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A Limited Survey of the Amphibians and Reptiles of Five Proposed Fox River Crossings,
Kane County, Illinois

Center for Biodiversity Technical Report 1995 (21)

20 December 1995

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INTRODUCTION

The Illinois Department of Transportation (IDOT) has proposed five new crossings of the Fox River in Kane County, Illinois. The proposed crossings are (from south to north) Mooseheart Rd./ Oak Street/ Butterfield Rd., Redgate Rd./ Army Trail, C&NW/ Dean St., CC&P/ Stearns Rd., and Bolz Rd. This is the final report on amphibians and reptiles of all five crossings. Additional fieldwork in the Fox River crossings project area is planned for March to May of 1996. Results of that work will be submitted as an addendum to this report by June 1996.

The location of each of the five proposed crossings and their corridors is shown in Maps 1-4. In this report, specific survey locations and points of interest are given by legal description. If the site is a delineated wetland, the wetland code given by the party responsible for the wetland delineations will be used. Vegetation cover type mapping and wetland delineations were conducted by the Illinois Natural History Survey (INHS) Wetland/Preliminary Studies Group and their nomenclature will be used to refer to vegetation types and wetlands.

The approach that I have used in this study is to 1) compile a list of the species whose ranges overlap the general project area (Kane Co., extreme S McHenry Co., extreme SW Lake Co., W DuPage Co., and NW Cook Co.), 2) search for historical records of sensitive species (endangered, threatened, or watch list in Illinois or candidate for federal listing) from the general project area, and 3) conduct fieldwork designed to determine which species (with emphasis on listed species) currently inhabit the project corridor and to identify unusually diverse herpetological communities (i.e. areas of special concern, see below) in the corridor. Nomenclature follows Collins (1990) unless noted.

The location of listed species (from historical records or current surveys) and areas of special concern will be marked on a set of aerial photographs and submitted after all fieldwork is completed at the end of June 1996.

SPECIES OF THE PROJECT AREA

Table 1 lists the reptiles and amphibians whose ranges include the general project area. This information was taken from range maps in Smith (1961) and Conant and Collins (1991). Of the species in Table 1, only the massasauga is listed as endangered or threatened in Illinois. In addition, the Blanding's turtle is a Watch List species in Illinois and a candidate for listing at the federal level.

HABITAT REQUIREMENTS & HISTORICAL RECORDS FOR LISTED SPECIES

Historical records for the two listed species were taken from the following sources: 1) specimens from museum, university, and private collections (referred to as vouchered records; see Appendix I for a list of the collections that were searched), 2) unvouchered records from the literature, 3) unvouchered records taken from reliable biologists and naturalists, and 4) the Illinois Department of Natural Resources Natural Heritage Database (NHD). There are no records for any listed species in the Fox River crossings project corridor.

Blanding's turtle--Prairie marshes and floodplain sloughs of larger rivers are the primary habitat of this semi-aquatic turtle. They are most commonly found in shallow (10-20 cm)

open water areas of cattail marshes, sloughs, ponds, and flooded ditches, although Moriarity (1986) reported them from small streams in southeast Minnesota. Aquatic plants, especially emergent vegetation, and a mud bottom are important habitat components (Johnson, 1987). The activity period in northern Illinois is probably late March to October. Nesting occurs in June in sandy, well drained soil near the aquatic habitat. Hatching usually takes place in September (Vogt, 1981). There are 1946 records for Dundee Game Farm (CA) and 4.2 km (3 mi) west of Batavia (FMNH). These records are 9 km (6 mi) south of the Bolz Rd. corridor and 6 km (4 mi) north of the Mooseheart Rd. corridor, respectively. Other records exist for Pratts Wayne Woods and the Illinois Prairie Path (Ludwig, et al., 1990). The most recent of these records is a 1990 observation from Brewster Creek Marsh approximately 1km (0.6 mi) southeast of the eastern terminus of the Stearns Rd. corridor. A 1989 record exists for southwest of the Fermi National Accelerator Laboratory (Ludwig, et al., 1990), only 1 km (0.6 mi) from the eastern terminus of the Mooseheart Rd. corridor.

Massasauga--This venomous snake prefers wet prairie areas with heavy grass cover or floodplain forest adjacent to open fields. The activity period in northern Illinois is probably mid-April to October. In some parts of their range, massasaugas move from moist prairie conditions to drier habitats in the spring (Seigel, 1983). Massasaugas are often found in association with crayfish burrows which they use for shelter and hibernation (Maple and Orr, 1968). They may also overwinter in mammal burrows, old tree stumps, and rock crevices. They apparently do not hibernate with other snake species. There are no records for the massasauga in the Fox River crossings project area.

