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Southern Illinois University at Carbondale
Carbondale, Illinois 62901-6501

Department of Zoology
618-536-2314

7 August 1987

Mr. Carl Becker
Nongame Wildlife Fund Advisory Committee
Division of Natural Heritage
Illinois Department of Conservation
524 S. Second Street
Springfield, IL 62706

Dear Carl:

Enclosed you will find the final report entitled "Wetland Resources of the Ohio and Lower Wabash Rivers: An Inventory of the Fishes, Mussels, and Crayfishes" by Brooks M. Burr and Melvin L. Warren, Jr. Also a partial set of color transparencies of most of the sampled sites is included. The remainder of the transparencies will be mailed in the near future.

We trust that copies of this report will be distributed by your office to Heritage personnel in the relevant districts. Ms. Judy Faulkner of the INPC staff has requested a copy, and she suggested that Mr. Larry Stritch of the Heritage staff could use the information.

We appreciate the support the Committee has given us on this project and the cooperation of the Heritage staff. Given our findings, we hope the Committee will look favorably on more inventory work in the remaining wetlands of Illinois. Please feel free to call if we can be of assistance in any way.

Sincerely,

Brooks M Burr

Brooks M. Burr
Professor of Zoology

FINAL REPORT: WETLAND RESOURCES OF THE OHIO AND LOWER WABASH RIVERS - AN INVENTORY OF FISHES, MUSSELS, AND CRAYFISHES

SUBMITTED TO

THE NONGAME WILDLIFE FUND ADVISORY COMMITTEE

DIVISION OF NATURAL HERITAGE

ILLINOIS DEPARTMENT OF CONSERVATION

524 S. SECOND STREET

SPRINGFIELD, ILLINOIS 62706

BY

BROOKS M. BURR AND MELVIN L. WARREN, JR.

DEPARTMENT OF ZOOLOGY

SOUTHERN ILLINOIS UNIVERSITY

CARBONDALE, IL 62901

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ACKNOWLEDGMENTS

The principal investigators wish to thank the Nongame Wildlife Advisory Committee and the Illinois Department of Conservation for the opportunity to inventory the fishes, mussels, crayfishes, and shrimps in the wetlands along the lower Wabash and Ohio rivers. Our survey benefitted greatly from information provided by Kevin S. Cummings of the Illinois Natural History Survey on mussels. Kevin S. Cummings and Larry M. Page verified and confirmed our identifications of mussels and crayfishes.

Our research assistants, Penny Keller and Lisa A. Lowry, provided help in the field and laboratory and aided us in completion of this survey. We thank Karen L. Fiorino, Dean E. Fletcher, Bernard R. Kuhajda, Michael A. Morris, Mark Peterson, and Jimmy Waddell for additional field assistance at five study sites.

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OBJECTIVES

1) To conduct a survey of natural lowland lakes, sloughs, oxbows, and ponds of the lower Ohio and Wabash river drainages of southeastern Illinois with primary emphasis on inventorying the fishes, crayfishes, and mussels.

2) To identify for possible protection those wetland resources with unique or pristine characteristics and to report drainage or other adverse modifications of any of these areas.

3) To document new state records and range extensions and characterize the fish, crayfish, and freshwater mussel communities inhabiting the wetlands of the study area.

INTRODUCTION

Wetlands share a number of attributes which make them valuable to society. They furnish valuable habitat for birds and terrestrial and aquatic organisms during all or a portion of their lives. Fish and wildlife populations in wetlands are also of recreational and aesthetic value. Flood-water control and storage are two important interrelated functions of wetlands. In spite of the value of wetlands to society, nearly half of our wetlands have been lost nationally. In Illinois, thousands of acres of "wet soils" have been drained for crop or pasture land.

This loss of wetlands stems in part from a lack of basic information regarding wetlands in southern Illinois. In addition to contributing to wetland loss, the dearth of information regarding southern Illinois wetlands severely handicaps state agency review of environmental impact statements, the granting of permits, and the purchase and protection of representative wetland types. These activities have the potential to benefit or harm nongame wildlife depending on the quality of information available to resource managers and decision makers. A first step in providing a quality data base and stemming wetland losses is identification of the remaining wetland resources and an inventory of their biological attributes. This is a prerequisite to prioritization for protection and management and to insure the future integrity of Illinois' natural heritage.

We qualitatively surveyed 21 lakes and wetlands along the lower Wabash and Ohio river drainages of Illinois in an effort to provide information on the fish, mussel, and crayfish communities present in these wetlands.

PROJECT LOCATION

The major wetlands sampled along the lower Ohio and Wabash River drainages of southeastern Illinois are listed in Table 1 and located on Figure 1. Exact localities are given with each site description. Seven other sites were reconnoitered and not selected as sampling sites (Table 2).

METHODS

Qualitative methods were used in the collection of mussels and crayfishes. In order to inventory as many species as possible, samples were collected from a variety of habitats in each wetland visited. The qualititative methods involved the use of dip nets, a 2.0 m x 1.3 m - 0.13 cm square mesh seine, and a 6.0 m x 1.2 m bag seine with 12 mm square mesh. At each site searches were conducted

Table 1. Major wetlands sampled along the lower Ohio and Wabash river drainages.

Massac County

1. Allard Lake (T16S, R6E, Sec. 19)
2. Loon Lake (T16S, R6E, Sec. 20)
3. Unnamed wetland, trib. Mud Creek (T16S, R6E, Sec. 21)
4. Kinneman Lake (T16S, R6E, Sec. 28)
5. Beaverdam Lake (T16/17S, R6E, Sec. 1 & 35)

Pope County

6. Burgess Pond (T16S, R7E, Sec. 21)
7. Black Slough (T13S, R5E, Sec. 32-33, T14S, R5E, Sec. 4 & 5)
8. unnamed lake near mouth of Bay Creek (T14S, R6E, Sec. 26)

Gallatin County

9. Big Lake and Millrace Slough (T9S, R10E, Sec. 21 & 28)
10. Unnamed wetland bet. Big Lake and Fish Lake (T9S, R10E, Sec. 21)
11. Black Lake (T9S, R10E, Sec. 15)
12. Long Pond (T9S, R10E, Sec. 9)
13. Hulda Lake (T8S, R10E, Sec. 28 & 34)
14. Yellowbank Slough (T8S, R10E, Sec. 7)
15. Goose Pond (T8S, R10E, Secs. 4 & 5)
16. Cattail Slough (T8S, R10E, Sec. 5)
17. Beaver Pond (T7S, R10E, Sec. 27)
18. Horseshoe Pond (T7S, R10E, Sec. 27)

White County

19. Brushy Slough (T7S, R10E, Sec. 15)
20. The Bayou (T7S, R10E, Sec. 7 & 8)
21. Old River (T7S, R10E, Secs. 11 & 12)

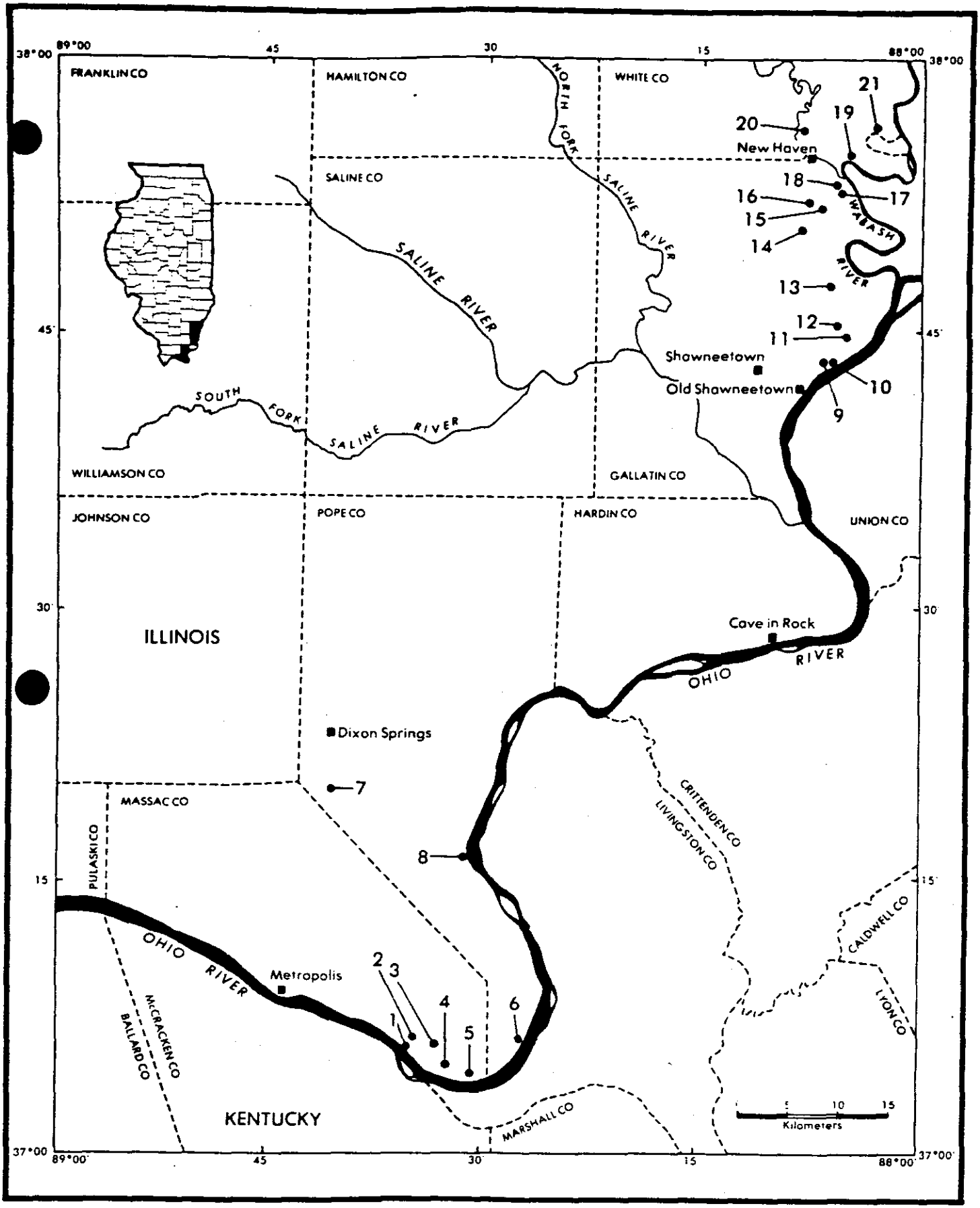

Figure 1. Locations of sampling sites, selected towns, major river drainages, and county borders in the lower Wabash and Ohio river drainages, southeastern Illinois. Numbers associated with closed circles refer to sampling sites listed in Table 1.

Table 2 . Seven sites reconnoitered and not selected as sampling sites. Locality data are followed by habitat remarks.

Bay Creek-Ohio River drainage
Unnamed sloughs, 7.2 km ESE Reevesville, 4.0 km E Hwy 145, T14S, R5E, Sec. 2, Pope Co., IL. 13 July 1987. Forest intact, some scattered bald cypress trees; water confined to small pool all less than 0.75 m deep.

Unnamed wetland, 3.9 km SSE Homberg, T14S, R6E, Sec. 15, Pope Co., IL. 14 July 1987. Forest around edges; pool almost dry (less than 0.15 m depth).

Ohio River drainage
Unnamed lake, ca. 4.8 km E Paducah, KY, T16S, R6E, Sec. 34, Massac Co., IL. 14 July 1987. Farmed to margin with a few silver maples lining banks.

Shallow slough to Beaverdam Lake, ca. 6 km E Paducah, KY, T16S, R6E, Sec. 35, Massac Co., IL. 14 July 1987. Depth less than 0.3 m; soft silt to 0.15 m; water clear with abundant algae; poor fish diversity.

Fish Lake, NE Old Shawneetown, T9S, R10E, Sec. 21-22, Gallatin Co., IL. 16 July 1987. Farmed to bank on S side, very small buffer zone of trees elsewhere; steep bank on N side by road; water turbid; outlet tributary dry.

Little Wabash River drainage
Cow Pond Slough, 14.4 km S New Haven, T8S, R10E, Secs. 29 & 32, Gallatin Co., IL. 16 July 1987. Small ditch (less than 5 m width), algae choked, little flow, muck to 1 m.

Clark Pond, 1.6 km S New Haven, T7S, R10E, Sec. 21, Gallatin Co., IL. 21 July 1987. Water extremely turbid, buttonbush on shore, very narrow riparian margin of trees.

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for fresh crayfish burrows, and if present, they were excavated by hand or shovel. Freshwater mussels were hand picked from the substrate, and any fresh dead or relict shells were gathered from the shoreline and muskrat middens. Crayfishes and mussels taken incidental to fish collecting were also retained.

In order to determine the composition of the fish fauna qualitative sampling was employed. Due to the variety of wetland types chosen, it was necessary to vary sampling techniques to meet the situation. Selected deepwater wetland habitats (1.2+ m) were sampled using two 100-m gill nets; one accessible area was sampled using a boat-mounted electroshocker. Qualitative sampling of representative habitats in each wetland were conducted by a 2-4 person team using 1.8 m x 3.0 m - 0.63 cm square mesh seines and a 6 m bag seine. Each representative habitat was sampled repeatedly until the process failed to produce additional species.

Representative specimens of all species collected were fixed in 10% buffered formalin and stored in 70% ethanol. Voucher specimens of all fish species are deposited in the SIUC ichthyological research collection. Voucher specimens of all mussel and crayfish species are deposited in the permanent research collections of the Illinois Natural History Survey.

Site descriptions and physical features were taken from field notes and observations and U.S.G.S. 7.5 minute topographic maps. When available early editions of the topographic maps were compared with updated editions to document clearing of wetland forests and drainage of wetlands. When possible lengths and maximum widths of wetlands (primarily floodplain lakes and well-defined oxbows) were approximated from the latest available edition of topographic maps. Goose Pond (Site Number 15), Black Lake (Site Number 11), and Cattail Slough (Site Number 16) were visited and sampled by Bernard Kuhajda and Mark Peterson (both former graduate students at SIUC). We have used descriptive information provided by them in characterizing these sites.

In an effort to summarize and classify major aquatic habitats at each sampled site, we adopted the following definitions (modified from Cowardin et al. 1979 and Burr and Warren 1986). Lacustrine habitat includes permanently flooded lakes generally greater than 8 ha in surface area with all of the following characteristics: (1) situated in a dammed river channel or topographic depression; (2) lacking trees, shrubs, and emergent vegetation with greater than 30% areal coverage; and (3) the deepest part of the basin exceeds 2 m at low water. Palustrine habitat includes wetlands dominated by trees, shrubs, and/or emergent vegetation or those lacking such vegetation but with both of the following characteristics: (1) surface area less than 8 ha and (2) water depth less than 2 m at low water. Habitat modifiers were also applied to each site and are defined in Table 3.

A list of fish, shrimp and crayfish, and mussel species for each site is provided with the site description and Tables 4-6. Range extensions, range augmentations, and additions to the state fauna generally are noted within each site description and summarized in Major Findings and Table 7. These comments are based on comparisons of our collections with the range maps of Smith (1979) for fishes, Page (1985) for shrimps and crayfishes, and Kevins S. Cummings (unpublished data) for mussels.

Table 3. Vegetation/cover modifiers for major aquatic habitats along the lower Wabash and Ohio rivers, southeastern Illinois (modified from Cowardin et al. 1979 and Burr and Warren 1986).

(A) Emergent: erect, rooted, herbaceous hydrophytes (e.g., Sagittaria spp., Saururus cernuus)

(B) Aquatic Bed: plants growing principally on or below the surface (e.g., Ceratophyllum spp., Lemna spp., Nelumbo lutea, Nuphar spp., Nymphaea spp., Potamogeton spp.)

(C) Scrub-Shrub: woody vegetation (e.g., Cephalanthus occidentalis)

(D) Forested: woody vegetation (e.g., Taxodium distichum, Nyssa aquatica)

(E) Other Cover: standing and fallen timber, tree roots, and undercut banks

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MAJOR FINDINGS

Fishes

A total of 53 fish species was collected during this survey including a number of significant distributional records for 15 of these species (Table 4). The lake chubsucker, previously known from only the northern half of Illinois (Smith 1979), was found in Yellowbank Slough, representing the first record from the southern half of the state. Yellowbank Slough was the only locality where the species was found, and only young-of-the-year were captured. This indicates that recent reproduction has occurred and recruitment of the species continues.

The first records from southeastern Illinois of the paddlefish, spotted gar, black buffalo, and dusky darter were obtained during this survey. One record each of the spotted gar and black buffalo was found for the Ohio and Wabash River drainages, respectively. The paddlefish was captured only from Old River but was reported by fishermen to occur in some of the other lakes sampled (e.g., Kinneman Lake, Big Lake). Smith (1979) reported one modern record of the paddlefish from the mouth of the Little Wabash River. The dusky darter was previously known in Illinois only from the Vermilion, Embarras, and Little Wabash River drainages in the central part of the state. One dusky darter was obtained from an unnamed lake near the mouth of Bay Creek, the first record for the southern one-third of Illinois.

Noteworthy distributional records were also obtained for the shortnose gar, bowfin, central mudminnow, pugnose minnow, tadpole madtom, spotted sunfish, flier, and mud darter. The shortnose gar, bowfin, tadpole madtom, and mud darter occur throughout the state and our new records (Table 4) fill in a distributional hiatus for these species in southeastern Illinois. The central mudminnow, pugnose minnow, spotted sunfish, and flier have more restricted ranges in Illinois and merit additional comment. The central mudminnow was formerly known from only one modern record (1975) adjacent to the Wabash River, Gallatin County (Smith 1979). We obtained additional specimens of this species from Goose Pond, Gallatin County, confirming the continued existence of the species in southeastern Illinois. The pugnose minnow had not been previously reported from Gallatin County and has shown a drastic reduction in range in Ohio and lower Wabash river tributaries (Smith 1979). It occurred at 11 of 21 sites sampled. Smith (1979) recorded two modern records (both 1975) of the spotted sunfish from wetlands along the lower Wabash River. We obtained specimens of spotted sunfish at 9 of 21 sites in our survey, filling in a distributional hiatus along the Ohio and lower Wabash rivers. The spotted sunfish is presently being considered for inclusion on the Illinois threatened species list by the Department of Conservation. The flier had not been previously encountered in Gallatin County and was believed extirpated from the Wabash River drainage of Illinois (Smith 1979). Capture of a specimen from Goose Pond confirms the continued existence of the species in the Wabash drainage.

Notable records for another fish species, the Mississippi silvery minnow, were also obtained during this survey. This species is widespread throughout Illinois but is far less generally distributed than formerly (Smith 1979). Siltation, pollution, and fluctuations in stream sizes have reduced its range in southern Illinois (Smith 1979). We obtained specimens of the Mississippi silvery minnow from 3 of 21 sites. All were young-of-the-year and confirm that the species continues to reproduce at the reported localities (Table 4).

Table 4. Fish species collected at specific survey sites along the lower Wabash and Ohio rivers, southeastern Illinois.

