RESULTS OF THE 1989 HERPETOFAUNA SURVEY IN McHENRY COUNTY, ILLINOIS WITH NOTES ON OTHER VERTEBRATES

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INTRODUCTION

Seven sites owned or managed by the McHenry County Conservation District were surveyed for amphibians and reptiles during April, May and June of 1989. The intent of the study was to provide a list of amphibian and reptile species at each site, with an emphasis on determining the presence or absence of 10 species considered rare or uncommon in northeastern Illinois.

Information is also provided here on the relative abundance of each species at each site, and suggestions for management are made where applicable.

METHODS AND MATERIALS

Several methods were utilized to locate amphibians and reptiles. Traditional search and seize techniques were used where possible, especially when boards, logs, or other cover objects were present. These were turned, any animals underneath grabbed and identified, the object returned to its original position, and the animal released. Areas likely to be inhabited by amphibians and reptiles were walked through repeatedly, and any animals seen in the open were chased and captured.

Aquatic habitats were scanned with binoculars to locate basking turtles or frogs. A canoe was used to search one site (Elizabeth Lake). Dipnets and seines were used to sample amphibian larvae at several shallow wetlands. Four of the seven sites were visited at night, some of them several times, to listen for frog calls.

Drift fences were installed at four sites. Two sites were fenced for considerable periods of time, and two only briefly. The drift fences were constructed of aluminum window screen stapled to wooden stakes or galvanized flashing. The fence was buried a few centimeters in the ground. Funnel traps made from aluminum screen were placed at each end (see Karns, 1987, for a more detailed description of drift fence techniques). Traps were usually checked every other day, and any animals removed, measured, photographed, and released.

Quantitative data was recorded at all sites. Comments on relative abundance are based on these numbers, but it must be noted that estimates of abundance are subjective. Amphibians and reptiles exhibit variations in seasonal and annual abundance under normal conditions, and these variations may have been exaggerated by the 1988 drought as well as the relatively cool and dry conditions which occurred during much of the spring of 1989. Also, the term "common" can mean different things for different species. For example, garter snakes often are found in high densities and it is not unusual to collect 10 or more in a day. Others, such as milk snakes, are normally found in much lower densities, and it is exceptional to see 10 in an entire season at any one site. Obviously, different standards apply to different species.

In general, the term abundant is used to describe a species which was consistently found in large numbers. Common means that at least one or a few specimens were observed on most trips. Uncommon means that relatively few examples were seen during the survey. Rare means that only one or two were found. These categories are meant to apply only to the immediate vicinity of the study sites; a species which is described as rare in McHenry County may be quite common only 20 or 30 miles away. It may be necessary to modify some of these assessments after additional field work under different weather conditions or in different years.

Drift fence data is a bit more concise, but a sufficient sample is available from only two of the sites.

479 observations of amphibians or reptiles were made during this study. This includes actual captures as well as observations made from a distance and in a few cases calling frogs which could be identified as separate individuals. This number is conservative; only animals positively identified are included. Numerous turtles seen at a great distance and not identified were not counted. When large choruses of calling frogs were heard, only the nearby individuals which could be distinguished from the overall chorus, and their location pinpointed, were included. Most calling frogs were not counted.

The majority of the species likely to occur at each site were located, but it is impossible to find every type of animal within the short span of time allotted for this study. Previously unreported species are still being found on occasion at the Savanna River Plant in South Carolina, even after more than 25 years of intensive field work; others are seen as seldom as once a decade (Gibbons and Semlitsch, 1988).

SITE ACCOUNTS

Six of the seven sites surveyed are located in eastern McHenry County, One is in southwestern Lake County, Illinois. All are located on the west side of the Fox River. The three northern sites are associated with Nippersink Creek. Brief descriptions of the sites follow, with notes on methods utilized at each site, habitat types sampled, species found, relative abundance, and in a few cases suggestions for management of uncommon species.

McHENRY COUNTY CONSERVATION DISTRICT HERPETOFAUNA SURVEY -- 1989

SITE KEY

EL = Elizabeth Lake Marsh Nature Preserve
SG = Spring Grove Fen Nature Preserve
GP = Glacial Park
SR = Stickney Run Conservation Area
OH = Oakwood Hills Fen Nature Preserve
HG = Hickory Grove Conservation Area
LP = Lyons Prairie and Marsh Nature Preserve