FIELD SURVEYS

Methods

Field surveys for amphibians and reptiles are usually conducted in a single effort because of the similarities of the two groups. They are both secretive in their habits and being ectothermic, they are generally active under a narrower temperature range than birds and mammals. However, there are also a number of differences between amphibians and reptiles that make combined surveys very difficult. Amphibians are restricted to moist conditions because they exchange gasses through their skin and lay eggs that usually must be submerged in water. Most amphibians also have an aquatic larval stage that may last several months to a year. Reptiles, on the other hand, are less restricted by available moisture and may go weeks without direct contact with water. All these factors combine to make amphibians and reptiles one of the most difficult vertebrate groups to survey, especially in a single effort.

In 1995, all five corridors (including addendum areas) were driven and all vegetation cover types and delineated wetlands were visited on foot. Limited visual encounter surveys were performed at these sites. More thorough investigations were made at those areas with the potential for the highest amphibian and reptile species diversity (**intensive survey sites**). Factors such as level of vegetational disturbance, size, degree of fragmentation, and hydrology were considered when deciding which areas would be categorized as intensive survey sites and re-visited.

The following survey methods were used in the intensive survey sites during 1995 and 1996; visual encounter surveys, road collecting, frog and toad auditory surveys, and dip-netting and seining aquatic habitats. Visual encounter surveys (VES) involve searching appropriate habitat (mainly turning cover items such as logs, rocks, and miscellaneous debris) and recording all species encountered. Road collecting takes advantage of the fact that many reptile species are attracted to roads which are often warmer than the surrounding

substrate. This is especially true at dusk. Amphibians and reptiles are also killed as they attempt to cross roads during seasonal migrations to breeding areas or hibernacula. Frog and toad auditory surveys were conducted during the evening hours of warm spring days when breeding choruses are most likely to occur. Aquatic habitats were dip-netted or seined during most day time visits. For all of these techniques, the amount of time spent at each site was approximately the same. Abundance was recorded either by direct count of individuals or by relative abundance. The latter measure was used when large numbers of amphibian larvae were encountered as a result of dip netting or seining and in the case of frog and toad auditory surveys where direct counts are not possible. Relative abundance of amphibian larvae was recorded as 1-10, 10-50, 50-100, and over 100 individuals. Relative abundance of calling amphibians was recorded as: 1) one or two individuals calling with a long time interval between calls; 2) 3-6 individuals calling at the same time with calls separated by a shorter time interval; 3) six or more individuals can be detected calling with no time interval between calls. Detailed descriptions of the survey methods can be found in Heyer, et al. (1994).

Intensive survey sites are considered **areas of special concern** if listed species were present or high species richness (number of species) was detected. Species richness of survey sites is compared to the number of species that would have been found in that habitat type prior to European settlement (those in Table 1). If 75% or more of the presettlement species are still present, an area is considered special concern. Survey sites may also be compared to similar sites on the Natural Areas Inventory (NAI) in the vicinity of the project area to determine if they should be considered areas of special concern.

Intensive Survey Sites

Mooseheart Rd./Oak St./Butterfield Rd.

Mooseheart Woods. West shore of the Fox River, immediately east of Rt. 31 from the junction of Mooseheart Rd. north to the Mooseheart Academy driveway. Aurora North 7.5 min. quad; T39N, R8E, sec. 33, NE/4. This site contains upland and floodplain forest although the latter did not meet wetland criteria (Wilm, et al., 1994a).

Wetlands #4-10 (Sites 4-10 of Wilm, et al., 1994a). Immediately adjacent to Banbury Rd., 0.8 km (0.5 mi) north of Rt. 56. Aurora North 7.5 min. quad; T39N, R8E, sec. 34, center. This site contains several small fragments of seasonally inundated floodplain forest and wet meadow.

Dean St.

No habitat suitable for intensive surveys was encountered in this corridor.

Redgate Rd./Army Trail Rd.

Wetland #1 (Site 1 of Wilm, et al., 1995). Southwest corner of Randall and Bolcum Roads. Geneva 7.5 min. quad; T40N, R8E, sec. 8, SE/4. This site is a wet meadow. This site was not visited during the 1995 field season.

