

An Annotated List of the Herpetofauna of the F. B. and Rena G. Ross Natural History Reservation

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ABSTRACT

A two-year study of the herpetofauna of the F. B. and Rena G. Ross Natural History Reservation was conducted. A list of the herpetofauna of the Reservation was prepared, and notes were made on the natural histories of these animals. Field observations by the author, as well as recorded field observations in the Reservation files, were used to compile the herpetofauna list. In all, 10 amphibian species and 27 reptilian species were found to occur, consisting of 2 salamanders, 8 frogs, 4 turtles, 6 lizards, and 17 snakes.

INTRODUCTION

The 200 acres comprising the state-owned portion of the Ross Natural History Reservation lie at the eastern edge of the Flint Hills in west-central Lyon County, Kansas (Fig. 1), largely in Sec. 8, T.18S., R.10E. The area consists of native grassland and abandoned cropland. The areas of native grass were grazed but never plowed, and these tracts retain a vegetative cover composed primarily of native grasses and forbs (Spencer, 1981). Abandoned cropland areas have been subjected to cultivation at some time in the past. Normal succession has occurred in some of these areas, and non-native, cool season grasses were seeded in others (Fig. 2).

Previously, no comprehensive work on the amphibians and reptiles of this area had been undertaken. Although Breukelman et al. (1961) and Clarke (in Spencer, 1981) had prepared lists of amphibians and reptiles possibly occurring on the Reservation, no herpetological survey had been attempted, and, as Spencer (1981) noted, this was a major weakness in the Reservation research program.

In May, 1984, an initial study of the herpetofauna of the Ross Natural History Reservation (RNHR) was begun. The objectives of this study were to prepare as complete a list as possible of the herpetofauna of the Reser-

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vation and to record any information on the natural histories of these animals.

ANNOTATED LIST OF SPECIES

The survey list of species occurring was compiled from field observations by the author and from recorded field observations in the Reservation files. Field observations were made following the "Procedure for Making and Recording Field Observations on the Ross Natural History Reservation" (Spencer, 1981). Observational notes were also made on unofficial jaunts around the Reservation.

Relative abundance of each species is indicated by the terms defined below, following Clarke et al. (1958). It should be understood that these terms apply only within the limits of the habitat of the species and during the season when individuals are expected to be present.

Abundant—Individuals can be expected to be found in large numbers on almost any visit to the habitat.

Common—Individuals can be expected to be found regularly and in small numbers on visits to the habitat.

Occasional—Individuals can be expected to be found irregularly; on most visits to the habitat, specimens will not be observed.

Scarce—Only a few individuals have been recorded. It is assumed, however, that RNHR is within the natural range of the species.

The arrangement, as well as the scientific and common names, follows Collins (1990). Numbers (e.g., A-56) refer to the ten-acre lot numbers (Fig. 1).

CAUDATA—SALAMANDERS

Ambystoma texanum (Matthes), Smallmouth Salamander. Occasional. This salamander may be found in moist areas beneath logs or rocks, as well as in deserted crayfish holes (Smith, 1978). Smallmouth Salamander larvae were collected from Gladfelter Pond, the small pond in A-58, and the "fish behavior" ponds in A-56. Adults are not usually encountered, due to the fact that this salamander spends most of the summer and winter months beneath the ground (Collins, 1982).

Ambystoma tigrinum mavortium Baird, Barred Tiger Salamander. Common. Adult Barred Tiger Salamanders are found in a wide variety of habitats (Johnson, 1987). However, like Smallmouth Salamanders, these salamanders spend much of the summer and winter months beneath the ground to avoid temperature and moisture extremes (Collins, 1982). Barred Tiger Salamander larvae were observed in every pond at RNHR. Individuals were found under trash barrels and under rotting logs as well. The author observed

