

A Distributional Checklist of the Fishes of Kentucky

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ABSTRACT.—A compilation of records of fishes from Kentucky waters based on specimens deposited in museums, personal collecting, and accepted literature reports revealed that 229 species occur or did occur in the state. A substantial amount of new distributional data is presented in the form of an annotated list including records of several species of fishes previously unreported from the state. Distributional statements in the checklist are based on individual spot maps completed for all Kentucky fishes. A list of five problematical species is included at the end of the checklist.

INTRODUCTION

The fish fauna of Kentucky is more diverse than that of any other inland area of comparable size in North America except Tennessee and Alabama. Presently, 229 species are known to occur or to have occurred in Kentucky waters and only 10 or 11 are the result of introduction by man. A major factor contributing to the present completeness of our knowledge of the Kentucky fish fauna has been its rich history of ichthyological investigations going back to the time of one of North America's earliest ichthyologists, Constantine Samuel Rafinesque. Since Rafinesque's groundbreaking work on Ohio River valley fishes (1820) there have been four other reports on Kentucky fishes (Woolman 1892, Garman 1894, Evermann 1918, Clay 1975). Woolman's study is of immense historical value in documenting the distribution of many Kentucky fishes before most of the changes brought on by man took place. Garman's and Evermann's reports are mostly compilations containing little original information. The most recent work on Kentucky fishes (Clay 1975) did not include adequate distributional information and excluded nearly 30 species of fishes that now occur in Kentucky. Moreover, much of Clay's distributional information is in need of revision. This is in part due to the descriptions of new species, the resurrection of others from synonymy, recent intensive collecting in poorly worked areas, and examination of museum records of Kentucky fishes in many institutions throughout the eastern United States that apparently were not consulted by Clay.

A new *Fishes of Kentucky*, aimed at summarizing the distribution

and biology of Kentucky fishes, is in preparation, but its appearance must await additional collecting and a critical compilation of Kentucky fish records from a few other institutions.

MATERIALS AND METHODS

Sources of Data

I completed individual spot distributional maps for each species known to occur or to have occurred in Kentucky waters. The distributional statements are based on those maps. During a final check of all records, those that seemed unreasonable and were not substantiated by specimens were discarded.

The maps and resulting list are based on recent personal collecting, various regional surveys conducted by Kentucky Fish and Wildlife Resources Agency personnel, unquestioned literature records, and specimens that I examined in the following collections: California Academy of Sciences (CAS); Cornell University (CU); Eastern Kentucky University (EKU); Field Museum of Natural History (FMNH); Florida State University (FSU); Illinois Natural History Survey (INHS); Kentucky Fish and Wildlife Resources Agency (KFW); Kentucky Nature Preserves Commission (KNP); University of Kansas (KU); Harvard Museum of Comparative Zoology (MCZ); Murray State University (MSU); Northeast Louisiana University (NLU); Ohio State University (OSU); Southern Illinois University at Carbondale (SIUC); Tulane University (TU); University of Louisville (UL); University of Michigan Museum of Zoology (UMMZ); National Museum of Natural History (USNM); University of Tennessee at Knoxville (UT); University of Tulsa (UTULSAC); and Western Kentucky University (WKU).

In order to show the areas of Kentucky that have been adequately sampled and those that need special attention, the locations of approximately 1150 stations sampled mostly since 1950 were plotted (Fig. 3). Despite the number of sites sampled in the Licking River, it is an area particularly worthy of further collecting efforts (many of the existing records are of only game fishes), as are the upper Cumberland and Big Sandy rivers.

Treatment in the Annotated List

The 229 species of lampreys and fishes known to occur or having occurred naturally or by way of repeated introduction in Kentucky waters are grouped under family names and arranged in phylogenetic sequence following, in part, Greenwood et al. (1966) and Bailey et al. (1970). Within each family, genera and species are listed in alphabetical order. Common and scientific names follow Bailey et al. (1970). In an effort to make the list complete, I included several species that are not taxonomically described but are known to occur in Kentucky. Most of them

have been recognized for more than 20 years and their distributions are accurately known.

I have not departed from the 1970 list of names even though recent studies (some unpublished) reveal that the names of some Kentucky fishes are affected. *Fundulus notti* will probably be accepted for *F. dispar* (Wiley 1977); *Menidia audens* will probably be changed to *M. beryllina*. Although several studies indicate that *Notropis chrysocephalus* intergrades or hybridizes extensively with *N. cornutus* in various parts of its range, I have followed Gilbert (1961) in using the name *N. chrysocephalus* for the Kentucky populations. The Kentucky population hitherto known as *Percina uranidea* should now be called *P. ouachitae* (Williams and Etnier 1977).

I divided Kentucky into 11 subunits, which correspond to river systems, or fish faunal blocks (Fig. 1). For each species, letters denoting the Kentucky subunits in which it is known to occur follow directly after the common name, which is followed by a concise statement regarding the species' current or former distribution in the state. For species restricted to the large bordering Ohio and Mississippi rivers, designation of subunits is not applicable. My use of the terms "generally distributed," "occasional," or "sporadic" follow the definitions of Smith (1965).

Distribution is sometimes expressed in terms of sections of the state, such as eastern two-thirds or western half. In many instances, it is expressed in terms of specific drainage systems or waters such as Mississippi River, lower Ohio River, and Big Sandy River drainage. For species known in Kentucky from only one or a few records, the name of the stream or major drainage basin and the county involved usually are given, as well as the acronym of the museum or university that contains specimens. The counties of Kentucky are depicted in Figure 2. In a few cases I cited recent references to uncommon species, especially if the papers pointed out more detailed information on their Kentucky ranges.

A list of a few problematical species is included in this report. The annotations for these species, all hypothetical in the Kentucky fauna, are self-explanatory. Also included in the problematical list are species that were included in earlier lists of Kentucky fishes, but with the present state of our knowledge can now be deleted from the Kentucky list.

ANNOTATED LIST OF SPECIES

The 229 species in the following list represent 69 genera and 27 families. Twelve species (*Alosa alabamae*, *Clinostomus elongatus*, *Hemitremia flammea*, *Hybopsis x-punctata*, *Notropis amnis*, *Lagochila lacer*, *Lota Iota*, *Ammocrypta asprella*, *A. clara*, *A. vivax*, *Etheostoma microperca*, *Percina burtoni*) have not been recently encountered and their current status in Kentucky is discussed.

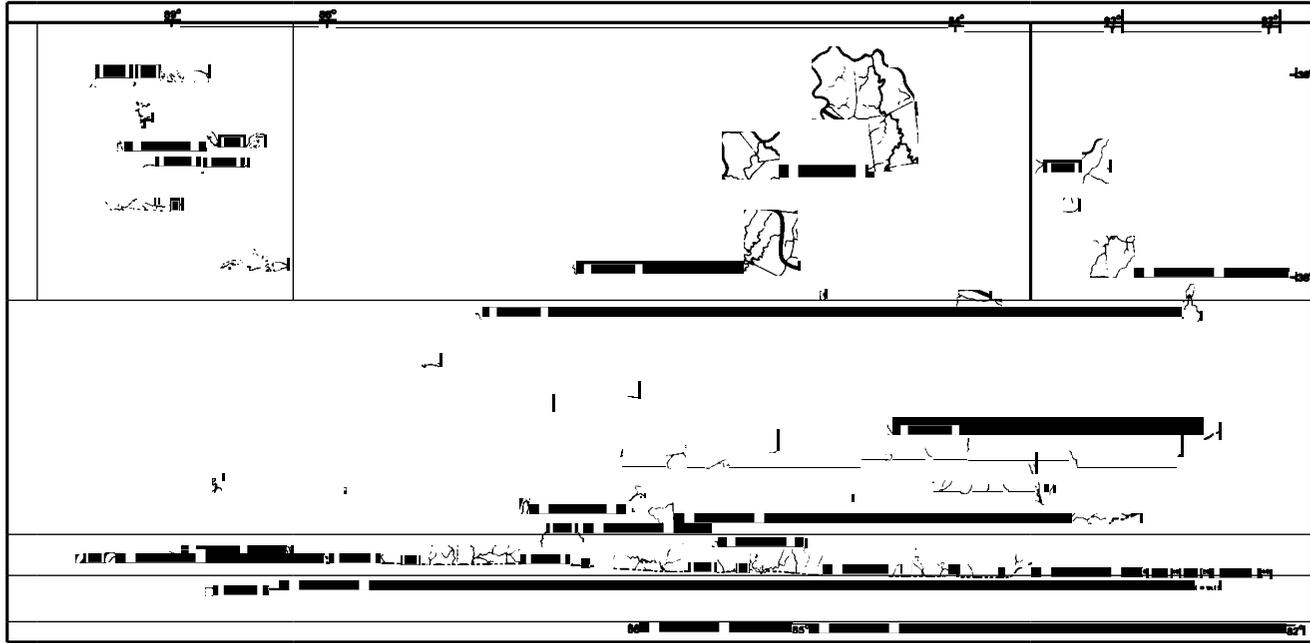


Fig. I. Divisions of major drainages and/or ichthyofaunal blocks as they relate to fish distribution patterns. A, lower Ohio River tributaries, Mayfield and Obion creeks and Bayou du Chien. B, Terrapin Creek and other small tributaries of Obion River. C, lower Tennessee and Clarks rivers. D, lower Cumberland River. E, Tradewater and lower Green rivers. F, upper Green and Barren rivers. G, Salt River. H, upper Cumberland River. J, Kentucky River. K, Licking River. L, Tygart's Creek, Little Sandy and Big Sandy rivers.