Wetland #4 (Site 4 of Wilm, et al., 1995). Just west of IL Rt. 25, 0.3 km (0.1 mi) north of the intersection of Rt. 25 and Army Trail Rd. Geneva 7.5 min. quad; T40N, R8E, sec. 15, NE/4, NE/4. This site is a pond. This site was not visited during the 1995 field season.

Wetland #5 (Site 5 of Wilm, et al., 1995). Just west of IL Rt. 25, 1.0 km (0.6 mi) north of the intersection of IL Rt. 25 and Army Trail Rd. Geneva 7.5 min. quad; T40N, R8E, sec. 11, SW/4. This site is a wet meadow. This site was not visited during the 1995 field season.

Stearns Rd./CCP

Wetlands #1-2 (Sites 1 & 2 of Wilm, et al., 1994). Immediately north of the Chicago Central and Pacific railroad line, immediately west of IL Rt. 25. Geneva 7.5 min. quad; T40N, R8E, sec. 1, NW/4, SW/4 and sec. 2, NE/4, SE/4. This site contains wet meadow, sedge meadow, marsh, and pond. The western part is a NAI site, South Elgin Fen.

Wetland #9 (Site 9 of Wilm, et al., 1994). Immediately north of IL Rt. 25 and immediately west of the Illinois Prairie Path. Geneva 7.5 min. quad; T40N, R8E, sec. 1, center. This site is a wet meadow.

Wetland #11 (Site 11 of Wilm, et al., 1994). Beginning immediately south of the intersection of IL Rt. 25 and Dunham Rd. and proceeding east along a tributary of Brewster Creek. Geneva 7.5 min. quad; T40N, R8E, sec. 1, along the boundary of the NE and SE quarters. This site contains wet meadow and wet shrubland.

Bolz Rd.

Bolz Bluff (Site 2 of Hill, 1994). West shore of the Fox River, directly opposite Bolz Rd. Crystal Lake 7.5 min. quad; T42N, R8E, sec. 3, SE/4 & sec. 10, NE/4. This site contains upland forest and pasture.

Bolz Woods (Site 4 of Hill, 1994). Northwest corner of the intersection of Rt. 25 and Bolz Rd. Crystal Lake 7.5 min. quad; T42N, R8E, sec. 2, SE/4, SE/4. This site contains upland forest.

Results

Five amphibian and two reptile species were encountered in the project area during my field surveys. Table 2 is a site by site listing of the species encountered and an indication of their abundance. No listed amphibians or reptiles were encountered during the survey of the Fox River crossings project area. One group of sites is tentatively considered an area of special concern: Stearns Rd./CCP, Wetlands #1-2, 9, 11 (including South Elgin Fen, see Map 3).

DISCUSSION

The Fox River crossings project area consists mainly of urban/ suburban areas and small wetlands on the east side of the river and urban/ suburban areas and agricultural fields on the west side. Scattered forest fragments make up a much smaller portion, most notably along Army Trail Road, east of IL Rt. 25. Most of the remaining natural vegetation is highly fragmented and therefore of limited value to most species of amphibians and reptiles. The exception is the eastern half of the Stearns Rd./CCP corridor. This corridor contains some larger wetland complexes that, while still fragmented and highly impacted, represent significant habitat for amphibians. These wetlands may also function as a wildlife corridor connecting Pratts Wayne Woods, to the east, with South Elgin Fen.

Table 1 lists fourteen species of amphibians and twenty species of reptiles that could potentially inhabit the project corridor. Only about half of these species have been documented from the general project area and even fewer for the project corridor proper (see footnote, Table 1). A more accurate estimate of the number of species that inhabit the project corridor is eight amphibian species and nine reptile species. This list generally

includes the most common species of the upper Midwest such as those encountered in my field surveys (Table 2). A few of the common species such as the milk snake, the racer, and the tiger salamander were not encountered in my fieldwork, but undoubtedly occur in the project area.

Listed Species

Several of the wetlands in the Fox River crossings project area meet all published habitat requirements (described above) for Blanding's turtle (*Emydoidea blandingii*). Of these sites, wetlands #1-2, 9, and 11 of the Stearns Rd./CCP corridor are the leading candidates for sites in the corridor that are currently inhabited by Blanding's turtles. The general habitat is suitable and they are closest to the most recent verified sightings of Blanding's turtle in the project area, Brewster Creek Marsh, along the Illinois Prairie Path in Pratts Wayne Woods (Ludwig, et al., 1990). I plan to conduct spotting scope observations of all the Stearns Rd./CCP wetlands in 1996.

