

**Final Report  
State Wildlife Grant T-10-P**

**Habitat Enhancement, Monitoring, and Management for  
Conservation Priority Species**

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## Grant Objectives:

- Monitor the distribution and status of selected species of conservation concern
- Implement and evaluate habitat management practices for selected species of conservation concern
- Implement and evaluate strategies for recovery of state endangered and threatened species

## Performance:

**Study 1:** Monitor the distribution and status of selected species of conservation concern.

**Job 1.1:** Monitor reptiles and amphibians on state and federal properties.

**Objective:** Conduct surveys for the presence of reptiles and amphibians at  $\geq 10$  sites per fiscal year.

**Results:** We sampled 47 sites in 30 counties (Appendix I) and collected 282 records of occurrence for 33 species of reptiles and amphibians (Appendix II). Our efforts produced 51 new county records, 21 of which were duplicates (i.e., we encountered the species at  $>1$  location or during  $>1$  sampling season in the same county).

Targeted sampling for chelonians resulted in the capture of 2,729 turtles during 829 net-nights. Species composition included slider (*Trachemys scripta*;  $n = 1,776$ ), common snapping (*Chelydra serpentina*;  $n = 341$ ), painted (*Chrysemys picta*;  $n = 293$ ), spiny softshell (*Apalone spinifera*;  $n = 247$ ), smooth softshell (*Apalone mutica*;  $n = 36$ ), common musk (*Sternotherus odoratus*;  $n = 14$ ), false map (*Graptemys pseudogeographica*;  $n = 14$ ), and Ouachita map (*Graptemys ouachitensis*;  $n = 8$ ) turtles.

Targeted sampling at Cypress Pond State Natural Area (CPSNA) occurred on 10 occasions from 26 August 2007 through 19 November 2007 using a variety of methods (visual encounter surveys, seining, and funnel traps). We encountered 23 species of reptiles and amphibians at CPSNA and 3 additional species on adjoining properties (Appendix III).

**Evaluation:** Sampling constraints required expanding our efforts to include county and municipal properties. Grant objectives were exceeded with this modification. We encountered about a third of the 102 species of reptiles and amphibians thought to occur in Illinois. Nearly all of these were species that are considered to be common. Nevertheless, our efforts produced a number of new county records. These data were provided to Dr. Chris Phillips, Illinois Natural History Survey, for eventual publication.

Sampling provided one record for a threatened species (*Emydoidea blandingii*) and several for the smooth softshell turtle (*Apalone mutica*), which is listed as a Species in Greatest Need of Conservation. Our data suggest that the smooth softshell might be more common than previously thought.

**Job 1.2: Monitor non-game birds**

**Objectives:** Coordinate data collection from  $\geq 75$  BBS routes annually.

**Results:** The route coordinator contacted  $>90$  volunteers each year to request assistance with BBS routes. More routes were completed in 2005 (93) than 2006 (83) or 2007 (80). Detailed records of numbers of species and individuals observed per year are available from USGS (<http://www.pwrc.usgs.gov/bbs>).

**Evaluation:** Grant objectives were exceeded.

**Job 1.3: Data analysis and reporting**

**Objectives:** To summarize and submit an annual report of accomplishments for jobs 1.1 and 1.2.

**Results:** Annual reports were submitted for the first and second segments of the project; a final report including progress during segment 3 was submitted to USFWS. A brief report of accomplishments for Job 1.1 was prepared and distributed to field staff and administrators in DNR. We anticipate that some of the data collected for Job 1.1 will be published in one or more articles in peer-reviewed scientific journals.

**Evaluation:** Grant objectives were met.

**Study 2: Implement and evaluate habitat management practices for selected species of conservation concern.**

**Job 2.1: Construct and evaluate use of artificial (man-made) hibernacula.**

**Objective:** Construct  $\geq 4$  hibernacula per fiscal year and determine their use by snakes.

**Results:** Hibernacula are important to snakes as refugia from harsh winter weather conditions. Snake use of natural hibernacula has received much attention in the wildlife literature (Parker and Brown 1973, Burger et al. 1988, Prior and Weatherhead 1996). Relatively less research has been conducted on snake use of man-made hibernacula (Gillingham and Carpenter 1978); such alterations of otherwise unsuitable landscapes may provide much needed habitat for snakes during winter.

Twenty-two snake species currently exist in southern Illinois, however little is known about their wintering habits and hibernacula preferences (Phillips 2005). Natural hibernation sites include rock crevices, communal dens, and rodent and crayfish burrows (Phillips 2005). Our goal was to construct man-made hibernacula on a wildlife refuge in southern Illinois during 2006-08 and monitor use of hibernacula by snakes and other wildlife.

### *Hibernacula Design, Construction, and Placement*

We conducted research at the Crab Orchard National Wildlife Refuge in Williamson County, Illinois. Hibernacula were placed near walking trails off Spillway Road. Hibernacula of 2 different designs were constructed and placed afield during 2006-07. Four large, pit-type hibernacula constructed of natural material were implemented during February-March 2006. Each hibernaculum was placed in a different habitat type: swamp/wetland, prairie, rocky bluff, and woodland, with an emphasis on minimum environmental impact and natural quality. Large holes measuring 3 × 6 m were dug 2 m into the ground with a backhoe. Logs, stumps, branches, and large rocks were gathered from the surrounding area and placed in each hole. Soil and vegetation removed was then placed on top of each unit to minimize disturbance to the area.

Eight box -type hibernacula were implemented during October-December 2007. These hibernacula were much smaller in size, constructed of plywood, and had a small door for monitoring access. Hibernacula were 1 × 1 × 1 m in size, and lined and covered in plastic for additional thermal benefit. Locations for placement were in hillsides in varied habitats as aforementioned, and embedded 90% in-ground to allow for monitoring.

