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ILLINOIS NATURAL HISTORY SURVEY
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Survey of the river cooter (*Pseudemys concinna*) in southern Illinois.

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ILLINOIS NATURAL HISTORY SURVEY

Introduction

Reptiles are experiencing declines that are similar in geographic scope and severity to those experienced by amphibians. Many factors such as environmental pollution, global climate change, introduced invasive species, disease, unsustainable harvesting, and habitat degradation contribute to these declines (Gibbons et al. 2000 and Lovich 1995). Turtles can be particularly susceptible to these factors due to complex life history traits (Lovich 1995). In Illinois, 5 of the 15 aquatic turtle species (33%) are listed as either state threatened or endangered and include river cooters (*Pseudemys concinna*).

River cooters (*P. concinna*) were first recorded in Illinois in the 1800's from Mt. Carmel in the Wabash River (Garman 1890). Although they have since been recorded in Alexander, Gallatin, Hardin, Jackson, Jersey, Massac, Randolph, Union, Wabash, and White counties, their populations appear small and patchily distributed (reviewed in Dreslik and Moll 1996, Dreslik 1998). In 1937, river cooters were described as rare (Cahn 1937), and by 1980, they were thought to have been extirpated from Illinois. In 1988, populations were discovered in backwater lakes along the Ohio River (Moll and Morris, 1991), and were listed as endangered in Illinois (Herkert 1992). Threats include pollution, and associated habitat degradation from a loss of vegetation, drainage of backwater lakes, and flood control projects that isolate backwater lakes from rivers (Dreslik 1998, Herkert 1992).

Since 1988, efforts have been undertaken to identify additional populations, and elucidate critical ecological and conservation information on the species. From 1994-1996, a survey of 9 backwater lakes in Gallatin and White counties along the Ohio River identified several new populations of river cooters. Additional surveys were undertaken in 2003 (spotting scope survey) and 2005 yielding one river cooter (trapped) from 13 lakes. Critical baseline ecological data has also been obtained from a long-term study at Round Pond in Gallatin County, Illinois where growth rates, population density and biomass, diet, sex ratios, and movement patterns have been determined (Dreslik 1997, Dreslik and Moll 1996). Blood samples are also being collected from Round Pond for future genetic analyses to determine rates of gene flow and dispersal patterns, however, few additional samples are available from other populations in Illinois.

Additional surveys for river cooter populations are needed to both further understand the distribution of this species in Illinois, and to collect blood samples for genetic analyses. Genetic analyses will be required for this species because small populations are prone to genetic drift and inbreeding depression, resulting in a loss of fitness. Additionally, pollution from nearby oil tankers washes into at least one population after seasonal floods, and may threaten the survival of that population (Dreslik 1998). Toxicological analyses will be needed to determine the potential impacts and threat of pollution to the persistence of river cooters in Illinois.

River cooters are also capable of long-distance movement in aquatic habitats and have been documented to move up to 600-700 meters in rivers (Marchand 1942, Buhlmann

and Vaughan 1991) and 500 meters within Round Pond (Dreslik 1997). One overland movement to an adjacent pond was also recorded, although, the frequency of this type of movement is unknown (Dreslik 1997). Terrestrial habitats may represent significant dispersal barriers (Minton 1972), unless adjacent aquatic environments are in close proximity (Dreslik 1997). While little additional data is available on the interpopulational movements of river cooters, other aquatic species often utilize multiple aquatic habitats (Gibbons et al. 1990), and access them via terrestrial movements (Gibbons et al. 1990).

The objectives of this project were to survey backwater habitats along the Ohio/Wabash River Valley for both new and historic river cooter populations. Blood samples were also collected for future toxicological and genetic analyses. Finally, if new river cooter populations are discovered during our study period (2006-2008), landscape analyses would be conducted on those habitats.

Methods

Turtles were surveyed using baited hoop traps that were checked every 24 hours. Upon capture, all turtles (not just river cooters) were sexed, measured (plastron length), and given a unique shell notch for future identification (methods described in Dreslik 1997). Blood samples for future genetic/toxicological analyses were taken from all species of turtles captured and deposited into the Illinois Natural History Amphibian and Reptile Collection. Blood samples were collected from the subcarapacial sinus using disposable 25-gauge needles and tuberculin syringes, and placed into either Cryovial tubes (for genetic analyses), or heparinized Capiject tubes (for toxicology analyses). This protocol (#04075) was approved by the University of Illinois Institutional Animal Care and Use Committee.

Visual surveys and spotting scope surveys were also conducted. Visual surveys were conducted at each pond in 2006. Upon arrival at the study site, the researcher would cautiously approach the pond and remain hidden behind brush while scanning the pond with binoculars to identify basking turtles. In 2008, a spotting scope was also used for this purpose.

GPS coordinates were taken at each site. Photographs of each river cooter were taken and archived at the Illinois Natural History Survey. Since no new river cooter populations were discovered during our study period (2006-2008), we did not perform detailed GIS analyses. We did, however, obtain aerial photographs and discuss the most promising sites for future river cooter population studies.

Backwater lakes along the Wabash and Ohio Rivers from Lawrenceville (Lawrence Co.) to Brookport (Massac Co.), IL were targeted for this study. We divided the sites into five general locations: Lawrenceville (Lawrence Co.), Carmi (White Co.), New Haven (White Co.), Shawneetown (Gallatin Co.), and Brookport (Massac Co.). Additional sites were also targeted because they were associated with historic river cooter records (Norris City, City Reservoir), or because they were located along or on the shore of the Ohio/Wabash

Rivers and appeared to be promising river cooter habitat (Figure 1).

Results

Although our survey period for this project was from 2006-2008, we surveyed some of the same locations in 2005 and included that information in this report.

In 2005, we surveyed a total of 9 ponds from 2 of the 5 project locations (New Haven, Shawneetown; Figures 1c, 1d, 2). We also surveyed an additional location: Norris City Reservoir in White Co (Figures 1f, 2). Trapping was conducted from August 4 – August 19 and totaled 2439.45 hours of trap effort (Figure 2). A total of 205 turtles were captured with the majority being the red-eared slider turtle (*Trachemys scripta;* n = 149; Figure 3). Additional species captured included: spiny softshell turtles (*Apalone spinifera*), common snapping turtles (*Chelydra serpentina*), painted turtles (*Chrysemys picta*), map turtles (*Graptemys sp.*), stinkpots (*Sternotherus odoratus*), and one river cooter (*Pseudemys concinna;* Figure 3).

In 2006, we surveyed a total of 16 ponds from 4 of the 5 project locations (Brookport, Carmi, New Haven, and Shawneetown; Figures 1a, 1b, 1c, 1d, 4). We also surveyed two additional locations: one in Hardin County (Figures 1g, 4), and another at the Norris City Reservoir in White County (Figures 1f, 4). Trapping was conducted from June 17 – 30, July 26 – August 8, and August 16 – 26 and totaled 7277.75 trap hours of effort (Figure 4). A total of 414 turtles were captured with the majority being the red-eared slider turtle (*Trachemys scripta;* n = 343; Figure 5). Additional species captured included: spiny softshell turtles (*Apalone spinifera*), common snapping turtles (*Chelydra serpentina*), painted turtles (*Chrysemys picta*), map turtles (*Graptemys sp.*), and stinkpots (*Sternotherus odoratus*). No river cooters were captured (Figure 5). Flooding prevented us from conducting fieldwork in 2007.

In 2008, we surveyed a total of 8 sites from 2 locations (Ohio River and Wabash River; Figures 1h, 1i, 6). Trapping was conducted from August 25-28, and October 13-15 and totaled approximately 1008 trap hours of effort (Figure 6). A total of 44 turtles were captured with the majority being *T. scripta* (n = 42). Additional species captured included: map turtles (*Graptemys sp.*). No river cooters were captured (Figure 7).

In 2006, visual surveys possibly identified one river cooter in Hulda Lake (near Shawneetown, IL). This identification not able to be validated, however, because binoculars did not allow for close examination of turtle markings, and only one observer saw the turtle. The turtle was a very large emydid and appeared larger than is possible for slider turtles. Using the spotting scope in 2008, we surveyed 8 ponds over a period of two days (Figure 8). No river cooters were seen, however.

In total (2005-2008 data combined), we trapped 30 ponds and creek mouths between Carmi, IL and Brookport, IL. A total of 10,725.2 trap hours of effort yielded 663 turtles, only one of which was a river cooter (captured in 2005).