TAXON	SITE NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Family Polyodontidae																					
Polyodon spathula (Paddlefish)																					x
Family Lepisosteidae																					
Lepisosteus oculatus (Spotted Gar)		x									x										x
Lepisosteus platostomus (Shortnose Gar)		x																			x
Family Amiidae																					
Amia calva (Bowfin)			x			x							x								x
Family Clupeidae																					
Alosa chrysochloris (Skipjack Herring)								x	x												
Dorosoma cepedianum (Gizzard Shad)	x	x			x			x	x				x		x			x			x
Dorosoma petenense (Threadfin Shad)	x							x													
Family Umbridae																					
Umbra limi (Central Mudminnow)															x						
Family Esocidae																					
Esox americanus (Grass Pickerel)			x			x			x					x	x						x
Family Cyprinidae																					
Cyprinus carpio (Common Carp)		x					x							x							x
Hybognathus nuchalis (Mississippi Silvery Minnow)	x							x							x						
Hybopsis storeriana (Silver Chub)								x													

Table 4 continued

TAXON	SITE NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Family Cyprinidae																					
Notemigonus crysoleucas (Golden Shiner)			x				x	x			x			x	x		x				x
Notropis atherinoides (Emerald Shiner)								x	x		x				x						
Notropis blennius (River Shiner)											x										
Notropis emiliae (Pugnose Minnow)	x	x	x		x			x	x	x	x	x					x		x		
Notropis maculatus (Taillight Shiner)			x																		
Notropis shumardi (Silverband Shiner)	x																				
Notropis spilopterus (Spotfin Shiner)								x	x		x				x						
Notropis stramineus (Sand Shiner)																			x		
Notropis volucellus (Mimic Shiner)											x										
Pimephales vigilax (Bullhead Minnow)	x							x			x										
Family Catostomidae																					
Carpiodes cyprinus (Quillback)								x			x										
Erimyzon sucetta (Lake Chubsucker)														x							
Ictiobus bubalus (Smallmouth Buffalo)		x						x													x
Ictiobus cyprinellus (Bigmouth Buffalo)		x																			
Ictiobus niger (Black Buffalo)		x																			x
Minytrema melanops (Spotted Sucker)								x													
Family Ictaluridae																					
Ictalurus natalis (Yellow Bullhead)			x	x			x		x			x									
Ictalurus punctatus (Channel Catfish)		x						x					x								x

Table 4 continued

TAXON	SITE NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Family Ictaluridae																					
Noturus gyrinus (Tadpole Madtom)					x				x			x					x				x
Pylodictis olivaris (Flathead Catfish)		x						x													
Family Aphredoderidae																					
Aphredoderus sayanus (Pirateperch)									x	x	x			x	x				x		
Family Cyprinodontidae																					
Fundulus notatus (Blackstriped Topminnow)	x	x		x	x			x	x	x	x	x	x	x	x		x		x	x	x
Fundulus olivaceus (Blackspotted Topminnow)								x													
Family Poeciliidae																					
Gambusia affinis (Mosquitofish)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x	x
Family Atherinidae																					
Labidesthes sicculus (Brook Silverside)	x	x	x	x				x	x			x	x				x				
Family Centrarchidae																					
Centrarchus macropterus (Flier)							x								x						
Lepomis cyanellus (Green Sunfish)														x							
Lepomis gulosus (Warmouth)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x		x
Lepomis humilis (Orangespotted Sunfish)	x	x	x		x			x	x		x	x	x				x		x	x	x
Lepomis macrochirus (Bluegill)	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x			x	x
Lepomis megalotis (Longear Sunfish)	x				x			x	x		x	x	x						x		
Lepomis microlophus (Redear Sunfish)											x		x								
Lepomis punctatus (Spotted Sunfish)		x			x				x		x	x		x	x		x		x		

Table 4 continued

TAXON	SITE NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Family Centrarchidae																					
Micropterus salmoides (Largemouth Bass)	x	x	x		x		x	x	x	x	x	x	x				x		x		
Pomoxis annularis (White Crappie)	x		x		x		x				x		x				x	x		x	x
Pomoxis nigromaculatus (Black Crappie)					x		x											x			
Family Percidae																					
Etheostoma asprigene (Mud Darter)									x	x	x	x					x		x		
Etheostoma chlorosomum (Bluntnose Darter)			x					x				x	x				x		x		
Etheostoma gracile (Slough Darter)			x						x	x			x	x		x	x		x		x
Percina sciera (Dusky Darter)								x													
Family Sciaenidae																					
Aplodinotus grunniens (Freshwater Drum)		x	x					x	x		x		x								x
Total Number of Species at the Site:	15	19	16	6	13	5	9	27	21	9	22	14	16	12	14	1	15	3	13	5	20

Total Number of Species Known from the Sites: 53

Without question the most significant fish species obtained during this survey was the capture of a taillight shiner from an unnamed wetland in Massac County (Site Number 3). This is the first record of this fish from Illinois. The taillight shiner is a Coastal Plain species whose northern distributional limits were believed to be in northwestern Kentucky where its range abuts the Ohio River (Burr and Warren 1986). Seven juvenile and adult specimens were captured in Illinois; the presence of young-of-the-year individuals indicates that recent reproduction has taken place. This fish occupies oxbow lakes of the lower Ohio and Mississippi rivers in Kentucky and was discovered in a similar environment in southern Illinois. Continued sampling at other seasons of the year and at additional sites may reveal new localities for this handsome new addition to the Illinois fish fauna.

Mussels, Shrimp, and Crayfishes

Freshwater mussels were discovered at eight of 21 sites sampled (Table 6). Because there had been virtually no mussel surveys in the wetlands along the Ohio and lower Wabash rivers prior to ours, all specimens collected are valuable in documenting their occurrence and distribution. A total of 11 species were collected during the survey. According to Kevin S. Cummings of the Illinois Natural History Survey, none of the species collected are rare or otherwise imperiled in the state. All the species collected are adapted to soft substrates and lentic environments. The collection of the flat floater constitutes only the third record for the Ohio River drainage of Illinois including the Wabash River. The presence of the pondmussel in the study area provided the first record for Massac County and the second record for the entire Wabash River drainage. The Texas lilliput previously was unknown from Pope County and was recorded from only two localities in the Ohio and Wabash river drainages of Illinois.

A total of eight species of crayfishes and shrimps was collected during this survey (Table 5). All were previously reported from the region (Page 1985). It is worth noting that three crayfish species we collected (*Cambarellus shufeldtii*, *Orconectes indianensis*, *Procambarus clarkii*, and *Procambarus viaeviridis*) are restricted in the state to southern Illinois, and all are reproducing and showing recruitment at the few sites from which they were captured. The discovery of *Orconectes indianensis* at Brushy Slough (Site Number 19) represents the first record of the species from White County and from the entire Little Wabash River drainage. The three records of *Orconectes virilis* are the first for Gallatin County. This species is otherwise widely distributed throughout the state.

CONCLUSIONS AND RECOMMENDATIONS

Our prognosis for the present and future viability of wetland communities within the area surveyed is a dismal one. Clear cutting and drainage of palustrine wetlands has practically eliminated this habitat from the floodplain of the Ohio and lower Wabash rivers. The remaining lacustrine habitats are most often farmed to the edge of the lake basin with forest and other natural cover confined to steep slopes or extremely low drainageways. This practice undoubtedly accelerates silting of the remaining lakes and produces prolonged and excessive turbidity. Submergent aquatic plant beds were unexplicably absent from most of the lakes surveyed. Perhaps excessive turbidity has eliminated this important habitat for aquatic organisms. We simply do not know the collective damage that has occurred from the massive inflow into these habitats of silt, herbicides, pesticides, chemical fertilizers, and in some areas, oil-field wastes.

Table 5. Crayfish and shrimp species collected at specific survey sites along the lower Wabash and Ohio rivers, southeastern Illinois.

TAXON	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Family Palaemonidae																					
Palaemonetes kadiakensis		x	x	x	x		x		x		x	x	x	x			x		x		x
Family Cambaridae																					
Cambarellus shufeldtii		x																			
Cambarus diogenes		x	x						x				x		x		x				
Fallicambarus fodiens							x														
Orconectes indianensis																			x		
Orconectes virilis									x			x					x				
Procambarus acutus											x		x		x						
Procambarus clarkii			x				x														
Procambarus viaeviridis							x														
Total Number of Species at the Site:	0	3	3	1	1	0	4	0	3	0	2	2	3	1	2	0	3	0	2	0	1

Total Number of Species Known from the Sites: 9

Table 6. Mussel species collected at specific survey sites along the lower Wabash and Ohio rivers, southeastern Illinois.

TAXON	SITE NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Family Corbiculidae																					
Corbicula fluminea (Asiatic Clam)									x												
Family Unionidae																					
Ambiema plicata plicata (Three Ridge)																	x				
Anodonta grandis (Giant Floater)		x	x						x		x										
Anodonta imbecilis (Paper Pondshell)									x												
Anodonta suborbiculata (Flat Floater)		x	x																		
Lamsilis teres (Yellow Sandshell)									x												
Ligumia subrostrata (Pondmussel)		x							x		x										x
Leptodea fragilis (Fragile Papershell)									x												
Quadrula nodulata (Wartyback)												x									
Quadrula quadrula (Maple Leaf)									x												
Toxolasma texasensis (Texas Lilliput)									x				*								
Total Number of Species at the Site:	0	3	1	0	0	0	0	0	8	0	2	1	1	0	0	0	1	0	0	0	1

Total Number of Species Known from the Sites: 11

* These specimens may represent *Toxolasma parvus* (Lilliput).

Table 7. List of fishes, mussels, and crayfishes of special interest that were collected in major wetlands along the lower Wabash and Ohio rivers, southeastern Illinois.

Fishes

Additions to the Illinois Fauna:

Notropis maculatus: taillight shiner

Range extension, range augmentation, and/or rediscovery of species presumed extirpated in the study area:

Polyodon spathula: paddlefish
Lepisosteus oculatus: spotted gar
Lepisosteus platostomus: shortnose gar
Amia calva: bowfin
Umbra limi: central mudminnow
Hybognathus nuchalis: Mississippi silvery minnow
Notropis emiliae: pugnose minnow
Erimyzon sucetta: lake chubsucker
Ictiobus niger: black buffalo
Noturus gyrinus: tadpole madtom
Centrarchus macropterus: flier
Lepomis punctatus: spotted sunfish
Percina sciera: dusky darter
Etheostoma asprigene: mud darter

Mussels

Range augmentation:

Anodonta suborbiculata: flat floater
Toxolasma texasensis: Texas lilliput
Ligumia subrostrata: pond mussel

Crayfishes

Range augmentation:

Orconectes indianensis
Orconectes virilis

Although we were able to document the existence of several faunal elements unique to wetland habitats (see Major Findings), perhaps even more revealing are those species which were historically present in these habitats, but are absence from our collections. For example, the starhead topminnow, cypress darter, bantam sunfish, and banded pygmy sunfish were all historical inhabitants of the lowland lakes and wetlands of the region. These species and others perished with the widespread demise of their habitats. Other species such as the central mudminnow, taillight shiner, and lake chubsucker are persisting tenuously in small isolated remnants of suitable habitat. At the present rate of wetland destruction we can only foresee the continued loss of fauna from the study region.

It cannot be overemphasized that efforts must be initiated to protect the best remnants of the once extensive floodplain wetlands of the Ohio and lower Wabash rivers of southeastern Illinois. Further, resource managers and decision-makers cannot wait for discovery of a pristine wetland before protection measures are initiated; such wetlands simply do not exist in the surveyed area.

We recommend that:

1) The taillight shiner be considered for inclusion on the Illinois endangered species list and the wetland it occurs in be designated as critical habitat.

2) Yellowbank Slough be recognized as a state natural area and action be initiated for timely purchase of the site.

3) Burgess Pond be further inventoried for significant floral and faunal elements.

4) The following sites be considered for addition to the natural areas inventory for future visitation by Natural Heritage biologists: Goose Pond, Black Lake, Loon Lake, Black Slough, Big Lake and Millrace Slough, Brushy Slough, and Yellowbank Slough.

5) The Technical Advisory Committee on Endangered/Threatened Fishes re-evaluate the status of the spotted sunfish in light of the new distributional records reported herein.

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SITE DESCRIPTION

Site Number 1

Site Name: Allard Lake

Drainage: Ohio River

County: Massac

7.5 Minute Quadrangle: Paducah East, KY-IL

Location:: 2.5 airkm N Paducah, KY, T16S, R6E, Sec. 19.

Survey Date(s): 14 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., L.A. Lowry

Major Aquatic Habitat: lacustrine

Vegetation/Cover: other cover

Water: turbid

Substrate: primarily mud (to 0.3 m) mixed with detritus

Length of Wetland: 2.75 km

Maximum Width of Wetland: ca. 100 m

Depth of Capture: 0.6 to 1+ m

Air Temperature: 24 C

Water Temperature: 30 C

Allard Lake is a long, narrow floodplain lake lying parallel to and along most of its length, less than 200 m from the Ohio River shoreline. The sampled area is located at the southeastern tip of the lake. The riparian zone was wooded to the northeast. The remainder of the observed shoreline is narrowly lined with trees or shrubs with row crops closely abutting the narrow riparian zone. The shoreline has apparently been cleared or repeatedly cut as evidenced by the relatively small diameter of most trees. In general, the riparian area can be characterized as highly disturbed. No emergent, submergent, or floating aquatic macrophytes were present. Cover was scant with the exception of brush and overhanging roots along the low, gently sloping shoreline. Seining was not difficult over the soft mud and detritus. The close proximity of Allard Lake to the Ohio River undoubtedly exerts a strong influence on the frequency and duration of flooding.

Fifteen species of fishes were collected in Allard Lake. The fishes collected exemplify the influence of the Ohio River on its faunal composition. Several species more characteristic of large rivers than of lakes were present including the silverband shiner, bullhead minnow, and Mississippi silvery minnow. The seine hauls were dominated by shads and young-of-the-year

centrarchids (primarily *Lepomis* spp.).

Fishes

Family Clupeidae

Dorosoma cepedianum - Gizzard Shad
Dorosoma petenense - Threadfin Shad

Family Cyprinidae

Hybognathus nuchalis - Mississippi Silvery Minnow
Notropis emiliae - Pugnose Minnow
Notropis shumardi - Silverband Shiner
Pimephales vigilax - Bullhead Minnow

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

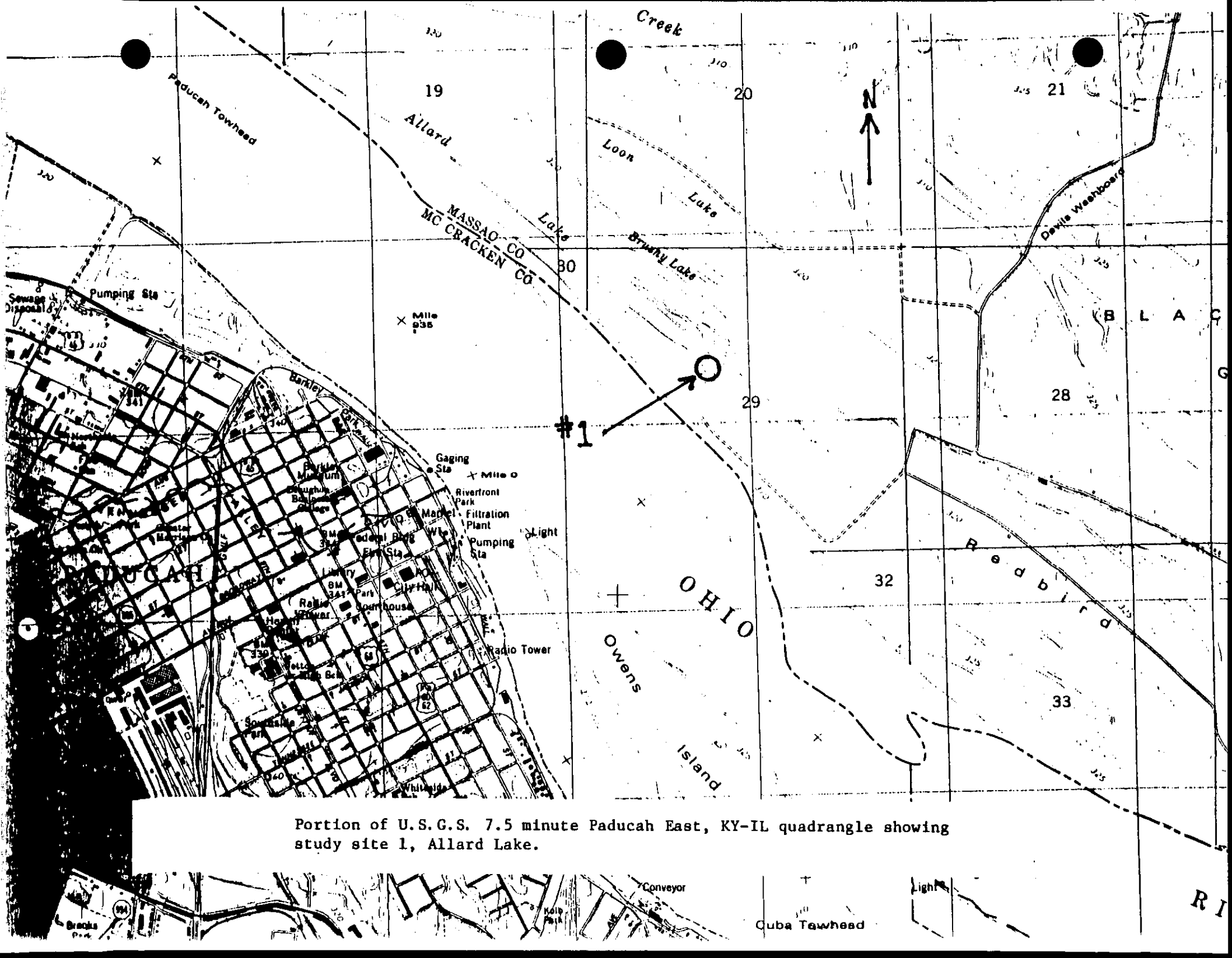
Gambusia affinis - Mosquitofish

Family Atherinidae

Labidesthes sicculus - Brook Silverside

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Lepomis megalotis - Longear Sunfish
Micropterus salmoides - Largemouth Bass
Pomoxis annularis - White Crappie



Portion of U.S.G.S. 7.5 minute Paducah East, KY-IL quadrangle showing study site 1, Allard Lake.

SITE DESCRIPTION

Site Number 2

Site Name: Loon Lake

Drainage: Ohio River

County: Massac

7.5 Minute Quadrangle: Paducah East, KY-IL

Location: 2.75 airkm SSE Brookport, T16S, R6E, Sec. 20.

Survey Date(s): 13-14 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., P. Keller, L.A. Lowry

Major Aquatic Habitat: lacustrine

Vegetation/Cover: scrub-shrub, forested (shoreline); other cover

Water: slightly turbid

Substrate: mixed mud and detritus, sticks, and logs

Length of Wetland: 1.75 km

Maximum Width of Wetland: ca. 150 m

Depth of Capture: to 1.2 m with seine; to 2.6 m with gill nets

Air Temperature: 24 C

Water Temperature: 30 C

Loon Lake is a long, narrow floodplain lake lying parallel to and about 600 m from the Ohio River. The northern shoreline for the most part is steep and densely wooded with a dirt road and row crops abutting the crest of the slope. The southern riparian area is less steep and in many places has been cleared of trees with row crops visible behind a narrow belt of shrubs (mostly buttonbush). The shallow (less than 1.6 m) shoreline area extends in a narrow band (ca. 10-15 m) around the lake and harbors bald cypress and numerous associated knees. Buttonbush lines much of the immediate shoreline and predominates the eastern end of the lake. No submergent, emergent, or floating aquatic macrophytes were observed. Access for sampling was made at a steep dirt boat ramp approximately mid-way along the northern shore. Efficient seining was precluded by numerous submerged logs, sticks, cypress roots and knees, some soft mud (to 0.6 m), and the rather narrow shallows rimming the lake. One gill net each was set perpendicular to the shore about 150 m east and west of the boat ramp, respectively.

The collections yielded 19 fish, one shrimp, two crayfish, and three mussel species. When compared with data presented in Smith (1979) and Burr and Warren (1986), a number of the fish species collected are noteworthy. The spotted gar

was previously unknown from this far east in Ohio and Wabash river tributaries of Illinois. The black buffalo, a sporadically distributed species in Illinois, was previously unreported from southeastern Illinois. Perhaps the most significant distributional record for fishes was the presence of the spotted sunfish in Loon Lake. This and other new records for this species (see Sites 5, 9, 11, 12, 14, 15, 17, 19) close the distributional hiatus between the mouth of the Ohio River and the lower Wabash River and indicate the species is more common than previously believed (Smith 1979). The spotted sunfish is currently proposed for threatened status on the Illinois endangered and threatened species list.

