

# Checklist of the Freshwater Fishes of the Little Wabash River Drainage in Effingham County, Illinois with Comments on Possible Changes in Faunal Composition

John K. Tucker  
Illinois Natural History Survey  
1005 Edwardsville Road  
Wood River, Illinois 62095 USA

## ABSTRACT

A checklist of 55 species of fishes is presented based on museum records and field collections made from July through September, 1991, at 27 localities in the Little Wabash River drainage in Effingham County, Illinois. Thirteen species are reported from Effingham County for the first time. *Morone mississippiensis* is recorded in the Little Wabash River drainage for the first time. Seven species previously reported from the county were not recollected in 1991. Records reported here for six species, including *Lythrurus fumeus*, *Lepomis microlophus*, *Minytrema melanops*, *Aphredoderus sayanus*, *Etheostoma asprigene*, and *Aplodinotus grunniens*, are the northern most records for the species in the Little Wabash River drainage. Except for *Etheostoma asprigene*, which was not recollected during the current study, these species may have expanded their ranges northward. Two others, *Gambusia affinis* and *Morone mississippiensis*, may also have done so. Of the seven species not collected in 1991, six respond negatively to increased siltation, and at least four of the seven species thought to have expanded their ranges prefer mud or silt bottoms.

## INTRODUCTION

The only previously published information on the fishes of Effingham County can be found in Smith (1979), who found that the headwaters of the Little Wabash River contained a diverse fauna. He also noted the possible impact of siltation and oil field pollution on the river and its fishes. My study reports on the fishes caught at 27 collecting stations (Figure 1) in the Little Wabash River drainage from July through September of 1991.

## SETTING

Effingham County is located in south-central Illinois. With the exception of Wolf Creek of the Kaskaskia River drainage, streams in the county are part of the Little Wabash River drainage. The county lies south of the Shelbyville Moraine and south of the Prairie

Peninsula. Vegetation is mixed and includes southern division woodlands and prairie (Smith, 1961). Streams in the northern half of the county have sand-gravel-stone bottoms, and those in the southern half more commonly have mud or silt bottoms (Smith, 1979).

## MATERIALS AND METHODS

Fishes were caught using a 4-m seine with a 4.5-mm mesh or with hook and line using both small and large hooks. Both methods were used at each locality sampled. Fishes were identified using Smith (1979) and Page and Burr (1991). Difficult identifications were confirmed by comparison to specimens in the collections of the Illinois Natural History Survey. Voucher specimens were deposited in the Illinois Natural History Survey and at Southern Illinois University at Carbondale. Records from the Illinois Natural History Survey (INHS), Southern Illinois University at Carbondale (SIUC), and University of Michigan Museum of Zoology (UMMZ) were used to complete the checklist.

Of the 27 localities sampled, 9 were from the Little Wabash proper, 17 were from tributaries, and 1 was from an impoundment. At each locality, at least two pools and three riffles were seined. After seining, hook and line fishing was employed in each of the pools. Except for *Aplodinotus grunniens* and *Morone mississippiensis*, species caught by hook and line were also represented in seine samples.

Localities were chosen on the basis of two criteria. First, I sampled all localities that had previously been sampled by the crews from the Illinois Natural History Survey or Southern Illinois University at Carbondale. Second, localities not previously sampled were chosen if permission to seine could be obtained and if the locality could be easily reached by automobile. In those instances where records existed for fishes not yet collected by me in 1991, multiple visits were made to the localities in an attempt to recollect those species. Locality 4, the most intensively sampled station, was visited 6 times over the course of the study. Localities 7, 10, 11, and 25 were visited three times and localities 5, 6, 11, 16, and 17 were each visited twice. The remaining localities were visited once. Appendix 1 describes the 27 localities sampled in 1991.

## CHECKLIST

The checklist is based on specimens in the collections of INHS, SIUC, and UMMZ along with species collected during the current study. All species reported including new records (marked with an \*), are supported by specimens in institutional collections. Nomenclature follows that of Page and Burr (1991). Order of presentation follows that of Smith (1979). Species marked with an epsilon ( $\epsilon$ ) are thought to be extirpated from the county.

