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Current Distribution and Status of Amphibians and Reptiles in Cook County, Illinois

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ABSTRACT

The current distribution of amphibians and reptiles was studied in 80 preserves owned and managed by the Forest Preserve District of Cook County, Illinois, from 1995-1997. Widespread habitat destruction and the introduction of non-native species have affected the distribution of the herpetofauna. Thirty-three species (13 amphibians, 20 reptiles) are known or presumed to occur. Three species not known historically or not found during the inventory are suspected to occur. Because of restricted distribution, habitat destruction or low observed numbers, twenty species (63%) are considered rare or uncommon. Three species (9%) are widely distributed, easily found in large numbers and are considered common. Nine species (28%) considered locally common have a restricted distribution but are common where found. Eight species (25%) are considered abundant. Exotic or non-native reptiles, mostly turtles, are occasionally encountered in Cook County forest preserves.

INTRODUCTION

Cook County is Illinois' most heavily urbanized county, encompassing the city of Chicago and its suburbs. Of its 612,132 acres, 61.5% is urban, built-up land (Illinois Department of Natural Resources, 1996). Cook County ranks third in Illinois in area of deep water marsh (1,885 acres, 5.4% of the state), fourth in the state in shallow marsh/wet meadow (5,747 acres, 4.1% of the state), and has 4, 618 acres of shallow water wetland (2.6% of the state). Cook County has 83,518 acres of forest/woodland (2.0% of the state), the greatest acreage of open canopy woods (27,185 acres, 6.5% of state), 75,545 acres of urban grassland (12% of the state), and 3.5% of the state's rural grassland (Illinois Department of Natural Resources, 1996).

The Forest Preserve District of Cook County (FPDCC) was established on November 30, 1915. It contains over 67,000 acres of land managed as wildlife refuge and for recreational use. The majority of Cook County's wetland, prairie, and forest habitats have been altered over time through timber cutting, wetland alteration, agricultural, commercial, and residential use. Further human impact on remaining unprotected habitat is assured, and all habitat types in Cook County have been reduced in size, fragmented, and isolated. This

phenomenon is particularly detrimental to relatively immobile and localized amphibian and reptile populations.

Cook County features 11,819 acres of open water, including 8,923 acres of lakes and rivers, and 2,876 stream acres (Illinois Department of Natural Resources, 1996). The major rivers and tributaries are bordered largely by floodplain forest. Woodland habitats include dry upland forest, wet upland forest (flatwoods), wet hardwood forest, wet bottomland hardwood forest, floodplain forest, and savanna.

Few remnants of true prairie occur in Cook County. Most natural open habitat was eliminated by the settlement practices described above. Fire suppression allowed many non-native, mostly European plant species to invade native ecosystems. Consequently, old field and degraded open shrubland habitats now predominate. Pesticide use probably decimated some sensitive amphibian and reptile species, especially insectivores such as smooth green snakes, *Opheodrys vernalis* (Harding, 1997).

Cook County figures prominently in the literature on the distribution of amphibians and reptiles in the Chicago region. Prior to 1960, Kennicott (1855), Schmidt and Necker (1935), Necker (1938, 1939), Pearsall (1940), Pope (1947), Stille and Edgren (1948) and Edgren and Stille (1948) provided species lists and rudimentary distribution data on over thirty species of amphibians and reptiles. Extensive collections of preserved specimens were made as a result, and were deposited in the Field Museum of Natural History, the Chicago Academy of Sciences, the Illinois Natural History Survey, and out-of state institutions such as the Museum of Comparative Zoology (Harvard University), and the U. S. National Museum (Smithsonian Institution).

Since 1970, herpetological inventories were sporadically conducted at various localities throughout the county. Dancik (1974) reported on native and introduced turtles in the Des Plaines River. Pentecost and Vogt (1976) included Cook County records in their summary of the herpetofauna of the Lake Michigan drainage basin. Sliwinski (1992) surveyed herpetofauna at Poplar Creek Forest Preserve. Anton (1992a) reported on amphibians and reptiles from selected sites in two FPDCC divisions (North Branch, Skokie). Alfaro (1995, 1996) reported on declining amphibians at Tinley Woods. Salamander populations were studied at Spears Woods (Palos Division) by Mierzwa (1998).

This paper summarizes previous studies and the results of the 1995-1997 inventory of amphibians and reptiles in the Forest Preserve District of Cook County.

MATERIALS AND METHODS

Amphibians and reptiles were surveyed from 20 August to 30 October, 1995, and from March to October during the 1996-1997 field seasons. Various survey and collection methods were used to inventory all species found within all twelve FPDCC divisions and 80 individual forest preserves. Some off-site areas (non-FPDCC property) also were inventoried, especially those adjacent to FPDCC preserves.

Drift fences were made of 0.3 m aluminum flashing in 8.0 m lengths. Drift fence arrays were placed along habitat borders (e.g., the margins of marshes or ponds) to intercept

animals moving between these habitats. Fences could be combined to create longer (30 m) fences. Funnel traps were 35 x 50 cm aluminum minnow traps placed at the ends of drift fences. The lower half of the traps was recessed in the substrate, and covered with grass or leaf litter to protect collected animals from the elements and conceal the trap.

Turtle trapping was conducted at selected localities. Because of the high degree of human recreational use at most FPDCC properties, priority was given to secluded sites and those not previously inventoried. Traps (0.6 m wide x 1.3 m long; Nichols Net and Twine Co., Pontoon Beach, IL) were baited with fish and checked daily for one week.

Random dip-netting and seining were used to sample amphibian larvae and aquatic turtles. Seines were 6 m long and 3.3 m wide with 5 mm nylon mesh. Other methods included search and seize, cover turning, minnow-traps, day and night road cruising, and spotting scope/photographic surveys. Data collection included sex, total length, weight, and reproductive condition, if discernible. Frog populations were inventoried from March-June following the methods of Ludwig, et al. (1990).

Dead animals found in good condition in or adjacent to survey areas were salvaged and preserved in 10% formalin and stored in 70% ethanol. Specimens were deposited in the collections of the Field Museum of Natural History (FMNH) and the Illinois Natural History Survey (INHS).