RELATIVE ABUNDANCE KEY

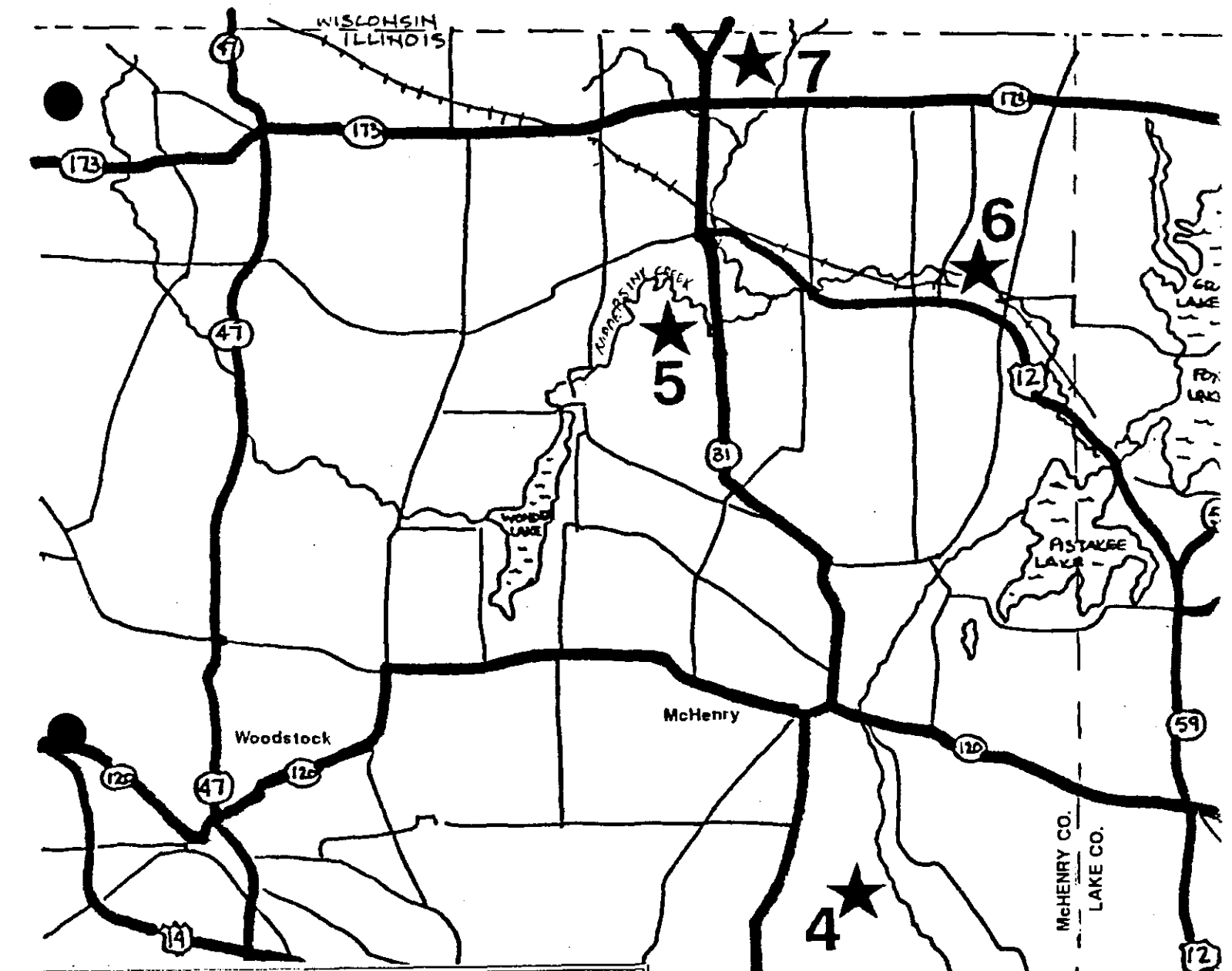
A = abundant
C = common
U = uncommon
R = rare

PREFERRED HABITAT KEY

pr = prairie or grassland
sa = savanna or forest-edge
sm = sedge meadow
aq = aquatic or semi-aquatic
ff = floodplain forest

SPECIES	HABITAT	EL	SG	GP	SR	OH	HG	LP
Ambystoma tigrinum	sa			C	C			
Bufo americanus	pr, sa, ff	C	U	C	C	U		U
Pseudacris triseriata	pr, sa	U		C	C			C
Hyla chrysoscelis	sa			U	U			
Rana catesbeiana	aq	C		?				C
Rana clamitans	aq	U	A	C	C	R	C	U
Rana pipiens	pr, sa, sm	C	U	C	U			
Chelydra serpentina	aq	C	U	C	C			
Emydoidea blandingii	aq, sm	U		U	U			U
Chrysemys picta	aq	A		C	A			C
Graptemys geographica	aq	R						
Apalone spinifer	aq	A		C				U
Opheodrys vernalis	pr, sm	A		C	U	U	?	
Elaphe vulpina	pr, sa			C	C		C	U
Lampropeltis triangulum	sa				C		A	C
Thamnophis sirtalis	sa	C	U	C	A	U	C	C
Storeria dekayi	sa	U		U	U	U		R
Storeria occipitomaculata	sa			U	C			
Nerodia sipedon	aq, sa	C	U					U

LOCATION OF HERPETOLOGICAL STUDY SITES



LEGEND

1 = Lyons Prairie & Marsh
Nature Preserve & Conservation Area
440 Acres

2 = Hickory Grove Conservation Area
225 Acres

3 = Oakwood Hills Fen Nature Preserve
15 Acres

4 = Stickney Run Conservation Area
321 Acres

5 = Glacial Park Conservation Area
1,201.5 Acres

6 = Spring Grove Fen Nature Preserve
32 Acres

7 = Elizabeth Lake Nature Preserve
179 Acres

ELIZABETH LAKE MARSH NATURE PRESERVE

This diverse preserve includes 9 different plant communities and is a moderately large site. Because of these factors and the relatively undisturbed nature of parts of the wetland, it harbors a healthy population of amphibians and reptiles.

Elizabeth Lake Marsh was visited on 12 separate occasions. Two drift fences were installed. The first was a 25 meter linear array along a raised man-made earthen berm in the southeast part of the preserve. On both sides of this fence sedge meadow is the dominant community; this grades into calcareous floating mat about 20-30 meters to the northwest, with an open water channel nearby. To the northeast and east, at a somewhat greater distance, is an upland area with a savanna-like community. The second fence was installed at the south central boundary of the preserve, on disturbed ground adjacent to a man-made channel and a section of sedge meadow. This array was only about 15 meters long, and was the less productive of the two. The drift fences were installed on 9 May, and were in place for 432 hours.

164 separate observations of amphibians or reptiles were made at Elizabeth Lake. Most of these were turtles and frogs, which could be observed from a distance with binoculars. Two or three species of snakes were probably relatively common, but were practically impossible to find or collect except in the drift fences.

A total of 14 species were confirmed (see Table 1). There are almost certainly a few others on the preserve, since no attempt was made to sample upland habitats. Two bottom-dwelling aquatic species, the mudpuppy and the musk turtle, also could have escaped notice. Both are known from the Fox River, and both often inhabit large lakes.

Two uncommon species were observed on the preserve. A single common map turtle, *Graptemys geographica*, was observed basking on a plank. The animal was photographed; this represents the first documentation of the species in McHenry County. The only previous reports from the area were from Fox Lake (Cahn, 1937) and Nippersink Lake (Garman, 1892). Map turtles reportedly occurred in Nippersink Lake and Lake Catharine as recently as the late 1960's (Ron Humbert, pers. comm.) but may have declined there because of heavy boat traffic. The species is common in the Kankakee River, and local populations have been reported from the Des Plaines River as far north as southeastern DuPage County (M. Redmer, pers. comm.), but there are no records from southeastern Wisconsin (Vogt, 1981). Map turtles are primarily inhabitants of large rivers and adjacent lakes.

