

Preliminary Report*

Survey of the Amphibians and Reptiles of Logan County, Illinois

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* Due to the nature of this project, I will be submitting a subsequent, final report at the end of the season (September 2001). The enclosed report is a review of what I have found and concluded to date. However, the results and conclusions may vary in the final report due to new survey data.

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Introduction

County history

Logan County is centrally located in Illinois and is bordered by Tazewell, Mason, Menard, Sangamon, Macon, DeWitt, and McLean counties (Figure 1). Logan County was formed by splitting parts of Sangamon, Tazewell, and DeWitt counties in 1839, 1840, and 1845. The origin of its name is disputed, but it is believed to be named after Judge Logan, Abraham Lincoln's first law partner. In 1840 the county population was 2,383 (Atlas of Logan County 1870), but now harbors more than 31,183 people (United States Department of Commerce 2000). This exponential growth may at least partially be attributed to the rich agricultural soil and water supply located within the county.

Logan County is supplied with water from five creeks: Kickapoo, Deer, Sugar, Salt, and Prairie Creek. Few lakes are located within the county, but several small ponds are scattered throughout its borders. Over seventy-seven percent of Illinois land is used for agricultural purposes and Logan County exceeds this state average with 93.3% of its land being devoted to cropland and grassland (Illinois Department of Natural Resources 1996). Out of the 102 counties in Illinois, Logan County is ranked the 8th highest in percentage of the county devoted to cropland and only 95th with regard to forest/woodland (Illinois Department of Natural Resources 1996). In such an agriculture-dominated and woodland-deficient habitat, many amphibians and reptiles may face the

threat of local extinction and cling onto the last remaining stands of suitable habitat for survival.

Project justification

Most herpetologists consider amphibians to be bioindicating canaries of the planet due to their aquatic and terrestrial staged lifecycles. Recent amphibian declines and malformations have alarmed many scientists and laymen to the potential problems we, the human animal, may soon be facing (Northern Prairie Wildlife Research Center 2001). Land conversion, intense agriculturalization, and habitat loss are some of the single-most important links to amphibian declines (Vial and Saylor 1993). Such land manipulations can lead to further degradation by lowering water quality, which can leave populations susceptible to exotic invasions. Flowing water quality has historically deteriorated in Illinois, leading to state-wide extirpations of many fish (19%), amphibian and reptile (34%), mussel (55%), and crayfish (22%) species (Illinois Department of Energy and Natural Resources 1994). This cascading effect started over 100 years ago in Illinois with intense agriculturalization of the prairie and draining of wetlands. Today, only 0.01% of the original tall grass prairie remains and only 3% of the wetlands remain, with only 0.016% of that classified as approaching pristine (Illinois Department of Energy and Natural Resources 1994). Out of the total 394,823 acres in Logan County, 336,500 acres were prairie in 1820, but by 1976 no prairie remained. By 1980, Logan County had lost 80-89% of its wetlands (Illinois Department of Energy and Natural Resources 1994) and is composed of only 1.5% wetland today (Illinois Department of Natural Resources 1996). Furthermore, from 1964 to 1987, the percent change in the number of acres of Logan County farmland receiving herbicide, insecticide, and commercial fertilizer ranged

from 101-200%, 6-100%, and 26-50%, respectively (Illinois Department of Energy and Natural Resources 1994). Such chemicals are known to have negative effects on amphibians (see review in Olson and Leonard 1997).

It is important that conservation efforts focus on locating potential species-rich sites via site inventories to establish protected reserves. At the very least, inventories can be used to document the decline or increase of a species' presence. Attempts can then be made to link local effects to local causes and preventative measures taken. This makes species inventories of utmost importance.

Project objectives

Only six species of amphibian and eight species of reptile have been documented in Logan County (Phillips et al. 1999) and most voucher specimens are over 40 years old (Table I and II). It is my belief that some of these species may no longer be present, some may be more abundant (e.g., *Rana catesbeiana*), and some may be unrecorded (new county records). My objectives are to: 1) locate potential survey sites within Logan County, 2) survey those sites for amphibians and reptiles, and 3) submit my results and conclusions.

Materials and Methods

Materials

An itemized budget of all expenses incurred for this survey is provided in Table III. Gas was calculated at 32.5¢ per mile and totaled \$575. Equipment and miscellaneous items comprised the remainder of the \$977 budget.

