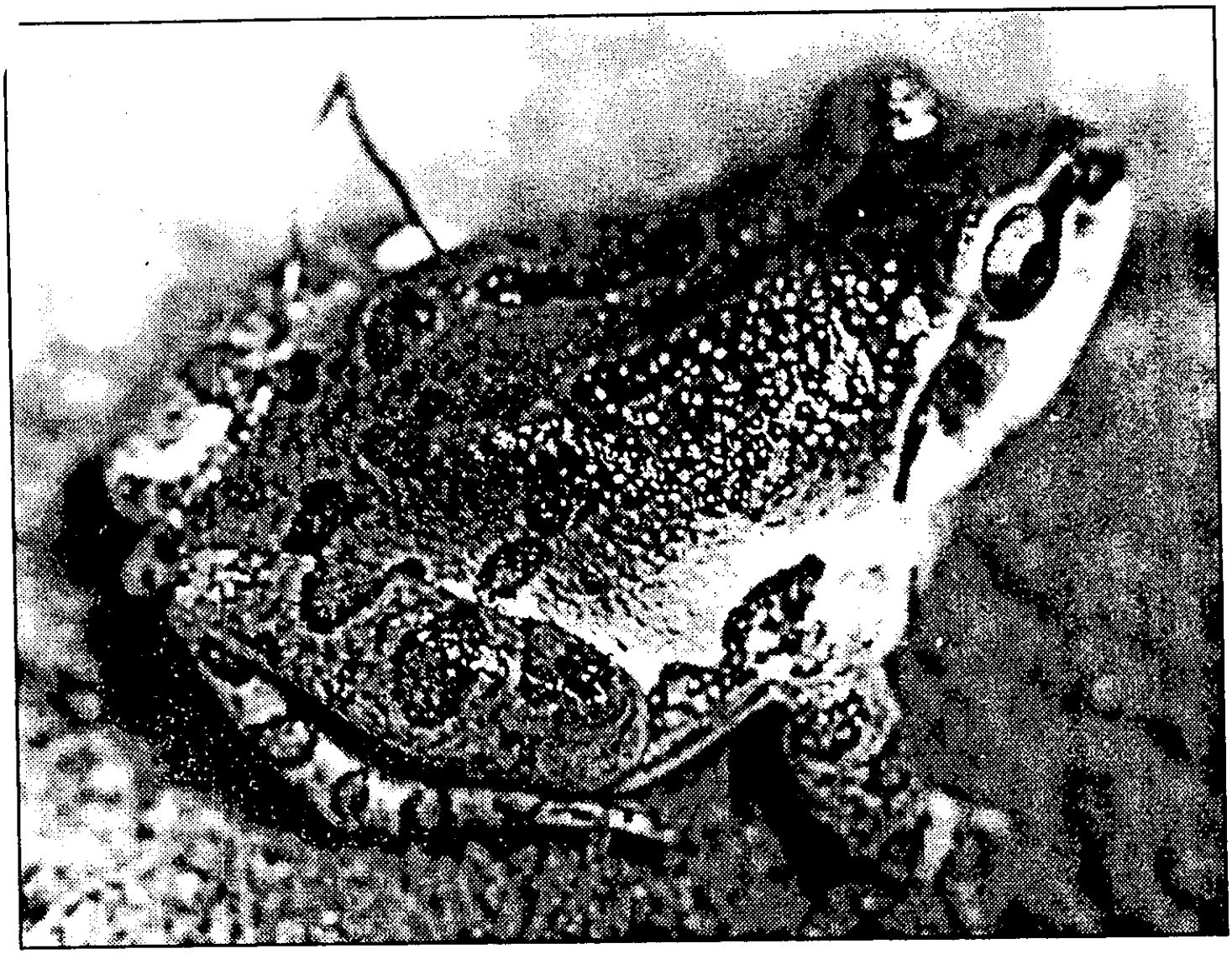
Distribution and status of the Illinois chorus frog, *Pseudacris streckeri illinoensis*, in Cass, Menard, Morgan, and Scott Counties of West-central Illinois.



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1.) Introduction

The range of *Pseudacris streckeri illinoensis* is limited to nine counties in Illinois: Alexander, Cass, Madison, Mason, Menard, Monroe, Morgan, Scott, and Tazewell; four counties in Missouri: Dunklin, Mississippi, New Madrid and Pemiscot; and Clay County in Arkansas (figure 1).

In 1978, the Illinois Department of Conservation listed *Pseudacris streckeri illinoensis* as a threatened species since its small range and restriction to sand areas makes it vulnerable to habitat degradation (Morris and Smith, 1981). Illinois chorus frogs are listed as a Federal Catagory 2 species. Further study has been recommended (Bury et al., 1980; Beltz, 1991) to determine the actual status and vulnerability of this organism, after which it may be proposed for listing as a Federal threatened or endangered species. Standard reptile and amphibian nomenclatureused follows Collins (1990).

1a.) Geological and biological history of the study region

Before the Pleistocene glaciation, two major rivers, the Ancient Mississippi and the Teays-Mahomet, met in what is now Mason County. These river valleys are now filled with repeated loads of glacial till and, in some parts, drift may exceed 130 meters (~428 feet) although it thins to zero to 15 meters (~49 feet) on the uplands south of the Sangamon River (Lineback et al., 1979).

The major sediments of the study area were created and deposited when the Woodfordian (late Wisconsinan) glaciers advanced as far as Peoria about 14,000 years ago. Outwash used what is now the Illinois Valley as a channel to release huge volumes of meltwater. The valley was filled with eroded sand, silt, and gravel to the level of the Bath Terrace. This fill was re-eroded, deepening the channel and forming the actual Bath Terrace. Sand ridges found in Scott, Morgan, and Cass counties are remnants of eroded sandbars on this terrace. Silt sediments were transported by wind to form the loess bluffs which line the river. Complex aeolian sand dunes (Parkland Sand) formed on the valley-train deposits, terraces, and bluffs (Lineback et al., 1979). Continuing glacial melt eroded the first deposits, but deposited other sediments to create the current valley (Cote et al., 1970). Lakes formed on the floodplain and organic-rich sediment and peat deposits are now known as the Grayslake Peat (Lineback et al., 1979). Beginning in the late 1800s, and continuing to the present time, the U.S. Army Corps of Engineers has constructed dams and levees along the Illinois River which have changed the pattern of sediment deposition.

The present Sangamon River and tributaries were initially formed by erosion during the late Illinoian and subsequently refilled by alluvial deposits and scoured out again by meltwater. Some of the tributaries were blocked by valley train deposits and areas upstream became lakes. As the ice finally retreated, normal fluvial processes were restored in the Sangamon Valley, draining the tributary valley backwater lakes. Sand and silt were deposited as in the Illinois Valley (Miller, 1973). In the 1930s the Sangamon River was channelized along the northern edges of Cass and Menard Counties by the U.S. Army Corps of Engineers. Channelization created many acres of flood-proof farm fields, but destroyed a meandering stream, bordered by marshy areas which had supported vast quantities of wildlife (Harold Tyson, pers. comm., 1993).

While the climate at the edge of the melting ice sheet was probably cool, or cold, about 4,000 to 6,000 years after the final melt the climate in west-central Illinois became warmer and drier permitting the migration of many species of Great Plains flora and fauna north and east of their glacial refugia. Smith (1957) described the area into which these migrations occurred as "The Prairie Peninsula." In 1977, Axtell and Haskell proposed that individuals of Pseudacris streckeri dispersed across Arkansas along the Arkansas River, then up the Mississippi River valley to west-central Illinois.

Then the climate changed again, becoming cooler and less xeric. Many species of plants and animals that had been widespread were reduced to microhabitats which supported their specialized needs. Relict populations of *Pseudacris streckeri illinoensis* remained only in isolated areas of Illinois, Missouri, and Arkansas. Separated from their nominate subspecies by many miles of hostile environment, they have changed enough in the intervening thousands of years to be considered separate subspecies (Smith, 1951). The exact evolutionary relationship of *Pseudacris streckeri streckeri* and *Pseudacris streckeri illinoensis* is being studied (Frost, pers. comm., 1991). Collins (1991) proposed elevating the Illinois chorus frog to full specific status (as *Pseudacris illinoensis*) based on the allopatric distributions of this and the nominate form as well as on morphological distinctions. This proposed arrangement is controversial. He suggested that *Pseudacris illinoensis* is distinct, and is on a "unique phylogenetic trajectory" (Frost et al., 1992). A genetic analysis may clarify the relationships and taxonomic status of the Illinois chorus frog.

The Illinois sand areas also support other specialized herpetofauna more usually found on the Great Plains, including the western slender glass lizard (*Ophisaurus attenuatus*), the western hognose snake (*Heterodon nasicus*), and the bullsnake (*Pituophis catenifer = melanoleucus*). The Illinois mud turtle (*Kinosternon flavescens spooneri*) also occurs in the region.

Prior to European settlement (~1820) seeps from loess bluffs formed meandering runs or creeks. Many runs produced slow moving, wide marshy areas. Several areas of Grayslake Peat are represented on geological maps. Some peat deposits correlate with lakes shown on U.S. Government land surveys. The Illinois River flooded regularly and the floodplain was a highly variable area. The bluff areas were more stable and sand ponds on the bluffs might have been a more conservative habitat. Sand area species, both plants and animals, are adapted for change. Dunes are formed, blown out, and swept away and the species they supported must find new habitat, adapt or die.

Gleason (1910) described the Illinois River sand areas as they appeared in the early part of this century. He visited several areas in Mason County, just north of the study area, and reported that there was more forest than prairie in the region. Gleason goes on to describe forests (actually sand savannas) near Havana in Mason County as dominated by black oak, *Quercus velutina*, and black-jack oak, *Quercus marilandica*. Gleason states that "old forest, whose origin probably dates back to the period of prairie fires, and forest on steep dunes are usually open, with trees 5-20 yards apart. Young forests of recent development or those protected by swamps are usually dense."

Smith (1966) states "relict populations are closely associated with sand prairie." However, Plainfield Sand is an excessively well-drained, brownish to yellowish-gray, loose, medium sand. The natural

vegetation under which this soil developed was hardwood forests; predominantly black oaks (Smith et al., 1947). The parent material of the Plainfield Sand is the Parkland Sand member of the Henry Formation (Illinois State Geological Survey, 1979).

Scientific understanding of savanna communities is continuing to evolve. Earlier workers did not usually make a distinction between forest and savanna. Beltz (1991) suggested a refinement of *Pseudacris streckeri illinoensis* habitat from strictly sand prairie to black-oak woodland and savanna in sand areas. In Texas, the nominate subspecies inhabits post oak savannas (Wiest, 1982).

1b.) Description of the organism

Illinois chorus frogs are small, robust frogs about 30 to 44 mm (1 to 1.5 inches) from snout to vent. When well fed, they may be about half as wide as they are long. They have a dark brown to black mask-like stripe from snout to shoulder, a dark lateral stripe, a dark suborbital spot, and an interorbital v-shaped marking on their otherwise gray, ivory, brown, or hazel background skin color (Conant and Collins, 1991).

Illinois chorus frogs have stout forelimbs adapted for burrowing forward in sand. Most burrowing amphibians dig in backwards, with their rear feet, but *Pseudacris streckeri illinoensis* uses its hands and digs in head first (Conant and Collins, 1991). Brown et al. (1972) described the movements of their forelimbs as "synchronized like the arms of a human swimmer doing the breastroke."

The unique set of morphological adaptations that permit this forward burrowing are: thick forelimbs, enlarged tubercules on the palms of the hands, stout fingers, reduction of the intercalary cartilage of the fingers to a wafer-shaped structure, elimination of the vertical offsetting of the terminal phalanx from the subterminal phalanx of the fingers by the intercalary cartilage, and the absence of digital pads (Brown and Rose, 1988). Another chorus frog, *Pseudacris ornata*, is also a forelimb burrower (Strecker, 1926; Brown and Means, 1984).

Pseudacris streckeri illinoensis is among the most fossorial of all hylid frogs. Living underground for most of the year, most probably buried in sand (Brown et al., 1972), the frogs exhibit some unusual adaptations for this dark and xeric life. Brown (1978) demonstrated by laboratory experiment that Illinois chorus frogs can and do eat insects underground. His tests also showed some nocturnal surface activity, especially in association with rain storms outside his lab.

Axtell and Haskell (1977) reported excavating buried *Pseudacris streckeri illinoensis* based on surface "characteristic depressions" left by burrowing activity. They suggest that since these surface traces would have been rapidly eradicated from the sand surface by wind or rain that the frogs must have been surface active shortly before the researchers dug them up on November 9, 1975. All three animals were preserved (Southern Illinois University Edwardsville 2616, -17, and -18). The depression is described as an area devoid of vegetation about 20 mm wide by 3 mm deep (3/4 inch by 1/8 inch). Ralin and Rogers (1972) found that Strecker's chorus frog (*Pseudacris streckeri*) appears to tolerate a greater loss of body water than any other North American hylid.

Precisely which factors prompt the frogs to leave their sandy refuge and migrate to the breeding ponds is not known. Johnson, (pers. comm., 1991) reports that adult *Pseudacris streckeri illinoensis* can travel two to three miles in search of suitable breeding habitat.

Localities harboring *Pseudacris streckeri illinoensis* are limited to areas with sand substrates, most often those known as Plainfield sand, Hagener loamy sand, and Bloomfield sandy loam (Smith, 1966; Brown and Brown, 1973; and Axtell and Haskell, 1977) which are all members of the Parkland Sand member of the Henry Formation (Willman and Frye, 1970).

1c.) Collecting history

The first specimen of *Pseudacris streckeri illinoensis* was collected in 1932 by A.C. Weed near Meredosia, Morgan County, IL. It was deposited in the Field Museum of Natural History (3266), identified as *Pseudacris brachyphona* Cope, 1889. In 1933, Wright and Wright described *Pseudacris streckeri* as a new species. The late Philip W. Smith of the Illinois Natural History Survey examined Weed's specimen and became interested in the Morgan County area and the possibility of finding Strecker's chorus frog in Illinois.

On May 19, 1950, members of a University of Illinois herpetology class collected the holotype of what Smith (1951) would describe as a new subspecies of *Pseudacris streckeri*. The holotype was deposited in the Illinois Natural History Survey collection (5982). The locality information has been a cause of debate ever since. The students described the capture point as a blacktop road "3 miles north Meredosia." Philip and Dorothy Smith collected a specimen (Illinois Natural History Survey [INHS] 5684), four miles northeast of Meredosia on March 6, 1951. The area is also surrounded by calling localities (Brown, 1984; Taubert et al., 1982).

Specimens collected in the 1950s from Cass County include INHS 7899-7900 and 6850-6853 from Beardstown; INHS 5673, and 5685-5689 from three miles east of Beardstown; and INHS 5768-5776 from Chandlerville. Menard County is represented by two specimens collected by Robert C. Schroeder which were posthumously deposited as numbers 50159 and 50160 in the collection of the University of Illinois Museum of Natural History (Moll, 1962). Taubert et al. (1982) show three locality dots east and southeast of Greenview and attribute these to a personal communication from Ron Altig. Scott County had no verified records prior to 1984. Taubert et al. (1982) surveyed Scott County for two weeks, found no breeding activity, but mentioned that the habitat appeared suitable.