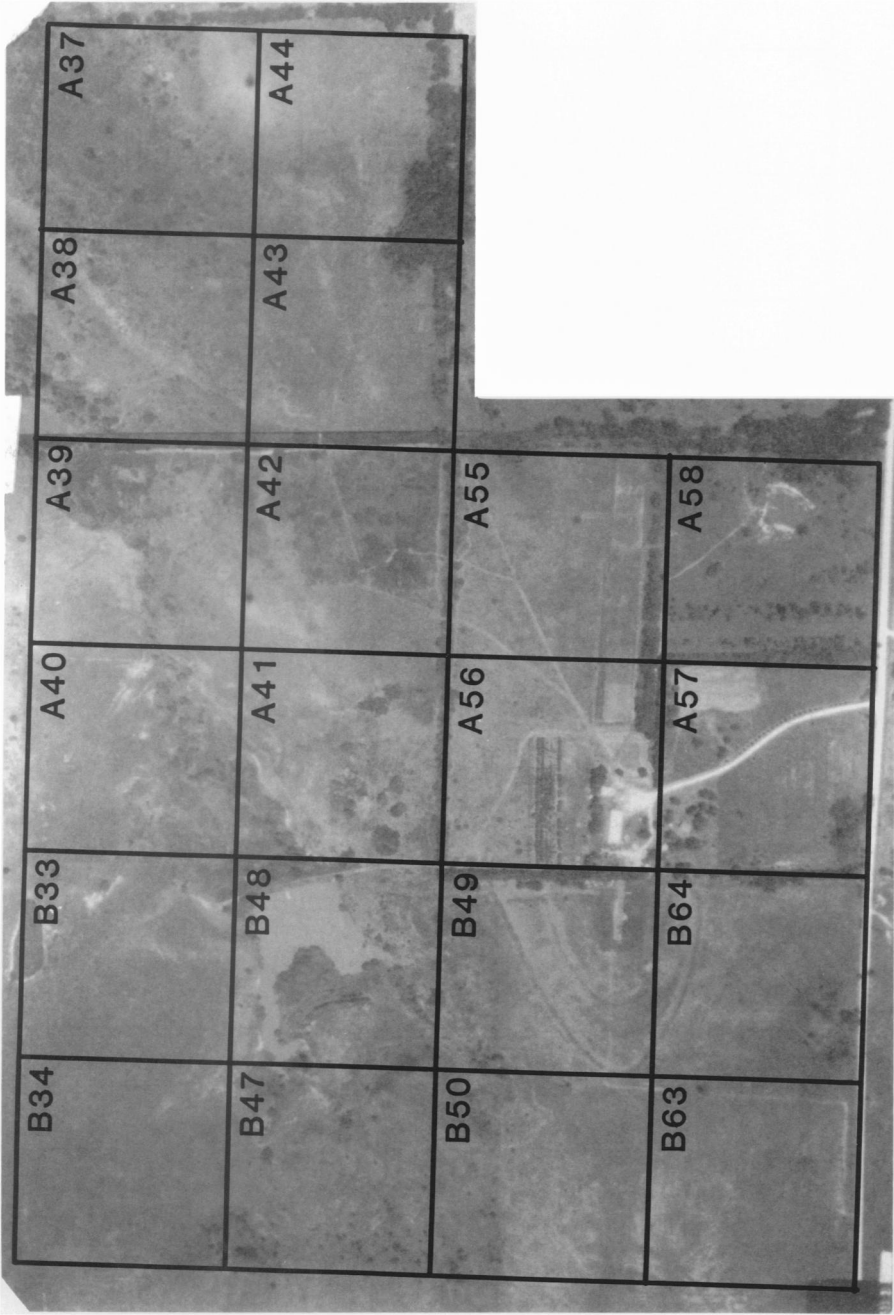


Fig. 1. Map of Ross Natural History Reservation showing the 200-acre state-owned tract divided into 10-acre lots (after Spencer, 1981).