Site Selection Methods

I first consulted topographic maps in the Illinois Atlas and Gazetteer© to find potential sites (i.e., wooded areas, ponds, swamps, etc.) and then examined those sites more closely using 7.5 minute USGS quadrangle maps. After selection of seven major localities from the maps, I briefly visited those areas to evaluate their prospective value for harboring amphibians and/or reptiles by observing the characteristics of the site (i.e., vegetation, water flow, ground cover, surrounding habitat, etc.). Most of the sites were found in this manner, however, some sites were located serendipitously (i.e., DOR specimen, heard frog chorus, etc.). If sites had potential, I consulted the Logan County plat book to determine who owned the property and then went to the Logan County Soil and Water Conservation District office in Lincoln, Illinois to obtain current owner names, addresses, and telephone numbers. I then made contact with property owners via home visit or by telephone. After providing them with my name, affiliation, and explaining the goals of the survey, I asked for permission to periodically census their property. Property owners were asked to sign a consent form that both declared I had permission to be on the property and that absolved them of any responsibility in the case of accidental injury. Many landowners were indifferent to my request, some were quite receptive, and others were somewhat skeptical but did allow me access to conduct the survey.

Survey Methods

I surveyed for frogs and toads by several methods. I employed night-driving surveys to listen for choruses, identified individuals within choruses using their species specific calls, hand-caught many for visual identification, and used minnow traps to trap tadpoles. I surveyed for salamanders by first identifying suitable habitat, such as temporary pools, and then searched within them for egg masses. If egg masses were

found, I searched for adults along the periphery of the pool by flipping appropriate cover objects (i.e., rotten logs). I also employed minnow traps to find larval salamanders. I surveyed for snakes at suitable sites (i.e., grasslands, wooded areas, ponds) by visual inspection of potential basking areas, by flipping cover objects, and by the chance observation of a DOR specimen. Turtles were surveyed by visually inspecting potential basking areas in ponds and creeks with binoculars. If turtles were observed, I attempted to trap them with sardine baited turtle traps.

New county records and voucher specimens were preserved using standard methods (McDiarmid 1994) and deposited in the amphibian and reptile museum collection at the Illinois Natural History Survey in Champaign, Illinois. Specimens were collected under IDNR permit number A01.0455.

Results

The majority of sites were named after the property owner or location to aid in identification. Figure 2 illustrates the general site locations and locality data and site characterizations are provided for each major site in Appendix I and II, respectively. A summary of what I found is listed by locality site in Table IV. Eight new county records were preserved and cataloged (Table V) in addition to some previously reported species (Table VI).

As Table IV shows, the survey was fairly successful. Several species of amphibian utilized the same habitats in several localities. I began searching for potential sites on October 13, 2000 and found a dozen or so cricket frogs (*Acris crepitans*) under two bridges that cross Sugar Creek and a DOR garter snake (*Thamnophis sirtalis*) south

of Pine Lake. Since the season was getting late, I decided to wait to intensively begin the survey. On March 25, 2001 I began the season. I found several smallmouth salamander (*Ambystoma texanum*) egg masses at Gates Pond, Morrow Pond, and Vannoy Pond, but could not find any breeding adults. I did find a dead bullfrog (*Rana catesbeiana*) in the water at Gates Pond, probably a freeze-kill, and kept it as a specimen. It was not until I surveyed BOHP, outlet near Salt Creek that I found *Ambystoma texanum* egg masses and four adults under a large rotten log. I kept two as specimens (new county record) and continued to search the periphery of the temporal pool. I eventually found a western chorus frog (*Pseudacris triseriata*) and a spring peeper (*Pseudacris crucifer*) at this site. I kept both as specimens since they were county records. I heard a large chorus (30+ males) of *Pseudacris triseriata* at Quarry Ponds. On March 31, 2001 I heard large choruses of *Pseudacris triseriata* at Thompson Pond, Gates Pond, Vannoy Pond, Bellrose Pond, Lincoln Univ., Quarry Ponds, and N.P. Muck Pond. On April 8, 2001 I talked to many property owners for permission to survey their property and heard large choruses of *Pseudacris triseriata* and *Acris crepitans* at Lincoln Univ., and a large chorus of American toads (*Bufo americanus*) and one southern leopard frog (*Rana sphenoccephala*) at Leith Pond. On April 10, 2001 I talked to Bill Dickerson (District Conservationist) at the Logan County Soil and Water Conservation District (SWCD) in Lincoln, Illinois regarding how to better contact property owners and about the history of the surrounding area where I found the county records on March 25. According to information relayed to Mr. Dickerson from personal interviews, Salt Creek was channeled by the Core of Engineers extending from old route 66 to the old railroad crossing above Middletown in the 1930's. Therefore, the BOHP, outlet site is the former stream bed of Salt Creek. The

