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AN ANNOTATED LIST OF THE AMPHIBIANS AND
REPTILES OF RILEY COUNTY, KANSAS

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During the years 1923 to 1927, while the writer was connected with the Kansas State Agricultural College at Manhattan, opportunity was taken to collect and study the amphibians and reptiles of the vicinity.

Riley County, diversified by prairies and sand dunes, hills and valleys, flood plains and river bluffs, is favorable to a rich fauna. The city of Manhattan is surrounded by picturesque hills with numerous limestone ledges and loose rocks. The valleys and lower hillsides bear trees and shrubs, chiefly deciduous, and the upper hillsides and hilltops are covered with prairie grass. South of Manhattan flows the Kansas River, along which are many bordering sand dunes. To the west of the city is Wildcat Creek, a small, winding, wooded stream. The hills along the portion of Wildcat Creek near the city have been more thoroughly studied because of their proximity to the Kansas State Agricultural College. A more complete description of the region has been given by Dice in *Ecology* (1925, pp. 40-53).

In addition to his own collecting the writer has made use of the Minna E. Jewell collection and the collection of the Museum of the Kansas State Agricultural College. For these opportunities and for other favors he is indebted to Dr. Minna E. Jewell and to Dr. Robert K. Nabours. Dr. Leonhard Stejneger and Doris M. Cochran, of the United States National Museum, and Dr. Frank N. Blanchard, of the University of Michigan, have kindly assisted by the identification of specimens referred to them.

Nearly all of the species listed are represented by specimens deposited in the Museum of Zoology of the University of Michigan and the Minna E. Jewell collection cited above. Common names in local use have been given so far as known. Earlier records from Riley County have been given by Cragin (1881, 1885), Branson (1904), Blanchard (1921), and Dice (1925), and their records have been cited below when not verified by the collections studied.

LIST OF SPECIES

Ambystoma tigrinum (Green).—The waterdogs of Riley County have rather distinct yellow barring on their sides, in contrast to specimens from the Chicago area, which, according to K. P. Schmidt, have the yellow more generally confined to circular and oblong lateral spots. Many larvae have been taken in Riley County, usually from still water in ponds and pools. Several large adults have been brought to the Kansas State Agricultural College from Manhattan sidewalks and pavement. On February 12, 1927, seventeen gilled larvae were taken with a dip net from a hole in the ice of Lost Lake, south of Manhattan. These later transformed in the laboratory, the solid dark color of their sides being broken by the gradual appearance of the lateral yellow bars. During this time the gills atrophied and finally disappeared.

On March 7, 1927, after the ice had melted from Lost Lake, many eggs in cleavage stages were observed on large, bushy tumble weeds (Russian thistles) which had blown into the water. In most instances the eggs were deposited singly, but

often several were found together. In one case a row of 25 black eggs was observed, all of them firmly attached to a stem. They were surrounded by their gelatinous coverings, and appeared to be fused into a continuous mass. These and other eggs were removed to the laboratory and began to hatch on March 14.

Bufo woodhousii Girard.—This toad, the only one known in the county, is often found in gardens, orchards, and fields, and many are seen along highways after a rain.

Acris gryllus (LeConte).—The cricket-frog is very common in aquatic habitats of varying permanence. It is often observed about springs and roadside ditches, and is almost always found along the shore line of ponds and streams.

Hyla versicolor versicolor (LeConte).—One specimen of the tree-frog was collected near the foot of a tree in the Wildcat region in May, 1925. This subspecies is not often seen in collections from Riley County.

Rana catesbeiana Shaw.—The bullfrog is common in permanent streams and ponds.

Rana pipiens Schreber.—The grass-frog is very common about streams and ponds.

Gastrophryne carolinensis (Holbrook).—The narrow-mouthed toad is found under flat rocks on wooded hillsides, where it selects the damper situations. It is taken in large numbers in spring.

Crotaphytus collaris collaris (Say).—The collared lizard occurs about rock ledges and stone quarries, and is the most common lizard in the county. The interorbital scutellation of these Riley County lizards is highly variable. Several specimens have been found which present two complete rows of interorbitals, and others show one, two, or three single scales connecting the orbital areas. In one case a single interorbital was found to be partly divided from the sides.

Phrynosoma cornutum (Harlan).—The horned toad is sometimes taken in small numbers under flat rocks, or near them, and several have been seen in the sand dunes along the Kansas River.

Ophisaurus ventralis (Linné).—The glass snake is taken only occasionally. All specimens examined (about twenty) are brownish in color with the upper surface sometimes flecked with light spots.

Cnemidophorus sexlineatus (Linné).—This species is called the green lizard by people of Riley County. It has been seen in the sand dunes along the Kansas River, and has been taken in small numbers under flat, hilltop rocks at various points.

Leiopisma laterale (Say).—The ground-lizard has not been collected in large numbers, due perhaps to its secretive habits. It is generally found in rocky places near woods.