In 1984, Lauren Brown surveyed for *Pseudacris streckeri illinoensis* on behalf of the Illinois Department of Transportation preparatory to the extension of U.S. Highway 36. He found 26 new breeding choruses in Scott County, six in Morgan County and two in Cass County. The results of this study were provided to the Illinois Department of Transportation (Brown, 1984) and published by Brown and Rose (1988) with an analysis of habitat.

On March 18, 1991, the Illinois Department of Conservation, Division of Natural Heritage contracted with Resource Base to survey for and report on the status of *Pseudacris streckeri illinoensis* in the lower Illinois River Valley in Scott, Morgan, and Cass Counties as well as to identify

suitable habitat and survey for Illinois chorus frogs in Menard County. A report of this survey was prepared and presented to the Division (Beltz, 1991).

The 1991 survey was conducted from March 18 to April 24, and Illinois chorus frogs were heard calling from March 19 to April 17. In Cass County, one historic location was active, four historic localities were not active and 11 new sites were recorded. In Morgan County, no historic sites were active but four new sites were recorded. In Scott County, five historic locations were active, 27 historic localities were not active, and 12 new localities were recorded. In Menard, the three historic sites based on a personal communication from Ron Altig to Bruce Taubert were not found to be productive of any frog activity. Four new sites in the northwestern corner of Menard were recorded. Localities representing the breeding observations and sites of museum records from 1932 to 1992 are shown on figure 2 by section and listed in Appendix A. County by county locality records to quarter section accuracy are shown on figures 5 and 6 for Cass, 8 and 9 for Menard, 11 and 12 for Morgan, and 14 and 15 for Scott.

No survey was undertaken in 1992, but in 1993, Cass, Menard, Morgan, and Scott Counties were resurveyed using the same methods as the 1991 study.

2.) Methods

Methods used to locate the breeding habitat of an essentially fossorial sand animal are tripartite: a.) Determining areas of suitable habitat, b.) actually looking for (hearing) the breeding choruses, c.) recording and reporting results.

2a.) Determining areas of suitable habitat

In the 1991 study, U.S. Geological Survey 7.5 minute topographical quadrangle maps were correlated with the soil survey maps for Scott, Morgan, Cass and Menard Counties. The soil surveys for Scott and Morgan (Eckes, 1988), as well as Cass (Eckes, 1989) are recent and marked on aerial photographs taken in the early 1980s (Kraper, pers. comm. 1991). The Menard County Soils publication was last updated in 1953 (Fehrenbacker and Odell, 1953) and its maps are intricate and difficult to interpret. The Menard County Soil Conservation Office of the U.S. Department of Agriculture provided invaluable assistance in translating the 1953 work to modern soils names and groups. The Department of Conservation Division of Natural Heritage provided an element occurrence printout as well as a copy of the Division of Planning IFWIS species account on *Pseudacris streckeri illinoensis* (1985).

Historic localities gathered from a variety of sources (Taubert et al., 1982; Brown and Rose, 1988; Smith, 1961), from an Illinois Department of Conservation element occurrence printout and a copy of the IFWIS species account (Illinois Department of Conservation, 1985), were plotted against the soils information on the topographical quadrats.

Habitat information from all sources all indicated the importance of sand (Brown and Rose, 1988; Taubert et al., 1982; IFWIS, 1985) particularly Plainfield loamy sand, Orio sandy loam, Sparta loamy

sand, Hoopeston sandy loam, Watseka loamy sand, and Onarga fine sandy loam (figure 3). Accordingly, areas with these sand and soil types were marked for particular attention during the 1991 survey. The decision was also made to survey at random within the four counties: perhaps Illinois chorus frogs would be opportunistic of other suitable habitat. Local people were consulted and their recommended areas were marked for survey.

Taubert et al. (1982) wrote that Illinois chorus frogs need ephemeral ponds with extensive, if not total emergent vegetation, however, other researchers have found *Pseudacris streckeri illinoensis* in a variety of opportunistic habitats, ranging from a chemical tank retention pond with no vegetation to road ditches (Brown and Rose, 1988). The 1991 study found the organism in flooded fields, road ditches, sand ponds, non-sandy ponds, blowout ponds, monotypic *Scirpus* marshes, and sand pits (Table 2). Few, if any, sites in the four counties are in pre-European settlement condition. Most of the land in this area has been radically modified to serve the major land use in the area -intensive, mechanized agriculture. John White sent copies of his interpretation of presettlement vegetation as shown on government land office surveys for the four county region (pers. comm.) which were used along with microfilm copies of the actual survey maps to create a black and white representation for the boundaries of prairie and timber (Beltz, 1991).

During the 1993 survey, the actual U.S. Government land office survey maps for the four county region were examined in each of the county buildings and compared with microfilm copies of the surveys from the Illinois Archives as well as the U.S. Archives. Each set of maps is different from the others, and each county was surveyed more than once. Microfilm copies of the survey notes were read from the Illinois Archives set and compared with the summaries of the field notes attached to the county sets (except in Morgan County because the records were lost in a courthouse fire). A new map of prairie, timber, and water was prepared (figure 4) on a base map showing the historic breeding sites and sites with activity since 1984.

In the 1993 study, all areas of possible Illinois chorus frog habitat found in 1991 were surveyed for breeding activity. In addition, collections at the Field Museum of Natural History, the Illinois Natural History Survey, the University of Illinois Museum of Natural History, and the Illinois State Museum were queried or personally reviewed in search of more historic records (Appendix A, figure 2). In addition, botanic specimens of typical sand pond flora collected by Rexroat in the early part of the 20th century were reviewed by Stan Tyson (pers. comm.) and correlate particularly well with Illinois chorus frog localities in Cass County.

A small plane was rented to overfly the four county region. Known sites were observed, possible sites noted, and photographs of sites and land uses were taken from the air.

2b.) Field methods

Studying a highly fossorial animal is difficult except when surface activity can be monitored. Male frogs inflate their vocal sacs and make species-specific calls to attract female mates. The call of the Illinois chorus frog is variously described as a short whistle or high-pitched squeaking sound. The call is repeated rapidly and can be detected from good distances when the wind is right.

Investigators used county highway maps prepared by the Illinois Department of Transportation to navigate the four county region in search of Illinois chorus frog breeding sites. As in 1991, areas of high probability were searched more intensively, but a certain amount of random searching outside these areas was conducted. Night driving is generally more productive than daytime searching, although the males will call on overcast days, and occasionally, on sunny days. No fixed driving routes were utilized in 1991 or 1993. The gravel and blacktop roads were driven in more or less random sequence to encourage the location of all possible breeding ponds. Weather preferences were not noted in the literature, so survey work was conducted rain or shine, day and night. At times that no frogs were heard calling at usually productive sites, remote sites were not surveyed. A final trip to the study site was taken May 19 to 25 to determine which sites were holding water, observe tadpoles, vegetation, site type, and other site characteristics.

2c.) Data collection

Data, including date, time, County, location to sixteenth section, township, range, section number, degrees Fahrenheit, weather, site name and the Karns (1986) intensity of calling for each of five species (*Pseudacris triseriata, Pseudacris streckeri illinoensis, Rana utricularia, Bufo americanus,* and *Pseudacris crucifer*) were noted in writing. In addition, some sites were tape recorded for later analysis. This was a particularly useful method for checking investigators' use of the Karns intensity scale. The Karns scale rates frog choruses as: 0 = absence of calling; 1 = single individual; 2 = occasional, several frogs; 3 = low intensity, relatively frequent; 4 = medium intensity, continuous calling; and 5 = high intensity, continuous calling. The Karns ratings are shown in the appendix as K1, K2, K3, K4, and K5 to distinguish them from other integers. Use of this scale provides more correlation between the work of various investigators than does mere estimation of number of frogs calling (pers. obs.). Field workers this year included Ellin Beltz, Kenneth S. Mierzwa, Cynthia Werner, and Stan Tyson. Only the first and the last surveyed solo. Mierzwa and Werner were always accompanied by Beltz. "Blind tape tests" indicated Karns ratings applied by Beltz and Tyson were 90 percent identical, and were only one rating point off in the other 10 percent.

3.) Results

Records of sites showing calling activity of *Pseudacris streckeri illinoensis* for both 1991 and 1993 are shown in Appendix A. Sites are sorted on the basis of section of occurrence. Within each section sites are listed in date order.

In 1993, 68 calling sites in 34 sections of occurrence were found in Cass (figure 7); 4 calling sites in 3 sections of occurrence were found in Menard (figure 10); 10 calling sites in 6 sections of occurrence were found in Morgan (figure 13); and 24 calling sites in 12 sections of occurrence were found in Scott (figure 16).

Illinois chorus frogs used various breeding site habitats: 19 (21%) flooded fields, 6 (7%) road ditches, 33 (35%) sand ponds and marshes with characteristic sand pond vegetation, 29 (31%) ponds defined as non-sandy due to lack of characteristic sand pond vegetation, no blowout ponds, 2 (2%) monotypic *Scirpus* marshes, and 4 (4%) sand pits. The difference in number between habitats used and sites

found is due to some locations being part of the same aquatic structure but calling in different sixteenth sections. The best example of this is the Beardstown Marsh which occupies parts of at least three sections, and from which several discrete choruses were recorded.

4.) Discussion

The literature review provided no definite start date for Illinois chorus frog breeding activity in west-central Illinois, but Taubert et al. (1982) stated that May 20 was the last day they heard calling. Bragg (1942) reported calling activity at 32°F, and Blair (1961) reported activity at 79°F.

In 1991, the calling season in the four county west-central Illinois area began on March 19 and ended April 17. The air temperatures ranged from 40° to 80°F, with an average of 58.5°F for the 37 Illinois chorus frog data points only. In 1993, the calling season began on March 21 and ended on April 17. Air temperatures ranged from 40° to 75°F, with an average of 53.08°F for the 106 Illinois chorus frog data points only.

Table 1.
Comparison of sections of occurrence and number of breeding sites for 1984, 1991, and 1993 surveys.

	Sections of occurrence			Number of calling sites			Sites per section		
	1984	1991	1993	1984	1991	1993	1984	1991	1993
Cass	1**	14	34	2	13	68	2.0	0.9	2.0
Menard	0**	4	3	0	4	4	0.0	1.0	1.3
Morgan	7	2	6	7	3	10	1.0	1.5	1.6
Scott	18	10	12	29	17	24	1.6	1.7	2.0

** Brown, 1984 did not survey Cass or Menard Counties.

Illinois chorus frogs were found at more sites in 1993 than in 1991. This is probably due to the difference in breeding site availability since many sites were wet in 1993 that had been dry in 1991. This year, more sites were found in Cass and Morgan Counties than in either 1991 or 1984. In Menard County, the same number of sites were found in 1991 and 1993. In Scott County, Brown (1984) found 29 sites, but in 1991, only 17 were found. In 1993, 24 were found which is less than 1984, but more than in the 1991 survey.

If looked at on the basis of calling sites per section (square mile), the data from Brown's 1984 study can be more directly compared with the 1991 and 1993 surveys. Cass had two sites per section in 1984, 0.9 per section in 1991, and had rebounded to two sites per section in 1993. The other three counties also show an increase in sites per section from 1984.

These data indicate the need for long term, repeated studies of anuran populations to avoid premature conclusions about the viability or vulnerability of populations.

Table 2.
Comparison of breeding site habitats 1984, 1991, and 1993.

Breeding site habitat	1984*	1991		1993	
		Number	Percent	Number	Percent
Flooded fields	75%	12	31%	19	21%
Road ditches		10	25	6	7
Sand ponds & marshes		5	13	33	35
Non-sandy ponds		5	13	29	31
Blowout ponds		2	5	0	0
Scirpus marshes		2	5	2	2
Sand pits		3	8	4	4

Sand ponds and marshes were categorized by vegetation. Non-sandy ponds may have sand on or near the site but no characteristic sand pond vegetation was found at the site.

* Brown & Rose, 1988 suggest this high use of flooded fields in 1984 was a function of availability rather than habitat preference.

In 1991, at calling sites occupied by more than one anuran species, the *Pseudacris streckeri illinoensis* were consistently the most conservative callers, and males were wary when approached and often ceased calling when disturbed by noise or vibration. However, in 1993, Illinois chorus frogs were heard in robust choruses, rarely stopped even when investigators entered the water, took flash photographs, or netted up individuals. At some sites, Illinois chorus frogs were the only anurans in chorus and tape recordings were made at these sites.

Prior to this study, Illinois chorus frogs have frustrated more than one researcher; initiation of amplexus, spawning, and oviposition had not been observed and little was known about their choice of egg deposition sites. However, this year, amplexus, spawning, and oviposition were observed and a new call was heard and recorded that occurs at the moment the male releases the female. Tadpoles were netted and photographed at most developmental stages.

On March 25, 1993 observations were made of mating at the site at Six Mile and Clayton Roads in Cass County (SW 1/4, NE 1/4, T18N, R11W, S34). The air was 42°F, the night was clear, and the chorus of Illinois chorus frogs was cacophonous. One calling male was surrounded by three other frogs in the water, all oriented nose towards him. It was not possible to determine the sex of these frogs. The female swam into the ring, and touched the calling male on the shoulder. She turned. He clasped. They gave a few kicks with their hind legs. She released her eggs and he wiggled and kicked again. He pulled up and made a chuckling call of two short staccato clucks and released her. All this was watched by the silent frogs, then all four frogs swam out of the light. Two other matings were observed to follow the same details. All the calling males were surrounded by at least two other non-calling frogs and the peculiar clucking noise concluded each mating event. No particular effort

was made by either the males or the females to put the eggs anywhere other than where they fell in the water. To prevent damaging the eggs, no attempt was made to dip net for them.

Males captured the next day by dip net had a discolored vocal pouch which inflated as they uttered a release call. Other frogs without discolored pouches gave no release calls and were judged to be females. Subsequent nocturnal observations of the calling circle did not reveal the sex of the watching frogs, since their posture in the water did not permit observation of their throats.

Philip Smith removed some gravid females from a breeding site and reported (1951) that they laid approximately 400 eggs each, and that tadpoles collected as "large larvae" on May 18 transformed in the last week of May and through early June. He described the living tadpoles in his field notes, "Venter glistening white and opaque, head and thorax transparent with heart, gills, and teeth visible through the integument; sides of body with faint coppery tinge; dorsal fin arising approximately one eye diameter posterior to eyes, highly arched and hyaline; dorsal and ventral crests subequal, transparent, with dark tracery peripherally; tail translucent; hind limbs small; eyes protuberant, iris golden coppery; snout prolonged."

Bragg (1942) reported *Pseudacris streckeri* tadpole length at hatching from 4.7 to 6.2 mm (0.19 to 0.24 inches). The tadpoles measured this year in the last week of May ranged from 32 mm to 55 mm nose to tail, and this size remained relatively consistent to metamorphosis, decreasing as the tail was resorbed in the final stages of development. In all particulars they agreed with Smith's 1951 description. Smith (1951) and Bragg (1942) noted that the tadpoles swim to the bottom and hide if disturbed which is consistent with the behavior of Illinois chorus frog tadpoles observed this year in the wild.

In 1982, Taubert et al. estimated 35 to 50 days for the tadpole to develop from egg to metamorphosed juvenile frog, however, if the tadpoles observed metamorphosing on June 8 began their development on the first breeding night of March 21, they would have taken 77 days to transform. The calling season was 28 days long and the observed transformation period was only 13 days long (until June 21), giving a range of from 77 to 90 days. In other anuran species, time to metamorphosis is temperature dependent, so this range should be considered an approximation until further observations are obtained.