result of this channelization left a temporary pool habitat behind and is currently utilized by early spring breeding amphibians. From the SWCD office, I left for Champaign and deposited the two *Ambystoma texanum*, *Pseudacris triseriata*, *P. crucifer*, and *Rana catesbeiana*. On April 21, 2001 I saw two painted turtles (*Chrysemys picta*) basking at Gates Pond so I set out a baited turtle trap, but with no success. I heard a large chorus of *Bufo americanus* at both Sprague Pond and Gates Pond, saw and hand-caught many *Acris crepitans* and *Rana catesbeiana* at Gates Pond, and heard one gray treefrog (*Hyla versicolor*) at Gates Pond but failed to find it. On April 22, 2001 I went to Quisenberry Pond and heard large choruses of *Bufo americanus*, *Acris crepitans*, *Hyla versicolor*, and *Pseudacris triseriata*. I also heard a medium-sized chorus (16-30 individuals) of *Rana catesbeiana* and a small chorus (1-15 individuals) of *Rana sphenoccephala*. At Vannoy Pond and Bellrose Pond, I heard large choruses of *Bufo americanus*, *Pseudacris triseriata*, and *Hyla versicolor*. I set a turtle trap at Bellrose Pond and caught & photographed two large common snapping turtles (*Chelydra serpentina*) within 7 trap hours. I heard *Bufo americanus*, *Pseudacris triseriata*, *Hyla versicolor*, *Rana catesbeiana*, and *Acris crepitans* at Bellrose swamp. At Thompson Pond, I heard large choruses of *Bufo americanus*, *Hyla versicolor*, *Pseudacris triseriata*, and medium-sized choruses of plains leopard frog (*Rana blairi*) and *R. catesbeiana*. I also saw a *Chrysemys picta* basking on a submergent log. I caught the turtle within 9.5 trap hours and took it as a new county record. Near Mount Joy, I found a Northern water snake (*Nerodia sipedon*) alive on the road and two DOR brown snakes (*Storeria dekayi*) at Sugar Creek, DOR and at Lawndale, DOR. I heard a small chorus of *Hyla versicolor* at Morrow Pond. On May 4, 2001 I dropped off and cataloged specimens at the Illinois Natural History Survey in

Champaign. On May 5, 2001 I saw four *Chrysemys picta* basking at Sprague Pond and set a turtle trap, but caught nothing. I also heard and saw many *Hyla versicolor*, *Acris crepitans* and *Rana catesbeiana*. I caught a *Thamnophis sirtalis* basking in the sun at Leith Pond, set a turtle trap with no success, and heard medium-sized choruses of *Rana catesbeiana*, *Rana sphenoccephala*, and *Hyla versicolor*. A large chorus of *Acris crepitans* was also present. I found a *Bufo americanus* hopping around the woods at Elkhart Hill. On June 16, 2001 I set a turtle trap at Thompson pond and caught two large *Chelydra serpentina* within 20 trap hours. I also heard and caught many *Acris crepitans*, *Rana catesbeiana*, and *Hyla versicolor*. I heard a large chorus of *Acris crepitans* and *Rana catesbeiana* and a few *Hyla versicolor* at Gates Pond. I set two turtle traps at Quisenberry Pond and caught one *Chrysemys picta* within 19 trap hours, heard large choruses of *Acris crepitans* and *Hyla versicolor*, and a small chorus of *Bufo fowleri*. I saw two *Bufo americanus*. On June 17, 2001 I found a large adult *Rana catesbeiana* DOR at 1600E, DOR and found a DOR *Thamnophis radix* at Rocky Ford, DOR. I saw two red-eared sliders (*Trachemys scripta elegans*) basking at Quarry Ponds, one adult and one juvenile. I also found four adult *Rana blairi*. On June 23, 2001 I employed three turtle traps in an attempt to catch the *Trachemys scripta elegans* observed on June 17 and caught three of them within 52 trap hours. I kept one juvenile as a specimen. At Bellrose Pond, I heard a large choruses of *Rana catesbeiana*, *Acris crepitans*, and a small chorus of *Hyla versicolor*. I also heard 4-6 green frogs (*Rana clamitans*), but due to the cool temperatures they were not calling very readily and this prevented me from finding a specimen. All I could find were bullfrogs.