### *Hibernacula Monitoring*

Monitoring of the 4 pit-type hibernacula occurred during August 2006-March 2007; visual searches for snake and wildlife use were conducted once weekly. During January-February 2007, we also attempted to use a burrow probe remote camera system (Fuhrman Diversified, Seabrook, TX; VerCauteren et al. 2002, White et al. 2007) to quantify snake use within the 4 pit-type hibernacula. These hibernacula and the 8 box-type units were further monitored during December 2007-February 2008.

At the beginning of each search, we collected air temperature readings, humidity, and wind speed using a Kestrel 2000 wind meter. Substrate temperatures were also quantified using a probe thermometer, and percentage cloud cover and rainfall was recorded. At each pit-type hibernaculum, we searched <4 m and <100 m of each opening; we opened the front door to search each box-type hibernaculum. All reptile, amphibian, and small mammal species detected during visual searches were noted. For snake species, we recorded life stage and sex when possible.

During 2006-07 monitoring, we located 13 species of reptiles and amphibians associated with the 4 hibernacula (Table 1). Although we did not locate any small mammal species during searches, their presence at the sites would represent an important food source for some local snake species. Site 2 had a large abundance of amphibian species in direct proximity to the hibernacula, with many small lizards present along the drier bluffline at the edge of Devil's Kitchen Lake. At Site 1 we found more lizards and snake species dispersed randomly in the 100-m search area around the site, and we found only 1 species of interest at this hibernaculum. Only 1 snake species was recorded at Site 3. We were forced to discontinue searches at Site 4 due to flooding in November, and did not record any species of interest. Searches using the burrow probe were generally unsuccessful due

to difficulty in burrow probe placement into hibernacula, thus we discontinued this monitoring technique. We found no snake or other wildlife use of hibernacula during 2007-08 monitoring; due to lack of snake use, we were unable to correlate weather conditions or temperatures to snake presence.

### *Discussion*

We documented little use of man-made hibernacula by snakes. In certain instances, hibernacula were placed in areas lacking potential natural hibernacula habitat (e.g., rock outcroppings and crevices). However, much of the study area contains likely natural hibernacula sites for snakes that have received traditional use. Snakes often use traditional communal hibernacula, which may require years and multiple generations of related animals to establish via migration patterns (Gregory 1984, Sexton et al. 1992); this is why snakes are often experimentally placed in artificial hibernacula for study (Gillingham and Carpenter 1978). The short-term nature of this study and lack of introduction of wild-captured snakes into hibernacula thus somewhat limited our ability to definitively confirm the utility of man-made hibernacula for snakes.

Gillingham and Carpenter (1978) created an elaborate observation chamber to assess use of a man-made hibernaculum by 23 snakes placed experimentally in the hibernaculum. We were unable to utilize such a study design due to logistical restraints. Gillingham and Carpenter (1978) were able to document snake mortality, winter activity, and behavior of snakes. They concluded that their hibernacula design was easy to use and provided a viable alternative to disturbing natural hibernacula settings.

Regardless, we believe the hibernacula designs we developed may produce benefits to snakes and other wildlife species over time. The initial 4, large, pit-type hibernacula clearly provide considerable refugia for wildlife, but must be placed in upland areas to minimize flooding. This is often difficult, as Gillingham and Carpenter (1978) needed to use an electric sump pump to keep their man-made hibernaculum dry. Our pit-type hibernacula required considerably more effort to dig and construct than box-type hibernacula. The pit-type hibernacula were more "natural", thus may be more attractive to snakes. However, without an elaborate observation chamber (Gillingham and Carpenter 1978), they remain difficult to monitor. We had hoped the use of a burrow probe camera (VerCauteren et al. 2002, White et al. 2007) would facilitate monitoring, however, this would require greater consideration of how to place the burrow probe into the submerged hibernacula. PVC piping could be placed through the roof of hibernacula, but would need to be capped to not decrease the thermal quality inside. The box-type hibernacula were less expensive (i.e., not requiring a backhoe) and easier to construct and implement in the field. However, they were less natural and considerably smaller than pit-type hibernacula.

In conclusion, although we documented scant use of hibernacula by snakes, we believe these systems may be useful for snakes over long periods of time, especially for wildlife managers on short budgets. However, we suggest longer studies and the use of

radiotelemetry (Jacob and Painter 1980, Weatherhead 1989) to more definitively assess utility of man-made hibernacula for snakes.

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Table 1. Species richness data for animals using hibernacula and near hibernacula, Crab Orchard National Wildlife Refuge, Williamson County, Illinois, 2006-07.

Species	Common Name	Site*
<i>Hyla versicolor</i>	gray tree frog	2 os
<i>Acris crepitans</i>	cricket frog	2 os
<i>Plethodon glutinosus</i>	slimy salamander	1 sa
<i>Coluber constrictor</i>	racer	1 sa
<i>Bufo fowleri</i>	fowler's toad	2 os
<i>Nirodea sipedon</i>	northern watersnake	3 sa
<i>Scincella lateralis</i>	five-lined skink	1 sa
<i>Eumeces fasciatus</i>	ground skink	1 sa
<i>Agkistrodon contortrix</i>	copperhead	1 sa
<i>Diadophis punctatus</i>	ringneck snake	1 sa
<i>Hyla cinerea</i>	green treefrog	1 sa
<i>Sceloporus undulates</i>	fence lizard	2 sa
<i>Scincella lateralis</i>	five-lined skink	2 sa

\*os= on site (within 4 m of hibernacula)

\*sa= found in search area (100-m radius)

**Evaluation:** Objectives were met with construction of 12 hibernacula. Continued monitoring is needed to determine if use of structures increases with time.

