some others, it apparently does not occur west of Comanche and Canadian counties.

29. *Pituophis sayi* (Schlegel).

Cimarron County, 7 miles south of Boise City.

3 miles north of Kenton, on top of Black Mesa.

Comanche County, Wichita National Forest and Game Preserve.

Harmon County, 7 miles southwest of Hollis.

Roger Mills County, Antelope Hills, 6 miles northeast of Durham.

Texas County, 8 miles southeast of Guymon.

Woodward County, 10 miles southwest of Freedom.

The Bull Snake is one of the commonest snakes of the State and reaches a large size here. It is found to be very common wherever any collecting is done and of all the reptiles seen killed by automobiles on the roads, it and *Terrapene* are by far the commonest.

It is abundant in the Wichita Mountains and in Harmon and Cimarron counties. Several of the specimens taken were seen crossing the road in front of the Survey truck.

30. *Lampropeltis getulus holbrookii* (Stejneger).

Texas County, 8 miles southeast of Guymon.

As expected from our former knowledge of distribution (Blanchard 1921, 37), *holbrookii* is a statewide form. It is less common in western Oklahoma than in eastern Oklahoma but without much doubt it will be found also in Cimarron County.

31. *Rhinocheilus lecontei* (Baird and Girard).

Harmon County, 9 miles southwest of Hollis.

The specimen taken in Harmon County is the first known record for Oklahoma. It was found near the State line, June 17, 1926, under a mes-

quite bush. It is of interest to note that this species was found in the same general situation as *Leptotyphlops* (see page 182).

32. *Sonora semiannulata*, (Baird and Girard).

Comanche County, Wichita National Forest—Camp Boulder.
Harmon County, 7 miles southwest of Hollis.

This form is confined to central and southwestern Oklahoma. It does, however, come east at least to the 96th meridian in this state. The many specimens in the collection of the U. O. M. Z. further substantiate the remarks in an earlier paper (Ortenburger, 1923, 79).

33. *Natrix rhombifera* (Hallowell).

Comanche County, Wichita National Forest—Camp Boulder.

The status of most species of *Natrix* in Oklahoma is very uncertain. *Rhombifera* is found, however, throughout northeastern, central, and southern Oklahoma. A single specimen from Woodward County appears to be *rhombifera*. In Comanche County in the southwest it is plentiful.

34. *Natrix sipedon transversa* (Hallowell).

Cimarron County, 3 miles north of Kenton.

Comanche County, Wichita National Forest—Camp Boulder.
Harmon County, 7 miles southwest of Hollis.
Texas County, 8 miles southeast of Guymon.

This is one of our commonest snakes, found along most streams and feared as a "Water Moccasin." It reaches a large size and like others of the genus is vicious when handled. *Transversa* and *sipedon* overlap in the eastern third or half of the State and in this region identification is difficult. In a paper now in press, (Ortenburger and Freeman, 1931) the structural variations of these forms is discussed in some detail. Typical *sipedon* is found in the northeastern and eastern counties of Oklahoma.

35. *Storeria dekayi* (Holbrook).

Comanche County, Wichita National Forest—Camp Boulder.

In Oklahoma this species is confined to the northeastern and southern portions. It is of interest that so many eastern and northeastern forms have a distribution in Oklahoma east of a line drawn from the intersection of the northern boundary of the State and the 97th meridian to a point on the Red River intersected by the 99th meridian.

This holds quite well for the following forms: *Agkistrodon mokasen*, *Diadophis p. arnyi*, *Elaphe lacta*, *E. o. confinis*, *Lampropeltis calligaster*, *Masticophis f. flagellum*, *Natrix rhombifera*, *N. sipedon sipedon*, *Ophedryx aestivus*, *Tantilla gracilis*, *Thamnophis sirtalis parietalis* and *Tropidoclonion lineatum*.

36. *Thamnophis marcianus* (Baird and Girard).

Texas County, 8 miles southeast of Guymon.

This western Garter Snake is found in Oklahoma only west of Stephens County and only at all commonly in the panhandle region.