Discussion

Six sites that I examined in Logan County harbor a fair diversity of herpetofauna. At Thompson Pond I had found eight species, Quisenberry Pond had eight, Gates Pond had seven, Leith Pond had seven, Bellrose Swamp had five, and I found four species at Bellrose Pond (see Table IV). All of these sites, with the exception of Bellrose Swamp, are small ponds bordered by deciduous forest. There are differences in their characteristics, however (see Appendix II). The other sites, such as Vannoy Pond, Morrow Pond, N.P. Muck Pond, and the BOHP, outlet are all temporary pools, which would explain the limited number of species found at these sites. Most of these sites were dried by mid-April, therefore, only early breeding amphibians such as *Pseudacris triseriata*, *P. crucifer*, *Ambystoma texanum* and maybe *Bufo americanus* could utilize the habitat. The rest of the sites could be classified as serendipitous sites (i.e., DOR specimens).

I am somewhat surprised at the diversity found at some of these sites, especially in light of the general condition of the surrounding habitat (i.e., primarily agriculture). The diversity at one site in particular, Quisenberry Pond, surprised me due to the nature of the pond itself. Although it is bordered by deciduous forest to the north, the pond is devoid of cover objects, aquatic vegetation, and has a clay substrate. I predicted that very little would be found here, but it harbored eight species and all seemed to be breeding. This drives home the fact that a widely used habitat does not necessarily have to be an aesthetically beautiful habitat. What this means is that potential wildlife reserve habitat must be monitored for activity, not for aesthetics, which makes monitoring programs a priority. It is important to note that such high diversity may not be sustainable, however,

especially in situations where habitat alteration has taken place. For example, if Quisenberry Pond was altered in the recent past (i.e., if the pond was dredged, etc.), this could possibly lead to a drop in the observed biodiversity over time.

Any strong conclusions regarding links between the amount of herpetofauna found at a site in relation to site quality is difficult with this kind of survey. Since the purpose of the survey was to simply document species presence and location within the county, I will refrain from such conclusions.

One noticeable result of the survey is the abundance of *Rana catesbeiana* at all of the permanent pond sites. Although many frog species in Logan County seem to be temporally isolated from *R. catesbeiana* by breeding earlier (i.e., *Pseudacris triseriata*, *Bufo americanus*, *Rana blairi*), the dominance of *R. catesbeiana* at sites may affect the breeding behavior of species such as *Acris crepitans* and *Hyla versicolor*. Adult bullfrogs are known to cannibalize smaller anurans (Duellman and Trueb 1986). This may possibly alter the calling behavior and therefore breeding in heterospecifics, but this is pure speculation. Competition for food resources between bullfrogs and heterospecifics may also have an impact both within and outside the breeding season. On the otherhand, they may have no noticeable effect whatsoever. All I can say for sure is that bullfrogs did seem more abundant and common at many sites.

Another noticeable result of the survey is its lack of many previously reported snake species. It is important to note that this does not necessarily indicate that they are no longer in Logan County. It may simply indicate that I failed to find them. Out of the previously seven reported species of snakes (Table I), I found two. It is possible that the massasagua (*Sistrurus catenatus*) is locally extinct since it is state endangered, however,

all other species may still thrive in Logan County. Since I am going to shift more attention to finding both turtles and snakes and because this is only a preliminary report, these results may change.

As a way to conclude this report I would like to make a statement regarding potential sites worth protecting in Logan County. In an attempt to keep this at a minimum, I have selected three areas (although more are worth conserving); 1) Bellrose Pond and Swamp, 2) BOHP, outlet, and 3) the Quisenberry Pond area. The Bellrose Pond and Swamp sites are owned by Frank Bellrose. In discussing the land with his son, Ron, I learned that they are in the process of trying to get the land established as a protected area. I strongly recommend that serious consideration be given to this request due to the great biodiversity found there. Not only is there a rich diversity of herpetofauna at this location, but there is a rich diversity of avifauna as well. In the short time I spent talking with Ron and his wife on April 22, 2001, I counted over a dozen species of passerine birds. Surely many more woodland and game species are found here, not to mention the seasonal migrants that pass through.

The second area I have recommended is the BOHP, outlet area. To the best of my knowledge this property is privately owned by a Mr. John White, leased out as a hunting camp to a Mr. Wayne Conrady, and an area is rented for farming to a Mr. Elden Puls. If the afore mentioned would be willing, I would also recommend protecting this area. It contains one of the largest stands of deciduous forest in the area and a fairly sizable pond. This site contains the former stream bed of Salt Creek where I found several county records. It was at this site that I found the only *Pseudacris crucifer* in the entire county. It is possible that the individuals I found here were introduced from the stocking of fish to

a nearby pond. However, since Logan County is within the historical range of spring peepers (Conant and Collins 1991), they are most likely part of a small relictual population. Therefore, consideration should be given to ensure that this stand of forest is not logged and the habitat is protected to ensure survival of this small population.

