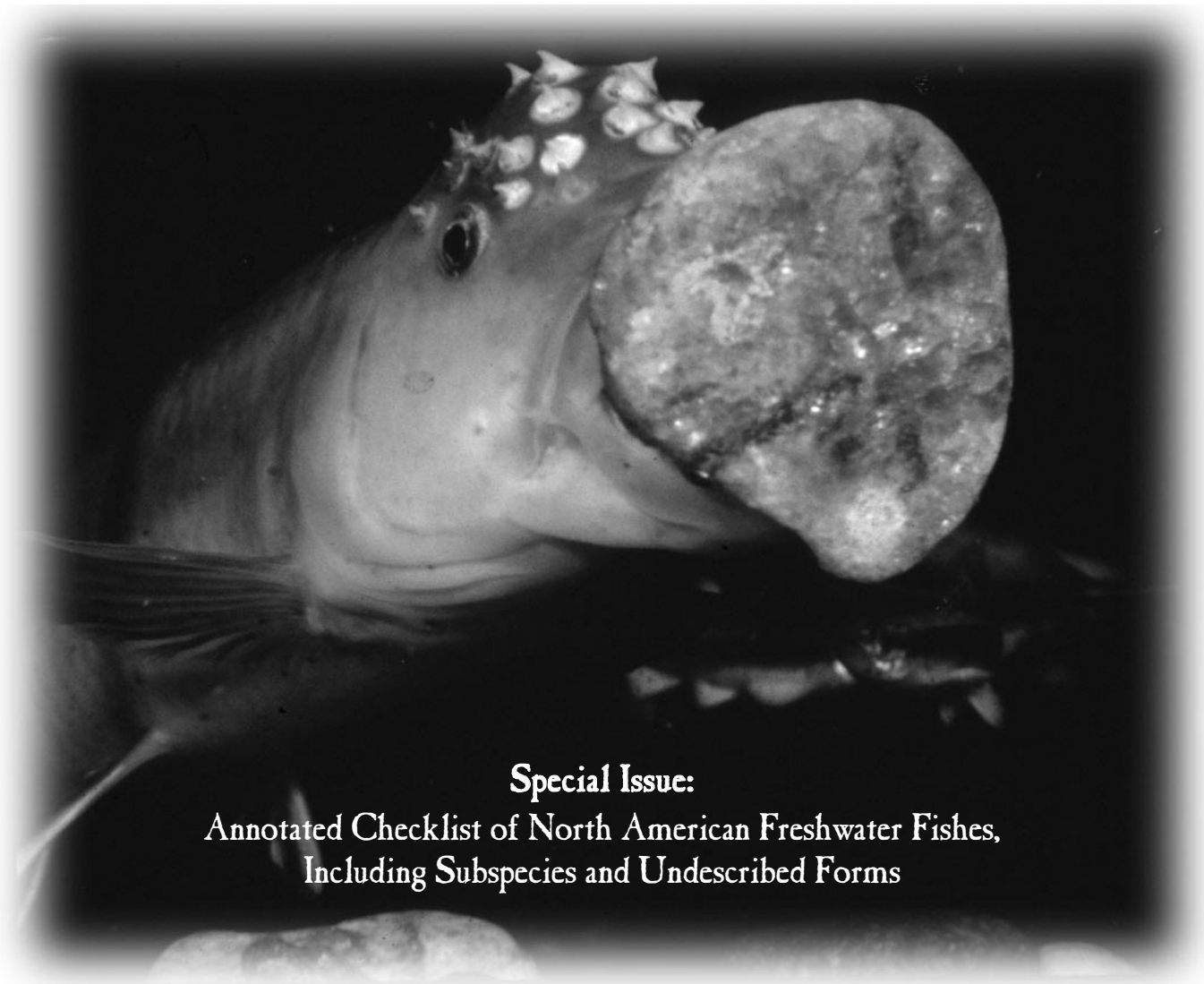


# American Currents

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**Special Issue:**  
Annotated Checklist of North American Freshwater Fishes,  
Including Subspecies and Undescribed Forms

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Petromyzontidae (Lampreys) ♣ Acipenseridae (Sturgeons)  
Polyodontidae (Paddlefishes) ♣ Lepisosteidae (Gars) ♣ Amiidae (Bowfins)  
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# The North American Native Fishes Association

est. 1972 · John Bondhus, founder

**Mission:** The North American Native Fishes Association (NANFA) is dedicated to the appreciation, study and conservation of the continent's native fishes. NANFA is a not-for-profit, tax-exempt corporation chartered in the State of Maryland. The purposes of the organization are: • to increase and disseminate knowledge about native North American fishes; • to promote practical programs for their conservation and the protection/restoration of their natural habitats; • to advance the educational, scientific and conservation benefits of captive maintenance and husbandry; • to encourage the legal, environmentally responsible collection of native fishes for private aquaria as a valid use of a natural resource; and • to provide a forum for fellowship and camaraderie among its members.

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**COVER:** *Nocomis leptocephalus*  
*leptocephalus*, bluehead chub.  
Photo © William Roston.

# Annotated Checklist of North American Freshwater Fishes, Including Subspecies and Undescribed Forms

## Part I: Petromyzontidae Through Cyprinidae

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**N**orth America has the most diverse temperate freshwater fish fauna in the world. Approximately 9% of the world's freshwater fish species are indigenous to North America (percentage calculated from numbers given in Lundberg et al., 2002), with at least 1,081 named and valid species. Previous attempts to list every North American freshwater fish in one checklist are either out of date (Mayden et al., 1992a; TNHC, 1998), or do not include subspecies and undescribed forms (e.g., Nelson et al., 2004).

Every systematist and taxonomist would agree that the proper management and conservation of our natural heritage requires accurate information on the number of taxa and their identification. The objective of this checklist is to provide a comprehensive and centralized nomenclatural inventory of North America's freshwater fish diversity, including subspecies and undescribed forms, using the most up-to-date information available.

### The Inclusion of Subspecies and Undescribed Forms

Although some taxonomists decry the subspecies designation as "unobservable and undefinable" (Rosen, 1979) and "confusing" (Froese, 1999), or consider the category as "indicative of a potential need for further taxonomic evaluation" (Warren et al., 2000), the inclusion of subspecies in this checklist is warranted for three reasons:

1) Subspecies are recognized by the U.S. Endangered Species Act (ESA) and Canada's Species at Risk Act (SARA). Currently, 30 fish "subspecies" are afforded legal protection by the American and Canadian governments.<sup>1</sup> Yet the names of most of these fishes are absent from the

American Fisheries Society's (AFS) standard-bearing checklist of common and scientific names (Nelson et al., 2004, herein referred to as the AFS list). From a conservation and management perspective, there is clearly a need to list subspecies, particularly those that receive state and/or federal protection, in any checklist that intends to provide an unambiguous and useful inventory of a region's fish diversity.

2) In addition to governments, many ichthyologists, anglers, aquarium hobbyists, and amateur naturalists routinely refer to subspecies. For example, most scientific and popular guides include both redbfin pickerel, *Esox americanus americanus*, and grass pickerel, *E. a. vermiculatus*, but the latter is not listed in the AFS list (though mentioned in the comment section). Considering the widespread usage of trinomials in both popular and scientific publications (e.g., Boschung and Mayden, 2004; Page and Burr, 1991; Schleser, 1998; Sternberg, 1996), the absence of *E. a. vermiculatus* from the AFS list potentially confounds rather than clarifies communication.

3) Many nominal subspecies, formerly placed in synonymy, are being reevaluated in light of the Evolutionary and Phylogenetic Species Concepts and the molecular demonstration of deep divergence among many fish species. This trend is reflected in the 2004 edition of Hubbs and Lagler, which retained many of Hubbs' nominal subspecies from earlier editions in anticipation of their being recognized as full species in the future (G. R. Smith, pers. comm.). Likewise, many well-established subspecies, such as Gulf sturgeon, *Acipenser oxyrinchus desotoi*, may be recognized as full species at a later date. The growing reevaluation of subspecies further warrants their inclusion in any checklist that aims to comprehensively inventory North America's fish diversity.

<sup>1</sup> ESA: *Acipenser oxyrinchus desotoi*, *Crenichthys baileyi baileyi*, *Crenichthys baileyi grandis*, *Cyprinodon nevadensis armagosae*, *Cyprinodon nevadensis pectoralis*, *Gasterosteus aculeatus williamsoni*, *Gila robusta jordani*, *Lepidomeda mollispinis pratensis*, *Notropis simus pecosensis*, *Oncorhynchus clarkii henshawii*, *Oncorhynchus clarkii selenis*, *Oncorhynchus clarkii stomias*, *Oncorhynchus clarkii* ssp. (Humboldt cutthroat trout), *Oncorhynchus clarkii* ssp. (Whitehorse basin cutthroat trout), *Oncorhynchus gilae gilae*, *Oncorhynchus gilae apache*, *Oncorhynchus mykiss gairdneri*

(3 ESUs), *Oncorhynchus mykiss irideus* (7 ESUs), *Oncorhynchus mykiss whitei*, *Rhinichthys osculus lethoporus*, *Rhinichthys osculus nevadensis*, *Rhinichthys osculus oligoporus*, *Rhinichthys osculus thermalis*, *Rhinichthys osculus* ssp. (Foskett speckled dace), *Siphateles bicolor mohavensis*, *Siphateles bicolor snyderi*, *Siphateles bicolor* ssp. (Hutton Spring tui chub). SARA: *Cottus bairdii hubbsi* (full species on the AFS list), *Rhinichthys cataractae* ssp. (Nooksack dace), *Salvelinus fontinalis timagamiensis*. ESU = Evolutionary Significant Unit.

The inclusion of undescribed taxa (both species and subspecies) is justified simply because a species without a name is no less a species. Furthermore, both ESA and SARA offer protection to fishes that await taxonomic description.<sup>2</sup> Please note, however, that the inclusion of undescribed taxa in this checklist is not meant to confer validity; official acceptance of all unnamed forms must await peer review and publication of formal descriptions.

### Content, Limits and Methods

Families, sequence of families, genera, species, Latin names, common names (in English and, if a fish occurs in México and Québec, in Spanish and French, respectively), authors, and dates follow the AFS list. Departures from that list—save for the addition of new species described since its publication—are explained herein. Common names for genera of fishes found in the United States follow those listed in the U.S. Department of Agriculture's Integrated Taxonomic Information System (<http://www.itis.usda.gov>). No common names are given for genera endemic to México.

Distribution information is collated from original descriptions and revisionary studies, government documents pertaining to ESA listings, Page and Burr (1991), and recent state and regional ichthyofaunal guides (Etnier and Starnes, 2001; Hubbs and Lagler, 2004; Jenkins and Burkhead, 1994; Mecklenberg et al., 2002; Miller et al., 2005; Moyle, 2002; Ross, 2001; Wydoski and Whitney, 2003).

Exotic species are included if they have currently reproducing populations in North America as reported by the U.S. Geological Survey's Nonindigenous Aquatic Species website (<http://nas.er.usgs.gov/taxgroup/fish>), by Coad et al. (1995) for Canada, and by Contreras-Balderas and Escalante-Cavazos (1984) for México, unless otherwise indicated. Exotic species are tagged with the label "EXOTIC" at the beginning of their listings.

Information on subspecies and undescribed forms is compiled from a variety of sources, which are cited in the individual accounts. Subspecies are included if they are treated as valid taxa in a recent systematic or taxonomic work, or in any of the state or regional ichthyofaunal guides mentioned above. The nominate subspecies is listed first, followed by subsequently described subspecies in alphabetical order. Please note that the recognition of subspecies is controversial and inconsistent; a valid subspecies in one work may be considered a synonym or a valid full species in another. As noted above, the current trend among fish taxonomists appears to favor the resurrection of many synonymized subspecies and their eventual elevation to full species status.

Criteria for including undescribed taxa follows Warren et al. (2000), which included undescribed taxa only "if they have been described or distinguished in an unpublished dissertation or published work, or for which an abstract was available that indicated there was substantial evidence of taxonomic distinctiveness." Despite concerted effort, some potentially new taxa likely have been missed.

When there is disagreement or inconsistencies between publications and/or specialists, or if definitive conclusions are not possible with available data, a provisional judgment call is made. Every decision is explained and alternatives are noted.

**Environmental and Geographic Coverage** With several exceptions, the fishes included in this checklist are all obligatory freshwater fishes. The exceptions are marine or brackish water species that are naturally capable (or presumed to be capable) of spawning in fresh water (e.g., bay anchovy, *Anchoa mitchilli*; mummichog, *Fundulus heteroclitus*; starry flounder, *Platichthys stellatus*), or maintain exclusively freshwater populations (e.g., various pipefishes, sleepers, gobies, and soles).