Fishes

Family Lepisosteidae

Lepisosteus oculatus - spotted gar
Lepisosteus platostomus - shortnose gar

Family Clupeidae

Dorosoma cepedianum - Gizzard Shad

Family Cyprinidae

Cyprinus carpio - Common Carp
Notropis emiliae - Pugnose Minnow

Family Catostomidae

Ictiobus bubalus - Smallmouth Buffalo
Ictiobus cyprinellus - Bigmouth Buffalo
Ictiobus niger - Black Buffalo

Family Ictaluridae

Ictalurus punctatus - Channel Catfish
Pylodictis olivaris - Flathead Catfish

Family Cyprinodontidae

Fundulus notatus - Blackspotted Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Atherinidae

Labidesthes sicculus - Brook Silverside

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Lepomis punctatus - Spotted Sunfish

Micropterus salmoides - Largemouth Bass

Family Sciaenidae

Aplodinotus grunniens - Freshwater Drum

Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis

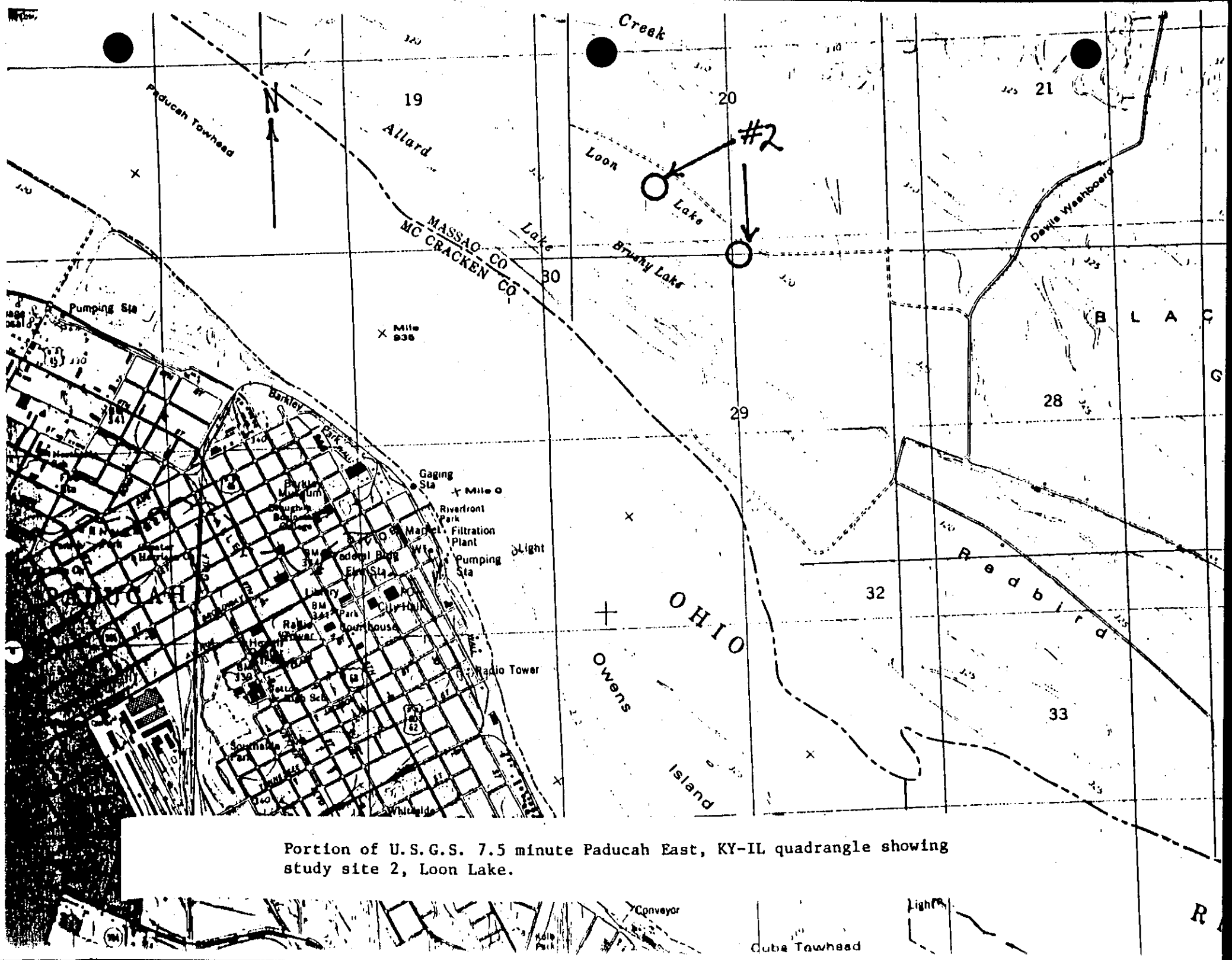
Family Cambaridae

Cambarellus shufeldtii
Cambarus diogenes

Mussels

Family Unionidae

Anodonta grandis - Giant Floater
Anodonta suborbiculata - Flat Floater
Ligumia subrostrata - Pondmussel



Portion of U.S.G.S. 7.5 minute Paducah East, KY-IL quadrangle showing study site 2, Loon Lake.

SITE DESCRIPTION

Site Number 3

Site Name: Unnamed Wetland, trib., Mud Creek

Drainage: Mud Creek-Ohio River

County: Massac

7.5 Minute Quadrangle: Paducah East, KY-IL

Location: 2.25 airkm S Unionville, T16S, R6E, Sec. 21.

Survey Date(s): 15 and 31 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., P. Keller, L.A. Lowry, D.E. Fletcher

Major Aquatic Habitat: palustrine

Vegetation/Cover: aquatic bed (sparse), scrub-shrub, forested, other cover

Water: turbid

Substrate: from firm clay to soft mud, littered with detritus, sticks, and logs

Maximum Width of Wetland: ca. 75+ m

Depth of Capture: 0.15 to 0.6 m

Air Temperature: 25 C

Water Temperature: 23 C

This wetland drains an extensive east-to-west, low-lying region (known as Black Bottom) situated on the Ohio River floodplain north of a series of large floodplain lakes (e.g., Kinneman Lake, Site Number 4). The wetland eventually joins Mud Creek. As judged from on-site observation and the U.S.G.S. Paducah East quadrangle (published in 1982), most of the low-lying area has been cleared and is in row crops. The wetland is bisected from the north to south by an elevated dirt road with underlying culverts. The portions east and west of the road including flooded areas of the wetland are forested. The area sampled lies behind a low beaver dam about 20-30 m east of the elevated road. Flow through the dam was not noticeable, and the area immediately below the dam and west of the road consisted of a few shallow (less than 0.15 m), isolated pools underlain by deep muck (to 0.6 m). Behind the dam water was pooled in an apparently extensive, shallow (0.6-0.75 m) basin containing standing dead timber, scattered bald cypress, and tupelo gum. No floating or emergent aquatic macrophytes were noted; a few small, scattered beds of hornwort occurred in very shallow water along the shoreline. The bottom was littered with detritus, sticks, and logs which precluded all but short seine hauls. The water was noticeably cooler than the floodplain lakes to the south (23 vs 30 C).

Sixteen fish, two crayfish, one shrimp, and two mussel species were collected in the wetland. The capture of seven juvenile and adult specimens of

the taillight shiner represents an addition to the known ichthyofauna of Illinois. The locality also represents the most upstream record of the species in the Ohio River valley as well as the northernmost limits of its range. Given its distribution across the Ohio River in Kentucky (Burr and Warren 1986), its presence in Illinois was predictable. Even so, Burr (and Lawrence M. Page) have made considerable efforts in the past to locate populations. Its apparent restriction to this one site among several sampled in the general area is surprising. The possibility exists that it persists in one or several of the lakes in the area, and it was simply missed in our sampling. Alternately and ironically, the taillight shiner may have been discovered in Illinois on the brink of total extirpation. In all probability the small beaver dam impounding the site is all that insures the viability of this population. The species should be recognized as a state endangered species immediately, and this population given highest priority for protection.

Fishes

Family Amiidae

Amia calva - Bowfin

Family Esocidae

Esox americanus - Grass Pickerel

Family Cyprinidae

Notemigonus crysoleucas - Golden Shiner
Notropis emiliae - Pugnose Minnow
Notropis maculatus - Taillight Shiner

Family Ictaluridae

Ictalurus natalis - Yellow Bullhead

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Atherinidae

Labidesthes sicculus - Brook Silverside

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Micropterus salmoides - Largemouth Bass
Pomoxis annularis - White Crappie

Family Percidae

Etheostoma chlorosomum - Bluntnose Darter
Etheostoma gracile - Slough Darter

Family Sciaenidae

Aplodinotus grunniens - Freshwater Drum

Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis

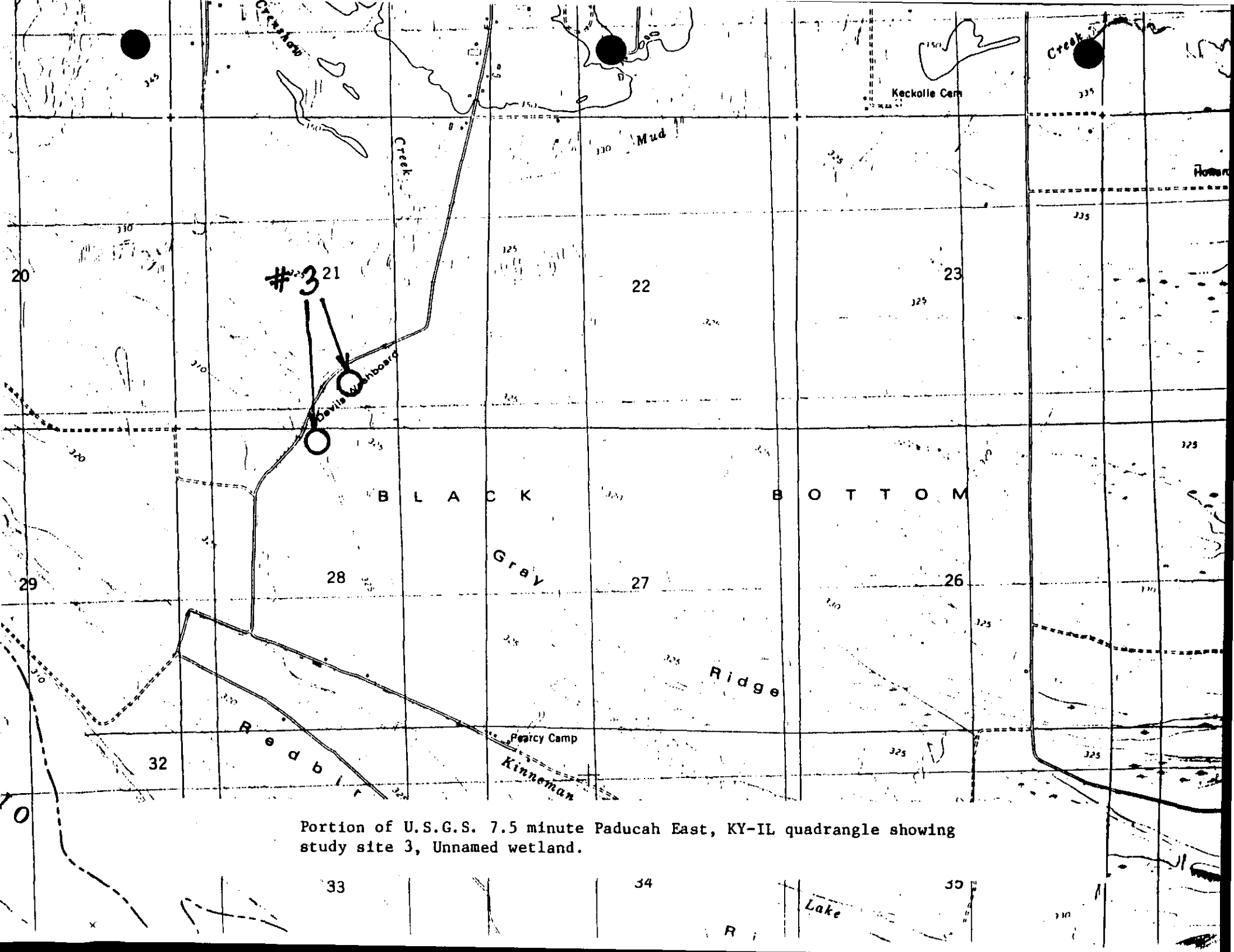
Family Cambaridae

Cambarus diogenes
Procambarus clarkii

Mussels

Family Unionidae

Anodonta grandis - Giant Floater
Anodonta suborbiculata - Flat Floater



Portion of U.S.G.S. 7.5 minute Paducah East, KY-IL quadrangle showing study site 3, Unnamed wetland.

SITE DESCRIPTION

Site Number 4

Site Name: Kinneman Lake

Drainage: Ohio River

County: Massac

7.5 Minute Quadrangle: Paducah East, KY-IL

Location: 2.75 airkm W Paducah, KY, T16S, R6E, Sec. 28.

Survey Date(s): 14 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., L.A. Lowry

Major Aquatic Habitat: lacustrine

Vegetation/Cover: scrub-shrub, other cover (Kinneman Lake); aquatic bed, scrub-shrub, forested (drainageway)

Water: turbid and slightly stained

Substrate: soft mud, detritus, sticks, and logs

Length of Wetland: 5 km

Maximum Width of Wetland: ca. 180 m

Depth of Capture: 0.15 to 1.3+ m

Air Temperature: 24 C

Water Temperature: 30 C

Kinneman Lake is an extremely long, relative wide floodplain lake parallel to and about 1 km from the Ohio River shoreline. The lake is surrounded by agricultural land (primarily row crops) with a narrow belt (15-30 m) of deciduous hardwoods covering the high steep slopes of the basin. A small section of forest was associated with the extreme west end of the lake. Numerous permanent cabins, mobile homes, and campers line both shores of the western half of the lake. Sampling was conducted in the extreme western end of the lake and at a bridge crossing over a shallow drainageway to Allard Lake (Site Number 1). Buttonbush and duckweeds were abundant in the drainageway, but no emergent, submergent, or floating aquatic plants were noted in the lake. Seining was difficult in the lake because of logs, sticks, and brush and the narrow belt of shallow water along the shoreline. Thick growths of buttonbush likewise limited sampling in the drainageway.

Only six species of fishes and one species of shrimp were taken from the Kinneman Lake sampling sites. Interviews with fisherman present at the lake revealed that paddlefish, gars, sauger, channel and flathead catfish, several

species of sunfish (e.g., bluegill, crappies, largemouth bass) were regularly taken at this popular fishing lake.

Fishes

Family Ictaluridae

Ictalurus natalis - Yellow Bullhead

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Atherinidae

Labidesthes sicculus - Brook Silverside

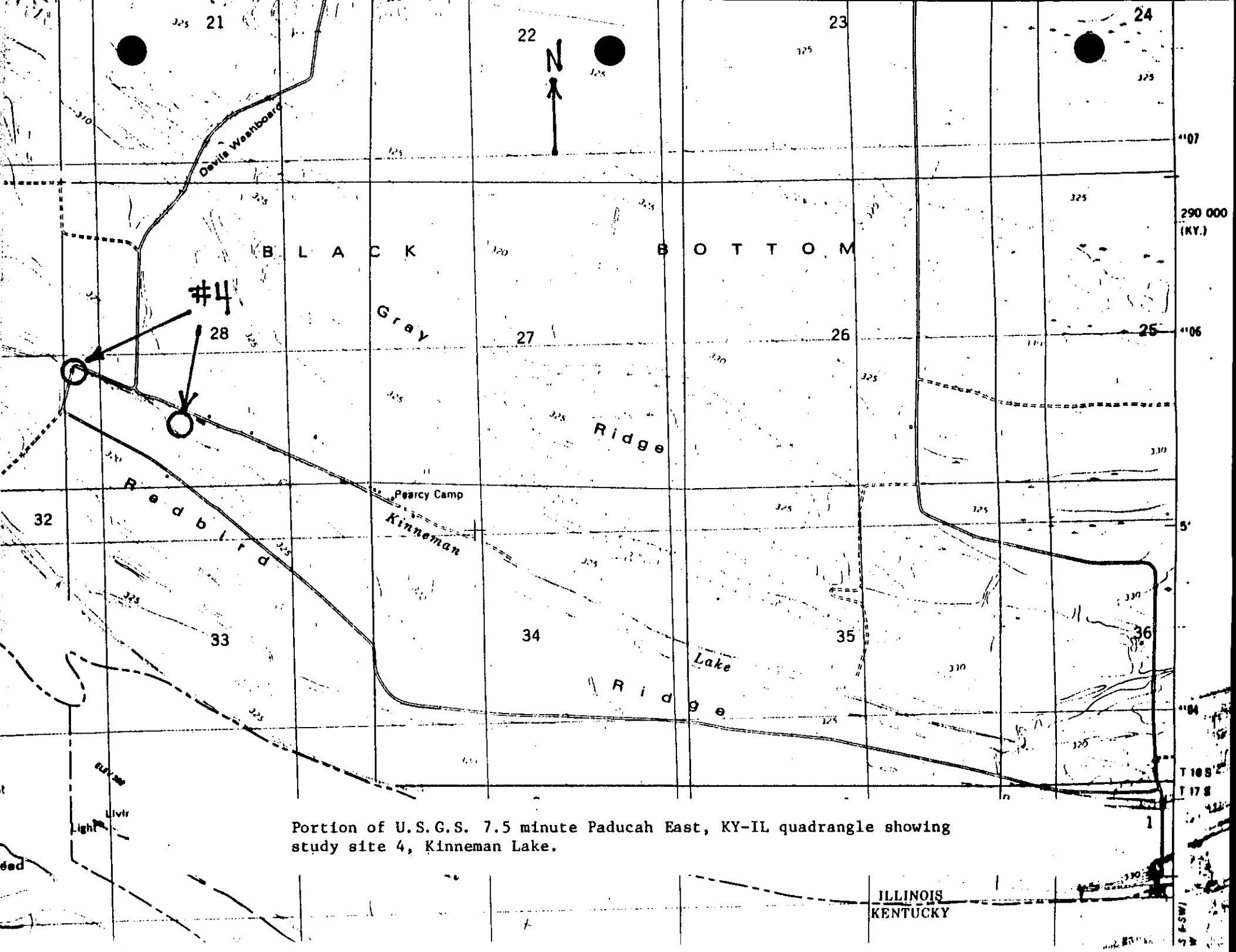
Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis macrochirus - Bluegill

Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis



Portion of U.S.G.S. 7.5 minute Paducah East, KY-IL quadrangle showing study site 4, Kinneman Lake.

SITE DESCRIPTION

Site Number 5

Site Name: Beaverdam Lake

Drainage: Ohio River

County: Massac

7.5 Minute Quadrangle: Paducah East, KY-IL

Location: 6.75 airkm SSE Unionville, T16/17S, R6E, Secs. 1 & 35.

Survey Date(s): 15 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., P. Keller, L.A. Lowry

Major Aquatic Habitat: lacustrine

Vegetation/Cover: aquatic bed (drainageway); scrub-shrub, other cover

Water: turbid

Substrate: silt (to 0.6 m), logs, sticks, and detritus

Length of Wetland: 3 km

Maximum Width of Wetland: ca. 60 m

Depth of Capture: 0.15 to 1.0 m

Air Temperature: 25 C

Water Temperature: 27 C

Beaverdam Lake is a long, narrow floodplain lake parallel to and about 500 m from the Ohio River shoreline. The surrounding floodplain is completely cleared and in row crops; the riparian area is lined partially with a narrow band of trees and low shrubs. In general the riparian zone may be characterized as highly disturbed. The lake was sampled at the extreme lower northwest end where buttonbush lined the shallow margins. A few scant beds of emergent aquatic macrophytes were noted in a narrow (less than 1.6 m), shallow (greater than 0.15-0.3 m) drainageway connecting the lake to a very shallow (0.15-0.3 m), warm slough. No floating or submergent aquatic plants were observed. The lake bottom was littered with numerous sticks, logs, and detritus piles which were underlain by a soft mud substrate (to 0.6 m).

Thirteen species of fishes and one species of shrimp were collected from Beaverdam Lake. The most significant find was the spotted sunfish (refer to Site Number 2 for comments). Few modern (post 1950) records are available for the tadpole madtom within the study region or much of southeastern Illinois. We found the tadpole madtom in Beaverdam Lake and four other sites (see Site Numbers 9, 12, 17, and 21).