Museum specimens and associated data from the following institutions were examined: American Museum of Natural History (AMNH), Academy of Natural Sciences-Philadelphia (ANSP), Auburn University (AU), Chicago Academy of Sciences (CA), California Academy of Sciences (CAS-SU), Carnegie Museum (CM), Field Museum of Natural History (FMNH), Illinois Natural History Survey (INHS), Illinois State Museum (ISM), University of Kansas (KU), Los Angeles County Museum of Natural History (LACM), Louisiana State University Museum of Zoology (LSUMZ), Museum of Comparative Zoology-Harvard (MCZ) University of California-Berkeley, Museum of Vertebrate Zoology (MVZ), Principia College (PC), Southern Illinois University at Carbondale (SIUC), Tulane University (TU), The University of Florida-Florida State Museum (UF), University of Illinois Museum of Natural History (UIMNH), University of Michigan Museum of Zoology (UMMZ), U.S. National Museum-Smithsonian Institution (USNM), and the collection of Harlan Walley (HDW).

Acronyms of the above institutions are used in the text to indicate material examined. Verified indicates the identities of the specimen(s) was verified by the institution's collection staff at the author's request. Examined indicates personal examination of the specimen(s) by the author. All specimens in the CA, FMNH and INHS collections cited in the text were examined. Localities on specimen tags, catalog entries, and database printouts were visited if possible to verify the continued presence of uncommon, rare, and federal or state-listed species, and the continued presence of suitable habitat.

Amphibians and reptiles were photographed on 35 mm color slides and black-and-white prints. They were deposited in the photo collections of the FPDCC, Illinois Natural History Survey (INHS), and Southern Illinois University at Carbondale (SIUC). Documenta-

tion was in number of species within each FPDCC division (Fig.1). Specific preserve names are not mentioned in the text.

During this survey, abundant species were defined as those found in 9-12 FPDCC divisions and more than 20 preserves; common species, those found in 7-8 divisions and 15-20 preserves; uncommon species, those found in 5-6 divisions and 10-14 preserves, and rare species, those found in 4 or less divisions and 9 or less preserves. In addition, a species was considered locally common if it was readily observed in certain localities having suitable habitat.

RESULTS

Species frequency

Thirteen amphibian and nineteen reptile species were found in the twelve FPDCC divisions and eighty preserves surveyed; a revised checklist of amphibian and reptile species in Cook County is shown in Table 1.

Distribution and abundance varied among species. Spring peepers (*Pseudacris crucifer*), Blanding's turtles (*Emydoidea blandingii*), and red-bellied snakes (*Storeria occipitomaculata*) were generally distributed in Cook County but infrequently observed, even in optimal habitats. The northern water snake (*Nerodia sipedon*), and queen snake (*Regina septemvittata*), had restricted or sporadic distributions throughout Cook County, but were common or easily observed at some localities.

SPECIES ACCOUNTS

Species found during this survey

AMPHIBIANS

Blue-spotted salamander, *Ambystoma laterale*. Although this species is found in only six counties in northern Illinois, it was locally common, being found in 8 FPDCC divisions and 22 preserves.

Spotted salamander, *Ambystoma maculatum*. This ecologically sensitive hardwood forest species is sporadically distributed in large FPDCC holdings. Alfaro (1995) reported declines in this species at 4 sites in Tinley Creek Division from 1973 to 1995. It was found in 3 FPDCC divisions and 7 preserves.

Tiger salamander, *Ambystoma tigrinum*. This is the largest, most widespread salamander species in Cook County, utilizing both open and forested habitats. It was found in 10 FPDCC divisions and 18 preserves.

Eastern newt, *Notophthalmus viridescens*. This rare, sensitive species is restricted to forested habitats. They were found in 3 FPDCC divisions and 6 preserves.

Red-backed salamander, *Plethodon cinereus*. This rare woodland salamander was found in 1 FPDCC division and 1 preserve. Two adults (1 in 1995, 1 in 1996) were found in hardwood forest under rotting logs near a pond containing *Sphagnum* moss hummocs. The preserve in which they were found is the oldest in the FPDCC. Smith (1961:54)

reported the distribution of this species from the extreme eastern edge of Illinois, and considered it "inexplicably rare or perhaps extinct in northeastern Illinois". Smith (1961:54) cited only one old (1933) specimen (FMNH 19256-examined) and a published record from Cook County.

American toad, *Bufo americanus*. This is one of the most widely distributed and abundant amphibians in Cook County. It was found in all 12 FPDCC divisions and 28 preserves.

Gray tree frog, *Hyla chrysoscelis*/*H. versicolor* complex. This complex consists of two morphologically similar species, the eastern gray tree frog (*H. versicolor*- tetraploid) and Cope's gray tree frog (*H. chrysoscelis* - diploid). Populations at one Northwest Division preserve are referable to the latter, while a population at a second Northwest Division preserve was not identified. *Hyla versicolor* is more widely distributed in the southern portion of the county. Both species are locally common, being found in 5 FPDCC divisions and 10 preserves.

Spring peeper, *Pseudacris crucifer*. This frog was found in 5 FPDCC divisions and 10 preserves. They were heard calling at a preserve in Tinley Creek Division in 1996, but Alfaro (1996) did not find this species at study areas in 4 adjacent Tinley Creek preserves. Their numbers appear to vary widely at each locality during the breeding season, and estimating their abundance is difficult. In 1996 a small chorus was heard and a specimen collected at a Skokie Division preserve, which is the northeasternmost population of the species in Cook County.

Western chorus frog, *Pseudacris triseriata*. This is an abundant and widespread species in Cook County. It was found in a variety of aquatic habitats on and off FPDCC property. It was documented from 11 FPDCC divisions and 22 preserves.

Bullfrog, *Rana catesbeiana*. This is Cook County's largest and most abundant frog. They were observed or heard calling from marshes, lakes, large ponds and the Des Plaines River in all 12 FPDCC divisions and 32 preserves. They have been widely introduced and can be found in all fishing lakes in Cook County.

Green frog, *Rana clamitans*. This locally common frog was found in 8 FPDCC divisions and 11 preserves. It reaches its greatest abundance in rocky streams and ponds with abundant emergent aquatic vegetation. Green frogs may have been displaced or possibly extirpated by bullfrogs at some FPDCC preserves, but data attributing declines in *R. clamitans* to bullfrogs is anecdotal or lacking.

Northern leopard frog, *Rana pipiens*. This species was found in marshes, wet meadows and fields adjacent to permanent or semi-permanent water. Populations are often localized and may undergo cyclical flutuations. From 1979 to 1982, they were seldom observed at preserves in 3 FPDCC divisions where they were once common (Anton 1992a). Declines have been reported (Ludwig, et al. 1990; Pentecost and Vogt, 1976), however, during this survey, they were encountered at localities where they were previously unreported or thought to have declined. They were found in 9 FPDCC divisions and 27 preserves.