Geographic coverage follows Mayden et al. (1992a), which covers the Nearctic zoogeographic realm, rather than that of the AFS list, which covers all of North America. The Nearctic Realm includes Greenland, Alaska, Canada, the lower 48 states, and México south to the where the Mexican plateau breaks down into the lowlands of Central America. Specifically, this includes land north of 18° N on the Atlantic slope, and 16° N on the Pacific slope of México; the imaginary line drawn between these two latitudinal points corresponds roughly to the southern range limit of chiefly northern fishes such as minnows and suckers, and the northern range limit of the chiefly southern catfish family Heptapteridae (Miller and Smith, 1986).<sup>3</sup> This is not a discrete boundary, but a broad transition zone where the continental plates of North and South America began pushing against each other around three million years ago (or later). Areas below this line, including extreme southern (tropical) México, are in the Neotropical Realm.<sup>4</sup> So, too, are the Greater Antilles. Although Cuba is just 150 km off the coast of Florida, and Puerto Rico is a commonwealth of the United States, they are both giant peaks of a vast underwater mountain range that is part of South America. Freshwater fishes from Hawai'i are also excluded because Hawai'i is in the Oceania Realm.

**Etymology** For each named taxa, the meaning of its scientific name is given. Etymologies have been collected from several sources, including original descriptions, Jordan and Evermann (1896-1900), and the various regional ichthyofaunal guides listed above. Brown (1956) was useful in the translation or derivation of some troublesome terms. Literature citations for etymologies are not given unless there is some confusion or disagreement in the interpretation of the meaning of a name or why that name was applied. Please note that some names (e.g., *Dorosoma*, *Gila pandora*) have enigmatic meanings, and that others apparently have no meaning at all. Charles Girard named several minnow genera after Native American words (e.g., *Agosia*, *Diionda*, *Nocomis*) simply because he liked the sound of them: "Most of the new genera which I propose have been designated by words taken from the North American Indians, as being more euphonic than any one I might have framed from the Greek" (Girard, 1856).

**Conservation Status** The conservation and listing status of every native species and subspecies is given when known. Conservation status categories (demonstrably widespread,

<sup>2</sup> ESA: *Oncorhynchus clarkii* ssp. (Humboldt cutthroat trout), *Oncorhynchus clarkii* ssp. (Whitehorse basin cutthroat trout), *Rhinichthys osculus* ssp. (Foskett speckled dace), *Siphateles bicolor* ssp. (Hutton Spring tui chub). SARA: *Rhinichthys cataractae* spp. (Nooksack dace), *Cottus* sp. (Cultus pygmy sculpin), and six "species" of stickleback often referred to as morphologically variable populations of *Gasterosteus aculeatus*.

<sup>3</sup> Miller and Smith (1986) actually referred to the long-whiskered catfish family Pimelodidae, specifically to northern species of the genus *Rhamdia*. *Rhamdia* is now in the family Heptapteridae (Bockman and Guazzelli, 2003).

<sup>4</sup> Bermuda is in the Nearctic Realm, but contains no surface streams or freshwater lakes; its ponds are land-locked bodies of salt water with permanent underground connections to the sea (Smith-Vaniz et al., 1999).

abundant and secure, herein referred to as common; apparently secure; vulnerable; imperiled; critically imperiled; extirpated; extinct) are those employed by American natural heritage programs and Canadian conservation data centers. Status data from these biological inventories are collected and reported by NatureServe (<http://www.natureserve.org/explorer>). Unless indicated otherwise, status data for U.S. and Canadian species are cited from NatureServe. For Mexican fishes, unless indicated otherwise, data from Contreras-Balderas et al. (2003) are extrapolated to be consistent with American and Canadian natural heritage conservation status categories (endangered = critically imperiled; threatened = imperiled; special concern = vulnerable; not listed = common or apparently secure).

Listing status refers to whether a species is protected or listed by federal, state or provincial governments as an Endangered or Threatened species, proposed or a candidate for such protection, or listed in one of various classifications that do not necessarily protect the species but formally recognize its increasing rarity and/or vulnerability to imperilment:

- Species of Concern (US, marine and anadromous fishes only; MT)
- Special Concern (Can.; many states, MB, ON, QC)
- Concern (RI)
- Rare (Méz., GA, MO)
- Sensitive (NV, OR, WA)
- In Need of Conservation (KS, MD)
- Deemed in Need of Management (TN)
- Watch List (IL)

The California Department of Fish and Game recognizes three classes of Special Concern:

- Class 1: taxa that conform to State definitions of Threatened or Endangered and could qualify for addition to the official State list;
- Class 2: taxa with low, scattered or highly localized populations that require active management to prevent them from becoming Class 1 species; and
- Class 3: taxa occupying much of their native range, but were formerly more widespread or abundant; taxa with very restricted distributions are also included here.

The Oregon Department of Fish and Wildlife divides its Sensitive classification into four categories, three of which include fishes:

- Critical: species for which listing as Threatened or Endangered is pending or may be appropriate if immediate conservation actions are not taken, and some peripheral species at risk throughout their range and some disjunct populations;
- Vulnerable: species for which listing as Threatened or Endangered can be avoided through continued or expanded protective measures; and
- Peripheral or Naturally Rare: species whose populations within the state are either on the edge of their range, or are historically low because of naturally limiting factors.

Utah, in addition to Species of Concern, lists "Conservation

**Table 1.** Conservation and listing status abbreviations.

C = Candidate
CA = Conservation Agreement
D = Deemed in Need of Management
E = Endangered
NC = In Need of Conservation
P = Protected
R = Rare
S = Sensitive
SC = Special Concern, Species of Concern, or Concern (SC species in CA include a number referring to their class, e.g., CS1, CS2, CS3)
SCP = Species of Conservation Priority, with Roman numeral identifying priority level (SCP-I, SCP-II, SCP-III)
S/C = Sensitive/Critical
S/V = Sensitive/Vulnerable
S/P = Sensitive/Peripheral or Naturally Rare
T = Threatened
WL = Watch List

Agreement Species." These are species or subspecies of concern that receive special management under a conservation agreement developed or implemented by the State to preclude the need for listing under the ESA.

North Dakota does not have an endangered species act; however, the North Dakota Game and Fish Department has identified 100 nongame species, including 22 fishes, as "Species of Conservation Priority" categorized into three levels according to conservation priority:

- Level I: in greatest need of conservation;
- Level II: in need of conservation but supported by other wildlife programs; and
- Level III: in moderate need of conservation but on the edge of their range in North Dakota.

Québec has three listing categories: *Espèces menacées*, comparable to Endangered; *Espèces vulnérables*, comparable to Threatened; and *Espèces susceptibles d'être désignées menacées ou vulnérables*, comparable to Special Concern.

Alabama does not have an endangered species act, but does prohibit the take of several "Protected" fishes. The Yukon has a similar policy, but no fishes are protected. A Protected designation also is enforced in Idaho and Nevada.

British Columbia does not have a stand-alone endangered species act, but does legally protect four species as either Endangered or Threatened; fishes are not among them.

Kentucky, West Virginia, Prince Edward Island, and Nunavut do not maintain lists of special status species except for those already listed by ESA or SARA. New Brunswick and Saskatchewan list special status species, but no freshwater fishes are included.

Conservation and listing status abbreviations are given in Table 1. Two-letter abbreviations for U.S. states (excluding Hawai'i) and Canadian provinces are given in Table 2. Mexican state names are not abbreviated.

Listing status data is collected from the U.S. Fish and Wildlife Service (<http://endangered.fws.gov>); NOAA Fisheries,

**Table 2.** U.S. state and Canadian province abbreviations.

Alabama	AL	Minnesota	MN	Vermont	VT
Alaska	AK	Mississippi	MS	Virginia	VA
Arizona	AZ	Missouri	MO	Washington	WA
Arkansas	AR	Montana	MT	West Virginia	WV
California	CA	Nebraska	NE	Wisconsin	WI
Colorado	CO	Nevada	NV	Wyoming	WY
Connecticut	CT	New Hampshire	NH		
Delaware	DE	New Jersey	NJ	Canadian Provinces and Territories	
District of Columbia	DC	New Mexico	NM		
Florida	FL	New York	NY	Alberta	AB
Georgia	GA	North Carolina	NC	British Columbia	BC
Idaho	ID	North Dakota	ND	Manitoba	MB
Illinois	IL	Ohio	OH	New Brunswick	NB
Indiana	IN	Oklahoma	OK	Newfoundland and Labrador	NF and LB
Iowa	IA	Oregon	OR	Northwest Territories	NT
Kansas	KS	Pennsylvania	PA	Nova Scotia	NS
Kentucky	KY	Rhode Island	RI	Nunavut	NU
Louisiana	LA	South Carolina	SC	Ontario	ON
Maine	ME	South Dakota	SD	Prince Edward Island	PE
Maryland	MD	Tennessee	TN	Québec	QC
Massachusetts	MA	Texas	TX	Saskatchewan	SK
Michigan	MI	Utah	UT	Yukon Territory	YK

or National Marine Fisheries Service (<http://www.nmfs.noaa.gov/pr/species/fish>); the Species at Risk Act Public Registry<sup>5</sup> (<http://www.sararegistry.gc.ca>); Listado de Especies de Peces que se Encuentran en la Norma Oficial Mexicana (NOM-ECOL-059-94); and individual state and provincial natural resource websites (accessible through the agencies links page maintained by the North American Native Fishes Association at <http://www.nanfa.org/agencylinks.shtml>). If a fish is listed at both the federal and state or provincial levels, the latter listing(s) is not mentioned.

Two final comments: Given the dynamic nature of systematics, taxonomy and nomenclature, and that new surveys and assessments continually refine knowledge about the distribution and abundance of fishes, this checklist will likely be out of date as soon as it is printed. Changes and updates will be published in future installments. Also, a work such as this is bound to contain errors (of omission and misinterpretation) and attract critics. The author dreads the former but welcomes the latter. Please send comments, corrections, additions, and changes to the address listed on the title page.

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<sup>5</sup> Listing status categories in Canada's Species at Risk Act (SARA) require some explanation. Schedule 1 listings are the officially listed species for which protection and recovery measures are developed and implemented. Species that were designated at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) before the creation of the Species at Risk Act in 2003 must be reassessed according to the new criteria of the Act before they can be added to Schedule 1. These species are listed on Schedule 2 (Endangered and Threatened) and Schedule 3 (Special Concern), and are not yet officially protected under SARA. Once the species on Schedules 2 and 3 have been reassessed, the Schedules themselves will be eliminated and species will simply be listed or not listed under the Act. Schedule 2 and 3 species are herein designated as "proposed" for their listing status category (e.g., proposed Endangered).

## FAMILY PETROMYZONTIDAE

### Lampreys

Extant lampreys comprise at least 42 species in six genera in either one family (e.g., Eschmeyer, 1998) or three families (e.g., Berra, 2001) in temperate and arctic regions worldwide, with at least half the species occurring in North America. Only three species occur in the Southern Hemisphere. The taxonomy of western North American *Lampetra* is uncertain since several "species" exhibit enigmatic forms (e.g., dwarfism) and life history traits (e.g., migratory vs. non-migratory) that resist Linnean classification. Further analysis is needed to determine whether these forms represent reproductively isolated and genetically distinct species, variable species that take on different forms and behaviors under different environmental conditions, hybrids, or combinations thereof (Kostov, 2002). Lampreys exhibit two biotypes: those that parasitize other fishes after metamorphosis from the ammocoete (larval) stage, and those that do not feed after metamorphosis. Non-parasitic species are harmless to fisheries; they are marked by a dagger (†) after the common name below.

#### *Ichthyomyzon* Girard 1858

(*ichthyo*, fish; *myzon*, to suck)  
brook lampreys

*Ichthyomyzon bdellium* (Jordan 1885); Ohio lamprey

ETYMOLOGY: from the Greek *bdella*, leech or sucker

DISTRIBUTION: Ohio River basin

STATUS: apparently secure or vulnerable; E (OH); T (PA); R (GA); C (PA); extirpated (IL)

*Ichthyomyzon castaneus* Girard 1858; chestnut lamprey  
(*lamproie brune*)

ETYMOLOGY: Latin for chestnut, referring to adult coloration

DISTRIBUTION: Mississippi basin from MB to LA, east to Lake Michigan drainage; Tennessee R. and Gulf drainages from Mobile basin west to Trinity R. (TX)

STATUS: apparently secure; T (IA, KS); SCP-III (ND)

*Ichthyomyzon fossor* Reighard & Cummins 1916; northern brook lamprey (*lamproie du nord*) †

ETYMOLOGY: Latin for digger, referring to ammocoetes digging themselves into the substrate

DISTRIBUTION: upper St. Lawrence-Great Lakes drainage; upper Mississippi drainage; Red River of the North drainage

STATUS: apparently secure; E (IL, IN, OH, PA, VT); T (KY); SC (MN, ON, QC)

*Ichthyomyzon gagei* Hubbs & Trautman 1937; southern brook lamprey †



ETYMOLOGY: in honor of Simon Henry Gage, who studied lampreys for more than 40 years

DISTRIBUTION: Gulf streams from FL panhandle west to San Jacinto R. (TX); headwater streams of lower Missouri R. (MO) and western tributaries of Mississippi R.; disjunct populations in Ohio R. tributaries of KY and St. Croix R. tributaries in WS and MN

STATUS: common; SC (MN, OK); D (TN); extirpated (KY)  
NOTE: May represent a complex of divergent taxa (Boschung and Mayden, 2004).