Fishes

Family Clupeidae

Dorosoma cepedianum - Gizzard Shad

Family Cyprinidae

Notropis emiliae - Pugnose Minnow

Family Ictaluridae

Noturus gyrinus - Tadpole Madtom

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poceiliidae

Gambusia affinis - Mosquitofish

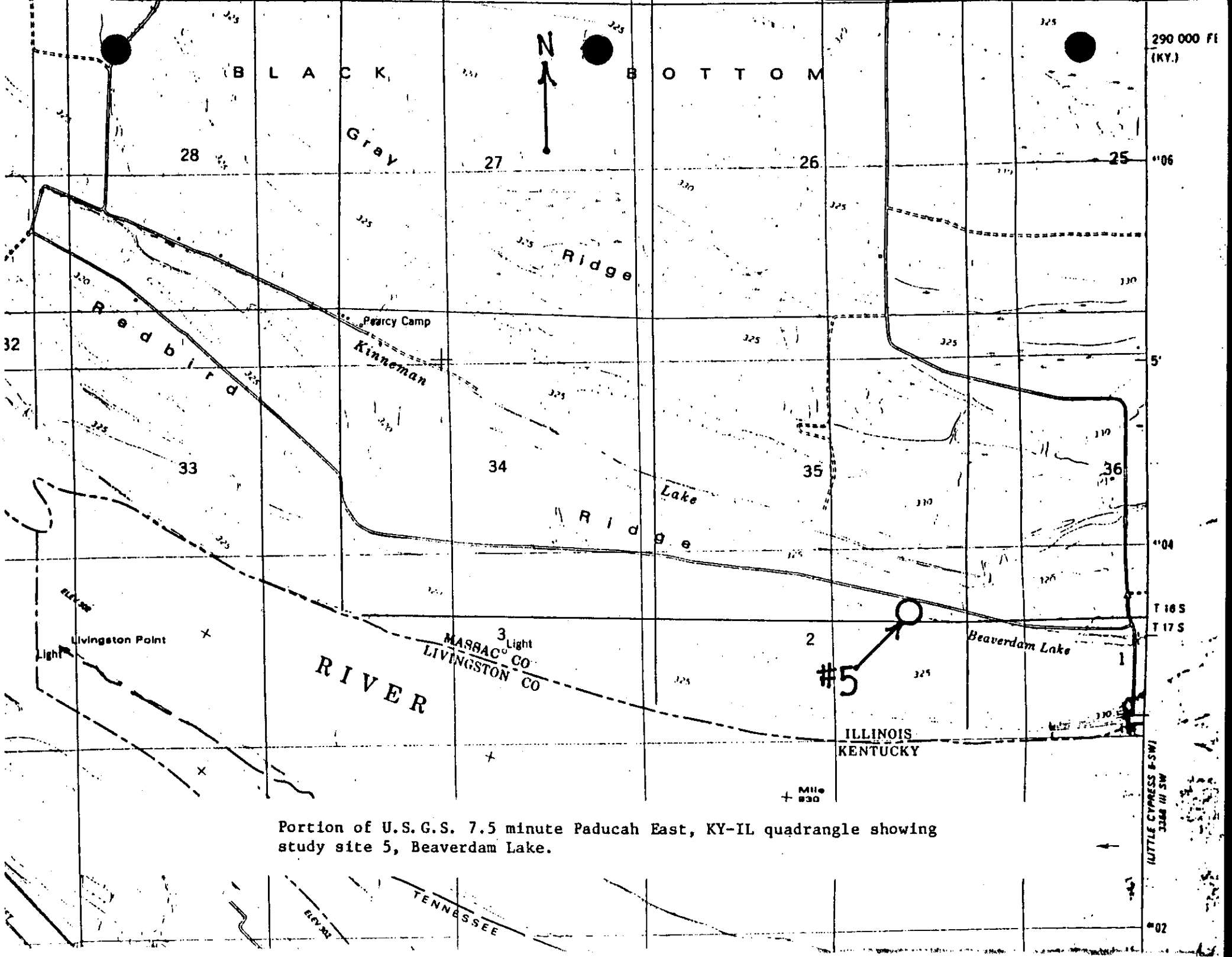
Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Lepomis megalotis - Longear Sunfish
Lepomis punctatus - Spotted Sunfish
Micropterus salmoides - Largemouth Bass
Pomoxis annularis - White Crappie
Pomoxis nigromaculatus - Black Crappie

Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis



Portion of U.S.G.S. 7.5 minute Paducah East, KY-IL quadrangle showing study site 5, Beaverdam Lake.

SITE DESCRIPTION

Site Number 6

Site Name: Burgess Pond

Drainage: Ohio River

County: Pope

7.5 Minute Quadrangle: Little Cypress, KY-IL

Location: 1.6 airkm S New Liberty, T16S, R7E, Sec. 21.

Survey Date(s): 15 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., P. Keller, L.A. Lowry

Major Aquatic Habitat: palustrine

Vegetation/Cover: aquatic bed, scrub-shrub, forested, other cover

Water: clear but stained

Substrate: silt (to 0.6 m), detritus, sticks, and logs

Length of Wetland: 0.75 km (includes both ponds)

Maximum Width of Wetland: ca. 60-75 m

Depth of Capture: 0.15 to 1 m

Air Temperature: 27 C

Water Temperature: 23 C

Burgess Pond is a small, shallow wetland situated in a long, narrow depressed wooded tract parallel to and about 500 m from the Ohio River shoreline. The basin apparently drains to the southwest toward Avery Lake. With the exception of the forested tract, the majority of the surrounding floodplain is cleared and in row crops. Most of the basin did not contain standing water, but a shallow (0.15-1 m) swamp was present. We accessed the region by foot via a dirt road southeast of New Liberty and are unsure if we sampled the upper or lower ponds depicted on the U.S.G.S. Emma quadrangle (published in 1982). The sampled site contained numerous bald cypress, had dense marginal growths of buttonbush, and was completely covered with duckweeds and water fern. Open water (i.e., no buttonbush or bald cypress) was limited. The entire swamp was choked with large logs, brush, and sticks, which along with the floating and rooted plants precluded efficient seining. The substrate was primarily soft mud mixed with detritus. The water was noticeably cooler than nearby floodplain lakes (23 vs 30 C).

Only five species of fishes were collected, but the seining conditions were so poor that a more diverse fauna probably exists at Burgess Pond. Although beyond the scope of this study, the site may prove to be of significance from a

botanical or plant ecology perspective. Relative to other sites visited in this study, its plant community and aesthetic values were unique.

Fishes

Family Amiidae

Amia calva - Bowfin

Family Esocidae

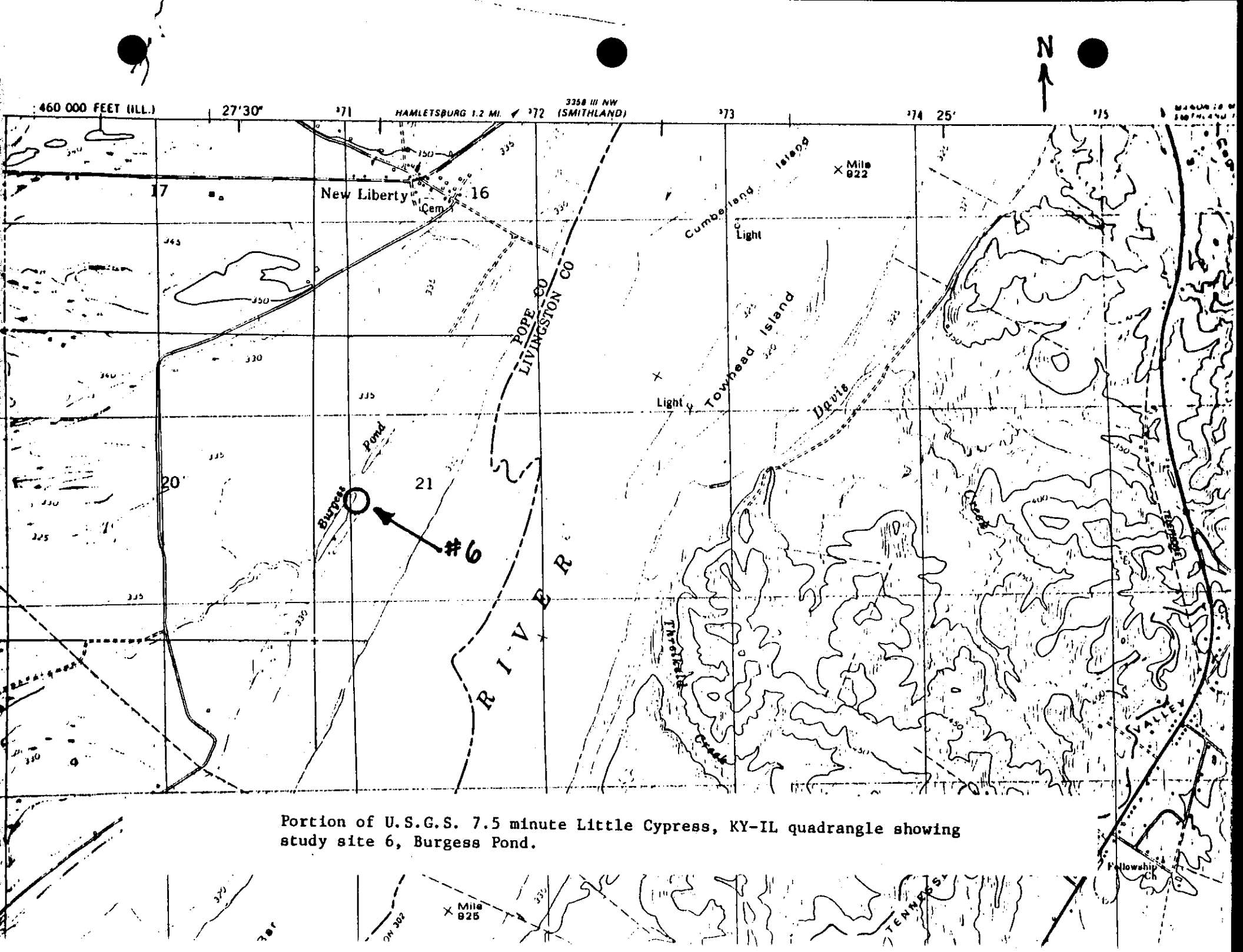
Esox americanus - Grass Pickerel

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis macrochirus - Bluegill



Portion of U.S.G.S. 7.5 minute Little Cypress, KY-IL quadrangle showing study site 6, Burgess Pond.

SITE DESCRIPTION

Site Number 7

Site Name: Black Slough

Drainage: Bay Creek-Ohio River

County: Pope

7.5 Minute Quadrangle: Reevesville, IL

Location: 4.8 airkm S Dixon Springs, 4.0 airkm ESE Reevesville, T13S, R5E, Sec. 32-33, T14S, R5E, Sec. 4-5.

Survey Date(s): 13 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., P. Keller

Major Aquatic Habitat: palustrine

Vegetation/Cover: aquatic bed (west side); scrub-shrub (shoreline on east side)

Water: slightly turbid

Substrate: firm clay, silt to 0.15 m, organic matter

Width of Wetland: 15 X 30 m pool

Depth of Capture: 0.15 to 1.2 m

Air Temperature: 25 C

Water Temperature: 26 C

Black Slough is situated in a long, narrow arcuate depression on the floodplain of Bay Creek. A comparison of field observations and the U.S.G.S. Reevesville quadrangle (published in 1962) indicates that the forest present in and adjacent to the slough (west of highway 145) has been removed. The region east of the highway is still forested within the topographic depression delimiting the slough. Based on our visit, the majority of Black Slough only intermittently contains standing water. At the sampled site on the east of the highway, standing water was confined to a small pool adjacent to the bridge. The adjacent forest contained a stand of tupelo gum and scattered bald cypress. To the west of the highway, extensive shallow waters were present with aquatic plants (especially Polygonum sp.) being prevalent near the bridge. Much of the region to west apparently is plowed on occasion, and animal waste may have been applied or drained into the area.

Nine species of fishes (excluding an unidentified gar), one shrimp, and three species of crayfish were collected from the rather limited habitat available. The faunal assemblage contains several species typical of lowland swamps of southern Illinois (e.g., Procambarus viaeviridis). Surprisingly, this is one of only two sites at which we collected the flier, a species usually

common in lowland swamps and sloughs.

Fishes

Family Lepisosteidae

Lepisosteus sp. - unidentified gar

Family Cyprinidae

Cyprinus carpio - Common Carp
Notemigonus crysoleucas - Golden Shiner

Family Ictaluridae

Ictalurus natalis - Yellow Bullhead

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Centrarchidae

Centrarchus macropterus - Flier
Lepomis gulosus - Warmouth
Micropterus salmoides - Largemouth Bass
Pomoxis annularis - White Crappie
Pomoxis nigromaculatus - Black Crappie

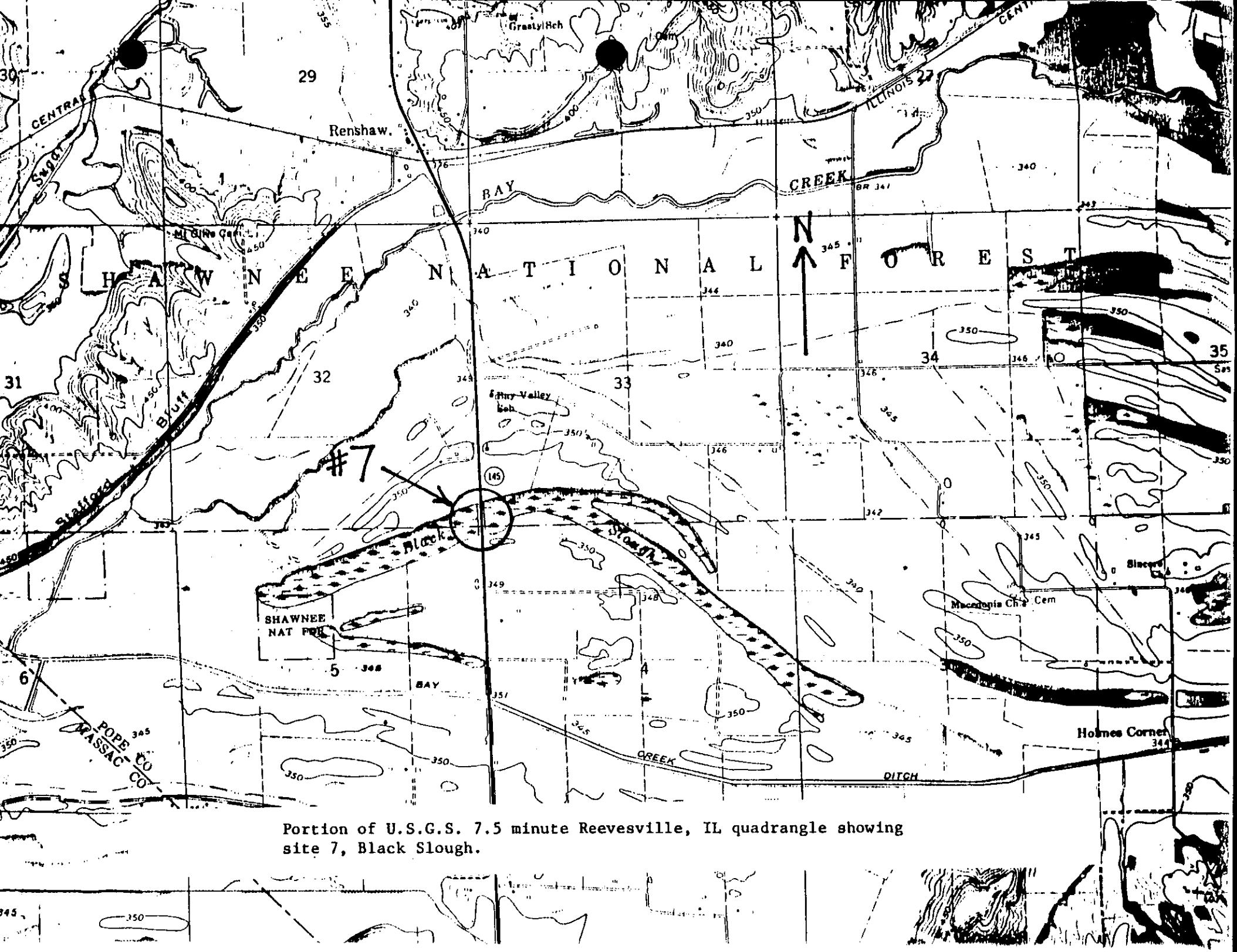
Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis

Family Cambaridae

Procambarus clarkii
Procambarus viaeviridis
Fallicambarus fodiens



Portion of U.S.G.S. 7.5 minute Reevesville, IL quadrangle showing site 7, Black Slough.

SITE DESCRIPTION

Site Number 8

Site Name: Unnamed Lake near mouth of Bay Creek

Drainage: Bay Creek-Ohio River

County: Pope

7.5 Minute Quadrangle: Brownfield, IL-KY

Location: 7 km SSE Homberg, T14S, R6E, Sec. 26.

Survey Date(s): 24 September 1986 and 13 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., P. Keller, B.R. Kuhajda, J. Waddell

Major Aquatic Habitat: lacustrine

Vegetation/Cover: other cover

Water: turbid

Substrate: firm clay, soft mud (to 0.6 m), sticks, and logs

Length of Wetland: 0.85 km

Maximum Width of Wetland: to 50 m

Depth of Capture: to 1 m

Air Temperature: 28 C

Water Temperature: 27 C

This small, narrow unnamed lake lies parallel to and in wet seasons is probably contiguous with Bay Creek. The confluence of Bay Creek and the Ohio River lies about 400 m southeast of the southernmost tip of the lake. Back flooding by the river probably is common. At the sampled site (a dirt boat ramp on the southern third of the lake), standing dead timber was abundant and formed parallel corridors through which a deep, open channel was present. The western margin of the lake was formed by a steep, wooded slope. The eastern margin was sparsely forested, but had numerous shrubs on the rim of the high banks. Seining (13 July) was limited to the area around the dirt boat ramp; the bottom sloped quickly to deep water (1.6+ m). The deeper waters were sampled via a boat-mounted electroshocker (24 September).

Twenty-seven species of fishes were collected in the lake. The capture of the dusky darter represents the first record for the southern third of Illinois. Species such as the skipjack herring, Mississippi silvery minnow, bullhead minnow, and river carpsucker exemplify the strong influence that flooding from the Ohio River exerts on the ichthyofauna of the lake. These species are typical inhabitants of large rivers.

Fishes

Family Clupeidae

Alosa chrysochloris - Skipjack Herring
Dorosoma cepedianum - Gizzard Shad
Dorosoma petenense - Threadfin Shad

Family Cyprinidae

Hybognathus nuchalis - Mississippi Silvery Minnow
Hybopsis storeriana - Silver chub
Notemigonus crysoleucas - Golden Shiner
Notropis atherinoides - Emerald Shiner
Notropis emiliae - Pugnose Minnow
Notropis spilopterus - Spotfin Shiner
Pimephales vigilax - Bullhead Minnow

Family Catostomidae

Carpiodes cyprinus - Quillback
Ictiobus bubalus - Smallmouth Buffalo
Minytrema melanops - Spotted Sucker

Family Ictaluridae

Ictalurus punctatus - Channel Catfish
Pylodictis olivaris - Flathead Catfish

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow
Fundulus olivaceus - Blackspotted Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Atherinidae

Labidesthes sicculus - Brook Silverside

Family Centrarchidae

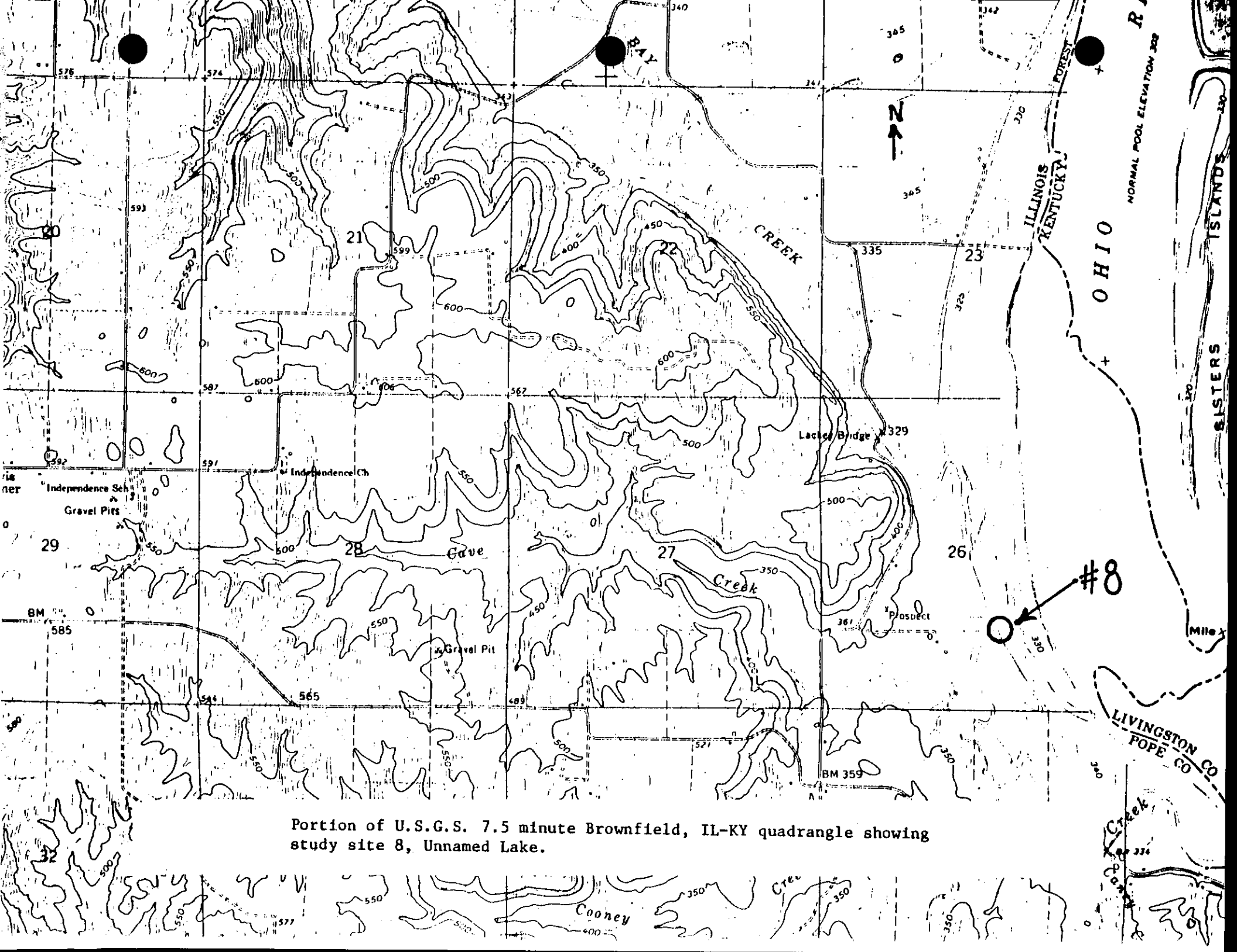
Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Lepomis megalotis - Longear Sunfish
Micropterus salmoides - Largemouth Bass

Family Percidae

Etheostoma chlorosomum - Bluntnose Darter
Percina sciera - Dusky Darter

Family Sciaenidae

Aplodinotus grunniens - Freshwater Drum



Portion of U.S.G.S. 7.5 minute Brownfield, IL-KY quadrangle showing study site 8, Unnamed Lake.