**Job 2.2:** Construct and evaluate use of ephemeral wetlands.

**Objective:** Construct  $\geq 20$  ephemeral wetlands per fiscal year and evaluate their use by reptiles and amphibians.

**Results:** We constructed 203 ephemeral wetlands at Crawford County Conservation Area (39), Ramsey Lake State Park (33), Red Hills State Park (21), Prairie Ridge State Natural Area (CIPS Tract – 22; Fuson Tract – 9; Hunt Farm – 6; Newlin Tract – 4), Wildcat Hollow State Habitat Area (39), Sam Parr State Park (22), Lincoln Trail State Park (3), and Vermilion County Forest Preserve (5). Projects were inspected to insure compliance with specifications for construction and monitored periodically to determine use by reptiles and amphibians. Common species were found using the wetlands within one year after construction.

**Evaluation:** Most of the projects were located in Illinois' Southern Till Plain. Soils in this area are largely alfisols with high clay content. These characteristics allowed us to construct ephemeral wetlands at low costs and exceed the grant objective by more than threefold.

**Job 2.3:** Construct and evaluate use of nest platforms by ospreys.

**Objective:** Construct  $\geq 5$  nest platforms per fiscal year and evaluate their use by ospreys.

**Results:** Six nesting platforms were erected during 2005, two on each of the following lakes: Newton Lake in Jasper County, Carlyle Lake in Fayette County and Rend Lake in Franklin County. No platforms were erected during 2006 or 2007 because high-water conditions prevented placement in appropriate habitats. During 2006 and 2007, staff examined platforms that had been erected; no nests were observed.

**Evaluation:** Grant objectives were not met because of poor conditions for erecting platforms in appropriate habitats. We anticipate that metal nesting structures fabricated but not erected during this project will be placed when suitable conditions prevail.

**Job 2.4:** Data analyses and reporting

**Objective:** To prepare and submit an annual report of accomplishments for Jobs 2.1-2.3.

**Results:** Annual reports were submitted for the first and second segments of the project; a final report including progress during segment 3 was submitted to USFWS.

**Evaluation:** The grant objective was met.



**Study 3.** Implement and evaluate strategies for recovery of state endangered and threatened species.

**Job 3.1:** Evaluate release of captive-raised barn owls to establish local populations.

**Objective:** Release  $\geq 8$  captive barn owls in suitable habitat and monitor their survival.

**Results:** During 2005, 10 barn owls were raised and released on properties managed by DuPage County Forest Preserve District. Six dispersed out of telemetry range within 12 weeks after their release. Four remained in the area, using forest preserve properties in Kane, Cook, and DuPage counties for foraging and roosting. Unfortunately, all 4 birds died in December 2005, probably because they were unable to forage effectively after a winter storm with below-freezing temperatures and a relatively large accumulation of snow (8-10 inches) within a 24-hour period.

During 2006, 11 owls were released at three sites in DuPage County (Pratt's Wayne, Springbrook Prairie and Green Valley) and two sites in McHenry County (Glacial Park and Pleasant Valley). No mortalities were documented before radio contact was lost.

**Evaluation:** The grant objective was exceeded. Most owls survived 30-60 days before radio contact was lost. Their fates afterward remain unknown, providing an ambiguous result. Coordinators recognized this problem and fitted 2 owls with satellite transmitters during 2007. One dispersed to Missouri, where it died. The other migrated to the Gulf Coast (Texas and Louisiana), where it remained alive as of February 2008. Additional research is needed before this technique (release of captive-raised barn owls) can be labeled as a success or failure.

**Job 3.2:** Evaluate and apply methods to establish nesting colonies of Common, Forster's, Caspian and Least terns.

**Objective:** Monitor demographics of the Grass Lake population of Forster's tern and, during the 3-year project, attempt to establish  $\geq 1$  additional breeding colony of Forster's, Common, Caspian, or Least terns by applying methods found successful at Grass Lake.

**Results:** At Lake Elizabeth, the first Forster's Tern was observed on 19 April, 2006; two pairs were observed in the area where the decoys were placed; no nesting attempts were made on the mats or in the nesting platforms. The platforms however, were utilized by pairs ( $n=4$ ) of the congener Black tern (*Chlidonias niger*) nearby in 2005, supporting the validity of their use as suitable nesting structures. There were no recorded sightings of Forster's Terns at Lake Elizabeth in 2007.

The first Forster's Terns at Grass Lake were first observed on 24 April 2006. The greatest number of Forster's at Grass Lake at one time was 58. The following year, Forster's Terns were first observed on 15 April 2007. The total number of adult Forster's in 2007 was 36.

Six Forster's Terns were observed foraging in Fourth Lake on 17 April 2006. The number increased to 20 in the latter part of June (this coincided with the timing of nest desertions by the Forster's at Grass Lake). In 2007 two Forster's Terns were observed foraging in Fourth Lake on 4 May 2007; that was the only recorded observation on Fourth Lake for that year.

No Forster's Terns sightings were recorded at Redwing Slough during the entirety of the nesting seasons in 2006 and 2007.

Attempts to establish a Least Tern colony at the Newton site failed. Concerns over possible conflicts between the plant's operations and a federally endangered species lead plant management to deny access. Alternative sites meeting our criteria were not identified before the start of the 2006 breeding season. There were no recorded sightings of Least Terns at the alternate site on the Mississippi in 2007.

Appendix IV provides detailed methods, results, and implications of this study.

