FEATURE ARTICLES

A Survey of Reptiles and Amphibians at Montgomery County State Fishing Lake

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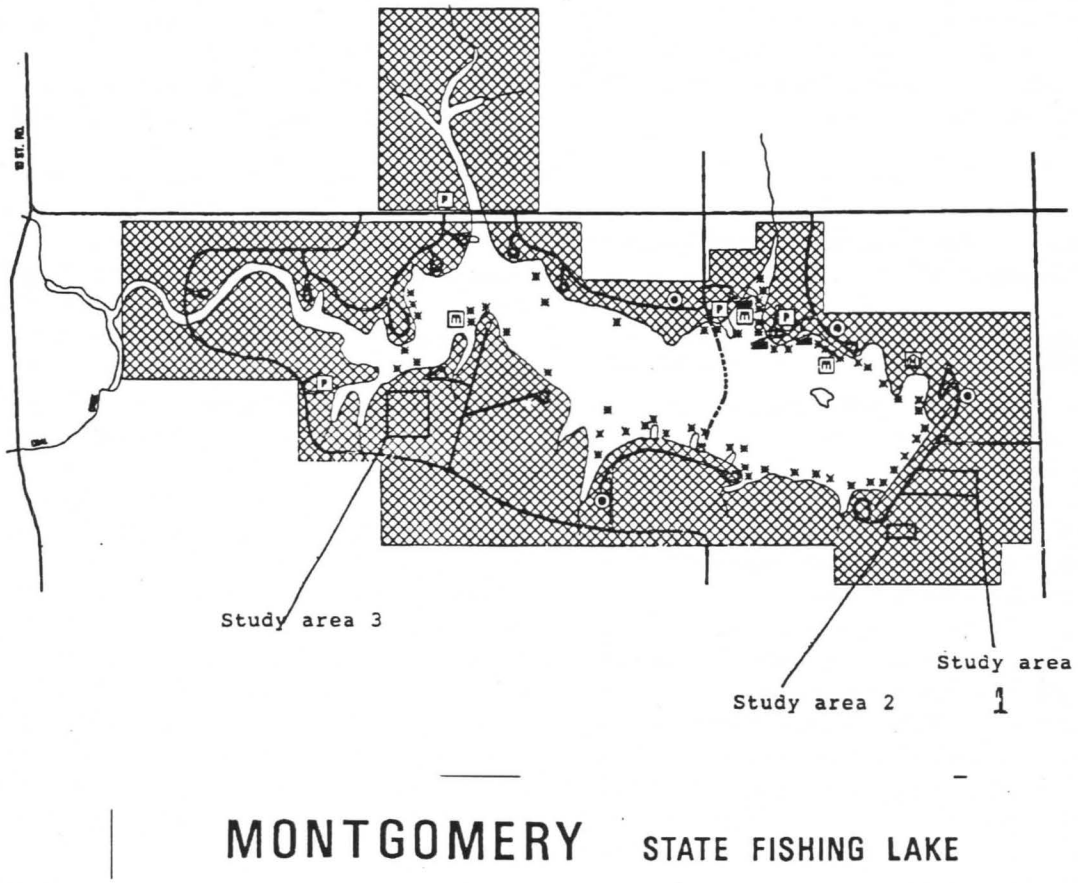
Montgomery County State Fishing Lake is a 42.5 hectare impoundment located 6.5 km south and 1.5 km east of Independence, Kansas. One hundred and twenty-one hectares of state-owned terrestrial habitat surrounds the lake. This management area is primarily woodlands with some pasture land. From 1990 to 1992, I surveyed the reptiles and amphibians in the management area, and compiled a herpetofaunal species list.

Materials and Methods

From May-September 1990, and April-September 1991, I spent four hours per day, two days per month surveying the entire management area. From March-May 1992, I restricted my collecting to three localities which represent the primary terrestrial habitat types in the management area.