Petromyzontidae — lampreys

Ichthyomyzon bdellium (Jordan). Ohio lamprey. D,E,F,G,H,J,K,L. Occasional in the Green, Cumberland, Kentucky, Licking and Ohio rivers. The specific distinctiveness of this form deserves further study. Hubbs and Trautman (1937:14) resurrected the name *bdellium* and suggested that the two "geographic forms" (*bdellium* and *castaneus*) may intergrade in the lower Ohio River. Starrett et al. (1960) identified only *I. castaneus* in the Wabash River, Illinois, where Hubbs and Trautman had earlier identified specimens as *I. bdellium*. The characteristics of the two forms overlap greatly and specimens cannot be assigned with confidence to the form *bdellium*; consequently, parasitic lampreys from the middle and upper Ohio River and its major tributaries are identified arbitrarily as *bdellium* on the basis of geography.

Ichthyomyzon castaneus Girard. Chestnut lamprey. C,D. Occasional in the lower Ohio, Mississippi, Cumberland and Tennessee rivers. See comments under *I. bdellium*.

Ichthyomyzon fossor Reighard and Cummins. Northern brook lamprey. J,L. Rare in the upper parts of the Kentucky (EKU, UMMZ, KNP), Big Sandy (UL) and Little Sandy River (KNP) systems.

Ichthyomyzon gagei Hubbs and Trautman. Southern brook lamprey. C. A record based on one specimen from Clarks River, Calloway County (SIUC).

Ichthyomyzon greyleyi Hubbs and Trautman. Allegheny brook lamprey. F,H,J. Rare and sporadic in the upper Green (USNM), Cumberland (REJ) and Kentucky (KFW, UL) drainages. Hoyt's (1979) record of this species from the Ohio River at Paducah is not considered valid, and was probably based on misidentified *I. castaneus*.

Ichthyomyzon unicuspis Hubbs and Trautman. Silver lamprey. C,E,F,H,J. Occasional in large rivers or their major tributaries throughout the state.

Lampetra aepyptera (Abbott). Least brook lamprey. B,C,D,E,F, G,H,J,K,L. The most common lamprey in Kentucky, occurring in small to medium-size streams throughout the state except in the extreme west.

Lampetra lamottei (Lesueur). American brook lamprey. F,J,L. Occasional in the upper reaches of the Barren, Green, Kentucky and Big Sandy drainages.

Acipenseridae — sturgeons

Acipenser fulvescens Rafinesque. Lake sturgeon. C,D,H. Formerly present in the main channels of the Ohio, Mississippi, Tennessee and Cumberland rivers (Call 1896, Woolman 1892, Evermann 1902). Most recent specimen from Cumberland River, McCreary County (UL). Status in Ohio and Mississippi rivers uncertain although several commercial fishermen told me that lake sturgeons are caught during early spring

in the Mississippi River.

Scaphirhynchus albus (Forbes and Richardson). Pallid sturgeon. Rare in the main channel of the Mississippi River where it is captured by commercial fishermen. No definite records, but descriptions of specimens by fishermen apply to this species. It has been taken farther south in the Mississippi River (Bailey and Cross 1954), so is clearly part of the Kentucky fauna.

Scaphirhynchus platyrhynchus (Rafinesque). Shovelnose sturgeon. Occasional in the main channels of the Ohio and Mississippi rivers.

Polyodontidae — paddlefishes

Polyodon spathula (Walbaum). Paddlefish. A,C,D,H,J,K. Occasional in the Mississippi, Ohio, Cumberland, Tennessee, Kentucky and Licking rivers. Not reported from the Licking River since Barbour (1951).

Lepisosteidae — gars

Lepisosteus oculatus (Winchell). Spotted gar. A,D. Rare in the Mississippi (SIUC), lower Ohio and Cumberland rivers (UL). Has not been taken farther east in the Ohio River than near the mouth of the Tradewater River.

Lepisosteus osseus (Linnaeus). Longnose gar. C,D,E,F,G,H,J,K,L. The most common and widespread gar in Kentucky, occurring in large rivers (and lakes) and their major tributaries throughout the state.

Lepisosteus platostomus Rafinesque. Shortnose gar. A,C,D. Limited to the western one-fourth of Kentucky where it is most common in Bayou du Chien, Obion Creek and Land Between the Lakes. Occasional to common in the lower Ohio and Mississippi rivers.

Lepisosteus spatula **Lacépède**. Alligator gar. A,D. Four valid records presently are known, one each from the Tennessee River (Barbour 1963), mouth of the Ohio River (picture at INHS), Ohio River at Paducah (Hoyt 1979), and mouth of Bayou du Chien (EKU). Trautman (1957) reported other records (mostly anecdotal) of the species from the Ohio River as far east as Bracken County. Status uncertain, although Hoyt (1979) reported capture of 20 individuals during a two year study of fish impingement at the Shawnee Steam Plant, Paducah.

Amiidae — bowfins

Amia calva Linnaeus. Bowfin. A,C,D,E,G,J,L. Sporadic on the Coastal Plain (INHS, MSU, SIUC, UL) and in backwater areas of the Green (SIUC, KNP), Salt (UL) and Kentucky rivers (KFW). Branson (1977) reported specimens from Tygart's Creek, Carter County (EKU).

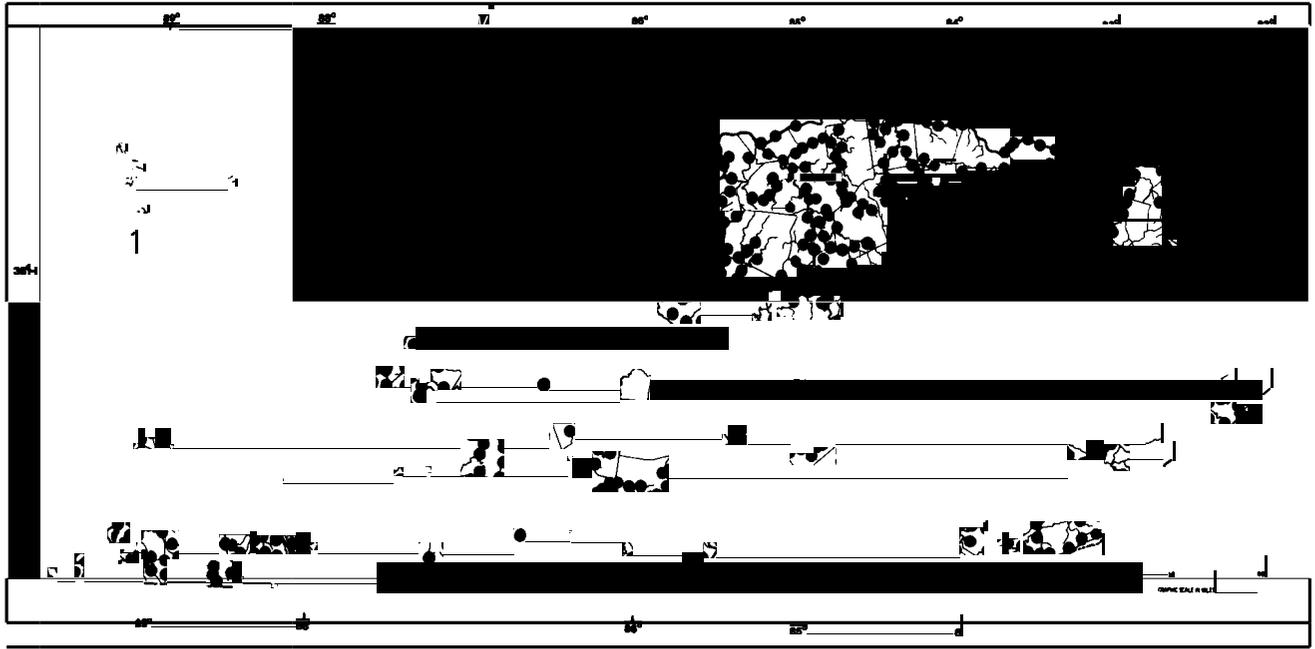


Fig. 3. Locations of fish collections made in Kentucky, mostly between 1950 and the present. Each dot represents two or more species from a site.