***Ichthyomyzon greeleyi*** Hubbs & Trautman 1937; mountain brook lamprey †

ETYMOLOGY: in honor of John R. Greeley, species' discoverer  
DISTRIBUTION: upper Ohio R. tributaries with disjunct populations in Kentucky, Green and Cumberland rivers, and Tennessee R. tributaries, in VA, NC, GA and AL  
STATUS: apparently secure or vulnerable; E (OH); T (PA); SC (NY)

***Ichthyomyzon unicuspis*** Hubbs & Trautman 1937; silver lamprey (*lamproie argentée*)

ETYMOLOGY: unicuspid, referring to single cusps of circumoral teeth  
DISTRIBUTION: west Hudson Bay drainage; Great Lakes and St. Lawrence drainage to Lake Champlain; Ohio R. and upper Mississippi R. basins  
STATUS: common; SCP-III (ND); D (TN)

***Lampetra Bonaterre 1788***  
(*lambere*, to lick; *petra*, rock)  
river lampreys

Authorship often given as Gray 1851, but Bonaterre's use of this pre-Linnean name has priority. Four subgenera recognized, sometimes recognized as full genera (e.g., Gill et al., 2003): *Lampetra*; *Entosphenus* Gill 1862 (*entos*, within; *phenus*, wedge, referring to wedge-shaped tooth inside mouth on tongue); *Lethenteron* Creaser & Hubbs 1922 (*leth*, Latin for lethal; *enteron*, alimentary canal, referring to fatal degeneration of intestine in *L. appendix*); and *Tetrapleurodon* Creaser & Hubbs 1922 (*tetra*, four; *pleurodon*, lateral teeth, referring to four enlarged teeth on each side of mouth).

***Lampetra aepyptera*** (Abbott 1860); least brook lamprey †  
ETYMOLOGY: *aepy*, high; *pteron*, fin, referring to dorsal fins of nuptial males

DISTRIBUTION: Atlantic Coast drainage from Chesapeake Bay south to Neuse R. (SC); Ohio R. basin; Osage R., St. Francis and upper White R. drainage (AK, MO); Gulf drainages from Pearl R. (LA) east to tributaries of Pensacola Bay

STATUS: common; T (IL, NC); SC (AR); C (PA)  
NOTE: May represent a complex of divergent taxa (Boschung and Mayden, 2004), including one nominal species, *L. meridionale* (Vladykov, Kott & Pharand-Coad 1975), from Blue Springs Cr. (Coffee Co., TN).

SUBGENUS: *Lampetra*

***Lampetra appendix*** (DeKay 1842); American brook lamprey (*lamproie de l'est*) †

ETYMOLOGY: appendage, referring to genital papillae of nuptial males  
DISTRIBUTION: Great Lakes and St. Lawrence R. drainages and Atlantic Coast streams from NH to Roanoke R. drainage (VA, NC); Mississippi basin from WS to Ohio R. drainage, to White R. drainage (MO, AR); Arctic basin (NT and AK)  
STATUS: apparently secure; E (CT); T (IA, MA, NC, VT);

SC (AR, RI); R (MO); C (PA); extirpated (DC)

NOTES: (1) Eastern populations referred to as *L. a. wilderi* Gage 1896 in Page and Burr (1991); more study is needed to confirm validity of this form. (2) Arctic population is treated as valid species, Alaskan brook lamprey, *L. alaskense* (Vladykov & Kott 1978), in Mecklenburg et al. (2002). We follow the AFS list is deferring recognition of this form until proposed studies suggest otherwise.

SUBGENUS: *Lethenteron*

***Lampetra ayresii*** (Günther 1870); river lamprey  
ETYMOLOGY: in honor of William O. Ayres, San Francisco physician, who originally described species in 1855 but used an occupied name (*Petromyzon plumbeus*)

DISTRIBUTION: coastal streams from Juneau (AK) to San Francisco Bay and Sacramento-San Joaquin drainage (CA)  
STATUS: apparently secure; SC3 (CA); C (WA)  
SUBGENUS: *Lampetra*

***Lampetra camtschatica*** (Tilesius 1811); Arctic lamprey

ETYMOLOGY: of the Kamchatka peninsula  
DISTRIBUTION: circumpolar, from Siberia, Japan and Korea to AK, NT and YK  
STATUS: apparently secure  
NOTE: Previously known as *L. japonica* (Martens 1868), a junior synonym.  
SUBGENUS: *Lethenteron*

***Lampetra geminis*** (Alvarez 1964); Jacona lamprey (*lamproie de Jacona*) †

ETYMOLOGY: twin; nearly identical to *L. spadicea*  
DISTRIBUTION: Río Duero drainage and Río Grande de Morelia tributaries (Michoacan, Jalisco)  
STATUS: critically imperiled; E (Méx.)  
SUBGENUS: *Tetrapleurodon*

***Lampetra hubbsi*** (Vladykov & Kott 1976); Kern brook lamprey †

ETYMOLOGY: in honor of the great American ichthyologist Carl L. Hubbs  
DISTRIBUTION: rivers and canals of east San Joaquin Valley (CA)  
STATUS: imperiled or critically imperiled; SC2 (CA)  
SUBGENUS: *Lampetra*

***Lampetra lethophaga*** Hubbs 1971; Pit-Klamath brook lamprey †

ETYMOLOGY: *letho*, Greek for forget; *phaga*, to eat, referring to non-feeding adults  
DISTRIBUTION: upper Klamath R. (OR); Pit R. system (CA)  
STATUS: apparently secure or vulnerable  
NOTES: (1) Populations in the two drainages may represent separate taxa (Moyle, 2002). (2) A form from Klamath R., described as Modoc brook lamprey, *L. folletti* (Vladykov & Kott 1976), is not widely recognized but has not been formally refuted either.  
SUBGENUS: *Entosphenus*

***Lampetra macrostoma*** Beamish 1982; Vancouver lamprey  
ETYMOLOGY: *macro*, large; *stoma*, mouth

DISTRIBUTION: Cowichan and Mesachie Lakes, Vancouver Island (BC)  
STATUS: critically imperiled; T (Cowichan Lake pop. only)  
NOTE: Also known as lake lamprey (e.g., Coad et al., 1995).  
SUBGENUS: *Entosphenus*

**Lampetra minima** Bond ♂ Kan 1973; Miller Lake lamprey  
 ETYMOLOGY: minimal, referring to its small size  
 DISTRIBUTION: Miller Creek and upper sections of the  
 Williamson and Sycan rivers (OR)  
 STATUS: critically imperiled  
 SUBGENUS: *Entosphenus*  
 NOTE: Declared extinct in 1958 after it was intentionally  
 eradicated to benefit hatchery trout; rediscovered  
 between 1992-1999 (Lorion et al., 2000).

**Lampetra richardsoni** Vladykov & Follett 1965; western  
 brook lamprey †  
 ETYMOLOGY: in honor of surgeon-naturalist John Richardson,  
 who wrote first extensive account of Pacific Northwest  
 fish fauna in 1836  
 DISTRIBUTION: coastal streams from Taku R. (AK) to  
 Sacramento-San Joaquin drainage (CA)  
 STATUS: apparently secure or common; E (Can.; see note 1)  
 NOTES: (1) Two forms occur in Morrison Creek (Vancouver  
 Island): a nonparasitic form and a nonmigratory parasitic  
 form sometimes referred to as *L. richardsoni* var. *marifuga*  
 (Beamish, 1985). Parasitic form may represent a perma-  
 nent freshwater population of *L. ayresii* (C. Renaud, pers.  
 comm.). Only the parasitic form is endangered. (2) Some  
 northern CA and Columbia R. (OR) populations were  
 previously known as Pacific brook lamprey, *L. pacifica*.  
 SUBGENUS: *Lampetra*

**Lampetra similis** (Vladykov & Kott 1979); Klamath River  
 lamprey  
 ETYMOLOGY: similar to *L. tridentata*  
 DISTRIBUTION: Klamath R. system (OR, CA)  
 STATUS: vulnerable or imperiled; SC3 (CA)  
 SUBGENUS: *Entosphenus*

**Lampetra spadicea** Bean 1887; Chapala lamprey (*lamprea*  
*de Chapala*)  
 ETYMOLOGY: nut-brown, referring to color  
 DISTRIBUTION: Lago de Chapala and lower portion of Río  
 Lerma drainage (Michoacan)  
 STATUS: critically imperiled; E (Méx.)  
 SUBGENUS: *Tetrapleurodon*

**Lampetra tridentata** (Gairdner 1836); Pacific lamprey  
 (*lamprea del Pacifico*)  
 ETYMOLOGY: three-toothed, referring to teeth with 3 cusps  
 DISTRIBUTION: Pacific Coast streams from Hokkaido  
 Island (Japan) through AK, to Río Santo Domingo in  
 Baja California  
 STATUS: common, but critically imperiled in Méx.; E (ID);  
 S/V (OR)  
 NOTES: (1) Authorship sometimes attributed to Richardson;  
 Gairdner apparently penned the description that  
 Richardson used. (2) A form referred to as Modoc  
 Brook lamprey, *L. folletti* (Vladykov & Kott 1976), from  
 Klamath R. drainage (CA, OR), may be a dwarf, pre-  
 sumably nonparasitic, form of *L. tridentata*. (3) A small,  
 parasitic form has been seen in coastal OR streams from  
 Coquille R. south (Kostow, 2002). (4) A large, parasitic,  
 strictly freshwater form from Sprague R. (OR) likely  
 represents a separate species (Kostow, 2002). (5) A  
 “distinct predatory taxon” in Klamath Lake (OR) is  
 noted in ODFW (2005).  
 SUBGENUS: *Entosphenus*

**Lampetra cf. tridentata** (Goose Lake lamprey)  
 DISTRIBUTION: Goose Lake system (OR, CA)  
 STATUS: critically imperiled; SC (CA)  
 NOTE: Sometimes listed as an undescribed subspecies of *L.*  
*tridentata*; its isolation from other Pacific lamprey popu-  
 lations and its distinctive appearance and ecology warrant  
 separate species recognition (Moyle, 2002).  
 SUBGENUS: *Entosphenus*

**Petromyzon Linnaeus 1758**  
 (*petro*, stone; *myzon*, to suck)  
 sea lamprey

**Petromyzon marinus** Linnaeus 1758; sea lamprey  
 ETYMOLOGY: of the sea  
 DISTRIBUTION: Atlantic Coast streams from LB to Gulf of  
 Mexico (FL); probably native to Lake Ontario, Lake  
 Champlain, and Finger Lakes of NY; spread into upper  
 Great Lakes  
 STATUS: common

## FAMILY ACIPENSERIDAE Sturgeons

Sturgeons comprise 25 extant species in four genera restricted to the Northern Hemisphere worldwide, with eight species in two genera in North America. Traditionally, two subfamilies have been recognized: Acipenserinae (*Acipenser*, *Huso*) and Scaphirhynchinae (*Scaphirhynchus*, *Pseudoscaphirhynchus*). However, the monophyly of all genera (except for *Scaphirhynchus*) has been questioned (Birstein and DeSalle, 1998; Birstein et al., 2002), and it is likely that sturgeon nomenclature will change. *Scaphirhynchus* and *A. fulvescens* occur exclusively in freshwater; all other North American species are anadromous or semi-anadromous.

**Acipenser Linnaeus 1758**  
 (*akis*, point; pente, *five*, referring to 5 rows of body scutes)  
 greater sturgeons

A Late Cretaceous sturgeon, *A. cruciferus*, is known from the Hell Creek Formation of McCone Co., MT, and the Lance Formation of Sweetwater Co., WY.