I have already discussed the third area I propose for protecting. Although I can not say for certain why the Quisenberry Pond area harbors so much diversity, it is worth at least monitoring over time for future consideration as a protected area.

Although other areas are equally important, such as Vannoy, Morrow, and N.P. Muck Ponds, they are much more temporal in nature and therefore only harbor a few species. If the areas with the highest biodiversity are preferred as reserves, then these temporal sites will unfortunately be overlooked.

Summary

A survey of the amphibians and reptiles of Logan County, Illinois was conducted throughout the 2001 field season. Several sites were surveyed, employing a variety of methods. After over 120 trap hours, three species of turtles were caught, all of which were new county records. After countless hours of night driving surveys and various other survey techniques, eight species of frogs and toads were found, four were new county records. Early surveying in March revealed one species of salamander, a new county record. Day driving and searching divulged four species of snakes, one of which was a new county record. Several sites held much more diversity than expected and several new county records were cataloged. Bullfrogs seemed to be the most common and abundant at many of the sites surveyed. Three sites are recommended for

consideration to be established as reserves or at least for long-term biodiversity monitoring.

Acknowledgements

First and foremost I need to thank the property owners of Logan County. Without their cooperation this survey would not have been possible. I thank John Wilker for his advice on how to locate property owners and assistance with bureaucratic aspects of the project. I thank Bill Dickerson for information regarding the history of Salt Creek and the workers at the USDA office in Lincoln for their assistance in locating property owners. I thank John Petzing for his cooperation in cataloging the specimens acquired during the survey. I thank the taxpayers of Illinois for supporting the Wildlife Preservation Fund so that projects such as this can be executed. Finally, I thank my wife, Tricia, for her field assistance and encouragement throughout the project.

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Figure 1. Location of Logan County, Illinois (map adapted from White 1978).



Appendix 1. Location information for the major survey sites.

	Locality Name	Township	Lat/Long	Driving Directions
A	Thompson Pond	Eminence	SW1/4, SE1/4, Sec.2, T21N, R2W	NW of Mount Joy, 0.6 mi E from intersection of 1600E and 2600N, on left
B	Sprague Pond	Eminence	NW1/4, SW1/4, Sec.8, T21N, R2W	E of Union, 0.5 mi E from intersection of 1250E and 2550N. Take dirt road on right back to end of lane.
C	Gates Pond	Eminence	NW1/4, SW1/4, Sec.8, T21N, R2W	E of Union, 0.5 mi E from intersection of 1250E and 2550N. Take dirt road on right 0.1 mi, pond on right.
D	Quisenberry Pond	Eminence	NE1/4, NW1/4, Sec. 17, T21N, R2W	S of Union, 0.6 mi E of intersection 1250E and 2500N on right hand side.
E	Vannoy Pond	Eminence	NE1/4, NE1/4, Sec.20, T21N, R2W	S of Union, 0.5 mi E on 2400N from intersection of 1350E and 2400N, before Sugar Creek
F	Bellrose Pond	Eminence	NW1/4, NW1/4, Sec.21, T21N, R2W	S of Union, 0.8 mi W of intersection 1450E and 2400N, pond to W of Sugar Creek.
G	Bellrose Swamp	Eminence	NW1/4, NW1/4, Sec.21, T21N, R2W	S of Union, 0.6 mi W of intersection 1450E and 2400N.
H	Morrow Pond	East Lincoln	SW1/4, SW1/4, Sec.5, T20N, R2W	W of Lawndale, ~0.5 mi W on 2000N from intersection of 1390E and 2000N, on right.
I	N. P. Muck Pond	Broadwell	NW1/4, NW1/4, Sec. 7, T19N, R3W	W of Rocky Ford Br., 0.1 mi W from intersection of 700E and 1400N, 2 ponds on left.
J	Quarry Ponds	Broadwell	NW1/4, NW1/4, Sec. 7, T19N, R3W	0.25 mi E on 1400N from intersection of 700E and 1400N. Take dirt road off 1400N and walk back to ponds.
K	BOHP, outlet	Corwin	NW1/4, NE1/4, Sec.16, T19N, R4W	E of Middletown, 0.9 mi W of intersection 350E and 1300N. Outlet from pond, old channel of Salt Creek.
L	Leith Pond	Corwin	NW1/4, SE1/4, Sec.11, T19N, R4W	NE of Middletown, 0.5 mi S on 450E from intersection 450E and 1400N, on left.
M	Pine Lake, DOR	Laena	NE1/4, SE1/4, Sec.6, T18N, R1W	3 mi SW of Chestnut, S of Pine Lake, 0.2 mi W of intersection of 2000E and 850N
N	Lawndale, DOR	Eminence	SE1/4, SE1/4, Sec.27, T21N, R2W	0.3 mi S of intersection 1600E and 2250N
O	Sugar Creek, DOR	Eminence	SW1/4, SW1/4, Sec.16, T21N, R2W	0.8 mi W of intersection 1450E and 2400N
P	Rocky Ford, DOR	Broadwell	NE1/4, SE1/4, Sec.6, T19N, R3W	0.3 mi N of intersection 700E (675E) and 1400N
Q	Mount Joy, DOR	Eminence	NE1/4, NE1/4, Sec.10, T21N, R2W	NNW of Mount Joy, 0.1 mi N of intersection of 1600E and 2575N
R	1600E, DOR	Eminence	SW1/4, NW1/4, Sec.3, T21N, R2W	0.3 mi S of intersection 1600E and 2700N
S	S.C. Ent.	Eminence	SE1/4, NE1/4, Sec.9, T21N, R2W	Under Sugar Creek bridge, 0.25 mi E of intersection 1475E and 2575N
T	1600E Bridge	Eminence	NE1/4, NE1/4, Sec.3, T21N, R2W	Under Sugar Creek bridge, 0.1 mi S of intersection 1600E and 2700N
U	Lincoln Univ.	East Lincoln	SE1/4, SE1/4, Sec.6, T20N, R2W	W of Lawndale, ~0.6 mi W on 2000N from intersection of 1390E and 2000N, on right.
V	Elkhart Hill	Elkhart	NW1/4, SE1/4, Sec.7, T18N, R3W	On top of Elkhart Hill in surrounding woodland of Latham cemetery