In many species, newly transformed frogs leave the natal pond, seemingly at random, searching for suitable habitat for themselves. Juvenile dispersal is regarded as an essential mechanism to increase the ranges of species. Many, if not most, of the juveniles may die. Some find good habitat; few may breed. Out of this random system, species can migrate great distances over long periods of time. Just how Illinois chorus frogs disperse, where they go, how they choose their path is not known. However, as with many species living in sand areas, they are highly adapted to deal with sudden and random change (Bowles, et al., 1990).

Projects such as the highway expansion of Route 36 in Scott County have been beneficial in terms of studying *Pseudacris streckeri illinoensis*, however, the site chosen to build the highway is probably responsible for the decline in calling sites in two tiers of sections in Scott County. The

construction has altered drainage so radically that in a heavy rainstorm, the area under the 100/36 intersection turns into a shallow lake, and the areas to the west of Route 100 drain rapidly away. In 1993, the road ditches constructed for the highway were holding some water and were the site of breeding by other anurans. It is possible that Illinois chorus frogs will recolonize these areas in future.

All of the bluff draining creeks and runs have been channelized, bordered with sand and gravel embankments and directed in straight lines to drain the unwanted seepage water from the bluffs. The runs are sometimes lined with trees, but the farmers prefer to cut trees to prevent shading crops. The farms are planted line to line with few hedgerows, stock ponds, wood lots, or other remnants of premechanized agriculture. The water in the runs is eventually pumped into the Illinois River over the levee. Agricultural irrigation is widespread. The most common method is to sink a well in the middle of the field and use "center-pivot" water heads.

Farmers and residents in the area said that 1993 was the wettest year they could remember for at least two decades and that areas which "never" held water were wet. Several levees blew out; that is, the pressure of water in the flooded fields was too great for the levee to hold and it blew into the Illinois River, draining the fields. Roads in Morgan County were closed due to flooding. Herons and other water birds picked their way through a moveable feast in the midst of the previous years' cornstalks. Painted and snapping turtle juveniles were found crossing roads where in 1991 all had been dry.

The amount of water available for anuran breeding this year does not mitigate or remove the potential threat to their long time survival.

Land uses in the area include asphalt or bitumen hard surfaced roads, gravel roads, sand roads, hog farms, tree nurseries, Christmas tree plantations, other pine plantations, urban areas -including a shopping center built on a newly filled wetland, chemical tank farms, grain elevators, an airport, a hog processing factory, railroad yards, and an anhydrous ammonia (fertilizer) storage and dispensing depot. Agriculture in this region is heavily dependent on chemical fertilizers, primarily anhydrous ammonia, which is worked into the plowed fields in early spring. Management recommendations were included in the last report (Beltz, 1991).

5.) Acknowledgements

The author was assisted in the field by Stan Tyson, Cynthia Werner, and Kenneth S. Mierzwa. Nathan A. Carls of Beardstown piloted the small plane for aerial observations with patience and grace. Harold and Mary Tyson provided support for all members of the field crew and shared their intimate knowledge of the present conditions and history of the study area with the author. Many members of the community, as well as the local and county police departments rendered assistance to the project and their help is gratefully acknowledged.

6.) Literature cited

Axtell, Ralph W. and Norman Haskell. 1977. An interhiatal population of *Pseudacris streckeri* from Illinois, with an assessment of its post-glacial dispersion history. Chicago Academy of Sciences, Natural History Miscellanea 202:1-8.

Beltz, Ellin. 1991. Illinois chorus frog, *Pseudacris streckeri illinoensis*, 1991 survey of Cass, Menard, Morgan, and Scott Counties, Illinois. Unpublished report to the Illinois Department of Conservation, Division of Natural Heritage. December 16, 1991. 18 page, 13 figures, 3 appendices.

Blair, W. Frank. 1961. Calling and spawning seasons in a mixed population of anurans. Ecology 42:99-110.

Bragg, Arthur N. 1942. Observations on the breeding ecology and natural history of Anura. X. The breeding habits of *Pseudacris streckeri* Wright and Wright in Oklahoma including a description of eggs and tadpoles. Wasmann Collector 5(2):47-62.

Bowles, M.L., M.M. DeMauro, N. Pavlovic, and R.D. Hiebert. 1990. Effects of anthropogenic disturbance on endangered and threatened plants at the Indiana Dunes National Lakeshore. Natural Areas Journal 10(4):187-200.

Brown, Lauren E. 1978. Subterranean feeding by the chorus frog *Pseudacris streckeri* (Anura:Hylidae). Herpetologica 34(2):212-216.

Brown, Lauren E. 1984. Field survey for the Illinois chorus frog in the corridors for FAP Route 408 in Scott and Pike Counties, Illinois. Unpublished final report prepared for the Illinois Department of Transportation. 30 pages.

Brown, Lauren E. and J.R. Brown. 1973. Notes on breeding choruses of two Anurans (*Scaphiopus holbrookii, Pseudacris streckeri*) in southern Illinois. Chicago Academy of Sciences, Natural History Miscellanea 192:1-3.

Brown, Lauren E., Harry O. Jackson and J.R. Brown. 1972. Burrowing behavior of the chorus frog *Pseudacris streckeri*. Herpetologica 28(4):325-328.

Brown, Lauren E. and D.B. Means. 1984. Fossorial behavior and ecology of the chorus frog *Pseudacris ornata*. Amphibia-Reptilia 5:261-273.

Brown, Lauren E. and George B. Rose. 1988. Distribution, habitat, and calling season of the Illinois chorus frog (*Pseudacris streckeri illinoensis*) along the lower Illinois river. Illinois Natural History Survey Biological Notes, 132:1-13.

Bury, R.B., C.K. Dodd, Jr., and G.M. Feller. 1980. Conservation of the Amphibia of the United States: a review. United States Department of the Interior, Fish and Wildlife Service, Resource Publication 134. 34 pages.

Collins, Joseph T. 1990. Standard common and current scientific names for North American amphibians and reptiles. 3rd edition, Society for the Study of Amphibians and Reptiles. Herpetological Circular Number 19.

Collins, Joseph T. 1991. Viewpoint: a new taxonomic arrangement for some North American amphibians and reptiles. Herpetologica Review 22(2):42-43.

Conant, Roger, and Joseph T. Collins. 1991. A field guide to reptiles and amphibians, eastern and central North America. Third Edition. Houghton Mifflin Co., Boston. 450 pages.

Cope, Edward D. 1889. The batrachia of North America. United States National Museum Bulletin 34. Reprint 1963. Eric Lundberg, Ashton, Maryland.

Cote, W.E., D.L. Reinertsen, G.M. Wilson, and M.M. Killey. 1970. Guide leaflet, geological science field trip, Winchester area, Scott, Morgan, and Greene counties, Winchester and Griggsville quadrangles. Illinois State Geological Survey Guide Leaflet 1970B. 28 pages.

Eckes, John J. 1988. Soil Survey of Morgan and Scott Counties, Illinois. United States Department of Agriculture. Soil Conservation Service. Illinois Agricultural Experiment Station.

Eckes, John E. 1989. Soil Survey of Cass County, Illinois. United States Department of Agriculture. Soil Conservation Service. Illinois Agricultural Experiment Station.

Fehrenbacker, J.B. and R.T. Odell. 1953. Menard County Soils. Soils Report 76. University of Illinois, Illinois Agricultural Experiment Station.

Frost, Darrel R., Arnold G. Kluge, and David M. Hillis. 1992. Species in contemporary herpetology: comments on phylogenetic inference and taxonomy. Herpetological Review 23(2):46-54.

Frost, Darrel R. 1991. Assistant curator of herpetology. American Museum of Natural History, 79th Street at Central Park, New York, New York 10024. Personal communication, 1991.

Gleason, H.A. 1910. The vegetation of the inland sand deposits of Illinois. Bulletin Illinois State Laboratory of Natural History 9(3):23-174.

Illinois Department of Conservation. 1978. Administrative Order, Article CXXXVIII--Illinois List of Endangered and Threatened Vertebrate Species Issued in Accordance with Provisions of Section 337 of the Illinois Endangered Species Protection Act. 3 pages.

Illinois Department of Conservation. 1985. IFWIS species account, Illinois chorus frog, *Pseudacris streckeri illinoensis*. Unpublished, unpaged, 12 sheets.

Illinois State Geological Survey. 1979. Quaternary deposits of Illinois. Map compiled by J.H. Lineback, I.S.G.S., Urbana, IL.

Johnson, Thomas R. State Herpetologist, Missouri Department of Natural Resources, 2901 North Ten Mile Drive, Jefferson City, MO 65101. Personal communication, 1991.

Karns, D.R. 1986. Field Herpetology. Occasional Papers, Number 18. Bell Museum of Natural History, Minneapolis, Minnesota.

Kraper, George. District Conservationist, United States Department of Agriculture, Soil Conservation Service, 652 S. Main, Virginia, IL 62691. Personal communication, 1991.

Lineback, Jerry A., Leon R. Follmer, H.B. Willman, E. Donald McKay, James E. King, and Norton G. Miller. 1979. Wisconsinan, Sangamonian, and Illinoian stratigraphy in central Illinois. 26th Field Conference of the Midwest Friends of the Pleistocene, May 4-6. 75 pages, 25 figures, 1 table, appendix. Illinois State Geological Survey, Guidebook 13. Champaign, Illinois.

Miller, James Andrew. 1973. Quaternary history of the Sangamon River drainage system, central Illinois. Reports of Investigations, Number 27. Illinois State Museum, Springfield. 36 pages, 14 figures, 4 appendices.

Moll, Edward O. 1962. Recent herpetological records for Illinois. Herpetologica 18(3):207-209.

Morris, Michael A. and Philip W. Smith. 1981. Endangered and threatened amphibians and reptiles. Pages 21-33 *in* M.L. Bowles, V.E. Diersing, J.E. Ebinger, and H.C. Schultz, eds. Endangered and threatened vertebrate animals and vascular plants of Illinois. Illinois Department of Conservation.

Ralin, Dennis B. and James S. Rogers. 1972. Aspects of tolerance to dessication in *Acris crepitans* and *Pseudacris streckeri*. Copeia 1972(3):519-525.

Smith, G.D., F.F. Riecken and R.S. Smith. 1947. Cass County Soils. Soils Report 71, University of Illinois, Agricultural Experiment Station, Urbana, IL.

Smith, Philip W. 1951. A new frog and a new turtle from the western Illinois sand prairies. Bulletin, Chicago Academy of Sciences, 9(10):189-199.

Smith, Philip W. 1957. An analysis of post-Wisconsin biogeography of the prairie peninsula region based on distributional phenomena among terrestrial vertebrate populations. Ecology 38(2):205-218.

Smith, Philip W. 1961. The amphibians and reptiles of Illinois. Illinois Natural History Bulletin. 28(1):1-298.

Smith, Philip W. 1966. *Pseudacris streckeri. In* Catalog of American Amphibians and Reptiles. Society for the Study of Amphibians and Reptiles. 27.1-27.2.

Strecker, J.K. 1926. On the habits and variations of *Pseudacris ornata* (Holbrook). Contributions Baylor University Museum 8:1-12.

Taubert, Bruce D., Paul W. Shetley, David P. Philipp and Terry Harrison. 1982. Breeding biology and distribution of the Illinois chorus frog (*Pseudacris streckeri illinoensis*) in Illinois. Unpublished report to the Illinois Department of Conservation through the Illinois State Natural History Survey. 163 pages.

Tyson, Harold. 212 Washington, Beardstown, Illinois 62618. Personal communication, 1993.

Tyson, Stan. Rivendell Botanic Garden, P.O. Box 17, Beardstown, Illinois 62618-0017. Personal communication, 1993.

White, John. Ecological Services, 904 South Anderson Street, Urbana, Illinois 61801. Personal communication, 1991.

Wiest, John A., Jr. 1982. Anuran succession at temporary ponds in a post oak savanna region of Texas. Pages 39-47 *in* Norman J. Scott, Jr., ed. Herpetological communities. U.S. Department of the Interior Fish and Wildlife Service, Wildlife Research Report 13. Washington, D.C.

Willman, H.B. and J.C. Frye. 1970. Pleistocene stratigraphy of Illinois. Illinois State Geological Survey Bulletin 94:1-204.

Wright, A.A. and A.H. Wright. 1933. Handbook of frogs and toads -- the frogs and toads of the United States and Canada, 1st edition. Comstock Publishing Company, Inc., Ithaca, New York.

7.) Additional references

Altig, Ronald. 1970. A key to the tadpoles of the continental United States and Canada. Herpetologica 26(2):180-207.

Beltz, Ellin. 1993. Preliminary report on the distribution and status of populations of the Illinois chorus frog, *Pseudacris streckeri illinoensis*, in Cass, Menard, Morgan, and Scott Counties of west-central Illinois. Unpublished report to the Illinois Department of Conservation, Division of Natural Heritage. 4 pages, 2 figures, 1 appendix.

Blair, W. Frank. 1958a. Mating call in the speciation of anuran amphibians. The American Naturalist 92:27-51.

Blair, W. Frank. 1958b. Distributional patterns of vertebrates in the southern United States in relation to past and present environments. Pages 433-463 *in* C.L. Hubbs, ed. Zoogeography. American Association for the Advancement of Science Publication 51.

Blair, W. Frank. 1965. Amphibian speciation. Pages 543-556 *in* H.E. Wright, Jr., and D.G. Frey, eds. The Quaternary of the United States. A review volume for the VII Congress of the International Association for Quaternary Research. Princeton University Press, Princeton, New Jersey.

Blair, W. Frank and Murray J. Littlejohn. 1958. Stage of speciation of two allopatric populations of chorus frogs (*Pseudacris*). Evolution 14(1):82-87.

Bragg, Arthur N. and Harold A. Dundee. 1951. Salientian additions to county lists in Oklahoma. Proceedings of the Oklahoma Academy of Science 30:19-20.

Brown, H.A. 1936. Contributions to the herpetology of Texas. I. Frogs of the genus *Pseudacris*. American Midland Naturalist 17(4):770-775.

Chantell, Charles J. 1966. Late Cenozoic hylids from the great plains. Herpetologica 22(4):259-264.

Conant, Roger. 1958. A field guide to reptiles and amphibians of the United States and Canada east of the 100th meridian. Houghton Mifflin Co., Boston, Massachusetts. 366 pages.

Fesperman, W. 1986. Geographic distribution: *Pseudacris streckeri streckeri*. Herpetological Review 17:91.

Fouquette, M.J., Jr. and Murray J. Littlejohn . 1960. Patterns of oviposition in two species of hylid frogs. Southwestern Naturalist 5(2):92-96.

Garman, H. 1892. A synopsis of the reptiles and amphibians of Illinois. Bulletin Illinois State Laboratory of Natural History. Volume 3, pages 215-388, plates 9-15.

Hazelwood, E. 1970. Frog pond contaminated. British Journal of Herpetology 4:177-185.

Holman, J. Alan, Harry O. Jackson and William H. Hill. 1964. *Pseudacris streckeri illinoensis* Smith from extreme southern Illinois. Herpetologica 20(3):205.

Hubbs, Clark, Thomas Wright, and Orlando Cuellar. 1963. Developmental temperature tolerance of central Texas populations of two Anuran amphibians *Bufo valliceps* and *Pseudacris streckeri*. Southwestern Naturalist 8(3):142-149.