**Acipenser brevirostrum** Lesueur 1818; shortnose sturgeon  
 ETYMOLOGY: *brevi*, short; *rostrum*, nose  
 DISTRIBUTION: Atlantic Coast from St. John R., NB to St.  
 Johns R., FL  
 STATUS: vulnerable; E (US); extirpated (DC, VA)  
 NOTE: 19 distinct, reproductively isolated population seg-  
 ments are recognized, each of which receives separate  
 protection under the ESA (NMFS, 1998): Saint John  
 (NB); Penobscot (ME); Kennebec System (Sheepscot,  
 Kennebec and Androscoggin R., ME); Merrimack  
 (MA); Connecticut (MA and CT); Hudson (NY);  
 Delaware (NJ, DE, PA); Chesapeake Bay (MD, VA);  
 Cape Fear (NC); Winyah Bay (Waccamaw, Pee Dee and  
 Black R., SC and NC); Santee (SC); Cooper (SC);  
 “ACE” basin (Ashpoo, Combahee and Edisto R., SC);  
 Savannah (SC, GA and hatchery stocks); Ogeechee  
 (GA); Altamaha (GA); Satilla (GA); St. Marys (FL);  
 and St. Johns (FL).

**Acipenser fulvescens** Rafinesque 1817; lake sturgeon  
 (*esturgeon jaune*)  
 ETYMOLOGY: from the Latin *fulvovous*, yellowish-brown  
 DISTRIBUTION: Great Lakes, Hudson-James Bay, and  
 Mississippi R. drainages  
 STATUS: vulnerable or apparently secure; E (IL, IA, MO,  
 OH, PA, TN, VT); T (MI, NE, NY); SC (AR, MN,



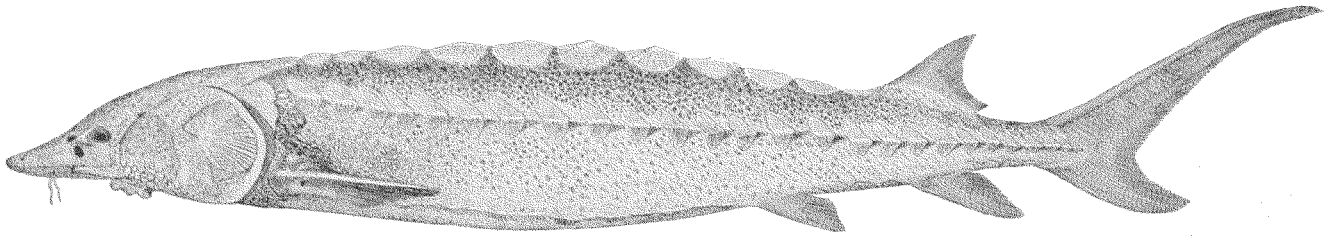


Fig. 1.

*Acipenser brevirostrum*, shortnose sturgeon. Courtesy: NOAA Photo Library.

NC, WI, MB, QC); P (AL); extirpated (AL, NC, ND, WV)

***Acipenser medirostris*** Ayres 1854; green sturgeon (*esturión verde*)

ETYMOLOGY: *medi*, moderate or middle; *rostris*, snout, referring to its size when Ayres compared it to two *A. transmontanus* he examined, also from San Francisco Bay

DISTRIBUTION: Pacific Coast from Aleutian Islands (AK) to southern CA; only spawning freshwater populations in North America occur in Sacramento River (southern Distinct Population Segment, or DPS), and Klamath and Rogue R. (northern DPS)

STATUS: vulnerable; SC (US); proposed T (US, southern DPS only)

***Acipenser oxyrinchus oxyrinchus*** Mitchill 1815; Atlantic sturgeon (*esturión del Atlántico*; *esturgeon noir*)

ETYMOLOGY: *oxy*, sharp; *rinchus*, snout

DISTRIBUTION: Atlantic Coast from LM to northeast FL  
STATUS: vulnerable; SC (US, NC, VA, QC); E (MA, PA); T (CT, freshwater only); extirpated (DC); “State Historical” (RI), i.e., documented for the state during the last 100 years but currently not known to occur

***Acipenser oxyrinchus desotoi*** (Vladykov 1955); Gulf sturgeon  
ETYMOLOGY: in honor of Fernando de Soto, 16th-century Gulf explorer

DISTRIBUTION: Gulf Coast from Florida Bay to Lake Pontchartrain (LA)

STATUS: imperiled; T (US)

***Acipenser transmontanus*** Richardson 1836; white sturgeon (*esturión blanco*)

ETYMOLOGY: over the mountains, i.e., found on western side of Continental Divide

DISTRIBUTION: Pacific Coast from Alaska Bay to Ensenada, Méx.; in freshwater, occurs in large rivers from Sacramento-San Joaquin system northward, plus 18 landlocked populations

STATUS: apparently secure; E (US): Kootenai R. population only

NOTE: Largest fish in North America, reaching up to 6.1 m and 816 kg (Scott and Crossman, 1973)

***Scaphirhynchus* Heckel 1836**

(*scaphi*, a shovel; *rhynchus*, snout)  
shovelnose sturgeons

***Scaphirhynchus albus*** (Forbes & Richardson 1905); pallid sturgeon

ETYMOLOGY: white, referring to pallid coloration

DISTRIBUTION: Missouri R. and middle to lower Mississippi R. from MT to LA

STATUS: critically imperiled; E (US)

***Scaphirhynchus platyrhynchus*** (Rafinesque 1820); shovelnose sturgeon

ETYMOLOGY: *platy*, broad; *rhynchus*, snout

DISTRIBUTION: Mississippi R. and Mobile Bay drainages

STATUS: apparently secure; E (Mex., OH); T (TX); SC (OK); extirpated (AL, NM, PA, WV)

***Scaphirhynchus suttkusi*** Williams & Clemmer 1991; Alabama sturgeon

ETYMOLOGY: in honor of Royal D. Suttkus, noted authority on southeastern fishes and mentor to many ichthyologists

DISTRIBUTION: Mobile Bay drainage (MS, AL)

STATUS: critically imperiled; E (US); not seen in the wild since 1999 (ADCNR et al., 2000)

## FAMILY POLYODONTIDAE

### Paddlefishes

Paddlefishes are closely related to sturgeons; together they represent the only extant members of the order Acipenseriformes, the most numerous of all living “fossil” fishes. There are two living species, one on each side of the planet. The nearly-extinct Chinese paddlefish, *Psephurus gladius* (Martens 1862), is piscivorous. The North American paddlefish is a predatory planktivore when juvenile and a filter-feeding planktivore when mature. Four fossil species have been described, three from North America and one from China.

### ***Polyodon* Lacepède 1797**

(*poly*, many; *odon*, tooth, referring to its plankton-seining gill rakers)  
paddlefishes

***Polyodon spathula*** (Walbaum 1792); paddlefish

ETYMOLOGY: spatula, in reference to paddle-shaped rostrum

DISTRIBUTION: large river systems of the Mississippi Valley from NY to central MB, south to AL; some Gulf drainages from Mobile Bay (AL) to Galveston Bay (TX)

STATUS: apparently secure; E (NC); T (MN, TX, VA, WI); P (AL); SC (AR, MT); SCP-III (ND); extirpated (Can., MI, NY, PA)

## FAMILY LEPISOSTEIDAE

### Gars

At least nine species of gars are known from fossils found in Europe, India, Africa, and possibly South America (Cavender, 1986). All seven extant species are found in the New World, two of which—the tropical gar, *Atractosteus tropicus* Gill 1863, of extreme southern Méx. and Costa Rica, and the Cuban gar, *A. tristoechus* (Bloch & Schneider 1801), of western Cuba and the Isle of Pines—live outside of the Nearctic Realm and are not listed here.

**Atractosteus Rafinesque 1820**

(*atract*, spindle; *osteus*, bony, referring to cylindrical body covered with heavy bone-like scales)  
broadhead gars

**Atractosteus spatula** (Lacepède 1803); alligator gar (*catán*)

ETYMOLOGY: referring to spatula-like shape of its snout  
DISTRIBUTION: Mississippi R. basin from MO, OH and IL, south to freshwater, brackish and marine Gulf Coast waters from FL panhandle to Veracruz; disjunct populations in Nicaragua and Costa Rica

STATUS: apparently secure or vulnerable; SC (AR, OK); D (TN); extirpated (OH, MO)

NOTE: Largest non-anadromous freshwater fish in North America, reaching nearly 3 m and 137 kg (Suttkus, 1963).

**Lepisosteus Lacepède 1803**

(*lepid*, scale; *osteus*, bony, referring to heavy bone-like scales)  
gars

**Lepisosteus oculatus** Winchell 1864; spotted gar (*catán pinto*; *lépososté tacheté*)

ETYMOLOGY: eyed, referring to eye-like spots on body  
DISTRIBUTION: Mississippi R. basin; southern Great Lakes; Gulf Coast rivers from FL to TX

STATUS: common; T (Can.); E (OH, PA); extirpated (NM)

**Lepisosteus osseus** (Linnaeus 1758); longnose gar (*catán aguja*; *lépososté osseux*)

ETYMOLOGY: bony, referring to its head bones and ganoid scales on head and body

DISTRIBUTION: Great Lakes (except Superior); rivers from ON and VT to the Rio Grande; Atlantic Slope from NJ to FL; brackish waters of the Gulf of Mexico

STATUS: common; C (PA)

**Lepisosteus platostomus** Rafinesque 1820; shortnose gar

ETYMOLOGY: *platy*, flat; *stomas*, mouth

DISTRIBUTION: Mississippi R. basin from ON to LA; Lake Michigan drainages in WI; Gulf Coast of LA

STATUS: common; E (OH); SC (MT); extirpated (AL, PA)

**Lepisosteus platyrhincus** DeKay 1842; Florida gar

ETYMOLOGY: *platy*, flat; *rhincus*, snout

DISTRIBUTION: Savannah R. drainage (GA), south throughout peninsular FL

STATUS: common

**FAMILY AMIIDAE****bowfins**

*Amia calva* is the sole surviving member of a freshwater and marine family that dates from 135-195 mya. At least two species of fossil *Amia* are known from North America, from 35-50 million mya: *A. scutata* (Florissant Formation, in and around Florissant, CO), and *A. pattersoni* (Green River Formation, Green River, WY).

**Amia Linnaeus 1766**

(meaning uncertain; *ami*, Greek name for a perch, bonito, or a “kind of tunny which ascends rivers”  
[Smith, 1986; Grande and Bemis, 1998])

**Bowfins**

**Amia calva** Linnaeus 1766; bowfin (*poisson-castor*)

ETYMOLOGY: smooth or bald, probably referring to scaleless head

DISTRIBUTION: estuaries and lowlands of eastern US and southernmost ON and QC

STATUS: common; C (PA)

**FAMILY HIODONTIDAE****Mooneyes**

Mooneyes, or hiodontids, are members of the superorder Osteoglossomorpha, named for teeth on the tongue that bite against similarly toothed bones in the roof of the mouth. Osteoglossomorpha is divided into two orders—Hiodontiformes (mooneyes) and Osteoglossiformes (arowanas, mormyrids, etc.)—following the phylogenetic study of Li and Wilson (1996). Fossil hiodontids are known from western US, AB and China (Nelson, 1994); the two extant species are endemic to North America. The name “mooneye” is derived from the full moon-like appearance of the eyes of *Hiodon tergisus*.

**Hiodon Lesueur 1818**

(*hio*, tongue or hyoid bone; *don*, tooth, referring to toothed tongue)  
mooneyes

**Hiodon alosoides** (Rafinesque 1819); goldeye (*laquaiche aux yeux d’or*)

ETYMOLOGY: shadlike, referring to its resemblance to alosine shads

DISTRIBUTION: Arctic, Missouri, Mississippi, and Ohio basins from NT to western PA, south to LA; disjunct population in James Bay tributaries (QC, ON)

STATUS: common; E (OH, WI); T (PA); extirpated (AL)

**Hiodon tergisus** Lesueur 1818; mooneye (*laquaiche argentée*)

ETYMOLOGY: polished, referring to its silvery sheen

DISTRIBUTION: St. Lawrence-Great Lakes (except Superior) Mississippi R. and Hudson Bay basins from QC and AB south to the Gulf of Mexico; Gulf Slope drainages from Mobile Bay (AL) to Lake Pontchartrain (LA)

STATUS: common; T (MI, NY, PA); SC (NC, OK)

## EXOTIC

**FAMILY NOTOPTERIDAE****Featherfin Knifefishes**

*Chitala ornata*, a native of the Mekong basin of Laos, Thailand, Cambodia, and Vietnam, was first reported from FL by an angler in 1994 and is considered to be established, albeit in low numbers (<100). A popular aquarium fish, the source was likely a tropical fish hobbyist or exporter. In 2002, a single specimen was collected from Norman Reservoir on the Catawba R. (NC) in 2002. Despite the vernacular, the family is not related to the gymnotiform knifefishes of South America. In fact, most non-American authorities use the vernaculars “featherbacks” for the family and “clown featherback” for the species (e.g., Rainboth, 1996).