Anguillidae — freshwater eels

Anguilla rostrata Lesueur . American eel. C,D,E,G,H,J,K,L. Catadromous. Sporadic in large rivers throughout the state, although I know of no valid records from the upper Green River.

Clupeidae — herrings

Alosa alabamae Jordan and Evermann. Alabama shad. Anadromous. Formerly present in the Mississippi and Ohio rivers. Not reported from Kentucky waters since just before 1900 although Pflieger 1975 and Smith 1979 reported recent records from Missouri and Illinois, respectively. Probably only enters the Kentucky part of the Mississippi River for spawning.

Alosa chrysochloris Rafinesque . Skipjack herring. C,D,E,G,J. Common in the main channels of the Mississippi and Ohio rivers and the lower reaches of their major tributaries.

Dorosoma cepedianum Lesueur . Gizzard shad. A,C,D,E,F,G,H,J,K,L. Abundant and generally distributed throughout the state, and especially common in large rivers, lakes and reservoirs.

Dorosoma petenense (Günther). Threadfin shad. C,D,E,F,H,J. Generally distributed in the main channel of the Ohio River from Louisville to its mouth Minckley and Krumholz 1960 , and the main channels of the Mississippi, lower Cumberland, lower Tennessee and lower Green rivers. Introduced into reservoirs throughout the state.

Hiodontidae — mooneyes

Hiodon alosoides Rafinesque . Goldeye. A,C,D,E,F,H,J. Occasional to common in the Ohio and Mississippi rivers and in large and medium-size rivers throughout the state.

Hiodon tergisus Lesueur. Mooneye. C,D,E,F,G,H,J,K. Sporadic in the Ohio and Mississippi rivers. Occasional in large and medium-size rivers throughout the state, except the Big Sandy drainage.

Salmonidae — trouts

Salmo gairdneri Richardson. Rainbow trout. D,F,G,H,J,K,L. Introduced. Sporadic in the reservoirs and streams where it has been introduced. Most stocking, with marginal success, has taken place in Lake Cumberland (Axon 1974 .

Salmo trutta Linnaeus. Brown trout. F,J. Introduced. Recently 1977 stocked in Indian Creek (Powell and Menifee counties), Big Double Creek (Clay County) and Trammel Fork (Allen County). However, sampling in those streams by district fishery biologists indicates no survival (Peter W. Pfeiffer, pers. comm.).

Salvelinus fontinalis Mitchill . Brook trout. H. Introduced. Presently known only from Martin's Fork and Shillalah Creek, Bell County, where it is sporadic in occurrence.

Osmeridae — smelts

Osmerus mordax (Mitchill). Rainbow smelt. Recently captured from the Mississippi River, Carlisle County (SIUC), and now known from several localities along the entire Mississippi River from the mouth of the Missouri River to Louisiana (Burr and Mayden, in press; Royal D. Suttkus, pers. comm.). It was collected only during December and January in 1978 and 1979.

Umbridae — mudminnows

Umbra limi (Kirtland). Central mudminnow. A,B,C. A rare species recently captured from Terrapin Creek, Graves County (SIUC), and Clarks River, Marshall County (SIUC). Reported by Sisk (1973) from southwestern Fulton County (MSU).

Esocidae — pikes

Esox americanus Lesueur. Grass pickerel. A,B,C,D,E,F,G,H,J,K,L. Common throughout the western half of the state and occasional in the eastern half.

Esox lucius Linnaeus. Northern pike. C,J,L. Introduced. Rare and infrequently reported from the reservoirs where it has been planted. Status uncertain and perhaps should not be considered a part of the state ichthyofauna.

Esox masquinongy Mitchill. Muskellunge. F,J,K,L. Rare and sporadic in the Green, Kentucky, and Licking River drainages and Tygarts Creek. Most populations probably are presently maintained by stocking.

Esox niger Lesueur. Chain pickerel. A,C. Very rare in oxbow lakes along the lower Ohio (INHS) and Mississippi (SIUC) rivers. Reported from Clarks River, Calloway County, by Sisk (1969) but specimens apparently are no longer extant. Recent specimens were discussed by Burr and Mayden (1979).

Cyprinidae — minnows and carps

Campostoma anomalum (Rafinesque). Stoneroller. A,C,D,E,F,G,H,J,K,L. Abundant throughout the state, being noticeably absent from Bayou du Chien, Obion Creek, and region B.

Carassius auratus (Linnaeus). Goldfish. A,C,D,E,F,G,J,K. Introduced. Sporadic in large to medium-size rivers and reservoirs throughout most of the state. Confirmed records from the Big Sandy drainage are unavailable.

Clinostomus elongatus (Kirtland). Redside dace. K. Reported in a manuscript list of the fishes of northeastern Kentucky (Clark 1940) from Lick Fork of upper North Fork, Licking River, Rowan County. I have been unable to locate the specimen(s) on which this record is based and no one has since reported the species in Kentucky. The record could

possibly be based on a misidentification, or the species may be very rare or extirpated here.

Clinostomus funduloides Girard. Rosyside dace. C,D,F,K,L. Sporadic in small tributaries of the lower Tennessee (Burr and Mayden 1979, Miller 1978) and Cumberland rivers (Burr and Mayden 1979) and several streams in region L (KFW, UL). More recently discovered in the upper Barren River system, Barren County (TU), the upper Green river system, Casey County (TU), and the Little Licking River (Branson 1977).

Ctenopharyngodon idella (Valenciennes). Grass carp. Introduced. Presently known only from the main channel of the Mississippi River where it is generally taken only by commercial fishermen (Pflieger 1978).

Cyprinus carpio Linnaeus. Carp. A,C,D,E,F,G,H,J,K,L. Introduced. Distributed throughout the state.

Erycymba buccata Cope. Silverjaw minnow. E,G,H,J,K,L. Common from the lower Tradewater River system (Burr et al. 1980) eastward to and including the Big Sandy River drainage.

Hemitremia flammea (Jordan and Gilbert). Flame chub. H. Reported to be abundant in Big Laurel River, Laurel County (Jordan and Brayton 1878) and also collected from Clear Fork and Wolf Creek near Pleasant View, Whitley County (Jordan and Swain 1883). There are no reports of this species in Kentucky waters since Jordan's work, and it is probably extirpated.

Hybognathus hayi Jordan. Cypress minnow. A. Occasional in Bayou du Chien, (MSU, SIUC), Obion Creek (MSU), Mayfield Creek (INHS, SIUC) and oxbow lakes of the Ohio River (INHS). Considered to be more common than formerly thought (Burr et al. 1980).

Hybognathus nuchalis Agassiz. Silvery minnow. A,B,C,D,E,F. Common in the main channel of the Ohio River from its mouth northeast to Louisville. Abundant in the lower Green River drainage and other medium-size streams, rivers and sloughs in the western half of the state. A record from the Rockcastle River drainage, Rockcastle County (Branson and Batch 1972) needs substantiation. Formerly known from the Big Sandy River (Woolman 1892).

Hybognathus placitus Girard. Plains minnow. Known only from one locality, near the mouth of the Ohio River (Pflieger 1975, Smith 1979). Attempts to collect this species farther south in the Kentucky part of the Mississippi River have been unsuccessful.

Hybopsis aestivalis (Girard). Speckled chub. F,H,J,K,L. Rare in the main channel of the Ohio and Mississippi rivers. Occasional in the upper Green, Barren, Cumberland, Kentucky, Licking and Big Sandy River systems.

Hybopsis amblops (Rafinesque). Bigeye chub. D,E,F,G,H,J,K,L. Occasional in clear streams throughout the eastern two-thirds of the state. Apparently does not occur above the falls of the Cumberland River.

Hybopsis dissimilis (Kirtland). Streamline chub. D,F,G,H,J,L. Occasional in the high gradient parts of the Cumberland, Green, Barren, Rolling Fork, Kentucky and Big Sandy River systems. I am unaware of confirmed records from the Licking River drainage although the species probably occurs there.

Hybopsis gelida (Girard). Sturgeon chub. Presently known from one locality, near the mouth of the Ohio River (Pflieger 1975). Numerous attempts to collect this species farther south in the Kentucky part of the Mississippi River have been unsuccessful. It is clearly part of the Kentucky fauna since it also occurs as far south in the Mississippi River as Mississippi.

Hybopsis gracilis (Richardson). Flathead chub. Known from only two localities, both in the main channel of the Mississippi River, where it is uncommon.

Hybopsis insignis Hubbs and Crowe. Blotched chub. C,H. Unknown from region C since its original description by Hubbs and Crowe (1956) and the subsequent impoundment of the lower Tennessee River. Rare in the upper Cumberland River where it has been taken at four localities.

Hybopsis meeki Jordan and Evermann. Sicklefin chub. Presently known from only one locality, at the confluence of the Ohio River with the Mississippi River (Pflieger 1975, Smith 1979). It has been taken farther south in the Mississippi River (Bailey and Allum 1962), so is clearly part of the Kentucky fauna.