**Evaluation:** The grant objective was met.

**Job 3.3:** Data analysis and reporting.

**Objective:** To prepare and submit an annual report of accomplishments for Jobs 3.1 and 3.2.

**Results:** Annual reports were submitted for the first and second segments of the project; a final report including progress during segment 3 was submitted to USFWS.

**Evaluation:** The grant objective was met.

Appendix I. Sites sampled for the presence of turtles in Illinois, 2005-2007.

County	Site
<u>Public waters</u>	
Alexander/Pike	Mississippi River
Clark	Wabash River
Cumberland	Embarras River
Menard/Champaign	Sangamon River
Union/Jackson	Big Muddy River
<u>State/federal properties</u>	
Alexander	Horseshoe Lake CA
Alexander	Cypress Creek NWR
Cass	Jim Edgar Panther Creek SFWA
Cass	Sanganois CA
Christian	Sangchris Lake SP
Fayette	Carlyle Lake FWA
Franklin	Wayne Fitzgerald SP
Jefferson	Ten Mile Creek SFWA
Jefferson	Mt. Vernon Game Farm
Kendall	Silver Springs SFWA
Lake	Chain O' Lakes SP
Massac	Mermet Lake CA
Menard	Lincoln's New Salem HS
Moultrie	Shelbyville SFWMA
Pope	Dixon Springs Agricultural Experiment Stn.
Pulaski	Cache River SNA
Randolph	Kaskaskia River FWA
Sangamon	Illinois State Fairgrounds
Sangamon	Sangamon County CA
St. Clair	Peabody River King SFWA
Union	Shawnee National Forest (LaRue Swamp)
Union	Union County CA
Will	Des Plaines Game Propagation Center
<u>County/municipal properties</u>	
Bond	Governor Bond Lake
Champaign	Lonetree Creek Forest Preserve
Champaign	River Bend Forest Preserve
Champaign	Stidham Forest Preserve
Kane	Nelson Lake Marsh/Dick Young Forest Preserve
Montgomery	Glenn Shoals Lake
Montgomery	Old Hillsboro Lake
<u>Private properties</u>	
Coles	Cassel Creek
Cumberland	Spears Pits
Iroquois	Lizzio
Iroquois	Beaver Creek
Macoupin	Bullard Lake

Appendix II. Reptile and amphibian records for Illinois, 2005-2007.

Scientific name	Date	County		Location	Last record
<u>Salamanders</u>					
Ambystoma texanum	04/02/06	Mason	N40.06833	W090.2675	before 80
Ambystoma texanum	04/03/06	Menard	N39.94613	W089.71796	new
Ambystoma texanum	04/16/06	Menard	N39.96119	W089.75310	new (dup 06)
Ambystoma tigrinum	10/21/05	Menard	T18NR6W	Section 29	before 80
<u>Snakes</u>					
Agkistrodon contortrix	07/26/06	Jersey	N38.99442	W090.44163	after 80
Coluber constrictor	06/25/05	Sangamon	T15NR5W	Section 32	before 80
Elaphe obsoleta	09/25/06	Cass	N40.05405	W090.12465	after 80
Elaphe obsoleta	08/01/06		N39.04493	W090.01294	after 80
Elaphe obsoleta	04/23/07	Pope	N37.29058	W088.54673	after 80
Elaphe obsoleta	10/30/06	Cass	N40.02511	W090.09809	after 80
Elaphe obsoleta	04/18/06	Menard	N39.96523	W089.74669	before 80
Elaphe obsoleta	09/09/05	Jefferson	T3S-R3E	Section 29	before 80
Elaphe obsoleta	08/14/06	Montgomery	N39.13831	W089.59226	before 80
Elaphe obsoleta	05/12/07	Menard	N39.95567	W089.72781	before 80
Elaphe vulpina	06/16/06	Kendall	N41.62678	W088.51835	before 80
Elaphe vulpina	09/25/06	Mason	N40.09135	W090.26981	before 80
Elaphe vulpina	04/16/06	Menard	N39.97647	W089.83994	new
Lampropeltis calligaster	08/23/07	Sangamon	N39.84811	W089.64503	after 80
Lampropeltis calligaster	09/11/05	Menard	N39.96869	W089.83051	before 80
Lampropeltis calligaster	06/03/05	Menard	N39.95654	W089.72787	before 80
Lampropeltis calligaster	05/10/07	Menard	N39.97314	W089.84016	before 80
Nerodia erythrogaster	04/25/06	Massac	N37.26177	W088.85637	after 80
Nerodia sipedon	08/10/05	Christian	N39.60944	W089.44547	after 80
Nerodia sipedon	04/24/06	Massac	N37.25566	W088.84977	after 80
Nerodia sipedon	08/14/07	Bond	N38.96048	W089.35941	before 80
Nerodia sipedon	07/11/05	Mason	N40.06983	W090.27303	before 80
Nerodia sipedon	09/11/05	Menard	N39.97267	W089.83479	before 80
Nerodia sipedon	05/18/07	Menard	N40.07398	W089.82882	before 80
Opheodrys aestivus	09/10/06	Cumberland	N39.31503	W088.32053	before 80
Pituophis melanoleucus	09/25/06	Cass	N40.05299	W090.11549	after 80
Storeria dekayi	04/15/06	Menard	N39.97158	W089.83863	new
Thamnophis sirtalis	09/03/05	Menard	N39.95586	W089.72768	before 80
Thamnophis sirtalis	04/19/05	Cass	N39.95883	W090.05409	before 80
<u>Turtles</u>					
Apalone mutica	07/11/07	Pike	N39.54161	W091.09631	after 80
Apalone mutica	06/06/06	Jackson	N37.65578	W089.42117	before 80
Apalone mutica	07/05/07	Cumberland	N39.59556	W088.29861	before 80
Apalone mutica	08/23/06	Menard	N39.93811	W089.76231	new
Apalone mutica	05/10/07	Menard	N40.00649	W089.84251	new (dup 06)
Apalone mutica	05/18/07	Menard	N40.06203	W089.83056	new (dup 06)
Apalone spinifera	05/16/06	Alexander	N37.23098	W089.26173	after 80
Apalone spinifera	06/02/07	Will	N41.331198	W088.185652	after 80

Appendix II. Reptile and amphibian records for Illinois, 2005-2007.