Appendix II. Site characterizations of the survey sites with the highest herpetofaunal diversity.

This has not been completed yet but will be submitted with the final report.

Table I. Previously known amphibian and reptile species from Logan County, Illinois
 (Table adapted from the Illinois Natural History Survey website at
<http://www.inhs.uiuc.edu/cbd/herpdist/counties/logan.html>).

Common Name	Scientific Name
American Toad	<i>Bufo americanus</i>
Fowler's Toad	<i>Bufo fowleri</i>
Cricket Frog	<i>Acris crepitans</i>
Plains Leopard Frog	<i>Rana blairi</i>
Bullfrog	<i>Rana catesbeiana</i>
Southern Leopard Frog	<i>Rana sphenocephala</i>
Spiny Shoftshell	<i>Apalone spinifera</i>
Prairie Kingsnake	<i>Lampropeltis calligaster</i>
Northern Water Snake	<i>Nerodia sipedon</i>
Bull Snake	<i>Pituophis melanoleucus</i>
Graham's Crawfish Snake	<i>Regina grahamii</i>
Plains Garter Snake	<i>Thamnophis radix</i>
Common Garter Snake	<i>Thamnophis sirtalis</i>
Massasauga	<i>Sistrurus catenatus</i>

Table II. Previous known voucher specimens from Logan County, Illinois (Table adapted from the Illinois Natural History Survey website at <http://www.inhs.uiuc.edu>).

Catalogue Number	Common Name	Scientific Name	Year	Number of Specimens
1068	Cricket Frog	<i>Acris crepitans</i>	1900	2
1145	Plains Leopard Frog	<i>Rana blairi</i>	1900	1
1149	Southern Leopard Frog	<i>Rana sphenocephala</i>	1908	3
1356	Northern Water Snake	<i>Nerodia sipedon</i>	1900	1
3194	Prairie Kingsnake	<i>Lampropeltis calligaster</i>	1948	1
5829	Common Garter Snake	<i>Thamnophis sirtalis</i>	1951	1
7171	Spiny Softshell	<i>Apalone spinifera</i>	1953	1
7172	Spiny Softshell	<i>Apalone spinifera</i>	1953	1
7173	Bullfrog	<i>Rana catesbeiana</i>	1953	1
7174	Bullfrog	<i>Rana catesbeiana</i>	1953	1
7175	Plains Leopard Frog	<i>Rana blairi</i>	1953	1
7176	Fowler's Toad	<i>Bufo fowleri</i>	1953	1
7177	Cricket Frog	<i>Acris crepitans</i>	1953	1
7178	Cricket Frog	<i>Acris crepitans</i>	1953	1
8083	Prairie Kingsnake	<i>Lampropeltis calligaster</i>	1956	1
8086	Common Garter Snake	<i>Thamnophis sirtalis</i>	1956	1
8512	Bull snake	<i>Pituophis catenifer</i>	1957	1
8531	American Toad	<i>Bufo americanus</i>	1957	1
8748	Common Garter Snake	<i>Thamnophis sirtalis</i>	1957	1
13197	American Toad	<i>Bufo americanus</i>	1997	1
13198	Cricket Frog	<i>Acris crepitans</i>	1997	1
13199	Plains Leopard Frog	<i>Rana blairi</i>	1997	1
13507	Plains Leopard Frog	<i>Rana blairi</i>	1997	1