Jameson, David L. 1950. The breeding and development of Strecker's chorus frog in central Texas. Copeia 1950(1):61.

Jameson, David L. 1956. Survival of some central Texas frogs under natural conditions. Copeia 1956(1):55-57.

Jameson, David L. and S. Richmond. 1971. Parallelism and convergence in the evolution of size and shape in Holarctic Hyla. Evolution 25(3):497-508.

Johnson, Thomas R. 1987. The amphibians and reptiles of Missouri. Missouri Department of Conservation, Jefferson City.

Kruse, Kipp C. and Edward O. Moll. 1987. Herptile inventory of four central Illinois prairie preserves. Unpublished report for the Illinois Department of Conservation. 18 pages.

Littlejohn, Murray J. and Ted C. Michaud 1959. Mating call discrimination by females of Strecker's chorus frog (*Pseudacris streckeri*). Texas Journal of Science 11:86-92.

Livezey, R.L. and A.H. Wright. 1947. A synoptic key to the Salientian eggs of the United States. American Midland Naturalist 37:179-222.

Lynch, John D. 1966. Additional tree-frogs from the north American Pleistocene. Annals Carnegie Museum, 38:265-272.

Mecham, John S. 1959. Experimental evidence of the relationship of two allopatric chorus frogs of the genus *Pseudacris*. Texas Journal of Science 11(3):343-347.

Moehn, Lorne D. 1984. Geographic distribution: *Pseudacris streckeri illinoensis*. Herpetological Review 15:20.

Moore, J.A. 1939. Temperature tolerance and rates of development in the eggs of amphibia. Ecology 20(4):459-478.

Schmidt, Karl P. 1953. A check list of North American amphibians and reptiles. Sixth edition. American Society of Ichthyology and Herpetology. 280 pages.

Smith, Philip W. 1955. *Pseudacris streckeri illinoensis* in Missouri. Transactions of the Kansas Academy of Sciences 58(3):411.

Turnipseed, G. and B. Shepherd. 1985. Geographic distribution: *Pseudacris strecker streckeri*. Herpetological Review 16:115.

Walker, C.F. 1932. *Pseudacris brachyphona* (Cope), a valid species. The Ohio Journal of Science 32:379-384.

Weed, A.C. 1923. Notes on reptiles and batrachians of central Illinois. Copeia No. 115:45-50.

Willman, H.B. 1973. Geology along the Illinois waterway - a basis for environmental planning. Circular 478. Illinois State Geological Survey. Urbana, IL.

Willman, H.B., E. Atherton, T.C. Buschbach, C. Collinson, J.C. Frye, M.E. Hopkins, J.A. Lineback and J.A. Simon. 1975. Handbook of Illinois stratigraphy. Bulletin 95. Illinois State Geological Survey. Urbana, IL.

Wright, A.H. and A.A. Wright. 1949. Handbook of frogs and toads of the United States and Canada, 3rd edition. Comstock Publishing Associates, Ithaca, New York.

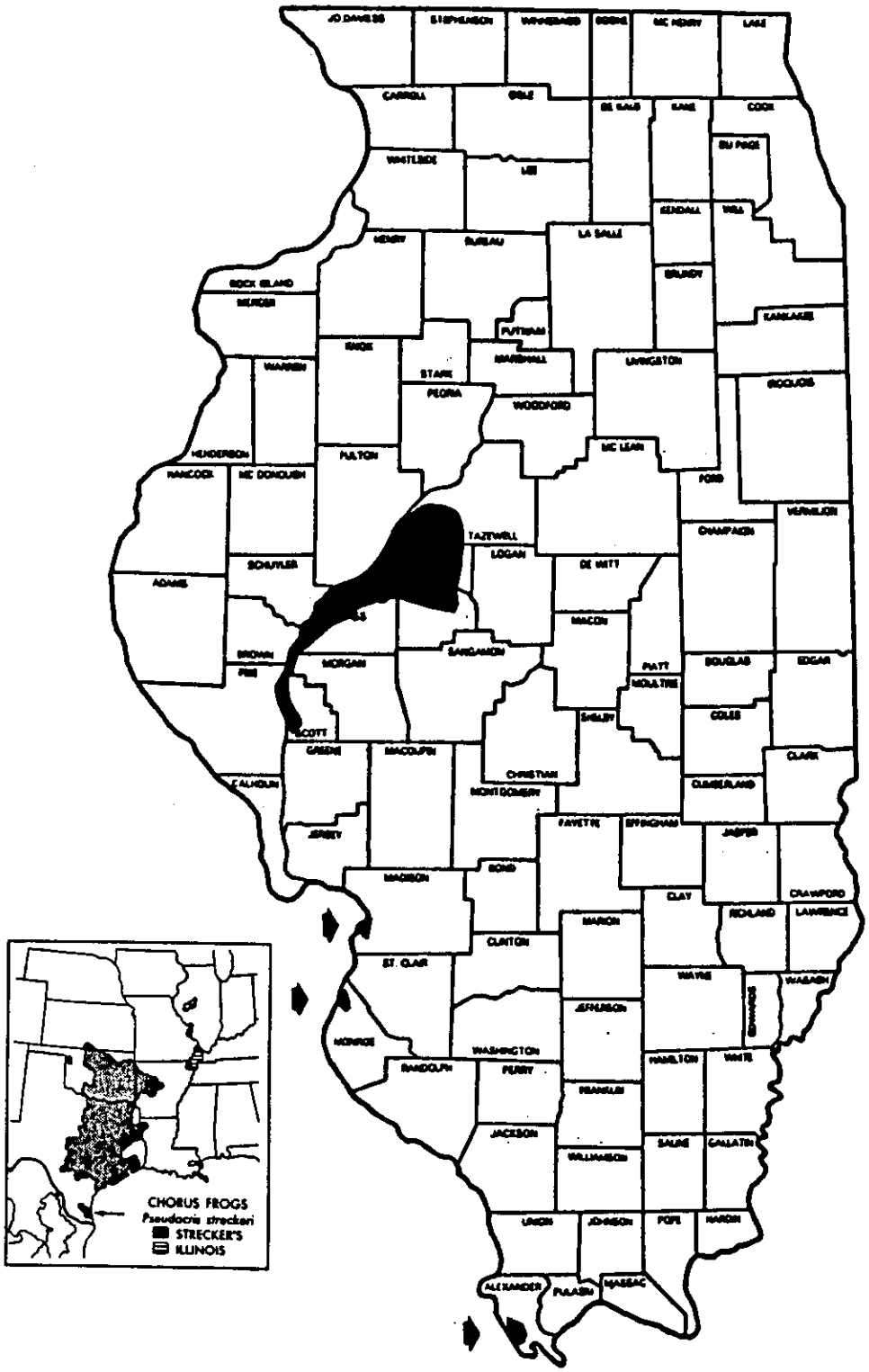

Figure 1.
Range of the Illinois chorus frog (*Pseudacris streckeri illinoensis*). [Inset from Conant and Collins, 1991. Used with permission.]

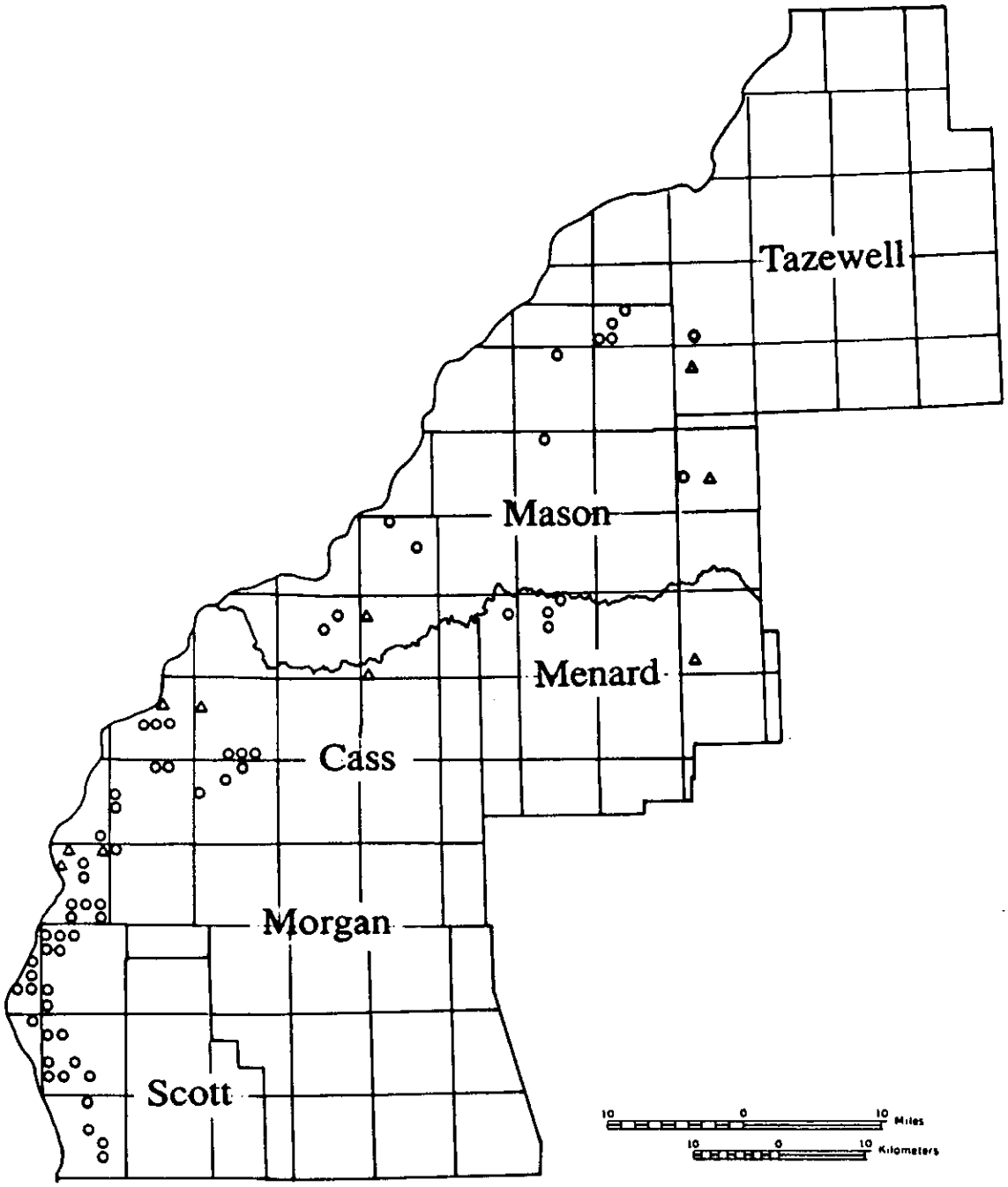

Figure 2.
Illinois chorus frog localities known before 1993 in west-central Illinois. Details in Appendix A.
▲ = museum specimens
● = other records

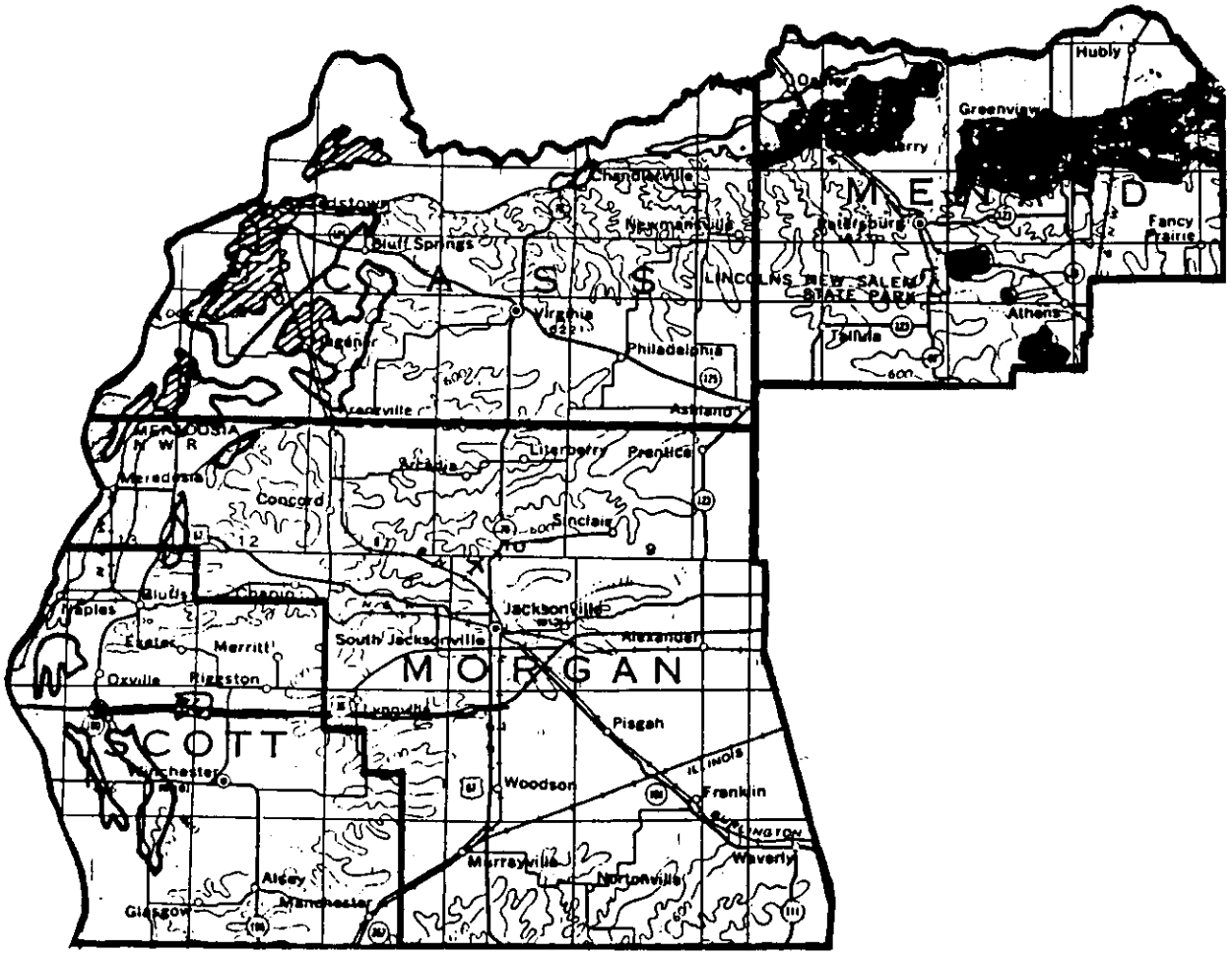

Figure 3.
Areas of predominantly sandy soils (modified from Willman, 1973).

