

AMPHIBIANS AND REPTILES OF THE CHARLESTON REGION

T. L. HANKINSON, STATE NORMAL SCHOOL, CHARLESTON

Collections of amphibians and reptiles have accumulated in the zoology laboratory of the Eastern Illinois Normal School, and some notes have been obtained on representatives of these two groups in the region, chiefly in connection with the field work necessitated by the teaching of zoology classes. A study of the data from these sources has been made, and it seems important to print the results of this in the form of an annotated list, preliminary to more thorough investigations of the amphibians and reptiles of the Charleston region to be made in the future.

Specimens of several species could not be named by the writer unaided, so they were sent to A. G. Ruthven and Helen Thompson Gaige of the University Museum, Ann Arbor, Michigan, who identified the specimens. Credit is due them for this assistance.

Necturus maculatus Raf., Mud Puppy. Common in early spring just below the Dam on the Embarrass River near

Charleston, where the bottom is rocky. Mr. Charles Finley tells me that they are common in the Kaskaskia River at Cooks Mill in the northwest part of Coles County, Illinois, and not far from Charleston.

Fishermen frequently catch them on their hooks in the spring. One taken by the writer on March 23, 1908, had swallowed a Brook Lamprey, *Lampetra wilderi*.

Ambystoma tigrinum (Green), Tiger Salamander. Common about Charleston, where it dwells in dark, damp situations, like cellars, little used wells or cisterns. Many have been brought to the laboratory from such places and commonly from near breeding ponds.

Breeding occurs in the region in late February or March, as soon as it is warm enough to keep open water in the ponds for any length of time. The period is made evident by finding ovoid, gelatinous capsules with their eggs in ponds. Typically there are some twenty or thirty eggs together, and the whole mass is about three inches in length. The eggs are excellent for elementary embryological work. Tadpoles reared in the laboratory reached the adult form in late summer.

Ambystoma microstomum Cope. Small-mouthed Salamander. Several specimens have been brought to the laboratory. They have all been found in wooded regions about logs and brush.

Desmognathus fusca Raf., Dusky Salamander. (?) In August, 1910, two salamander larvae were caught that appeared to belong to this species, and Dr. Ruthven says that he has little hesitancy in referring them to this, but positive identification requires adults which have not been found in the region.

Diemictylus viridescens Raf., Green Newt. An example of the red form of this species was brought to me by Mr. Lee Morgan of Charleston, on September 15, 1906. It was found in some fire wood that had been brought in from the country. The species is apparently very rare in the region. Garman ('92) reports it as "throughout the state." Hurter, ('11) finds it in Illinois near St. Louis.

Bufo americanus Le Conte, Common Toad. This is the most conspicuous amphibian in the Charleston region. Its eggs are laid usually in April in the larger and more permanent ponds. Very few of these have been found in small temporary pools or in streams. This preference as to breeding habitat is undoubtedly a strong factor in making the toad so abundant compared with other amphibians in the region. Transformation stages are found in June, but they have been noted as late as September (September 10, 1902).

Acris gryllus Le Conte, Cricket Frog. Very common along shores of ponds and streams, preferring open, exposed shores to wooded ones and larger and more permanent bodies of water to small temporary ones. It has a longer active season than any other amphibian in the region and is common in early spring and late fall. Often it is seen in winter about streams, sometimes on the snow or ice there. Its breeding time has not been determined, but tadpoles an inch long have been found in late April (1904).

Hyla pickeringii Holb., Spring Peeper. The frogs have not been noted, but on May 30, 1912, some transformation stages were found in a pond some eight miles southwest of Charleston.

Hyla versicolor Le Conte, Tree Frog. Frequently heard, but specimens are rarely found on account of their inconspicuousness.

Chorophilus nigritus (Le Conte), Swamp Tree Frog. Common. Their calls are one of the signs of the arrival of spring. Their eggs appear to be laid in ponds of all kinds, including small temporary pools in which they commonly meet their destruction through these drying up within a few days after the eggs are laid. Typically some seventy-five or a hundred eggs are laid at once. These are embedded in an ovoid, gelatinous envelope about two inches in length and attached commonly to a submerged leaf or grass blade.

Some transformation stages were found on May 27, 1912, and on July 22, 1910, and August 17, 1910. The habitat of the adult in the region at times other than the early spring, has not been determined, for only one specimen has been found away from the breeding places and that one was in a clover field, July 23, 1909.