Hybopsis storeriana (Kirtland). Silver chub. C,D,E,F,G,H,J,K,L. Generally distributed in large and medium-size rivers throughout the state, including the main channels of the Ohio and Mississippi rivers where it is the most common *Hybopsis*.

Hybopsis x-punctata Hubbs and Crowe. Gravel chub. Known from only three localities in the Ohio River in Campbell, Greenup and Boyd counties (Trautman 1957); needs substantiation.

Nocomis biguttatus (Kirtland). Hornyhead chub. J. Known from three localities in Franklin County (UMMZ, UL, CU). Lachner and Jenkins (1971) suspected that the isolated Kentucky River population of this species was perhaps the result of a bait or stocking introduction.

Nocomis effusus Lachner and Jenkins. Redtail chub. D,F,H. Occasional in the Cumberland River between Cumberland Falls and the Little River system. Rare in the upper Green River drainage where it is known from two localities. Extensive collecting in the lower Green River has not revealed the presence of this species, despite the suggestion by Lachner and Jenkins (1967) that it might occur there.

Nocomis micropogon (Cope). River chub. H,J,K,L. Common in the upper Cumberland, upper Kentucky and Licking River systems. Occasional in region L.

Not emigonus crysoleucas (Mitchill). Golden shiner. A,B,C,D,E, F,G,H,J. Generally distributed in the western two-thirds of the state. A

record from the Cumberland River above the falls is presumably based on an introduction.

Notropis amnis Hubbs and Greene. Pallid shiner. C,F,H. Until recently the only published record of this species was from Clarks River, Marshall County (Hubbs 1951). Other records are available from Jennings's Creek, Warren County (SIUC), Otter Creek, Wayne County (CU), and Green River, Hart County (UMMZ). A very rare species which is probably nearing extinction in Kentucky.

Notropis ardens (Cope). Rosefin shiner. C,D,E,F,G,H,J,K,L. Generally distributed from the lower Tennessee River system eastward, avoiding lowland areas in region E. Apparently not present in the Big Sandy drainage.

Notropis ariommus (Cope). Popeye shiner. F,G,H,J. Uncommon in the upper Green, Barren, Rolling Fork, Cumberland and Kentucky River drainages. No records are available from above Cumberland Falls.

Notropis atherinoides Rafinesque. Emerald shiner. A,C,D,E,F,G,H,J,K,L. Generally distributed throughout the state.

Notropis blennioides (Girard). River shiner. C,D. Common in the main channels of the Mississippi and Ohio rivers. Rare in the lower Tennessee and Cumberland rivers since their impoundment.

Notropis boops Gilbert. Bigeye shiner. C,D,E,F,G,H,J,K,L. Somewhat sporadic in the western two-thirds of Kentucky where it occurs in the Clarks, upper Pond, upper Barren, upper Green and upper Cumberland (below the falls) River systems. More evenly distributed in the Salt, lower Kentucky and lower Licking rivers and in the northern portion of region L.

Notropis burchanani Meek. Ghost shiner. D,E,F,G,H,J,K. Occasional in large rivers (including the Ohio River) and their major tributaries throughout Kentucky, except in the extreme western counties and the Big Sandy drainage. Probably most common in the lower Green River.

Notropis camurus (Jordan and Meek). Bluntnose shiner. A,B. Known only from Terrapin Creek, Graves County (SIUC), where it is common, and Obion Creek, Hickman County (FSU), where it is rare.

Notropis chrysocephalus (Rafinesque). Striped shiner. C,D,E,F,G,H,J,K,L. Generally distributed throughout the state avoiding the Coastal Plain and parts of the lower Green River drainage.

Notropis emiliae (Hay). Pugnose minnow. A,C,D,E,F. Sporadic throughout the western half of the state.

Notropis fumeus Evermann. Ribbon shiner. A,B,C,D,E. Abundant throughout the western third of the state (Burr et al. 1980).

Notropis galacturus (Cope). Whitetail shiner. D,H,L. Known in Kentucky only from the Cumberland and Big Sandy River drainages. A population exists in Red River, Todd and Logan counties, and the species is evenly distributed in the upper Cumberland River below the

falls. Uncommon in the Big Sandy drainage where it is known only from Pike County (KNP).

Notropis hudsonius (Clinton). Spottail shiner. Known only from a single locality near the confluence of the Ohio and Mississippi rivers (Pflieger 1975).

Notropis leuciodus (Cope). Tennessee shiner. F,H. Occasional to common in the upper Barren, Green and Cumberland River drainages.

Notropis lutrensis (Baird and Girard). Red shiner. A,E. Common in Bayou du Chien, Obion Creek, and small tributaries to the lower Ohio River. A small population is present in the lower Tradewater River (Burr et al. 1980). Occasional in the main channels of the Mississippi and lower Ohio rivers.

Notropis maculatus (Hay). Taillight shiner. A. Occasional to common in the oxbow lakes and ponds of the lower Ohio and Mississippi rivers (Burr and Page 1975).

Notropis photogenis (Cope). Silver shiner. E,F,G,H,J,K,L. Generally distributed throughout the eastern half of the state.

Notropis rubellus (Agassiz). Rosyface shiner. F,G,H,J,K,L. Generally distributed throughout the eastern half of the state.

Notropis shumardi (Girard). Silverband shiner. D. Occasional to common in the main channels of the lower Ohio (Union County westward) and Mississippi rivers. A record from the lower Cumberland River is based on a preimpoundment study and I doubt that the species is still present there.

Notropis spilopterus (Cope). Spotfin shiner. A,C,D,E,F,G,H,J,K,L. Generally distributed throughout the state, but sporadic on the Coastal Plain.

Notropis stramineus (Cope). Sand shiner. A,G,J,K,L. Occasional to common from Doe Run, Meade County, and eastward. Disjunct in Mayfield Creek, Carlisle and Graves counties (Burr et al. 1980). Hoyt's (1979) record for this species from the Green River at Paradise was based on *N. volucellus*.

Notropis telescopus (Cope). Telescope shiner. H. Known only from region H of the Cumberland River below the falls.

Notropis umbratilis (Girard). Redfin shiner. A,B,C,D,E,G,J,K,L. Common in the Coastal Plain. Generally distributed along the northern border of the state from the lower Cumberland River to region L.

Notropis venustus (Girard). Blacktail shiner. A. Known from comparatively few specimens from two localities each in Bayou du Chien (MSU), the Mississippi River (SIUC), and the lower Ohio River (INHS). This species is rare, although apparently suitable habitat is present, in western Kentucky.

Notropis volucellus (Cope). Mimic shiner. A,C,D,E,F,G,H,J,K,L. **Sporadic** in occurrence but generally distributed throughout the state, usually in large to medium-size rivers.

Notropis whipplei (Girard). Steelcolor shiner. A,C,D,E,F,G,H, J,K,L. Rare in extreme western Kentucky, and occasional to common throughout the rest of the state.

Notropis species. Undescribed. Palezone shiner. H. A species or subspecies of *Notropis* allied to *N. procne* has been identified from the Little South Fork of the Cumberland River, Wayne County (Robert E. Jenkins, pers. comm.).

Notropis species. Undescribed. Sawfin shiner. H. An undescribed species related to *N. spectrunculus* occurs in the Little and Big South Forks of the Cumberland River, Wayne County, and probably also occurs in tributaries of Wolf River in Cumberland and Clinton counties.

Phenacobius mirabdis (Girard). Suckermouth minnow. A,B,C,E, G,H,J,K,L. Common in the Coastal Plain and lowland areas in region E. Occasional to uncommon in the Salt, Kentucky, Licking, upper Cumberland and Big Sandy River systems.

Phenacobius uranops (Cope). Stargazing minnow. F,H. Occasional to common in the upper Barren and Green rivers. Uncommon in the Rockcastle River.

Phoxinus cumberlandensis Starnes and Starnes. Blackside dace. H. A recently described species endemic to the upper Cumberland River (TU, UL, UMMZ, UT) where it is uncommon and considered endangered due to strip mine pollution (Starnes and Starnes 1978). Several additional populations were recently discovered in the Rockcastle and Laurel River drainages (KNP).

Phoxinus erythrogaster (Rafinesque). Southern redbelly dace. C,D,E,F,G,H,J,K,L. A common inhabitant of small, springfed, upper elevation streams throughout the eastern two-thirds of the state. A population on the Coastal Plain was recently discovered (Freeze and Rayburn 1977).

Pimephales notatus (Rafinesque). Bluntnose minnow. A,C,D,E,F, G,H,J,K,L. One of the most abundant and ubiquitous minnows in Kentucky, occurring throughout the state and avoiding only the extreme lowland areas in the west (e.g., Mayfield Creek, Bayou du Chien, Obion Creek).

Pimephales promelas (Rafinesque). Fathead minnow. A,C,E,F,G, H,J,K,L. Sporadic in the Coastal Plain and entire Green River. Occasional to common in the eastern half of Kentucky. Several records may be the result of deliberate introductions.