Scientific name	Date	County		Location	Last record
<u>Turtles</u>					
Apalone spinifera	05/31/07	Cass	N40.06575	W090.26662	after 80
Apalone spinifera	07/12/05	Mason	N40.06635	W090.26026	after 80
Apalone spinifera	08/25/05	Alexander	N37.11929	W089.33195	after 80
Apalone spinifera	05/16/06	Alexander	N37.09374	W089.23901	after 80
Apalone spinifera	07/11/07	Coles	N39.48687	W088.21008	after 80
Apalone spinifera	07/10/06	Kendall	N41.645433	W088.45028	after 80
Apalone spinifera	08/02/06	Fayette	N38.82015	W089.21204	after 80
Apalone spinifera	06/14/06	Macoupin	N39.216316	W090.00873	before 80
Apalone spinifera	08/03/06	Christian	N39.60933	W089.44454	before 80
Apalone spinifera	07/13/06	Iroquois	N40.97531	W087.61843	before 80
Apalone spinifera	07/11/06	Champaign	N40.37548	W088.36697	before 80
Apalone spinifera	07/03/07	Cumberland	N39.35333	W088.31444	before 80
Apalone spinifera	07/24/07	Champaign	N40.36861	W088.34855	before 80
Apalone spinifera	08/16/07	Champaign	N40.26861	W088.56889	before 80
Apalone spinifera	09/26/05	Union	N37.39608	W089.35722	before 80
Apalone spinifera	07/25/06	Madison	N37.71004	W090.06768	before 80
Apalone spinifera	09/11/07	Champaign	N40.18223	W088.43448	before 80
Apalone spinifera	06/14/06	Macoupin	N39.20778	W090.00137	before 80
Apalone spinifera	07/11/06	Iroquois	N40.67697	W088.01052	before 80
Apalone spinifera	06/06/06	Union	N37.5614	W089.47692	before 80
Apalone spinifera	06/14/06	Macoupin	N39.214316	W089.96723	before 80
Apalone spinifera	07/12/07	Moultrie	N39.57581	W088.52773	before 80
Apalone spinifera	06/04/06	Union	N37.36967	W089.35983	before 80
Apalone spinifera	06/08/06	Montgomery	N39.13872	W089.58075	new
Apalone spinifera	09/12/05	Sangamon	N39.83997	W089.64719	new
Apalone spinifera	09/13/07	Jefferson	N38.24167	W088.71237	new
Apalone spinifera	07/25/07	Montgomery	N39.24662	W089.45750	new
Apalone spinifera	05/20/06	Pulaski	N37.29117	W089.07883	new
Apalone spinifera	07/25/07	Clark	N39.56028	W087.68083	new
Apalone spinifera	06/01/06	Menard	N40.02533	W089.84053	new
Apalone spinifera	04/26/06	Massac	N37.25100	W088.82752	new
Apalone spinifera	08/23/06	Menard	N39.93811	W089.76231	new (dup 06)
Apalone spinifera	05/10/07	Menard	N40.00649	W089.84251	new (dup 06)
Apalone spinifera	05/18/07	Menard	N40.06855	W089.83062	new (dup 06)
Apalone spinifera	06/09/06	Montgomery	N39.14463	W089.58483	new (dup 06)
Chelydra serpentina	04/28/05	Pope	N37.42178	W088.65835	after 80
Chelydra serpentina	07/11/06	Iroquois	N40.97531	W087.61843	after 80
Chelydra serpentina	06/06/06	Union	N37.5655	W089.44055	after 80
Chelydra serpentina	05/16/06	Alexander	N37.09253	W089.23843	after 80
Chelydra serpentina	07/25/06	Madison	N38.86136	W090.11080	after 80
Chelydra serpentina	06/01/07	Will	N41.330682	W088.184548	after 80
Chelydra serpentina	08/24/05	Alexander	N37.12230	W089.31832	after 80
Chelydra serpentina	04/24/07	Pope	N37.28772	W088.54112	after 80

Appendix II. Reptile and amphibian records for Illinois, 2005-2007.