Rana pipiens Shreber, Leopard Frog. Rather common in the region but more often seen in early spring, when breeding takes place. Mr. Ruthven in examining the Leopard Frogs sent him found them to be very similar to *Rana sphenocephala* Cope.

The eggs are laid in early spring chiefly in isolated ponds and pools, even those that dry up in a short time producing much mortality of the tadpole progeny. Very few eggs have been found in the quiet pools of streams, although frogs are often about these places in numbers during the breeding season. The gelatinous egg masses are commonly conspicuous for they are large, often about the size of a double fist, and subglobular in form; each contains many hundred eggs.

The life cycle of the Leopard Frog is usually if not always completed during the season that the eggs are laid. Transformation stages and young frogs have been found on the following dates: July 7, 1904; June 27, 1913; July 7, 1913. A large frog of this species was in the stomach of a large Garter Snake, *Thamnophis sirtalis*, taken on November 24, 1913, (Hankinson, '15).

A Leopard Frog, brought in on September 29, 1905, by Mr. Elmer McDonald, is abnormal in having two arms on the right side, one of which is small and lacks the hand; and the left arm is two-branched at the elbow, each branch is the same size and with a complete hand. Wagner ('13) found a similar specimen with supernumerary arms.

Rana cantabrigensis Baird, Wood Frog. Sometimes found in deep ravines; apparently uncommon.

Rana catesbeana Shaw, Bull-frog. Common about larger streams and ponds in the region. Frogs with bodies six or more inches in length are frequently seen along the Embarrass River where they are sometimes shot with small rifles on account of their edible hind legs. Large tadpoles of this species nearly six inches long are often found.

Storeria dekayi (Holb.), De Kays Snake. Only one has been found in the region, and this came from a piece of upland woods along a ravine. Garman ('92) says that it is found in all parts of the state, but it is not very common.

Storeria occipitomaculata (Storer), Red-bellied Snake. Two have been found in a piece of upland woods near Charleston. It is generally distributed in Illinois, according to Garman ('92).

Heterodon platyrhinus Lat., Hog-nosed Snake. One of the more common snakes of the region. It is very generally distributed at least in the wooded regions about Charleston, and a number have been found in the city. Locally, it is known as "Spreading Adder" and is commonly and erroneously considered poisonous. It may be indirectly injurious to man through destroying toads, which are thought to be its chief food.

Elaphe obsoletus (Say), Pilot Snake. This appears to be one of the most common snakes in the region. More have been found to the writer's knowledge about wooded bottom lands along the Embarrass River than elsewhere about Charleston. All have been large, four to five feet in length. They frequently reside among tree branches, where they are very inconspicuous and probably do much damage to birds. The writer knows of one of them killing four young robins, three of which it swallowed. These were the contents of a nest some fifteen feet up in a tree in a farm yard near Charleston. Robert Ridgway ('14), writing of the Pilot Black Snake in Southern Illinois, says: "It is without question an inveterate enemy of bird-life, swallowing old, young, and eggs alike." A detailed study of the food of this reptile would undoubtedly yield important results.

Natrix sipedon (Linn), Watersnake. Common in spring along larger streams where they are most often seen about places where fish congregate. They undoubtedly destroy many fish. One was seen to capture a Common Sucker, *Catostomus commersonii*. The fish was 9 in. long and the snake 4 ft.. It required a violent struggle to land the fish. When to shore the snake began immediately to swallow its prey. This was about ten o'clock at night, which makes it evident that Watersnakes hunt to some extent at least, at night as well as by day.

It is possible that the above notes refer to more than one species of *Natrix*, but it is very evident that *sipedon* is the common species in the region.

Clanophis kirtlandi (Kenn.), Kirtland's Snake. One was found in a pasture near the Normal School, under a board on the ground, August 24, 1912.

Opheodrys aestivus (Linn.) Green Snake. Several specimens of this beautiful species have been found in the region. Its grass-green color very effectively conceals it, so it is likely that more of them are present than our few records show.

At one time a Green Snake was seen climbing up the trunk of an oak, which it appeared to be doing with difficulty and was depending much upon bark projections and short twigs.

Bascanion constrictor (Linn.), Blue Racer. Apparently scarce in the region. Only one has been taken, but another was at one time seen about the tops of the bushes in a patch in an open ravine. Garman ('92) records it as throughout the state. Some eggs of Blue Racer were brought to the writer, that had been ploughed up on the farm of Grover Millage in Coles County, Illinois, about September 22, 1917. Three of the eggs hatched soon after they were collected.