Pimephales vigilax (Baird and Girard). Bullhead minnow. C,D,E,F,G,H,J,K,L. Generally distributed throughout the state in large to medium-size rivers, probably reaching its greatest abundance in the lower Ohio and Green rivers.

Rhinichthys atratulus (Hermann). Blacknose dace. C,D,F,G,H, J,K,L. Occasional to sporadic throughout most of the state except the extreme western part. Common above Cumberland Falls. The

distribution of this species in Kentucky is spotty, which most likely reflects inadequate sampling of its preferred habitat.

Semotilus atromaculatus (Mitchill). A,B,C,D,E,F,G,H,J,K,L. Abundant and generally distributed in small to medium-size streams throughout the state.

Catostomidae — suckers

Carpiodes carpio (Rafinesque). River carpsucker. A,C,D,E,G,H,J,K,L. Generally distributed in large rivers and the lower reaches of their major tributaries throughout Kentucky.

Carpiodes cyprinus (Lesueur). Quillback. C,D,E,G,H,J,K,L. Generally distributed in large to medium-size rivers in the eastern half of the state and occasional in the western half.

Carpiodes velifer (Rafinesque). Highfin carpsucker. D,H,J,K. Sporadic throughout the eastern half of Kentucky (17 localities), and rare in the western half (3 localities).

Cat ostomus commersoni (Lacépède). White sucker. A,C,D,E,F,G,H,J,K,L. Common and generally distributed in small and medium-size streams from Massac Creek, McCracken County, and eastward throughout the state.

Cycleptus elongatus (Lesueur). Blue sucker. D,E,K. Rare in the main channel of the Ohio River (10 records within the last 50 years; INHS, UL, OSU). Rare in the lower Green, Kentucky and Licking rivers. Formerly present in the lower Tennessee and Cumberland rivers (Woolman 1892) before impoundment.

Erimyzon oblongus (Mitchill). Creek chubsucker. A,B,C,D,E,F,G. Generally distributed from the lower Salt and Green rivers westward.

Erimyzon sucetta (Lacépède). Lake chubsucker. A,E. One of the rarest species in Kentucky and presently known from only five localities: Obion Creek, Hickman County (KFW, UL, SIUC), Snapneck Creek, Fulton County (SIUC), Long Falls Creek, McLean County (SIUC), Ohio River at Paducah (Hoyt 1979), and Cypress Creek, Muhlenberg County (KNP).

Hypentelium nigricans (Lesueur). Northern hog sucker. C,D,E,F,G,H,J,K,L. Generally distributed from Clarks River to the Big Sandy basin, avoiding lowland areas in region E.

Ictiobus bubalus (Rafinesque). Smallmouth buffalo. A,C,D,E,G,J,K,L. Generally distributed in the lower reaches of large and medium-size rivers and reservoirs throughout the state, including the Ohio and Mississippi rivers proper.

Ictiobus cyprinellus (Valenciennes). Bigmouth buffalo. A,C,D,E,F,G,H,J,K. Occasional in large and medium-size rivers (and reservoirs) throughout Kentucky, excluding the Big Sandy basin. Also present in the main channels of the Ohio and Mississippi rivers.

Ictiobus niger (Rafinesque). Black buffalo. A,D,E. Sporadic in large

rivers and reservoirs throughout the western half of Kentucky. Occasional in the main channels of the Ohio and Mississippi rivers.

Lagochila lacera Jordan and Brayton. Harelip sucker. H,J. Extinct. Formerly known from five localities, one in the Kentucky River system, Jessamine County (MCZ) and four in the upper Cumberland River system (Woolman 1892, Kirsch 1893).

Minytrema melanops (Rafinesque). Spotted sucker. A,C,D,E, F,G,H,J,K,L. Generally distributed throughout the state but rarely taken in large numbers.

Moxostoma anisurum (Rafinesque). Silver redhorse. D,F,H,J,K,L. Sporadic throughout the eastern half of Kentucky. Not taken from region D since impoundment of the Cumberland River.

Moxostoma atripinne Bailey. Blackfin sucker. F. Endemic to the Barren River system where it is known from nine localities, in Allen, Barren and Monroe counties.

Moxostoma carinatum (Cope). River redhorse. D,F,H,J,K,L. Sporadic in large and medium-size rivers throughout the eastern half of the state. Rare in the main channel of the Ohio River.

Moxostoma duquesnei (Lesueur). Black redhorse. D,E,F,G,H,J,K,L. Occasional throughout the eastern four-fifths of Kentucky, from the Little River system to the Big Sandy system.

Moxostoma erythrurum (Rafinesque). Golden redhorse. A,C,D,E, F,G,H,J,K,L. Generally distributed throughout the state, and the most common *Moxostoma* in Kentucky. Uncommon, however, in the Coastal Plain.

Moxostoma macrolepidotum (Lesueur). Shorthead redhorse. A,C, D,F,G,H,J,K,L. Occasional throughout the state, in large and medium-size rivers. Very rare in the Coastal Plain.

Ictaluridae — freshwater catfishes

Ictalurus catus (Linnaeus). White catfish. L. Introduced. The present distribution of this species in Kentucky is difficult to ascertain. It has been widely introduced in private commercial fishing lakes in Kentucky, and planted once in Greenbo Lake, Greenup County (Clay 1975). A single specimen from the Ohio River, Breckenridge County is known (Clay 1975).

Ictalurus furcatus (Lesueur). Blue catfish. A,C,D,E,J,K. Occasional in the Ohio and Mississippi rivers and the lower reaches of their major tributaries.

Ictalurus melas (Rafinesque). Black bullhead. A,B,C,D,E,F,G,H, J,K ,L. Generally distributed throughout the state.

Ictalurus natalis (Lesueur). Yellow bullhead. A,B,C,D,E,F,G,H, J,K,L. Generally distributed throughout the state and generally more common than the black bullhead, with which it is often taken.

Ictalurus nebulosus (Lesueur). Brown bullhead. D,E,G,J,K. Sporadic

in large and medium-size rivers from the lower Cumberland to the Licking River.

Ictalurus punctatus (Rafinesque). Channel catfish. A,C,D,E,F,G,H,J,K,L. Generally distributed in sandy-gravelly sections of large and medium-size rivers throughout Kentucky.

Noturus elegans Taylor. Elegant madtom. F,L. Previously known in Kentucky only from the Barren and Green rivers, where it is common in certain localities. Bauer and Branson (1979) reported this species from the Little Sandy River system, Elliott County (EKU).

Noturus eleutherus Jordan. Mountain madtom. F,G,H,J,K,L. Sporadic in the main channel of the Ohio River, occasional in the upper Green, upper Cumberland, Salt, Kentucky, Licking and Big Sandy rivers.

Noturus exilis Nelson. Slender madtom. D,F. Rare in the lower Cumberland (KFW, UL), upper Green (KFW, UL) and Barren (KFW) rivers. One collection from Eagle Creek, Grant County (UL), needs substantiation.

Noturus flavus Rafinesque. Stonecat. D,F,G,H,J,K,L. Common in the eastern half of Kentucky although apparently absent from the Big Sandy basin. Older records are from the Ohio River, Livingston County, (UL) and Little River, Trigg County (KFW).

Noturus gyrinus (Mitchill). Tadpole madtom. A,C,D,E,G,J. Occasional in the Coastal Plain and the lower reaches of streams along the northern border of the state, to the Kentucky River drainage.

Noturus hildebrandi (Bailey and Taylor). Least madtom. B. Known only from Terrapin Creek, Graves County (SIUC) where it is taken most frequently from sandy raceways and brush piles at night (Burr and Mayden 1979).

Noturus miurus Jordan. Brindled madtom. A,C,D,E,F,G,H,J,K,L. Generally distributed throughout the state, including the upper Cumberland River system both above (Starnes and Starnes 1978) and below the falls.

Noturus nocturnus Jordan and Gilbert. Freckled madtom. A,C,D,E,F,J,L. Occasional in the Coastal Plain and the Green River basin. Sporadic throughout the rest of the state with only one record from the upper Kentucky River and two from region L.

Noturus phaeus Taylor. Brown madtom. B. Known only from Terrapin and Powell creeks, Graves County (SIUC), where it is fairly common in riffles with accumulated sticks and debris (Burr and Mayden 1979).

Noturus stigmosus Taylor. Northern madtom. F,G,J,K,L. Sporadic in the eastern half of the state. Two records are from the main channel of the lower Ohio River.

Pylodictis olivaris (Rafinesque). Flathead catfish. A,C,D,E,F,G, 1-1,J,K,L. Generally distributed throughout Kentucky in large and

medium-size rivers and reservoirs. Consistently taken from the Ohio and Mississippi rivers by commercial fishermen.