Smooth green snakes, *Opheodrys vernalis*, are common at Elizabeth Lake. Usually considered a prairie species, they apparently reach their greatest abundance in sedge meadows in eastern McHenry County. Green snakes are important as indicators of habitat quality. They are insectivores, and tend to disappear from areas which have been sprayed with insecticides or herbicides (Minton, 1972). Chemical means of vegetation control should not be used at Elizabeth Lake unless careful consideration has been given to the potential impact on green snakes and other sensitive animals.

Several other rare vertebrates were observed at Elizabeth Lake during this survey. Perhaps the most important is a specimen of the pygmy shrew, *Sorex hoyi*, taken in one of the drift fences. The only other Illinois specimen of this mostly boreal species was found in Palatine in 1949 (Sanborn and Tibbetts, 1949). The Elizabeth Lake specimen has been deposited in the collection of the Field Museum of Natural History. Birds observed included sandhill cranes and black terns. Little work was done on fishes, but starhead topminnows, *Fundulus dispar*, were noted as quite common.

McHenry County Conservation District -- 1989 herpetofauna survey sites

ELIZABETH LAKE MARSH -- species list

SPECIES	DATES VISITED											
	April	May										June
	26	9	10	12	14	16	17	20	22	25	27	17
Bufo americanus	20				1		15	1				
Pseudacris triseriata		10			1							
Rana catesbeiana												2
Rana clamitans									1			
Rana pipiens	3											
Chelydra serpentina							1					
Emydoidea blandingii	1											
Chrysemys picta	4	10		10			20	15				25
Graptemys geographica				1								
Apalone spinifer		4		2		4	5					2
Opheodrys vernalis					2			1	1	2		
Thamnophis sirtalis			1			1		1	1		1	
Storeria dekayi						1		1				
Nerodia sipedon				1	1							

SPRING GROVE FEN NATURE PRESERVE

Only six species of amphibians and reptiles were confirmed at Spring Grove Fen. The low species diversity is probably due to the small size of the 32 acre preserve, and the relatively homogeneous plant community. Most of the site is sedge meadow. The cold water fen and stream areas are also a factor, since only a few amphibian species are tolerant of low water temperatures.

Despite persistent searching, there was no evidence of pickerel frogs. It is uncertain whether the pickerel frog reported by a member of the MCCD staff in 1988 was really of that species or was an aberrant leopard frog. Occasional specimens of the northern leopard frog have rectangular spots and must be captured to be positively identified. The presence of pickerel frogs cannot be conclusively ruled out at Spring Grove Fen, but the habitat is marginal and they should not be included on the species list unless a specimen can be either photographed or collected and deposited in a museum collection.

Most of the sightings were along the ditch which parallels the road at the northeast margin of the site. Green frogs, *Rana clamitans*, are quite common there, and leopard frogs, *Rana pipiens*, are seen occasionally. American toads, *Bufo americanus*, breed on private land just northwest of the preserve and almost certainly move across the boundary during the summer months. The three reptile species are probably general in occurrence on the site, and a few other species would likely be found by long term observation. At the very least, transient animals must occasionally utilize Nippersink Creek as a travel corridor and thus pass the preserve.

Drift fencing was limited in both amount and duration at this preserve. Only meadow jumping mice, *Zapus hudsonius*, were taken in the traps.

McHenry County Conservation District -- 1989 herpetofauna survey sites

SPRING GROVE FEN -- species list

SPECIES	DATES VISITED							
	April	May						
	25	3	9	16	20	22	25	27
Rana clamitans		*2*	*5*	*1*	*15*			*10*
Rana pipiens					*1*			*1*
Chelydra serpentina	*1*							
Thamnophis sirtalis				*1*				
Nerodia sipedon					*1*			

GLACIAL PARK CONSERVATION AREA

This was perhaps the best known of the seven survey sites at the start of the project. The district offices are located here, so numerous sightings have been reported over time by MCCD staff. The preserve is large and includes a mosaic of savanna-like and old field habitats interspersed with wetlands. The herpetofauna is relatively diverse. Some species are abundant and easily observed, making Glacial Park a potential location for more specialized studies in the future.

101 observations of amphibians and reptiles were made at this site. 15 species are now known from Glacial Park; 14 were seen during 1989. Another form, the plains garter snake, *Thamnophis radix*, was collected just to the north on the prairie path, and almost certainly enters the more open sections of the preserve.

The distribution of the two types of garter snakes could provide an interesting opportunity for future study. *Thamnophis sirtalis* is primarily a savanna or forest edge form, and *T. radix* originally lived on the open prairie. Although some overlap occurs between the two species, they are still for the most part segregated in most areas. If precise locations of all garter snake sightings at Glacial Park are recorded over the next several years, it would be possible to correlate modern distribution with presettlement vegetation. Data is incomplete from most sections of the preserve at this time, but initial records have been plotted on a map modified from the one made for the Government Land Office Survey about 1840 (Figure 1). This can be used as a starting point for future work. Data is especially needed from the northern part of Glacial Park, and from any extensive open areas.

The gray tree frogs at Glacial Park were positively identified as *Hyla chrysoscelis*. During 1989 they were heard calling only from the wetland complex northwest of the kames, and there only in small numbers, but in less dry years they may breed in other wetlands as well.

The marsh adjacent to the entrance road is well populated by breeding amphibians early in the spring. In 1989 large numbers of American toads, *Bufo americanus*, western chorus frogs, *Pseudacris triseriata*, and northern leopard frogs, *Rana pipiens*, were heard. Early drying of the marsh prevented later observations, but in a normal year breeding could extend well into May. Tiger salamanders, *Ambystoma tigrinum*, also inhabit the vicinity of the marsh.

A wetland just east of Rt. 31 and along the north bank of the Nippersink is well populated with green frogs, *Rana clamitans*, leopard frogs, *Rana pipiens*, chorus frogs, *Pseudacris triseriata*, and American toads, *Bufo americanus*. Snapping turtles, *Chelydra serpentina*, and painted turtles, *Chrysemys picta*, are known to move into this wetland from the adjacent river. Other types of turtles probably also are found there on occasion; Blanding's turtles, *Emydoidea blandingii*, and spiny softshell turtles, *Apalone spinifer*, have been taken nearby.