Table III. Detailed cost report for expenses incurred during the survey

GAS

Date	Miles	Cost @ \$0.325 / mi
10/13/00	176	57.2
3/25/01	174	56.55
3/31/01	141	45.83
4/8/01	147	47.78
4/10/01	185	60.13
4/22/01	136	44.2
5/4/01	115	37.38
5/5/01	215	69.88
6/16/01	80	26.00
6/17/01	125	40.63
6/23/01	122	39.65
6/24/01	112	36.40
7/5/01	41	13.40

575.00

EQUIPMENT

Date	Cost	Item
3/13/01	\$166.42	2 Turtle traps, 2 bait bags, 6 minnow traps
3/14/01	\$164.24	Waders + suspenders, specimen jars, snake hook, thermometer, notebook
6/5/01	\$55.18	1 Turtle trap, 1 bait bag

\$385.84

MISC.

Date	Cost	Item
4/24/01	\$8.49	35 mm film for county records
4/24/01	\$7.67	Film processing for county records

\$16.16

TOTAL

\$575.00	Gas
\$385.84	Equipment
\$16.16	Misc.
\$977.00	

Table IV. Survey results listed by location.

Location	Dates	Species
Thompson Pond	3/31/01	<i>Pseudacris triseriata</i> (c,e) [^]
	4/22/01	<i>Pseudacris triseriata</i> (c), <i>Bufo americanus</i> (c), <i>Rana catesbeiana</i> (b), <i>Rana blairi</i> (b), <i>Hyla versicolor</i> (c), <i>Chrysemys picta</i> (1)"
	6/16/01	<i>Rana catesbeiana</i> (b), <i>Acris crepitans</i> (c), <i>Hyla versicolor</i> (a)
	6/17/01	<i>Chelydra serpentina</i> (2)
Sprague Pond	4/21/01	<i>Bufo americanus</i> (c)
	5/5/01	<i>Rana catesbeiana</i> (b), <i>Acris crepitans</i> (c), <i>Hyla versicolor</i> (c), <i>Chrysemys picta</i> (4)
Gates Pond	3/25/01	<i>Ambystoma texanum</i> (e), <i>Rana catesbeiana</i> (c)
	3/31/01	<i>Pseudacris triseriata</i> (c,e)
	4/21/01	<i>Acris crepitans</i> (c), <i>Hyla versicolor</i> (1), <i>Bufo americanus</i> (c), <i>Chrysemys picta</i> (2)
	5/5/01	<i>Hyla versicolor</i> (c), <i>Rana catesbeiana</i> (c)
	6/16/01	<i>Rana catesbeiana</i> (c), <i>Acris crepitans</i> (c), <i>Hyla versicolor</i> (a)
Quisenberry Pond	3/31/01	<i>Pseudacris triseriata</i> (c)
	4/22/01	<i>Bufo americanus</i> (c), <i>Rana catesbeiana</i> (b), <i>Rana sphenoccephala</i> (a), <i>Hyla versicolor</i> (c), <i>Acris crepitans</i> (c)
	6/16/01	<i>Bufo americanus</i> (2), <i>Bufo fowleri</i> (a), <i>Acris crepitans</i> (c), <i>Hyla versicolor</i> (b)
	6/17/01	<i>Chrysemys picta</i> (1)
Vannoy Pond	3/31/01	<i>Pseudacris triseriata</i> (c)
	4/22/01	<i>Pseudacris triseriata</i> (c), <i>Bufo americanus</i> (c), <i>Hyla versicolor</i> (c)
Bellrose Pond	3/31/01	<i>Pseudacris triseriata</i> (c)
	4/22/01	<i>Bufo americanus</i> (c), <i>Pseudacris triseriata</i> (c), <i>Hyla versicolor</i> (c), <i>Chelydra serpentina</i> (2)
	6/23/01	<i>Rana catesbeiana</i> (c), <i>Rana clamitans</i> (a), <i>Acris crepitans</i> (c), <i>Hyla versicolor</i> (a)
Bellrose Swamp	4/22/01	<i>Bufo americanus</i> (c), <i>Acris crepitans</i> (c), <i>Pseudacris triseriata</i> (c), <i>Rana catesbeiana</i> (b), <i>Hyla versicolor</i> (b)
Morrow Pond	3/25/01	<i>Ambystoma texanum</i> (e)
	3/31/01	<i>Pseudacris triseriata</i> (c), <i>Ambystoma texanum</i> (e)
	4/22/01	<i>Hyla versicolor</i> (a)
N. P. Muck Pond	3/31/01	<i>Pseudacris triseriata</i> (c)
Quarry Ponds	3/25/01	<i>Pseudacris triseriata</i> (c)
	3/31/01	<i>Pseudacris triseriata</i> (c)
	6/17/01	<i>Rana blairi</i> (4), <i>Trachemys scripta elegans</i> (2)
	6/24/01	<i>Trachemys scripta elegans</i> (3)
BOHP, outlet	3/25/01	<i>Pseudacris triseriata</i> (c), <i>Pseudacris crucifer</i> (1), <i>Ambystoma texanum</i> (4,e)
	3/31/01	<i>Pseudacris triseriata</i> (c,e), <i>Pseudacris crucifer</i> (2), <i>Ambystoma texanum</i> (e)
Leith Pond	3/31/01	<i>Pseudacris triseriata</i> (c), <i>Rana sphenoccephala</i> (1)
	4/8/01	<i>Bufo americanus</i> (c), <i>Rana sphenoccephala</i> (c)
	5/5/01	<i>Rana catesbeiana</i> (b), <i>Rana sphenoccephala</i> (b), <i>Acris crepitans</i> (c), <i>Hyla versicolor</i> (b), <i>Thamnophis sirtalis</i> (1)
Pine Lake, DOR	10/13/00	<i>Thamnophis sirtalis</i> (1)
Lawndale, DOR	4/22/01	<i>Storeria dekayi</i> (1)
Sugar Creek, DOR	4/22/01	<i>Storeria dekayi</i> (1)
Rocky Ford, DOR	6/17/01	<i>Thamnophis radix</i> (1)
Mount Joy, AOR	4/22/01	<i>Nerodia sipedon</i> (1)
1600E, DOR	6/17/01	<i>Rana catesbeiana</i> (1)
S.C. Ent.	10/13/00	<i>Acris crepitans</i> (14)
1600E Bridge	10/13/00	<i>Acris crepitans</i> (12)
Lincoln Univ.	3/31/01	<i>Pseudacris triseriata</i> (c)
	4/8/01	<i>Pseudacris triseriata</i> (c), <i>Acris crepitans</i> (c)
Elkhart Hill	5/5/01	<i>Bufo americanus</i> (1)