Amblyopsidae — cavefishes

Amblyopsis spelaea DeKay. Northern cavefish. F,G. Occurs from Mammoth Cave, Edmonson County, north to caves in Breckenridge County and probably occurs in caves between those sites.

Chologaster agassizi Putnam. Spring cavefish. C,D,E,F. From springfed streams near the Ohio River, Livingston County, through Land Between the Lakes and Red River of the Cumberland, to Mammoth Cave, Edmonson County. Recently captured in a small stream in the Pond River drainage, Muhlenberg County (SIUC).

Typhlichthys subterraneus Girard. Southern cavefish. F. Known from several caves in Barren, Edmonson, Hart, Pulaski and Warren counties.

Aphredoderidae — pirate perches

Aphredoderus sayanus (Gilliams). Pirate perch. A,B,C,D,E,G. Generally distributed throughout the western half of the state; two localities in Jefferson County (UL).

Percopsidae — trout-perches

Percopsis omiscomaycus (Walbaum). Trout-perch. F,G, K, L. Sporadic in the middle Licking River and the northern half of region L. Two localities for Jefferson County (UL), one locality in the Green River system, Casey County (KFW), and one locality in the Barren River system, Allen County (Bauer and Branson 1979).

Gadidae — codfishes

Lota lota (Linnaeus). Burbot. J,K. Known from five localities in Kentucky, all reported by Clay (1975). A rare and poorly known species in the state. It is uncertain whether the records are based on escapees from introduced populations or whether the species is native.

Cyprinodontidae — killifishes

Fundulus catenatus (Storer). Northern studfish. F,G,H,J. Common in the upper Barren, Green, Salt and Cumberland rivers. Also known from a tributary of the Kentucky River, Lincoln County (EKU, UMMZ), and Dix River, Rockcastle County (WКУ). A preimpoundment record from a tributary of the lower Cumberland River, Caldwell County (KFW), needs substantiation.

Fundulus chrysotus (Gunther). Golden topminnow. A. Known only from Open Pond (Reelfoot Lake drainage), Fulton County, where it is uncommon (Sisk 1973).

Fundulus notatus (Rafinesque). Blackstripe topminnow. A,C,D,E,

F,G,J,K. Occasional to common in the lower Licking, Kentucky, Salt and Green River systems. Uncommon in the Cumberland River below Lake Cumberland. Usually replaces *F. olivaceus* in lowland swamps and ditches of region A.

Fundulus notti (Agassiz). Starhead topminnow. A. Known from two localities in extreme western Kentucky: Open Pond, Fulton County (Sisk 1973), and Murpheys Pond, Hickman County (Branson 1972).

Fundulus olivaceus (Storer). Blackspotted topminnow. A,B,C,D,E. Abundant from the Tradewater River westward. Sporadic in the lower Green River where the few specimens available are somewhat intermediate in appearance between *F. notatus* and *F. olivaceus*. Specimens of this species reported from Martin's Fork, Harlan County (Clay 1975) could not be located.

Poeciliidae — livebearers

Gambusia affinis (Baird and Girard). Mosquitofish. A,B,C,D,E,F, G,H,J,K. **Abundant** and ubiquitous in the Coastal Plain, the lower Green River and its tributaries, and the Salt River and other tributaries along the Ohio River, where it is presumed to be native. Probably introduced into the Kentucky, Licking and upper Cumberland Rivers for mosquito control. Several records are now available from the presumed areas of introduction.

Atherinidae — silversides

Labidesthes sicculus (Cope). Brook silverside. A,C,D,E,F,G,H, J,K,L. Generally distributed throughout the state in or near large to medium-size rivers, lakes and reservoirs, and bottomland swamps, lakes and sloughs.

Menidia audens Hay. Mississippi silverside. A. Known only from the main channel of the Mississippi River and two localities in extreme southwestern Fulton County, where the species was first reported from Kentucky by Sisk (1973).

Cottidae — sculpins

Cottus bairdi Girard. Mottled sculpin. J,K,L. Unevenly distributed in the upper Kentucky and upper Licking rivers and region L. A record from Clear Creek, Rockcastle County (Branson and Batch 1972) needs verification.

Cottus carolinae (Gill). Banded sculpin. D,E,F,G,H,J. Generally distributed from the lower Cumberland River system eastward to and including the Kentucky river system, avoiding lowland areas in Region E.

Percichthyidae — temperate basses

Morone chrysops (Rafinesque). White bass. A,C,D,E,F,G,H,J. Occasional in the main channels of the Ohio and Mississippi rivers and

their major tributaries. I am unaware of any confirmed records from the Licking, Big Sandy and Salt rivers, although the species probably occurs in those drainages.

Morone mississippiensis Jordan and Eigenmann. Yellow bass. A,C,D. Limited to the main channels of the lower Cumberland, lower Tennessee, Mississippi and lower Ohio rivers, where it is uncommon.

Morone saxatilis (Walbaum). Striped bass. C,D,F,H,J,L. Introduced. Continually restocked in several of the manmade lakes throughout Kentucky. I have captured escapees and seen specimens from the main channels of the lower Ohio, lower Tennessee and Mississippi rivers.

Centrarchidae — sunfishes

Ambloplites rupestris (Rafinesque). Rock bass. D,E,F,G,H,J,K,L. Generally distributed throughout the eastern two-thirds of the state avoiding lowland areas in region E. Stragglers are known from as far west on the Ohio River as Union County.

Centrarchus macropterus (Lacépède). Flier. A,C,D,E. Sporadic to occasional in extreme western Kentucky and the lower Green River and its tributaries (over 10 recent records). One record from the lower Cumberland River drainage, Livingston County (INHS), and one from Clarks River, Marshall County (SIUC).

Ellassoma zonatum Jordan. Banded pygmy sunfish. A,B,C,E. Formerly thought to be restricted to the Coastal Plain, where it is common in swamps, ditches, and lowland streams. Recently discovered in Cypress Creek, Muhlenberg County, (KNP, SIUC) and Terrapin Creek, Graves County (SIUC). A record from West Fork Clarks River, Graves County (Sisk 1969), needs substantiation.

Lepomis auritus (Linnaeus). Redbreast sunfish. D,H,J. Introduced. Specimens from introduced populations are available from Little River, Trigg County (MSU), upper Cumberland River, Bell County (KFW), and Kentucky River, Franklin County (UL). If this species has successfully become established in Kentucky waters, the fact has not been confirmed.

Lepomis cyanellus Rafinesque. Green sunfish. A,B,C,D,E,F,G,H, J,K,L. Generally distributed throughout the state.

Lepomis gibbosus (Linnaeus). Pumpkinseed. Known from only two localities in the Ohio River in Jefferson and Campbell counties. Inclusion of this species in the Kentucky fish list is probably based on escapees from introductions to commercial fishing lakes and farm ponds.

Lepomis gulosus (Cuvier). Warmouth. A,B,C,D,E,F,G,H,J,K. Occasional from the Licking River drainage westward, but most common from the lower Green River basin westward.

Lepomis humilis (Girard). Orangespotted sunfish. A,C,D,E,F,G,H, J,K,L. Occasional to common in the Coastal Plain, sporadic throughout the rest of the state.

Lepomis macrochirus Rafinesque. Bluegill. A,B,C,D,E,F,G,H, J,K,L. Abundant and generally distributed throughout the state.

Lepomis marginatus (Holbrook). Dollar sunfish. A,B. Known only from Murpheys Pond, Hickman County (SIUC), where it is uncommon (Burr and Mayden 1979), and Terrapin Creek, Graves County (SIUC), where five specimens were recently taken.

Lepomis megalotis (Rafinesque). Longear sunfish. A,B,C, D,E,F,G,H,J,K,L. Abundant throughout the state.

Lepomis microlophus (Günther). Redear sunfish. A,C,D,E,F,G, J,K,L. Sporadic and uncommon throughout the state, excluding the upper Cumberland River drainage. Several records from eastern Kentucky probably are based on introductions.

Lepomis punctatus (Valenciennes). Spotted sunfish. A. Known from seven localities in extreme western Kentucky (INHS, SIUC), where it is taken from lowland streams and lakes (Burr and Mayden 1979) and never appears to be common.

Lepomis symmetricus Forbes. Bantam sunfish. A. Known from six localities in extreme western Kentucky (INHS, MSU, UL, SIUC), where it is sometimes common (e.g., in Murphey's Pond, Hickman County).

Micropterus coosae Hubbs and Bailey. Redeye bass. H. Introduced. Known only from Martins Fork and tributaries, Bell County (UL). Although the provenance of this population is unknown (Clay 1975) it seems highly unlikely that the species is native to Kentucky.

Micropterus dolomieu Lacépède. Smallmouth bass. C,D,E,F,G,H, J,K,L. Generally distributed in upland streams throughout the eastern two-thirds of Kentucky. Occasional in the Land Between the Lakes area, where it was more common before impoundment.