The massasauga rattlesnake very rarely escapes the attention of local residents. While I have no doubt that the massasauga historically inhabited portions of the Fox River crossings project area, the lack of local reports or museum records leads me to the conclusion that this species does not currently inhabit the project area.

Areas of Special Concern

[Map 3]

Stearns Rd./CCP, Wetlands #1-2, 9 and 11 (including South Elgin Fen). This complex of wetlands is listed as a possible area of special concern because of its suitability for Blanding's turtles and potential for high species richness. Final determination will have to wait until the 1996 fieldwork is complete.

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Table 1. Amphibians and reptiles whose ranges are included in the project area (Kane Co., extreme S McHenry Co., extreme SW Lake Co., W DuPage Co., and NW Cook Co.). This information was taken from range maps in Smith (1961) and Conant and Collins (1991).

Amphibians

blue spotted salamander
 spotted salamander
 tiger salamander
 eastern newt
 mudpuppy
 American toad§
 cricket frog
 chorus frog§
 spring peeper
 gray treefrog§
 bullfrog§
 green frog§
 northern leopard frog§
 pickerel frog

Ambystoma laterale
Ambystoma maculatum
Ambystoma tigrinum
Notophthalmus viridescens
Necturus maculosus
Bufo americanus
Acris crepitans
Pseudacris triseriata
Pseudacris crucifer
Hyla versicolor
Ranacatesbeiana
Rana clamitans
Rana pipiens
Rana palustris

Reptiles

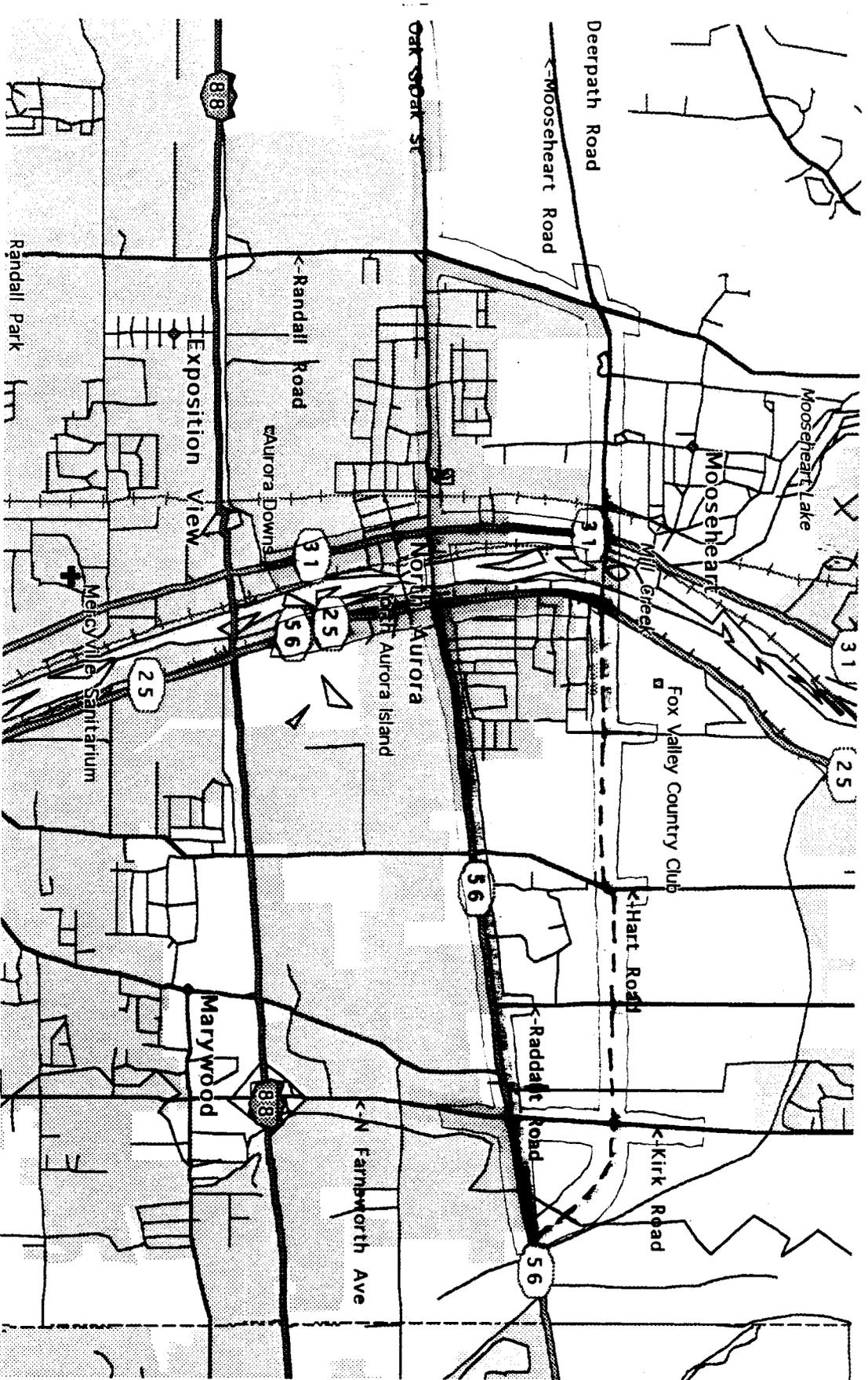
snapping turtle§
 common musk turtle
 Blanding's turtle†
 painted turtle§
 slider
 map turtle
 spiny softshell turtle
 eastern hognose snake
 smooth green snake
 racer
 fox snake§
 milk snake
 plains garter snake§
 common garter snake§
 brown snake
 red-bellied snake
 queen snake
 Graham's crayfish snake
 water snake§
 eastern massasauga*