A number of fox snakes, *Elaphe vulpina*, and garter snakes, *Thamnophis sirtalis*, were observed on and around the patio at the district office. The cracks in the concrete may lead to a small hibernaculum under the patio; all sightings were relatively early in the year, with snakes dispersing away from the building as the season progressed.

The section of the prairie path just north of Harts Road is another productive spot for snakes. Most of the sightings here were of smooth green snakes, *Opheodrys vernalis*. Logs and railroad ties near the top of the west facing slope seemed to be the favored hiding places.

McHenry County Conservation District -- 1989 herpetofauna survey sites

GLACIAL PARK -- species list

SPECIES	DATES VISITED									
	Apr	May								
	26	3	9	10	16	17	20	22	25	27
Ambystoma tigrinum	2									
Bufo americanus						5		5		
Pseudacris triseriata	10	10				5		5		
Hyla versicolor complex										
Rana clamitans								5		
Rana pipiens	10						1			
Chelydra serpentina						1				
Emydoidea blandingii										
Chrysemys picta										
Apalone spinifer										
Opheodrys vernalis						2		1		
Elaphe vulpina						3				
Thamnophis sirtalis							1			1
Storeria dekayi	2									
Storeria occipitomaculata										

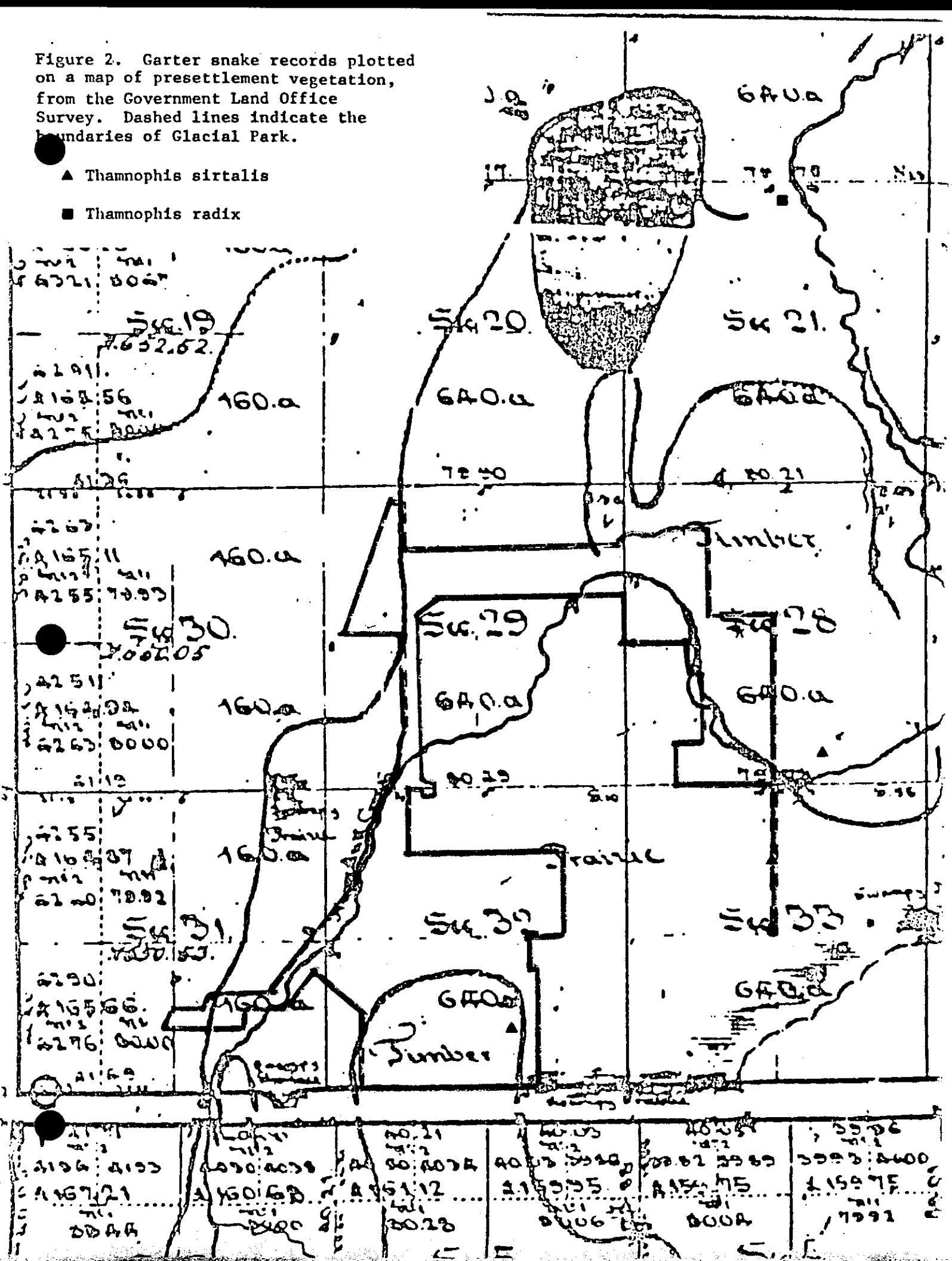


Figure 2. Garter snake records plotted on a map of presettlement vegetation, from the Government Land Office Survey. Dashed lines indicate the boundaries of Glacial Park.

● Thamnophis sirtalis

▲ Thamnophis radix

■ Thamnophis radix

STICKNEY RUN CONSERVATION AREA

This preserve was also very productive, with 102 sightings of individuals of 15 species. Once again, the adequate size of the site and the presence of savanna-like, old field, and wetland habitats account for the diversity of the herpetofauna. In this case luck was also a factor. At the very beginning of the study, a hibernaculum was discovered a short distance north of Justen Road. Located in a man-made depression in the west facing slope, it was easily accessible from the road and thus easy to check repeatedly. Five species of snakes were found within a 50 foot radius and during a few weeks in spring. A well just across Justen Road also is used as a hibernaculum by fox snakes, and doubles as an effective pitfall trap for amphibians and smaller reptiles. Ted Krueger, the owner of that property, was very cooperative and reported several sightings, including two Blanding's turtles found alive on Wright Road. He also turned in a smooth green snake which had been killed by a car on Justen Road. No other green snakes were seen at Stickney Run, and the species appears to be uncommon there.