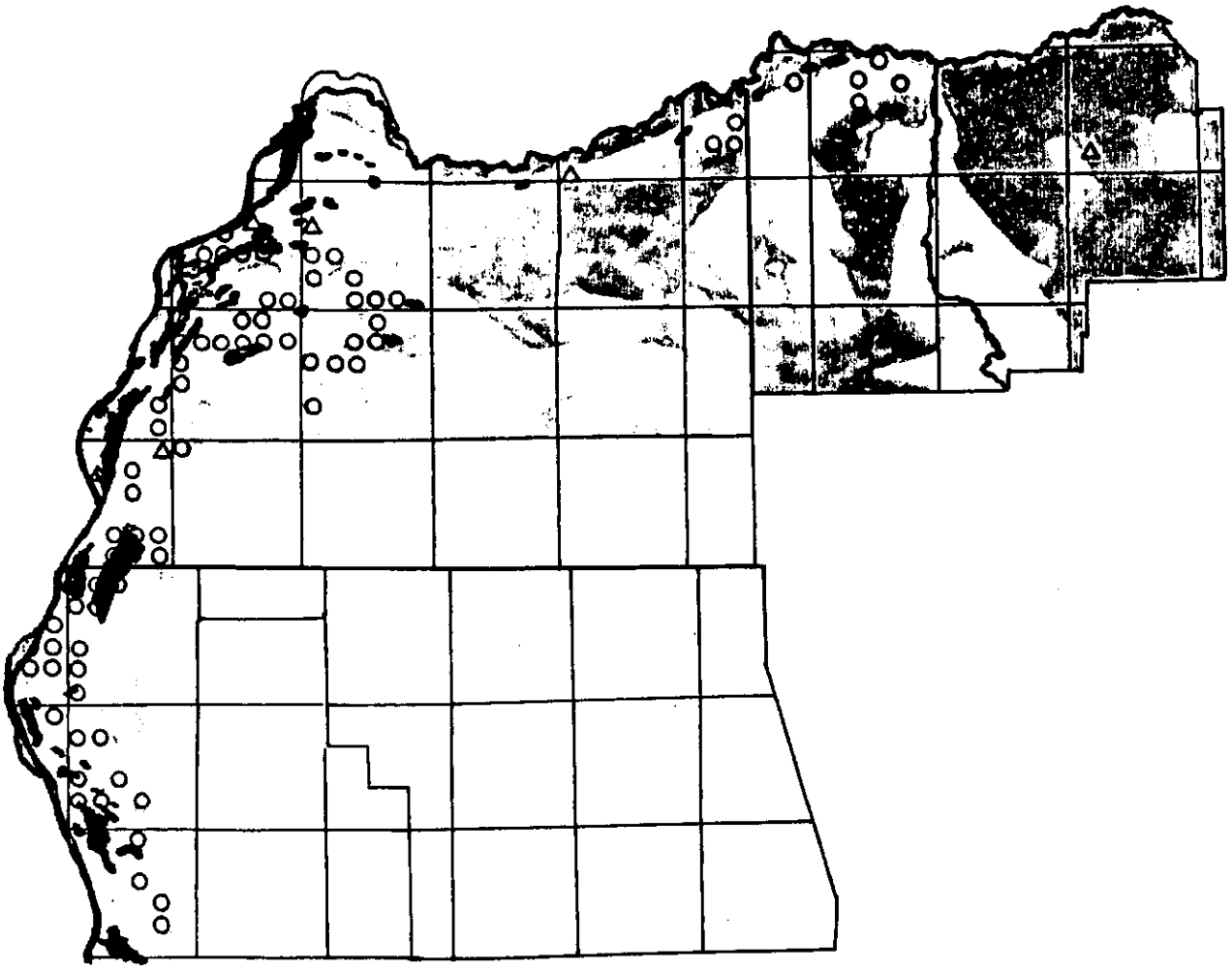

Figure 4.
Presettlement vegetation from U.S. Government land surveys plotted against historic and active *Pseudacris streckeri illinoensis* localities.

Yellow = prairie Green = timber Blue = water

▲ = historic localities

● = active since 1984

APPENDIX A. HISTORIC LOCALITIES FOR THE ILLINOIS CHORUS FROG IN WEST-CENTRAL ILLINOIS

INVESTIGATOR	DATE	COUNTY	LOCATION	TSHP	RNGE	SCT	MUSEUM CAT. NO.		LOCALITY
Nat Her Database	1987	Mason		T20N	R9W	S04			no data
Taubert, et al	1981	Mason	NE 1/4, NW 1/4, SW	T20N	R9W	S14			2.8 Mi E Bath
Nat Her Database	1987	Mason	NE 1/4, NW 1/4, SW	T20N	R9W	S14			
Taubert, et al	1981	Mason	SW 1/4, SE 1/4, NE 1/	T21N	R5W	S19			3.2 Mi N Mason City
Nat Her Database	Apr 15, 1987	Mason		T21N	R7W	S04			no data
Taubert, et al	1981	Mason	NE 1/4, SE 1/4, NW 1	T22N	R7W	S03			Sand Ridge State Forest
Taubert, et al	1981	Mason	NE 1/4, NW 1/4, NE	T22N	R7W	S03			Sand Ridge State Forest
Taubert, et al	1981	Mason	SE 1/4, SE 1/4, NW 1/	T22N	R7W	S03			Sand Ridge State Forest
Taubert, et al	1981	Mason	SW 1/4, SW 1/4, SW	T23N	R6W	S21			0.25 Mi SW Manito
Taubert, et al	1981	Mason	NE 1/4, SE 1/4, SW 1/	T23N	R6W	S21			Town of Manito
Taubert, et al	1981	Mason	SE 1/4, SW 1/4, SW 1	T23N	R6W	S29			1.6 Mi SW Manito
Taubert, et al	1981	Mason	NW 1/4, NE 1/4, SE 1	T23N	R6W	S29			1.5 Mi W Manito
Taubert, et al	1981	Mason	SE 1/4, SW 1/4, SE 1/	T23N	R6W	S31			2.3 Mi SW Manito
Taubert, et al	1981	Mason	SW 1/4, NE 1/4, NW	T23N	R6W	S32			1.5 Mi SW Manito
Taubert, et al	1981	Mason	NE 1/4, NW 1/4, NW	T23N	R6W	S32			1.6 Mi SW Manito
Taubert, et al	1981	Mason	NE 1/4, SW 1/4, NW	T23N	R6W	S32			2.0 Mi SW Manito
Taubert, et al	1981	Mason	SW 1/4, NE 1/4, SE 1/	T23N	R7W	S28			5.0 Mi WSW Manito
Schroder, Robert C.	before 1961	Menard		T19N	R5W		UIMNH	50159	3 Mi SE Greenview
Schroder, Robert C.	before 1961	Menard		T19N	R5W		UIMNH	50160	3 Mi SE Greenview
Beltz	Apr 15, 1991	Menard	NW 1/4, SE 1/4	T19N	R7W	S03			Hudspeth marsh
Beltz	Apr 15, 1991	Menard	SE 1/4	T19N	R7W	S09			Sand pond in field
Beltz	Apr 15, 1991	Menard	N 1/2, NE 1/4	T19N	R7W	S16			Stock pond & field
Beltz	Apr 16, 1991	Menard	SE 1/4	T19N	R8W	S12			fenced in dune

APPENDIX A. HISTORIC LOCALITIES FOR THE ILLINOIS CHORUS FROG IN WEST-CENTRAL ILLINOIS

INVESTIGATOR	DATE	COUNTY	LOCATION	TSHP	RNGE	SCT	MUSEUM	CAT. NO.	LOCALITY
Smith & Smith	Mar 06, 1951	Morgan					INHS	5684	4.0 Mi NE Meredosia
Weed, Alfred C.	Sep 00, 1922	Morgan					FMNH	3266	Meredosia Fish Hatchery
Brown & Rose	1984	Morgan	NW 1/4, NW 1/4	T16N	R12W	S06			
UI Herp Class	May 19, 1950	Morgan		T16N	R13W		INHS	5982	3.0 Mi N Meredosia-holotype
Brown & Rose	1984	Morgan	SE 1/4	T16N	R13W	S11			
Beltz	Mar 24, 1991	Morgan	S 1/2, NW 1/4	T16N	R13W	S11			over dune in dairy farm
Beltz	Apr 03, 1991	Morgan	SW 1/4	T16N	R13W	S11			north of Willow Creek
Brown & Rose	1984	Morgan	S 1/2, NE 1/4	T16N	R13W	S11			
Beltz	Apr 03, 1991	Morgan	N 1/2	T16N	R13W	S14			at Willow Creek
Brown & Rose	1984	Morgan	SW 1/4, SE 1/4	T16N	R13W	S25			
Brown & Rose	1984	Morgan	NW 1/4, SW 1/4	T16N	R13W	S26			
Brown & Rose	1984	Morgan	NW 1/4, SW 1/4	T16N	R13W	S27			
Brown & Rose	1984	Morgan	S 1/2	T16N	R13W	S34			
Brown & Rose	1984	Morgan	NE 1/4, SW 1/4	T16N	R13W	S36			
Brown & Rose	1984	Scott	NE 1/4, NE 1/4	T13N	R13W	S03			
Brown & Rose	1984	Scott	SE 1/4, SE 1/4	T13N	R13W	S15			
Brown & Rose	1984	Scott	NW 1/4, SE 1/4	T13N	R13W	S15			
Beltz	Apr 04, 1991	Scott	SW 1/4, NW 1/4	T13N	R13W	S23			Deep road ditch w/sumac
Beltz	Apr 04, 1991	Scott	SW 1/4, SE 1/4	T13N	R13W	S23			Blowout pond, Glasgow Road
Beltz	Apr 04, 1991	Scott	NW 1/4, NE 1/4	T13N	R13W	S26			Blowout pond, Glasgow Road
Brown & Rose	1984	Scott	E 1/2, SE 1/4	T14N	R14W	S01			
Brown & Rose	1984	Scott	SE 1/4, NE 1/4	T14N	R14W	S01			
Brown & Rose	1984	Scott	NW 1/4, NW 1/4	T14N	R13W	S07			
Beltz	Apr 04, 1991	Scott	NE 1/4, SW 1/4	T14N	R13W	S08			Sedge meadow w/tree border
Brown & Rose	1984	Scott	W 1/2, SE 1/4	T14N	R13W	S08			
Brown & Rose	1984	Scott	E 1/2, SW 1/4	T14N	R13W	S08			

APPENDIX A. HISTORIC LOCALITIES FOR THE ILLINOIS CHORUS FROG IN WEST-CENTRAL ILLINOIS

INVESTIGATOR	DATE	COUNTY	LOCATION	TSHP	RNGE	SCT	MUSEUM CAT. NO.	LOCALITY
Brown & Rose	1984	Scott	SW 1/4, NE 1/4	T14N	R13W	S19		
Beltz	Apr 04, 1991	Scott	NW 1/4, SE 1/4	T14N	R13W	S21		Old sandpit w/trees
Beltz	Apr 04, 1991	Scott	SE 1/4, SE 1/4	T14N	R13W	S21		Old sandpit w/trees
Brown & Rose	1984	Scott	SE 1/4, NW 1/4	T14N	R13W	S21		
Brown & Rose	1984	Scott	NW 1/4, NW 1/4	T14N	R13W	S27		
Brown & Rose	1984	Scott	NE 1/4, SW 1/4	T14N	R13W	S27		
Beltz	Mar 21, 1991	Scott	SE 1/4, NW 1/4	T14N	R13W	S27		Over dune near sandpit
Beltz	Mar 24, 1991	Scott	NW 1/4, SW 1/4	T14N	R13W	S27		Sand pit
Beltz	Apr 04, 1991	Scott	NE 1/4, SW 1/4	T14N	R13W	S27		Sand pit
Beltz	Apr 04, 1991	Scott	NW 1/4, NW 1/4	T14N	R13W	S27		Old sandpit w/trees
Brown & Rose	1984	Scott	SW 1/4, SW 1/4	T14N	R13W	S29		
Beltz	Mar 24, 1991	Scott	NE 1/4, NW 1/4	T14N	R13W	S30		Flooded field
Brown & Rose	1984	Scott	NE 1/4, NW 1/4	T15N	R14W	S13		
Brown & Rose	1984	Scott	S 1/2, SE 1/4	T15N	R14W	S24		
Brown & Rose	1984	Scott	SE 1/4, SE 1/4	T15N	R14W	S24		
Brown & Rose	1984	Scott	SW 1/4, NE 1/4	T15N	R14W	S24		
Brown & Rose	1984	Scott	SE 1/4, SE 1/4	T15N	R14W	S25		
Brown & Rose	1984	Scott	SW 1/4, SW 1/4	T15N	R14W	S26		
Brown & Rose	1984	Scott	SW 1/4, NW 1/4	T15N	R13W	S04		irregular section
Beltz	Mar 20, 1991	Scott	SE 1/4, SE 1/4	T15N	R13W	S05		inside hog fencing w/dunes
Beltz	Mar 25, 1991	Scott	NW 1/4, SE 1/4	T15N	R13W	S05		sand pond
Beltz	Apr 13, 1991	Scott	SW 1/4, SE 1/4	T15N	R13W	S05		sand pond
Brown & Rose	1984	Scott	SE 1/4, NW 1/4	T15N	R13W	S06		irregular section
Brown & Rose	1984	Scott	NW 1/4	T15N	R13W	S06		irregular section
Beltz	Mar 22, 1991	Scott	NW 1/4	T15N	R13W	S06		wet depression N Coon Run
Brown & Rose	1984	Scott	NW 1/4, SE 1/4	T15N	R13W	S06		
Beltz	Apr 03, 1991	Scott	NW 1/4, SW 14	T15N	R13W	S07		road ditch w/trees
Brown & Rose	1984	Scott	SW 1/4, NW 1/4	T15N	R13W	S07		
Brown & Rose	1984	Scott	SW 1/4, NW 1/4	T15N	R13W	S07		
Beltz	Mar 22, 1991	Scott	NE 1/4, SW 1/4	T15N	R13W	S08		road ditch w/trees

APPENDIX A. HISTORIC LOCALITIES FOR THE ILLINOIS CHORUS FROG IN WEST-CENTRAL ILLINOIS

INVESTIGATOR	DATE	COUNTY	LOCATION	TSHP	RNGE	SCT	MUSEUM	CAT. NO.	LOCALITY
Beltz	Mar 21, 1991	Scott	SE 1/4, NE 1/4	T15N	R13W	S08			flooded field
Beltz	Mar 25, 1991	Scott	NE 1/4, NE 1/4	T15N	R13W	S08			over dune in hog farm
Brown & Rose	1984	Scott	SE 1/4, NW 1/4	T15N	R13W	S30			
Brown & Rose	1984	Scott	SE 1/4, NW 1/4	T15N	R13W	S31			
Brown & Rose	1984	Scott	NE 1/4, SW 1/4	T15N	R13W	S31			
Brown & Rose	1984	Scott	SE 1/4, NE 1/4	T15N	R13W	S31			
Brown & Rose	1984	Scott	SW 1/4, NW 1/4	T15N	R13W	S31			
Williams & Chrapliwy	Mar 31, 1957	Tazewell		T22N	R5W		INHS	8526	4.0 Mi SW Green Valley
Williams & Chrapliwy	Mar 31, 1957	Tazewell		T22N	R5W		INHS	8527	4.0 Mi SW Green Valley
Taubert, et al	1981	Tazewell	NW 1/4, NW 1/4, NE	T23N	R5W	S32			2.2 Mi W Green Valley
Taubert, et al	1981	Tazewell	NE 1/4, NE 1/4, NE 1/	T23N	R5W	S32			1.7 Mi W Green Valley

APPENDIX B. ILLINOIS CHORUS FROG CALLING SITES FOR 1991 AND 1993.