Chelydra serpentina
Sternotherus odoratus
Emydoidea blandingii
Chrysemys picta
Trachemys scripta
Gratemys geographica
Apalone spinifer
Heterodon platirhinos
Opheodrys vernalis
Coluber constrictor
Elaphe vulpina
Lampropeltis triangulum
Thamnophis radix
Thamnophis sirtalis
Storeria dekayi
Storeria occipitomaculata
Regina septemvittata
Regina grahamii
Nerodia sipedon
Sistrurus catenatus

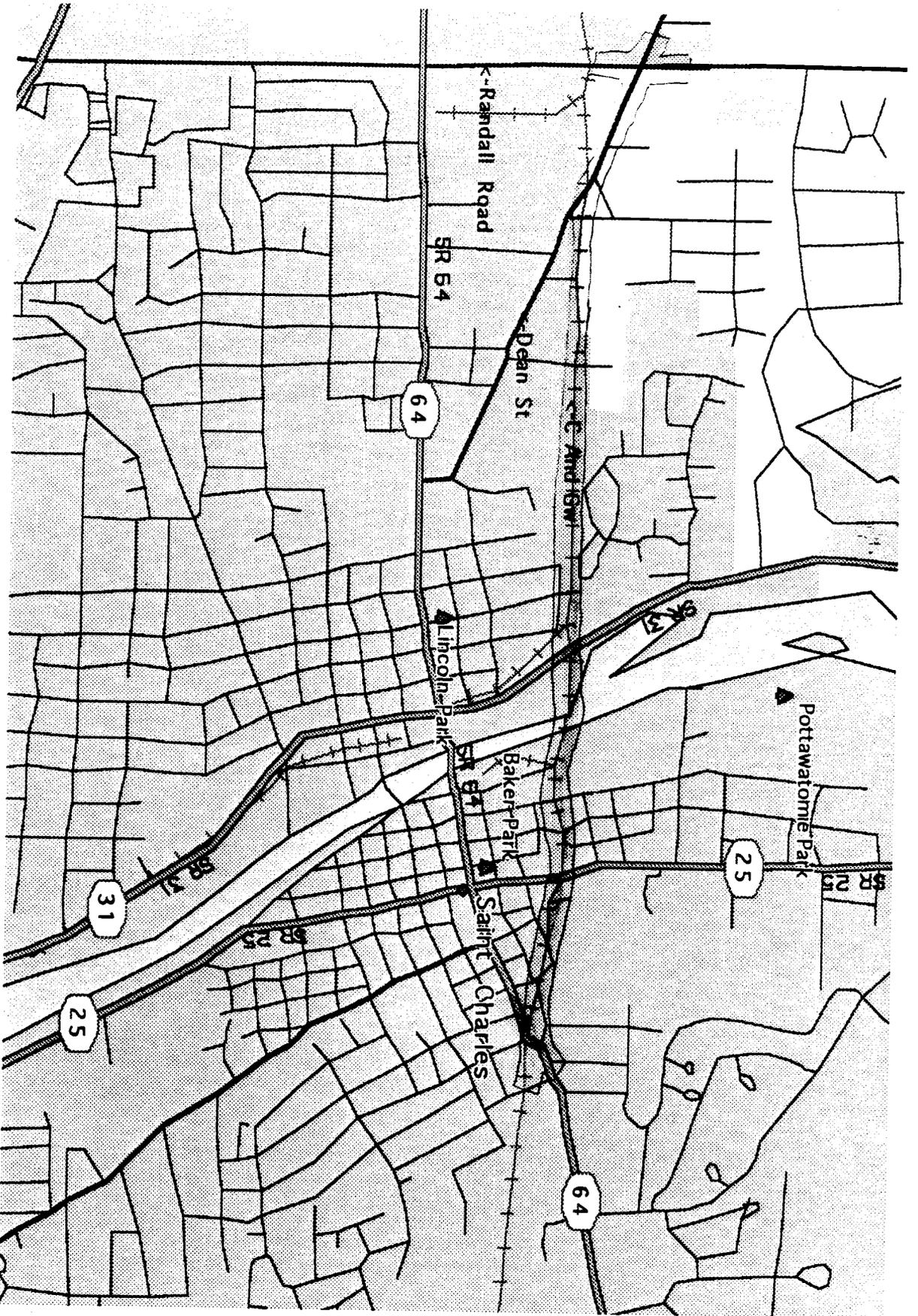
* listed as endangered or threatened in Illinois † a watch list species in Illinois
 # candidate for Federal listing § documented occurrence in FAP 332 project corridor from the surveys in this study or historical records