R. 10 E.

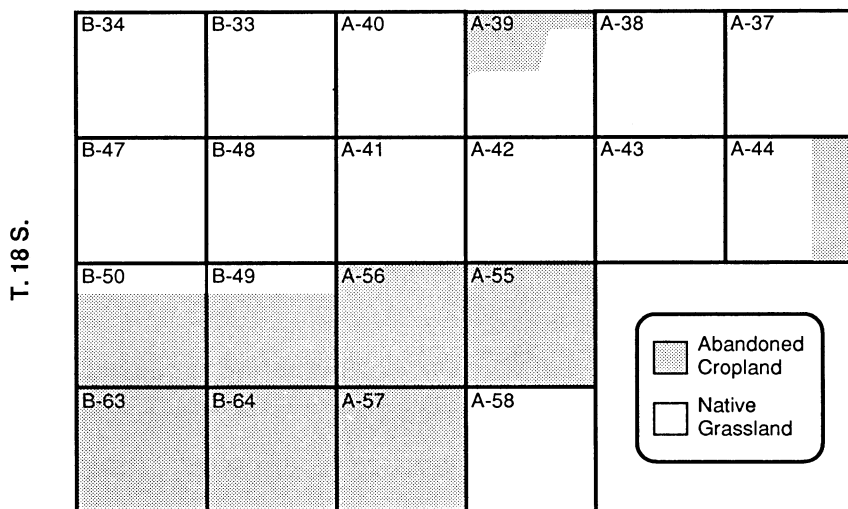


Fig. 2. Map of Ross Natural History Reservation showing areas of native grass and former cropland. SW/4, and NW/4 of SE/4 of Sec. 8, T. 18 S., R. 10 E.

neotenic larvae of this salamander in the summers of 1984 and 1985 in the small pond in A-58.

SALIENTIA—FROGS AND TOADS

Acris crepitans blanchardi Harper, Blanchard's Cricket Frog. Abundant. The preferred habitats of this species are muddy edges of small, shallow streams and ponds (Burkett, 1969). These frogs wandered quite far from water, and were found in areas of seemingly unsuitable habitat. Male Cricket Frogs began vocalizing from mid-March to April, and continued throughout the summer. All of the streams and ponds at RNHR provided suitable habitat for this frog.

Bufo a. americanus Holbrook, Eastern American Toad. Scarce. According to Clarke (1958), the preferred habitat of this toad appears to be oak-walnut hillside forests and open cultivated fields. Blair (1941) reported hybridization between the American Toad and Woodhouse's Toad, producing offspring capable of reproducing. Hybridization most likely occurs when unfavorable temperatures force these two species to utilize the same breeding location at the same time. Normally the American Toad breeds much earlier in the spring and at colder temperatures than Woodhouse's Toad, but unusually warm springs may encourage hybridization. The American Toad is found in both Lyon and Chase counties, but only one record exists for RNHR.

Bufo w. woodhousii Girard, Woodhouse's Toad. Abundant. Woodhouse's Toad is undoubtedly the most common amphibian of the Reservation. It frequents a wide variety of habitats, but seems to prefer sandy areas (Stebbins, 1985). Eighteen toads were marked in the summer of 1984, all in the vicinity of the Reservation Headquarters in A-56. These toads remained in this area from mid-May to August, coming out at night to hunt for insects.

Gastrophryne olivacea (Hallowell), Great Plains Narrowmouth Toad. Occasional. This toad is tolerant of a wide variety of habitats, including cultivated fields (Fitch, 1956a), but prefers flat, limestone rocks which have good drainage, loose soil, and few twigs or leaves (Freiburg, 1951). At RNHR, this toad was seldom seen, but often heard. One of these toads was found in the heart of the prairie community in A-42 on 21 May, 1984.

Hyla chrysoscelis-Hyla versicolor complex. *Hyla chrysoscelis* Cope, Cope's Gray Treefrog; *Hyla versicolor* LeConte, Gray Treefrog. Occasional. These two sibling species are identical in appearance, but they do not interbreed (Johnson, 1966). According to Fitch (1958), Gray Treefrogs inhabit trees and low shrubs of woodland and woodland edge areas. They may be observed on the ground at night en route to a breeding pond or pool. During the day, they take refuge beneath or on rough tree bark where they are extremely well camouflaged (Johnson, 1987). These frogs appeared to be very tolerant of high temperatures, and had an affinity for hot, humid summer nights. At RNHR in 1984, males were observed vocalizing on three occasions directly before the onset of a thunderstorm, sometimes in small trees withstanding 35-40 mph winds. That same summer, sixteen Gray Treefrogs were marked in the vicinity of the "fish behavior" ponds in A-56.

Pseudacris triseriata (Wied-Neuwied), Western Chorus Frog. Abundant. This species was active earlier in the spring than any other frog or toad on the Reservation. It was found in a wide variety of habitats, and, during the breeding season, utilized any temporary or standing body of water. Western Chorus Frogs were seldom seen after the breeding season because of their ability to shelter in animal burrows, under logs or rocks, or in loose soil (Johnson, 1987). Clarke (1958) found this frog active at temperatures from 40-90°F. At RNHR, males were observed vocalizing with ice still on the pond surface.