Discussion

River Cooters

No river cooters were captured during our study period (2006-2008). Intensive research efforts on river cooters have been ongoing for a decade at Round Pond in Gallatin County, IL (Dr. Michael Dreslik, PI), however. At this location, river cooters were the second most captured species (Dreslik et al. 2005). Their study utilized both fyke nets and baited hoop traps, and fyke nets have been reported to be more efficient in capturing more mobile turtle species (Vogt 1980). We did not utilize fyke nets in this study because the public nature of our sites leaves traps too vulnerable to theft. Future intensive surveys for river cooters should consider using fyke nets as well as baited hoop traps.

Research at Round Pond also demonstrated that it took 3000 trap hours to capture all ten species that inhabit the pond (Dreslik et al 2005) and approximately 1000 trap hours to capture 8 species (using both fyke nets and baited hoop traps). In 2006, over 7000 trap hours of effort resulted in the capture of 8 of 10 possible species (the smooth soft shell, *Apalone mutica*, and the river cooter were not captured). The fact that river cooters were not captured may suggest that at least some of the ponds sampled either lack river cooter populations or have populations that are smaller than those at Round Pond. Alternatively, the lack of detection could be a result of the trapping methods used (all baited hoop traps and no fyke nets).

Although no river cooters were captured during this study, two were captured during other projects in 2005 and 2006. One river cooter was captured in a baited hoop trap in 2005 from Horseshoe Lake (New Haven, IL; included in this report with the 2005 data), and another was captured during a 2006 fyke net survey for alligator snapping turtles around Brookport, IL (Scott Ballard, personal communication). Additionally, one river cooter may have been seen at Hulda Lake during this study. This suggests that additional populations may be present in oxbow lakes around Brookport, Shawneetown, and New Haven, IL. Based on these data, we suggest that future population studies focus on these locations. Oxbow lakes located in the floodplain east of Carmi are also promising. The ponds around Lawrenceville were gravel pits and recreational lakes that did not appear suitable as river cooter habitat.

Other Turtle Species

Although no river cooters were captured from 2006-2008, we were able to collect blood samples from over 450 turtles of eight species. This information may be useful in determination of gene flow and genetic diversity in the future.

Additionally, 73 slider turtles were collected for heavy metal analyses in collaboration with Southern Illinois University. Heavy metals have been linked to a wide array of human and wildlife health concerns, and their long-term presence in the environment is problematic. Turtles have been proposed as indicator species for water quality because of

their longevity, high position on the food web, and high biomass (Meyers-Schöne and Walton 1994, Golet and Haines 2001). The results from this study will provide resource managers more information on the toxicological threats to turtles (including river cooters) living along the Ohio and Wabash Rivers.

The same turtles that were dissected for the heavy metal analyses and 100 other slider turtles (these were not dissected) were also used in a *Salmonella* infection study on wild turtles. *Salmonella* is a zoonotic bacterium that causes gastrointestinal disease in humans and can be carried asymptomatically by animals (Chiodini and Sundberg 1981). Little is known, however, about the infection levels in wild turtles. No turtles were found to be shedding *Salmonella*, however, 11% of dissected turtles were infected. This information is important for people utilizing those sites for recreation and for human health in general.

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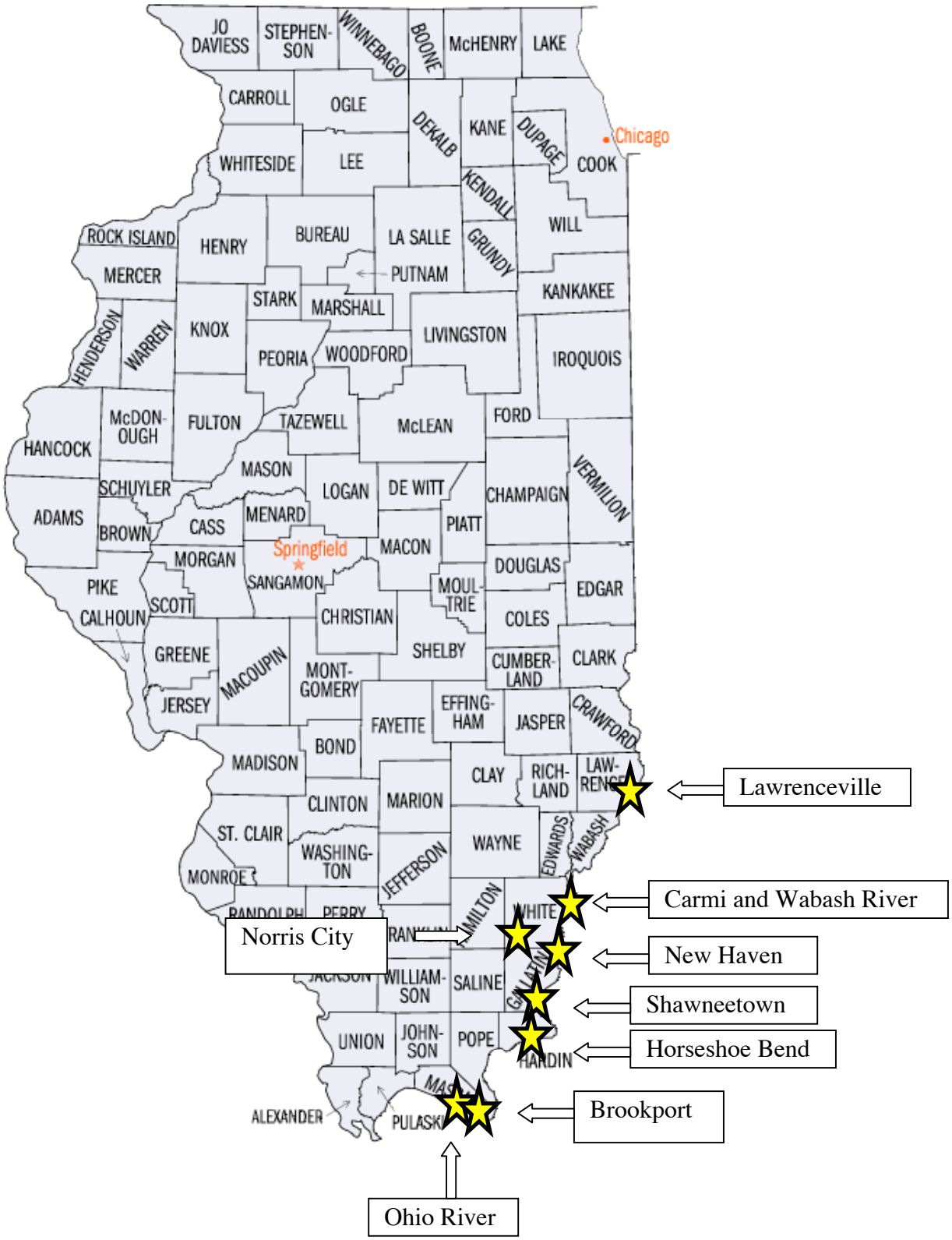
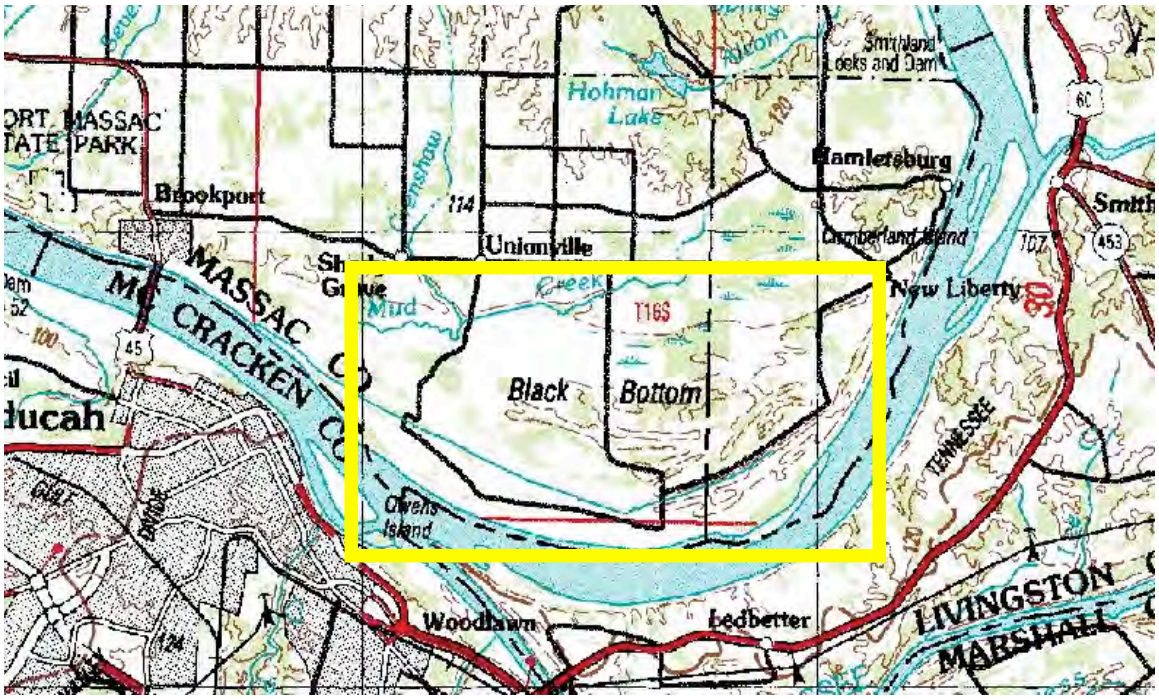
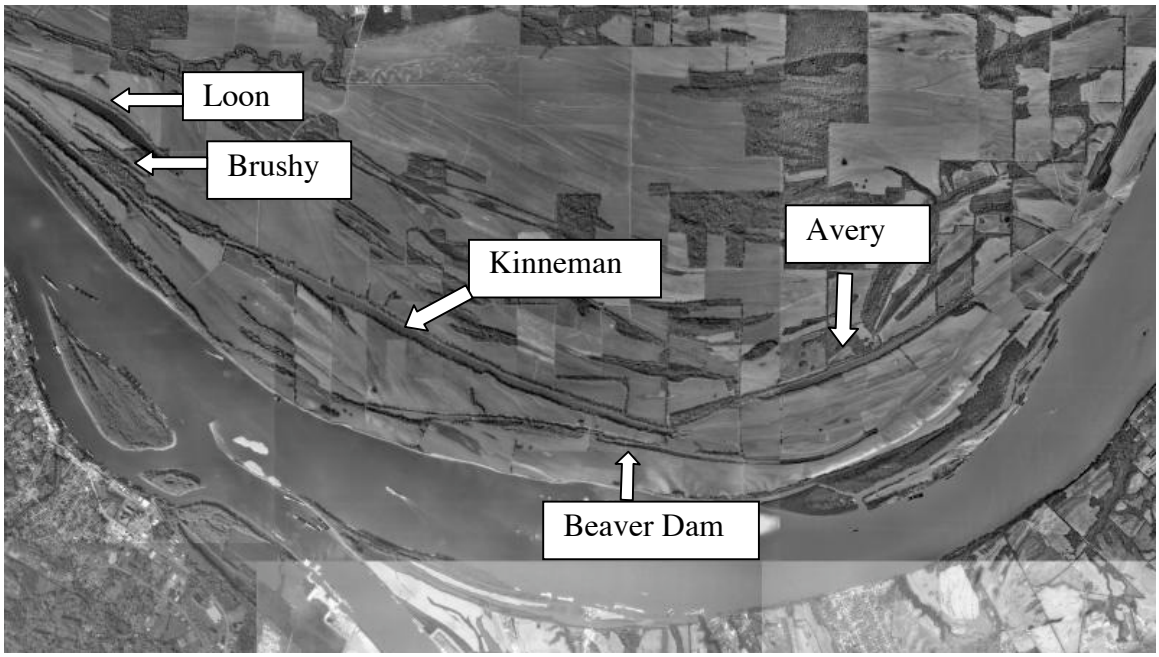
Figure 1. Topographic Maps and Aerial Photographs of Sites Surveyed