**Chitala Fowler 1934**

(Bengali vernacular for other species in the family)  
clown knifefish

**Chitala ornata** (Gray 1831); clown knifefish

ETYMOLOGY: adorned or decorated, referring to the large round eyespots on the tail

DISTRIBUTION: Lake Osborne (Palm Beach Co., FL)

**FAMILY ANGUILLIDAE****Freshwater Eels**

Members of this monogeneric family comprise 16-20 species (Berra, 2001) from tropical and temperate seas (except for the eastern Pacific and southern Atlantic) and their adjacent fresh waters worldwide. Two species—American eel (*Anguilla rostrata*) and European eel (*A. anguilla*)—are catadromous and form a panmictic

spawning population in the Sargasso Sea. Catadromy is rare among primarily freshwater fishes; the only other catadromous fish in eastern North America is the mountain mullet, *Agonostomus monticola*.

**Anguilla Schrank 1798**

(*anguilla*, Latin for eel)  
freshwater eels

**Anguilla rostrata** (Lesueur 1817); American eel (*anguilla americana*; *anguille d'Amérique*)

ETYMOLOGY: Latin for beaked or curved, presumably a characteristic of which only Lesueur was aware  
DISTRIBUTION: Atlantic Ocean from Greenland to the West Indies, most abundant in Atlantic and Gulf drainages from NF to SD, west to the Rio Grande (NM)  
STATUS: common (but in decline); under review as a potential candidate ESA listing; SC (WI); extirpated (NM)

**Family ENGRAULIDAE**  
**Anchovies**

Anchovies comprise at least 16 genera and 139 species in temperate and tropical waters worldwide. About 17 species occur in fresh water and enter brackish water, including 13 in North America. The inclusion of *Anchoa mitchilli* on this list is provisional and based on the record of 99 specimens collected from the Black Warrior River (AL) in 1986, which Mettee et al. (1996) argue must have spawned in fresh water. Boschung and Mayden (2004) say direct evidence of freshwater spawning is lacking.

**Anchoa Jordan & Evermann 1927**

(“anchovy-like”)  
common anchovies

**Anchoa mitchilli** (Valenciennes 1848); bay anchovy (*anchoa de caleta*)

ETYMOLOGY: in honor of Samuel Latham Mitchill, naturalist-physician and U.S. Senator who studied the fishes of New York Harbor  
DISTRIBUTION: lower and estuarine reaches of coastal rivers of North America from ME to Yucatán  
STATUS: common

**FAMILY CLUPEIDAE**  
**Herrings and Shads**

The largely marine herring and shad family comprises 214 described species in 65 genera across six subfamilies worldwide. Two genera in two subfamilies occur in the fresh waters of North America: shads and river herrings (*Alosa*, Alosinae) and gizzard shads (*Dorosoma*, Dorosomatinae). Marine clupeids that occasionally enter fresh water in North America include: *Brevoortia patronus* Goode 1878, Gulf menhaden (AL, MS); *Harengula jaguana* (Poey 1865), scaled sardine (FL, MS); and *Opisthonema oglinum* (Lesueur 1818), Atlantic thread herring (FL).

**Alosa Linck 1790**

(from the Saxon *allis*, old name of the European shad)  
river herrings

River herrings comprise at least 15 North American and European species, with four species occurring in Atlantic Coast drainages of the US and Canada, and two species ranging from the Gulf Coast upwards through the Mississippi basin. Some Atlantic species occur far outside their native ranges, usually in lakes and reservoirs, either as introduced forage for stocked gamefish, or by passage through manmade waterways. Two subgenera are sometimes recognized: *Alosa* and *Pomolobus* Rafinesque 1820 (*pomo*, opercle; *lobus*, lobe, referring to the lobed opercles Rafinesque used to distinguish “goldshads” from true herrings).

**Alosa aestivalis** (Mitchill 1814); blueback herring

ETYMOLOGY: of the summer, presumably because it enters coastal waters later than *A. pseudoharengus*

DISTRIBUTION: Atlantic Coast from Cape Breton (NS) to St. Johns R. (FL); introduced into VA reservoirs

STATUS: common

SUBGENUS: *Pomolobus*

**Alosa alabamae** Jordan ♂ Evermann 1896; Alabama shad

ETYMOLOGY: of Alabama, where type was collected  
DISTRIBUTION: Gulf of Mexico from Mississippi delta east to the Choctawhatchee R. (FL); north to IA and WI, east to WV

STATUS: vulnerable; SC (US, AR, OK); E (TN); P (AL) extirpated (IN)

SUBGENUS: *Alosa*

**Alosa chrysochloris** (Rafinesque 1820); skipjack herring

ETYMOLOGY: *chryso*, gold, *chloris*, green, referring to color of the back

DISTRIBUTION: Red R. drainage and Mississippi R. basin, from MN south to Gulf, and from PA west to SD, NE, KS, OK, TX; Gulf drainages from Apalachicola R. (FL) to Colorado R. (TX)

STATUS: common; E (WI); T (PA)

SUBGENUS: *Pomolobus*

**Alosa mediocris** (Mitchill 1814); hickory shad

ETYMOLOGY: mediocre, referring to its taste or food value as compared to *A. sapidissima*

DISTRIBUTION: Atlantic Coast from Kenduskeag R. (ME) to St. Johns R. (FL); possibly Campobello Island (NB)

STATUS: common; E (PA)

SUBGENUS: *Pomolobus*

**Alosa pseudoharengus** (Wilson 1811); alewife (*gaspereau*)

ETYMOLOGY: *pseudo*, false; *harengus*, herring

DISTRIBUTION: Atlantic Coast rivers from Red Bay (LB) to SC; introduced into Great Lakes and elsewhere

STATUS: common

SUBGENUS: *Pomolobus*

**Alosa sapidissima** (Wilson 1811); American shad (*sábalo americano*; *alose savoureuse*)

ETYMOLOGY: most delicious (i.e., among shads)

DISTRIBUTION: Atlantic Coast from Sand Hill R. (LB) to St. Johns R. (FL), inland to Ottawa River (ON); introduced and spreading throughout Pacific Coast into Russia

STATUS: common; T (QC); extirpated (ON)

SUBGENUS: *Alosa*

**Dorosoma Rafinesque 1820**

(*dora*, lanceolate; *soma*, body, see below)  
gizzard shads

Gizzard shads comprise five species in North and Middle America, with two widespread American species native to fresh and brackish waters east of the Continental Divide, and two poorly known species in México. (The fifth species, *D. chavesi*, is endemic to Nicaragua). The two American species have been introduced throughout the US as a forage fish. Two genera are sometimes recognized: *Dorosoma* and *Signalosa* Evermann & Kendall 1898 (*signum*, flagstaff or pole, referring to elongated dorsal fin ray; *alosa*, shad). The etymology of *Dorosoma* requires interpretation. As indicated by Rafinesque, the name refers to the lanceolate shape of the body, a character he used to distinguish *Dorosoma* from *Clupea* and *Pomolobus*. However, adult *Dorosoma* cannot be described as lanceolate. Jordan and Evermann (1896-1900) said the name is an “allusion to form of body in the young,” an interpretation supported by illustrations of larval *Dorosoma* shown in Wallus et al. (1990). Boschung and Mayden (2004) surmise that the name alludes to the elongated dorsal fin ray.

**Dorosoma anale** Meek 1904; longfin gizzard shad (*sardina del Papalopan*)

ETYMOLOGY: referring to long anal fin  
 DISTRIBUTION: Río Papaloapan in south Veracruz and Oaxaca (Méx.), south to north Guatemala  
 STATUS: common or apparently secure  
 SUBGENUS: *Dorosoma*

***Dorosoma cepedianum*** (Lesueur 1818); gizzard shad  
 (*sardina molleja*; *alose à gésier*)

ETYMOLOGY: "Named for Bernard Germain Étienne de la Ville sur Ilion, Comte de La Cépède (1756-1825), known as Citoyen Lacépède during the French Revolution; a brilliant and most industrious writer, who compiled his great Histoire Naturelle des Poissons under most difficult conditions during the French revolution" (Jordan & Evermann, 1896-1900)

DISTRIBUTION: St. Lawrence-Great Lakes, Mississippi, Atlantic, and Gulf Coast drainages from QC to ND and NM, south to FL and Méx.; widely introduced elsewhere  
 STATUS: common  
 SUBGENUS: *Signalosa*

***Dorosoma petenense*** (Günther 1868); threadfin shad  
 (*sardina maya*)

ETYMOLOGY: described from Lake Peten, Guatemala  
 DISTRIBUTION: Ohio R. (IN, IL) and Mississippi R. basin from IL to Gulf; Atlantic drainages of FL; Gulf drainages from FL to Guatemala; widely introduced elsewhere  
 STATUS: common  
 SUBGENUS: *Dorosoma*

NOTE: Some authorities recognize two subspecies: *D. p. petenense* and *P. p. atchafalaya* Evermann & Kendall 1898, named after the Atchafalaya River (LA), its type locality. Populations introduced into California are assigned to this nominal subspecies (Moyle, 2002).

***Dorosoma smithi*** Hubbs & Miller 1941; Pacific gizzard shad (*sardina norteña*)

ETYMOLOGY: in honor of ichthyologist Hugh M. Smith  
 DISTRIBUTION: Pacific drainages of northwest Méx. between Sinaloa and Sonora  
 STATUS: common or apparently secure  
 SUBGENUS: *Dorosoma*

## FAMILY CYPRINIDAE Minnows and Carps

With over 2,500 species in Europe, Asia, Africa, and North America, Cyprinidae is the largest and most diverse family of fishes in the world. (Gobiidae and Cichlidae may challenge Cyprinidae as the most speciose fish family.) With at least 313 native species in 51 genera, plus 9 species introduced and established from other countries, it is the largest family of fishes in North America. Extant cyprinids are native to all of North America except for the Arctic Archipelago, NF, Baja California, and portions of AK. The natural range of cyprinids stops near the southern end of North America in the Mexican Plateau. Ichthyologists differ in their appraisals of higher level cyprinid classification. Some divide minnows into 6-7 subfamilies (Howes, 1991). Others recognize just two: Cyprininae and Leuciscinae (Cavender and Coburn, 1992). All native North American minnows belong to the subfamily Leuciscinae. All North American leuciscins except for one belong to the tribe Phoxini. The exception is the golden shiner, *Notemigonus crysoleucas*, which is more closely related to European leuciscins than to American phoxinins (Coburn and Cavender, 1992).

### ***Acrocheilus* Agassiz 1855**

(*acro*, sharp; *cheilus*, lip, referring to its chisel-shaped mouth) chiselmouth

***Acrocheilus alutaceus*** Agassiz & Pickering 1855; chiselmouth  
 ETYMOLOGY: leathery, referring to brownish coloration  
 DISTRIBUTION: Pacific drainage systems of the Columbia R. (BC, WA, OR, ID), Fraser R. (BC), and Snake R. (NV); isolated population in the Harney R. basin in the Malheur Lake drainage of east-central OR  
 STATUS: common

### ***Agosia* Girard 1856**

(a Native American word, chosen presumably because Girard liked the sound of it)  
 longfin daces

Sometimes placed in *Rhinichthys* based on the shared uniqueness of their cheek muscles (Woodman, 1992); Simons and Mayden (1999) recommend continued placement in *Agosia* until relationships are clarified. *A. chrysogaster* is the only known cyprinid in North America that builds saucer-shaped nests in the substrate (Johnson and Page, 1992). The undescribed *Agosia* apparently does not (Miller et al., 2005).

***Agosia chrysogaster*** Girard 1856; longfin dace (*pupo panzaverde*)

ETYMOLOGY: *chryso*, yellow; *gaster*, belly, referring to the light yellow bellies of males  
 DISTRIBUTION: Colorado R. basin from Bill Williams R. (AZ) and Gila R. (AZ, NM, Sonora) south into Río de la Concepción (AZ, Sonora)  
 STATUS: apparently secure (US); imperiled, T (Méx.)

***Agosia* sp.** (Mexican longfin dace; *pupo mexicana*)

DISTRIBUTION: Sulphur Springs Valley (AZ) and Río Sonora south through lower ríos Yaqui, Mayo, Fuerte and Sinaloa (Sonora, Sinaloa)  
 STATUS: imperiled; T (Méx.) as *A. chrysogaster*  
 NOTE: A morphologically intermediate form between *Agosia* sp. and *A. chrysogaster* exists in the ríos Sonoyta and de la Concepción basins (Miller et al., 2005).

### ***Algansea* Girard 1856**

(a Native American word, chosen presumably because Girard liked the sound of it)

***Algansea aphanea*** Barbour & Miller 1978; riffle chub  
 (*pupo del Ayutla*)

ETYMOLOGY: concealed, referring to hidden differences between it and other *Algansea*  
 DISTRIBUTION: Río Ayutla and four tributaries (only two now extant [J. Lyons, pers. comm.]) of Río Tuxpan (Jalisco)  
 STATUS: imperiled; T (Méx.)