Micropterus punctulatus (Rafinesque). Spotted bass. A,C,D,E,F, G,H,J,K,L. Generally distributed throughout the state except in the extreme west, where it is uncommon.

Micropterus salmoides (Lacépède). Largemouth bass. A,C,D,E, F,G,H,J,K. Generally distributed throughout the state, except for region L.

Pomoxis annularis Rafinesque. White crappie. A,C,D,E,F,G,H, J,K,L. Generally distributed in lakes and rivers throughout the state.

Pomoxis nigromaculatus (Lesueur). Black crappie. A,C,D,E,F,G,H, J,K. Sporadic in lakes and rivers throughout the state except for region L. Records indicate that it is less common than the white crappie.

Percidae — perches

Ammocrypta asprella (Jordan). Crystal darter. D,F. Known from four old records: Cumberland River, Lyon County (FMNH), Green River, Edmonson County (USNM), Green River, Green County (UMMZ), and Ohio River, Greenup-Boyd counties (CAS-SU). Not collected in Kentucky since 1929 and considered extirpated.

Ammocrypta clara Jordan and Meek. Western sand darter. F,H. Known from two localities: Green River, Green County (Woolman 1892), and Cumberland River, Wayne County (UMMZ). Not collected in Kentucky since 1925, when it was recorded from the part of the Cumberland River now impounded as Lake Cumberland. Probably extirpated.

Ammocrypta pellucida (Putnam). Eastern sand darter. E,F,J,K,L. Recent collecting effort indicates that this species, which was formerly reasonably common in eastern Kentucky, is rapidly declining in numbers. Probably still present in portions of the Green, Kentucky, Licking, Big Sandy and Ohio rivers.

Ammocrypta vivax Hay. Scaly sand darter. C. Known only from two specimens taken in a preimpoundment study of the lower Tennessee River. The specimens are from Jonathon Creek, Marshall County (UMMZ), and were reported by Starnes et al. (1977). Probably extirpated, since most of lower Jonathon Creek is now part of the impounded waters of Kentucky Lake.

Etheostoma asprigene (Forbes). Mud darter. A,D,E. Most collections come from areas bordering the Mississippi and lower Ohio rivers. Seven recent collections (KNP, SIUC) are available from the lower Green River drainage. Common at some localities in extreme western Kentucky.

Etheostoma atripinne (Jordan). Cumberland snubnose darter. D,H. An uncommon species known from six localities in the Cumberland River drainage in Todd, Logan, Wayne and Pulaski counties.

Etheostoma barbouri Kuehne and Small. Teardrop darter. E,F. Endemic to the upper Barren and upper Green rivers where it is common in small to medium-size streams.

Etheostoma bellum Zorach. Orangefin darter. F. Endemic to the upper Green and Barren rivers where it is common in fast, gravel and boulder riffles.

Etheostoma blennioides Rafinesque. Greenside darter. D,E,F,G,H, J,K,L. Generally distributed from the lower Cumberland River, Trigg County, eastward, avoiding most of the lowlands in region E.

Etheostoma caeruleum Storer. Rainbow darter. C,D,E,F,G,H,J,K,L. Generally distributed from the Land Between the Lakes area eastward, avoiding the lowland areas in region E.

Etheostoma camurum (Cope). Bluebreast darter. H,J. Found only in the upper Cumberland River drainage below Cumberland Falls, and the upper Kentucky River drainage.

Etheostoma chlorosomum (Hay). Bluntnose darter. A,C,D,E. Common in the lower Cumberland River and westward. Three recent records from the Tradewater River drainage (SIUC). A record from Caney Creek, Grayson County (UL), needs substantiation.

Etheostoma cinereum Storer. Ashy darter. D,H. Known only from

the Cumberland River drainage where it is rare. Five records are available: Red River, Logan County (UMMZ), Little South Fork of the Cumberland River, Wayne County (UT), Buck Creek, Pulaski County (UMMZ), Rockcastle River, Rockcastle County (KNP), and Big South Fork of the Cumberland River, McCreary County (KNP).

Etheostoma flabellare Rafinesque. Fantail darter. C,D,E,F,G,H, J,K,L. Generally distributed and abundant from Clarks River eastward, avoiding the lowland areas in region E.

Etheostoma fusiforme (Girard). Swamp darter. A. Known only from two localities in the Reelfoot Lake drainage in extreme southwestern Fulton County (Sisk 1973).

Etheostoma gracile (Girard). Slough darter. A,B,C,D,E. Generally distributed and common from the lower Green River westward.

Etheostoma histrio Jordan and Gilbert. Harlequin darter. A,B,C,E. Uncommon and sporadic in the lower portions of Obion Creek, Bayou du Chien, and Mayfield Creek (Sisk and Webb 1976). Formerly known from Blood River, Calloway County (UL), and Rough River, Ohio County (Woolman 1892).

Etheostoma kennicotti (Putnam). Stripetail darter. C,D,E,F,H. Common in upper Clarks, Tradewater, upper Pond, upper Rough, upper Green and upper Cumberland rivers, and a few small tributaries of the Ohio River in Livingston and Crittenden counties. A record from the Licking River drainage, Bath County (Bauer and Branson 1979), needs verification.

Etheostoma maculatum Kirtland. Spotted darter. F,H,K. Uncommon in the upper Green, upper Barren and upper Cumberland rivers. Woolman (1892) reported this species from South Fork Licking River where it has not been reported since.

Etheostoma microlepidum Raney and Zorach. Smallscale darter. D. Known from only three localities in Kentucky, all from the lower Cumberland River drainage: Little River, Trigg County (UMMZ), Little River, Trigg-Christian counties (UMMZ), and Red River, Logan County (EKU).

Etheostoma microperca Jordan and Gilbert. Least darter. G. Known from only one specimen collected in Beargrass Creek, Jefferson County (UL). Other records reported by Clay (1975) were based on misidentifications of other species (Burr 1978). Woolman's (1892) record for the Little Barren River, Green County, is probably an error (Burr 1978). Recent collecting in Beargrass Creek has not revealed the presence of this species and it may be extirpated.

Etheostoma neopterum Howell and Dingerkus. Lollypop darter. C. Found in Kentucky only in tributaries of the Tennessee River, where it is abundant (Burr and Mayden 1979).

Etheostoma nigrum Rafinesque. Johnny darter. B,C,D,E,F,G,H, J,K,L. Sporadic in distribution in the western half of the state but corn-

mon and evenly distributed in the eastern half. Rare in the upper Cumberland River drainage (Starnes and Starnes 1979).

Etheostoma obeyense Kirsch. Barcheek darter. H. Known only from the upper Cumberland River below Cumberland Falls, where it is occasional to common in small to medium-size creeks (Page and Braasch 1976).

Etheostoma parvipinne Gilbert and Swain. Goldstripe darter. B,C. Known from four localities in western Kentucky: Terrapin and Powell creeks, Graves County (SIUC), and Sugar Creek (SIUC) and Billie Branch, Calloway County (MSU). Occurrences are sporadic and at certain times of the year the species is very hard to find (Burr and Mayden 1979).

Etheostoma proeliare (Hay). Cypress darter. A,C,D. Rare to occasional in sloughs and lakes that border the Mississippi and lower Ohio rivers. Two records are available from the lower Cumberland River drainage, Livingston County (INHS), and five from the lower Tennessee River drainage (SIUC, UMMZ). Three of the latter were taken before impoundment (Burr and Mayden 1979).

Etheostoma rufilineatum (Cope). Redline darter. C,D,H. Uncommon to occasional in the Tennessee and Cumberland River drainages. Somewhat disjunct in Clarks River where specimens display some morphological differentiation from other populations.

Etheostoma sagitta (Jordan and Swain). Arrow darter. H,J. Occasional in the upper Cumberland and upper Kentucky river drainages.

Etheostoma smithi Page and Braasch. Slabrock darter. D. Known only from the lower Cumberland River drainage, where it is sometimes common in small headwater creeks (Page and Braasch 1976).

Etheostoma spectabile (Agassiz). Orangethroat darter. A,C, D,E,F,G,H,J,K,L. Sporadic in distribution but common. Populations of this species in western Kentucky are limited to Mayfield Creek, Land Between the Lakes, and upper Pond River. The species is more evenly distributed from the Salt River eastward to the upper part of region L.

Etheostoma squamiceps Jordan. Spottail darter. D,E,F. An abundant species in the lower Cumberland River and adjacent small creeks tributary to the Ohio River in Livingston and Caldwell counties, and upper Pond, Barren, Nolin, Rough, and Green rivers. Specimens reported from Bayou du Chien by Webb and Sisk (1975) are under study by other workers.

Etheostoma stigmaeum (Jordan). Speckled darter. C,D,E,F,H. Occasional to common in Clarks, upper Rough, upper Green, upper Barren and upper Cumberland (below the falls) rivers.

Etheostoma swaini (Jordan). Gulf darter. B. Occurs only in tributaries of Obion River, Graves County (SIUC), where it is occasional to common (Burr and Mayden 1979).