* An a, b, or c in parentheses indicates a small (1-15 individuals), medium (16-30), or a large (30+) chorus was heard

" A number in parentheses indicates the number of specimens observed/ caught

^ An e in parentheses indicates that egg masses were observed

Table V. Specimens obtained from the Logan County survey that are new county records.

Date	Species	Site	INHS Catalog Number
3/25/01	<i>Ambystoma texanum</i>	BOHP, outlet	INHS 17072
3/25/01	<i>Pseudacris triseriata</i>	BOHP, outlet	INHS 17075
3/25/01	<i>Pseudacris crucifer</i>	BOHP, outlet	INHS 17074
4/22/01	<i>Hyla versicolor</i>	Bellrose Pond	INHS 17152
4/22/01	<i>Storeria dekayi</i>	Lawndale, DOR	INHS 17153
4/22/01	<i>Chelydra serpentina</i>	Bellrose Pond	INHS Herpetological Slide 2001.01
4/22/01	<i>Chrysemys picta</i>	Thompson Pond	INHS 17150
6/24/01	<i>Trachemys scripta elegans</i>	Quarry Ponds	INHS 17351

Table VI. Specimens obtained from the Logan County survey that are not new county records.

Date	Species	Site	INHS catalog number
10/13/00	<i>Thamnophis sirtalis</i>	Pine Lake, DOR	INHS 17353
3/25/01	<i>Ambystoma texanum</i>	BOHP, outlet	INHS 17073
3/25/01	<i>Rana catesbeiana</i>	Gates Pond	INHS 17076
4/22/01	<i>Bufo americanus</i>	Thompson Pond	INHS 17147
4/22/01	<i>Hyla versicolor</i>	Thompson Pond	INHS 17149
4/22/01	<i>Nerodia sipedon</i>	Mount Joy, AOR	INHS 17151
4/22/01	<i>Pseudacris triseriata</i>	Thompson Pond	INHS 17148
4/22/01	<i>Rana blairi</i>	Thompson Pond	INHS 17146
6/17/01	<i>Thamnophis radix</i>	Rocky Ford, DOR	INHS 17352