### Family Clupeidae (Shads)

*Dorosoma cepedianum* (Lesueur, 1818)

Gizzard Shad

### Family Cyprinidae (Minnnows)

*Cyprinus carpio* Linné, 1758

Common Carp

*Notemigonus crysoleucas* (Mitchill, 1814)

Golden Shiner

<i>Semotilus atromaculatus</i> (Mitchill, 1818)	Creek Chub
<i>Nocomis biguttatus</i> (Kirtland, 1841)	Hornyhead Chub ε
<i>Campostoma anomalum</i> (Rafinesque, 1820)	Central Stoneroller
<i>Phenacobius mirabilis</i> (Girard, 1856)	Suckermouth Minnow
<i>Luxilus chrysocephalus</i> Rafinesque, 1820	Striped Shiner
<i>Lythrurus fumeus</i> Evermann, 1892	Ribbon Shiner *
<i>L. umbratilis</i> (Girard, 1856)	Redfin Shiner
<i>Cyprinella spiloptera</i> (Cope, 1866)	Spotfin Shiner
<i>C. whipplei</i> Girard, 1856	Steelcolor Shiner
<i>Pimephales notatus</i> (Rafinesque, 1820)	Bluntnose Minnow
<i>P. vigilax</i> (Baird and Girard, 1853)	Bullhead Minnow *
<i>Notropis boops</i> Gilbert, 1884	Bigeye Shiner ε
<i>N. ludibundus</i> (Girard, 1856)	Sand Shiner
<i>Hybopsis amblops</i> (Rafinesque, 1820)	Bigeye Chub ε
<i>Ericymba buccata</i> Cope, 1865	Silverjaw Minnow
Family Catostomidae (Suckers)	
<i>Carpiodes cyprinus</i> (Lesueur, 1817)	Quillback
<i>Catostomus commersoni</i> (Lacépède, 1803)	White Sucker
<i>Minytrema melanops</i> (Rafinesque, 1820)	Spotted Sucker *
<i>Erimyzon oblongus</i> (Mitchill, 1815)	Creek Chubsucker
<i>Hypentelium nigricans</i> (Lesueur, 1817)	Northern Hog Sucker
<i>Moxostoma erythrurum</i> (Rafinesque, 1818)	Golden Redhorse
<i>M. macrolepidotum</i> (Lesueur, 1817)	Shorthead Redhorse
Family Ictaluridae (Bullhead Catfishes)	
<i>Ictalurus punctatus</i> (Rafinesque, 1818)	Channel Catfish *
<i>Ameiurus melas</i> (Rafinesque, 1820)	Black Bullhead
<i>A. natalis</i> (Lesueur, 1819)	Yellow Bullhead *
<i>Noturus gyrinus</i> (Mitchill, 1817)	Tadpole Madtom
<i>N. miurus</i> Jordan, 1877	Brindled Madtom
Family Aphredoderidae (Pirate Perches)	
<i>Aphredoderus sayanus</i> (Gilliams, 1824)	Pirate Perch *
Family Fundulidae (Topminnows and Killifishes)	
<i>Fundulus notatus</i> (Rafinesque, 1820)	Blackstripe Topminnow
Family Poeciliidae (Livebearers)	
<i>Gambusia affinis</i> (Baird and Girard, 1853)	Mosquitofish *
Family Moronidae (Temperate Basses)	
<i>Morone mississippiensis</i> Eigenmann, 1887	Yellow Bass *
Family Centrarchidae (Sunfishes and Basses)	
<i>Pomoxis annularis</i> Rafinesque, 1818	White Crappie *
<i>Micropterus punctulatus</i> (Rafinesque, 1819)	Spotted Bass
<i>M. salmoides</i> (Lacépède, 1802)	Largemouth Bass
<i>Lepomis cyanellus</i> Rafinesque, 1819	Green Sunfish
<i>L. gulosus</i> (Cuvier and Valenciennes, 1829)	Warmouth *
<i>L. humilis</i> (Girard, 1857)	Orangespotted Sunfish
<i>L. macrochirus</i> Rafinesque, 1819	Bluegill
<i>L. megalotis</i> (Rafinesque, 1820)	Longear Sunfish
<i>L. microlophus</i> (Günther, 1859)	Redear Sunfish *