SITE DESCRIPTION

Site Number 9

Site Name: Big Lake and Millrace Slough

Drainage: Ohio River

County: Gallatin

7.5 Minute Quadrangle: Grove Center, KY-IL

Location: 4.5 airkm NE Old Shawneetown, T9S, R10E, Secs. 21 & 28.

Survey Date(s): 16 July 1987

Surveyors:: B.M. Burr, M.L. Warren, Jr.

Major Aquatic Habitat: lacustrine (Big Lake); riverine (Millrace Slough)

Vegetation/Cover: scrub-shrub, other cover (Big Lake); other cover (Millrace Slough)

Water: turbid

Substrate: firm mud, sticks, logs, and other debris

Length of Wetland: 3 km

Maximum Width of Wetland: ca. 200 m

Depth of Capture: 0.15 to 1 m

Air Temperature: 28 C

Water Temperature: 27 C

As the name implies Big Lake is the largest of a series of floodplain lakes lying parallel to the Ohio River northeast of Old Shawneetown. The lake is drained via Millrace Slough, which flows from the lake about 650 m to the Ohio River. On-site observation indicated that Big Lake retains a relatively wide wooded riparian zone. The shallow lake margins contain stands of bald cypress and in places are densely lined with buttonbush. No emergent, submergent, or floating aquatic macrophytes were noted. The northwestern rim of the basin has many cabins perched on the crest of the steep, high lake banks. The lake was sampled near the entry point of a dry drainageway originating from Black Lake (Site Number 11). The lake bottom was firm, and seining was accomplished with relatively little difficulty.

Millrace Slough is actually a small stream (10-15 m wide) situated in a steep-sided channel. The riparian zone is wooded. The area sampled was near a bridge crossing aboout 250 m below the outlet of Big Lake. The bottom was primarily soft mud (to 0.75 m). Current was slow, but numerous log jams and

organic debris piles produced riffle-like habitats.

Twenty-one fish, one shrimp, two crayfish, and eight mussel species were collected from Big Lake and Millrace Slough. Local fisherman indicated that many fish species from the Ohio River were frequently caught or observed broaching the surface (e.g., paddlefish) in Big Lake, particularly following spring flooding. The most significant fish species collected was the spotted sunfish (see Site Number 2 for comments). In addition, the pugnose minnow was previously unknown from Gallatin County and apparently has undergone a radical reduction in range in some Ohio River tributaries (e.g., Saline River and lower Wabash River)(Smith 1979). As exemplified in our collections (Site Numbers 9, 10, 11, 12, 17, 19), the species seems to be evenly distributed in wetlands along the Ohio and lower Wabash rivers in Gallatin and White counties. The mud darter has not been reported from southeastern Illinois, including Gallatin County, since the early 1900s (Smith 1979). We found it in a number of wetlands, including Millrace Slough, along the Ohio and lower Wabash rivers (Site Numbers 9, 10, 11, 12, 17, 19). For comments concerning the occurrence of the tadpole madtom see Site Number 5.

Fishes

Family Clupeidae

Alosa chrysochloris - Skipjack Herring
Dorosoma petenense - Threadfin Shad

Family Esocidae

Esox americanus - Grass Pickerel

Family Cyprinidae

Notropis atherinoides - Emerald Shiner
Notropis emiliae - Pugnose Minnow
Notropis spilopterus - Spotfin Shiner

Family Ictaluridae

Ictalurus natalis - Yellow Bullhead
Noturus gyrinus - Tadpole Madtom

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Atherinidae

Labidesthes sicculus - Brook Silverside

Family Aphredoderidae

Aphredoderus sayanus - Pirateperch

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Lepomis megalotis - Longear Sunfish
Lepomis punctatus - Spotted Sunfish
Micropterus salmoides - Largemouth Bass

Family Percidae

Etheostoma asprigene - Mud Darter
Etheostoma gracile - Slough Darter

Family Sciaenidae

Aplodinotus grunniens - Freshwater Drum

Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis

Family Cambaridae

Cambarus diogenes
Orconectes pvirilis

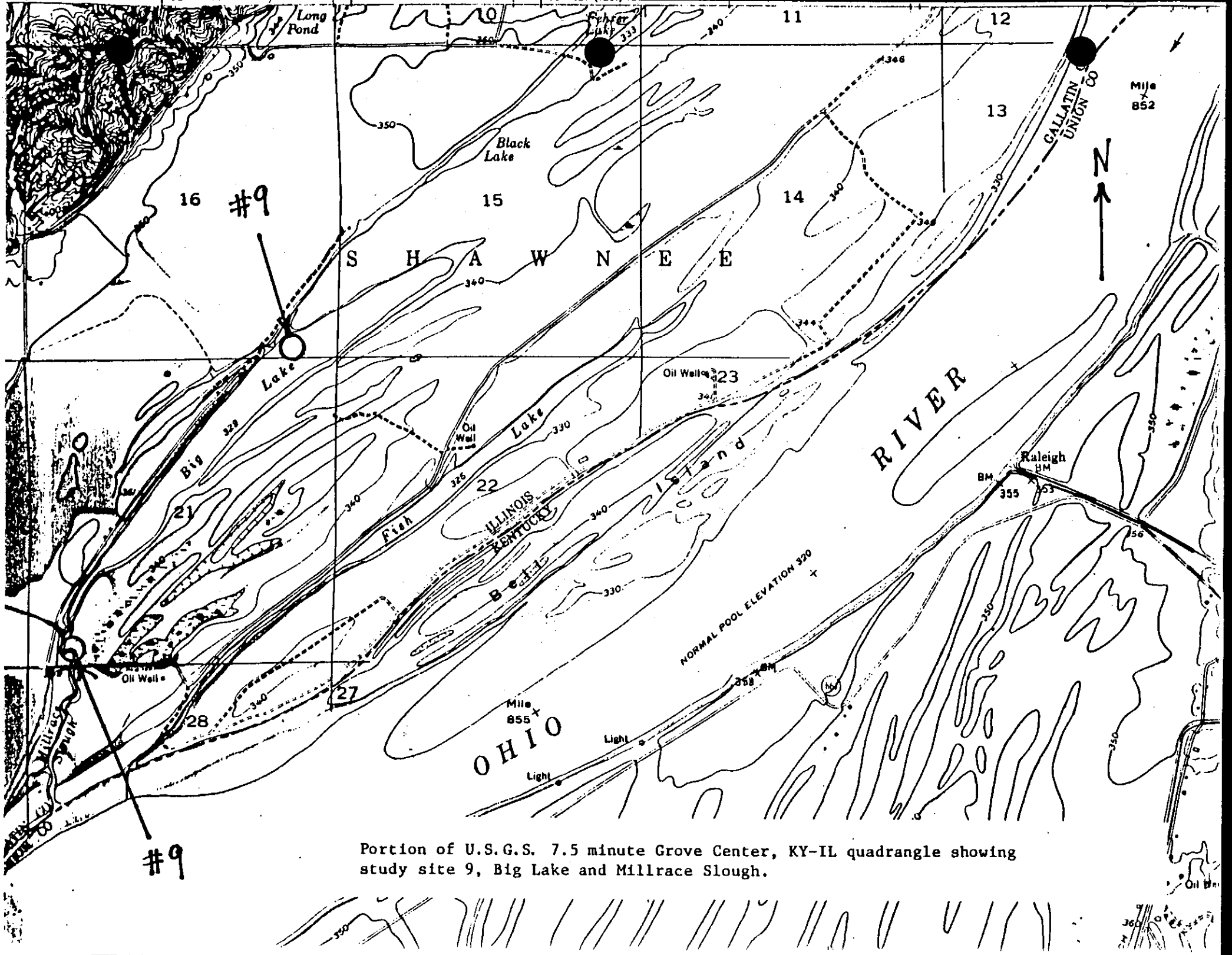
Mussels

Family Corbiculidae

Corbicula fluminea - Asiatic clam

Family Unionidae

Lampsilis teres - Yellow Sandshell
Quadrula quadrula - Maple Leaf
Leptodea fragilis - Fragile Papershell
Anodonta grandis - Giant Floater
Anodonta imbecilis - Paper Pondshell
Ligumia subrostrata - Pondmussel
Toxolasma texasensis - Texas Lilliput



Portion of U.S.G.S. 7.5 minute Grove Center, KY-IL quadrangle showing study site 9, Big Lake and Millrace Slough.

SITE DESCRIPTION

Site Number 10

Site Name:: Unnamed Wetland between Big Lake and Fish Lake

Drainage: Ohio River

County: Gallatin

7.5 Minute Quadrangle: Grove Center, KY-IL

Location: 4.5 airkm NE Old Shawneetown, T9S, R10E, Sec. 21.

Survey Date(s): 16 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr.

Major Aquatic Habitat: palustrine

Vegetation/Cover: emergent, aquatic bed, other cover

Water: clear

Substrate: firm clay covered with sticks, detritus, and logs

Maximum Width of Wetland: ca. 50 m

Depth of Capture: 0.3 to 1 m

Air Temperature: 28 C

Water Temperature: 23 C

This unnamed, shallow wetland lies on the Ohio River floodplain between Big and Fish lakes and is comprised of a series of more or less contiguous shallow sinks oriented southwest to northeast. The area was sampled along an elevated dirt road which truncates the southwest end of the sinks. The deepest (1 m) portion of the wetland and only open water was adjacent to a bridge. The remainder of the standing water harbored dense growths of swamp mallow and scattered buttonbush, black willow, and river birch. The riparian area was sparsely wooded. The substrate was firm clay or mud; logs, sticks, and other debris were numerous. At the bridge the water was cool and covered with duckweeds, but submergent and emergent aquatic macrophytes were not observed.

Nine fish species were collected at the site. Young-of-the-year largemouth bass predominated the warm shallow areas; few fish were captured in the deepest waters covered with duckweeds. For comments on the occurrence of the pugnose minnow and mud darter see Site Number 9.

<u>Fishes</u>

Family Cyprinidae

Notropis emiliae - Pugnose Minnow

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Aphredoderidae

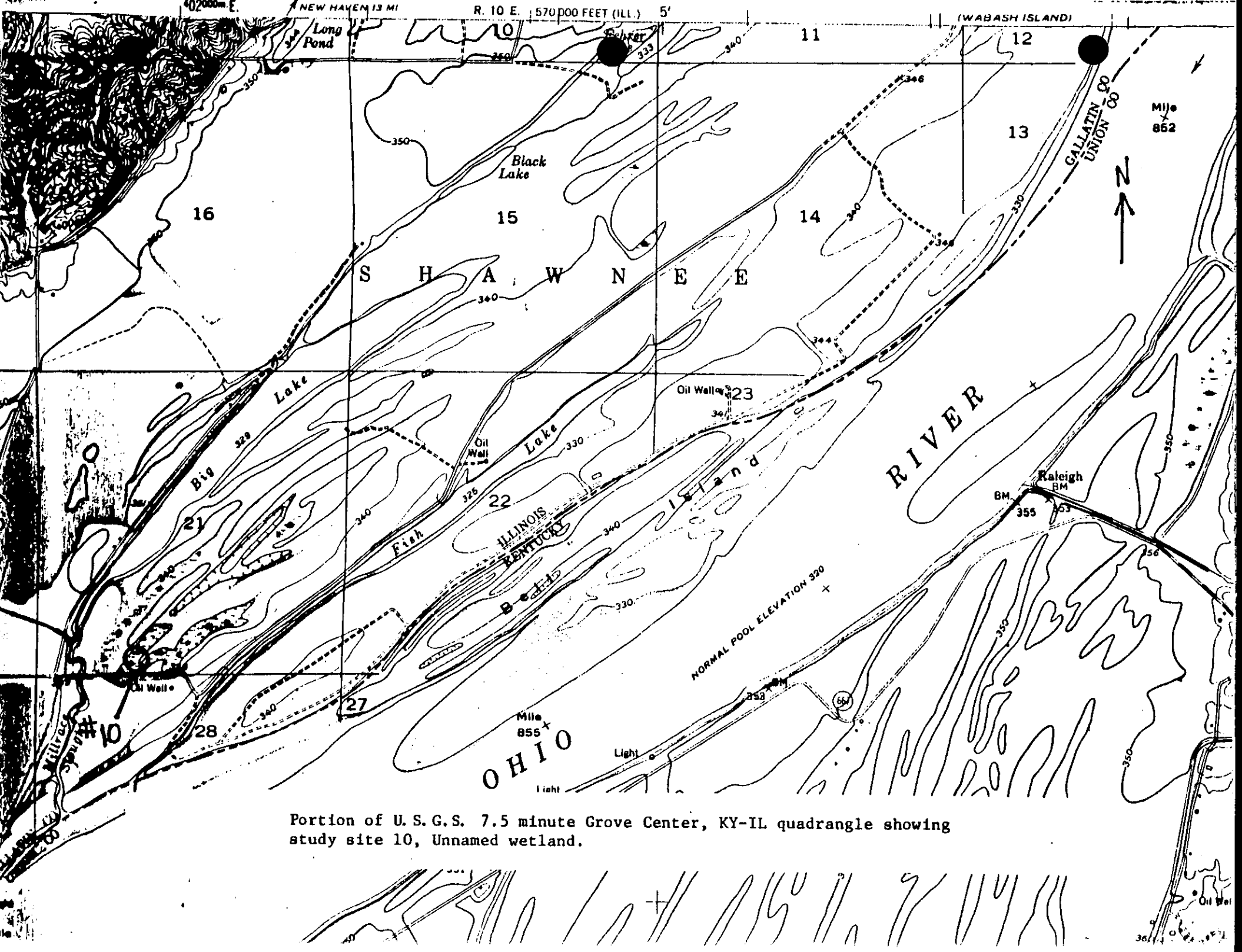
Aphredoderus sayanus - Pirateperch

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis macrochirus - Bluegill
Micropterus salmoides - Largemouth Bass

Family Percidae

Etheostoma asprigene - Mud Darter
Etheostoma gracile - Slough Darter



Portion of U. S. G. S. 7.5 minute Grove Center, KY-IL quadrangle showing study site 10, Unnamed wetland.

SITE DESCRIPTION

Site Number 11

Site Name: Black Lake

Drainage: Big Lake-Ohio River

County: Gallatin

7.5 Minute Quadrangle: Grove Center, KY-IL

Location: 7.5 km NE Old Shawneetown, T9S, R10E, Sec. 15.

Survey Date(s): 22 May and 17 July 1986

Surveyors: M. Peterson, B. R. Kuhajda

Major Aquatic Habitat: lacustrine

Vegetation/Cover: emergent, aquatic bed, scrub-shrub, forested, other cover

Water: clear (in early spring and summer) to turbid (in mid summer)

Substrate: firm mud, sticks, and logs

Length of Wetland: 0.5 km

Maximum Width of Wetland: ca. 80 m

Air Temperature: not determined

Water Temperature: not determined

The Black Lake site encompasses approximately 12 hectares of land and lies within the broad floodplain of the Ohio River. This site is surrounded by several other lakes (e.g., Fehrer Lake and Long Pond) and is drained by Big Lake, but unlike the other lakes, access to Black Lake is difficult. This factor has probably contributed to its protection from overfishing and mismanagement. Black lake has old bald cypress trees growing along its edge and scattered dead trees are common. Buttonbush is common particularly on the west side of the lake, but the shrub is not a dominant feature at the site. Spatterdock is abundant at the north and south ends of the wetland. Hornwort and duckweeds occur in shallow water zones in the lake. Siltation emanating from nearby cornfields endangers Black Lake on the northwest side. At present, aquatic vegetation beds are still present in the lake, being noteceably absence from other sampled lakes in the area.

Twenty-two fish, one shrimp, one crayfish, and two mussel species were collected from Black Lake. The relatively high diversity of fishes can be partly explained by the influx of typically riverine species into the lake. Fishes from the Ohio River likely are trapped in the lake when spring waters recede. The emerald shiner, river shiner, mimic shiner, bullhead minnow, and river quillback are all characteristic of major rivers. Noteworthy fish records include the collection of the spotted gar, pugnose minnow, spotted sunfish, and

mud darter. The significance of these records has been noted previously (refer to comments under Site Numbers 2 and 9).

Fishes

Family Lepisosteidae

Lepisosteus oculatus - Spotted Gar

Family Cyprinidae

Notemigonus crysoleucas - Golden Shiner
Notropis atherinoides - Emerald Shiner
Notropis blennius - River Shiner
Notropis emiliae - Pugnose Minnow
Notropis spilopterus - Spotfin Shiner
Notropis volucellus - Mimic Shiner
Pimephales vigilax - Bullhead Shiner

Family Catostomidae

Carpiodes cyprinus - Quillback

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Aphredoderidae

Aphredoderus sayanus - Pirateperch

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Lepomis megalotis - Longear Sunfish
Lepomis microlophus - Redear Sunfish
Lepomis punctatus - Spotted Sunfish
Micropterus salmoides - Largemouth Bass
Pomoxis annularis - White Crappie

Family Percidae

Etheostoma asprigene - Mud Darter

Family Sciaenidae

Aplodinotus grunniens - Freshwater Drum

Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis

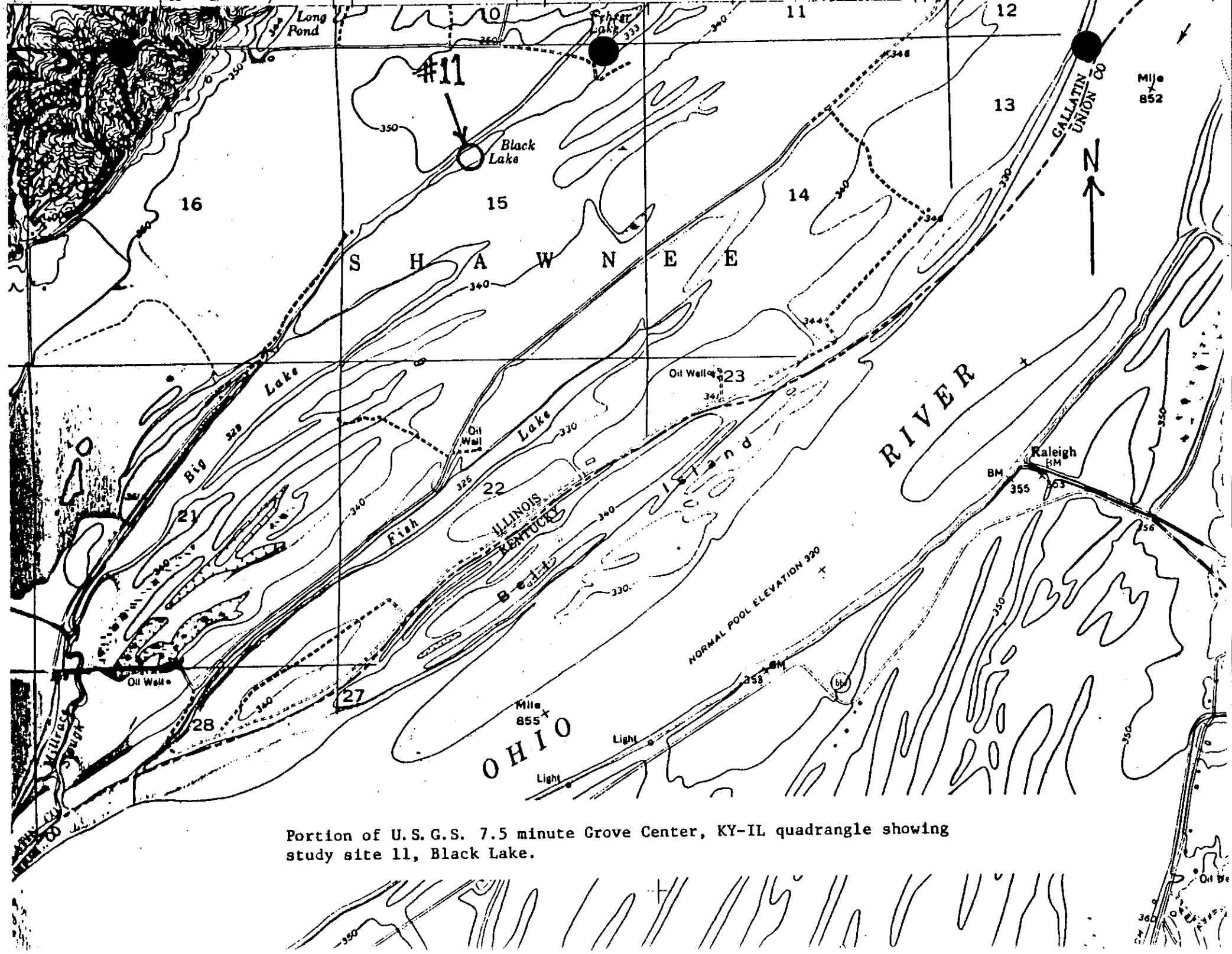
Family Cambaridae

Procambarus acutus

Mussels

Family Unionidae

Anodonta grandis - Giant Floater
Ligumia subrostrata - Pondmussel



Portion of U.S.G.S. 7.5 minute Grove Center, KY-IL quadrangle showing study site 11, Black Lake.