Figure No. 1
Map of Study Areas



The first habitat type surveyed was a 134 m x 95 m woodland plot located on the east side of the lake, directly behind the dam (see Fig. 1 for location of study sites). Vegetation consists mainly of blackjack oak, red oak, white oak, American elm, and sycamore, and is 50 m from the lake. Creeks form the area's north and east boundaries. The second area studied was the spillway, a 73 m x 30 m grassy area located on the southeast side of the lake. Except for the driest times of the year, standing pools of water occur in this area. The third study site was a 95 m x 95 m tallgrass area located on the southwest side of the lake. There is no standing water bordering this area, but its north end is approximately 20 m from the lake. There are large sandstone outcroppings in various places throughout this area, and the main kinds of vegetation are Indian grass, buckbrush, and prickly pear cactus.

A total of 136 hours was spent surveying the management area during the two-year period. Of this total, 16 hours were spent in each of the three study areas.

Results

Twenty-nine species of amphibians and reptiles were found at the Montgomery County State Fishing Lake. The abundance of each species is noted below as: common (C) = high probability of being seen; occasional (O) = can occasionally be seen; and rare (R) = high probability of not being seen. Notation of each species' abundance is based on my experience of whether a person searching a full day is likely to encounter that species.

Table 1

Abundance of Amphibian and Reptile Species at Montgomery County State Fishing Lake.

Species	Abundance
American Toad (*Bufo americanus*)	C
Cricket Frog (*Acris crepitans*)	C
Gray Treefrog (*Hyla chrysoscelis-versicolor* complex)	R
Bullfrog (*Rana catesbiana*)	O
Southern Leopard Frog (*Rana utricularia*)	R
Plains Narrow Mouthed Frog (*Gastrophryne olivacea*)	C
Red-eared Slider (*Trachemys scripta elegans*)	C
Painted Turtle (*Chrysemys scripta*)	C
Three-toed Box Turtle (*Terrapene carolina*)	C
Ornate Box Turtle (*Terrapene ornata*)	R
Common Musk Turtle (*Sternotherus odoratus*)	O
Common Snapping Turtle (*Chelydra serpentina*)	C
Eastern Collared Lizard (*Crotaphytus collaris*)	R
Six-lined Racerunner (*Cnemidophorus sexlineatus*)	C
Five-lined Skink (*Eumeces fasciatus*)	C
Ground Skink (*Scincella lateralis*)	C
Rough Green Snake (*Opheodrys aestivus*)	R
Eastern Yellowbelly Racer (*Coluber constrictor*)	R
Black Rat Snake (*Elaphe obsoleta*)	C
Western Worm Snake (*Carphophis amoenus*)	C
Ringneck Snake (*Diadophis punctatus*)	O
Graham's Crayfish Snake (*Regina grahamii*)	R
Common Garter Snake (*Thamnophis sirtalis*)	O
Common Kingsnake (*Lampropeltis getula*)	R
Bullsnake (*Pituophis catenifer*)	R
Northern Water Snake (*Nerodia sipedon*)	C
Plainbelly Water Snake (*Nerodia erythrogaster*)	R
Brown Snake (*Storeria dekayi*)	O
Copperhead (*Agkistrodon contortrix*)	O

Discussion

Ninety-one species of amphibians and reptiles are known to occur in Kansas, and 53 of these have been found in Montgomery County (Collins 1993). Twenty-nine species were found in the Montgomery County State Lake area during my survey. The lake area offers several transition points, having an aquatic environment bordered by woodlands, which then turns to pasture land. This edge effect may account for the high diversity of herpetofauna occurring there.

The most common amphibian encountered during my study was *Acris crepitans*, which was found near the water's edge throughout the management area. *Bufo americanus* could be found frequently in the early spring, and occurred more frequently in the spillway area. During the course of my study, the spillway was a breeding site for *B. americanus*. *Gastrophryne olivacea* was found only on a rocky slope on the east side of the management area, but in this one area this species could be found frequently. *Rana catesbeiana* was seen occasionally along the various creeks entering the lake. Only two specimens of *Rana utricularia* and one specimen of *Hyla chrysoscelis-versicolor* complex were found during this study.