## Family Percidae (Darters)

<i>Percina caprodes</i> (Rafinesque, 1818)	Logperch
<i>P. maculata</i> (Girard, 1859)	Blackside Darter
<i>P. phoxocephala</i> (Nelson, 1876)	Slenderhead Darter
<i>P. sciera</i> (Swain, 1883)	Dusky Darter
<i>Etheostoma asprigene</i> (Jordan, 1878)	Mud Darter * ε
<i>E. blennioides</i> Rafinesque, 1819	Greenside Darter
<i>E. chlorosomum</i> (Hay, 1881)	Bluntnose Darter ε
<i>E. gracile</i> (Girard, 1859)	Slough Darter
<i>E. nigrum</i> Rafinesque, 1820	Johnny Darter
<i>E. pellucidum</i> (Putnam, 1863)	Eastern Sand Darter ε
<i>E. spectabile</i> (Agassiz, 1854)	Orangethroat Darter

## Family Sciaenidae (Drums)

<i>Aplodinotus grunniens</i> Rafinesque, 1819	Freshwater Drum *
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## RESULTS AND DISCUSSION

The checklist includes 55 species. Of these, 48 were collected during my sampling in 1991 (Table 1). Thirteen species (Appendix 2) are reported as county records. Of the 13 county records, 12 species were previously known from the Little Wabash River drainage in other parts of Illinois. *Morone mississippiensis* is reported from the Little Wabash River drainage for the first time. Records reported here for five species - *Lythrurus fumeus*, *Minytrema melanops*, *Aphredoderus sayanus*, *Etheostoma asprigene*, and *Aplodinotus grunniens* - are the northern most records for the species in the Little Wabash River drainage. *Etheostoma asprigene* was not recollected during 1991, and its status is not certain. The other four species may have expanded their ranges northward. Three others, *Gambusia affinis*, *Lepomis microlophus*, and *Morone mississippiensis*, may also have done so, but it is also possible that these species were introduced because the first is commonly introduced for mosquito control while the latter two are sometimes stocked as a sport fish. Six species (Appendix 3) were not recollected. One species, *Etheostoma asprigene*, is included based on a museum record but was not recollected in 1991 nor was it reported by Smith, 1979.

The seven species that were not recollected, with the possible exception of *Etheostoma asprigene*, respond negatively to increased siltation (Smith, 1979). At the same time, at least four of seven species thought to have expanded their ranges, namely, *Lythrurus fumeus*, *Ameiurus natalis*, *Aphredoderus sayanus*, and *Aplodinotus grunniens*, prefer mud or silt bottoms (Smith, 1979). Because collecting effort could not be standardized among years and collectors, it is uncertain whether species not recollected are extirpated or were just missed. It is also possible that species not previously collected may have been present but missed. What is known is that the clear-water species not recollected in 1991 are now uncommon enough to be missed and that the species preferring silt or mud bottoms are now common enough to be collected.

The net change in diversity among Effingham County fishes is difficult to measure because there are no previously published studies to which the 1991 findings can be compared and because collecting efforts have not been standardized. However, if Smith (1979) is adopted as a starting place, then a base line can be reconstructed. Of the 55

species in the checklist, Smith (1979) reported records for 42. He did not report UMMZ records for *Etheostoma asprigene*, *Minytrema melanops*, and *Lepomis gulosus*. If these are added to Smith's (1979) reported records, a pre-1979 total of 45 species results. Smith (1979) also reported records both north and south of Effingham County for *Ameiurus natalis*, *Ictalurus punctatus*, and *Pomoxis annularis*. Adding these three to the pre-1979 total yields 48 species. Considering 48 species as a pre-1979 base line, the impact of human activities including siltation and stocking of exotic species can be estimated. Seven species (*Etheostoma asprigene* and the six included in Appendix 3) may be extirpated or are at least uncommon enough to be missed. If these are deducted from the pre-1979 total of 48 species, then 41 of those species remain in the Little Wabash River drainage in Effingham County. This is a net reduction in diversity of 14.58%. However, seven other species have either expanded their ranges into Effingham County or at least become common enough to be collected by the efforts expended. These are called post-1979 species. It must be acknowledged that all of these species may have been present prior to 1979 but were simply missed by the collecting efforts reported in Smith (1979). In any case, net species diversity has not changed appreciably from what it was when Smith (1979) reported his results.