Wood frog, *Rana sylvatica*. This rare, highly secretive woodland frog was found in 3 preserves in 3 FPDCC divisions. Smith (1961) stated that *R. sylvatica* was not abundant even in optimal habitat. Pentecost and Vogt (1976) considered it an ecologically sensitive species. Wood frogs were known from specimens (CA 19446-7; FMNH 162068-69, 162169) collected between 1946 and 1948 from 2 preserves in Des Plaines Division. In 1996, two newly metamorphosed individuals were found at one Des Plaines Division preserve fifty years after they were last collected there. Alfaro (1995, 1996) did not find the species at four study areas in Tinley Creek Division.

REPTILES

Eastern spiny softshell turtle, *Apalone spinifera*. This large aquatic species was found in the Des Plaines River and other large bodies of water on and off FPDCC property in 6 FPDCC divisions and 5 preserves.

Common snapping turtle, *Chelydra serpentina*. This is the largest and one of the two most abundant turtle species in Cook County. They were found in all aquatic habitats, including quarries, marshes, ponds, fishing lakes, ditches, rivers, and streams. They were particularly abundant in the Des Plaines River and were found in 9 FPDCC divisions and 29 preserves.

Painted turtle, *Chrysemys picta*. This common and highly visible turtle was county-wide in distribution, occurring in 8 divisions and 20 preserves. Habitats in Cook County included marshes of all sizes, man-made lakes, ponds, quarries, and in oxbows and slow backwater sections of the Des Plaines River.

Common map turtle, *Graptemys geographica*. This turtle is known in Cook County from 1 specimen (FMNH 2925) collected in Jackson Park Lagoon in 1919. During the study, it was found only in the lower Des Plaines River near the Calumet-Sag channel, and in a preserve in Sag Valley Division. It is found in the Des Plaines River in adjacent Du Page (Ludwig, et al, 1992) and Will Counties (Redmer and Anton, 1993; Redmer, 1994).

Blanding's turtle, *Emydoidea blandingii*. This turtle was found in 5 FPDCC divisions and 5 preserves. It was most often observed in large marshes and quarries with abundant aquatic vegetation, and in isolated floodplain ponds of the Des Plaines River. Only large adults of this long-lived, low-fecundity species (Congdon, 1993) were encountered during the study. On 1 January 1999 it was listed as threatened in Illinois (Redmer and Kruse, 1998).

Common musk turtle, *Sternotherus odoratus*. This small, secretive turtle was found in 4 FPDCC divisions and 6 preserves and occurs in the large quarry complexes in the Lemont area (Sag Valley Division). One (INHS 12687) was killed by fishermen at a lake in Thorn Creek Division in 1996. The species persists at a locality in a heavily industrialized area in Calumet Division.

Eastern box turtle, *Terrepene carolina*. This is presumed to be the only native species of box turtle in Cook County. Four individuals, including a gravid female (FMNH 252410) were found DOR on the Calumet Expressway (I-394) near Goodenow, Will County, ca. 4 km. south of the county line (Anton and Redmer, 1996). In 1996, an adult female (INHS

13074) was found DOR on the east shoulder of the Calumet expressway (I-394) at the I-80/294 interchange. Populations of this turtle occur in Lake County, Indiana just over the state line. Pearsall (1940) included this species on his list of Forest Preserve District fauna.

Red-eared slider, *Trachemys scripta*. This species was found in 7 divisions and 7 preserves. Populations in Cook County are believed to be introduced, though the natural range of the species approaches the Chicago region (Pope, 1947). Therefore, the delineation of its range in northern Illinois is problematic. Concerns over *Salmonella* infection halted the sale of pet shop hatchlings in the late 1970s. It is most common in large, man-made lakes and backwaters of the Des Plaines River.

Fox snake, *Elaphe vulpina*. This large, locally common snake inhabits old fields, prairies, marsh margins, and open woodland in the northwestern and southern portions of the county. Quarries, abandoned buildings, and foundations were frequented. They were found in 4 FPDCC divisions and 7 preserves.

Milk snake, *Lampropeltis triangulum*. This fossorial constrictor is secretive and seldom seen in Cook County. Abandoned buildings, old foundations, dilapidated stone walls, and quarries in open woodland or prairie margins were preferred habitats. They were found in 4 FPDCC divisions and 5 preserves.

Northern water snake, *Nerodia sipedon*. This locally common snake was found in rocky creeks and streams and on lake, marsh, and pond margins with ample cover, usually rocks. Quarries and dolomite piles near bridges and fishing lakes often support large populations. It was found in 2 FPDCC divisions and 4 preserves.

Smooth green snake, *Opheodrys vernalis*. Widespread pesticide use and destruction of prairie habitat have resulted in populations of this small insectivore being reduced to widely scattered colonies (Smith, 1961). Original habitats in Cook County included sedge meadows, mesic prairie, old fields, and vacant lots. They were found in 6 FPDCC divisions and 5 preserves.

Graham's crayfish snake, *Regina grahamii*. This rare semi-aquatic inhabitant of prairie ponds and marshes was found in only 1 preserve. The distribution of the species in the Chicago region is poorly known. Habitats in Cook County included a group of small (2-3 ha.) heavily vegetated ponds in Sag Valley Division. Individuals were observed in 1991and 1995 at these ponds. The observations in 1991 were documented with 2 specimens (FMNH 245712, 247523).

Queen snake, *Regina septemvittata*. This locally common semi-aquatic snake was found in only 1 FPDCC division and 2 preserves in southern Cook County during the survey. Habitats included rocky sections of creeks in semi-open woodland and a large, FPDCC-owned quarry complex near Lemont, which featured ample dolomite slab and vegetation cover. This snake and *Regina grahamii* are dietary specialists, feeding almost exclusively on newly molted crayfish.

Brown snake, *Storeria dekayi*. This species was found in all 12 FPDCC divisions and 23 preserves. It was considered abundant by Smith (1961). Habitats in Cook County were forest edge, open floodplain woodland, and old fields. They also were found in disturbed habitats both off district and on FPDCC property, even in urbanized areas.

Red-bellied snake, *Storeria occipitomaculata*. This small, secretive snake was found in 3 FPDCC divisions and 5 preserves. Though considered uncommon except in the morainal regions of Cook and Lake counties (Smith, 1961), it was considered common throughout the broadly-defined Lake Michigan drainage basin (Pentecost and Vogt, 1976).

Plains garter snake, *Thamnophis radix*. This snake was found in all 12 FPDCC divisions and 20 preserves during the survey. It occurs county-wide, even in areas of high urbanization and disturbance. Habitats in Cook County included old fields, abandoned farmland, and marsh environs. This characteristic prairie species was considered common to abundant in the Chicago region (Pentecost and Vogt, 1976; Pope, 1947; Smith, 1961).