***Algansea avia*** Barbour & Miller 1978; remote chub (*pupo de Tepic*)

ETYMOLOGY: remote, being the most western *Algansea*  
 DISTRIBUTION: Río Grande de Santiago drainage and Río Chila headwaters (Nayarit)  
 STATUS: imperiled

***Algansea barbata*** Alvarez & Cortés 1964; Lerma chub  
 (*pupo de Lerma*)

ETYMOLOGY: barbled (was only *Algansea* known at the time to have a barbel)  
 DISTRIBUTION: Río Lerma headwaters (México)  
 STATUS: critically imperiled; E (Méx.)

***Algansea lacustris*** Steindachner 1895; Pátzcuaro chub  
 (*acúmara*)

ETYMOLOGY: of the lake

DISTRIBUTION: Lake Pátzcuaro (Michoacán); translocated elsewhere in México as forage and human fare

STATUS: common or apparently secure

***Algansea monticola monticola*** Barbour & Contreras-Balderas 1968; mountain chub (*pupo del Juchipila*)

ETYMOLOGY: of the mountains

DISTRIBUTION: headwaters of the ríos Colotlán and Juchipila (Jalisco, Zacatecas, Nayarit)

STATUS: common or apparently secure

***Algansea monticola archidion*** Barbour & Miller 1994; (no common name)

ETYMOLOGY: from *archidi*, petty position, referring to fish's subspecific status

DISTRIBUTION: Huaynamota and Bolaños river basins (Jalisco, Zacatecas)

STATUS: presumably common or apparently secure

***Algansea popoche*** (Jordan & Snyder 1899); popoche chub (*popoche*)

ETYMOLOGY: Mexican name for this fish

DISTRIBUTION: Lake Chapala, Río Grande de Santiago above the Juanacatlán falls (Jalisco, Michoacán)

STATUS: imperiled; T (Méx.)

***Algansea tincella*** (Valenciennes 1844); spottail chub (*pupo del Valle*)

ETYMOLOGY: like a small tench

DISTRIBUTION: Valley of México; Río Grande de Morelia; Río Lerma basin; upper Río San Juan del Río and Santa María del Río

STATUS: imperiled; T (Méx.)

***Aztecula* Jordan & Evermann 1898**  
(in remembrance of the Aztec culture that dominated 15th-century central Méx.)  
Aztec chub

***Aztecula sallaiei*** (Günther 1868); Aztec chub (*carpita azteca*)

ETYMOLOGY: in honor of M. Sallé, who collected type

DISTRIBUTION: upper Río Lerma basin and some Río Balsas tributaries; Río Grande de Morelia basin and Valley of Mexico; Río Pánuco headwaters (México, Michoacán, Morelos, Puebla, Distrito Federal, Hidalgo, Querétaro)

STATUS: vulnerable

NOTE: *sallaiei* is a misspelling, which some authors have amended to *sallei*; however, original incorrect spelling is actually correct spelling per rules of nomenclature

***Campostoma* Agassiz 1855**  
(*campo*, curved; *stoma*, mouth, referring to U-shaped mouth)  
stonerollers

The systematics of this genus is being investigated, with changes in taxonomic and geographic limits to be expected. Northern populations "show morphological intergrades and characters at odds with southern populations. Furthermore, DNA is not concordant with morphological units, indicating introgression among them" (Hubbs and Lagler, 2004). *C. oligolepis* and *C. pauciradii* intergrade or hybridize in the Coosa-Tallapoosa R. drainage (Warren et al., 2000). Stonerollers are so named because males push stones to build spawning pits.

***Campostoma anomalum anomalum*** (Rafinesque 1820); Ohio stoneroller

ETYMOLOGY: anomalous, referring to its uneven, bilobed tail (Ross, 2001), and not the seemingly anomalous (i.e., different or abnormal) appearance of the ridge on its lower jaws (e.g. Jenkins and Burkhead, 1994)

DISTRIBUTION: Ohio R. and upper Atlantic drainages from NY to TN; Santee and Savannah R. drainages (NC, SC)

STATUS: common

NOTES: (1) Vernacular per Hubbs and Lagler (2004); usually known as central stoneroller, a name better applied to *C. a. pullum*. (2) Burr and Cashner (1983) provisionally recognize the Santee and Savannah populations as a distinct subspecies, *C. a. michauxi* Fowler 1945. Gilbert (1998) and Ross (2001) list the subspecies without the provisional qualifier. I defer listing it here pending more study. (3) New River portion of the upper Ohio R. drainage (NC, VA, WV) and the James (VA) and Roanoke R. (VA, NC) drainages may contain an undescribed form (Etnier and Starnes, 2001).

***Campostoma anomalum pullum*** (Agassiz 1854); central stoneroller (*rodapiedras del centro*)

ETYMOLOGY: young animal, referring to small size compared to similar European minnows

DISTRIBUTION: most of eastern and central US, from Thames R. system (ON) south to Río San Juan basin (Nuevo León, Tamaulipas)

STATUS: common; SCP-III (ND)

NOTES: (1) Sufficient evidence exists to recognize this form as a full species (Etnier and Starnes, 2001), which some publications already do (e.g., Pflieger, 1997). We follow the AFS list and defer recognition of *C. pullum* pending publication of a formal taxonomic study. (2) Also known as Mississippi stoneroller (Warren et al., 2000).

***Campostoma oligolepis*** Hubbs & Greene 1935; largescale stoneroller

ETYMOLOGY: *oligi*, few; *lepis*, scales, referring to larger and therefore fewer scales

DISTRIBUTION: WI and southeastern MN south through northern IL; eastern IA; Ozarks of MO, AR and OK; Escambia R. (AL); Mobile Bay drainage (GA, AL, MS); Green, Cumberland, and Tennessee R. drainages (KY, TN, GA, AL)

STATUS: common

***Campostoma ornatum*** Girard 1856; Mexican stoneroller (*rodapiedras mexicano*)

ETYMOLOGY: ornate, referring to ornamental coloration of breeding males

DISTRIBUTION: Río Yaqui system (TX, AZ); throughout northern Méx. (Sonora, Chihuahua, Zacatecas)

STATUS: vulnerable; E (Méx.); T (TX); SC (AZ)

NOTE: Miller et al. (2005) say that Endangered status in Méx. may refer to local populations since species, as a whole, is widespread and regionally abundant.

***Campostoma pauciradii*** Burr & Cashner 1983; bluefin stoneroller

ETYMOLOGY: *pauci*, few, referring to low number of gill rakers (*radii*) on first arch

DISTRIBUTION: Apalachicola and Altamaha R. drainages (GA, AL); Alabama and Tennessee R. drainages (GA)

STATUS: apparently secure

## EXOTIC

**Carassius Nilsson 1832**

(from the French *carassin*, carp [Brown, 1956])  
Crucian carps

Native to eastern Europe and China, the goldfish was the first foreign fish species to be introduced into North America. Word of its release dates back to the late 1600s. Unlike the common carp, *Cyprinus carpio*, the goldfish was a strictly ornamental addition. Common carp x goldfish hybrids are common.

**Carassius auratus** (Linnaeus 1758); goldfish

ETYMOLOGY: Latin for gilded, in reference to color

DISTRIBUTION: US: every state except AK and FL; Can.: every province except NF, YK and NT; Méx.: Chihuahua, Baja California, Michoacán, Nuevo León, San Luis Potosí, Aguascalientes, and the Valley of Mexico

**Clinostomus Girard 1856**

(*clino*, inclined; *stomas*, mouth, referring to its oblique shape)  
redside daces

**Clinostomus elongatus** (Kirtland 1841); redside dace

ETYMOLOGY: elongated, referring to streamlined shape

DISTRIBUTION: upper Susquehanna R. drainage (NY, PA); Great Lakes (except Superior) and Mississippi R. basins  
STATUS: apparently secure; E (IN, MI); T (ON); SC (WI); extirpated (IA, MD)

**Clinostomus funduloides funduloides** Girard 1856; rosyside dace

ETYMOLOGY: reminiscent of topminnows, genus *Fundulus*

DISTRIBUTION: Atlantic Slope from Delaware R. drainage (PA) to lower Savannah R. drainage (SC, GA); upper Tennessee R. drainage (TN, VA); Ohio R. basin (OH, KY, WV)

STATUS: common

**Clinostomus funduloides estor** (Jordan & Brayton 1878); highland dace

ETYMOLOGY: eater, referring to its considerably large mouth

DISTRIBUTION: Tennessee and Cumberland R. drainages (KY, TN, AL)

STATUS: common

**Clinostomus funduloides spp.** (smoky dace)

DISTRIBUTION: Little Tennessee R. system (NC, GA, TN)

STATUS: vulnerable; SC (NC); D (TN)

NOTE: Intergrades or hybridizes with *C. f. estor* in the upper Tennessee R. drainage (Warren et al., 2000).

**Couesius Jordan 1878**

(in honor of Elliot Coues [pronounced “cows”],  
ornithologist, who collected type)  
lake chubs

**Couesius plumbeus plumbeus** (Agassiz 1850); northern lake chub

ETYMOLOGY: lead-colored

DISTRIBUTION: Most of Can. and northern US, from AK to Great Lakes to New England; relict population in Mississippi R. basin (IA); the most northern minnow in North America and the only minnow native to Alaska

STATUS: common; E (MA); C (PA)

NOTES: (1) Usually known as lake chub; “northern” added to vernacular per Hubbs and Lagler (2004). (2) Gilbert (1998) recognizes *C. p. greeniei* Jordan 1893, which occurs in Fraser and upper Columbia R. (BC and north-

western US). I choose to not list it at this time because it is not mentioned in two major guides (Page and Burr, 1991; Wydoski and Whitney, 2003) and doubted in a third (Scott and Crossman, 1973).

**Couesius plumbeus ssp.** (prairie lake chub)

DISTRIBUTION: upper Missouri R. drainage (MT, MI, SD, ND, WI, MN, CO, ID, NE)

STATUS: common; E (CO)

NOTES: (1) Often referred to as *C. plumbeus dissimilis* (Girard 1856) (e.g., Hubbs and Lagler, 2004), but that name is unavailable since Girard’s *Leucosomus dissimilis* is a junior homonym of *Hybopsis* (now *Erimystax*) *dissimilis* (Gilbert, 1998). (2) Vernacular per Hubbs and Lagler (2004).

## EXOTIC

**Ctenopharyngodon Steindachner 1866**

(*cteno*, comb; *pharynx*, throat; *odon*, tooth, referring to comblike pharyngeal teeth)  
grass carp

Grass carp are native to large rivers of eastern Asia from the Amur River of China and Siberia, south to the White R. of China. Since grass carp are one of the few freshwater fishes to eat large plants, they were imported into AR in 1963 to consume aquatic vegetation that clogs lakes, ponds and irrigation canals. From there they quickly spread throughout the Mississippi R. drainage.

**Ctenopharyngodon idella** (Valenciennes 1844); grass carp (*carpa herbivora*)

ETYMOLOGY: presumably derived from the Greek *idios*, distinctive or peculiar

DISTRIBUTION: US: every state except AK, ME, MT, RI, and VT; Can.: Lake Erie and in ponds in MT and AB; Méx.: Río Cupatitzio in Michoacán

**Cyprinella Girard 1856**

(small carp, i.e., cyprinid)  
satinfin shiners

The actual number of species in *Cyprinella* varies depending on whether three barbeled species commonly referred to as chubs are included (all other *Cyprinella* are unbarbeled and commonly referred to as shiners). These chubs—*C. labrosa*, *C. zanema*, and an undescribed form of *C. zanema*—are often assigned to *Hybopsis* but are now included in *Cyprinella* because of certain shared osteological and genetic characters (Broughton and Gold, 2000). The spotfin chub, *Erimonax monachus*, which is listed as a *Cyprinella* by many authorities, is provisionally placed in its own genus (see below).

**Cyprinella alvarezdelvillari** Contreras-Balderas & Lozano-Vilano 1994; Tepehuan shiner (*carpita tepehuana*)

ETYMOLOGY: in honor of José Alvarez del Villar, “founder of modern Mexican ichthyology”

DISTRIBUTION: Ojo La Concha and Arroyo del Peñón Blanco (Durango)

STATUS: critically imperiled

**Cyprinella analostana** Girard 1859; satinfin shiner

ETYMOLOGY: after Analostan (now Theodore Roosevelt) Island in Potomoc R. (DC), type locality

DISTRIBUTION: Atlantic Slope from NY to NC; Lake Ontario drainage (NY)

STATUS: common

**Cyprinella bocagrande** (Chernoff & Miller 1982); large-mouth shiner (*carpita bocagrande*)

ETYMOLOGY: from Spanish, *boca*, mouth, *grande*, large

DISTRIBUTION: Ojo Solo, an isolated spring, and adjacent drainage ditch (Chihuahua)

STATUS: critically imperiled; T (Méx.)