37. *Thamnophis ordinoides elegans* (Baird and Girard).

Cimarron County, 4 miles northwest of Kenton.

This record is apparently the farthest east for this form which belongs to the Rocky Mountain region and the Pacific area. A good series was

taken in western Cimarron County, all from one pond where they were engaged in gorging themselves with the extremely numerous large tadpoles of *Scaphiopus hammondii*.

The structural variations of this snake are considered in a paper now in press (Ortenburger and Freeman, 1931).

38. *Thamnophis radix* (Baird and Girard).

Cimarron County, 4 miles northeast of Kenton.

Texas County, 8 miles southeast of Guymon.

Most of our records of this form are confined to the panhandle counties. One specimen from Grady County extends the distribution some distance to the south.

39. *Thamnophis proximus* (Say).

Comanche County, Wichita National Forest—Camp Boulder.

Texas County, 8 miles southeast of Guymon.

This is the most widely distributed and commonest garter snake of Oklahoma. It is found almost always very near streams and in some localities is undoubtedly the commonest snake (e. g., Comanche County). The details of the variations of the form are also being discussed in a forthcoming paper, (Ortenburger and Freeman, 1931).

40. *Agkistrodon mokasen* (Beauvois).

Comanche County, Wichita National Forest—Camp Boulder.

The Copperhead like several other forms (p. 185) has a distribution over the eastern two-thirds of Oklahoma but is commonest in the southeast; it is also abundant in the Arbuckle and Wichita Mountain regions.

41. *Crotalus atrox atrox* (Baird and Girard).

Comanche County, Wichita National Forest—Camp Boulder.

Woodward County, near Whitehorse.

This form is common in the southern part of the State, particularly in the southeast and in the Wichita Mountains. It was formerly also common in the Arbuckles.

A very interesting find was made July 11, 1926. About 10:30 A. M. a specimen of *atrox* was found in Woods County sunning itself in the road. This was an extension of its range in Oklahoma of over 150 miles to the north, where the range overlaps that of *C. confluentus*.

42. *Crotalus confluentus* (Say).

Cimarron County, 7 miles south of Boise City.

3 miles north of Kenton.

Harper County, near Sleeping Bear Creek.

Texas County, 8 miles southeast of Guymon.

Confluentus is a common snake in Texas and Cimarron counties. At one time in the latter county south of Boise City on the North Canadian River, one of our party (Anna Beth Rennie) was surrounded by four or five individuals and finally succeeded in taking three with an insect net.

43. *Kinosternon flavescens* (Agassiz).

Alfalfa County, 6½ miles northeast of Ingersoll.

Beaver County, 2 miles east of Gate.

Cimarron County, 7 miles south of Boise City.

3 miles north of Kenton.

18 miles east of Kenton.

Greer County, 2 miles north of Willow.

Harmon County, 7 miles southwest of Hollis.

8 miles southeast of Hollis.

4 miles east of Hollis.

11 miles north of Hollis.

Kingfisher County, 6 miles east of Kingfisher.

Roger Mills County, 7 miles northwest of Durham.

Texas County, 8 miles southeast of Guymon.

Without question this is one of our commonest, if not *the* commonest turtle in Oklahoma wherever water is available. It and *Terrapene* are the only two turtles of very common occurrence in the western part of the State.

Several individuals can almost always be seined out of any cattle tank or roadside ditch of any size. In Harmon County in particular, small ditches along the roads only 2-4 feet wide and commonly less than a foot deep usually produced one or more specimens for every 100-200 feet of length. This gives some idea of their abundance.

44. *Chelydra serpentina* (Linné).

Texas County, 8 miles southeast of Guymon.

The common snapper is to be found throughout Oklahoma.

45. *Terrapene ornata* (Agassiz).

Alfalfa County, 6½ miles northeast of Ingersoll.

Cimarron County, 7 miles south of Boise City.

3 miles north of Kenton.

Comanche County, Wichita National Forest—Camp Boulder.

Harmon County, 7 miles southwest of Hollis.