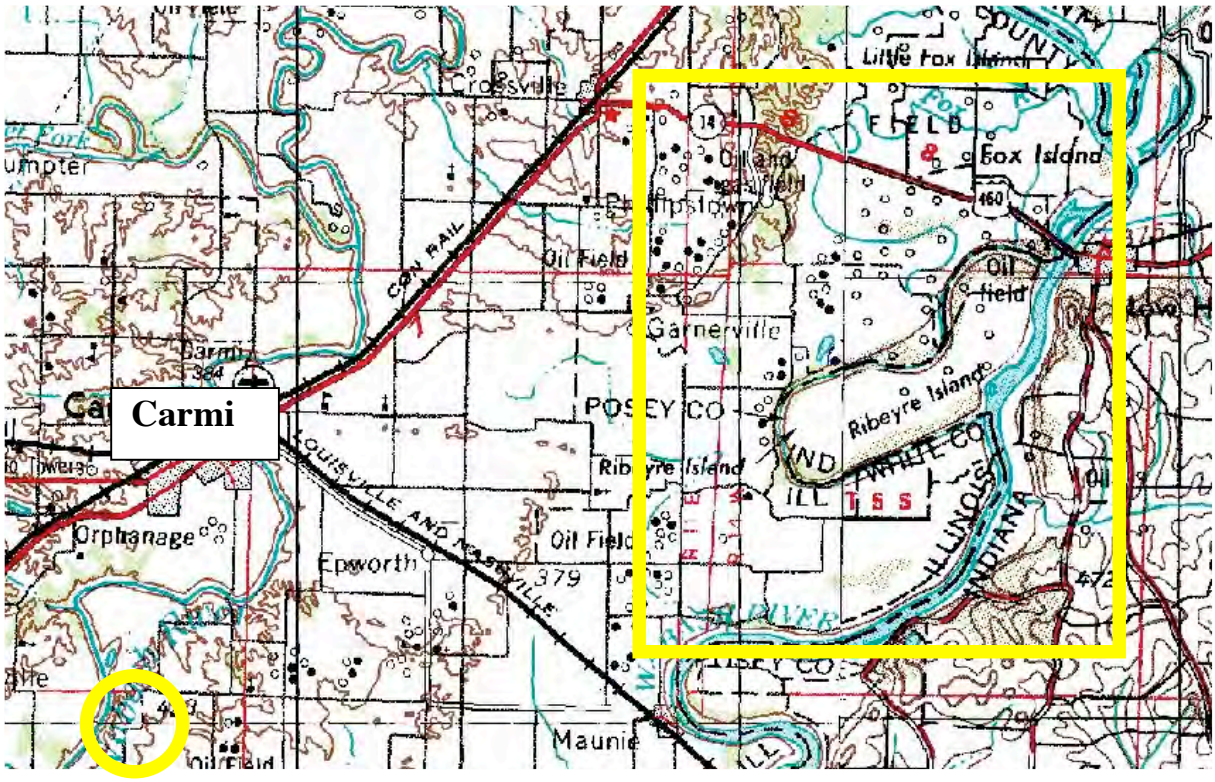
1a) Brookport Area



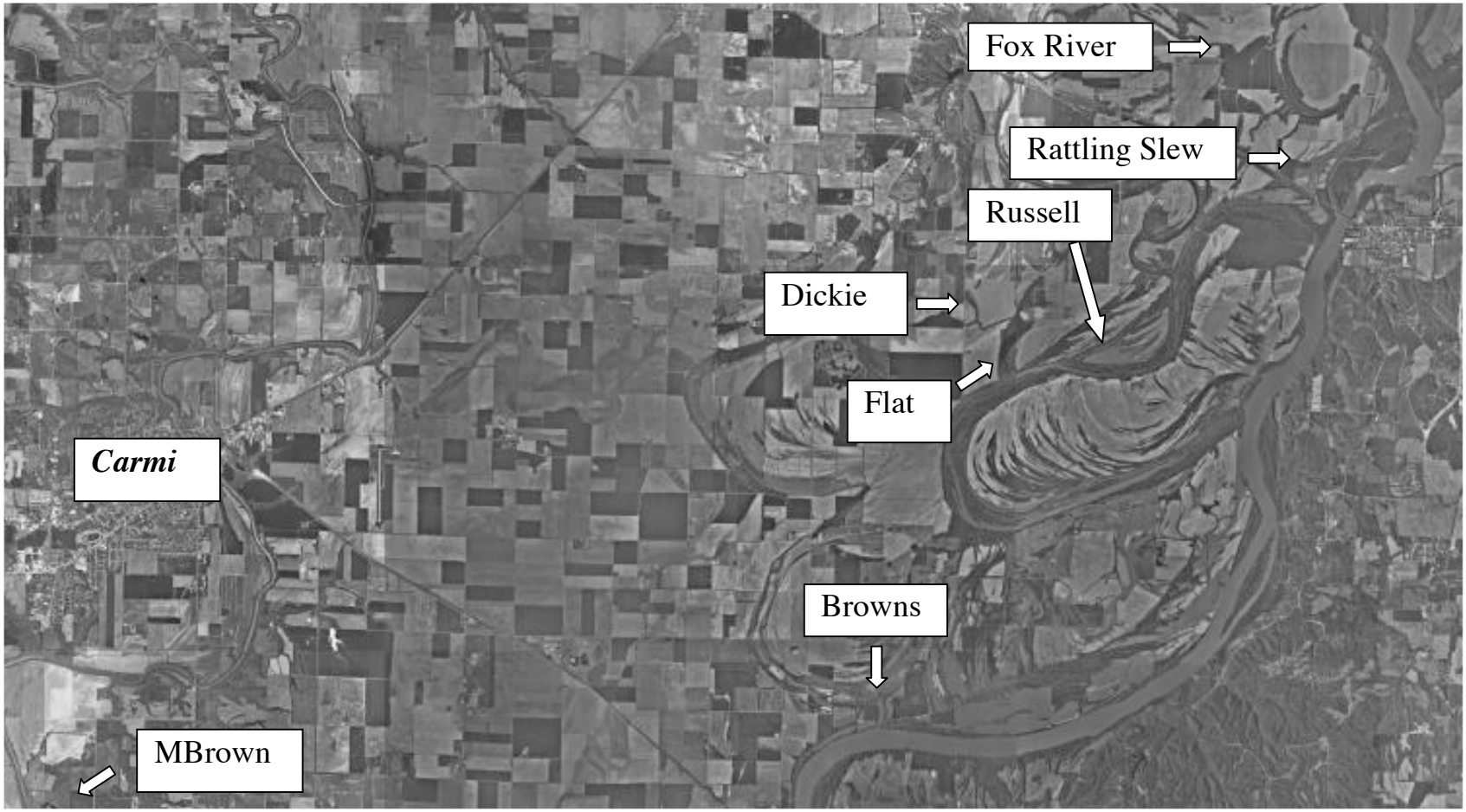
The sampled ponds were located east of Brookport, IL in the Ohio River floodplain. The yellow box on topographic map indicates the area targeted. Ponds are labeled below on an aerial photograph.