Red-bellied snakes, *Storeria occipitomaculata*, were common but showed evidence of distinct seasonal activity. They were easily found in the hibernaculum area in April, but seemed to disappear after that. Garter snakes were present in steady or increasing numbers throughout the study, but there were clear signs of movement. Most early sightings were near the hibernaculum. Later sightings occurred throughout the upland areas. As many as six garter snakes were taken under one piece of plywood.

The numerous pieces of plywood, metal, tarpaper, and other cover objects facilitated snake census work. Many of these objects were intentionally placed in areas well off trail and out of public view by district staff during 1988.

Amphibian breeding activity was clustered in a few areas. The only one visited regularly was the ditch a short distance north of Justen Road. Chorus frogs, American toads, and Cope's gray tree frogs, *Hyla chrysoscelis*, utilize the eastern end of this ditch near the base of the ridge. Chorus frogs and toads were heard calling several hundred meters south of Justen Road, and green frogs were common in the streams and man-made pond in the extreme northwest corner of the preserve.

Development of any kind should be kept well away from the hibernaculum and the section of the ditch used by breeding amphibians, and trails should not be moved any closer to those places than they are at present. The hibernaculum is especially sensitive, since basking snakes are vulnerable to collecting or killing.

McHenry County Conservation District -- 1989 herpetofauna survey sites

STICKNEY RUN -- species list

SPECIES	DATES VISITED								
	April			May				June	
	15	23	25	10	12	17	20	01	10
Ambystoma tigrinum	5	4		5					
Bufo americanus	1		2					10	
Pseudacris triseriata	5							5	1
Hyla versicolor complex			1					2	
Rana clamitans	1		12						
Rana pipiens									
Chelydra serpentina			1						
Emydoidea blandingii									
Chrysemys picta	15		1						
Opheodrys vernalis									1
Elaphe vulpina				2					
Lampropeltis triangulum				1					
Thamnophis sirtalis	3	3	2					7	
Storeria dekayi	3	5	2						
Storeria occipitomaculata	2	3							

OAKWOOD HILLS FEN NATURE PRESERVE

This was the most difficult of all the sites to survey. Only six species have been documented for the site, and two of these are based on preserved specimens collected after a controlled burn in 1988. Two others were heard calling on adjacent Commonwealth Edison property and are included only because individuals probably wander across the boundary when dispersing from the breeding pond or marsh. During 1989 only two species were actually observed within the preserve boundaries; the common garter snake, *Thamnophis sirtalis*, represented by a single sighting, and the green frog, *Rana clamitans*, seen only twice.

While amphibians and reptiles probably really are uncommon at Oakwood Hills Fen, collecting difficulties may have contributed to the lack of sightings. The only boards or other ground cover are near the parking lot, well away from the wetland. Surprisingly, these were not productive. Within the nature preserve, vegetation was sparse in the early spring because of a burn the previous year. Small animals may have temporarily migrated to nearby areas with more cover. Later in the spring, the low vegetation grew back so densely that animals in the open could easily have been overlooked.

The only effective way to sample sedge meadow habitats is through extensive drift fencing; this was demonstrated at Elizabeth Lake, where nearly all of the snakes were caught in funnel traps. Unfortunately, there is no easy way to employ such a system at Oakwood Hills Fen. The areas most likely to be inhabited by rare species (e.g., pickerel frogs, *Rana palustris*, and queen snakes, *Regina septemvittata*) are near the streams. Because of the presence of rare or endangered plants in these areas even the small amount of digging necessary to install a drift fence cannot be considered. Fences in the stream bed itself could be washed away by debris after heavy rains, and would be subject to vandalism. Bicycle tire tracks and rock "dams" in the stream bed were seen on several occasions, and imply that neighborhood children spend considerable time inside the nature preserve. Fences could be installed on some of the upland areas, but would be likely to catch only common species there.

The site should be checked immediately after future burns, when feasible. Additional specimens may be found in this way. The effects of clearing brush in this type of habitat are not known, but at least some segments of the herpetofauna could benefit in the long run. The degraded savanna areas on the slopes are especially important. As sections of this habitat are cleared of brush, some of the common edge species should increase in numbers. The slopes are nearly impenetrable at present, and could not be effectively sampled, but at other sites such overgrown areas have supported little animal life.

McHenry County Conservation District -- 1989 herpetofauna survey sites

OAKWOOD HILLS FEN -- species list

SPECIES	DATES VISITED							
	April				May			June
	15	23	25	26	10	17	29	10
Bufo americanus						1		
Rana clamitans							1	1
Pseudacris triseriata						1		
Opheodrys vernalis								
Thamnophis sirtalis							1	
Storeria dekayi								

HICKORY GROVE CONSERVATION AREA

Most of the snake sightings at Hickory Grove were clustered in two areas. The compost pile at the Stephenson residence was usually productive. Snakes apparently thermoregulate there by moving up or down within the pile of plastic garbage bags filled with compost. An old metal cattle trough in the eastern part of the site also proved interesting. Located on a slope and adjacent to a small stream, several snakes could usually be found underneath during May and early June. The same three species were consistently found at both places; fox snakes, *Elaphe vulpina*; eastern milk snakes, *Lampropeltis triangulum*; and common garter snakes, *Thamnophis sirtalis*. All three species were very common. Milk snakes reach densities rarely seen elsewhere in Illinois. Because milk snakes eat other snakes as well as rodents, they may be excluding smaller species of snakes from certain parts of Hickory Grove. Only adult garter snakes were found, so the young, which are small enough to be eaten, must inhabit other nearby areas. The lack of documented green snake and brown snake records at Hickory Grove, which appears to have suitable habitat for them, may be the result of competition and/or predation. Those two species possibly do occur on the site, but may be relatively uncommon or restricted to small areas.

Because there are no boards or other objects elsewhere on the site, it is difficult to find snakes except at the two places mentioned above. This would be an excellent place to lay out a "board trail" like the one at Stickney Run, although about a year would be needed for these boards to become productive. Drift fencing might also be effective, but it is not known whether enough uncommon species are found here to justify the effort.