Table 2. Amphibians and Reptiles Observed in the Fox River Crossings Project Corridor, 1995.

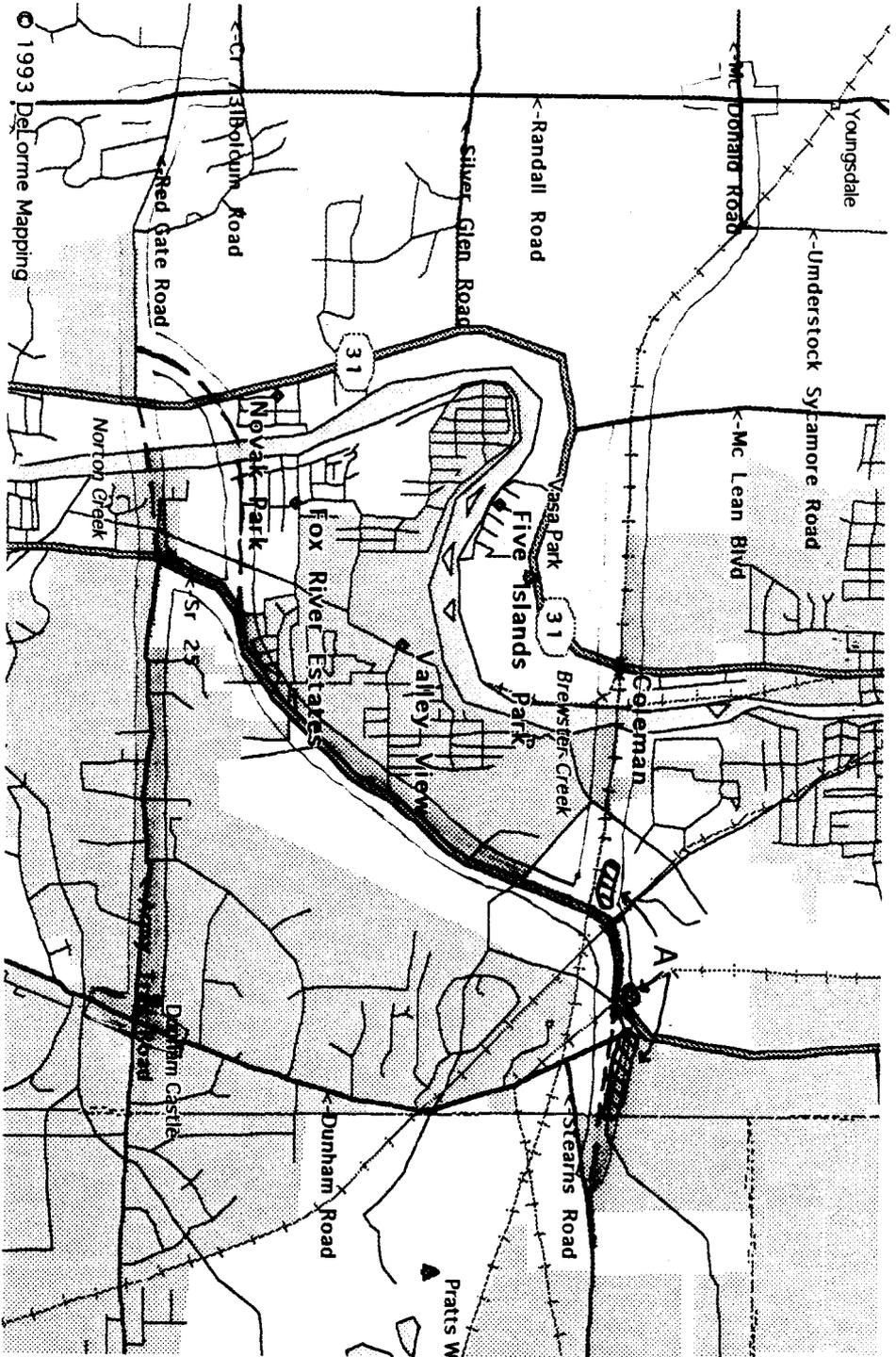
<u>Location</u>	<u>Wetland #</u>	<u>Date</u>	<u>Species</u>	<u>Common Name</u>	<u>Qty.</u>
Immediately N of the Chicago Central and Pacific railroad line, immediately W of IL Rt. 25 (South Elgin Fen). Stearns Rd./CCP corridor	1&2	7 June 1995	<i>Rana clamitans</i>	green frog	0-10
Immediately N of the Chicago Central and Pacific railroad line, immediately W of IL Rt. 25 (South Elgin Fen). Stearns Rd./CCP corridor	1&2	7 June 1995	<i>Bufo americanus</i>	American toad	0-10
South of the intersection of IL Rt. 25 and Dunham Rd., along a tributary of Brewster Creek. Stearns Rd./CCP corridor	11	7 June 1995	<i>Elaphe vulpina</i>	fox snake	1
South of the intersection of IL Rt. 25 and Dunham Rd., along a tributary of Brewster Creek. Stearns Rd./CCP corridor	11	23 August 1995	<i>Rana clamitans</i>	green frog	23
South of the intersection of IL Rt. 25 and Dunham Rd., along a tributary of Brewster Creek. Stearns Rd./CCP corridor	11	23 August 1995	<i>Rana pipiens</i>	northern leopard frog	18
West shore of the Fox River, immediately east of Rt. 31 N of the junction of Mooseheart Rd. Mooseheart Rd. corridor	NA	6 June 1995	<i>Rana catesbeiana</i>	bullfrog	0-10
West shore of the Fox River, immediately east of Rt. 31 N of the junction of Mooseheart Rd. Mooseheart Rd. corridor	NA	6 June 1995	<i>Chrysemys picta</i>	painted turtle	1
West shore of the Fox River, immediately east of Rt. 31 N of the junction of Mooseheart Rd. Mooseheart Rd. corridor	NA	6 June 1995	<i>Pseudacris triseriata</i>	western chorus frog	0-10