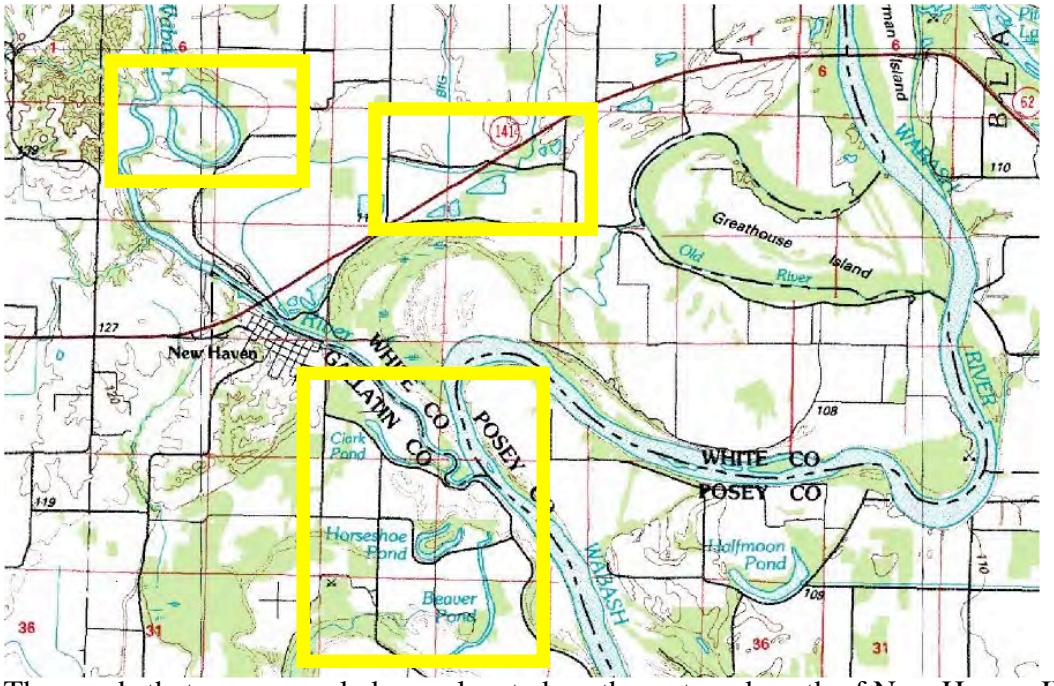
1b) Carmi Location



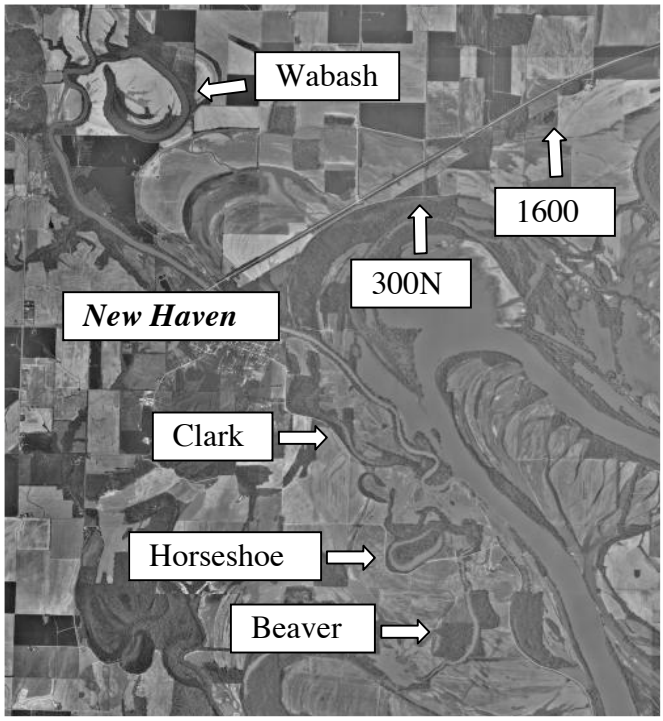
The ponds that were sampled were located east and south of Carmi, IL in the Wabash River and Little Wabash River floodplain. The yellow box on topographic map indicates the area targeted. Ponds are labeled on the aerial photograph (below).


Fox River
Rattling Slew
Russell
Dickie
Flat
Carmi
Browns
MBrown

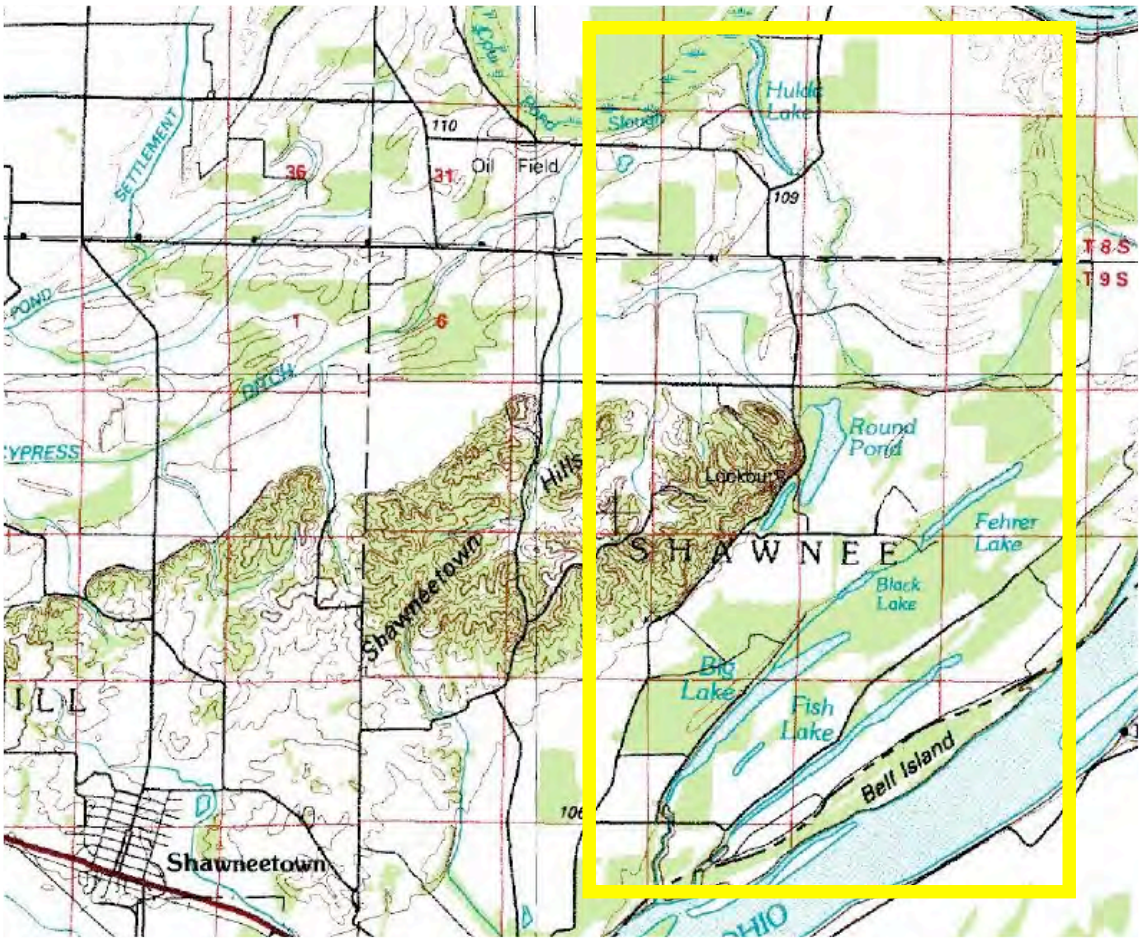
1c) New Haven



The ponds that were sampled were located north, east, and south of New Haven, IL in the Wabash River and Little Wabash River floodplain. The yellow box on topographic map indicates the area targeted. Ponds are labeled on the aerial photograph (below).