Year	Date	Time	County	Location	Twsp	Rnge	Sct	oF	Weather	Pt	Ps	Ru	Ba	Pc	Where calling
1991	Apr 05, 1991	PM 09:03	Cass	NE 1/4, SW 1/4	T17N	R11W	S03	65	Clear	K3	K2	0	K3	K3	Behind houses
1993	Mar 24, 1993	PM 07:37	Cass	S 1/2, SW 1/4	T17N	R11W	S03	44	Cloudy	0	K4	0	0	K4	Owl Pond & N Bethel Church Rd
1993	Mar 25, 1993	PM 09:13	Cass	S 1/2, SW 1/4	T17N	R11W	S03	42	Clear	0	K4	0	0	K4	Owl Pond, S Bethel Church Rd
1993	Mar 27, 1993	PM 03:49	Cass	S 1/2, SW 1/4	T17N	R11W	S03	75	Sunny	K2	K3	0	0	K3	Owl Pond, S Bethel Church Rd
1993	Apr 08, 1993	PM 11:33	Cass	S 1/2, SW 1/4	T17N	R11W	S03	50	Cloudy	0	K4	0	K4	K2	Owl Pond & Stock Pond
1991	Mar 27, 1991	PM 12:05	Cass	SW 1/4, SE 1/4	T17N	R11W	S09	70	Pt cloudy	K4	K2	K2	K3	K2	Shick Shack Nature Preserve
1993	Apr 08, 1993	PM 11:40	Cass	SW 1/4, SE 1/4	T17N	R11W	S09	50	Cloudy	0	K4	K2	0	K4	Shick Shack Nature Preserve
1993	Mar 24, 1993	PM 07:55	Cass	SW 1/4, NW 1/4	T17N	R11W	S10	44	Cloudy	0	K4	0	0	K4	Stock pond
1993	Mar 27, 1993	PM 03:50	Cass	NW 1/4, NW 1/4	T17N	R11W	S10	75	Sunny	K2	K3	0	0	K3	Stock pond, E Peck Road
1993	Mar 25, 1993	PM 09:40	Cass	N 1/2, SW 1/4	T17N	R11W	S16	48	Clear	0	K4	0	0	K5	N Crooked LnS, invisible pond
1993	Mar 24, 1993	PM 08:05	Cass	NE 1/4, SW 1/4	T17N	R11W	S16	44	Cloudy	0	K3	0	0	K3	N Crooked Lane South
1993	Apr 08, 1993	PM 11:46	Cass	NE 1/4, SW 1/4	T17N	R11W	S16	54	Cloudy	0	K3	0	0	K4	N Crooked Lane by birches
1993	Mar 27, 1993	PM 03:56	Cass	SE 1/4, SW 1/4	T17N	R11W	S16	75	Sunny	K3	K4	0	0	K4	Two invisible ponds
1993	Mar 27, 1993	PM 03:56	Cass	SW 1/4, SE 1/4	T17N	R11W	S16	75	Sunny	K3	K4	0	0	K4	Two invisible ponds
1993	Apr 08, 1993	PM 11:45	Cass	W 1/2, SE 1/4	T17N	R11W	S16	54	Cloudy	0	K3	0	0	K4	N & S Crooked Lane by birches
1993	Apr 08, 1993	PM 11:53	Cass	SE 1/4, NW 1/4	T17N	R11W	S17	54	Cloudy	0	K3	0	0	0	Invisible pond N Hagener Road
1993	Mar 25, 1993	PM 09:44	Cass	SW 1/4, NW 1/4	T17N	R11W	S17	48	Clear	0	K4	0	0	K4	W Crooked LnS, N Hagener RdE
1991	Apr 05, 1991	PM 09:40	Cass	NW 1/4, SW 1/4	T17N	R11W	S18	60	Clear	K4	K3	0	K3	K3	Gary's Auto Body Pond
1991	Apr 12, 1991	PM 10:12	Cass	NW 1/4, SW 1/4	T17N	R11W	S18	50	Cloudy	0	K1	0	0	0	Gary's Auto Body Pond
1991	Apr 15, 1991	AM 01:50	Cass	NW 1/4, SW 1/4	T17N	R11W	S18	50	Cloudy	K2	K3	0	K3	K4	Gary's Auto Body Pond
1991	Apr 16, 1991	AM 12:49	Cass	NW 1/4, SW 1/4	T17N	R11W	S18	56	Clear	K5	K4	K2	K3	K4	Gary's Auto Body Pond
1991	Apr 17, 1991	AM 02:27	Cass	NW 1/4, SW 1/4	T17N	R11W	S18	52	Clear	K5	K4	K3	K5	K3	Gary's Auto Body Pond
1993	Mar 22, 1993	PM 09:45	Cass	NW 1/4, SW 1/4	T17N	R11W	S18	40	Cloudy	0	K2	0	0	0	Gary's Auto Body Pond
1993	Mar 25, 1993	PM 09:51	Cass	NW 1/4, SW 1/4	T17N	R11W	S18	46	Clear	0	K3	0	0	0	S Hagener RdE/E Arenzville Rd
1993	Apr 06, 1993	PM 07:49	Cass	NW 1/4, SW 1/4	T17N	R11W	S18	60	Clear	0	K3	0	0	0	Gary's Auto Body Pond
1993	Apr 08, 1993	PM 11:56	Cass	NW 1/4, SW 1/4	T17N	R11W	S18	52	Cloudy	0	K3	0	K3	K3	Gary's Auto Body Pond

APPENDIX B. ILLINOIS CHORUS FROG CALLING SITES FOR 1991 AND 1993.

Year	Date	Time	County	Location	Twsp	Rnge	Sct	oF	Weather	Pt	Pa	Ru	Ba	Pc	Where calling
1993	Apr 06, 1993	PM 07:53	Cass	NW 1/4, NE 1/4	T17N	R11W	S30	60	Clear	0	K3	0	0	0	S St. Peters Road
1993	Apr 08, 1993	PM 12:00	Cass	NW 1/4, SE 1/4	T17N	R11W	S30	52	Cloudy	K3	K3	0	K4	0	S St. Peter's Road
1993	Apr 06, 1993	PM 07:55	Cass	SW 1/4, SE 1/4	T17N	R11W	S30	60	Clear	0	K3	0	0	0	W Cemetery Lane pond
1993	Apr 08, 1993	PM 12:10	Cass	SW 1/4, SE 1/4	T17N	R11W	S30	52	Cloudy	K1	K3	0	0	0	E Cemetery Lane
1991	Mar 23, 1991	PM 10:07	Cass	SW 1/4, NW 1/4	T17N	R12W	S02	52	Cloudy/Windy	K3	K2	K2	0	0	E Blvd Road, Twin Pond
1993	Mar 25, 1993	PM 10:23	Cass	SW 1/4, NW 1/4	T17N	R12W	S02	46	Clear	K3	K4	0	0	K4	E Blvd Road, Twin Pond
1993	Mar 26, 1993	AM 10:41	Cass	SW 1/4, NW 1/4	T17N	R12W	S02	64	Pt cloudy	K3	K4	0	0	K3	E Blvd Road, Twin Pond
1993	Mar 26, 1993	PM 10:05	Cass	SW 1/4, NW 1/4	T17N	R12W	S02	46	Clear	K4	K5	0	0	K3	E Blvd Road, Twin Pond
1993	Mar 27, 1993	PM 05:42	Cass	SW 1/4, NW 1/4	T17N	R12W	S02	59	Clear	K4	K5	0	0	K3	E Blvd Road, Twin Pond
1993	Mar 27, 1993	PM 10:33	Cass	SW 1/4, NW 1/4	T17N	R12W	S02	40	Clear	K5	K5	0	0	K5	E Blvd Road, Twin Pond
1993	Apr 08, 1993	PM 12:20	Cass	SW 1/4, NW 1/4	T17N	R12W	S02	50	Cloudy	K4	K4	0	0	K4	E Blvd Road, Twin Pond
1993	Apr 17, 1993	PM 08:55	Cass	SW 1/4, NW 1/4	T17N	R12W	S02	54	Pt cloudy	K5	K5	K3	K2	K3	E Blvd Road, Twin Pond
1993	Apr 17, 1993	PM 08:58	Cass	NW 1/4, NE 1/4	T17N	R12W	S03	54	Pt cloudy	K5	K5	0	0	0	N Twin Ponds/W Blvd Rd
1991	Mar 23, 1991	PM 10:05	Cass	SE 1/4, NE 1/4	T17N	R12W	S03	52	Clouds/Wind	K3	K2	K1	0	0	W Blvd Road, Twin Pond
1993	Mar 25, 1993	PM 10:23	Cass	SE 1/4, NE 1/4	T17N	R12W	S03	46	Clear	K3	K4	0	0	K4	W Blvd Road, Twin Pond
1993	Mar 26, 1993	PM 10:05	Cass	SE 1/4, NE 1/4	T17N	R12W	S03	46	Clear	K4	K5	0	0	K3	W Blvd Road, Twin Pond
1993	Mar 26, 1993	AM 10:41	Cass	SE 1/4, NE 1/4	T17N	R12W	S03	64	Pt cloudy	K3	K4	0	0	K3	W Blvd Road, Twin Pond
1993	Mar 27, 1993	PM 10:33	Cass	SE 1/4, NE 1/4	T17N	R12W	S03	40	Clear	K5	K5	0	0	K5	W Blvd Rd, dry in 1991
1993	Mar 27, 1993	PM 05:42	Cass	SE 1/4, NE 1/4	T17N	R12W	S03	59	Clear	K4	K5	0	0	K3	W Blvd Road, Twin Pond
1993	Apr 08, 1993	PM 12:20	Cass	SE 1/4, NE 1/4	T17N	R12W	S03	50	Cloudy	K4	K4	0	0	K4	W Blvd Road, Twin Pond
1993	Apr 17, 1993	PM 08:54	Cass	SE 1/4, NE 1/4	T17N	R12W	S03	54	Pt cloudy	K5	K5	K1	K2	K3	W Blvd Road, Twin Pond
1993	Apr 17, 1993	PM 09:21	Cass	NE 1/4, SW 1/4	T17N	R12W	S07	52	Pt cloudy	K5	K3	0	K4	K5	Lock Road
1993	Apr 17, 1993	PM 09:17	Cass	NW 1/4, SW 1/4	T17N	R12W	S08	54	Pt cloudy	K4	K5	0	0	K5	Black Oak Church Road
1993	Apr 17, 1993	PM 09:05	Cass	NE 1/4, NE 1/4	T17N	R12W	S09	54	Pt cloudy	0	K5	0	K5	K5	W Rawlings/Upper Meredosia Rd
1993	Apr 17, 1993	PM 09:10	Cass	NW 1/4, SE 1/4	T17N	R12W	S09	54	Pt cloudy	K5	K5	0	K4	K4	Black Oak Church pond
1993	Mar 25, 1993	PM 10:20	Cass	NE 1/4, NE 1/4	T17N	R12W	S10	46	Clear	0	K3	0	0	0	E Blvd Rd, S Anderson House

APPENDIX B. ILLINOIS CHORUS FROG CALLING SITES FOR 1991 AND 1993.

Year	Date	Time	County	Location	Twsp	Rnge	Sct	oF	Weather	Pt	Ps	Ru	Ba	Pc	Where calling
1993	Mar 26, 1993	PM 10:00	Cass	SE 1/4, NE 1/4	T17N	R12W	S10	46	Clear	K2	K4	0	0	K3	W Blvd Rd, N Anderson House
1993	Apr 08, 1993	PM 12:15	Cass	SE 1/4, NE 1/4	T17N	R12W	S10	50	Cloudy	0	K2	0	0	K1	S of Anderson Pond
1993	Mar 27, 1993	PM 10:26	Cass	NW 1/4, SW 1/4	T17N	R12W	S11	40	Clear	K4	K4	0	0	K3	NW Clear Creek, E Blvd Rd
1991	Mar 26, 1991	PM 09:46	Cass	SE 1/4, NW 1/4	T17N	R12W	S18	74	Light rain	0	K2	0	0	0	Flooded field
1991	Mar 19, 1991	PM 08:05	Cass	E 1/2, SW 1/4	T17N	R12W	S19	48	Clear	K5	K1	K5	0	K3	Flooded field
1991	Mar 23, 1991	AM 12:30	Cass	E 1/2, SW 1/4	T17N	R12W	S19	56	Clear/Windy	K5	K5	K2	0	K1	Flooded field
1991	Mar 24, 1991	PM 08:25	Cass	E 1/2, SW 1/4	T17N	R12W	S19	64	Clear	K5	K1	K3	0	0	Flooded field
1991	Mar 24, 1991	AM 12:45	Cass	E 1/2, SW 1/4	T17N	R12W	S19	55	Clear	K5	K3	K2	0	0	Flooded field
1991	Mar 25, 1991	PM 07:30	Cass	E 1/2, SW 1/4	T17N	R12W	S19	62	Hazy	K5	K1	K3	0	0	Flooded field
1993	Mar 27, 1993	PM 07:18	Cass	SE 1/4, SE 1/4	T17N	R13W	S25	60	Clear	K3	K4	0	0	0	E Indian Cr Rd, N Honey Pt Rd
1993	Apr 09, 1993	PM 08:15	Cass	SE 1/4, SE 1/4	T17N	R13W	S25	56	Clear	K4	K3	K2	0	0	E Indian Cr Rd flooded field
1993	Apr 09, 1993	PM 08:13	Cass	NW 1/4, NE 1/4	T17N	R13W	S36	56	Clear	K1	K3	0	0	0	Ditch S Honey Point Road
1991	Apr 03, 1991	PM 08:30	Cass	SW 1/4, SE 1/4	T17N	R13W	S36	60	Cloudy	K4	K2	0	0	0	Flooded field
1991	Apr 15, 1991	AM 02:50	Cass	SW 1/4, SE 1/4	T17N	R13W	S36	46	Light rain	K4	K3	0	K2	0	Flooded field
1991	Mar 26, 1991	PM 10:04	Cass	SW 1/4, SE 1/4	T17N	R13W	S36	68	Rain	K5	K4	0	K5	0	Flooded field
1993	Apr 09, 1993	PM 08:22	Cass	SW 1/4, SE 1/4	T17N	R13W	S36	56	Clear	K3	K3	0	0	0	N Cty Line Rd, flooded field
1993	Apr 17, 1993	PM 10:44	Cass	SE 1/4, SE 1/4	T18N	R11W	S19	52	Pt cloudy	0	K3	0	0	0	Tom Meyer Pond
1993	Apr 08, 1993	PM 10:46	Cass	SW 1/4, SW 1/4	T18N	R11W	S20	52	Cloudy	0	K4	0	0	0	N Rt. 125 at Crooked Lane
1993	Apr 17, 1993	PM 10:52	Cass	SW 1/4, SW 1/4	T18N	R11W	S20	52	Pt cloudy	0	K4	K3	K5	0	N Rt. 125 at Crooked Lane
1993	Apr 17, 1993	PM 11:00	Cass	N 1/2, SW 1/4	T18N	R11W	S28	52	Pt cloudy	K4	K3	0	0	K4	Bluff Springs M.E. Church
1993	Apr 08, 1993	PM 10:40	Cass	SE 1/4, NW 1/4	T18N	R11W	S30	52	Cloudy	K4	K4	K1	K1	K3	Arenz Lane west pond
1993	Mar 25, 1993	PM 10:45	Cass	SW 1/4, NE 1/4	T18N	R11W	S30	46	Clear	K2	K3	0	0	K3	Arenz Lane, north pond
1993	Apr 08, 1993	PM 10:36	Cass	SW 1/4, NE 1/4	T18N	R11W	S30	52	Cloudy	K4	K4	0	K3	K3	Arenz Lane N & S sand road

APPENDIX B. ILLINOIS CHORUS FROG CALLING SITES FOR 1991 AND 1993.