Scientific name	Date	County		Location	Last record
<u>Turtles</u>					
<i>Chelydra serpentina</i>	08/28/06	Randolph	N38.014405	W89.961483	after 80
<i>Chelydra serpentina</i>	09/27/05	Union	N37.40670	W089.35403	after 80
<i>Chelydra serpentina</i>	05/16/07	Kane	N41.83096	W088.38333	after 80
<i>Chelydra serpentina</i>	05/19/06	Pulaski	N37.30767	W089.02	after 80
<i>Chelydra serpentina</i>	06/05/06	Union	N37.36967	W089.35983	after 80
<i>Chelydra serpentina</i>	05/16/06	Alexander	N37.23098	W089.26173	after 80
<i>Chelydra serpentina</i>	04/30/06	Alexander	N37.30833	W089.477	after 80
<i>Chelydra serpentina</i>	06/06/06	Jackson	N37.64311	W089.41834	after 80
<i>Chelydra serpentina</i>	05/09/06	Alexander	N37.15767	W089.3485	after 80
<i>Chelydra serpentina</i>	07/25/06	Madison	N37.71004	W090.06768	after 80
<i>Chelydra serpentina</i>	09/13/05	Morgan	N39.81368	W090.35829	after 80
<i>Chelydra serpentina</i>	08/02/06	Fayette	N38.83282	W089.21203	after 80
<i>Chelydra serpentina</i>	07/11/06	Iroquois	N40.67369	W088.01139	after 80
<i>Chelydra serpentina</i>	08/03/06	Christian	N39.62719	W089.45171	after 80
<i>Chelydra serpentina</i>	04/25/06	Massac	N37.27020	W088.85119	before 80
<i>Chelydra serpentina</i>	07/11/06	Champaign	N40.36912	W088.33021	before 80
<i>Chelydra serpentina</i>	07/25/07	Clark	N39.53083	W087.64750	before 80
<i>Chelydra serpentina</i>	05/02/06	Cumberland	N39.2869	W088.27623	before 80
<i>Chelydra serpentina</i>	07/11/06	Champaign	N40.36917	W088.38032	before 80
<i>Chelydra serpentina</i>	07/19/07	Coles	N39.50588	W088.07285	before 80
<i>Chelydra serpentina</i>	07/13/06	Champaign	N40.37548	W088.36697	before 80
<i>Chelydra serpentina</i>	05/18/06	Jefferson	N38.23555	W088.8937	before 80
<i>Chelydra serpentina</i>	07/24/07	Champaign	N40.36861	W088.34855	before 80
<i>Chelydra serpentina</i>	05/10/06	Cumberland	N39.3468	W088.15345	before 80
<i>Chelydra serpentina</i>	07/17/07	Coles	N39.48687	W088.21008	before 80
<i>Chelydra serpentina</i>	06/21/07	Lake	N42.55889	W088.39639	before 80
<i>Chelydra serpentina</i>	09/11/07	Champaign	N40.18200	W088.43488	before 80
<i>Chelydra serpentina</i>	07/12/05	Mason	N40.06571	W090.26353	before 80
<i>Chelydra serpentina</i>	07/11/07	Pike	N39.52898	W091.07769	before 80
<i>Chelydra serpentina</i>	08/16/07	Champaign	N40.25694	W088.54750	before 80
<i>Chelydra serpentina</i>	09/08/06	Jefferson	N38.19922	W088.75587	before 80
<i>Chelydra serpentina</i>	04/22/05	Cass	N39.99617	W090.08246	new
<i>Chelydra serpentina</i>	06/05/07	Franklin	N38.18944	W089.02972	new
<i>Chelydra serpentina</i>	07/26/07	Montgomery	N39.21590	W089.55712	new
<i>Chelydra serpentina</i>	06/08/06	Montgomery	N39.13872	W089.58075	new
<i>Chelydra serpentina</i>	07/13/05	Menard	N39.95584	W089.72773	new
<i>Chelydra serpentina</i>	08/23/06	Menard	N39.91391	W089.76891	new (dup 05 06)
<i>Chelydra serpentina</i>	06/09/06	Montgomery	N39.14463	W089.58483	new (dup 06)
<i>Chelydra serpentina</i>	05/18/07	Menard	N40.06855	W089.83062	new (dup 06)
<i>Chelydra serpentina</i>	05/10/07	Menard	N39.96319	W089.79522	new (dup 06)
<i>Chelydra serpentina</i>	06/29/06	Menard	N39.96824	W089.81551	new (dup 06)
<i>Chrysemys picta</i>	07/11/06	Iroquois	N40.67369	W088.01139	after 80
<i>Chrysemys picta</i>	09/13/05	Morgan	N39.81308	W090.37770	after 80
<i>Chrysemys picta</i>	08/02/06	Fayette	N38.83282	W089.21203	after 80

Appendix II. Reptile and amphibian records for Illinois, 2005-2007.