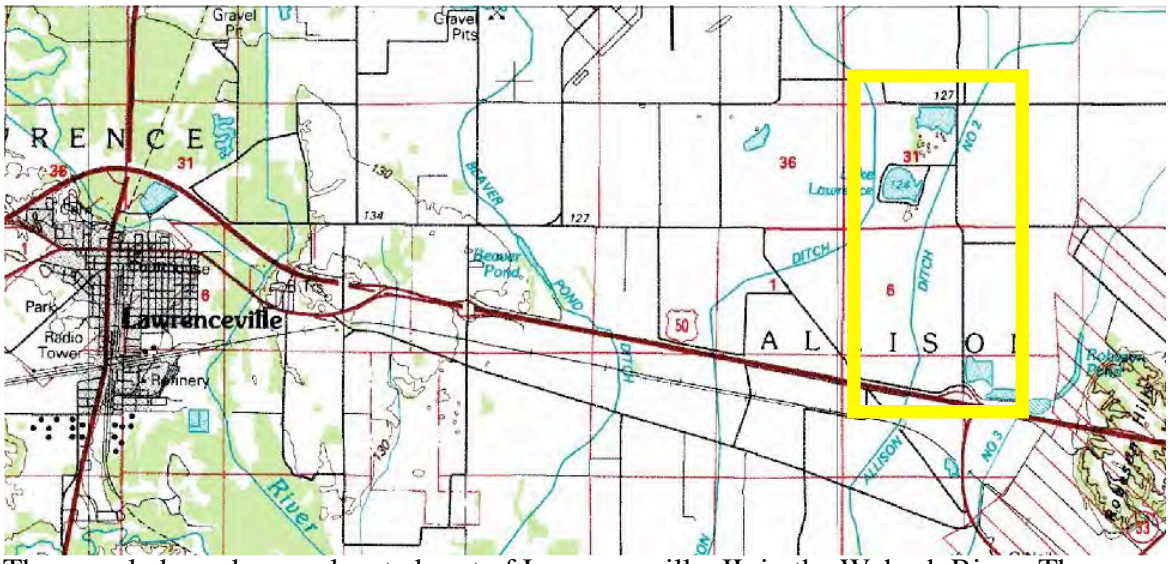


1d) Shawneetown

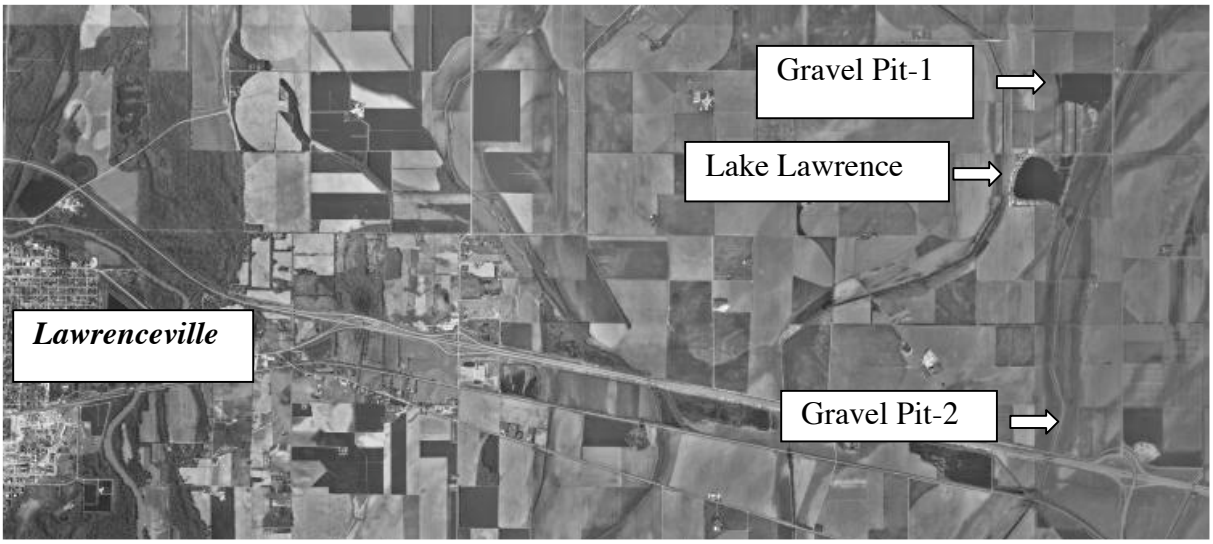


Ponds sampled were located east and northeast of Shawneetown, IL. No aerial photograph is included because all ponds sampled were labeled on the topographic map.

1e) Lawrenceville



The sampled ponds were located east of Lawrenceville, IL in the Wabash River. The yellow box on topographic map indicates the area targeted. Ponds are labeled on the aerial photograph (below).



1f) White County (Norris City Reservoir)

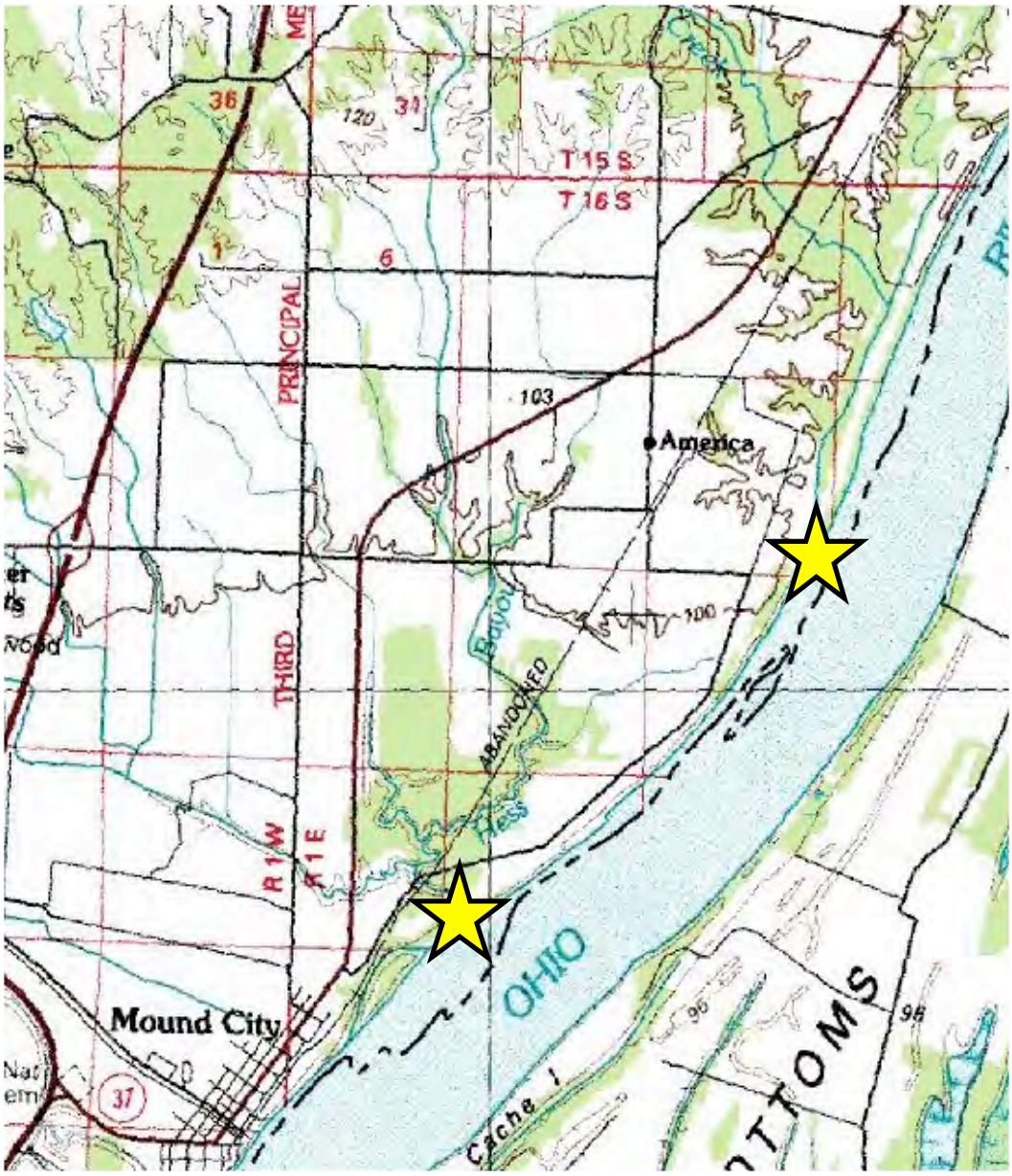
The pond that was sampled was east of Norris City, IL ("City Res."). No aerial photograph was included because all ponds sampled were labeled on the topographic map.