Common garter snake, *Thamnophis sirtalis*. This widespread species is probably the most common snake in the Chicago region. A current summary of research on this ubiquitous species is provided by Rossman, et al. (1996). *Thamnophis sirtalis* was found in 11 FPDCC divisions and 21 preserves.

Massasauga rattlesnake, *Sistrurus catenatus*. This rare, secretive pit viper was found in only 1 FPDCC division and 2 preserves. Reports of its presence in southeastern Cook County on FPDCC property need verification. This snake is known from only 3 northeastern Illinois counties (Cook, Lake, Will). It was presumed extirpated in adjacent Du Page County (Ludwig, et al. 1992). In 1994, this snake was placed on the Illinois list of endangered species. Massasaugas are essentially prairie species, but also occupy forest edge and old field habitats, and may persist in disturbed areas where habitat is protected (Anton, 1992b). It apparently breeds every 2-3 years across most of its U.S. range (Anton, 1992b). This factor, plus small litter size, continued habitat destruction, fragmentation and genetically isolated populations, make this long-lived, r-selected species vulnerable to extirpation. Anton (1992b) and Wright (1941) summarized the natural history of this unique snake in northeastern Illinois.

Amphibians and reptiles not found during this survey but considered part of the historical fauna of Cook county

Cricket frog, *Acris crepitans*. Smith (1961) called this small frog the most common amphibian in Illinois. It underwent unexplained declines in the 1970s (Vogt, 1981), and was placed on the endangered species list in Wisconsin. Declines in Illinois were summarized by Mierzwa (1989). *Acris crepitans* can adapt to disturbed habitats, such as quarries. Natural habitats include pond, lake and stream margins. They are found in shallow water with abundant emergent vegetation and a mud, silt, clay or gravel substrate. A population near Joliet is the only one known in the Chicago region (Redmer and Anton, 1993). Examination of specimens collected from 1927 to 1970 showed this frog was once widespread in Cook County, being found in areas within 8 FPDCC divisions. Large numbers were collected in Palos Division in the mid-1940s. An FPDCC-owned quarry complex near Lemont appeared to contain suitable habitat for *A. crepitans*, but none were

heard or collected in three years of survey work. The cricket frog is presumed extinct in Cook County.

Fowler's toad, *Bufo fowleri*. This toad is usually found in sandy areas, such as oak savannas, sand dunes, xeric prairies near Lake Michigan and sandy-soil areas in open woodland (Pentecost and Vogt, 1976). Despite Pearsall's (1940) inclusion of this toad on his FPDCC faunal list, efforts by herpetologists and FPDCC staff to find them in or adjacent to the Chicago Lake Plain in Calumet and Thorn Creek divisions were unsuccessful. Specimens from the Chicago region are few, suggesting that populations in northeastern Illinois were relicts. A specimen (CA 18417) collected at Bullfrog Lake (Palos Division) in 1966 was identified as an American toad, *B. americanus*. Three specimens (CA 127) from Lake County, Indiana were mistakenly labeled "Cook County". A single locality in northeastern Cook County plotted as a solid circle on Smith's (1961:77) map refers to a specimen (MCZ 500-verified), collected in Evanston in 1886. If this record is valid, *Bufo fowleri* is most likely extinct in Cook County.

Four-toed salamander, *Hemidactylium scutatum*. This plethodontid salamander is listed as threatened in Illinois (Illinois Endangered Species Protection Board, 1994). This glacial relict is currently known from 10 Illinois counties (Anton, et al., 1998; Brandon and Ballard, 1991). Smith (1961:52) considered this salamander extremely rare in Illinois. Often considered a bog species, *H. scutatum* has been found in a variety of habitats, including deciduous and coniferous forests, *Sphagnum* bogs, and seepage areas in oak, hickory, and maple-dominated woodland. A consistent feature of the habitat is undisturbed mature forest near water in the form of fishless woodland pools and seeps, and ample damp cover, such as mosses and leaves (Anton, et al., 1998). All specimens from Cook County (CA, FMNH, USNM) were collected before 1925. Pearsall (1940) listed *H. scutatum* as a component of the FPDCC herpetofauna. In 1995, a population was discovered in Will County, and is the first record in the Chicago region in over 65 years. A preserve in Northwest Division appears to contain suitable habitat, but a reported sighting in 1978 could not be verified. This preserve also is the oldest FPDCC property. Although these factors suggest that four-toed salamanders may be found at this locality in the future, the four-toed salamander is likely extirpated in Cook County.

Mudpuppy, *Necturus maculosus*. This aquatic species is the largest salamander in the Chicago region. Habitat includes lakes, lagoons, rivers and large creeks. Mudpuppies are difficult to collect except with electrofishing equipment (Smith, 1961). They are considered rare in adjacent Du Page County (Ludwig, et al. 1992), and its status in surrounding Lake and Will counties remains unknown. Most specimens collected between 1880-1980 came from Lake Michigan, and they still occur at some localities along the Lake Michigan shoreline. Specimens (FMNH 142237, 245677-79, 245692-93) were collected between 1964 and 1979 at Wolf Lake (off-site, Calumet Division), and the presence of a reproducing population there was reconfirmed in 1997. Two juveniles and 1 subadult were found by the author at this site on 11 July 1997; a juvenile specimen (INHS 13170) was collected. Pearsall (1940) included mudpuppies on his FPDCC faunal list. Pope (1947) suggested that mudpuppies may occur in the Des Plaines River, but cited no specimens. Although county-wide electrofishing censuses conducted over a 10-year period by FPDCC fisheries biologists failed to collect any specimens on FPDCC property, the species still occurs in Cook County.

Plains leopard frog, *Rana blairi*. This recently described prairie species (Mecham, et al., 1973) is similar to the northern leopard frog, but was recognized as a distinct species based on morphological traits and differences in breeding call. It has a poorly defined range in the midwestern U.S., being restricted to the prairie peninsula in the eastern portion of its range (Conant and Collins, 1991). Brown and Morris (1990) did not find *R. blairi* to be abundant at any locality in Illinois. This frog occupies a variety of habitats, including disturbed areas adjacent to agricultural land. This distribution may be the result of the destruction of most Illinois prairie habitat by agricultural practices (Brown and Morris, 1990). The closest known localities for this species are in Crete, Monee and Wilmington Townships, Will County (Mierzwa, 1988; Brown and Morris, 1990). Searches of habitat in southern Cook County considered suitable for the species were unsuccessful, and *R. blairi* remains undocumented. Its status is uncertain in Cook County.