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**APPENDIX 1: Localities Sampled**

1. Wren Drive area of Lake Sara, 7 miles W of Effingham, T8N, R5E, sec. 15;
2. Little Wabash River at junction with county road 1975N, T9N, R6E, sec. 30;
3. Little Wabash River at junction with county road 1000N, T7N, R5E, sec. 11 and 14;
4. Little Wabash River at junction with Ill. routes 32 and 33, T8N, R5E, sec. 13;
5. Little Wabash River at junction with Fayette Avenue, county road 1375N, T8N, R5E, sec. 25;
6. Little Wabash River at junction with Ford Avenue, county road 1175E, T8N, R5E, sec. 13 and 24;
7. Little Wabash River at junction with US route 40, T8N, R5E, sec. 36;
8. Little Wabash River at junction with county road 900E, T7N, R5E, sec. 22;
9. Little Wabash River at junction with county road 300N, T6N, R6E, sec. 17 and 20;
10. Little Wabash River at junction with Ill. route 37, T6N, R5E, sec. 1;
11. Shoal Creek, 1.5 miles E of junction with Ill. route 32, T9N, R5E, sec. 26;
12. Shoal Creek at junction with Ill. route 32, T9N, R5E, sec. 34 and 35;
13. North Fork of Shoal Creek at junction with county road 2000N, T9N, R5E, sec. 25;
14. Green Creek, 0.25 mile S of county road 1800N, T8N, R6E, sec. 6;
15. Green Creek at junction with county road 1400E, T9N, R6E, sec. 32;
16. Green Creek at junction with county road 1975N, T9N, R6E, sec. 28;
17. Green Creek at junction with county road 1800N, T8N, R6E, sec. 5;
18. Lilly Creek at junction with US route 40, T7N, R5E, sec. 4;
19. Limestone Creek 0.5 mile W of county road 750E, T6N, R5E, sec. 18;
20. Big Creek at junction with county road 675E, T7N, R5E, sec. 30;
21. Second Creek at junction with county road 650E, T7N, R5E, sec. 19;
22. Fulfer Creek at junction with county road 725E, T6N, R5E, sec. 8;
23. Coon Creek at junction with county road 225N, T6N, R6E, sec. 19;
24. Salt Creek at junction with Crystal Club Road, county road 1600E, T8N, R6E, sec. 14;
25. Salt Creek at junction with county road 500N, T6N, R6E, sec. 4;
26. Little Salt Creek at junction with Ill. route 33, T7N, R7E, sec. 5;
27. Bishop Creek at junction with US route 45, T6N, R6E, sec. 21.

## APPENDIX 2: County Records

Localities for 1991 collections and for collections made prior to 1991 but not reported by Smith (1979), and comments for species reported from Effingham County for the first time are as follows:

### *Ameiurus natalis*

Current study: Locality numbers 1 (INHS 29440) and 27 (INHS 29446); also observed but not collected at locality 4. Nearest previously published record is for Clay County (Smith, 1979). However, the species has been reported from all other counties bordering Effingham County and from the Little Wabash River drainage north and south of Effingham County (Smith, 1979).

### *Aphredoderus sayanus*

Current study: Locality numbers 19 (INHS 29438), 21, 23 (INHS 29441), and 27 (INHS 29447). Nearest previously published record is for Clay County (Smith, 1979). Effingham County localities are the northern most records for the species from the Little Wabash River drainage.

### *Aplodinotus grunniens*

Current study: Locality number 10 (INHS 29439). Nearest previously published locality is in Wayne County (Smith, 1979). The Effingham County locality is the northern most record for the species from the Little Wabash River drainage.

### *Etheostoma asprigene*

Current study: None collected. Museum record:UMMZ 105938 from an unnamed tributary near Mason, Illinois. Previously reported from Clay County by Smith, 1979. Its status in Effingham County is not certain. No specimens were found in likely habitats in the southern portion of the county from which the UMMZ specimen was collected in 1937. The species is included in this appendix because it had not been previously recorded for Effingham County.

### *Gambusia affinis*

Current study: Locality numbers 1, 5, 7, 8, and 10. Museum record:SIUC unnumbered from locality 7. Nearest previously published record is for Clay County. The Effingham County records are the northern most records for the species from the Little Wabash River drainage.

### *Ictalurus punctatus*

Current study: Locality numbers 1, 3, 4, 6, and 8. Museum records:INHS 59293 from locality 25 and INHS 59134 from locality 10. The species is widely stocked and previously reported from the Little Wabash River drainage both north and south of the Effingham County records.

### *Lepomis gulosus*

Current study: Not taken, but observed at locality 1. Museum record:UMMZ 105941 from an unnamed tributary near Mason, Illinois. Nearest previously published record is

from Clay County. The Effingham County record is the northern most record for the species from the Little Wabash River drainage.