Eumeces obsoletus (Baird and Girard).—The common gray skink is easily taken in the spring. It inhabits open rocky hill-sides and is most often found under large flat rocks. The writer has been unable to distinguish any difference in the habitats of this species and of *E. guttulatus*.

Eumeces guttulatus (Hallowell).—Numerous specimens have been found which show the characters specified in the original description of *E. guttulatus*. These are all small, and are connected by intergrading forms with other small specimens, obviously the young of *E. obsoletus*. For this reason the writer believes that *E. guttulatus* may be the young of *E. obsoletus*, and is at the present time examining series of the two forms to determine their true relationships.

Carphophis amoena vermis (Kennicott).—The worm-snake is very abundant in damp, shaded, rocky places. It is sensitive to sunlight and seeks shade. One male has the following measurements and scalation: Ventrals, 135; caudals, 38; labials, 5/6; total length, 275 mm.; tail length, 45 mm.

Diadophis punctatus arnyi (Kennicott).—The ring-neck snakes are usually abundant where they occur. Eleven specimens were taken on April 25, 1925, under three flat rocks within a few feet of each other. A female from the Wildcat region has the following scutellation and measurements: Ventrals, 170; caudals, 41; labials, 7/8; total length, 311 mm.; tail length, 52 mm.

A series of 30 specimens of *D. punctatus arnyi* from Manhattan has been given to Dr. Frank N. Blanchard, of the Uni-

versity of Michigan, and they will be discussed by him in his forthcoming revision of the group.

Branson (1904) reported two specimens of *D. regalis* from Riley County. In his synonymy of that species he listed *D. regalis arnyi*, which is very probably synonymous with *D. punctatus arnyi*. Blanchard (1925) does not recognize any subspecies of *D. regalis* from Kansas and there are none in the Kansas collections under consideration here.

Heterodon contortrix (Linné).—The hog-nosed snake has not been taken frequently near Manhattan. One specimen from Riley County is in the Museum of the Kansas State Agricultural College, and another has been deposited in the Museum of Zoology of the University of Michigan. Though the related species, *H. nasicus*, is supposed to range through the area, the writer is unable to give a report of its occurrence there.

Coluber constrictor flaviventris (Say).—Many specimens of the blue racer are seen every year, especially in grassy valleys and on thinly wooded hillsides. On April 27, 1927, one specimen was chased up a cedar tree and taken from its branches. Adults vary from light to dark bluish green dorsally, and are usually yellowish beneath. Young specimens are blotched, with only the caudal part showing the solid color of the adult. An immature female has the following measurements and scalation: Ventrals, 171; caudals, 86; labials, 7/8; total length, 462 mm.; tail length, 107 mm.

Elaphe laeta (Baird and Girard).—This species is commonly found about Manhattan. It is a native of the prairie and usually occurs on the hillsides or hilltops. One female has yielded the following data: Ventrals, 205; caudals, 70; labials, 8/11; total length, 406 mm.; tail length, 69 mm.; dorsal saddles, 66.

Elaphe obsoleta obsoleta (Say).—The black-snake is not abundant. A large black specimen was found in a valley of the Wildcat region on April 27, 1927. A young male with 35 brownish dorsal saddles and a blotched pattern has the following measurements and scutellation: Ventrals, 223;

caudals, 84; labials, 8/11; total length, 393 mm.; tail length, 67 mm.

Pituophis sayi (Schlegel).—The well known bull-snake is often found dead on the highways. It is common in cultivated areas. A female specimen has the following measurements and scalation: Ventrals, 228; caudals, 51; labials, 9/12; total length, 1,044 mm.; tail length, 128 mm.

Lampropeltis calligaster (Harlan).—This snake is a native of the prairie. It is not very commonly seen; yet, due to its widespread distribution in the county, it is a conspicuous member of the local fauna. One female has the following scutellation and measurements: Ventrals, 200; caudals, 46; labials, 7/9; total length, 290 mm.; tail length, 36 mm.

Lampropeltis getulus holbrooki (Stejneger).—Two salt and pepper snakes from Riley County are in the Museum of the Kansas State Agricultural College. The only specimen taken recently was found on May 5, 1927. It was in a tunnel beneath a large limestone rock two miles south of Manhattan.

Lampropeltis triangulum gentilis (Baird and Girard).—Two specimens of this subspecies are now in the Museum of the Kansas State Agricultural College. A young specimen with 36 black dorsal saddles has its head well covered with black. Blanchard (1921) listed four specimens from Riley County.

Lampropeltis triangulum sypila (Cope).—This subspecies is more common than the preceding one. A specimen was taken under a flat rock on the open crest of a Wildcat hill. Three specimens from Riley County are in the Museum of the Kansas State Agricultural College. The dorsal surface of the head of these specimens is black posteriorly and blotched behind the salmon colored rostral plate. A male collected by H. H. Schwardt at Manhattan on July 3, 1924, has the following measurements and scutellation: Ventrals, 210; caudals, 53; labials, 8/9; total length, 680 mm.; tail length, 95 mm.; dorsal blotches, 32.