Rana blairi (Mecham, Littlejohn, Oldham, Brown, & Brown), Plains Leopard Frog. Abundant. This frog is found in every aquatic situation, both permanent and temporary (Clarke et al., 1958). On RNHR it was found at water's edge even during the hot months of the summer. The Plains Leopard Frog tended to wander great distances from water, thus explaining its discovery in grassland communities. Many Plains Leopard Frogs often utilized the same body of water.

Rana catesbeiana Shaw, Bullfrog. Common. The Bullfrog prefers permanent, relatively deep bodies of water (Collins, 1982). It was the most

aquatic of the frogs at RNHR, spending most of its time in or very near the water. This species was much more solitary than *Rana blairi*, and was most often observed at Gladfelter Pond, or in the "fish behavior" ponds in A-56.

TESTUDINES—TURTLES

Chelydra s. serpentina (Linnaeus), Common Snapping Turtle. Common. This turtle shows almost no discernible habitat preference (Carr, 1952), although it may be found more often in water with a soft mud bottom, abundant pond edge vegetation, and numerous sunken logs and branches (Collins, 1982). Specimens at RNHR were recorded in all permanent and semi-permanent ponds, as well as creeks.

Chrysemys picta bellii (Gray), Western Painted Turtle. Common. Western Painted Turtles inhabit ponds, marshes, ditches, edges of lakes, and backwaters of streams where the water is shallow, the aquatic vegetation profuse, and the bottom soft and muddy (Conant and Collins, 1991). At RNHR, these turtles were observed basking on logs in the "fish behavior" ponds in A-56, and on the goose nesting sites in Gladfelter Pond. Contrary to Pope (1939) and Collins (1982), the author found this turtle active at night on several occasions in the summer of 1984.

Terrapene o. ornata (Agassiz), Ornate Box Turtle. Common. The Ornate Box Turtle is primarily a prairie turtle. After an intensive study of this turtle, Rose (1984) estimated a population of 845 box turtles on RNHR. He found the average home range of this turtle to be 5.4 acres, and estimated the population density to be 4.2 turtles per acre. As of 1987, 245 *T. o. ornata* had been marked on the Reservation.

Trachemys scripta elegans (Wied), Red-eared Slider. Occasional. This turtle tends towards more permanent bodies of water, but has been found in small, open, shallow prairie ponds (Carr, 1952). Although the Red-eared Slider may not be as common at the Reservation as the Western Painted Turtle, too few observations have been made for it. This lack of observations may be due to the similar appearance of *C. p. bellii* and *T. s. elegans* from a distance.

LACERTILIA—LIZARDS

Cnemidophorus sexlineatus viridis Lowe, Prairie Racerunner. Scarce. An inhabitant of dry, open country, this lizard is sometimes found in grassy areas among rocks (Clarke, 1965). The author has also found Prairie Racerunners in open woodland areas in Woodson County. Dryness seems more essential than any other habitat factor (Smith, 1946), possibly explaining its infrequency on the Reservation.

Crotaphytus c. collaris (Say), Eastern Collared Lizard. Occasional. This lizard is always associated with rocky regions, usually in open areas (Clarke, 1965). These rocky areas may be isolated, such as in a large, open, grassy

field (Webb, 1975). Adults are usually associated with massive limestone slabs, whereas juveniles are often found under much smaller rocks. Reservation populations seemed to fluctuate greatly from year to year. A stable population of these lizards was found just to the west of the university-owned 200 acres.

Eumeces fasciatus (Linnaeus), Five-lined Skink. Scarce. The status of this skink at RNHR is highly speculative. The five-lined skink is generally a woodland species, being found on hillsides and in lowlands, usually among leaf litter and under rocks and fallen logs (Webb, 1975). Suitable habitat for this species is sparse at best on the Reservation. Of the three records for this skink at RNHR, the descriptions of two strongly indicated misidentified skinks, one being a juvenile *E. obsoletus*, the other an adult *E. s. septentrionalis*. The third skink was impossible to identify based on the description given.