Scientific name	Date	County	Location	Location	Last record
<u>Turtles</u>					
<i>Chrysemys picta</i>	07/25/07	Clark	N39.39250	W087.66972	after 80
<i>Chrysemys picta</i>	07/11/06	Champaign	N40.36917	W088.38032	after 80
<i>Chrysemys picta</i>	08/23/06	Sangamon	N39.91443	W089.76765	after 80
<i>Chrysemys picta</i>	05/16/07	Kane	N41.83096	W088.38333	after 80
<i>Chrysemys picta</i>	08/03/06	Christian	N39.60294	W089.44751	after 80
<i>Chrysemys picta</i>	06/14/06	Macoupin	N39.2118	W089.97785	after 80
<i>Chrysemys picta</i>	07/25/06	Madison	N38.86136	W090.11080	after 80
<i>Chrysemys picta</i>	04/25/07	Pope	N37.29361	W088.54687	after 80
<i>Chrysemys picta</i>	08/22/06	Champaign	N40.19763	W088.3664	after 80
<i>Chrysemys picta</i>	06/01/07	Will	N41.330541	W088.181476	after 80
<i>Chrysemys picta</i>	05/19/06	Pulaski	N37.29467	W089.89523	after 80
<i>Chrysemys picta</i>	05/09/06	Alexander	N37.155	W089.33967	after 80
<i>Chrysemys picta</i>	07/26/05	Sangamon	N39.83835	W089.64787	after 80
<i>Chrysemys picta</i>	05/16/06	Alexander	N37.09917	W089.24961	after 80
<i>Chrysemys picta</i>	08/23/05	Alexander	N37.11378	W089.32473	after 80
<i>Chrysemys picta</i>	04/19/05	Cass	N39.95229	W090.06485	before 80
<i>Chrysemys picta</i>	07/12/05	Mason	N40.06603	W090.26256	before 80
<i>Chrysemys picta</i>	09/14/07	Jefferson	N38.2353	W088.71218	before 80
<i>Chrysemys picta</i>	08/16/07	Bond	N38.95385	W089.37427	before 80
<i>Chrysemys picta</i>	07/25/07	Montgomery	N39.26119	W089.45158	before 80
<i>Chrysemys picta</i>	06/21/07	Lake	N42.52917	W088.21972	before 80
<i>Chrysemys picta</i>	06/13/06	Kendall	N41.62238	W088.52443	before 80
<i>Chrysemys picta</i>	04/25/06	Massac	N37.26798	W088.85271	before 80
<i>Chrysemys picta</i>	05/10/06	Cumberland	N39.3468	W088.15345	before 80
<i>Chrysemys picta</i>	05/31/07	Cass	N40.06575	W090.26662	before 80
<i>Chrysemys picta</i>	06/08/06	Montgomery	N39.13773	W089.59207	before 80
<i>Chrysemys picta</i>	06/06/07	Franklin	N38.35222	W088.93639	before 80
<i>Chrysemys picta</i>	04/17/07	Peoria	N40.53931	W089.83474	before 80
<i>Chrysemys picta</i>	07/11/07	Pike	N39.53550	W091.08577	before 80
<i>Chrysemys picta</i>	05/18/07	Menard	N40.07377	W089.82824	before 80
<i>Chrysemys picta</i>	06/01/06	Menard	N40.03260	W089.83689	new
<i>Chrysemys picta</i>	08/10/05	Christian	N39.61517	W089.44624	new
<i>Chrysemys picta</i>	07/12/07	Moultrie	N39.57611	W088.54488	new
<i>Chrysemys picta</i>	05/11/07	Menard	N39.98824	W089.83468	new (dup 06)
<i>Chrysemys picta</i>	09/06/06	Menard	N39.93811	W089.78070	new (dup 06)
<i>Chrysemys picta</i>	06/29/06	Menard	N39.96918	W089.80551	new (dup 06)
<i>Emydoidea blandingii</i>	05/30/07	Lake	N42.71278	W088.28611	after 80
<i>Graptemys ouachitensis</i>	06/06/06	Jackson	N37.64311	W089.41834	after 80
<i>Graptemys ouachitensis</i>	05/31/07	Cass	N40.06575	W090.26662	after 80
<i>Graptemys ouachitensis</i>	04/30/06	Alexander	N37.26867	W089.50317	new
<i>Graptemys ouachitensis</i>	05/31/06	Menard	N40.02533	W089.84053	new
<i>Graptemys ouachitensis</i>	05/10/07	Menard	N39.95657	W089.78422	new (dup 06)
<i>Graptemys pseudogeographica</i>	06/06/06	Jackson	N37.63979	W089.43626	after 80
<i>Graptemys pseudogeographica</i>	04/30/06	Alexander	N37.30833	W089.477	after 80

Appendix II. Reptile and amphibian records for Illinois, 2005-2007.

Scientific name	Date	County		Location	Last record
<u>Turtles</u>					
<i>Graptemys pseudogeographica</i>	06/04/06	Union	N37.36967	W089.35983	New
<i>Graptemys pseudogeographica</i>	06/07/06	Union	N37.5676	W089.49058	new (dup 06)
<i>Graptemys pseudogeographica</i>	06/07/06	Union	N37.5682	W089.45962	new (dup 06)
<i>Sternotherus odoratus</i>	08/23/05	Alexander	N37.13713	W089.31674	after 80
<i>Sternotherus odoratus</i>	04/28/05	Pope	N37.42123	W088.66731	after 80
<i>Sternotherus odoratus</i>	05/17/06	Alexander	N37.09374	W089.23901	after 80
<i>Sternotherus odoratus</i>	09/27/05	Union	N37.40767	W089.35471	after 80
<i>Sternotherus odoratus</i>	06/06/06	Union	N37.58377	W089.4401	after 80
<i>Sternotherus odoratus</i>	08/16/07	Bond	N38.95385	W089.37427	before 80
<i>Sternotherus odoratus</i>	07/12/05	Mason	N40.06606	W090.26962	before 80
<i>Sternotherus odoratus</i>	07/25/07	Montgomery	N39.16665	W089.46453	new
<i>Terrapene carolina</i>	09/28/05	Union	N37.50902	W089.32060	after 80
<i>Terrapene carolina</i>	08/21/06	Jersey	N39.04652	W090.53962	after 80
<i>Terrapene carolina</i>	07/18/06	Coles	N39.47562	W088.1705	before 80
<i>Terrapene carolina</i>	07/27/06	Montgomery	N39.20272	W089.49274	before 80
<i>Terrapene carolina</i>	08/14/06	Montgomery	N39.13831	W089.59226	before 80
<i>Terrapene carolina</i>	07/26/07	Montgomery	N39.13764	W089.59963	before 80
<i>Terrapene carolina</i>	09/12/06	Cumberland	N39.30222	W088.41453	before 80
<i>Terrapene carolina</i>	06/05/06	Cumberland	N39.35363	W088.1967	before 80
<i>Terrapene carolina</i>	07/18/07	Macoupin	N39.12911	W089.89197	before 80
<i>Terrapene carolina</i>	08/21/06	Montgomery	N39.15356	W089.63626	before 80
<i>Terrapene carolina</i>	08/22/07	Sangamon	N39.85978	W089.65473	new
<i>Trachemys scripta</i>	04/28/05	Pope	N37.43962	W088.65835	after 80
<i>Trachemys scripta</i>	06/06/06	Union	N37.5655	W089.44055	after 80
<i>Trachemys scripta</i>	07/25/07	Montgomery	N39.24662	W089.45750	after 80
<i>Trachemys scripta</i>	05/16/07	Kane	N41.83108	W088.38269	after 80
<i>Trachemys scripta</i>	07/25/06	Madison	N38.80576	W090.10568	after 80
<i>Trachemys scripta</i>	04/24/07	Pope	N37.40298	W088.67230	after 80
<i>Trachemys scripta</i>	07/25/07	Clark	N39.56028	W087.68083	after 80
<i>Trachemys scripta</i>	07/25/06	Madison	N38.86136	W090.11080	after 80
<i>Trachemys scripta</i>	06/08/06	Montgomery	N39.13773	W089.59207	after 80
<i>Trachemys scripta</i>	07/12/05	Mason	N40.06635	W090.26026	after 80
<i>Trachemys scripta</i>	05/19/06	Pulaski	N37.30767	W089.02	after 80
<i>Trachemys scripta</i>	08/02/06	Fayette	N38.83420	W089.19226	after 80
<i>Trachemys scripta</i>	08/03/06	Christian	N39.60294	W089.44751	after 80
<i>Trachemys scripta</i>	08/24/05	Alexander	N37.13069	W089.36142	after 80
<i>Trachemys scripta</i>	04/30/06	Alexander	N37.30833	W089.477	after 80
<i>Trachemys scripta</i>	05/09/06	Alexander	N37.11017	W089.32617	after 80
<i>Trachemys scripta</i>	05/31/07	Cass	N40.06575	W090.26662	after 80
<i>Trachemys scripta</i>	06/01/07	Will	N41.331936	W088.1794	after 80
<i>Trachemys scripta</i>	06/04/06	Union	N37.36967	W089.35983	after 80
<i>Trachemys scripta</i>	05/19/06	Jefferson	N38.24022	W088.87418	after 80
<i>Trachemys scripta</i>	04/24/07	Pope	N37.28772	W088.54112	after 80
<i>Trachemys scripta</i>	05/16/06	Alexander	N37.11776	W089.30694	after 80