Spotted turtle, *Clemmys guttata*. This Illinois State Endangered Species has not been found in Cook County since 1950. A specimen examined (INHS 6013) was collected in 1950 "near Illinois-Indiana line". A specimen (UIMNH 2284-examined) collected in 1927 from "a small pond just beyond the Illinois end of Wolf Lake, Cook County" (Cahn, 1937), was cited by Smith (1961), who considered the record dubious. Pearsall (1940) did not include *C. guttata* in his FPDCC faunal list. Another specimen (CA 18549) gives only "Palos Hills" as locality data, and was collected in 1942. To date, the only viable *Clemmys guttata* populations in Illinois are in Will County, where an intensive life-history study and monitoring regimen is being undertaken by Will County Forest Preserve District wildlife biologists. Destruction of wetland habitat and illegal collecting for the pet trade are the greatest threats to this long-lived, low-fecundity species throughout its range. *Clemmys guttata* is most likely extinct in Cook County.

Kirtland's snake, *Clonophis kirtlandii*. This small, rare fossorial snake is listed as threatened in Illinois (Illinois Endangered Species Protection Board, 1994), and was proposed for federal listing as a Category 2 species (Dodd, et al., 1985). A current summary of the distribution and status of this species was provided by Bavetz (1993). *Clonophis kirtlandii* is a glacial relict (Smith, 1961), and was considered rare in the Chicago area (Pope, 1947; Pentecost and Vogt, 1976). Pearsall (1940) included *C. kirtlandii* on his FPDCC faunal list. The majority of specimens and published records from the Chicago region are from Cook County, and represent areas in 5 FPDCC divisions. The type specimen (USNM 1514) was collected by Robert Kennicott in 1856. A 1993 photograph and specimen (SIUC R-2461) of an individual from Tinley Creek Division is the only current documentation of this species from Cook County. In 1998, one was found in a small prairie remnant (off-site) in Palos Division. A population of these snakes persists in Will County (Anton and Redmer, 1996). Some habitat remains in Des Plaines Division, but the most recent observations there date to 1986. Disturbed or urban habitats near wetlands that may still harbor these snakes are vulnerable to continued habitat destruction. Direct threats include burns (controlled and illegal), vehicular traffic, and mowing operations (Bavetz, 1993). Threats to this species from agricultural practices were reported as early as the 1890s (Garman, 1892). Protection of habitat for burrowing crayfish was suggested (Tucker, 1994), as *C. kirtlandii* appears to depend on crayfish burrows for shelter and hibernacula. *Clonophis kirtlandii* still occurs in Cook County, although none were found on FPDCC property during this survey.

Six-lined racerunner, *Cnemidophorus sexlineatus*. Only a published record of this fast, diurnal lizard exists for Cook County. Smith (1961) cited "forest preserves", based on Pearsall (1940), but did not specify which FPDCC property. Smith (1961: 166) plotted this record on his map for the species in what is Calumet Division. Two preserves in this division contain sand areas, but pitfall traps failed to collect any specimens. These preserves are now heavily overgrown with non-native vegetation which has shaded out what were once open sand prairie remnants. Racerunners are common at Indiana Dunes National Lakeshore and other localities in adjacent Lake and Porter counties, Indiana. In the Chicago area, racerunners are known from large sand areas in Grundy, Kankakee, and Will counties. Despite reported sightings of this active, diurnal animal, none were collected during this survey, and it remains undocumented by specimens. Its status in Cook County is uncertain, and it may now be extirpated.

Racer, *Coluber constrictor*. This large, active, diurnal snake inhabits forest edge, old fields, and open woods throughout the Lake Michigan drainage basin (Pentecost and Vogt, 1976). It prefers sand areas (sand prairies, open sand woodland). The closest known localities are both in Will County. Pearsall (1940) included it on his list of FPDCC herpetofauna. Three specimens are extant; Pope (1947) mentions a specimen (CA 58, collected pre-1930) from an unspecified locality in Cook County. A juvenile (USNM 6389-verified) was collected before 1864 and has only "Cook County, Chicago" for locality data. A Du Page County specimen (FMNH 41221, juvenile) was collected in 1940 at 31st St. and York Road, near Fullersburg Woods at the Cook County line; it was found in the basement of a home and may have been transported from another locality. No other specimens are known from Cook County. This snake requires large (>1500 ha.) tracts of relatively undisturbed, semi-open habitat, preferably in sandy areas. Few such areas remain in Cook County. The status of *C. constrictor* in Cook County is unknown and it may now be extirpated in Cook County.

Rat snake, *Elaphe obsoleta*. This large (>100 cm) snake is known from only two specimens (CA 290, FMNH 19491), both collected before 1935 from near railroad areas in Thorn Creek Division. These specimens form the basis for its inclusion in Pearsall's (1940) FPDCC fauna list. Both specimens were examined and are referable to the *E. o. spiloides* (gray rat snake) or *E. o. lindheimeri* (Texas rat snake) phenotypes. This, plus the strong possibility of their arrival as stowaways on rail traffic, make their locality data suspect. No suitable habitat exists in Cook County and no specimens have been found since 1935. In Will County, a single DOR specimen (INHS 11186) was found in Monee Township in 1993 (D. Mauger, pers. comm). Heavily wooded riparian areas, featuring dolomite bluffs surrounded by open woodland, are preferred habitat in central, northwestern, and southern Illinois. Large, undisturbed tracts of land are required for viable populations to exist. It is presumed that individuals encountered in the immediate Chicagoland area are escaped pets. Like the racer (*Coluber constrictor*), individuals of this species would be found DOR where a reproducing population existed, and sightings would be more frequently reported. The status of the rat snake in Cook County is unknown.

Five-lined skink, *Eumeces fasciatus*. This lizard inhabits forest edge, pine barrens, oak forest, and northern mesic (xeric hardwood) forest, where it frequents logs, dead trees,

and abandoned buildings (Pentecost and Vogt, 1976). Rocky areas also are used (Smith, 1961). They are wary, fast and extremely hard to capture, making documentation difficult. *Eumeces fasciatus* is very rare north of the Shelbyville Moraine (Smith, 1961), and in the Chicago area (Pope, 1947). Any remaining northeastern Illinois populations are presumably glacial relicts. Pearsall (1940) did not include *E. fasciatus* on his list of FPDCC fauna. All specimens from Cook County were collected in the late 1800s (CA 24;USNM 4995-verified), and between 1912 and 1925 (FMNH 2849-50). Locality data for these specimens is not specific, and the localities have been developed since the 1930s. In 1991, a juvenile from a preserve in Sag Valley Division was photographed. The two poor-quality color slides (SIU-Carbondale and FPDCC photo collection) are the only documentation of this species in Cook County and the entire Chicago region since the 1920s. The status of the five-lined skink in Cook County remains unknown.