1g) Hardin County (Horseshoe Bend)

The ponds that were sampled were located west of New Haven, IL in the Ohio River floodplain. The pond is labeled on the aerial photograph (below).

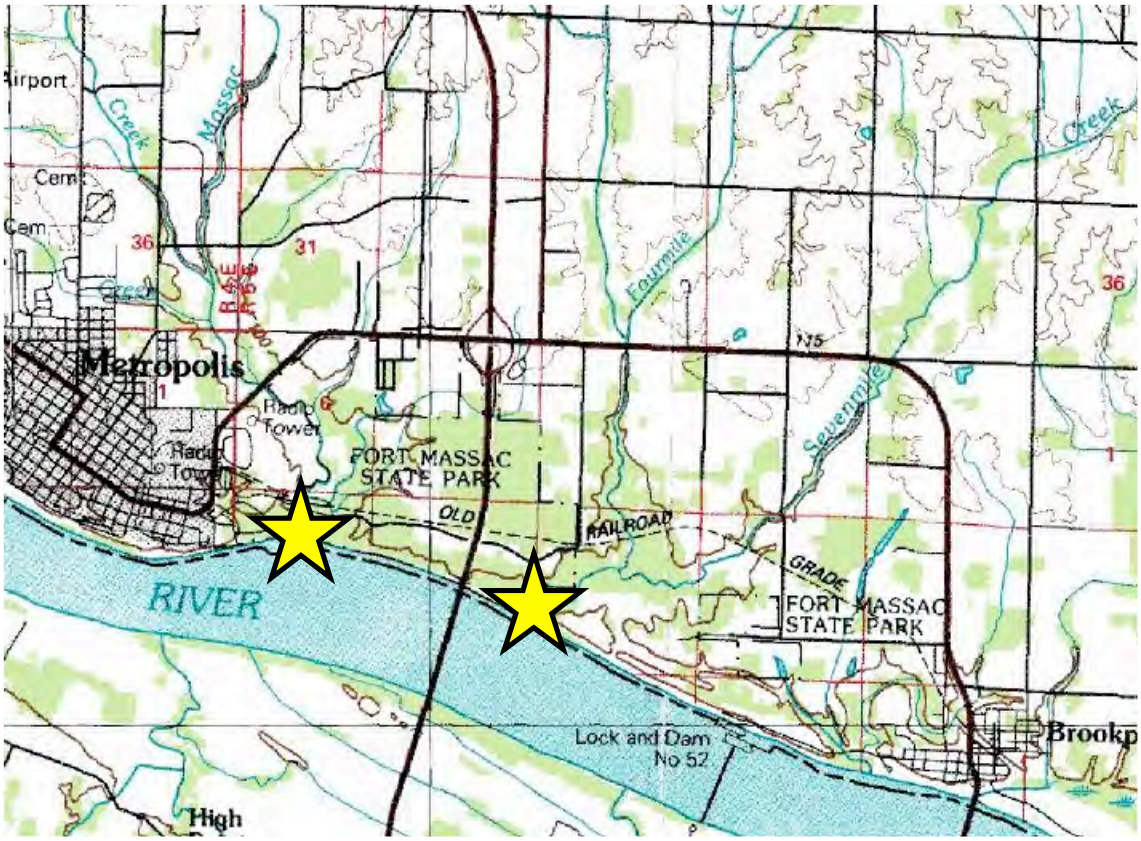
1h) Ohio River

a) Hess Bayou Mouth and Hodges Creek Mouth



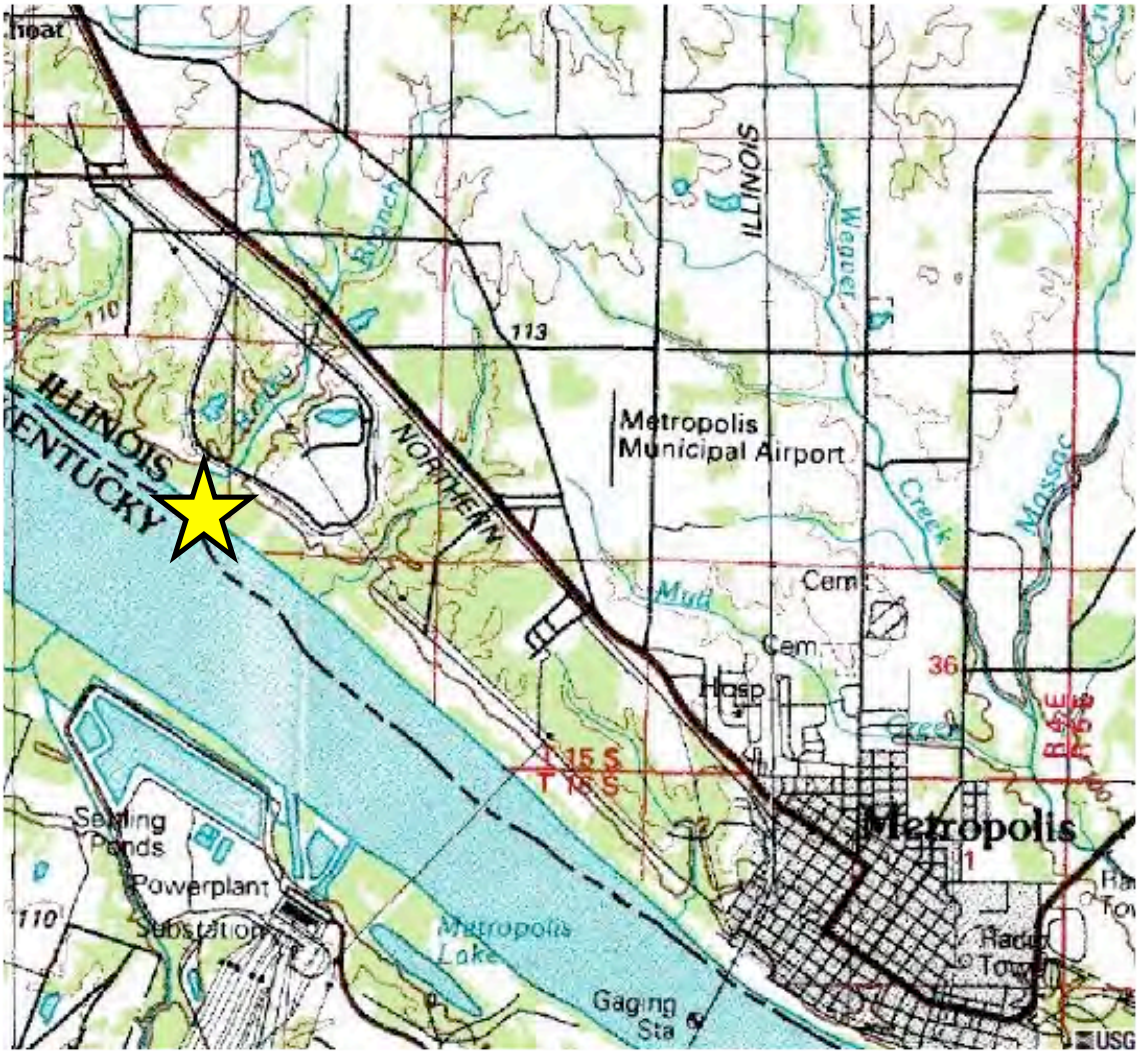
The creek/bayou mouths were located northeast of Mound City, IL. The sampled sites are marked with stars.