Etheostoma tippecanoe Jordan and Evermann. Tippecanoe darter.

F,H,J,K. Uncommon in the Green River, Green County (UMMZ), the upper Kentucky River drainage, Owsley County (UL, UMMZ), and Big South Fork of the Cumberland River, McCreary County (KNP). Occasional in the middle part of the Licking River (KFW, UL).

Etheostoma variatum Kirtland. Variegated darter. J,K,L. Generally distributed throughout the upper Kentucky and Licking River systems, and all of region L where it may be common in swift riffles.

Etheostoma virgatum (Jordan). Striped darter. D,H. Known only from the Cumberland River drainage, where it is common in Red River, Todd and Logan counties, and Buck Creek and Rockcastle River tributaries below the falls in the upper Cumberland River.

Etheostoma zonale (Cope). Banded darter. B,E,F,G,H,J,K,L. Unevenly distributed in the eastern two-thirds of the state. Specimens from region B represent the distinctive subspecies *E. z. lynceum*.

Etheostoma species. Undescribed. Golden snubnose darter. C,D. Generally distributed throughout the lower Cumberland River drainage in Kentucky. There is one preimpoundment record from the lower Tennessee River drainage (UMMZ).

Etheostoma species. Undescribed. Emerald darter. H,J. Common in parts of the upper Cumberland and Kentucky River drainages.

Etheostoma species. Undescribed. Lowland snubnose darter. C. Abundant in Clarks and Blood River drainages, and there is one preimpoundment record from the lower Tennessee River.

Etheostoma species. Undescribed. Red snubnose darter. B. Occasional in Terrapin Creek, Graves County (SIUC).

Etheostoma species. Undescribed. Splendid darter. F. Endemic to the upper Barren River system where it is common in pools and raceways.

Etheostoma species. Undescribed. Green River snubnose darter. F. Endemic to the upper Green River system where it is occasional to sporadic.

Perca flavescens (Mitchill). Yellow perch. D. Sporadic and rare in the main channel of the Ohio River; one record from the lower Cumberland River is probably an introduction. It is not certain whether the individuals that occasionally appear in the Ohio River are stragglers from native populations in other parts of the species' range or escapees from introduced populations.

Percina burtoni Fowler. Blotchside logperch. H. Known from one record from Little South Fork of the Cumberland River, Wayne County (Woolman 1892). Some of the specimens that Woolman called *P. caprodes* were later reidentified as *P. burtoni* by Robert E. Jenkins (Comiskey and Etnier 1972). Probably extirpated in Kentucky, although Comiskey nearly missed capturing what he thought was this species during his survey of fishes of the Big South Fork of the Cumberland River (Comiskey and Etnier 1972).

- *Percina caprodes* (Rafinesque). Logperch. A,C,D,E,F,G,H,J,K,L. Generally distributed from Clarks River eastward. Three records exist from the extreme lower Ohio (INHS) and Mississippi River systems (SIUC).

- *Percina copelandi* (Jordan). Channel darter. C,F,H,J,K,L. Sporadically distributed and uncommon in the upper Green, upper Cumberland (below the falls), upper Kentucky, middle Licking and upper Big Sandy rivers. One preimpoundment record from Blood River, Calloway County (UMMZ), is extant.

Percina evides (Jordan and Copeland). Gilt darter. C,F,J,K,L. Uncommon in the upper Green, upper Kentucky, middle Licking and upper Barren rivers. There is a preimpoundment record from Blood River, Calloway County (UMMZ).

Percina macrocephala (Cope). Longhead darter. F,H,J,K,L. Sporadic in the upper Barren, upper Green, Kentucky, and Licking rivers and region L. Kirsch (1893) collected this species from Little South Fork of the Cumberland River, Wayne County, but it has not since been reported from the Cumberland River system in Kentucky. This species once was common in the upper Barren River, as indicated by the many specimens collected by KFW personnel using rotenone (Page 1978).

Percina maculata (Girard). Blackside darter. A,C,D,E,F,G,H,J,K,L. Generally distributed throughout the state from Clarks River eastward. Two records from Obion Creek, Hickman County (MSU), are known.

Percina ouachitae (Jordan and Gilbert). Ouachita darter. A,C,E. This species, formerly known in Kentucky by the name *P. uranidea*, is common in Obion Creek and Bayou du Chien. Single records from Blood River, Calloway County (UL), and Jonathon Creek, Marshall County (UMMZ), are preimpoundment collections. Woolman (1892) reported this species from Rough River, Ohio County (USNM), and his specimens were verified by Williams and Etnier (1977).

Percina oxyrhyncha (Hubbs and Raney). Sharpnose darter. J,K,L. Specimens originally labeled *P. phoxocephala* were recently reidentified as *P. oxyrhyncha* by Thompson (1978), and the species is now known to be present in the upper Kentucky, upper Licking and upper Big Sandy drainages.

Percina phoxocephala (Nelson). Slenderhead darter. C,D,E,F,G,J. Present prior to impoundment in the lower Cumberland and Tennessee rivers. Occasional throughout the Green and Salt River systems and the lower Kentucky River drainage (Eagle Creek). Woolman (1892) recorded it from Mayfield Creek.

Percina sciera (Swain). Dusky darter. A,B,C,D,E,F,G,H,J,L. Sporadic throughout the entire state except the Licking River system, from where I have been unable to locate specimens.

Percina shumardi (Girard). River darter. C,D,E,F,J,K. Sporadic and uncommon in the main channel of the Mississippi and Ohio rivers and

the lower Tennessee, upper Green, upper Kentucky and middle Licking rivers. Woolman's (1892) records of this species from the lower Cumberland and lower Rough rivers have not been confirmed by recent collecting efforts in these areas, but are considered valid.

Percina squamata (Gilbert and Swain). Olive darter. H. Known from five localities in Rockcastle River, Rockcastle and Jackson counties (EKU, UMMZ), and Big South Fork of the Cumberland River, McCreary County (KFW; specimens discarded). Clay's (1975) record of this species from the Tennessee River, Marshall County, needs verification, but I have been unable to locate the specimens on which the record was based.

Percina species. Undescribed. Blackfin darter. F,J. This species was long known under the name *P. cymatotaenia*, but is an undescribed species common in the upper Barren, upper Green and upper Kentucky River systems. The report of this species from Obion Creek (Smith and Sisk 1969) was based on *P. sciera*.

Stizostedion canadense (Smith). Sauger. A,C,D,E,F,G,H,J,K,L. Occasional in the main channels of the Ohio and Mississippi rivers and the lower reaches of their major tributaries.

Stizostedion vitreum (Mitchill). Walleye. C,D,E,H,K,L. Sporadic and uncommon in the main channels of the Ohio and Mississippi rivers and the Tennessee, Cumberland, Licking and Big Sandy rivers.

Sciaenidae — drums

Aplodinotus grunniens Rafinesque. Freshwater drum. A,C,D,E,F,G,H,J,K,L. Generally distributed throughout the Ohio and Mississippi rivers and their major tributaries; occasional in medium-size rivers throughout the state.

PROBLEMATIC LIST OF SPECIES

The five species in the following list of hypothetical additions to the Kentucky fauna represent one family and three genera.

Cyprinidae — minnows and carps

Campostoma oligolepis Hubbs and Greene. Largescale stoneroller. There is little question that this species (probably a new subspecies) occurs in Kentucky in the lower Tennessee, lower Cumberland and upper Green River drainages. However, until a thorough study of variation is completed I have chosen to refer to stonerollers in Kentucky as *C. anomalum*.

Notropis coccogenis (Cope). Warpaint shiner. Recorded by Woolman (1892) from the big Sandy River, but the specimens have not been located and the record is probably an error (Gilbert 1964). A specimen from Cumberland Gap, Bell County, collected by Walter Faxon in 1875, is available (UMMZ). Except for Woolman's record and

Faxon's specimen, the species has been considered endemic to the Tennessee River drainage.

Notropis heterolepis Eigenmann and Eigenmann. Blacknose shiner. Reported by Turner (1959) from Rough River, but no specific locality was given and no specimens from the state are known to exist. Since *N. boops* is present in the same area and is superficially similar, I assume the record of *N. heterolepis* was actually based on *N. boops*. However, there is a relic population of *N. heterolepis* in central Tennessee, so it possibly occurs or once did occur in Kentucky. Until a verified record is available, however, it seems best to delete it from the state faunal list.

Notropis hubbsi Bailey and Robison. Bluehead shiner. Known from adjacent southern Illinois in Wolf Lake, Union County (Bailey and Robison 1978, Smith 1979), and should be looked for in lowland lakes in western Kentucky.

Rhinichthys cataractae (Valenciennes). Longnose dace. Known from the Cumberland River in adjacent Tennessee where it is sporadically distributed. Possible in the upper Cumberland and Big Sandy River drainages, Kentucky.

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