Lampropeltis doliiatus Linn. Milk Snake. A few very small examples of the species have been taken about Charleston to the writer's knowledge. Garman, ('92) considers it as moderately common throughout the state.

Lampropeltis calligaster Harlan. King Snake. One of the more common snakes of the region. A number have been brought to the laboratory, including some large ones, between two and three feet long. Garman ('92) says it occurs on prairies throughout the state and is not very common.

Thamnophis radix Baird and Girard, Prairie Garter Snake. Two specimens of this garter snake were found in a ploughed field on April 15, 1912. Garman, ('92), says that it occurs in all parts of the state but is more common north.

Thamnophis sirtalis (Linn.), Common Garter Snake. Quite often found, but it is not abundant in the region. One was found that had swallowed a large frog, *Rana pipiens*, (see infra).

Crotalus horridus Linn., Timber Rattlesnake. Scarce and apparently local in distribution in the Charleston region. Four have been taken in the last thirteen years and brought to the

laboratory. All were from a farm or two along the Embarrass River about three miles east of Charleston. Others have been reported from this restricted area and none from any other about Charleston. One of these snakes, about 3 feet long and with eleven rattles, has been kept alive for nearly a year and without food, which it refuses. It will kill mice and other small living animals but will not swallow them. It drinks water readily.

All of the four snakes were large; one was 44.5 inches long. Garman ('92), says that it is common throughout the state in hilly forest regions, but it is being exterminated rapidly.

Platypeltis spinifera (LeSueur), Soft-shelled Turtle. Quite common in the larger creeks near Charleston, and a few have been seen in the Embarrass River. Garman ('92), records it as throughout the state.

Chelydra serpentina (Linn.), Snapping Turtle. This is one of the most common reptiles in the region, where it is common about streams and the larger, more permanent ponds. In late spring examples are frequently found wandering remote from water, probably looking for places to lay eggs or looking for bodies of water after the process is completed. A farmer, whose land is cut up by a small stream system where these turtles occur, says that he sometimes plows up eggs that seem, from his description, to be of this species. They are found in the lowest portions of fields.

Chrysemys (species?), Painted Turtle. A few have been seen about drainage ditches on prairies, but none have been taken.

Emydoidea blandingii (Holb.) Blandings Turtle. A fine large specimen was taken in a prairie pond on April 15, 1914, some four miles north of Charleston. The specimen was lost; nevertheless, there can be no doubt as to its identity. Garman ('92) says of the species: "Throughout the state, commoner north; formerly abundant on the prairies, but rare at present."

Terrapene carolina (Linn.) Box Turtle. Sometimes found in woods, especially in wooded ravines. In June, of 1912, three were found together on the bank of a small stream; more often they are solitary.

SUMMARY AND CONCLUSIONS

Thirteen species of amphibians and eighteen species of reptiles have been found by the writer and his students in the Charleston region. Since no special effort has been made to study these forms, it is very evident that other species also belong to the fauna.

The region is not now a favorable one for amphibians and reptiles, which is due in a large measure to the extensive cultivation of land and to the ephemeral character of so many bodies of water in which amphibian eggs are laid. Only three species of amphibians are abundant; these are the Common Toad, Cricket Frog and Bull-frog. There is no really abundant reptile. Poisonous snakes are very scarce, and the only species found recently to the writer's knowledge is the Timber Rattlesnake.

Reptiles and amphibians undoubtedly existed in large numbers in former times about Charleston, before the large prairie ponds were drained. Reports by old residents of the many rattlesnakes that lived about these places are common. These were probably Prairie Rattlers, *Sistrurus catenatus*.

Amphibians and reptiles appear to be of little economic importance in the region, but this may be due to our lack of knowledge of their food and habits and ecology. Profitable studies of this kind might be made on the toad and its enemy, the Hog-nosed Snake and the two well-known bird destroyers, the Pilot Snake and the Blue Racer, and the amount of destruction to fish done by the Watersnake. The Bull Frog is used to some extent as an object of sport and food.

Efforts should be made to prevent undue decrease in numbers of our amphibians and harmless reptiles, if for no other reason than their biological interest and their adaptability for zoology studies. They are easily collected, preserved as specimens, or kept alive in aquaria or terraria; and they lend themselves readily for life-history studies.

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