Eumeces obsoletus (Baird and Girard), Great Plains Skink. Common. This large skink is typically found on grassy prairie hillsides, utilizing rocks for protection (Clarke, 1965). It was often found in association with Eastern Collared Lizards, especially to the west of the university-owned 200 acres. However, some Great Plains Skinks were markedly urban, frequenting the rock walls and loose rocks in the headquarters area (A-56). On 24 March, 1984, a Great Plains Skink was observed slowly crawling out in the open in the headquarters area with air temperature not over 45°F (7.2°C).

Eumeces s. septentrionalis (Baird), Northern Prairie Skink. Occasional. This species inhabits open, grassy hillsides where small, flat rocks offer some shelter (Taylor, 1935). In Chase County, Clarke (1955) found this lizard only under flat rocks along ravines or streams with abundant rocky outcroppings and trees (although the skinks were not among the trees). This seemed to be the case in Lyon County as well. The Northern Prairie Skink is also an urbanite, often being found around the headquarters area (A-56).

Phrynosoma cornutum (Harlan), Texas Horned Lizard. Scarce. This lizard prefers dry, open country with sparse vegetation (Stebbins, 1985). Clarke et al. (1958) considered this lizard to be common in the southwest part of Lyon County, but suitable habitat on the Reservation is not abundant.

SERPENTES—SNAKES

Coluber constrictor flaviventris (Say), Eastern Yellowbelly Racer. Common. According to Fitch (1956b, 1963a), this snake may be found in open grassland, pasture and prairie areas during the summer months, and rocky wooded hillsides in spring and fall. Many of these snakes were found in and around the RNHR headquarters area, and they probably overwintered under the main building. The Eastern Yellowbelly Racer was observed as early as 17 February at the Reservation, which is one month earlier than the "first appearance" date provided by Wright and Wright (1957).

Diadophis punctatus arnyi Kennicott, Prairie Ringneck Snake. Scarce. This species tended to inhabit rocky hillsides in open woods. Suitable habitat was present on the Reservation, but these snakes were rarely recorded. Conant and Collins (1991) note that in some localities, members of this subspecies occur in large colonies, but may be rare or absent in others that seem to offer identical conditions for hiding and finding food.

Elaphe guttata emoryi (Baird and Girard), Great Plains Rat Snake. Common. This snake may occur in a variety of habitats, including rocky hillsides, open woods or along woodland edge, and along stream courses and river bottoms. Both Collins (1982) and Johnson (1987) have found Great Plains Rat Snakes associated with caves, and they are known to eat bats (Stebbins, 1985). At RNHR, this snake was often found around the headquarters building in A-56, and overwintered beneath it. The author observed one of these snakes escaping into a rock wall in A-56 on 6 June, 1984. The largest Great Plains Rat Snake found in the state (1343 mm) was taken by H. A. (Steve) Stephens at RNHR on 15 May, 1982 (Collins, 1983).

Elaphe o. obsoleta (Say), Black Rat Snake. Common. This snake generally inhabits forested areas, particularly the rocky hillsides of open woodlands (Fitch, 1963b). It has been known to frequent flat farmland areas (Conant and Collins, 1991) and is often associated with human habitation (Webb, 1975). At the Reservation, the Black Rat Snake was usually found near hedgerows or near the headquarters area (A-56). Some very large specimens (1700+ mm) were recorded.

Lampropeltis c. calligaster (Harlan), Prairie Kingsnake. Occasional. Fitch (1979) indicates that the Prairie Kingsnake inhabits a variety of areas, including rocky hillsides with open woods, prairie grassland, and sand prairies. This snake was not found as close to human habitation as the Great Plains Rat Snake or Black Rat Snake, but was found in the vicinity of the headquarters area (A-56). In May, 1984, the author observed a badger (*Taxidea taxus*) with a Prairie Kingsnake in its mouth alongside the road in A-57. Upon being startled, the badger dropped its dinner and ran into the brush. Presumably, the badger returned to claim its meal, as the dead snake could not be found an hour later.