Trachemys scripta and *Chrysemys picta* are the two most common aquatic turtles in the area, and can be seen frequently basking along the lake shore and on partially submerged logs. Chelydra *serpentina* is most often seen along the lake edge or sometimes crossing a road. One specimen of *Sternotherus odoratus* was found in the woodland area. The only other specimen of *S. odoratus* observed during the survey was a shell found on the northern side of the lake.

Terrapene carolina is very common in the woodland

areas surrounding the lake. In the spring of 1992, while working in my woodland study site with Jim Arnwine's zoology class from Independence Community College, six specimens of *T. carolina* were found in 20 minutes. Terrapene *ornata* is seen around the lake only rarely, occurring along woodland edge habitat.

Of the four species of lizards found at the lake, *Eumeces fasciatus* and *Scincella lateralis* were the most common. They were found throughout the lake area. *Cnemidophorus sexlineatus* was common, but could be seen frequently only during the warmest days of summer, presumably due to their high optimum body temperature requirements(Collins 1993). In the fall of 1990, there were a large number of juvenile *C. sexlineatus* near the lake's outlet channel. One specimen of *Crotaphytus collaris* was observed near a rocky sandstone outcropping in the tallgrass area.

Thirteen species of snakes were observed in the management area, and seven of those were found frequently. Carphophis *amoenus, Diadophis punctatus, Storeria dekayi*, and *Agkistrodon contortrix* were observed in wooded areas near or beneath rocks and logs. *Nerodia sipedon* was found more often in the shallows along the spillway and rocky fishing berms. *Elaphe obsoleta* and *Thamnophis sirtalis* were common throughout the lake area.

Opheodrys aestivus, Coluber constrictor, Lampropeltis getula, Nerodia erythrogaster, and *Regina grahamii* were only observed once. One specimen of *Pituophis catenifer* was captured by Jim Arnwine's zoology class in the management area, and is included in my list.

On 9 September 1977, the Kansas Herpetological Society held a field trip at Montgomery County State Lake, and observed 27 species of amphibians and reptiles (Perry 1977). Although the KHS field trip also included areas outside of the management area, there are a couple of differences between my list and theirs. The KHS count included the Spiny Softshell (*Apalone spinifera*), Prairie Kingsnake (*Lampropeltis calligaster*), and the Western Ribbon Snake (*Thamnophis proximus*). These species were not found during my study. Other differences include five observations of *Crotaphytus collaris* and four observations of *Nerodia erythrogaster* in 1977. During my 1990-1992 study only one individual of each of these species was observed.

Pituophis catenifer and *Regina grahamii* were observed during my study, but not during the 1977 count. One Cottonmouth, *Agkistrodon piscivorus*, was captured by KHS members during the 1977 count in the nearby Verdigris River. This specimen was later found to have been intentionally released into the wild. The Cottonmouth's natural range in Kansas is in the Spring River drainage in Cherokee County (Collins 1993).

Compilation of this list is ongoing. During the summer of 1993, two more species were added to the list. A River Cooter (*Pseudemys concinna*) was observed basking on the north side of the lake, and one Diamondback Water Snake (*Nerodia rhombifer*) was captured below the lake's spillway.

Acknowledgments

I would like to thank Mr. James Arnwine and Dr. Don Schnurbusch of Independence Community College for their help and guidance with this independent study project at ICC; Mr. Ed Miller, nongame wildlife biologist of the Kansas Department of Wildlife and Parks, for additional information on the lake; and Dr. David Edds of Emporia State University for his suggestions and review of this paper. I would also like to thank Killian Lowry, Eric Rice, and James Sumner for their help in the field.

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