Year	Date	Time	County	Location	Twsp	Rnge	Sct	oF	Weather	Pt	Ps	Ru	Ba	Pc	Where calling
1993	Mar 25, 1993	PM 09:03	Cass	N 1/2, SE 1/4	T18N	R11W	S33	42	Clear	0	K3	0	0	0	Round Pond, S Six Mile Road
1993	Mar 26, 1993	PM 10:25	Cass	N 1/2, SE 1/4	T18N	R11W	S33	52	Clear	0	K4	0	0	K2	S Six Mile Road
1993	Apr 08, 1993	PM 10:55	Cass	NE 1/4, SE 1/4	T18N	R11W	S33	52	Cloudy	0	K4	0	0	K2	Chamber's Pond S Six Mile Rd
1993	Apr 08, 1993	PM 10:54	Cass	NW 1/4, SE 1/4	T18N	R11W	S33	52	Cloudy	0	K4	0	0	K3	Round Pond S Six Mile Road
1991	Apr 05, 1991	PM 08:15	Cass	NW 1/4, SW 1/4	T18N	R11W	S33	65	Clear	K2	K3	0	K3	K5	Round pond w/ATV tracks
1991	Apr 12, 1991	PM 09:40	Cass	NW 1/4, SW 1/4	T18N	R11W	S33	50	Cloudy	0	K1	0	0	0	Round pond w/ATV tracks
1991	Apr 05, 1991	PM 08:50	Cass	S 1/2, SW 1/4	T18N	R11W	S33	65	Clear	0	K2	K2	K2	K3	Bluff Springs Rd, both sides
1993	Mar 24, 1993	PM 07:25	Cass	S 1/2, SW 1/4	T18N	R11W	S33	44	Cloudy	K2	K4	0	0	K2	Bluff Springs Rd, both sides
1993	Apr 08, 1993	PM 11:26	Cass	S 1/2, SW 1/4	T18N	R11W	S33	58	Cloudy	0	K4	0	K1	K4	Bluff Springs Rd, both sides
1993	Mar 25, 1993	PM 09:06	Cass	S 1/2, NW 1/4	T18N	R11W	S33	42	Clear	K1	K3	0	0	0	Bluff Springs Rd, both sides
1993	Apr 08, 1993	PM 10:56	Cass	SE 1/4, NW 1/4	T18N	R11W	S34	52	Cloudy	K2	K4	0	0	K4	Six Mile Road sand swamp
1991	Mar 23, 1991	PM 03:00	Cass	SW 1/4, NE 1/4	T18N	R11W	S34	52	Cloudy/Hi win	K5	K5	0	0	0	Six Mile Road sand swamp
1991	Mar 26, 1991	PM 03:08	Cass	SW 1/4, NE 1/4	T18N	R11W	S34	82	Sun & clouds	K5	K3	K3	0	0	Six Mile Road sand swamp
1993	Mar 21, 1993	PM 12:30	Cass	SW 1/4, NE 1/4	T18N	R11W	S34	40	Cloudy	0	K2	0	0	K2	Six Mile Road sand swamp
1993	Mar 22, 1993	PM 10:10	Cass	SW 1/4, NE 1/4	T18N	R11W	S34	40	Cloudy	0	K2	0	0	0	Six Mile Road sand swamp
1993	Mar 24, 1993	PM 06:50	Cass	SW 1/4, NE 1/4	T18N	R11W	S34	44	Cloudy	K4	K3	0	0	K2	Six Mile Road sand swamp
1993	Mar 25, 1993	PM 08:40	Cass	SW 1/4, NE 1/4	T18N	R11W	S34	42	Clear	K1	K4	0	0	K5	Six Mile Road sand swamp
1993	Mar 26, 1993	PM 10:30	Cass	SW 1/4, NE 1/4	T18N	R11W	S34	52	Clear	0	K4	0	0	K3	Six Mile Road sand swamp
1993	Mar 27, 1993	PM 03:22	Cass	SW 1/4, NE 1/4	T18N	R11W	S34	75	Sunny	K2	K3	0	0	K4	Six Mile Road sand swamp
1993	Apr 08, 1993	PM 11:00	Cass	SW 1/4, NE 1/4	T18N	R11W	S34	52	Cloudy	K3	K4	0	0	K4	Six Mile Road sand swamp
1991	Mar 23, 1991	PM 03:30	Cass	NW 1/4, NW 1/4	T18N	R11W	S35	52	Clouds/hi win	K5	K5	0	0	0	Brown Marsh
1991	Apr 05, 1991	PM 08:27	Cass	NW 1/4, NW 1/4	T18N	R11W	S35	65	Clear	K4	K3	K5	K3	K5	Brown Marsh
1991	Apr 12, 1991	PM 09:28	Cass	NW 1/4, NW 1/4	T18N	R11W	S35	50	Light rain	0	K2	0	0	K3	Brown Marsh
1993	Mar 24, 1993	PM 07:09	Cass	NW 1/4, NW 1/4	T18N	R11W	S35	44	Cloudy	K2	K3	0	0	K3	Brown marsh
1993	Mar 25, 1993	PM 08:34	Cass	NW 1/4, NW 1/4	T18N	R11W	S35	42	Clear	0	K4	0	0	K3	Brown Marsh
1993	Mar 26, 1993	PM 11:00	Cass	NW 1/4, NW 1/4	T18N	R11W	S35	52	Clear	K3	K4	0	0	K4	Brown Marsh
1993	Apr 08, 1993	PM 11:20	Cass	NW 1/4, NW 1/4	T18N	R11W	S35	52	Cloudy	0	K4	0	0	K4	Brown marsh, soil temp 50
1993	Mar 27, 1993	PM 03:23	Cass	SW 1/4, NW 1/4	T18N	R11W	S35	75	Sunny	K2	K3	0	0	K3	Brown Marsh

APPENDIX B. ILLINOIS CHORUS FROG CALLING SITES FOR 1991 AND 1993.

Year	Date	Time	County	Location	Twsp	Rnge	Sct	oF	Weather	Pt	Ps	Ru	Ba	Pc	Where calling
1993	Apr 17, 1993	PM 09:45	Cass	NE 1/4, NW 1/4	T18N	R12W	S16	54	Pt cloudy	K5	K5	K3	0	K5	So. B'town DrnRd at farm
1993	Apr 17, 1993	PM 09:48	Cass	N 1/2, SE 1/4	T18N	R12W	S16	56	Pt cloudy	K5	K5	K5	0	K5	Sixth St. SW of B'town
1993	Apr 17, 1993	PM 09:37	Cass	SW 1/4, NE 1/4	T18N	R12W	S20	54	Pt cloudy	K5	K4	K4	0	K5	So. B'town Drainage Road
1991	Mar 23, 1991	PM 09:30	Cass	NE 1/4	T18N	R12W	S22	52	High winds	K3	K2	K2	0	0	Beardstown Marsh
1993	Apr 08, 1993	PM 12:35	Cass	NE 1/4, NW 1/4	T18N	R12W	S22	50	Cloudy	0	K3	0	0	0	Beardstown Marsh
1993	Mar 27, 1993	PM 06:00	Cass	N 1/2, NW 1/4	T18N	R12W	S23	59	Clear	K4	K4	0	0	0	Beardstown Marsh
1993	Mar 27, 1993	PM 11:10	Cass	N 1/2, NW 1/4	T18N	R12W	S23	40	Clear	K4	K4	0	0	0	Beardstown Marsh
1993	Mar 25, 1993	PM 07:30	Cass	NE 1/4, NW 1/4	T18N	R12W	S23	60	Clear	K4	K4	0	0	0	Beardstown Marsh
1993	Mar 25, 1993	PM 01:00	Cass	NE 1/4, NW 1/4	T18N	R12W	S23	52	Sunny	K2	K4	0	0	0	New area Beardstown Marsh
1993	Mar 25, 1993	PM 11:00	Cass	NE 1/4, NW 1/4	T18N	R12W	S23	46	Clear	K2	K3	0	0	0	New area Beardstown Marsh
1993	Mar 26, 1993	AM 10:32	Cass	NE 1/4, NW 1/4	T18N	R12W	S23	64	Pt cloudy	0	K3	0	0	0	Beardstown Marsh
1993	Apr 17, 1993	PM 08:44	Cass	NE 1/4, NW 1/4	T18N	R12W	S23	54	Pt cloudy	K4	K4	0	0	0	Luke's Street, B'town Marsh
1993	Apr 17, 1993	PM 08:47	Cass	NE 1/4, SW 1/4	T18N	R12W	S23	54	Pt cloudy	K4	K4	K1	0	0	Beardstown Marsh South
1993	Apr 17, 1993	PM 11:13	Cass	SE 1/4, NE 1/4	T18N	R12W	S23	52	Pt cloudy	0	K4	0	0	0	Kent Feeds pond
1993	Apr 17, 1993	PM 11:19	Cass	SE 1/4, NW 1/4	T18N	R12W	S23	52	Pt cloudy	K5	K5	K3	0	0	Beardstown Marsh
1991	Mar 23, 1991	PM 01:00	Cass	SW 1/4, NE 1/4	T18N	R12W	S23	52	Clouds/hi win	K5	K5	0	0	0	BNRR, Scirpus marsh
1993	Mar 23, 1993	PM 03:30	Cass	SW 1/4, NE 1/4	T18N	R12W	S23	45	Cloudy	0	K3	0	0	0	BNRR, Sciurpus marsh
1993	Apr 08, 1993	PM 12:39	Cass	SW 1/4, NE 1/4	T18N	R12W	S23	50	Cloudy	0	K3	0	0	0	BNRR, Sciurpus marsh
1993	Apr 17, 1993	PM 11:14	Cass	SW 1/4, NE 1/4	T18N	R12W	S23	52	Pt cloudy	0	K3	0	K3	K4	BNRR, Sciurpus marsh
1993	Apr 17, 1993	PM 10:27	Cass	S 1/2, SE 1/4	T18N	R12W	S26	54	Pt cloudy	K4	K4	0	0	K4	Flooded field/Excell Co Land
1993	Apr 17, 1993	PM 10:00	Cass	SE 1/4, SW 1/4	T18N	R12W	S35	52	Pt cloudy	K5	K5	K3	K5	K5	Stock Lane
1993	Apr 17, 1993	PM 10:04	Cass	SW 1/4, SE 1/4	T18N	R12W	S35	54	Pt cloudy	K5	K5	0	0	K5	City Dump, Lewis Landfill
1993	Apr 17, 1993	PM 10:06	Cass	SW 1/4, NE 1/4	T18N	R12W	S35	54	Pt cloudy	K4	K5	K4	0	K5	Excell Company Pond
1993	Apr 17, 1993	PM 10:20	Cass	NE 1/4, SE 1/4	T18N	R12W	S36	58	Pt cloudy	K4	K4	0	0	K3	Stock Ln/Arenzville Rd field
1993	Apr 17, 1993	PM 10:25	Cass	NE 1/4, SE 1/4	T18N	R12W	S36	58	Pt cloudy	K5	K4	0	K4	K5	Was hog pond E Arenzville Rd
1993	Apr 17, 1993	PM 10:27	Cass	SW 1/4, NE 1/4	T18N	R12W	S36	54	Pt cloudy	K4	K3	0	0	K4	Borrow pit Airport Road

APPENDIX B. ILLINOIS CHORUS FROG CALLING SITES FOR 1991 AND 1993.

Year	Date	Time	County	Location	Twsp	Rnge	Sct	oF	Weather	Pt	Pa	Ru	Ba	Pc	Where calling
1993	Apr 10, 1993	PM 09:46	Cass	SE 1/4, SE 1/4	T19N	R08W	S21	56	Pt cloudy	K1	K3	K2	0	K4	X Conn/Cty Ln Rds-dune pond
1993	Apr 10, 1993	PM 09:51	Cass	N 1/2, SE 1/4	T19N	R08W	S28	56	Pt cloudy	K4	K4	K4	K5	K4	Both sides County Line Road
1993	Apr 10, 1993	PM 09:48	Cass	N 1/2, NE 1/4	T19N	R08W	S28	56	Pt cloudy	K3	K3	0	K4	K3	Both sides County Line Road
1993	Apr 05, 1993	PM 03:35	Cass	NW 1/4, NE 1/4	T19N	R08W	S28	52	Sunny	0	K4	K3	0	K4	County Line Rd sand pond
1993	Apr 10, 1993	PM 10:04	Cass	SE 1/4, SW 1/4	T19N	R08W	S29	56	Pt cloudy	K4	K3	K3	0	K2	W Lynn Rd small grassy pond
1991	Apr 16, 1991	PM 10:53	Menard	NW 1/4, SE 1/4	T19N	R07W	S03	64	Clear	K4	K2	0	K3	K4	Hudpeth's driveway E side
1993	Apr 10, 1993	PM 08:30	Menard	S 1/2, SE 1/4	T19N	R07W	S09	58	Pt cloudy	K2	K5	0	0	K2	Pond over dune w/gartersnake
1991	Apr 16, 1991	PM 09:50	Menard	SE 1/4	T19N	R07W	S09	66	Clear	K3	K3	K2	K5	K4	Pond over duen w/gartersnake
1993	Apr 10, 1993	PM 08:42	Menard	NE 1/4, NE 1/4	T19N	R07W	S11	58	Pt cloudy	K4	K3	0	0	K3	Small pond w/shrubs
1993	Apr 10, 1993	PM 08:20	Menard	NW 1/4, NW 1/4	T19N	R07W	S16	58	Pt cloudy	0	K3	K2	K3	K4	Pond over dune
1991	Apr 15, 1991	PM 10:52	Menard	N 1/2, NE 1/4	T19N	R07W	S16	56	Clear	K3	K2	K1	0	K3	Stock pond and field
1993	Apr 10, 1993	PM 08:29	Menard	NE 1/4, NW 1/4	T19N	R07W	S16	58	Pt cloudy	K4	K3	0	K3	K3	Pond W&S barn + road ditches
1991	Apr 16, 1991	PM 11:40	Menard	SE 1/4	T19N	R08W	S12	58	Clear	K4	K5	K1	K3	K4	Fenced in dune
1993	Apr 09, 1993	PM 08:18	Morgan	NW 1/4, NW 1/4	T16N	R12W	S06	56	Clear	K3	K4	0	K3	0	E Rt100-flooded field-84 loc
1993	Apr 09, 1993	PM 08:22	Morgan	NW 1/4, NE 1/4	T16N	R13W	S01	56	Clear	0	K4	0	0	0	S County Line Road in trees
1991	Mar 24, 1991	AM 12:18	Morgan	S 1/2, NW 1/4	T16N	R13W	S11	58	Hi W wind	K5	K2	0	0	0	Over dune, dairy farm
1993	Apr 09, 1993	PM 08:38	Morgan	SE 1/4, SW 1/4	T16N	R13W	S11	56	Clear	0	K4	K4	0	0	W road, flooded field
1991	Mar 25, 1991	PM 10:24	Morgan	SW 1/4	T16N	R13W	S11	66	Pt cloudy	K2	K2	0	0	0	Over dune, dairy farm
1991	Apr 03, 1991	PM 08:49	Morgan	SW 1/4	T16N	R13W	S11	60	Cloudy	0	K5	K3	K5	0	S Ditched Run
1993	Apr 09, 1993	PM 08:33	Morgan	SW 1/4, NE 1/4	T16N	R13W	S11	56	Clear	K4	K5	0	0	0	E Road, flooded field
1993	Apr 09, 1993	PM 08:38	Morgan	SW 1/4, SE 1/4	T16N	R13W	S11	56	Clear	0	K4	K4	0	0	E road, with trees

APPENDIX B. ILLINOIS CHORUS FROG CALLING SITES FOR 1991 AND 1993.