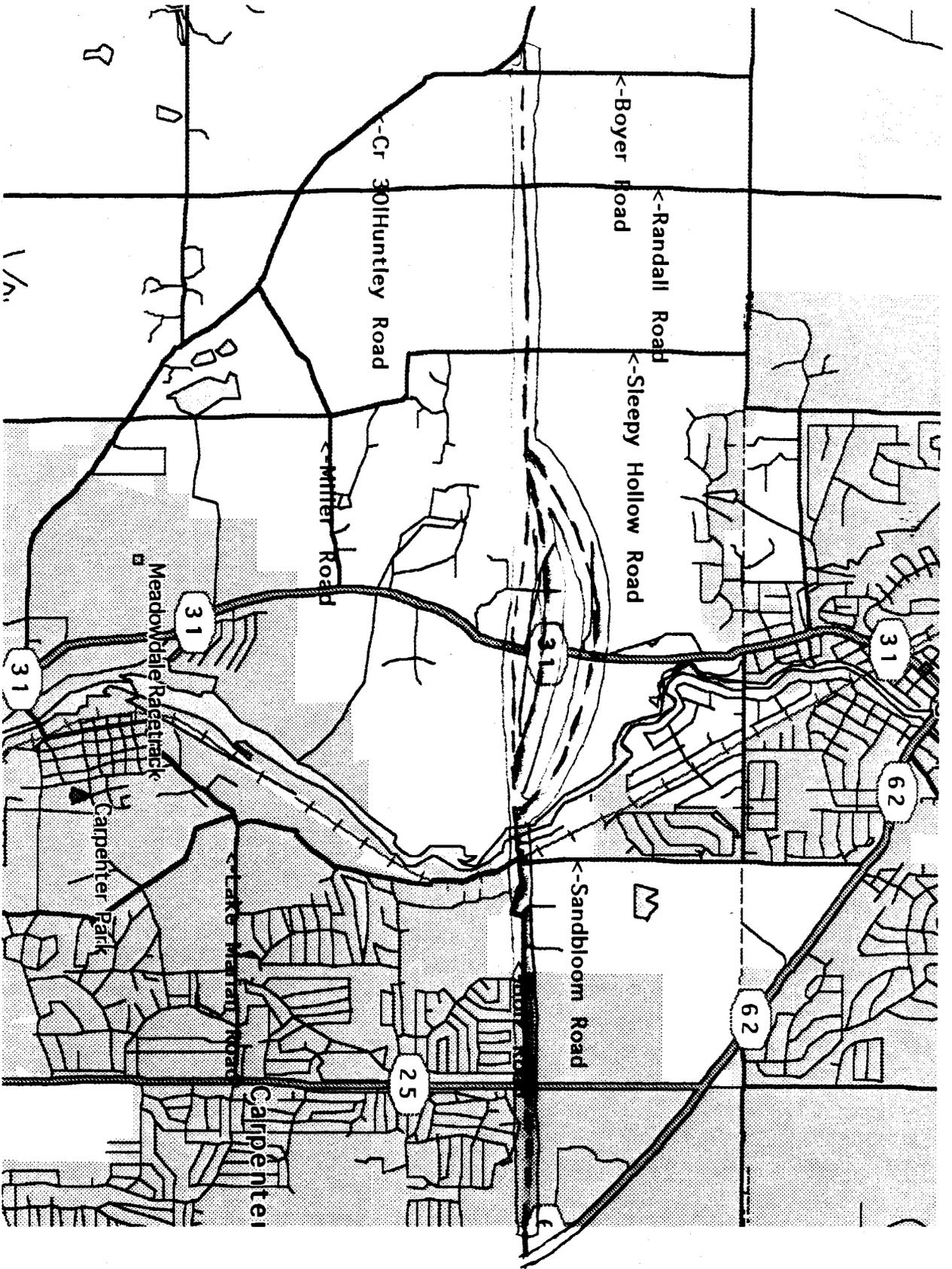
Map 1. Location of proposed Mooseheart Rd./Oak St./Butterfield Rd. Fox River crossing, Kane County, Illinois.



Map 2. Location of proposed Dean St. Fox River crossing, Kane County, Illinois.



Map 3. Location of proposed Redgate Rd./Army Trail Rd. and Stearns Rd./CCP Fox River crossings, Kane County, Illinois. "A" indicates location of potential area of special concern (South Elgin Fen & associated wetlands).



Map 4. Location of proposed Bolz Rd. Fox River crossing, Kane County, Illinois.

Appendix 1. List of Museum Holdings Searched.

<u>Collection</u>	<u>Acronym</u>
Academy of Natural Sciences, Philadelphia	ANSP
American Museum of Natural History	AMNH
Auburn University Museum	AUM
Burpee Museum of Natural History	BMNH
California Academy of Sciences	CAS
Carnegie Museum	CM
Chicago Academy of Sciences	CA
Field Museum of Natural History	FMNH
Florida Museum of Natural History	UF
H.D. Walley Collection	HDW
Los Angeles County Museum of Natural History	LACM
Louisiana State University	LSUS
Milwaukee Public Museum	MPM
Museum of Comparative Zoology	MCZ
National Museum of Natural History	USNM
Nebraska State Museum	UN
Principia College	PC
S.A. Minton Collection	SAM
Southern Illinois University-Carbondale	SIUC
Texas Cooperative Wildlife Collection	TCWC
Tulane University Museum of Natural History	TU
University of Illinois Museum of Natural History	UIMNH
University of Kansas Museum of Natural History	KU
University of Michigan Museum of Zoology	UMMZ
University of Wisconsin-Madison	UWZ
University of Wisconsin-Stevens Point	UWSP