Eastern hognose snake, *Heterodon platyrhinos*. Unsubstantiated reports of this distinctive snake existed between 1986-1991 from Thorn Creek Division, where they may have been introduced. Despite intensive searches in this area, no specimens were found during the survey. Specimens of *H. platyrhinos* presumably were the basis for which Pearsall (1940) included it in his faunal list. The specimens are old and came from sites not owned by the FPDCC (CA 33, collected 1889; FMNH 3001, collected 1880; CA 13796, collected 1946). The status of the hognose snake in Cook County is unknown.

Slender glass lizard, *Ophisaurus attenuatus*. Little is known about the ecology or habits of this legless lizard in Illinois (Smith, 1961). Smith (1961:164) considered this species "inexplicably rare", though state-wide in occurrence. A specimen (CA 19, collected 1857) had only "Cook County" for locality data. Another specimen (FMNH 2971, collected pre-1860) is from "Palos Park". Smith (1961) overlooked the specimens or may not have considered the locality data valid; he plots no solid circle on his distribution map for the species. Pope (1947) considered *Ophisaurus attenuatus* rare in the Chicago area. He reports a pre-1860 specimen (CA 18) taken at Evanston. Pearsall (1940) did not include this lizard on his FPDCC fauna list. Glass lizards inhabit sand areas, but are found in other open habitats (Pope, 1947; Smith, 1961). Pentecost and Vogt (1976) reported *O. attenuatus* from sand or muck prairie, oak savanna and pine barrens, but described it as rare in the Lake Michigan drainage basin. During the survey, searches for this lizard were conducted in sandy areas in Calumet and Thorn Creek divisions on or adjacent to the Chicago lake plain. Glass lizards were reported from a preserve in Calumet Division as recently as the late 1980s. Four were taken in pitfall traps during small mammal surveys in 1986 (C. Anchor, pers. comm),but none were collected or photographed, and they have not been found at this locality since. The status of Glass lizards both on and off FPDCC property in Cook County is unknown.

Western ribbon snake, *Thamnophis proximus*. This snake is usually found near water in high-quality habitats. They inhabit swamps, marsh edges, sandy areas of southern lowland forest, and occasionally upland woods (Pentecost and Vogt, 1976; Smith, 1961). Although Kennicott (1855) considered them "common" in Cook County, *T. proximus* is considered rare over much of its range and in the Chicago area (Pentecost and Vogt, 1976; Pope, 1947). Smith (1961:226) called the range of *T. proximus* problematical; he described it as common in the Mississippi River bluffs and in southwestern Illinois, but extremely rare elsewhere in the state. Ribbon snakes are reported to be more sensitive to

habitat modification than other members of the genus (Pentecost and Vogt, 1976). Three specimens from Cook County are listed in collections. USNM 8062 was verified as *T. proximus,* its locality data showing only "Cook County, Chicago". MCZ 23, cataloged as *T. proximus*, was collected by Kennicott in the same period, but was missing from the MCZ collection and its identity could not be verified. Because of the likelihood of misidentification, ribbon snakes must be collected for positive identification. They were not included in the list of FPDCC fauna by Pearsall (1940). The only recent records of *T. proximus* in the Chicago region are observations in Lake County in the early 1980s (undocumented by specimens), and one specimen (INHS 12096) from Will County. *Thamnophis proximus* has not been found in Cook County since the turn of the century and it may now be extirpated.

Amphibians and reptiles erroneously reported from Cook county

The following species have been recorded from Cook County and are documented by specimens except where noted. The records are believed to be erroneous due to cataloguing errors, misidentification, or mislabeling. In some cases, specimens may have originated in southern Illinois, particularly those collected by Robert Kennicott, who collected extensively in that region. Others represent introductions of non-endemic species. All specimens are old (1850-1930s), and none have been found in the county since.

Desmognathus quadramaculatus (black-bellied salamander). Data for the single specimen (USNM 3823-verified) of this southeastern U.S. and Appalachian species shows "Cook County" and the collector, Kennicott. Smith (1961) pointed out that the locality data for this specimen has to be incorrect.

Plethodon glutinosus (slimy salamander). Four specimens (UMMZ 77009-verified) exist. No dates of collection are given, only "Chicago". Two other specimens (USNM 3775, 9481-verified) list localities "Cook County, Aux Plaines River, West Northfield" and "West Northfield" respectively. Both were reportedly collected by Robert Kennicott. A lack of additional specimens and the isolation of Kennicott's material from the largely southern and eastern range of the species in Illinois prompted Schmidt and Necker (1935, in Smith, 1961) to eliminate *P. glutinosus* from Cook County's fauna.

Pseudotriton ruber (red salamander). This eastern species was supposedly represented by a pre-1890 specimen from "Aux Plaines", but no specimen was found in any of the museum collections surveyed. Schmidt and Necker (1935) questioned the record and deleted *P. ruber* from their list of Chicago region amphibians and reptiles. This species has not been found in Illinois, and Smith (1961) eliminated it from the state's herpetofauna.

Rana palustris (pickerel frog). No specimens of this frog are known from Cook County. Specimens from Kane and McHenry counties collected before 1950 were the basis for its presumed occurrence in northwestern Cook County (Smith, 1961:102). Pearsall (1940) did not include this species on his list of FPDCC fauna. It was included on subsequent faunal lists, but the basis for this is unknown. Pickerel frogs can be mistaken for aberrantly patterned leopard frogs (*R. pipiens*). A newly-metamorphosed specimen believed to be this species was collected in Spring Creek (Poplar Creek Division) in 1991, but was later identified as *R. pipiens*. Some marginal habitat exists at this locality, which features

a cold, spring-fed, well-vegetated stream. Limited canopy cover at this locality precluded its being condsidered optimal habitat. A 1973 report from Tinley Creek Division cited by Alfaro (1995) is suspect; no suitable habitat exists at this locality, and no specimens have been collected there since. Pickerel frogs were not found during searches of seepage areas on the Cook-Will county line (Mierzwa, 1988). Widespread destruction of spring-fed watersheds in the Chicago region may have eliminated any suitable habitat for *Rana plaustris*.