Appendix II. Reptile and amphibian records for Illinois, 2005-2007.

Scientific name	Date	County		Location	Last record
<u>Turtles</u>					
Trachemys scripta	09/27/05	Union	N37.40670	W089.35403	after 80
Trachemys scripta	06/06/06	Jackson	N37.63979	W089.43626	after 80
Trachemys scripta	08/28/07	St Clair	N38.31944	W089.85833	after 80
Trachemys scripta	05/16/06	Alexander	N37.23093	W089.25992	after 80
Trachemys scripta	05/16/06	Alexander	N37.09253	W089.23843	after 80
Trachemys scripta	09/13/05	Morgan	N39.81216	W090.35836	after 80
Trachemys scripta	07/11/07	Pike	N39.52898	W091.07769	before 80
Trachemys scripta	08/23/06	Sangamon	N39.91563	W089.75270	before 80
Trachemys scripta	08/28/06	Champaign	N40.19763	W088.3664	before 80
Trachemys scripta	07/03/07	Cumberland	N39.59556	W088.29861	before 80
Trachemys scripta	04/25/06	Massac	N37.27020	W088.85119	before 80
Trachemys scripta	05/08/06	Cumberland	N39.3468	W088.15345	before 80
Trachemys scripta	08/28/06	Randolph	N38.014405	W89.961483	before 80
Trachemys scripta	05/10/07	Menard	N39.98824	W089.83468	before 80
Trachemys scripta	06/13/06	Macoupin	N39.2162	W090.01155	before 80
Trachemys scripta	04/18/06	Menard	N39.96505	W089.74668	new
Trachemys scripta	06/05/07	Franklin	N38.35222	W088.93639	new
Trachemys scripta	07/12/07	Moultrie	N39.57581	W088.52773	new
Trachemys scripta	06/13/06	Kendall	N41.62238	W088.52443	new
Trachemys scripta	05/31/06	Menard	N40.02533	W089.84053	new (dup 06)
Trachemys scripta	05/18/07	Menard	N40.06855	W089.83062	new (dup 06)
Trachemys scripta	06/29/06	Menard	N39.96918	W089.80551	new (dup 06)

Appendix III. Herpetofauna observed at or adjacent to Cypress Pond State Natural Area, from August through November 2007. Asterisk = photo voucher obtained.

SPECIES	Observed on CPSNA	Observed adjacent to CPSNA
<u>Salamanders</u>		
Ambystoma opacum*	X	
Ambystoma talpoideum*	X	
Ambystoma texanum*	X	
Eurycea lucifuga		X
Plethodon glutinosus*	X	
<u>Frogs</u>		
Acris crepitans*	X	
Bufo fowleri*	X	
Hyla avivoca	X voice only	
Hyla chrysoscelis*	X	
Hyla cinerea*	X	
Pseudacris crucifer	X voice only	
Pseudacris feriarum	X voice only	
Rana catesbeiana*	X	
Rana clamitans*	X	
Rana sphenoccephala*	X	
<u>Turtles</u>		
Apalone spinifera	X	
Chelydra serpentina *	X	
Chrysemys picta*	X	
Terrapene carolina*	X	
Trachemys scripta*	X	
<u>Lizards</u>		
Scincella lateralis	X	
<u>Snakes</u>		
Agkistrodon piscivorus*		X
Coluber constrictor	X shed skin	
Elaphe obsoleta*		X
Nerodia erythrogaster	X	
Nerodia sipedon	X	