Natrix grahamii (Baird and Girard).—Mr. Howard K. Gloyd, of the Kansas State Agricultural College, has kindly

furnished the report of this species. This is based upon a female collected by him at Manhattan in May, 1925. The specimen is in the Museum of Ottawa University. Its measurements and scutellation follow: Ventrals, 166; caudals, 62; labials, 7/10; total length, 748 mm.; tail length, 131 mm.

Natrix sipedon sipedon (Linné).—Some of the people of Riley County call this snake the water-moccasin and believe that it is poisonous. It is often seen in Wildcat Creek and about its shores. Specimens have been found under flat rocks near the water. A dozen young were collected at one time beside a shallow Wildcat riffle in 1925. One of these, a female, has the following measurements and scutellation: Ventrals, 142; caudals, 64; labials, 8/10; total length, 223 mm.; tail length, 54 mm.

Storeria dekayi (Holbrook).—A large female of this rather common species was taken under an old rotted log near the junction of the Blue and Kansas rivers on April 23, 1927. Its measurements and scutellation follow: Ventrals, 134; caudals, 52; labials, 7/7; total length, 214 mm.; tail length, 17 mm.

Tropidoclonion lineatum (Hallowell).—These little ribbon snakes are often found under flat rocks. One female has the following measurements and scutellation: Ventrals, 137; caudals, 35; labials, 5/6; total length, 133 mm.; tail length, 17 mm.

Thamnophis radix radix (Baird and Girard).—A specimen of this subspecies, from Manhattan, is in the Museum of the Kansas State Agricultural College. Branson (1904) examined a specimen from Riley County.

Thamnophis sauritus proximus (Say).—This species is represented in the Museum of the Kansas State Agricultural College by one specimen taken at Manhattan, in 1888, by S. C. Mason.

Thamnophis sirtalis parietalis (Say).—The red-sided garter-snake is very common about Manhattan. A specimen has been taken from the city pavement, and several have been found under rocks in the Wildcat region. A male collected on October 21, 1925, has the following measurements and scutellation:

Ventrals, 165; caudals, 82; labials, 7/10; total length, 424 mm.; tail length, 100 mm.

Tantilla gracilis Baird and Girard.—These sand-snakes are often found under hillside rocks in loose soil, and are very abundant in the spring months. A male has the following measurements and scalation: Ventrals, 123; caudals, 48; labials, 6/6; total length, 194 mm.; tail length, 45 mm.

Branson (1904) reported *T. nigriceps* from Riley County. Specimens of the form are now absent from the Museum of the Kansas State Agricultural College and from recent collections from the area.

Agkistrodon mokasen Beauvois.—The poisonous copperhead snake is much more abundant throughout the county than the people suspect, largely due to its habit of staying in concealment beneath a shaded rock. Specimens have been taken among the rocks and vegetation beside riffles of Wildeat Creek. They have also been found under flat, hillside rocks and in grassy, wooded bottom land. A specimen collected from a Wildeat hillside on April 27, 1927, has the following measurements and arrangement of the scales: Ventrals, 148; caudals, 46; labials, 8/9; total length, 593 mm.; tail length, 95 mm.

Crotalus confluentus Say.—Branson (1904) reported the prairie rattlesnake from Riley County. There is also a specimen in the Museum of the Kansas State Agricultural College, which was collected near Manhattan by Prof. E. A. Popenoe.

Crotalus horridus Linné.—Branson (1904) listed the banded rattlesnake from Riley County. There is a specimen in the Museum of the Kansas State Agricultural College, which was collected at Manhattan by Prof. E. A. Popenoe in June, 1894, and another taken by R. B. Smith on August 11, 1897.

Chelydra serpentina (Linné).—The snapping turtle is the most common representative of its order in Riley County. Specimens may be taken from muddy pools of Wildeat Creek with a seine.

Terrapene ornata (Agassiz).—One of these land turtles was observed on Manhattan pavement on May 15, 1927. Several specimens have been taken from the Wildeat hills in recent years.

Graptemys pseudogeographica pseudogeographica (Gray).—One representative of this subspecies is in the Museum of the Kansas State Agricultural College. It was collected near Manhattan by E. P. Smith.

Chrysemys bellii bellii (Gray).—A painted turtle was collected from Wildcat Creek in 1926. Its carapace is 50 mm. long and its head width is 10 mm.

Amyda mutica (Le Sueur).—A specimen of this species, collected near Manhattan by V. Sandt in 1894, is in the Museum of the Kansas State Agricultural College.

Amyda spinifera (Le Sueur).—This soft-shelled turtle has been taken oftener in Kansas streams than has the species above. A small example was collected by A. J. Cheatum at Pillsbury Crossing, southeast of Manhattan, on September 20, 1926. Another small specimen was taken from Wildcat Creek on April 27, 1927. Its carapace is 37 mm. long, and its head width is 9 mm. In addition to these there is a specimen in the Museum of the Kansas State Agricultural College from near Manhattan.

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