The cattle trough should be checked occasionally and at various seasons. See Henderson et al., 1980 for a description of a similar situation in Walworth County, Wisconsin.

The only amphibian seen at Hickory Grove was the relatively common green frog, *Rana clamitans*. It inhabits streams, ditches, and small potholes in various parts of the preserve.

Mr. Stephenson reports seeing green snakes in his garden, and tiger salamanders many years ago on the property. There is no reason to doubt these reports.

Although treated as a separate unit here, Hickory Grove is contiguous with Lyons Prairie and Marsh and there is probably some movement of animals between the two preserves.

McHenry County Conservation District -- 1989 herpetofauna survey sites

HICKORY GROVE HIGHLANDS -- species list

SPECIES	DATES VISITED			
	May	June		
	29	08	10	17
Rana clamitans	2			
Elaphe vulpina				2
Lampropeltis triangulum	1	1	2	2
Thamnophis sirtalis	1		1	4

LYONS PRAIRIE AND MARSH NATURE PRESERVE

Amphibians and reptiles were surprisingly difficult to find in most parts of this preserve. Such a large and diverse parcel along a major river should support large numbers of many species. In reality, a great deal of effort was required to collect even a few animals.

The one exception to this was in the extreme southeast corner of the preserve, near the end of Holly Lane. Two trash piles near the trail were well stocked with milk snakes, *Lampropeltis triangulum*, and garter snakes, *Thamnophis sirtalis*. A small marsh is used as a breeding site by toads, chorus frogs, and green frogs. A number of turtles were seen in the two man-made ponds, in the river backwater, and on land during the nesting season, but all those positively identified were painted turtles.

Two drift fence arrays were installed. One of these was in an old field just southeast of the southern man-made pond, and caught only crayfish and meadow jumping mice. The second was placed near the marsh-sedge meadow interface southwest of, and within sight of the large river backwater. This fence was T shaped, and followed two intersecting mammal trails which had been worn down to bare mud by heavy use. The substrate was so soft here that the fence was simply pressed into place with fingers. This fence caught a garter snake, a brown snake, *Storeria dekayi*, and a chorus frog, *Pseudacris triseriata* and additional meadow jumping mice. Considering the close proximity of four distinct habitat types, the results were disappointing.

The dense shrubby areas remaining in parts of the preserve may pose barriers to free movement by a few species, and future clearing and burning may result in more even distribution patterns. There is no easy explanation for the apparently low numbers of even some usually common species.

Sandhill cranes were observed on several occasions near the inland tip of the river backwater. A pair of adults were seen at least four times, and a single animal was seen at least two other times.

McHenry County Conservation District -- 1989 herpetofauna survey sites

LYONS PRAIRIE AND MARSH -- species list

SPECIES	DATES VISITED											
	April		May				June					
	15	23	10	22	27	29	01	05	08	11	13	17
Bufo americanus							11	1				
Pseudacris triseriata	5							1		1		
Rana catesbeiana							2					
Rana clamitans		2						2				
Emydoidea blandingii												
Chrysemys picta						1		4	3			2
Apalone spinifer												
Elaphe vulpina										1		
Lampropeltis triangulum			1	1				1				
Thamnophis sirtalis	1	2	1			4		1	4		1	2
Storeria dekayi										1		
Nerodia sipedon												

SPECIES ACCOUNTS

Twenty eight species of amphibians and reptiles are known to occur in McHenry County. The status of each is briefly summarized below. A few additional forms which occur nearby but have not been documented within the county are mentioned under a separate heading. The ten species which were of special concern during this study are indicated by an asterisk before the common name. Nomenclature follows Collins et al. (1982), except where changes have been published since that work (e.g., softshell turtles changed from *Trionyx* to *Apalone*).

Some species which occur in adjacent counties are not mentioned here, even though there is a slight chance that one or more may someday be found in McHenry County. This report is not meant to be a comprehensive account of the local herpetofauna, but rather a compilation of existing knowledge on parts of the eastern section of the county.

* BLUE-SPOTTED SALAMANDER *Ambystoma laterale*
This northeastern species barely enters McHenry County. Only one population, at Moraine Hills State park, has been found so far, and there is no evidence that the species occurs west of the Fox River. None were seen during this years survey, and most of the sites do not contain suitable habitat.

EASTERN TIGER SALAMANDER *Ambystoma t. tigrinum*
Although seldom seen because of their fossorial habits, this species is common in McHenry County and is to be expected at additional preserves.

MUDPUPPY *Necturus maculosus*
This permanently aquatic salamander is known from the Fox River. It probably occurs at some preserves, but special techniques are needed to collect specimens. Fishermen occasionally catch them with baited hooks.

AMERICAN TOAD *Bufo americanus*
Familiar to most everyone, this adaptable animal is abundant throughout the county. Optimal habitats include marshes and wet floodplains. Toads were seen or heard at six of the seven 1989 survey sites.

* BLANCHARD'S CRICKET FROG *Acris crepitans blanchardi*
Once common in northern Illinois, cricket frogs have nearly disappeared from the northern quarter of the state. They are now listed as endangered in Wisconsin. The cause of their decline is not known. Cricket frogs originally inhabited prairie and savanna stream margins. Gravel pits have been utilized more recently. No specimens were seen or heard calling during this survey. The nearest known extant population is along the Kishwaukee just east of Belvidere, in Boone County.

WESTERN CHORUS FROG *Pseudacris triseriata*
This is one of the most common amphibians in northern Illinois. Breeding occurs in most marshes and vernal ponds. Both wooded and open habitats are frequented.

COPE'S GRAY TREE FROG *Hyla chrysoscelis*
This member of a cryptic species pair has now been documented at three MCCD preserves (Glacial Park, Stickney Run, and the Hollows). It appears to be moderately common in the Fox River Valley; there are also populations in Lake County on the east side of the river. The sibling species, *Hyla versicolor*, has not yet been found in McHenry County but is the common form to the south and southwest of Chicago. Only a handful of Illinois populations have been positively identified (Brown and Brown, 1972). The two species are impossible to distinguish morphologically, but their breeding calls differ in pulse rate. Cell size and chromosome counts can also be used to identify the diploid *Hyla chrysoscelis* and the tetraploid *Hyla versicolor*.