b) Massac Creek mouth and Sevenmile Creek mouth



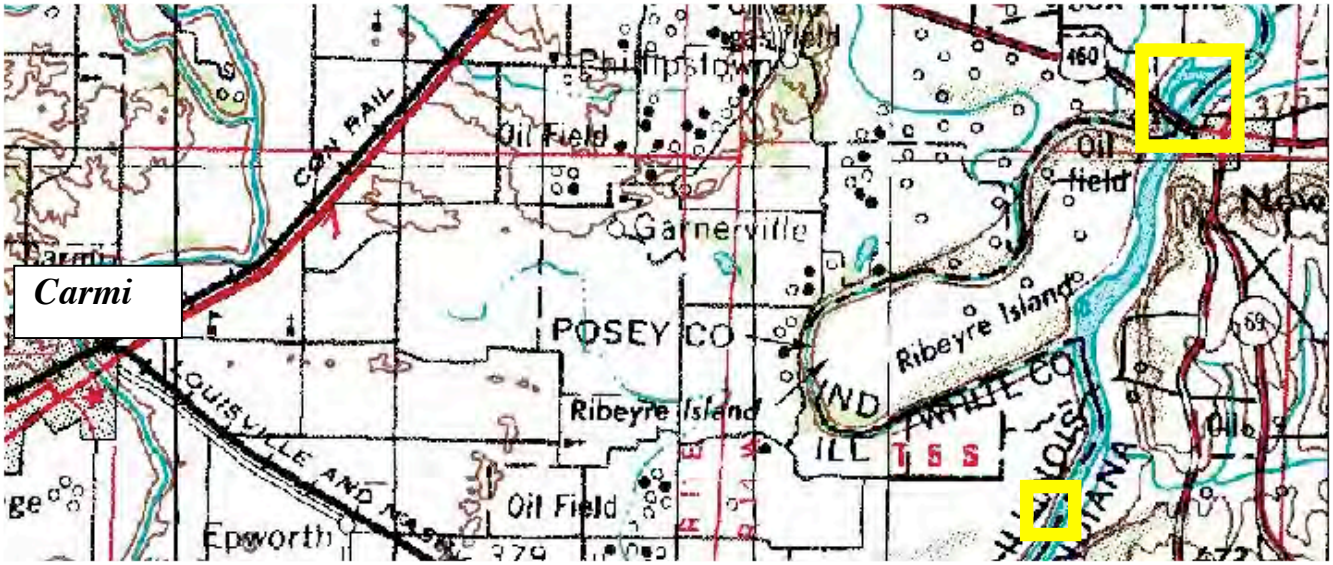
The creek mouths were located east of Metropolis, IL. The sampled sites are marked with stars.

c) Rocky Branch mouth



The creek mouth was located west of Metropolis on the Ohio River. The sampled site is marked with a star.

1i) Wabash River



Three sites were targeted along the Wabash River and are indicated by the yellow boxes above and are labeled below.

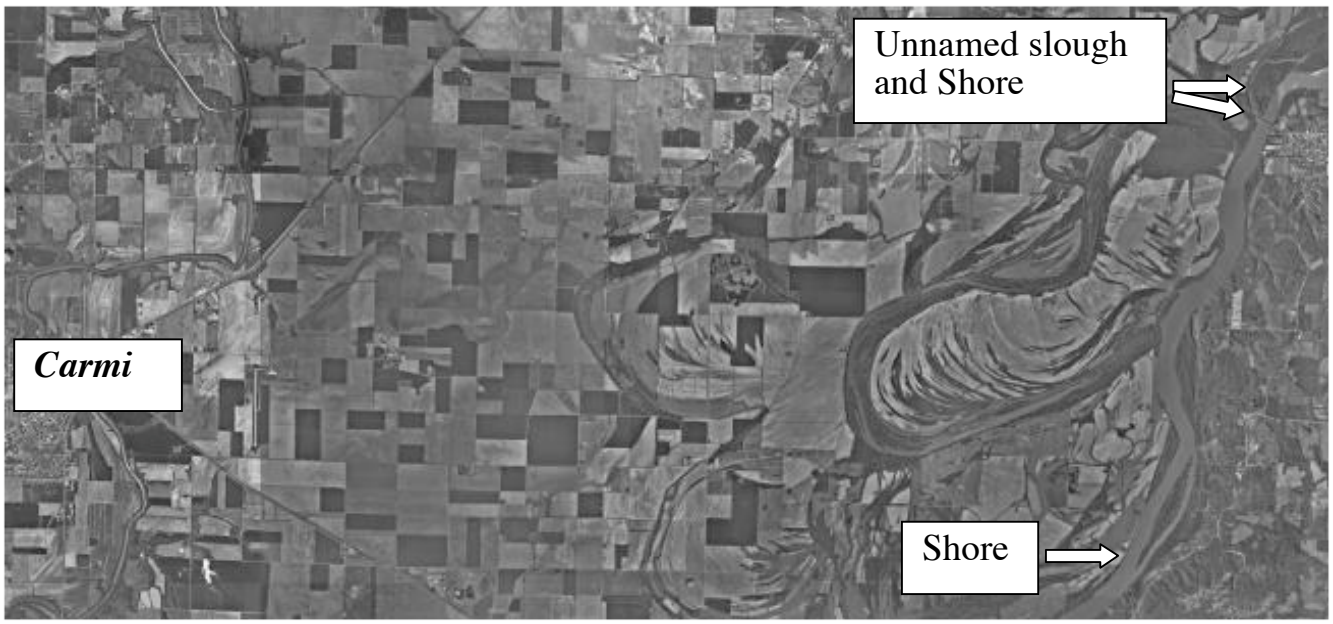


Figure 2. Pond Sites and Trap Effort in 2005

General Location	Pond Site	Start Date of Trapping	Lat. (N)	Long. (W)	Trap Hours 2005	Number of Days Visited
New Haven						
	1600	8/10/05	37.93276	88.08106	239.2	8
	300N	8/10/05	37.92294	88.09921	245	5
	Beaver	8/10/05	37.88193	88.09266	182	4
	Clark	8/10/05	37.8937	88.10888	251	5
	Horseshoe	8/10/05	37.881	88.10384	90.5	4
	Wabash	8/12/05	37.93217	88.13158	298.5	6
				TOTAL	**1306.2**	**8**
Shawneetown						
	Hulda	8/16/05	37.7843	88.1038	139	3
	Round	8/16/05	37.7564	88.0986	286	3
				TOTAL	**425**	**3**
White County						
	Norris City Reservoir	8/4/05	37.98103	88.31398	708.25	5
				TOTAL	**708.25**	**5**
				Total of All Ponds	**2439.45**	**16**

Figure 3. Pond Locations and Turtle Species Captured in 2005

General Location	Total Trap Hours	Total Number of Days	Total Number Turtles	*Apalone spinifera*	*Chelydra serpintena*	*Chrysemys picta*	*Graptemys* sp.	*Pseudemys concinna*	*Sternotherus odoratus*	*Trachemys scripta*
New Haven	1306.2	8	79	1	8	3	1	1	0	65
Shawneetown	425	3	49	0	2	3	0	0	8	36
White County	708.25	5	77	0	2	9	0	0	18	48
Total	**2439.45**	**16**	**205**	**1**	**12**	**15**	**1**	**1**	**26**	**149**

Graptemys species captured included 1 *Graptemys pseudogeographica*.

Figure 4. Pond Sites and Trap Effort in 2006

General Location	Pond Site	Start Date of Trapping	Lat. (N)	Long. (W)	Trap Hours 2006	Number of Days Trapped
Brookport						
	Avery	6/17/06	37.0795	88.4897	192.5	7
	Beaver Dam	6/17/06	37.0712	88.5103	500.25	7
	Brushy	6/17/06	37.1003	88.5816	668	7
	Kinneman	6/17/06	37.0892	88.5596	791.75	7
	Loon	6/17/06	37.1044	88.5808	334	7
				TOTAL	**2486.5**	**7**
Carmi						
	Browns	7/26/06	38.0556	88.0289	464	6
	Dickie	7/31/06	38.1195	88.0135	255	5
	Flat	7/29/06	38.1136	88.0022	348	9
	Mbrown	7/26/06	38.0452	88.1891	420	6
	Russell	7/29/06	38.1122	87.9944	391	8
				TOTAL	**1878**	**12**
New Haven						
	1600	8/16/06	37.93276	88.08106	481	10
	300N	8/16/06	37.92294	88.09921	477.5	10
				TOTAL	**958.5**	**10**
Shawneetown						
	Big	8/22/06	37.7258	88.1162	300	3
	Fish	8/22/06	37.7227	88.1069	231	3
	Hulda	8/16/06	37.7843	88.1038	152.25	2
	Round	8/16/06	37.7564	88.0986	488	5
				TOTAL	**1171.25**	**9**
Hardin County						
	Horseshoe Bend	6/26/06	37.4277	88.3941	377	4
				TOTAL	**377**	**4**
White County						
	Norris City Reservoir	8/2/06	37.98103	88.31398	406.5	6
				TOTAL	**406.5**	**6**
				Total of All Ponds	**7277.75**	**48**

Figure 5. Pond Locations and Turtle Species Captured in 2006

General Location	Total Trap Hours	Total Number Days	Total Number Turtles	*Apalone spinifera*	*Chelydra serpintena*	*Chrysemys picta*	*Graptemys* sp.	*Pseudemys concinna*	*Sternotherus odoratus*	*Trachemys scripta*
Original Sites										
Brookport	2486.5	8	108	2	11	0	6	0	2	87
Carmi	1878	10	132	0	18	1	0	0	2	111
Lawrenceville	0	0								
New Haven	958.5	11	18	0	0	0	0	0	0	18
Shawneetown	1171.25	10	106	3	0	3	2	0	3	95
Additional Sites										
Hardin County	377	5	18	0	0	0	0	0	0	18
White County	406.5	7	32	2	5	2	0	0	9	14
Total	**7277.75**	**51**	**414**	**7**	**34**	**6**	**8**	**0**	**16**	**343**

Graptemys species captured included: 1 *Graptemys geographica*, 1 *Graptemys ouachitensis*, and 6 *Graptemsy pseudogeographica*.