Graptemys pseudogeographica complex (false map turtles). Dancik (1974) reported the capture of a single *G. kohni* (Mississippi map turtle) from the Des Plaines River in Salt Creek Division. They also are known from two specimens (FMNH 5573, 5615), purchased from a Chicago market in 1923. These were examined and are referable to the false map turtle (*G. pseudogeographica*) complex. The species was reported from northern Illinois by Cahn (1937), and postulated to occur statewide (Smith,1961). They were reported from adjacent Du Page County by Ludwig, et al. (1992), where individuals from two localities were considered introductions. False map turtles were not observed at any locality during the inventory, and Cook County populations are presumed to be introduced.

Sceloporus undulatus (eastern fence lizard). This is a common species of heavily timbered regions of southern Illinois and the southern midwest. One specimen (USNM 9082-verified) bears the locality data "Cook County, Northfield". Another (FMNH 11270) was collected in1930. Its locality data reads "Chicago, Illinois, in vegetable shipment". This species has not been found north of Shelby County (Smith, 1961), and it is presumed that the USNM specimen bears erroneous data.

Scincella lateralis (ground skink). This small, secretive southern species is not found north of Mason County in central Illinois. A single specimen (USNM 9302-verified) was reportedly collected from "West Northfield", and is presumably a Kennicott specimen. The locality data for this specimen is presumed erroneous. No recent specimens or published reports of this species exist from northern Illinois.

Carphophis amoenus (worm snake). What Kennicott (1855) called *Celuta helenae* has never been found in Cook County. His inclusion of this predominately southern species as a component of the Cook County fauna is suspect. A survey of 22 museum collections revealed no specimens of *C. amoenus* from northeastern Illinois.

Diadophis punctatus (ring-necked snake). A single specimen (CA 924, collected 1878) has only "Cook County" for data. Both catalog entry and jar label read "the locality for this specimen is questionable". Schmidt and Necker (1935:61) suggested the "transport of terrarium individuals, and we accordingly omit the species from our list until it can authentically be traced to our area". The specimen may have originated in Kansas (Kennicott, 1859). Garman (1892) considered it uncommon; all localities he cited were from southern Illinois. None have been found in Cook County, and the closest known locality in the Chicago region is the Indiana Dunes National Lakeshore (Porter Co.), where it is represented by a recent (1991) specimen (FMNH 246402).

Lampropeltis calligaster (prairie king snake). One specimen of this large prairie species exists (CA 90). It was collected by Kennicott before 1856. The locality in the ledger was handwritten in ink only as "Ill" with "Cook County" stamped into the locality field at a later date. The specimen was initially identified as *Elaphe vulpina*, and later re-identified as *L. calligaster* by Howard K. Gloyd. Examination of an entry referring to the same specimen in an older ledger showed the locality "N. Illinois" with "Cook County" entered later in the locality field. The data could have been misapplied to a specimen from Kansas (Kennicott, 1859). This specimen was part of the Northwestern University collection obtained by the Chicago Academy of Sciences around 1930. The northernmost localities for this snake are Kankakee, Marshall and Rock Island counties in central and western Illinois. Garman (1892:294) considered it an uncommon inhabitant of prairies throughout the state, and gave no northern Illinois records. Blanchard (1921) makes no mention of this or any other specimen from Illinois north of Pekin (Tazewell County).

Opheodrys aestivus (rough green snake). One specimen (UMMZ 3771-verified) was reportedly collected by Kennicott at "West Northfield" around 1850. This semi-arboreal inhabitant of lowland areas and swamps has not been found north of the Shelbyville Moraine (Smith, 1961).

Pituophis melanoleucus (bullsnake). In 1996 a juvenile was caught in a rodent sticky trap behind a restaurant in Calumet City near the IL-IN state line (P. Strand, pers. comm.). It was presumed to be an escaped pet. Sand prairie remnants along powerline right-of-ways could support small, isolated populations, but it is unlikely that these could survive urbanization over time. No specimens from Cook County exist in museum collections surveyed, and Pearsall (1940) omitted it from the FPDCC fauna. Bullsnakes are often mistaken for the similarly patterned fox snake, *Elaphe vulpina*, and reports of "bullsnakes" received at nature centers in Cook County usually involve fox snakes. The inclusion of bullsnakes on post-Pearsall (1940) FPDCC faunal lists is erroneous. Bullsnake populations in the Chicago area are known only from northwest Indiana and the Kankakee Sand Area Section of Grundy, Kankakee and Will counties. Sightings of living and DOR individuals of such a large (>2m) snake would be reported if reproducing populations existed in Cook County. Similar logic applies to *Coluber constrictor* and *Elaphe obsoleta*.

Thamnophis sauritus (eastern ribbon snake). Three specimens of this snake exist in museum collections. CA 371 was cataloged as a *T. proximus* but was verified by the author as *T. sauritus*. It was collected by Robert Kennicott around 1860 but had no specific locality data, and the record is presumed to be erroneous. MCZ 3268, (misidentified as *T. proximus* and verified as *T. sauritus*), was collected in 1865. UMMZ 4079, verified as *T. sauritus*, was collected by Kennicott at "West Northfield" around 1860. *Thamnophis sauritus* is listed as endangered in Illinois (Illinois Endangered Species Protection Board, 1994). The nearest *T. sauritus* record documented by a specimen (FMNH 251485) is from Porter County, Indiana, collected in 1993, 19 km W of the IL-IN state line. Because of Kennicott's misidentifications, erroneous locality data, lack of data on the molecular systematics of local ribbon snake populations, and no recent records of *T. sauritus* in northeastern Illinois, this snake is presumed never to have occurred in Cook County.

Virginia valeriae (smooth earth snake). A specimen (USNM 7303-verified) was collected in the mid-1800s by Kennicott, and was cited by Garman (1892). The record was suggested by Smith (1961) to represent a cataloging error. *Virginia valeriae* is a small, secretive woodland species found in southern Illinois.

Crotalus horridus (timber rattlesnake). Kennicott's (1855) inclusion of this snake in his list for Cook County is highly improbable. No suitable habitat existed for this species in northeastern Illinois, and no specimens from the area are known in any museum collection.

Introduced and exotic species

Dancik (1974) summarized 20 turtle species found in Cook County, 13 of which were not native (Table 2). Nature centers are frequent recipients of unwanted exotic amphibians and reptiles, and often such animals are released in forest preserves. Those from tropical climates may survive for short periods if released in spring or summer, but succumb with the onset of cold weather. Exceptions may include the Reeve's turtle (*Chinemys reevesii*), which hibernates at the northern part of its range in China, Japan and Korea (Zhao and Adler, 1993). They have been found in successive years at the Chicago Botanic Garden (Anton, 1992a), though it is unknown if reproduction is occurring. On 21 July 1997, a 2 m, 5 kg Burmese python (*Python molurus*) was found DOR on busy Calumet City street.