BULLFROG *Rana catesbeiana*
This large frog is common in major rivers and lakes, and may have increased in abundance since settlement.

GREEN FROG *Rana clamitans*
This is the only amphibian documented so far at all seven survey sites. It is a permanent stream or lake margin species, and sometimes enters nearby marshes even though permanent water is required for breeding. Green frogs have become scarce in the inner ring of Chicago suburbs, but are still quite abundant in the more outlying areas.

NORTHERN LEOPARD FROG *Rana pipiens*
Once extremely common, leopard frogs have become somewhat sporadic in distribution. Overcollecting by biological supply houses and bacterial infections ("redleg") are among the probable causes of the decline. Several MCCD sites still maintain acceptable population levels, with perhaps the largest population at Glacial Park. Leopard frogs are creatures of the prairie and savanna marshes, and generally avoid places with a dense tree canopy. During the summer they often move away from water and forage for insects in grassy areas.

SNAPPING TURTLE *Chelydra serpentina*
This may be the most common turtle in the area, even though it is not conspicuous because it seldom basks. Every permanent body of water in the county is a potential home for this species.

MUSK TURTLE *Sternotherus odoratus*
There are old museum specimens of this turtle from McHenry. Although no musk turtles were seen during this study, they are known to be widespread in western Lake County and almost certainly still occur in the Fox River and some tributaries. Because of their bottom-dwelling habits they are not often seen.

* BLANDING'S TURTLE *Emydoidea blandingii*
Although quite rare downstate, Blanding's turtles are moderately common in McHenry County because of the extensive wetland areas which have survived. Less aquatic than other local turtles, they inhabit sedge meadows as well as marshes, lakes, and river backwaters. Population densities are typically not high. Eric McGee of Eastern Illinois University conducted a thorough study of this turtle at Chain O' Lakes State Park recently.

PAINTED TURTLE *Chrysemys picta bellii x p. marginata*
The majority of the turtles observed in the area are of this species. They are conspicuous baskers, and many often congregate on logs. McHenry County populations are intergrades between the western and midland subspecies (Smith, 1961).

MAP TURTLE *Graptemys geographica*
A map turtle sighting at Elizabeth Lake during this study represents the first McHenry County record of this river turtle. Previously reported from Nippersink Lake (Garman, 1892) and Fox Lake (Cahn, 1937) in Lake County, the Elizabeth Lake record probably represents an extension of those populations via Nippersink Creek. Only one turtle has been positively identified so far at Elizabeth Lake, and more springtime observations are needed to determine the size of the population.

* FALSE MAP TURTLE *Graptemys pseudogeographica*
A single museum specimen collected in 1907 at McHenry represents the only documentation of the false map turtle in the county. There is a possibility that populations still occur in backwaters of the Fox River.

SPINY SOFTSHELL TURTLE *Apalone spinifer*
This large turtle is quite common in the Nippersink and associated bodies of water, and probably locally common in quiet backwaters of the Fox River.

* SMOOTH GREEN SNAKE *Opheodrys vernalis*
A few years ago only one McHenry County locality was known for this species (M. Morris, pers. comm.). Six additional populations have now been discovered, including two not known before this study. The green snake is a grassland species in this part of its range, although it does enter open savanna-like areas as well. It may have been one of the most common reptiles on the prairie in presettlement times, but because it feeds on insects it has been decimated by pesticide spraying. Minton (1972) reported finding dead specimens a few days after fields had been sprayed. Habitat destruction has also eliminated many populations, although they can survive in old fields which have not been sprayed. Today green snakes typically exist at widely scattered localities but tend to be common within the small areas where they have not been wiped out.

The number of populations identified so far in McHenry County is impressive, considering the agricultural nature of much of the region. Several additional localities should be found during future inventory work. The presence of this sensitive species on so many MCCD sites implies that land acquisition has proceeded in a wise and productive manner.

During this study green snakes were found to be especially abundant in sedge meadows. Vogt (1981) mentions that sedge meadows are used in Wisconsin, but I am not aware of any previous mention of utilization of that habitat in Illinois. Green snakes appear to be the most common snake in some sedge meadows in McHenry County, where they tend to co-exist, in order of abundance, with Chicago garter snakes, northern water snakes, and midland brown snakes. Two of these species (garter snakes and brown snakes) are more abundant in savanna-like situations. Sedge meadows in McHenry County thus seem to support a hybrid herpetofauna which includes prairie elements (green snakes) as well as savanna species. On mesic prairies or other well-drained sites green snakes tend to co-exist with typical prairie species, like the plains garter snake, and generalists such as the fox snake.

WESTERN FOX SNAKE Elaphe vulpina
Fox snakes were found at four of the survey sites, and they may occur at the others as well. The species tends to occur at relatively low densities, but is sometimes found in good numbers when emerging from hibernation in the spring. The congregation of fox snakes under and around the patio next to the district office is a good example of this. Fox snakes seem to be equally common in grassland or savanna-like situations. All individuals seen during this survey were in upland areas, but other authors have reported taking specimens in close proximity to marshes. Fox snakes are also tolerant of agricultural areas, probably because of the abundance of mice, their primary prey item.

EASTERN MILK SNAKE Lampropeltis triangulum
Milk snakes are relatively common in eastern McHenry County, and may be more abundant there than anywhere else in Illinois. The habitat requirements of this species have long been misunderstood. Smith (1961) called it a forest species, but milk snakes actually inhabit savannas or forest-edges, and generally avoid the true forest. The milk snake is a valuable indicator animal and almost always occurs in or very near areas which were savanna or forest-edge in presettlement times (Mierzwa, 1989).

The population at Hickory Grove is especially large. The presence of milk snakes there and at other MCCD sites should not be divulged to the public, since there is some demand for this attractive species in the pet trade. Collecting abuses have been reported at some preserves in Will County.

Milk snakes were found at three preserves during this study. The lack of records at Glacial Park is surprising. There are extensive areas of suitable habitat at that site. Some of the savanna-like areas around the margin of Elizabeth Lake also may harbor this species, but were not sampled. Milk snakes seem to avoid wetlands, and all specimens seen so far in extreme northeastern Illinois have been in upland or at least dry situations.