***Cyprinella caerulea*** (Jordan 1877); blue shiner

ETYMOLOGY: blue

DISTRIBUTION: Mobile basin above Fall Line (TN, GA, AL)

STATUS: imperiled; T (US)

***Cyprinella callisema*** (Jordan 1877); Ocmulgee shinerETYMOLOGY: *calli*, beautiful; *sema*, sign, referring to dorsal fin of breeding males

DISTRIBUTION: Altamaha and Ogeechee R. (GA)

STATUS: vulnerable

***Cyprinella callistia*** (Jordan 1877); Alabama shinerETYMOLOGY: *calli*, beautiful; *istia*, sail, referring to iridescent dorsal fin of breeding males

DISTRIBUTION: Mobile Bay drainage (TN, GA, AL, MS) usually above Fall Line

STATUS: common; SC (MS)

***Cyprinella callitaenia*** (Bailey & Gibbs 1956); bluestripe shinerETYMOLOGY: *calli*, beautiful; *taenia*, band, referring to lateral blue stripe

DISTRIBUTION: Apalachicola R. drainage (GA, AL, FL)

STATUS: imperiled or vulnerable; T (GA)

***Cyprinella camura*** (Jordan & Meek 1884); bluntface shiner

ETYMOLOGY: turned inward, referring to blunt snout

DISTRIBUTION: Mississippi and Tennessee R. tributaries (KY, TN, MS, LA); Arkansas R. drainage (MO, KS, AR, OK)

STATUS: common; SC (OK)

***Cyprinella chloristia*** (Jordan & Brayton 1878); greenfin shinerETYMOLOGY: *chloros*, green; *histia*, sail, in reference to green color dorsal fin

DISTRIBUTION: Santee R. drainage (NC, SC) above Fall Line

STATUS: apparently secure

***Cyprinella formosa*** (Girard 1856); beautiful shiner (*carpita yaqui*)

ETYMOLOGY: beautiful, referring to breeding coloration

DISTRIBUTION: see note

STATUS: imperiled; T (US, Méx.); extirpated (NM)

NOTES: (1) Three nominal subspecies: Guzman beautiful shiner, *C. f. formosa*, Mimbres R. (NM) and Lagoas de Guzman basin (Chihuahua); Yaqui beautiful shiner, *C. f. mearnsi* (Snyder 1915), San Bernardino Valley (AZ) and the upper Río Yaqui (Sonora); and *C. f. santamariae* (Evermann & Goldsborough 1902) from Chihuahua. (2) Contreras-Balderas et al. (2003) treats *C. santamariae* as valid and lists three other forms from Chihuahua that await more study: “sardinita Saúz” (Río Saúz and Laguna Encinillas); “sardinita Santa Clara” (Río Santa Clara or Ahumada); and “sardinita Bavícora” (Laguna Bavícora).

***Cyprinella galactura*** (Cope 1868); whitetail shinerETYMOLOGY: *galactos*, milk; *oura*, tail

DISTRIBUTION: Interior and Eastern Highlands of VA, NC, KY, TN, GA, AL, MS, SC; White and St. Francis drainages of Ozarks (MO, AR)

STATUS: common; SC, possibly extirpated (MS)

***Cyprinella garmani*** (Jordan 1885); gibbous shiner (*carpita jorobada*)

ETYMOLOGY: in honor of Samuel Garman

DISTRIBUTION: Río Nazas and headwaters of Arroyo de

Cerro Gordo (Zacatecas, Durango, Coahuila)

STATUS: imperiled

***Cyprinella gibbsi*** (Howell & Williams 1971); Tallapoosa shinerETYMOLOGY: in honor of Robert H. Gibbs, who studied *Cyprinella*

DISTRIBUTION: Tallapoosa R. system (AL, GA), usually above Fall Line

STATUS: apparently secure; R (GA)

***Cyprinella labrosa*** (Cope 1870); thicklip chub

ETYMOLOGY: lips, referring to its thick lips

DISTRIBUTION: upper Pee Dee and Santee R. drainage (VA, NC, SC)

STATUS: apparently secure

NOTE: Also known as *Hybopsis labrosa* (e.g., Mayden et al., 1992); its common name was amended by Jenkins and Burkhead (1994) from thicklip chub to thicklip shiner.

***Cyprinella leedsii*** (Fowler 1942); bannerfin shiner

ETYMOLOGY: in honor of Arthur N. Leeds, who helped collect type

DISTRIBUTION: Coastal Plain drainages from Edisto R. (SC) to Altamaha R. (GA); Suwannee and Ochlockonee R. (GA, FL)

STATUS: apparently secure

***Cyprinella lepida*** Girard 1856; plateau shiner

ETYMOLOGY: scaled, referring to its large scales

DISTRIBUTION: Edwards Plateau region of southwest TX

STATUS: critically imperiled or imperiled

***Cyprinella cf. lepida*** (Nueces shiner)

DISTRIBUTION: Nueces R. (TX)

STATUS: imperiled or critically imperiled

***Cyprinella lutrensis lutrensis*** (Baird & Girard 1853); red shiner (*carpita roja*)ETYMOLOGY: *lutra*, otter, referring to Otter Creek (AR), type locality

DISTRIBUTION: Mississippi R. basin from southern WI to LA; Gulf drainages west of Mississippi R. to Rio Bravo, along eastern Mexican coast into ríos Tamesí and Pánuco; widely introduced elsewhere

STATUS: common; T (Méx., although this may be referable to *C. l. forlonensis*)

NOTE: Matthews (1987) reports on two nominal subspecies: *C. l. suavis* Girard 1856 from the Texas Coastal Plain, and *C. l. forbesi* Jordan 1878 from the Illinois and upper Mississippi R. drainages; both forms require more study.

***Cyprinella lutrensis blairi*** Hubbs 1940; Maravillas red shiner

ETYMOLOGY: in honor of W. Frank Blair, who helped collect type

DISTRIBUTION: Garden Springs and Pena Colorado Cr., Maravillas Cr. drainage, Big Bend region of TX

STATUS: extinct due to competition from introduced plains killifish, *Fundulus zebrinus*; last known collection in 1954 (Miller et al., 1989)***Cyprinella lutrensis forlonensis*** Meek 1904; (no common name)

ETYMOLOGY: after Río Forlonafter Río Forlon

DISTRIBUTION: Río Forlon (Tamaulipas, Méx.)

STATUS: vulnerable

**Cyprinella nivea** (Cope 1870); whitefin shiner  
 ETYMOLOGY: snow, referring to white fins of breeding males  
 DISTRIBUTION: Atlantic Slope from Neuse R. drainage (NC)  
 to Savannah R. drainage, GA  
 STATUS: apparently secure

**Cyprinella ornata** (Girard 1856); ornate shiner (*carpita adornada*)  
 ETYMOLOGY: adorned, referring to the ornamental coloration of breeding males  
 DISTRIBUTION: upper Río Mezquital, Río Nazas, upper and lower Río Conchos, upper Río del Fuerte, and upper Río Yaqui (northwestern Méx.)  
 STATUS: common or apparently secure  
 NOTES: (1) Often placed in the monotypic *Codoma* Girard 1856 (e.g., Mayden et al., 1992); the AFS list retains placement in *Cyprinella* “until evidence is published for change.” However, such a change may not be necessary. Mayden (2002) reports that analysis of cytochrome *b* sequences supports inclusion in *Cyprinella*, and that the shiner is actually a crevice spawner like other *Cyprinella* and not an egg clusterer as a previous study had suggested. (2) Mayden (1989) reports that populations in the five rivers listed above differ in measurement, body shape, and tubercle pattern, and may eventually be recognized as distinct species.

**Cyprinella panarcys** (Hubbs & Miller 1978); Conchos shiner (*carpita del Conchos*)  
 ETYMOLOGY: *pan*, all; *arcys*, net, referring to net-like pattern of scales  
 DISTRIBUTION: upper Río Conchos system (Chihuahua, Durango)  
 STATUS: critically imperiled; E (Méx.)

**Cyprinella proserpina** (Girard 1856); proserpine shiner (*carpita río del Norte*)  
 ETYMOLOGY: latinized form of Persephone, queen of the infernal regions, possibly referring to Devils R., type locality  
 DISTRIBUTION: lower Río Grande tributaries (TX); ríos San Carlos and San Rodrigo (Coahuila)  
 STATUS: vulnerable in US, critically imperiled in Méx.; T (TX, Méx.)

**Cyprinella pyrrhomelas** (Cope 1870); fieryblack shiner  
 ETYMOLOGY: *pyrrhos*, flame; *melas*, black, referring to red-black caudal fin of breeding males  
 DISTRIBUTION: Santee and Pee Dee R. (NC, SC) above Fall Line; Coastal Plain of Lynches R. (SC)  
 STATUS: apparently secure

**Cyprinella rutila** (Girard 1856); Mexican red shiner (*carpita regiomontana*)  
 ETYMOLOGY: reddish yellow, referring to golden sides and abdomen  
 DISTRIBUTION: ríos San Juan and Salado basins (Coahuila, Nuevo León)  
 STATUS: imperiled  
 NOTE: Population in Río Salado may represent a different, undescribed species (Miller et al., 2005).

**Cyprinella spiloptera** (Cope 1867); spotfin shiner (*méné blue*)  
 ETYMOLOGY: *spilos*, spot; *pteron*, fin, referring to dorsal fin streaks

DISTRIBUTION: QC to VA; ON to AL and eastern OK; isolated populations in Ozarks  
 STATUS: common; SC (OK); NC (KS)

**Cyprinella trichroistia** (Jordan & Gilbert 1878); tricolor shiner  
 ETYMOLOGY: *tri*, 3; *chros*, color; *histon*, tail, referring to black-red-white tail of nuptial males  
 DISTRIBUTION: Cahaba and Coosa R. systems and Locust Fork of Black Warrior R. system, both above Fall Line; Swift and Little Mulberry creeks (Alabama R. drainage) below Fall Line (TN, GA, AL)  
 STATUS: apparently secure

**Cyprinella venusta venusta** Girard 1856; western blacktail shiner (*carpita colinegra*)  
 ETYMOLOGY: attractive, perhaps referring to its “gracefully compressed” profile  
 DISTRIBUTION: west Mississippi R. basin from IL to LA; Red R. drainage into OK; lower Pecos R. (TX, Coahuila)  
 STATUS: common; SC (IL, KY)  
 NOTES: (1) Usually known as blacktail shiner; vernacular per Ross (2001), but also known as Mississippi blacktail shiner (Warren et al., 2000). (2) Three or more forms may eventually warrant recognition as species or subspecies (Boschung and Mayden, 2004).

**Cyprinella venusta cercostigma** Cope 1868; southeastern blacktail shiner  
 ETYMOLOGY: *kertos*, tail; *stigma*, spot; referring to spot at base of caudal fin  
 DISTRIBUTION: tributaries of eastern Gulf of Mexico from Lake Pontchartrain drainage (LA, MS) to Suwannee drainage (GA, FL)  
 STATUS: common

NOTES: (1) Vernacular per Ross (2001). (2) Several distinct forms and intergrades with the other two subspecies occur within this distribution (Ross, 2001). (3) Kristmundsdóttir and Gold (1994) refer Apalachicola, Ochlockonee and Suwanee drainage (FL, GA) populations to *C. v. eurystoma* (Jordan 1877), which is recognized as a full species by Gilbert (1998).

**Cyprinella venusta stigmatura** (Jordan 1877); slender blacktail shiner  
 ETYMOLOGY: *stigma*, spot; *oura*, tail, referring to spot at base of caudal fin  
 DISTRIBUTION: above Fall Line in Cahaba and Tallapoosa R. systems (AL); Bear Creek system (MS, AL); Conasauga R. (TN)  
 STATUS: common  
 NOTES: (1) Also known as Mobile blacktail shiner (Warren et al., 2000). (2) Listed as full species by Gilbert (1998). (3) Intergrades with *C. v. cercostigma* in the Coosa-Tallapoosa and Alabama-Cahaba R. systems (Warren et al., 2000).

**Cyprinella whipplei** Girard 1856; steelcolor shiner  
 ETYMOLOGY: in honor of A. W. Whipple, who collected type  
 DISTRIBUTION: Mississippi R. system (OH and WV to IL, MO and OK, south to AL and LA); Black Warrior R. system (AR)  
 STATUS: common; T (VA)

**Cyprinella xaenura** (Jordan 1877); Altamaha shiner

ETYMOLOGY: *xaina*, scratch; *oura*, tail, presumably referring to large tubercles on caudal peduncle  
 DISTRIBUTION: Altamaha R. system above the Fall Line (GA)  
 STATUS: vulnerable or imperiled; E (GA)

**Cyprinella xanthicara** (Minckley & Lytle 1969); Cuatro Ciénegas shiner (*carpita de Cuatro Ciénegas*)  
 ETYMOLOGY: *xanthos*, yellow; *kara*, head; referring to color of breeding males  
 DISTRIBUTION: Cuatro Ciénegas basin of central Coahuila  
 STATUS: critically imperiled; E (Méx.)