Figure 6. Pond Sites and Trap Effort in 2008

General Location	Pond Site	Start Date of Trapping	Lat. (N)	Long. (W)	Trap Hours 2008	Number of Days Trapped
Ohio River						
	Hess Bayou mouth	8/25/08	37.10001	89.13408	~120 (5 trap days)	1
	Hodges Creek mouth	8/25/08	37.12671	89.10321	~120 (5 trap days)	1
	Massac Creek mouth	8/26/08	37.14399	88.69826	~120 (5 trap days)	1
	Sevenmile Creek mouth	8/26/08	37.13624	88.67224	~120 (5 trap days)	1
	Rocky Branch mouth	8/27/08	37.1843	88.78925	~120 (5 trap days)	1
				TOTAL	**600**	**3**
Wabash River						
	un-named Slough, 0.2 km upstr Rt 14 bridge	10/13/08	38.13969	87.93663	~120 (5 trap days)	1
	Shore, 0.1 km upstr Rt. 14 bridge	10/13/08	38.13618	87.94062	~144 (5 trap days)	1
	Shore near toe of Mink Island	10/14/08	38.08072	87.95432	~144 (5 trap days)	1
				TOTAL	**408**	**2**
				Total of All Ponds	**1008**	**5**

Figure 7. Pond Locations and Turtle Species Captured in 2008

General Location	Total Trap Hours	Total Number Days	Total Number Turtles	*Apalone spinifera*	*Chelydra serpintena*	*Chrysemys picta*	*Graptemys* sp.	*Pseudemys concinna*	*Sternotherus odoratus*	*Trachemys scripta*
Ohio River	600	3	32	0	0	0	2	0	0	30
Wasbash River	408	2	12	0	0	0	0	0	0	12
Total	**1008**	**5**	**44**	**0**	**0**	**0**	**2**	**0**	**0**	**42**

Graptemys species captured included: 1 *Graptemys ouachitensis*, and 1 *Graptemys pseudogeographica*.

Figure 8. Ponds Examined During the 2008 Spotting Scope Survey

General Location	Site	Start Date	Number of Days Surveyed	N	W	Notes
Lawrenceville						
	Gravel Pit (1200N/1900E)	10/9/08	2	38.74654	87.55693	Numerous red-eared slider turtles, not likely cooter habitat
	Lake Lawrence	10/9/08	2	38.73928	87.5684	No basking turtles, pond is surrounded by housing development, not likely cooter habitat
	Gravel Pit (1900E/US-50)	10/9/08	2	38.71772	87.55442	Few basking turtle (unidentified), does not look like cooter habitat
Carmi						
	Rattling Slew	10/9/08	2	38.14201	87.95863	Appears very shallow and possibly ephemeral, identified juvenile slider turtles
	Fox River	10/9/08	2	38.15812	87.96796	Abundant vegetation, slider turtles present
	Dickie	10/9/08	1	38.1195	88.0135	Possible cooter habitat, no cooters seen
New Haven						
	Beaver	10/9/08	1	37.88193	88.09266	Habitat looks good for rivier cooters, none were seen, however. Adjacent to a site where cooters have been captured
	Wabash	10/9/08	1	38.1195	88.0135	Habitat looks good for river cooters, slider turtles present

Attempts were made to survey numerous other ponds, but they were inaccessible due to washed out back roads.

Figure 9. All Pond Sites and Total Trap Effort from 2005-2008.

General Location	Pond Site	Years Visited	Lat. (N)	Long. (W)	Trap Hours 2005-2008	Number of Days Trapped
Target Sites						
Brookport						
	Avery	2006	37.0795	88.4897	192.5	7
	Beaver Dam	2006	37.0712	88.5103	500.25	7
	Brushy	2006	37.1003	88.5816	668	7
	Kinneman	2006	37.0892	88.5596	791.75	7
	Loon	2006	37.1044	88.5808	334	7
				TOTAL	**2486.5**	**7**
Carmi						
	Browns	2006	38.0556	88.0289	464	6
	Dickie	2006	38.1195	88.0135	255	5
	Flat	2006	38.1136	88.0022	348	9
	Mbrown	2006	38.0452	88.1891	420	6
	Russell	2006	38.1122	87.9944	391	8
				TOTAL	**1878**	**12**
Lawrenceville		Spotting Scope Survey Only				
				TOTAL	**0**	**0**
New Haven						
	1600	2005, 2006	37.93276	88.08106	720.2	18
	300N	2005, 2006	37.92294	88.09921	722.5	15
	Beaver	2005	37.88193	88.09266	182	4
	Clark	2005	37.8937	88.10888	251	5
	Horseshoe	2005	37.881	88.10384	90.5	4
	Wabash	2005	37.93217	88.13158	298.5	6
				TOTAL	**2264.7**	**18**
Shawneetown						
	Big	2006	37.7258	88.1162	300	3
	Fish	2006	37.7227	88.1069	231	3
	Hulda	2005, 2006	37.7843	88.1038	291.25	3
	Round	2005, 2006	37.7564	88.0986	774	8
				TOTAL	**1596.25**	**12**
Additional Sites						
Hardin County						
	Horseshoe Bend	2006	37.4277	88.3941	377	4
				TOTAL	**377**	**4**
White County						
	Norris City Reservoir	2005, 2006	37.98103	88.31398	1114.75	11
				TOTAL	**1114.75**	**11**
Ohio River						
	Hess Bayou mouth	2008	37.10001	89.13408	~120 (5 trap days)	1
	Hodges Creek mouth	2008	37.12671	89.10321	~120 (5 trap days)	1
	Massac Creek mouth	2008	37.14399	88.69826	~120 (5 trap days)	1
	Sevenmile Creek mouth	2008	37.13624	88.67224	~120 (5 trap days)	1
	Rocky Branch mouth	2008	37.1843	88.78925	~120 (5 trap days)	1
				TOTAL	**600**	**3**
Wabash River						
	un-named Slough, 0.2 km upstr Rt 14 bridge	2008	38.13969	87.93663	~120 (5 trap days)	1
	Shore, 0.1 km upstr Rt. 14 bridge	2008	38.13618	87.94062	~144 (5 trap days)	1
	Shore near toe of Mink Island	2008	38.08072	87.95432	~144 (5 trap days)	1
				TOTAL	**408**	**2**
				Total of All Ponds	**10725.2**	**69**

Figure 10. All Pond Locations and Turtle Species Captured from 2005-2008.

General Location	Total Trap Hours	Total Number Days	Total Number Turtles	*Apalone spinifera*	*Chelydra serpintena*	*Chrysemys picta*	*Graptemys* sp.	*Pseudemys concinna*	*Sternotherus odoratus*	*Trachemys scripta*
Original Sites										
Brookport	2486.5	7	108	2	11	0	6	0	2	87
Carmi	1878	12	132	0	18	1	0	0	2	111
Lawrenceville	0	0								
New Haven	2264.7	18	97	1	8	3	1	1	0	83
Shawneetown	1596.25	12	155	3	2	6	2	0	11	131
Additional Sites										
Hardin County	377	4	18	0	0	0	0	0	0	18
White County	1114.75	11	109	2	7	11	0	0	27	62
Ohio River	600	3	32	0	0	0	2	0	0	30
Wasbash River	408	2	12	0	0	0	0	0	0	12
Total	**10725.2**	**69**	**663**	**8**	**46**	**21**	**11**	**1**	**42**	**534**

Graptemys species captured included: 1 *Graptemys geographica*, 2 *Graptemys ouachitensis*, and 8 *Graptemys pseudogeographica*.