Lampropeltis getula holbrooki Stejneger, Speckled Kingsnake. Scarce. This snake utilizes a greater variety of habitats than any other kingsnake (Conant and Collins, 1991), being found in fields and grasslands under piles of rock (Clarke et al., 1958) or in moist areas of open woodland, woodland edge or lowlands (Collins, 1982). During this study, the Speckled Kingsnake was not observed as frequently as in the past, perhaps having to do with its exploitation by the pet industry.

Lampropeltis triangulum (Lacépède), Milk Snake. Scarce. Milk Snakes frequent rocky hillsides, often in open woods or along woodland edge (Fitch and Fleet, 1970). The Milk Snake was not observed during this study at

RNHR, perhaps for the same reason as the Speckled Kingsnake. The Milk Snakes of the Reservation are intergrades between *L. t. gentilis* (Baird and Girard), the Central Plains Milk Snake, and *L. t. sypila* (Cope), the Red Milk Snake (Collins, 1982).

Nerodia erythrogaster transversa (Hallowell), Blotched Water Snake. Common. The Blotched Water Snake is the least aquatic of Kansas water snakes, wandering great distances from water during the summer (Collins, 1982). It is likely to be found wherever permanent or semi-permanent water occurs. The "fish behavior" ponds in A-56, as well as Gladfelter Pond, were favorite habitats of this snake at the Reservation. It was also recorded on the roads bordering RNHR.

Nerodia s. sipedon (Linnaeus), Northern Water Snake. Common. This species is found in almost any aquatic situation (Clarke et al., 1958). Like the Blotched Water Snake, the Northern Water Snake utilized the "fish behavior" ponds in A-56, as well as Gladfelter Pond and its drainage system. It was rarely found away from its aquatic habitat, however.

Pituophis catenifer sayi (Schlegel), Bullsnake. Occasional. This snake is at home on the grasslands as well as along woodland edge, wherever there is an abundance of rodents (Collins, 1982). Nevertheless, it was not recorded around the headquarters area (A-56) as frequently as one would expect. Fewer have been recorded in recent years for reasons unknown.

Regina grahamii Baird and Girard, Graham's Crayfish Snake. Scarce. This species is found in the vicinity of ponds and sluggish streams (Hall, 1969). The only specimens recorded from the Reservation were found near Gladfelter Pond.

Sistrurus catenatus tergeminus (Say), Western Massasauga. Occasional-Common. The Western Massasauga was the only venomous reptile found on the Reservation. It is found in a wide variety of habitats including open prairie, rocky prairie hillsides, and open wetlands (Collins, 1982). Some years these snakes were quite numerous and became an annoyance in the headquarters area (A-56). At RNHR, Western Massasaugas were encountered in the open prairie, in the vicinity of Gladfelter Pond, along creeks, and *inside* the headquarters building.

Storeria dekayi texana Trapido, Texas Brown Snake. Scarce. These secretive snakes inhabit wooded or shrubby areas where they may be found under rocks, logs, and other cover (Webb, 1975). Suitable habitat is scarce at the Reservation, but this snake was recorded in the vicinity of the headquarters area (A-56).

Tantilla gracilis Baird & Girard, Flathead Snake. Scarce. The Flathead Snake inhabits rocky hillsides of open prairie and woodland (Collins, 1982). Few specimens were found at RNHR, owing probably to lack of suitable habitat. Records exist only for A-41.

Thamnophis p. proximus (Say), Western Ribbon Snake. Occasional. The

Western Ribbon Snake is semi-aquatic, and remains close to streams, the edges of lakes or ponds (Conant and Collins, 1991). At the Reservation, it was found near the "fish behavior" ponds in A-56, near Gladfelter Pond, and around other small ponds.

Thamnophis sirtalis parietalis (Say), Red-sided Garter Snake. Common. Johnson (1987) refers to this species as "one of the most common and widely distributed species of snakes in North America." The subspecies is found in a wide variety of habitats, preferring areas with moderately moist vegetation (Collins, 1982). The Red-sided Garter Snake was found in virtually every section of the Reservation.

Tropidoclonion lineatum (Hallowell), Lined Snake. Occasional. The lined snake inhabits hillsides of open prairie and woodland edge (Collins, 1982), and, although it is secretive, has a tendency to be quite urban (Webb, 1975). It was found in varying locations on the Reservation, but was found in greater abundance to the west of the University-owned 200 acres.

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