SITE DESCRIPTION

Site Number 12

Site Name: Long Pond

Drainage: Ohio River

County: Gallatin

7.5 Minute Quadrangle: Grove Center, KY-IL; Wabash Island, IL-IN-KY

Location: 7 airkm NNE Old Shawneetown, T9S, R10E, Sec. 9.

Survey Date(s): 16 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr.

Major Aquatic Habitat: lacustrine

Vegetation/Cover: aquatic bed (not sampled); scrub-shrub (shoreline)

Water: turbid

Substrate: firm mud covered with detritus, sticks, and logs

Length of Wetland: 0.75 km

Maximum Width of Wetland: ca. 100 m

Depth of Capture: 0.15 to 1.3 m

Air Temperature: 27 C

Water Temperature: 25 C

Long Pond abuts a forested hillside and is widely forested around its edges. Much of the pond is in private ownership and appears to be used primarily for recreational and sport fishing purposes. Only the south end of the lake was sampled because it was the only place available as public access. Buttonbush was sparsely distributed along the lake margins and dense growths of spatterdock occupy the middle margins of the lake. The latter habitat was not sampled because it was posted.

The collections of Long Pond yielded 14 fish, one shrimp, one crayfish, and one mussel species. At least 12 of the fish species and all of the shrimp, crayfish, and mussel species are typical inhabitants of lowland aquatic environments and would be expected to occur in habitats like Long Pond. Four notable fish records included the capture of the pugnose minnow, tadpole madtom, spotted sunfish, and mud darter. Refer to comments under Site Numbers 2, 5, and 9 for the significance of these records.

<u>Fishes</u>

Family Cyprinidae

Notropis emiliae - Pugnose Minnow

Family Ictaluridae

Ictalurus natalis - Yellow Bullhead
Noturus gyrinus - Tadpole Madtom

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Atherinidae

Labidesthes sicculus - Brook Silverside

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Lepomis megalotis - Longear Sunfish
Lepomis punctatus - Spotted Sunfish
Micropterus salmoides - Largemouth Bass

Family Percidae

Etheostoma asprigene - Mud Darter
Etheostoma chlorosomum - Bluntnose Darter

Crayfishes and Shrimps

Family Palemonidae

Palaemonetes kadiakensis

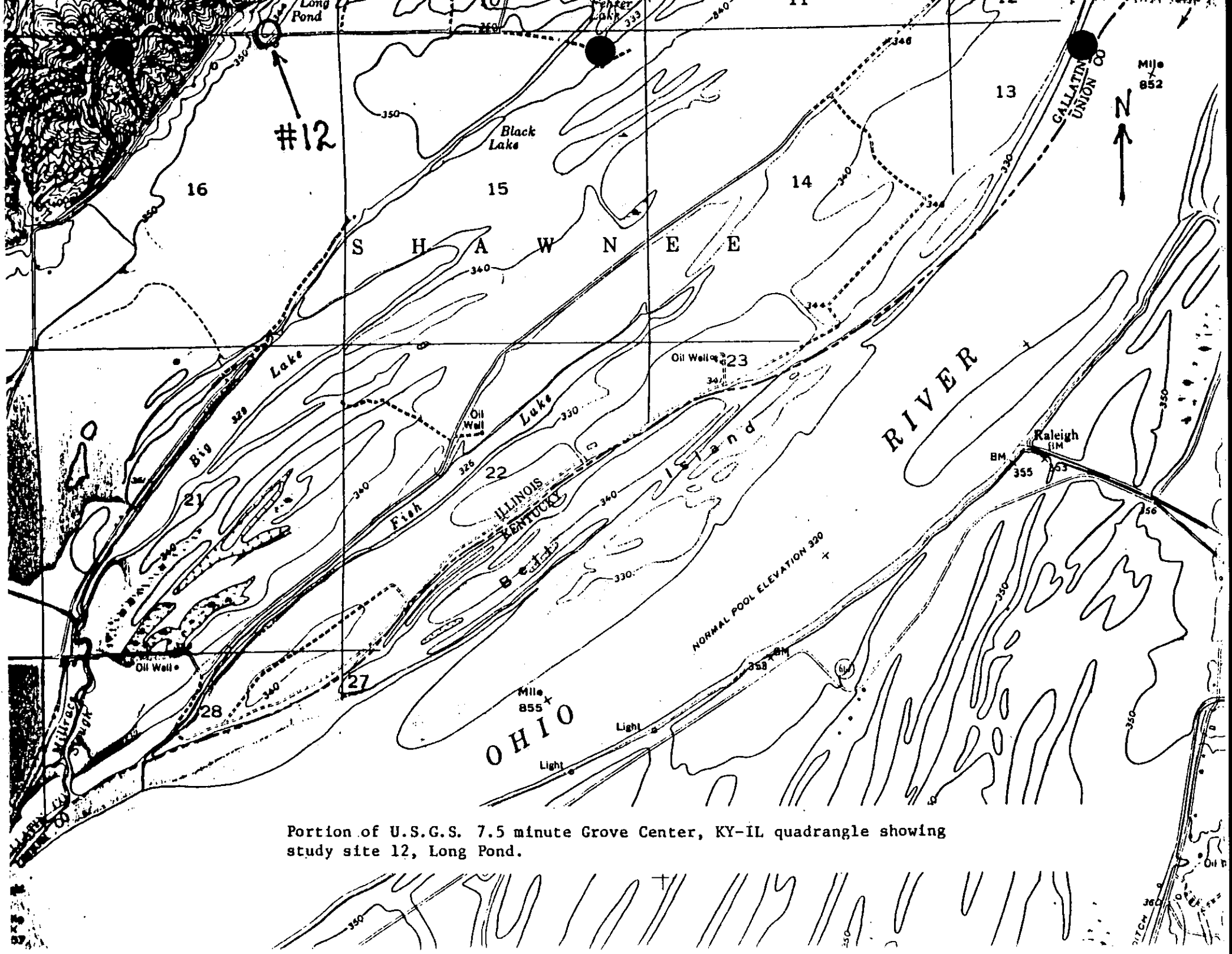
Family Cambaridae

Orconectes virilis

Mussels

Family Unionidae

Quadrula nodulata - Wartyback



Portion of U.S.G.S. 7.5 minute Grove Center, KY-IL quadrangle showing study site 12, Long Pond.

SITE DESCRIPTION

Site Number 13

Site Name: Hulda Lake (a.k.a. Crab Lake or Ab Lake) and Unnamed Wetland SE of lake

Drainage: Wabash-Ohio rivers

County: Gallatin

7.5 Minute Quadrangle: Wabash Island, IL-IN-KY

Location: 13.6 airkm E Ridgway, T8S, R10E, Secs. 28 & 34.

Survey Date(s): 17 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., P. Keller

Major Aquatic Habitat: lacustrine (Hulda Lake); palustine (unnamed wetland)

Vegetation/Cover: scrub-shrub (Hulda Lake shoreline); scrub-shrub, aquatic bed (unnamed wetland)

Water: turbid

Substrate: firm clay

Length of Wetland: 2 km

Maximum Width of Wetland: ca. 90-100 m

Depth of Capture: to 1 m

Air Temperature: 27 C

Water Temperature: 28 C

Hulda Lake lies on the broad floodplain of the Ohio and Wabash rivers and has a small wetland located at its southern end, and as judged by the U.S.G.S. Wabash Island quandrangle (published in 1958), there is a relatively large wetland (Willow Pond Slough) on its northern end. The southern wetland was accessed via a bridge crossing; a debris dam under the bridge separated the area into two small shallow bodies of water. The southern wetland was characterized by dense beds of spatterdock in the center and thick growths of buttonbush and black willow along the margin. The southern wetland was sampled in the open water between the beds of spatterdock and in a duckweed covered pool south of the bridge. Hulda Lake is narrowly forested around its perimeter, but row crops abut the forest on the southeastern and western sides of the lake. The lake was accessed via a dirt road which temminated about mid-way along the western shore. Buttonbush, overhanging roots, and sticks dominate the outermost margin of the lake; the bottom was gently sloping and relatively free of debris.

Sixteen fish, one shrimp, two crayfish, and one mussel species were taken from Hulda Lake and the adjacent wetland, but no unusual or unexpected species were found at these sites. The lake obviously has experienced some problems with siltation and agricultural runoff and no emergent or submergent vegetation was present in the lake. In 1975, Burr collected a spotted sunfish from Hulda (a.k.a. Ab Lake) Lake, but no representatives of this species were captured during our 1987 sampling.

Fishes

Family Amiidae

Amia calva - Bowfin

Family Clupeidae

Dorosoma cepedianum - Gizzard Shad

Family Ictaluridae

Ictalurus punctatus - Channel Catfish

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow
Gambusia affinis - Mosquitofish

Family Atherinidae

Labidesthes sicculus - Brook Silverside

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Lepomis megalotis - Longear Sunfish
Lepomis microlophus - Redear Sunfish
Micropterus salmoides - Largemouth Bass
Pomoxis annularis - White Crappie

Family Percidae

Etheostoma chlorosomum - Bluntnose Darter
Etheostoma gracile - Slough Darter

Family Sciaenidae

Aplodinotus grunniens - Freshwater Drum

Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis

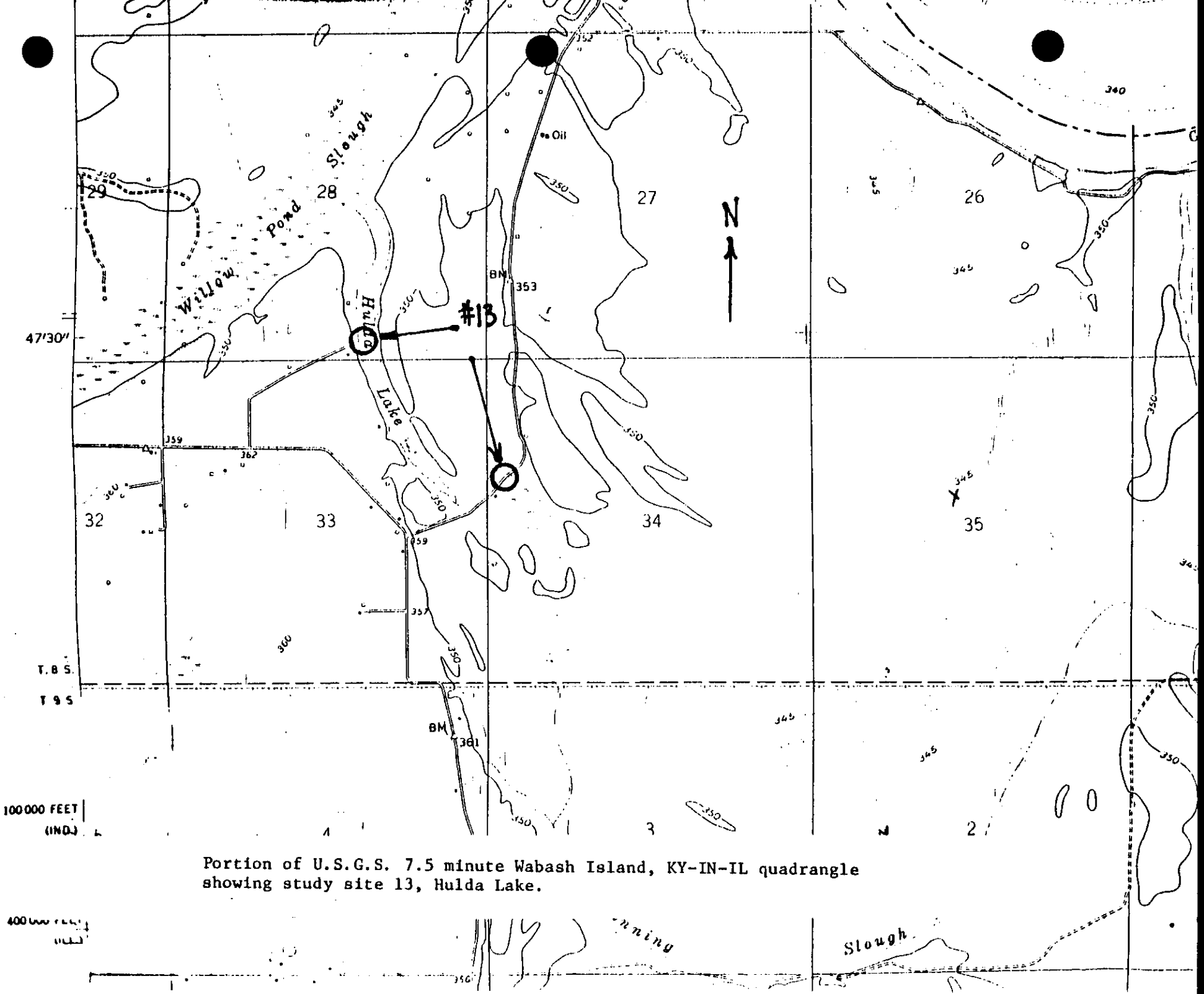
Family Cambaridae

Cambarus diogenes
Procambarus acutus

Mussels

Family Unionidae

Toxolasma texasensis - Texas Lilliput



Portion of U.S.G.S. 7.5 minute Wabash Island, KY-IN-IL quadrangle showing study site 13, Hulda Lake.

SITE DESCRIPTION

Site Number 14

Site Name: Yellowbank Slough

Drainage: Wabash River

County: Gallatin

7.5 Minute Quadrangle: New Haven SW, IL

Location: 4.8 airkm S New Haven, T8S, R10E, Sec. 7

Survey Date(s): 17 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., P. Keller

Major Aquatic Habitat: palustrine

Vegetation/Cover: emergent, aquatic bed, scrub-shrub, forested, other cover

Water: clear

Substrate: firm mud to deep detritus, sticks, and logs

Maximum Width of Wetland: ca. 60-75 m

Depth of Capture: to 1.3 m

Air Temperature: 27 C

Water Temperature: 24 C

Yellowbank Slough, along with Goose Pond, was the largest palustrine wetland sampled. The slough is apparently one of a succession of old meanders of the Wabash River lying against the western edge of the floodplain. The sampled site was accessed via an old oil-well road adjacent to a fallow field lying just north of Black Branch. The area was covered in buttonbush, spatterdock, arrowhead, and swamp mallow; a single pickerel weed also was noted. The only open water was behind a long, high beaver dam and in small patches among vegetation. There was noticeable flow through the beaver dam, but the area below the dam was so thickly vegetated and shallow that sampling was not possible. Numerous bald cypress edge the shoreline and much standing dead timber is scattered throughout the slough. Yellowbank Slough is surrounded by forest which appears to provide a good "buffer zone" between the slough and adjacent crop lands. However, field observations confirmed that much more of the floodplain has been cleared and drained than is indicated on the U.S.G.S. New Haven SW quadrangle (published in 1964). The water temperature was cooler than most floodplain lakes of the area (24 vs 28 C). Seining was difficult because of deep holes (1.6 m) and deep (to 1.0 m) detritus. Yellowbank Slough is one of the few remaining high-quality palustrine wetlands we encountered during this survey.

Twelve species of fishes and one species of shrimp were collected from

Yellowbank Slough including the first record of the lake chubsucker from the entire southern half of Illinois (see Smith 1979). This was the only site at which the species was taken; it was common in the sampled area and specimens were all young-of-the-year indicating successful reproduction. Another notable record was the capture of the spotted sunfish, a species which prior to our survey was known from only two modern records adjacent to the lower Wabash River. For further comments refer to Site Number 2.

Fishes

Family Esocidae

Esox americanus - Grass Pickerel

Family Cyprinidae

Cyprinus carpio - Common Carp
Notemigonus crysoleucas - Golden Shiner

Family Catostomidae

Erimyzon sucetta - Lake Chubsucker

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Aphredoderidae

Aphredoderus sayanus - Pirateperch

Family Centrarchidae

Lepomis cyanellus - Green Sunfish
Lepomis gulosus - Warmouth
Lepomis macrochirus - Bluegill
Lepomis punctatus - Spotted Sunfish

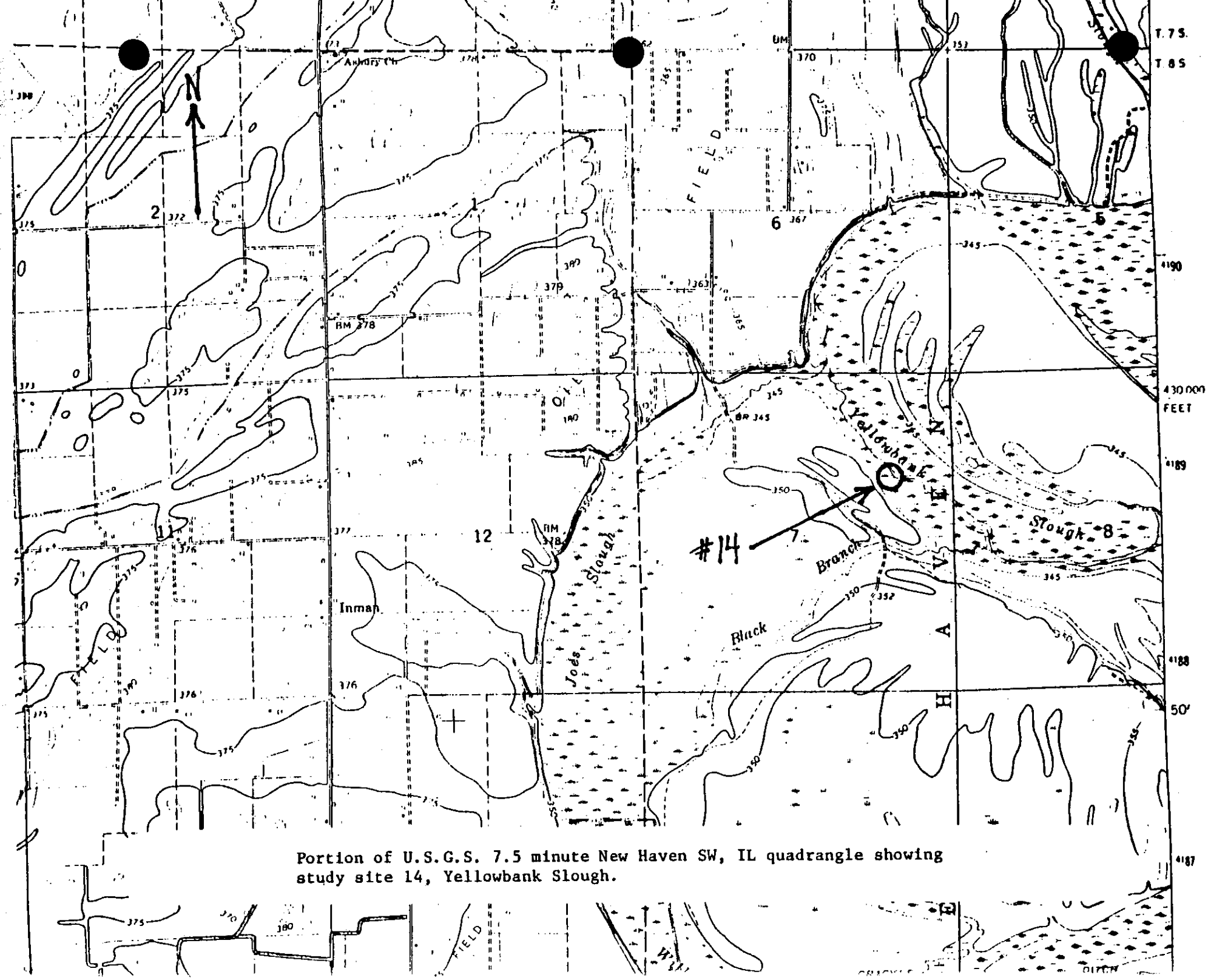
Family Percidae

Etheostoma gracile - Slough Darter

Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis



Portion of U.S.G.S. 7.5 minute New Haven SW, IL quadrangle showing study site 14, Yellowbank Slough.