DISCUSSION

All habitats in Cook County have been reduced in size, fragmented and isolated through various forms of human development. Wetlands have been eliminated or negatively impacted by alteration of the water table in some areas. Such practices are particularly detrimental to generally immobile amphibians and reptiles.

The discovery of new populations of all amphibian and reptile species in Cook County is possible. State-listed species, and those considered uncommon or rare, were found on FPDCC property. These include *Sistrurus catenatus, Plethodon cinereus,* and *Regina grahami*. However, the county-wide distribution of amphibians and reptiles in Cook County is not expected to increase for most species.

Heavily urbanized preserves having severely degraded habitat, such as those in Indian Boundary, North Branch, and Salt Creek divisions, were not surveyed as thoroughly as those with habitat deemed suitable for rare or state-listed species. These preserves may lack current records of widespread or common species, e.g., *Chelydra serpentina, Chrysemys picta,* and *Thamnophis sirtalis*.

A statewide decline in all amphibians and reptiles was reported by Morris, et al. (1983). There is insufficient data to determine if some species, e.g., *Pseudacris crucifer*, *Rana clamitans*, *Opheodrys vernalis* and *Storeria occipitomaculata* have actually declined, although they were uncommon, rare or absent from localities where they were once easily found.

Seventeen species known historically or previously reported from Cook County were not found during the survey. There is evidence that 3 species (*Clonophis kirtlandii*, *Necturus*

maculosus and *Ophisaurus attentuatus*) still occur in Cook County. Five species (*Acris crepitans*, *Bufo fowleri*, *Clemmys guttata*, *Hemidactylium scutatum* and *Thamnophis proximus*) are presumed extirpated in Cook County. Three species (*Rana palustris*, *Pituophis melanoleucus*, and *T. sauritus*) probably never occurred on FPDCC property and were erroneously included on FPDCC species lists. The status of six species (*Rana blairi*, *Cnemidophorus sexlineatus*, *Coluber constrictor*, *Elaphe obsoleta*, *Eumeces fasciatus* and *Heterodon platyrhinos*) is unknown.

Old (1850-1930) records of 12 species, some documented by specimens, are believed erroneous due to cataloging errors, mislabeling, or misidentification.

The introduction of non-native or exotic turtle species is another sign of human alteration of amphibian and reptile assemblages in Cook County. Red-eared sliders (*Trachemys scripta*) are the most common introduced species in Cook County. Observations of box turtles (*Terrepene carolina, T. ornata)* and exotic species such as the Chinese Reeve's turtle (*Chinemys reevesii*) and Asian box turtles (*Cuora amboinensis, C. flavomarginata*) have been noted in the last ten years (Anton, 1992a).

The current distribution, relative abundance, and population dynamics of amphibians and reptiles in Cook County is still poorly documented. This is especially true of state listed, rare, or uncommon species. Data collected during this survey may be useful in updating the distribution and status database for amphibians and reptiles in Illinois.

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Table 1. Status of amphibians and reptiles in the forest preserve district of Cook county, 1995-1997.

SPECIES	No. of Divisions	No. of Preserves	% Frequency	Status
AMPHIBIANS				
Ambystoma laterale	8	22	27	C(LC)
Ambystoma maculatum	3	7	8	R
Ambystoma tigrinum	10	18	22	C
Notophthalmus viridescens	3	6	7	R
Plethodon cinereus	1	1	1	R
Bufo americanus	12	28	35	A
Hyla chrysocelis/versicolor	5	10	12	U(LC)
Pseudacris crucifer	5	10	12	U(LC)
Pseudacris triseriata	11	22	27	A
Rana catesebeiana	12	32	40	A
Rana clamitans	8	11	14	U(LC)
Rana pipiens	9	27	34	A(LC)
Rana sylvatica	3	3	4	R
REPTILES				
Apalone spinifera	6	5	6	R
Chelydra serpentina	9	29	36	A
Chrysemys picta	8	20	25	C
Graptemys geographica	1	1	1	R
Emydoidea blandingi	5	5	6	R(ST)
Sternotherus odoratus	4	6	7	R
Terrepene carolina	1	1	1	R
Trachemys scripta	7	7	9	I(LC)
Clonophis kirtlandii	1	1	1	R
Elaphe vulpina	4	7	9	R(LC)
Lampropeltis triangulum	4	5	6	R
Nerodia sipedon	2	4	5	R(LC)
Opheodrys vernalis	6	5	6	R
Regina grahami	1	1	1	R
Regina septemvittata	1	2	3	R(LC)
Storeria dekayi	12	23	29	A
Storeria occipitomaculata	3	5	6	R
Thamnophis radix	12	20	25	C
Thamnophis sirtalis	11	21	26	A
Sistrurus catenatus	1	2	3	R(SE)

Legend:
A=Abundant, C=Common, I=Introduced species, LC=Locally Common, R=Rare, SE=State Endangered, ST=State Threatened, U=Uncommon
%Frequency=number of preserves in which a species was found divided by 80.

Table 2. Introduced turtles observed in Cook County.

SPECIES	DISTRIBUTION	SOURCE
Reeve's turtle (*Chinemys reevesi*)	Asia/China	Anton, 1992a; Dancik, 1974
Eastern painted turtle (*Chrysemys p. picta*)	Eastern U.S.	Dancik, 1974
Spotted turtle (*Clemmys guttata*)	Eastern U.S.*	Dancik, 1974
Wood turtle (*Clemmys insculpta*)	Northern, Eastern U.S.	Dancik, 1974
Asian box turtles (*Cuora* sp.)	SE Asia	Anton, 1992a
False map turtle complex (*Graptemys pseudogeographica*)	Central U.S.	Dancik, 1974; Ludwig, et al, 1990
Diamondback terrapins (*Malaclemmys terrapin*)	Coastal, SE U.S.	Dancik, 1974
River cooters (*Pseudemys* sp.)	Central, SE U.S.	Dancik, 1974
Neotropical wood turtle (*Rhinoclemmys* sp.)	Central America	Anton, 1992a
Box turtles (*Terrepene* sp.)	Central, E U.S.	Anton, 1992a; Dancik, 1974
Sliders (*Trachemys* sp.)	U.S. and Mexico	Anton, 1992a; Dancik, 1974

*One Illinois population in Will County; State endangered species

Figure 1. Map of the twelve administrative divisions of the Forest Preserve District of Cook County. Shaded areas show land owned and managed by the FPDCC. Inset map shows Cook County's location in Illinois.