PLAINS GARTER SNAKE Thamnophis r. radix
Only one plains garter snake was found during this study, on the prairie path just north of Glacial Park. It is a common animal in parts of the county which were once open prairie. A population near Lake Calumet in southern Cook County had one of the highest densities ever recorded for a North American snake, with 298 individuals in a 3.2 acre old field (Seibert & Hagen, 1947). The lack of evidence of this species during 1989 is a reflection of the habitat available on the sites surveyed, and is not a true measure of relative abundance. Other MCCD sites may harbor large numbers of this prairie indicator animal.

CHICAGO GARTER SNAKE Thamnophis sirtalis semifasciata
This is the most common and conspicuous snake in eastern McHenry County, and is the only reptile taken at all seven sites. As many as seven specimens were found simultaneously under a single board at Stickney Run.

Thamnophis sirtalis is a savanna or forest edge species, although it is adaptable enough to colonize a wide variety of disturbed habitats as well. It tends to be the dominant species in the vicinity of larger rivers, probably because of the widespread availability of the forest edge habitat. There is some overlap with the plains garter snake, but in many places the two forms are segregated.

There is some question about the validity of the subspecies *T. s. semifasciata*, which is characterized by lateral stripes which are broken into dashes on the anterior part of the body. The name is accepted here pending future review. The Chicago form is a variety of the eastern garter snake, *T. s. sirtalis*.

MIDLAND BROWN SNAKE Storeria dekayi wrightorum
The brown snake, or Dekay's snake, is another savanna or forest edge indicator species. It is relatively common in McHenry County, and was seen at five of the seven survey sites. Secretive but adaptable, they sometimes persists in suburban areas. Vacant lot populations can become large when less tolerant predators disappear.

RED-BELLIED SNAKE Storeria occipitomaculata occipitomaculata
This tiny and secretive snake may be more common in McHenry County than anywhere else in Illinois. It is very uncommon in much of the state, but becomes relatively common in Wisconsin. Red-bellied snakes are numerous at Stickney Run. They are seldom seen except in the spring and fall. Red-bellied snakes are also known from Glacial Park, and probably occur at other upland sites. They are a savanna or forest edge species.

* QUEEN SNAKE Regina septemvittata
Two specimens collected at Island Lake in 1940 represent the only McHenry County record of this species. In 1987 a single specimen was reported from Chain O' Lakes State Park, from a spot only a few hundred meters east of the county line (Eric McGee, pers. comm.). Queen snakes are listed as endangered in Wisconsin, and the only surviving populations are in the Kettle Moraine area of Walworth County, where they are reportedly found in shrub-carr areas along streams (Vogt, 1981). Rocky bottomed streams with a moderate current are the usual habitat throughout the range. The stream at Oakwood Hills Fen appears to be suitable, but may be too cold. This and any similar streams should be watched in the future. Queen snakes can be difficult to locate in places without plenty of flat rocks to turn at the waters edge. They are occasionally seen swimming or basking in overhanging branches.

NORTHERN WATER SNAKE Nerodia sipedon
This large snake is moderately common in the Fox River and in many other permanent lakes, streams, and gravel pit ponds. Juveniles are sometimes found in adjacent sedge meadows. Specimens were seen at three sites, and may occur at others. Water snakes are often mistaken for "water moccasins" by local residents and killed. They actually are non-venomous, but can deliver a nasty bite if handled.

SPECIES NOT RECORDED FROM McHENRY COUNTY, BUT KNOWN FROM NEARBY AREAS

* CENTRAL NEWT Notophthalmus viridescens louisianensis
The presence of this species in McHenry County cannot be ruled out, and if newts do not occur there now they probably did at one time. The nearest recent population was at Deer Grove in Cook County (Williams, 1947); the present status is not known. There is also a record from Delavan, in Walworth County, Wisconsin, from 1922. Wooded groves containing semi-permanent ponds are the usual habitat. Newts are still moderately common in the Palos preserves of southwestern Cook County. A population at Wooddale Grove in DuPage County is believed to vary in relative abundance in different years (Cochran, 1988).

* BUTLER'S GARTER SNAKE Thamnophis butleri
The nearest records of this species are in Kenosha County, Wisconsin. I have seen them at Harris Marsh, and there have been reports from Bong Recreation Area. Both localities are about 9 miles from the McHenry County line. Although the habitat at Elizabeth Lake appears suitable, none were observed there despite extensive drift fencing. It must be assumed that Butler's garter snake does not cross the state line into McHenry County.

* WESTERN RIBBON SNAKE Thamnophis p. proximus
During 1987 several ribbon snakes were observed in Lake County, at Chain O' Lakes State Park, by Eric McGee of Eastern Illinois University. The specimens were seen only a few hundred meters east of the McHenry County line. None were seen at the 1989 survey sites, but this semi-aquatic snake is elusive and can escape notice for years. A specimen was finally obtained at a Will County site this year, after three years of regular visits. Ribbon snakes are endangered in Wisconsin, and only small numbers have been sighted at each of the few known localities. Western ribbon snakes probably prefer sunlit ponds or marshes in savanna areas. The northern ribbon snake, *Thamnophis sauritus septentrionalis*, is not known from Illinois but does occur in a few Wisconsin counties; it inhabits bogs. Although both species are more common in Indiana, specimens are not taken often. Most of those few are caught in drift fences (Alan Resetar, pers. comm.).

*GRAHAM'S CRAYFISH SNAKE Regina grahamii
The nearest documented record of this prairie marsh animal is in Green Oaks, in east central Lake County. This represents the northeasternmost record of the species. There are anecdotal reports from Spring Lake Nature Preserve, which borders southeastern McHenry County, and from Schaumburg. Most specimens are found moving between wetlands or basking on banks or overhanging branches in the spring, but much time is spent submerged. Graham's crayfish snake is quite rare in northeastern Illinois today, but may have been more common in presettlement times.

VOLUNTEERS

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Tom Anton	17 hours
Ellin Beltz	9.5 hours
Mike Redmer	6 hours
Steve Barten	6 hours
Gery Herrmann	6 hours

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