Year	Date	Time	County	Location	Twsp	Rnge	Sct	oF	Weather	Pt	Pa	Ru	Ba	Pc	Where calling
1993	Mar 27, 1993	PM 07:35	Morgan	W 1/2, NE 1/4	T16N	R13W	S11	60	Clear	K3	K5	0	0	0	Flooded field, E of road
1993	Apr 09, 1993	PM 08:40	Morgan	E 1/2, NW 1/4	T16N	R13W	S14	56	Clear	K2	K5	K2	0	0	S Willow Cr, flooded fields
1993	Apr 09, 1993	PM 08:40	Morgan	NW 1/4, NE 1/4	T16N	R13W	S14	56	Clear	K2	K5	K2	0	0	SE crossroads, flooded field
1991	Apr 03, 1991	PM 09:10	Morgan	N 1/2	T16N	R13W	S14	60	Cloudy	0	K5	0	K5	0	Willow Run
1993	Mar 27, 1993	PM 09:57	Morgan	NE 1/4, NW 1/4	T16N	R13W	S27	52	Clear	K3	K4	0	0	0	E NWRR tracks, E of road
1993	Apr 09, 1993	PM 09:03	Morgan	SW 1/4, SE 1/4	T16N	R13W	S34	56	Clear	K4	K4	0	0	0	Behind hog field, 1984 loc.
1993	Mar 26, 1993	PM 07:10	Scott	SE 1/4	T13N	R12W	S19	60	Clear	K3	K3?	0	0	0	Town of Glasgow, review tape
1993	Apr 09, 1993	PM 10:05	Scott	NE 1/4, NE 1/4	T13N	R13W	S03	54	Clear	K3	K3	K2	K4	K3	Sandpit
1991	Mar 21, 1991	PM 06:30	Scott	SW 1/4, NW 1/4	T13N	R13W	S23	69	Cloudy/Humid	K5	K3	K2	0	0	Sumac ditch, S Sandy Run
1991	Mar 24, 1991	PM 10:05	Scott	SW 1/4, NW 1/4	T13N	R13W	S23	48	Clear	K5	K2	K3	0	0	Sumac ditch, S Sandy Run
1991	Apr 04, 1991	PM 09:40	Scott	SW 1/4, NW 1/4	T13N	R13W	S23	48	Clear	K3	K5	0	K2	0	Sumac ditch, S Sandy Run
1991	Apr 04, 1991	PM 09:17	Scott	SW 1/4, NW 1/4	T13N	R13W	S23	48	Clear	K3	K3	K1	K3	K2	Sumac ditch, S Sandy Run
1993	Mar 26, 1993	PM 07:19	Scott	SW 1/4, NW 1/4	T13N	R13W	S23	56	Clear	K4	K1	0	K3	0	Sumac ditch, S Sandy Run
1991	Apr 04, 1991	PM 09:20	Scott	SW 1/4, SE 1/4	T13N	R13W	S23	48	Clear	K3	K3	K1	K2	K2	Blowout pond, Glasgow Road
1991	Apr 04, 1991	PM 09:31	Scott	NW 1/4, NE 1/4	T13N	R13W	S26	48	Clear	K2	K2	0	K2	0	Blowout pond, Glasgow Road
1991	Mar 21, 1991	PM 08:20	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	58	Raining	0	K5	0	0	K5	Sedge meadow w/tree border
1991	Mar 22, 1991	PM 09:35	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	58	Clear	K5	K5	0	0	0	Sedge meadow w/tree border
1991	Mar 22, 1991	PM 08:45	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	60	Clear	K5	K5	K4	0	0	Sedge meadow w/tree border
1991	Mar 24, 1991	PM 10:57	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	40	Clear	K5	K4	0	0	0	Sedge meadow w/tree border
1991	Apr 04, 1991	PM 08:14	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	58	Clear	K5	K3	K1	K3	0	Sedge meadow w/tree border
1991	Apr 04, 1991	PM 10:11	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	50	Fog	K3	K5	0	K2	0	Sedge meadow w/tree border
1993	Mar 24, 1993	PM 10:07	Scott	NE 1/4, NW 1/4	T14N	R13W	S08	47	Cloudy	0	K4	0	0	K4	Sedge meadow w/tree border
1993	Mar 24, 1993	PM 11:15	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	47	Cloudy	0	K2	0	0	K2	Sedge meadow w/tree border
1993	Mar 26, 1993	PM 08:15	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	48	Clear	0	K5	0	0	K4	Sedge meadow w/tree border

APPENDIX B. ILLINOIS CHORUS FROG CALLING SITES FOR 1991 AND 1993.

Year	Date	Time	County	Location	Twsp	Rnge	Sct	oF	Weather	Pt	Ps	Ru	Ba	Pc	Where calling
1993	Mar 26, 1993	PM 02:20	Scott	NE 1/4, NW 1/4	T14N	R13W	S08	60	Sunny	K3	K3	0	0	K3	Sedge meadow w/tree border
1993	Mar 27, 1993	PM 08:27	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	56	Clear	K4	K5	0	0	0	Sedge meadow & other side rd
1993	Apr 09, 1993	PM 09:51	Scott	NE 1/4, SW 1/4	T14N	R13W	S08	56	Clear	K4	K5	K3	0	K4	Sedge meadow w/tree border
1991	Mar 24, 1991	PM 10:30	Scott	NW 1/4, SE 1/4	T14N	R13W	S21	48	Clear	K5	K2	0	0	0	Old sandpit w/trees
1991	Apr 04, 1991	PM 08:35	Scott	NW 1/4, SE 1/4	T14N	R13W	S21	58	Clear	K3	K2	K1	K3	K2	Old sandpit w/trees
1991	Apr 04, 1991	PM 08:38	Scott	SE 1/4, SE 1/4	T14N	R13W	S21	58	Clear	K3	K2	K1	K3	K1	Old sandpit w/trees
1993	Apr 09, 1993	PM 10:12	Scott	NW 1/4, SE 1/4	T14N	R13W	S21	54	Clear	K4	K4	0	K4	K4	Sandpit at Willow Run
1993	Mar 26, 1993	PM 08:05	Scott	SE 1/4, SE 1/4	T14N	R13W	S21	51	Clear	K2	K4	0	0	K4	Big sandpit W Walnut Run
1993	Apr 09, 1993	PM 10:12	Scott	SE 1/4, SE 1/4	T14N	R13W	S21	54	Clear	K4	K4	0	K4	K4	Sandpit at Willow Run
1991	Apr 04, 1991	PM 08:52	Scott	NE 1/4, SW 1/4	T14N	R13W	S27	58	Clear	K3	K2	0	K3	K3	Sandpit
1991	Apr 04, 1991	PM 08:40	Scott	NW 1/4, NW 1/4	T14N	R13W	S27	58	Clear	K2	K2	K1	K3	K3	Old sandpit w/trees
1991	Mar 21, 1991	PM 07:40	Scott	NW 1/4, NW 1/4	T14N	R13W	S27	63	Lightning	0	K4	K2	0	0	Ditch between 3 gravel roads
1991	Mar 24, 1991	PM 10:20	Scott	NW 1/4, SW 1/4	T14N	R13W	S27	48	Clear	K5	K2	0	0	0	Sandpit
1993	Mar 26, 1993	PM 07:56	Scott	NW 1/4, SW 1/4	T14N	R13W	S27	51	Clear	K2	K3	0	0	K2	Sandpit by hog farm
1993	Mar 26, 1993	PM 08:03	Scott	NW 1/4, NW 1/4	T14N	R13W	S27	51	Clear	0	K3	0	0	K4	SW Walnut Run-between 3 roads
1991	Mar 21, 1991	PM 07:35	Scott	SE 1/4, NW 1/4	T14N	R13W	S27	63	Nearly rain	K5	K4	K2	0	0	Over dune, near sandpit
1993	Mar 26, 1993	PM 08:00	Scott	SE 1/4, NW 1/4	T14N	R13W	S27	51	Clear	0	K3	0	0	K2	Downhill from house
1991	Mar 24, 1991	PM 09:30	Scott	NE 1/4, NW 1/4	T14N	R13W	S30	48	Clear	K5	K2	0	0	0	Flooded field
1993	Apr 09, 1993	PM 10:34	Scott	NE 1/4, SE 1/4	T14N	R14W	S03	54	Clear	K4	K1	K1	0	0	Ditch S Rt 36, 1984 loc.
1991	Mar 20, 1991	PM 08:10	Scott	NW 1/4, SE 1/4	T15N	R13W	S05	62	Clear	K5	K5	0	0	0	Coyote Pond, irreg. section
1991	Mar 22, 1991	PM 10:00	Scott	NW 1/4, SE 1/4	T15N	R13W	S05	58	Lt clouds	0	K5	0	0	0	Coyote Pond, irreg. section
1991	Mar 25, 1991	PM 09:38	Scott	NW 1/4, SE 1/4	T15N	R13W	S05	66	Pt cloudy	K5	K1	K2	0	0	Coyote Pond, irreg. section
1993	Mar 24, 1993	PM 09:30	Scott	NW 1/4, SE 1/4	T15N	R13W	S05	45	Cloudy	0	K4	0	0	0	Coyote Pond, irreg. section
1993	Mar 26, 1993	PM 09:26	Scott	NW 1/4, SE 1/4	T15N	R13W	S05	49	Clear	K3	K5	0	0	0	Coyote Pond, irreg. section
1993	Mar 27, 1993	PM 08:05	Scott	NW 1/4, SE 1/4	T15N	R13W	S05	58	Clear	K4	K5	0	0	0	Coyote Pond, irreg. section
1993	Apr 09, 1993	PM 09:10	Scott	NW 1/4, SE 1/4	T15N	R13W	S05	56	Clear	K4	K5	K4	0	0	Coyote Pond, irreg. section
1991	Mar 20, 1991	PM 08:30	Scott	SE 1/4, SE 1/4	T15N	R13W	S05	62	Clear	K5	K3	0	0	0	W/in hog fencing, dunes

APPENDIX B. ILLINOIS CHORUS FROG CALLING SITES FOR 1991 AND 1993.

Year	Date	Time	County	Location	Twsp	Rnge	Sct	oF	Weather	Pt	Ps	Ru	Ba	Pc	Where calling
1991	Apr 13, 1991	PM 11:11	Scott	SW 1/4, SE 1/4	T15N	R13W	S05	60	Raining	K4	K5	K2	K3	0	Overdune Pond seen from plane
1993	Mar 27, 1993	PM 08:05	Scott	SW 1/4, SE 1/4	T15N	R13W	S05	58	Clear	K4	K5	0	0	0	Overdune Pond seen from plane
1991	Mar 22, 1991	PM 11:40	Scott	NW 1/4	T15N	R13W	S06	58	Windy/Clear	K5	K1	K5	0	0	Wet depression N Coon Run
1993	Mar 26, 1993	PM 09:14	Scott	SE 1/4, NW 1/4	T15N	R13W	S06	49	Clear	K4	K1	0	0	0	N Coon Run near Smith Lake
1993	Mar 27, 1993	PM 09:35	Scott	SE 1/4, NW 1/4	T15N	R13W	S06	52	Clear	K4	K4	0	0	0	N Coon Run, SE Smith Lake
1991	Mar 22, 1991	PM 10:20	Scott	NW 1/4, SW 1/4	T15N	R13W	S07	58	Windy/Clouds	K5	K3	K2	0	0	Road ditch w/trees
1991	Apr 03, 1991	PM 09:47	Scott	NW 1/4, SW 1/4	T15N	R13W	S07	60	Raining	0	K5	K3	0	0	Road ditch w/trees
1991	Mar 22, 1991	PM 09:50	Scott	NE 1/4, SW 1/4	T15N	R13W	S08	58	Lt clouds	K5	K1	K1	0	0	Road ditch w/trees
1991	Mar 25, 1991	PM 09:00	Scott	NE 1/4, NE 1/4	T15N	R13W	S08	66	Hazy	K5	K5	K4	0	0	Over dune, hog farm
1991	Mar 20, 1991	PM 10:30	Scott	SE 1/4, NE 1/4	T15N	R13W	S08	60	Clear	K5	K5	0	0	0	Flooded field
1991	Mar 21, 1991	PM 10:10	Scott	SE 1/4, NE 1/4	T15N	R13W	S08	62	Cloudy	K5	K5	0	0	0	Flooded field
1993	Apr 09, 1993	PM 09:26	Scott	SW 1/4, NE 1/4	T15N	R13W	S08	56	Clear	0	K4	0	0	0	N Naples Blacktop
1993	Apr 09, 1993	PM 11:00	Scott	NW 1/4, NW 1/4	T15N	R13W	S19	54	Clear	K4	K3	0	0	0	Hidden pond N Mauvisterre
1993	Mar 27, 1993	PM 09:00	Scott	SW 1/4, SW 1/4	T15N	R13W	S19	46	Clear	0	K5	0	0	0	SW Mauvaisterre, N road
1993	Apr 09, 1993	PM 10:50	Scott	SW 1/4, SW 1/4	T15N	R13W	S19	54	Clear	K4	K4	K2	0	0	Ponded field w/trees
1993	Apr 09, 1993	PM 10:45	Scott	NE 1/4, NW 1/4	T15N	R13W	S30	54	Clear	K2	K3	K2	0	0	Ditched waterway? 1984 loc.
1993	Mar 27, 1993	PM 08:54	Scott	NW 1/4	T15N	R13W	S30	46	Clear	K4	K5	0	0	0	Flooded field, several ponds
1993	Apr 09, 1993	PM 10:45	Scott	S 1/2, NW 1/4	T15N	R13W	S30	54	Clear	K2	K3	K2	0	0	Ditched waterway? 1984 loc.
1993	Mar 27, 1993	PM 09:13	Scott	SE 1/4, SE 1/4	T15N	R14W	S13	64	Clear	K4	K3	0	0	0	Near Elm Creek Run, E road
1993	Apr 09, 1993	PM 11:04	Scott	SE 1/4, SE 1/4	T15N	R14W	S23	54	Clear	K4	K1	K1	0	K1	SE town of Naples
1993	Mar 27, 1993	PM 09:06	Scott	SE 1/4, NE 1/4	T15N	R14W	S24	64	Clear	K2	K3	0	0	0	N Mauvisterre, old oxbow?
1993	Apr 09, 1993	PM 10:57	Scott	SE 1/4, NE 1/4	T15N	R14W	S24	54	Clear	K4	K4	0	0	0	Pond in trees N Mauvisterre

Ps = *Pseudacris streckeri illinoensis* Pt = *Pseudacris triseriata* Pc = *Pseudacris crucifer*
Ru = *Rana utricularia* Ba = *Bufo americanus* Bw = *Bufo woodhousei fowleri*