SITE DESCRIPTION

Site Number 15

Site Name: Goose Pond

Drainage: Running Slough-Wabash River

County: Gallatin

7.5 Minute Quadrangle: Wabash Island, IL-IN-KY

Location: 5.6 km S New Haven, T8S, R10E, Secs. 4 & 5.

Survey Date(s): 13 May, 25 June, and 17 July 1986

Surveyors: M. Peterson, B. R. Kuhajda

Major Aquatic Habitat: palustrine

Vegetation/Cover: emergent, aquatic bed, scrub-shrub, other cover

Water: turbid

Substrate: mud, detritus, sticks, and logs

Depth of Capture: to 1 m

Air Temperature: not determined

Water Temperature: not determined

Goose Pond, an approximately 24 hectare wetland, lies in the Wabash River bottoms in a region once dominated by sloughs, meander scars, and oxbow lakes. The area sampled consists of an extensive shrub-swamp community in association with a wet floodplain forest. The forest occurs south of the shrub swamp. Common shrub swamp plants in the area sampled included buttonbush, spatterdock, smartweed, and hornwort. The sloughs running through Goose Pond are characterized by slow moving, shallow water winding through buttonbush. Goose Pond at present is of high natural quality but is plagued with oil pollution in the surrounding environment.

Fourteen species of fishes and two species of crayfishes were captured from the Goose Pond area (including Goose Pond Scatters). The most significant fish record was that for the central mudminnow, a species not collected at any of our other survey sites and prior to our survey was known from only one other modern record adjacent to the lower Wabash River (see Smith 1979). One other significant record included the capture of a flier. Although suitable habitat seemed available at several other sites sampled, the flier was present at only one other site (Site Number 7). Smith (1979) shows no modern records of the species from southeastern Illinois. Two other notable fish records fom Goose Pond include the Mississippi silvery minnow, a fish rapidly disappearing from southern Illinois due to excessive siltation, and the spotted sunfish, a species we found rather evenly distributed in the wetlands and lakes of southeastern Illinois. Refer to comments under Site Number 2 for the significance of the

spotted sunfish record.

Fishes

Family Clupeidae

Dorosoma cepedianum - Gizzard Shad

Family Umbridae

Umbra limi - Central Mudminnow

Family Esocidae

Esox americanus - Grass Pickerel

Family Cyprinidae

Hybognathus nuchalis - Mississippi Silvery Minnow
Notemigonus crysoleucas - Golden Shiner
Notropis atherinoides - Emerald Shiner
Notropis spilopterus - Spotfin Shiner

Family Cyprinodontidae

Fundulus notatus - BLackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Aphredoderidae

Aphredoderus sayanus - Pirateperch

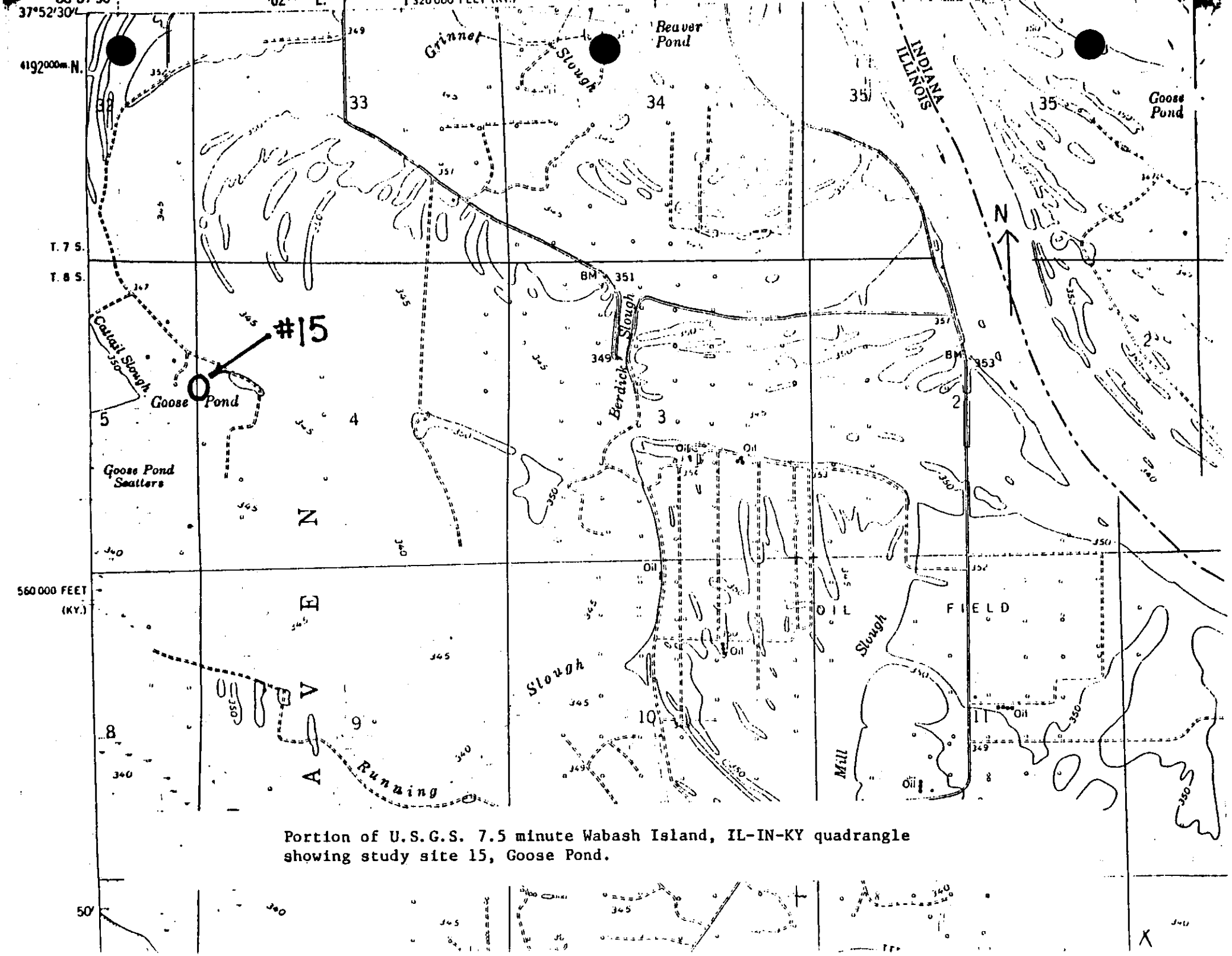
Family Centrarchidae

Centrarchus macropterus - Flier
Lepomis gulosus - Warmouth
Lepomis macrochirus - Bluegill
Lepomis punctatus - Spotted Sunfish

Crayfishes and Shrimps

Family Cambaridae

Cambarus diogenes
Procambarus acutus



Portion of U.S.G.S. 7.5 minute Wabash Island, IL-IN-KY quadrangle showing study site 15, Goose Pond.

SITE DESCRIPTION

Site Number 16

Site Name: Cattail Slough

Drainage: Goose Pond-Running Slough-Wabash River

County: Gallatin

7.5 MInute Quadrangle: Wabash Island, IL-IN-KY

Location: 4.8 km S New Haven, T8S, R10E, Sec. 5.

Survey Date(s): 25 June 1986

Surveyors: M. Peterson, B.R. Kuhajda

Major Aquatic Habitat: palustrine

Water: turbid

Substrate: detritus, some silt, and sticks

Depth of Capture: to 1 m

Air Temperature: not determined

Water Temperature: not determined

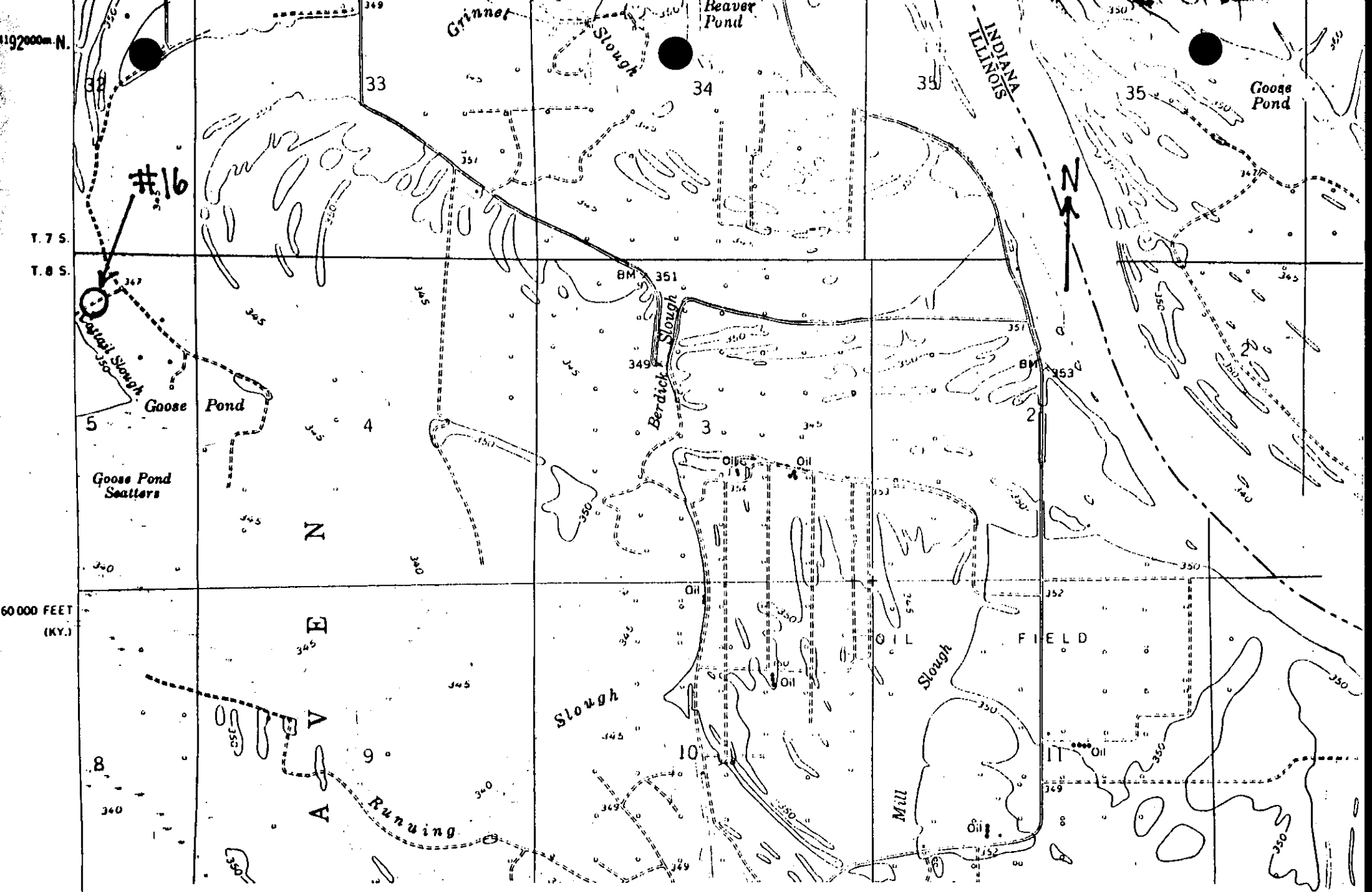
Cattail Slough is physically and floristically similar to Goose Pond (Site Number 15) with which it is contiguous. The site is highly disturbed by oil pollution and runoff from adjacent row crops. The slough is shallow and drying up.

Because little water remains in Cattail Slough, only one species of fish, the slough darter, was found at this site. It is a common species in southern Illinois and was found at nine of our survey sites.

Fishes

Family Percidae

Etheostoma gracile - Slough Darter



Portion of U.S.G.S. 7.5 minute Wabash Island, IL-IN-KY quadrangle showing study site 16, Cattail Slough.

SITE DESCRIPTION

Site Number 18

Site Name: Horseshoe Pond

Drainage: Wabash River

County: Gallatin

7.5 Minute Quadrangle: Emma, IL-IN

Location: 3.25 airkm SE New Haven, T7S, R10E, Sec. 27.

Survey Date(s): 21 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., L.A. Lowry

Major Aquatic Habitat: palustrine

Vegetation/Cover: aquatic bed, scrub-shrub

Water: slightly turbid

Substrate: firm mud, covered with 0.3 to 0.6 m of soft mud

Length of Wetland: 1.2 km

Maximum Width of Wetland: ca. 100 m

Depth of Capture: 1.0 to 1.3 m

Air Temperature: 28 C

Water Temperature: 26 C

As with adjacent Beaver Pond (Site Number 17), Horseshoe Pond has been highly modifed over the past 25 years. Much of the previous surrounding forest has been clear cut and replaced with row crops, wetlands have been drained, and oil brine pollution threatens the site. This pond was densely surrounded by buttonbush and has the most abundant growth of spatterdock encountered at any of the sites we surveyed. Between dense growths of spatterdock was some open water that was sampled for fishes.

Only three fish species were captured at Horsheshoe Pond, and no invertebrates were encountered. Even the ubiquitous mosquitofish was absent. The presence of oil storage facilities, an oil-brine holding pond, and numerous active oil wells adjacent to the site may be implicated in explaining the extremely low animal diversity observed. Whatever the cause, Horseshoe Pond obviously has been subjected to some perturbation.

<u>Fishes</u>

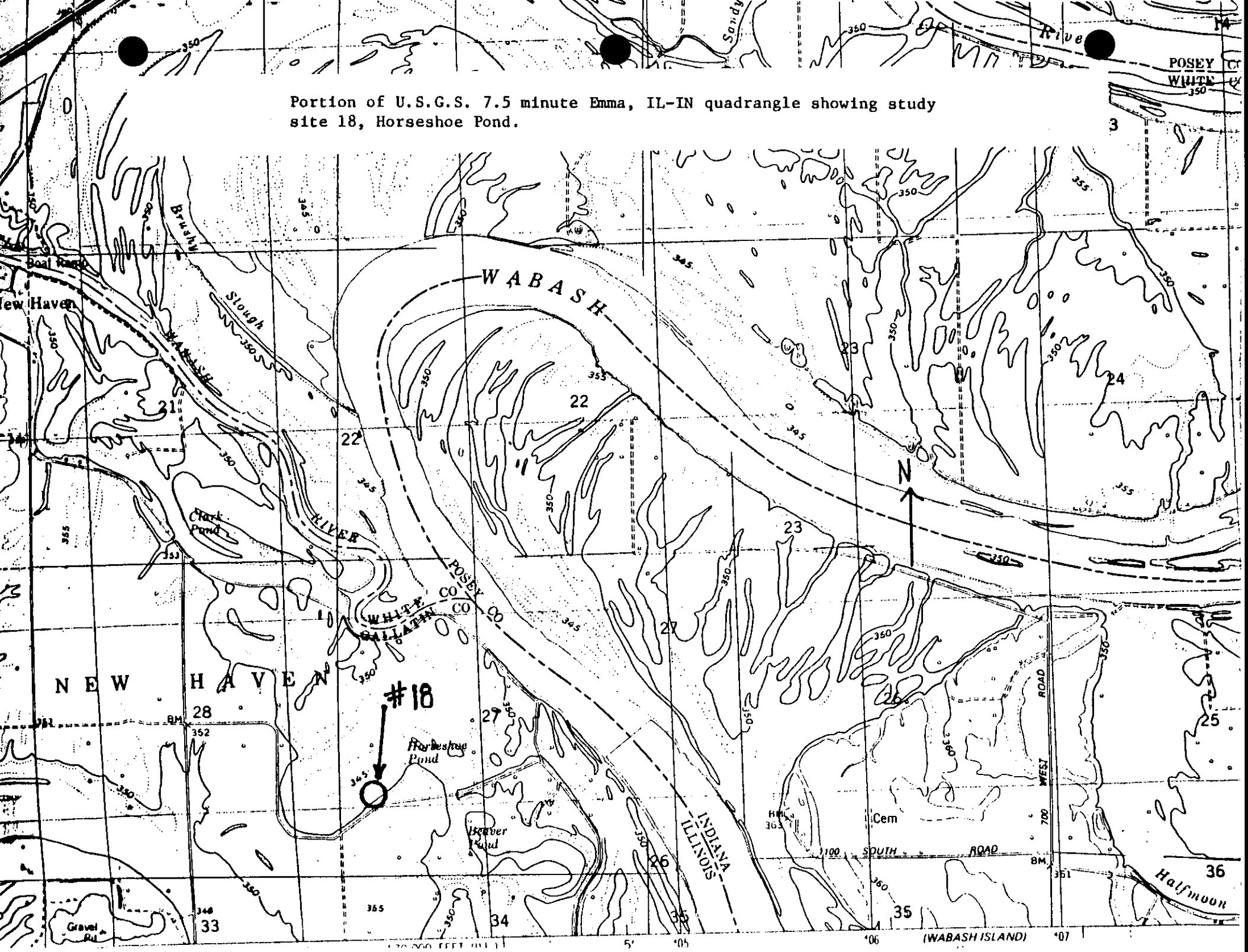
Clupeidae

Dorosoma cepedianum - Gizzard Shad

Centrarchidae

Pomoxis annularis - White Crappie
Pomoxis nigromaculatus - Black Crappie

Portion of U.S.G.S. 7.5 minute Emma, IL-IN quadrangle showing study site 18, Horseshoe Pond.



SITE DESCRIPTION

Site Number 17

Site Name: Beaver Pond

Drainage: Wabash River

County: Gallatin

7.5 Minute Quadrangle: Emma, IL-IN

Location: 3.75 airkm SE New Haven, T7S, R10E, Sec. 27.

Survey Date(s): 21 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., L.A. Lowry

Major Aquatic Habitat: lacustrine

Vegetation/Cover: scrub-shrub (shoreline); other cover

Water: very turbid

Substrate: detritus, mud (to 0.5 m) logs, and sticks

Length of Wetland: 2.25 km

Maximum Width of Wetland: ca. 40-50 m

Depth of Capture: to 1.3 m

Air Temperature: 28 C

Water Temperature: 29 C

Beaver Pond, a long narrow floodplain lake adjacent to the Wabash River has been considerably modified in the past 25 years (see U.S.G.S. Emma quadrangle, 1958 vs 1978 editions). Much of the previous surrounding forest has been clear cut and replaced with row crops on the north, east, and west side of the pond. Active and extensive oil pumping occurs in the immediate vicinity of the pond. Buttonbush is rather evenly distributed along the shoreline; sticks and submerged logs dominate the perimeter of the lake.

Although obviously disturbed, Beaver Pond contained 15 fish species, 3 crayfish and shrimp species, and 1 mussel species. Notable fish records included the capture of the pugnose minnow, tadpole madtom, spotted sunfish, and mud darter. As noted previously (refer to comments under Site Numbers 2, 5, and 9), these three species were found during our survey to be more evenly distributed in southeastern Illinois than formerly believed.