3 miles north of Hollis.

Roger Mills County, 7 miles northwest of Durham.

6 miles northeast of Durham, Antelope Hills.

Texas County, 8 miles southeast of Guymon.

Ornata while apparently commonest in western Oklahoma is found throughout the State. *Triunguis* on the other hand, is confined to the eastern half.

Nearly 150 specimens were taken in Cimarron County when collecting had to be stopped due to lack of facilities for preserving.

These turtles feed to a considerable extent on the grasshoppers of the region. Some of the queerest sights seen were the attempts, often successful, of these supposedly slow-moving animals to catch grasshoppers. The movements are surprisingly quick and agile. On one occasion one turtle was seen to catch a large lubber grasshopper "on the wing" by stretching the neck and literally jumping at the flying insect. Others were seen eating large green caterpillars and robber flies.

In the early morning before eight o'clock, all specimens collected were found to be in the sun on the east side of tufts of high grass or sage. Many specimens were taken in the sedges on the low north bank of the North Canadian River. In some instances, they had burrowed partially into the mud of the river bank.

46. *Pseudemys elegans* (Wied).
 Beaver County, 2 miles east of Gate.
 Beckham County, $\frac{1}{2}$ mile south of Sayre.
 Known from widely scattered localities in the State, this form probably will be found in all parts when sufficient collecting has been done.
47. *Amyda mutica* (Le Sueur).
 Alfalfa County, $6\frac{1}{2}$ miles northeast of Ingersoll.
 Comanche County, Wichita National Forest—Camp Boulder.
 Of the four species of *Amyda*, *mutica* has the widest distribution in Oklahoma.

PAPERS CITED IN THE TEXT

BLANCHARD, F. N.

1921. A Revision of the King Snakes: Genus *Lampropeltis*. Bull. U. S. N. M., no. 114, pp. i-vi, 1-260, figs. 1-78.

BURT, C. E.

1928. The Lizards of Kansas. Trans. Acad. Sci. St. Louis, Vol. XXVI, No. 1, pp. 1-81, figs. 1-14.

ORTENBURGER, A. I.

1923. The Status of *Sonora seminannulata* and *Sonora episcopa*, Copeia, no. 121, pp. 79-81.
1925. A Preliminary List of the Snakes of Oklahoma. Proc. Okla. Acad. Sci., vol. V, pp. 83-87.
- 1926a. A Report of the Amphibia and Reptilia of Oklahoma. Proc. Okla. Acad. Sci., vol. VI, pt. 1, pp. 89-100.
- 1926b. A Key for the Identification of Oklahoma Snakes. Proc. Okla. Acad. Sci., pt. 1, pp. 197-218, pls. iii-iv, figs. 1-26.
- 1926c. Reptiles and Amphibians Collected in the Wichita Mountains, Comanche County, Oklahoma. Copeia, no. 155, pp. 137-138.
- 1926d. Reptiles and Amphibians Collected in the Arbuckle Mountains, Murray County, Oklahoma. Copeia, no. 156, pp. 145-146.
1927. A List of Reptiles and Amphibians from the Oklahoma Panhandle. Copeia, no. 163, pp. 46-48.
1928. The Whip Snakes and Racers: Genera *Masticophis* and *Coluber*. Memoir Univ. Mich. Museums, vol. 1, pp. i-xviii, 1-247, pls. I-XXXVI, figs. 1-64.
1930. Reptiles and Amphibians of Pawnee County, Oklahoma. Copeia, no. 173, pp. 94-95.

ORTENBURGER, A. I., AND ORTENBURGER, R. D.

1927. Field Observations on Some Amphibians and Reptiles of Pima County, Arizona. Proc. Okla. Acad. Sci., vol. 6, pt. 1, pp. 101-121.

RIDGWAY, R.

1912. Color Standards and Color Nomenclature. i-iii, pp. 1-43. pls. I-LIII.

STEJNEGER, L. AND BARBOUR, T.

1923. A Check List of North American Amphibians and Reptiles. Ed. 2, pp. i-x, 1-171.