*L. microlophus*

Current study: Localities 1, 4, 12, 13, and 14. Museum record:INHS 59137 from locality 10. The nearest previously published record is from Fayette County (Smith, 1979). The Effingham county records are the northern most records for the species from the Little Wabash River drainage.

*Lythrurus fumeus*

Current study: Localities 25 and 27. Museum record:SIUC 7435 from locality 2. The nearest previously published record is from Clay County (Smith, 1979). The Effingham County records are the northern most records for the species from the Little Wabash River drainage.

*Minytrema melanops*

Current study: Localities 3 and 10. Museum record:UMMZ 105934 from an unnamed tributary near Mason, Illinois. The nearest previously published record is for Clay County (Smith, 1979). The Effingham County records are the northern most records for the species from the Little Wabash River drainage.

*Morone mississippiensis*

Current study: Locality 10 (INHS 29443). The nearest previously published record is for Coles County in the Embarras River drainage. The Effingham County record is the first record for the species in the Little Wabash River drainage. This species is occasionally stocked as a sport fish, and the specimen may be an escapee from a stocking.

*Pimephales vigilax*

Current study: Localities 9, 10, and 26. Museum records:INHS 59159 from locality 5; SIUC 13383 from locality 7; INHS 59291 from locality 25. The nearest records are from Fayette County to the west and Shelby County to the north (Smith, 1979). The Effingham County records represent the southern most records for the species from the Little Wabash River drainage. This species is widely used as a bait fish, and the Effingham County records may represent bait releases.

*Pomoxis annularis*

Current study: Locality 9; also observed but not collected at localities 1 and 7. Museum record:SIUC 13390 from locality 7. The White Crappie is widely stocked and has been reported from both north and south of Effingham County in the Little Wabash River drainage (Smith, 1979).



### APPENDIX 3: Species Not Recollected

#### *Nocomis biguttatus*

The hornyhead chub is known from a single record from locality 5 (INHS 7505) collected in 1950. The locality was subsequently visited once by an INHS crew (August 1990), once by SIU collectors (October 1982), and twice during the current study. It seems likely that this chub no longer occurs in Effingham County.

#### *Notropis boops*

This species has been collected twice in Effingham County: in 1950 at locality 5 (INHS 7507) and in 1960 at locality 10 (INHS 7534). SIU collectors visited locality 5 in 1982 and did not collect the species. I visited the locality twice in 1991 and did not recover the species. INHS collectors revisited locality 10 in May 1964 and August 1990 but did not report the species. During my study this locality was sampled three times, but the bigeye shiner was not found. It seems likely that this species is now extirpated from Effingham County.

#### *Hybopsis amblops*

This species is known from locality 5 (INHS 7504) where three specimens were collected in July 1950. Since then the location has been sampled four times by INHS, SIU, and myself without producing any additional specimens of the bigeye chub. The species appears to be extirpated from Effingham County.

#### *Percina phoxocephala*

This species of *Percina* had previously been collected at locality 10 in 1964 (INHS 7554), locality 25 in 1970 (INHS 7678), and locality 7 in 1986 (SIUC 13395). During the current study no specimens of the slenderhead darter were collected. The species does certainly occur in neighboring Clay County because specimens were collected in 1991 at two locations along the Little Wabash River by myself. It is likely that this species still occurs in Effingham County but that it is rare or at least less common than it was previously.

#### *Etheostoma chlorosomum*

The bluntnose darter is known from two records. One of these, INHS 59304, sixteen specimens collected in 1877, is without precise locality data. The other, UMMZ 105937, is from a "small trib of Little Wabash River, near Mason" and was collected in 1937. No additional specimens have been recovered despite intensive collecting by INHS, SIUC, and myself. The species does still occur in Clay County and was found to be common at one location in that county. It is, however, likely extirpated from Effingham County.

#### *Etheostoma pellucidum*

This darter was collected once at locality 5 in 1950 (INHS 7520). It has not been collected since, though this locality has been visited no fewer than four times since then. Locality 4, which was visited six times during the current study, appears to be ideal habitat for this sand-loving darter, yet no specimens were recovered. It is almost certain that the species is now extirpated from Effingham County.



Figure 1. Little Wabash River drainage in Effingham County. Details on each collecting station (numbers) are in Appendix 1.

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