<u>Fishes</u>

Family Cyprinidae

Notemigonus crysoleucas - Golden Shiner
Notropis emiliae - Pugnose Minnow

Family Ictaluridae

Noturus gyrinus - Tadpole Madtom

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Atherinidae

Labidesthes sicculus - Brook Silverside

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Lepomis punctatus - Spotted Sunfish
Micropterus salmoides - Largemouth Bass
Pomoxis annularis - White Crappie

Family Percidae

Etheostoma asprigene - Mud Darter
Etheostoma chlorosomum - Bluntnose Darter
Etheostoma gracile - Slough Darter

Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis

Family Cambaridae

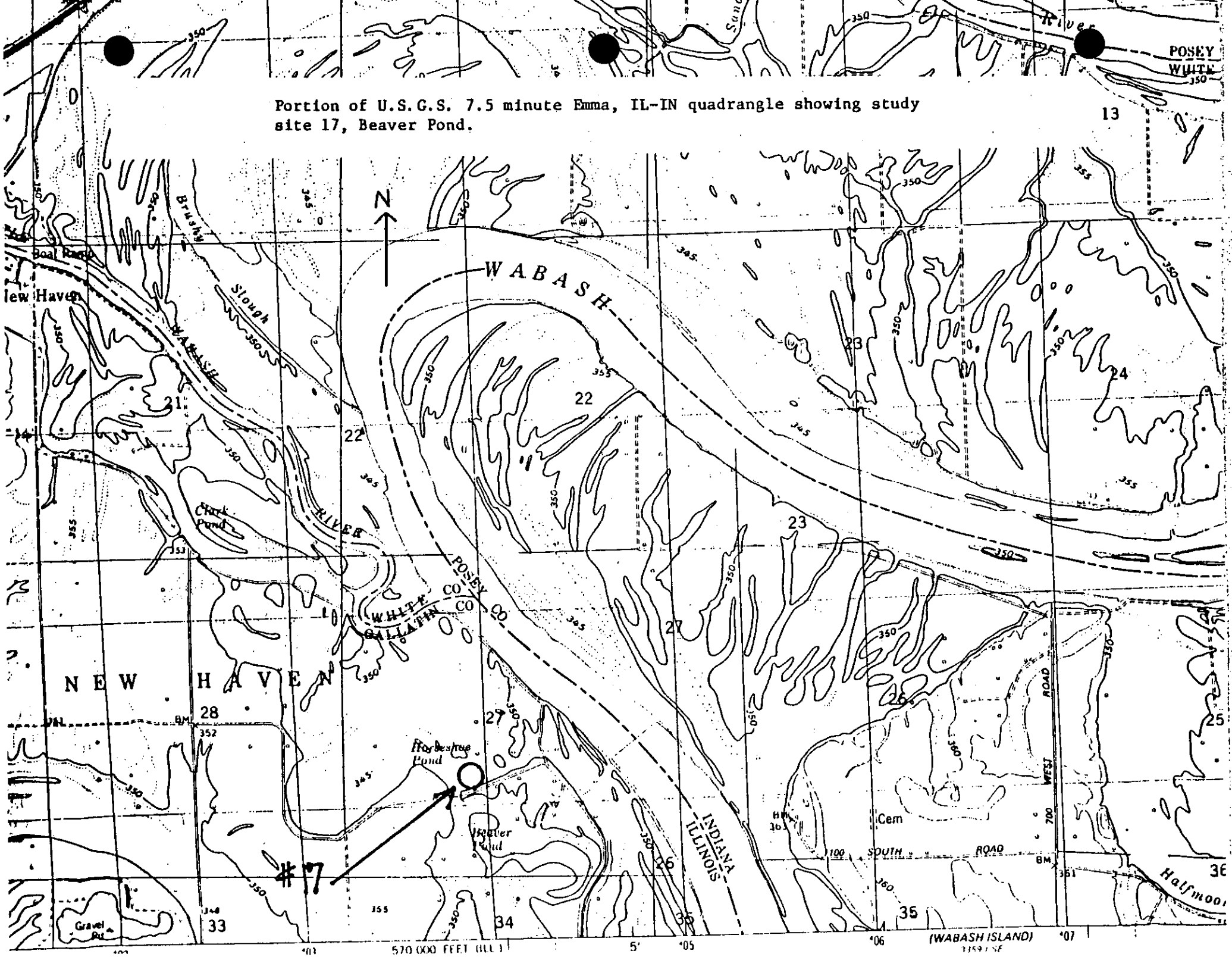
Cambarus diogenes
Orconectes virilis

Mussels

Family Unionidae

Amblema plicata plicata - Three Ridge

Portion of U.S.G.S. 7.5 minute Emma, IL-IN quadrangle showing study site 17, Beaver Pond.



SITE DESCRIPTION

Site Number 19

Site Name: Brushy Slough

Drainage: Little Wabash-Wabash rivers

County: White

7.5 Minute Quadrangle: Emma, IL-IN

Location: 3.25 airkm ENE New Haven, T7S, R10E, Sec. 15.

Survey Date(s): 21 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr., L.A. Lowry

Major Aquatic Habitat: palustrine

Vegetation/Cover: other cover

Water: turbid

Substrate: some gravel at ford, primarily firm clay bottom

Maximum Width of Wetland: ca. 10-20 m

Depth of Capture: to 1.3 m

Air Temperature: 29 C

Water Temperature: 28 C

Like so many of the sites surveyed, Brushy Slough has experienced major modifications and disturbances associated with changes in land use practices over the past 25 years (see U.S.G.S. Emma quadrangle, 1958 vs 1978 editions). Much of the forest that previously buffered the slough from agricultural runoff and siltation has been clear cut and replaced with row crops. Oil pollution does not appear to be a problem in the immediate area. The site chosen for sampling was surrounded by forest, and the shallow slough edges had some buttonbush and overhanging roots. The substrate at the ford across the slough was gravel, but the predominate substrate in the slough was firm clay intermixed with numerous logs and sticks.

Brushy Slough at the sampled site contained 13 fish species and two shrimp and crayfish species . All of these, except the sand shiner, are characteristic of lowland habitats in Illinois. The occurrence of the sand shiner in this lowland habitat probably represents a waif from the adjacent Wabash River. This fish was taken only over the gravel substrate at the Brushy Slough ford. Three notable fish species were captured at Brushy Slough, the pugnose minnow, spotted sunfish, and mud darter. Refer to previous comments under Site Numbers 2 and 9 for the significance of these records.

<u>Fishes</u>

Family Cyprinidae

Notropis emiliae - Pugnose Minnow
Notropis stramineus - Sand Shiner

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Aphredoderidae

Aphredoderus sayanus - Pirateperch

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis megalotis - Longear Sunfish
Lepomis punctatus - Spotted Sunfish
Micropterus salmoides - Largemouth Bass

Family Percidae

Etheostoma asprigene - Mud Darter
Etheostoma chlorosomum - Bluntnose Darter
Etheostoma gracile - Slough Darter

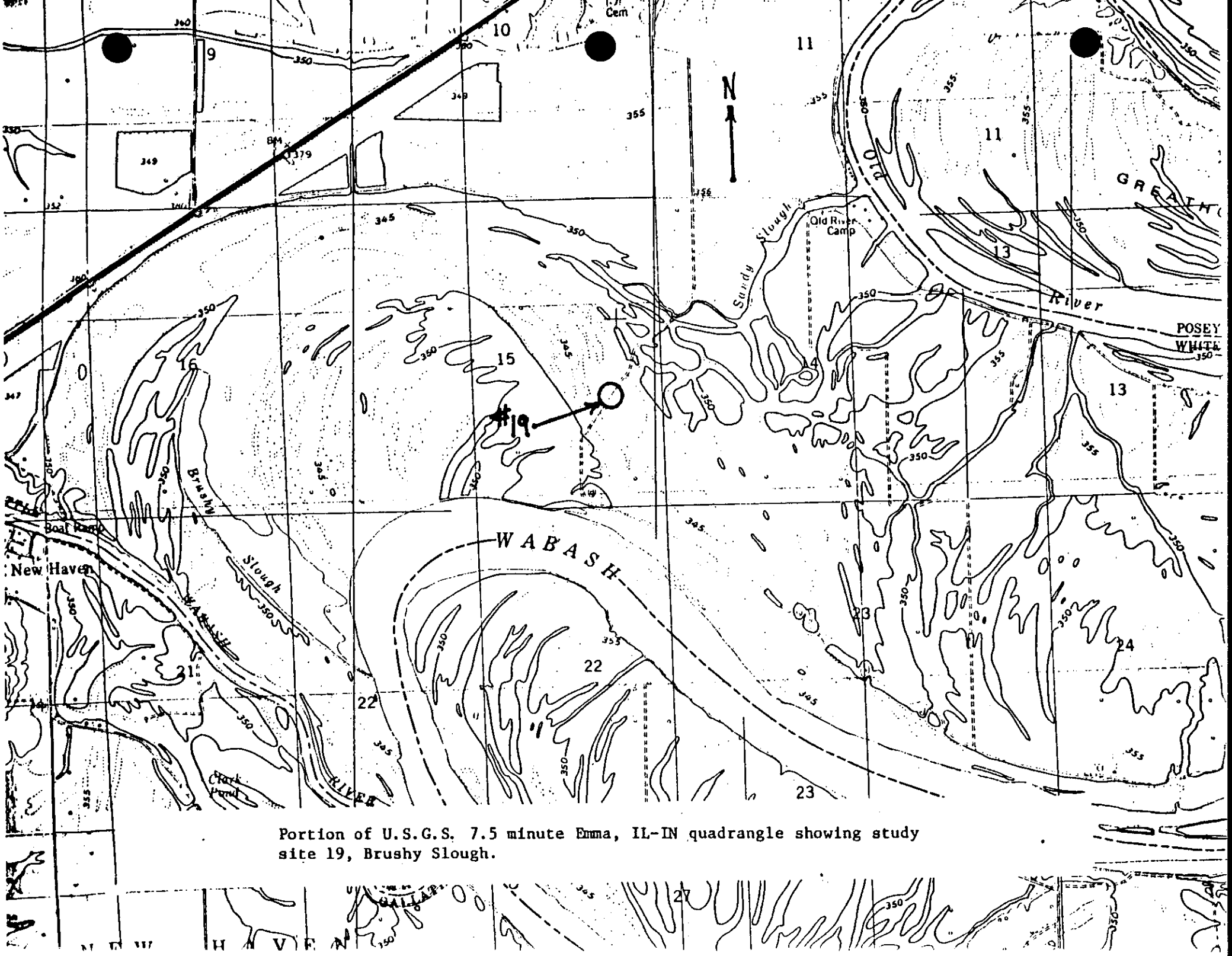
Crayfishes and Shrimps

Family Palaemonidae

Palaemonetes kadiakensis

Family Cambaridae

Orconectes indianensis



Portion of U.S.G.S. 7.5 minute Emma, IL-IN quadrangle showing study site 19, Brushy Slough.

SITE DESCRIPTION

Site Number 20

Site Name: The Bayou

Drainage: Little Wabash River

County: White

7.5 Minute Quadrangle: New Haven, IL

Location: 2.25 airkm N New Haven, T7S, R10E, Sec. 7 & 8.

Survey Date(s): 3 June 1987

Surveyors: B.M. Burr, M.A. Morris

Major Aquatic Habitat: lacustrine

Vegetation/Cover: Scrub-shrub (shoreline); other cover

Water: turbid

Substrate: mud, sticks, and logs

Length of Wetland: 3 km

Maximum Width of Wetland: ca. 90 m

Depth of Capture: to 1.5 m

Air Temperature: 29 C

Water Temperature: not determined

The Bayou, a brushy tree-lined oxbow of the Little Wabash River is surrounded by row crops on three sides. Buttonbush dominates the margin of the lake and the bottom is of soft mud containing numerous sticks and submerged logs making seining difficult.

The fish fauna of The Bayou is apparently depauperate and contains no unusual or unexpected species for this part of the state. The Bayou is heavily fished and appears to have been "managed" for sport fishing. It contains an abundance of bluegills and crappies.

Fishes

Family Cyprinodontidae

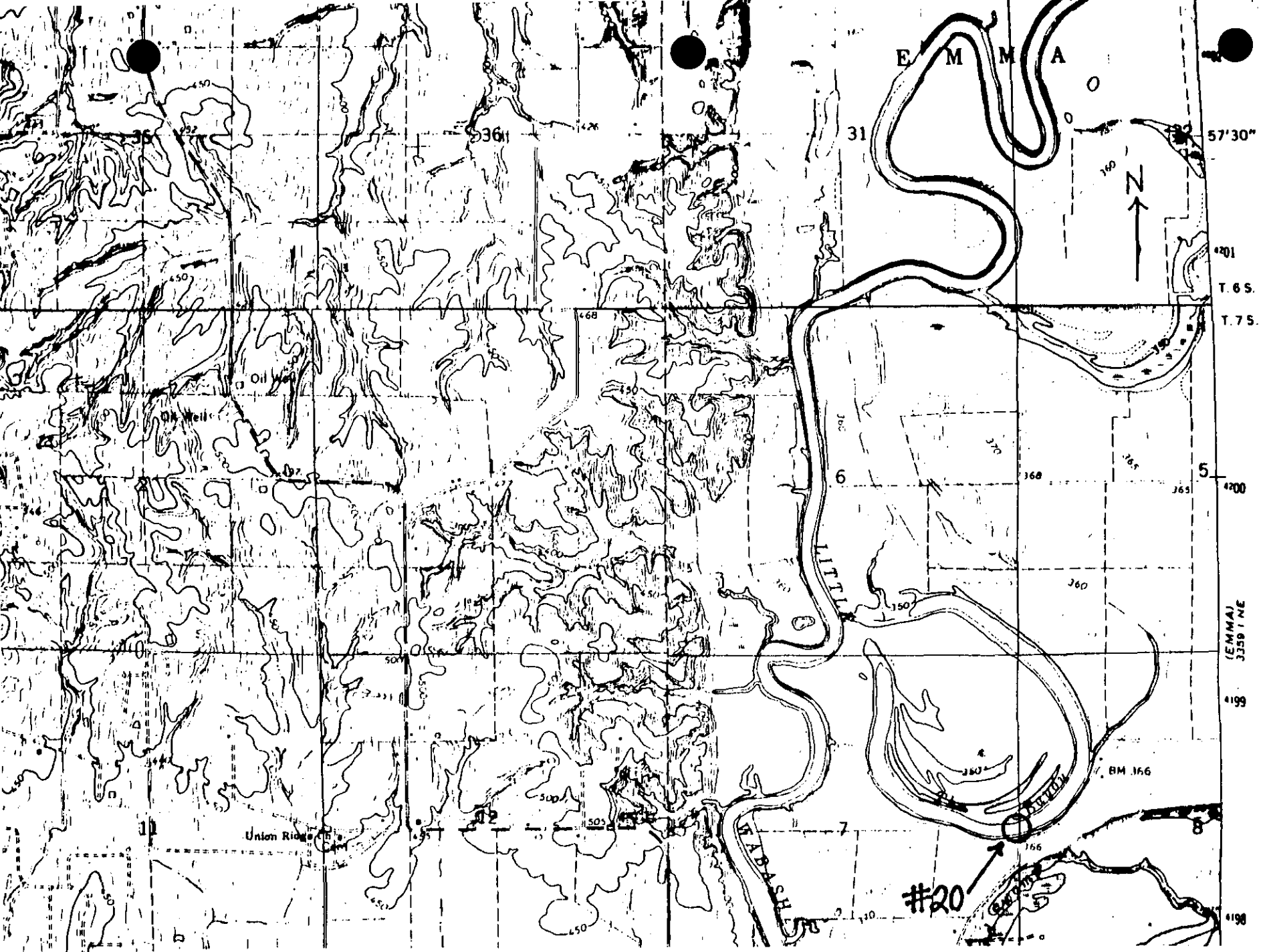
Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Centrarchidae

Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Pomoxis annularis - White Crappie



Portion of U.S.G.S. 7.5 minute New Haven, IL quadrangle showing study site 20, The Bayou.

SITE DESCRIPTION

Site Number 21

Site Name: Old River

Drainage: Wabash River

County: White

7.5 Minute Quadrangle: Emma, IL-IN

Location: 7 airkm SE Emma, T7S, R10E, Secs. 11 & 12.

Survey Date(s): 22 July 1987

Surveyors: B.M. Burr, M.L. Warren, Jr.

Major Aquatic Habitat: lacustrine (main lake); palustrine (northeast end)

Vegetation/Cover: emergent, aquatic bed (northeast end); scrub-shrub, other cover (shoreline)

Water: turbid

Substrate: soft mud, detritus, sticks, and logs

Length of Wetland: 5.5 km

Width of Wetland: ca. 125 m

Depth of Capture: to 1 m with seine; to 2.6 m with gill nets

Air Temperature: 29 C

Water Temperature: 31 C

Old River was part of the previous channel of the Wabash River in White County. This narrow oxbow is surrounded by row crops on its outer edge, but is thickly wooded on its inner edge. Water is deepest on the outer curve of the lake, shallowest on the inner curve. The northeast end of the lake is ponded with beaver dams and these areas contain buttonbush, lizardstail, and arrowhead; the water surface here is covered with duckweeds. Water temperature in the beaver ponded areas is several degrees cooler than that of the main lake. The perimeter of the main lake has many logs and sticks; buttonbush occurs sparsely in the shallow lake margins.

A combination of seining the ponded areas and the main lake edges, and of gill netting the main channels revealed the presence of 20 fish species in Old River. One mussel species was collected. Notable fish records included those for the paddlefish, spotted gar, shortnose gar, and black buffalo. The spotted gar and black buffalo were previously unknown from southeastern Illinois (refer to comments under Site Number 2). The paddlefish and shortnose gar are uncommon in the southeastern portion of the state.

Fishes

Family Polyodontidae

Polyodon spathula - Paddlefish

Family Lepisosteidae

Lepisosteus oculatus - Spotted Gar
Lepisosteus platostomus - Shortnose Gar

Family Amiidae

Amia calva - Bowfin

Family Clupeidae

Dorosoma cepedianum - Gizzard Shad

Family Esocidae

Esox americanus - Grass Pickerel

Family Cyprinidae

Cyprinus carpio - Common Carp
Notemigonus crysoleucas - Golden Shiner

Family Catostomidae

Ictiobus bubalus - Smallmouth Buffalo
Ictiobus niger - Black Buffalo

Family Ictaluridae

Ictalurus punctatus - Channel Catfish
Noturus gyrinus - Tadpole Madtom

Family Cyprinodontidae

Fundulus notatus - Blackstriped Topminnow

Family Poeciliidae

Gambusia affinis - Mosquitofish

Family Centrarchidae

Lepomis gulosus - Warmouth
Lepomis humilis - Orangespotted Sunfish
Lepomis macrochirus - Bluegill
Pomoxis annularis - White Crappie

Family Percidae

Etheostoma gracile - Slough Darter

Family Sciaenidae

Aplodinotus grunniens - Freshwater Drum

Crayfishes and Shrimps

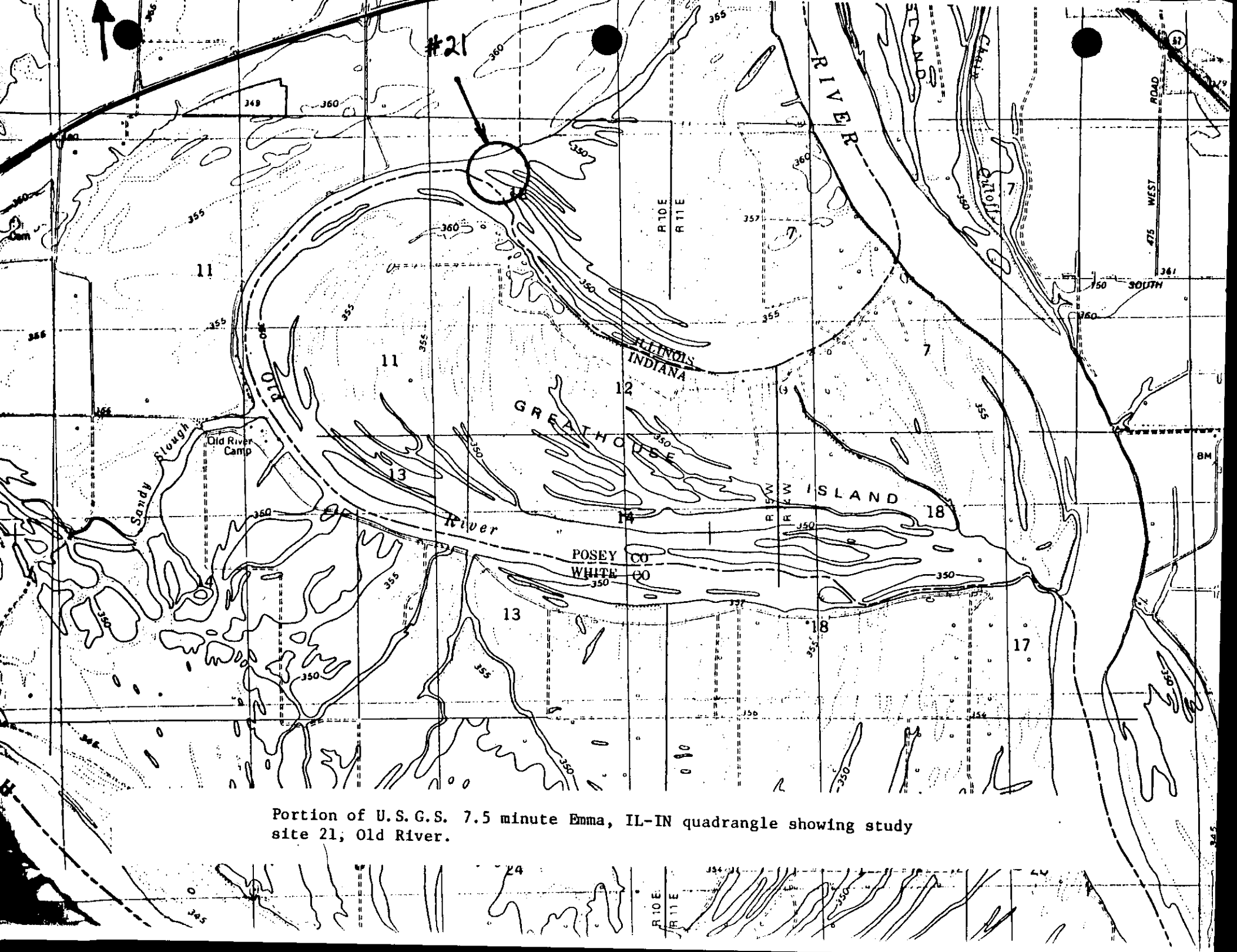
Family Palaemonidae

Palaemonetes kadiakensis

Mussels

Family Unionidae

Ligumia subrostrata - Pondmussel



Portion of U.S.G.S. 7.5 minute Emma, IL-IN quadrangle showing study site 21, Old River.