**Cyprinella zanema** (Jordan & Brayton 1878); Santee chub  
 ETYMOLOGY: *za*, very; *nemus*, thread, probably referring to long (threadlike?) barbels  
 DISTRIBUTION: Piedmont streams of the Santee and Catawba drainages (NC, SC)  
 STATUS: vulnerable  
 NOTE: Also known as *Hybopsis zanema* (e.g., Mayden et al., 1992a).

**Cyprinella cf. zanema** (thinlip chub)  
 DISTRIBUTION: Cape Fear, Lumbee, Little Pee Dee, and Great Pee Dee rivers (NC, SC)  
 STATUS: imperiled; SC (NC)  
 NOTE: Listed in Warren et al. (2000).

## EXOTIC

**Cyprinus Linnaeus 1758**  
 (*kyprinos*, Greek for carp)  
 common carps

Common carp are native to central and western Europe and eastern mainland Asia. When and where carp first entered North America is a matter of conjecture. The first confirmed propagation of carp in the US was in 1872 (Moyle, 1984). In 1877, the U.S. Fish Commission began distributing carp from Europe as a sport and food fish that would flourish in America's already deteriorating waters. By the turn of the 20th century, carp had established themselves in just about every drainage system in which they were introduced, and were well on their way to becoming the most abundant fish in North America. Common carp x goldfish hybrids are common.

**Cyprinus carpio** Linnaeus 1758; common carp (*carpe común*; *carpe*)

ETYMOLOGY: from the Old French *carpe*  
 DISTRIBUTION: US: reported from every state except AK, established in every state except AK and ME; Canada: QC, ON, MB, SK, BC; México: Chihuahua, Baja California, Michoacán, Nuevo León, San Luis Potosí, Aguascalientes, and the Valley of Mexico

**Dionda Girard 1856**

(a Native American word, presumably chosen because Girard liked the sound of it)  
 desert minnows

**Dionda argentosa** Girard 1856; Manantial roundnose minnow

ETYMOLOGY: silvery, referring to sides and abdomen  
 DISTRIBUTION: Devils R. and San Felipe Creek (TX)  
 STATUS: imperiled  
 NOTE: Manantial is from the Spanish for spring-run, a reference to its preferred habitat (Hubbs et al., 1991).

**Dionda catostomops** Hubbs & Miller 1977; Pánuco minnow (*carpa de Tamamopo*)

ETYMOLOGY: resembling a sucker, genus *Catostomus*  
 DISTRIBUTION: Río Ojo Frío, above a 105 m waterfall (San

Luis Potosí)

STATUS: common or apparently secure

**Dionda diaboli** Hubbs & Brown 1957; Devils River minnow (*carpa diabla*)

ETYMOLOGY: of the devil, referring to Devils River  
 DISTRIBUTION: Devils River and San Felipe, Sycamore, Pinto, Las Moras (extirpated) creeks (TX); Río San Carlos and upper Río Salado basin (Coahuila)  
 STATUS: critically imperiled; T (US), E (Méx.)

**Dionda dichroma** Hubbs & Miller 1977; bicolor minnow (*carpa bicolor*)

ETYMOLOGY: *di*, two; *chroma*, color (sooty above, light below)  
 DISTRIBUTION: upper Río Verde and La Media Luna systems and lower Río Verde (San Luis Potosí)  
 STATUS: imperiled; T (Méx.)

**Dionda episcopa** Girard 1856; roundnose minnow (*carpa obispa*)

ETYMOLOGY: bishop or pope, alluding to John Pope, who led party that collected type  
 DISTRIBUTION: Pecos R.; tributaries to Río Bravo near Big Bend National Park (TX, Coahuila)  
 STATUS: common (US); critically imperiled, E (Méx.)  
 NOTE: *D. episcopa* is a species complex representing at least four undescribed species listed but not distinguished in Mayden et al. (1992b): *carpa del Conchos* (upper Río Conchos, Durango); *carpa del Mezquital* (Río Tunal and tributaries near Durango City), presumed extinct; *carpa del Vergel* (El Vergel spring near Gualterio, upper Río Mezquital system, Durango); and a form from Ojo de Agua de San Juan, upper Río Mezquital system, Durango. Contreras-Balderas et al. (2003) lists an endangered and undescribed form from Cuatro Ciénegas in Coahuila.

**Dionda erimyzonops** Hubbs & Miller 1974; chubsucker minnow (*carpa del Mante*)

ETYMOLOGY: resembling a young chubsucker, *Erimyzon*  
 DISTRIBUTION: coastal plain section of Río Pánuco basin (Tamaulipas, San Luis Potosí, Veracruz)  
 STATUS: common or apparently secure

**Dionda ipni** (Alvarez & Navarro 1953); lantern minnow (*carpa veracruzana*)

ETYMOLOGY: in honor of Instituto Politécnico Nacional (IPN)  
 DISTRIBUTION: Río Panuco basin (Hidalgo, Puebla, San Luis Potosí, Tamaulipas) and coast of Veracruz  
 STATUS: common or apparently secure  
 NOTE: *carpa de Axtal*, a form from the Río Axtla (San Luis Potosí), represents an undescribed species listed but not distinguished in Mayden et al. (1992b).

**Dionda mandibularis** Contreras-Balderas & Verdusco-Martínez 1977; flatjaw minnow (*carpa quijarona*)

ETYMOLOGY: referring to long mandible, or jaw  
 DISTRIBUTION: springs of Río Verde headwaters east of La Media Luna; Puerta del Río (San Luis Potosí)  
 STATUS: critically imperiled; E (Méx.)

**Dionda melanops** Girard 1856; spotted minnow (*carpa manchada*)

ETYMOLOGY: *melan*, black; *ops*, eye  
 DISTRIBUTION: ríos San Juan and Salado drainages (Coahuila, Nuevo León)  
 STATUS: critically imperiled; T (Méx.)

NOTE: Miller et al. (2005) lists this species as San Juan minnow, *D. couchi* Girard 1856, without explanation.

***Dionda nigrotaeniata*** (Cope 1880); Guadalupe roundnose minnow

ETYMOLOGY: *nigro*, black; *taeniata*, striped

DISTRIBUTION: Colorado R. and San Antonio Bay drainages (TX)

STATUS: apparently secure

***Dionda rasconis*** (Jordan & Snyder 1899); blackstripe minnow (*carpa potosina*)

ETYMOLOGY: Rascon, Méx., type locality

DISTRIBUTION: Río Ojo Frío, above a 105 m waterfall (San Luis Potosí)

STATUS: not seen in 1990 (Mayden et al., 1992b), therefore probably critically imperiled, although not listed as such in Contreras-Balderas et al. (2003)

***Dionda serena*** Girard 1856; Nueces roundnose minnow

ETYMOLOGY: fair, possibly referring to fairer complexion when compared to *D. episcopa*

DISTRIBUTION: Nueces and Frío R. drainages (TX)

STATUS: imperiled

#### ***Eremichthys* Hubbs & Miller 1948**

(*eremia*, desert; *ichthys*, fish)  
desert dace

*Eremichthys acras* has the highest temperature tolerance of any native minnow in North America: 38–40.5°C (Deacon and Minckley, 1974).

***Eremichthys acros*** Hubbs & Miller 1948; desert dace (Fig. 5)

ETYMOLOGY: *cer*, sharp; *os*, mouth, referring to the sharp-edged sheath on jaws

DISTRIBUTION: eight thermal springs and their outflows in Soldier Meadows in northwest NV

STATUS: critically imperiled; T (US)

#### ***Erimonax* Jordan 1924**

(*eri*, very; *monax*, solitary, see etymology below)  
spotfin chub

The spotfin chub is more widely known as *Cyprinella monacha* (e.g., Etnier and Starnes, 2001; Boschung & Mayden, 2004). Although most anatomical and behavioral evidence supports a closer relationship with *Cyprinella*, molecular evidence suggests that the fish is sister to the clear chub, *Hybopsis winchelli* (Broughton and Gold, 2000). Until its evolutionary relationships are fully known, Mayden et al. (1992a) recommend placement in the monotypic *Erimonax*. “Spotfin shiner” would be a better name for this un-chublike minnow, but that name is used for *Cyprinella spiloptera*. Burkhead and Jenkins (1994) recommend the descriptively accurate “turquoise shiner,” but spotfin chub has been retained for the sake of nomenclatural stability.

***Erimonax monachus*** (Cope 1868); spotfin chub

ETYMOLOGY: solitary, referring to its isolated combination of characters and the fact that Cope only saw it “singly or in pairs”

DISTRIBUTION: Tennessee R. drainage (VA, NC, TN, AL, GA)

STATUS: imperiled; T (US); extirpated (AL)

#### ***Erimystax* Jordan 1924**

(*eri*, very; *mystax*, moustached, referring to barbels)  
slender chubs

***Erimystax cahni*** (Hubbs & Crowe 1956); slender chub

ETYMOLOGY: in honor of its discoverer, Alvin R. Cahn

DISTRIBUTION: upper Tennessee R. drainage (TN, VA)  
STATUS: critically imperiled; T (US)

***Erimystax dissimilis*** (Kirtland 1841); streamline chub

ETYMOLOGY: not similar, i.e., to other shiners in whose

genus it was originally placed

DISTRIBUTION: Ohio R. basin from NY to IN, south to AL

STATUS: apparently secure; SC (NY)

***Erimystax harryi*** (Hubbs & Crowe 1956); blotched chub

ETYMOLOGY: in honor of George V. Harry, who surveyed

Missouri fishes

DISTRIBUTION: St. Francis and White R. drainages (MO, AR)

STATUS: apparently secure or vulnerable; SC (AR)

***Erimystax insignis insignis*** (Hubbs & Crowe 1956); blotched chub

ETYMOLOGY: conspicuous, referring to blotches on sides

DISTRIBUTION: Cumberland and lower Tennessee R.

drainages (VA, NC, KY, TN, GA, AL)

STATUS: apparently secure or vulnerable; T (GA)

***Erimystax insignis eristigma*** (Hubbs & Crowe 1956); mountain blotched chub

ETYMOLOGY: *eri*, very; *stigma*, mark, referring to blotches on sides

DISTRIBUTION: upper Tennessee R. drainage south to the Hiwassee R. system (GA)

STATUS: common or apparently secure; T (GA)

NOTE: Intergrades with *E. i. insignis* in the upper Tennessee R. system (Warren et al., 2000).

***Erimystax x-punctatus x-punctatus*** (Hubbs & Crowe 1956); western gravel chub

ETYMOLOGY: spotted, referring to x-shaped spots along body

DISTRIBUTION: Mississippi R. basin from WI and MN

south to Oachita R. drainage (AR), west to KS and OK

STATUS: apparently secure; E (WI); SC (MN); NC (KS)

***Erimystax x-punctatus trautmani*** (Hubbs & Crowe 1956); eastern gravel chub

ETYMOLOGY: in honor of Milton B. Trautman, ichthyologist

DISTRIBUTION: southern ON; Ohio R. basin from NY and

PA to IL (east of Wabash R.)

STATUS: unlisted by NatureServe; probably vulnerable; E

(PA); T (NY); extirpated (KY, Can.)

#### ***Evarra* Woolman 1894**

(see paragraph below for etymology)

All three species of *Evarra* were near extinction in the 1950s, and were officially declared extinct by 1983. Agriculture, persistent groundwater removal, and the development of México City and its suburbs combined to destroy the area's lakes, spring-fed ponds and canals, and the unique minnows that lived in them (Miller et al., 1989). The etymology of the name *Evarra* is elusive. It's a common Mexican name that achieved some level of fame in an 1890 verse by Rudyard Kipling, “*Evarra and His Gods*.” The verse draws upon an Indian tradition of producing idols from oddly shaped stones, trees and other objects into “gods” that are recognizably in the image of the maker—who, in the verse, is named *Evarra*, a “maker of gods in lands beyond the sea.” Unfortunately, Woolman did not explain his selection of the *Evarra* epithet. Perhaps he simply gave a nice-sounding Mexican name to a uniquely Mexican fish. (Special thanks to J. Walker of the Kipling Society for his help in explicating Kipling's verse.)

***Evarra bustamantei*** Navarro 1955; Mexican chub (*carpa xochimilca*)

ETYMOLOGY: in honor of don Miguel Bustamante y Septien,

the first Mexican to scientifically describe a Mexican fish

DISTRIBUTION: canals near San Gregorio Atlapulco in the



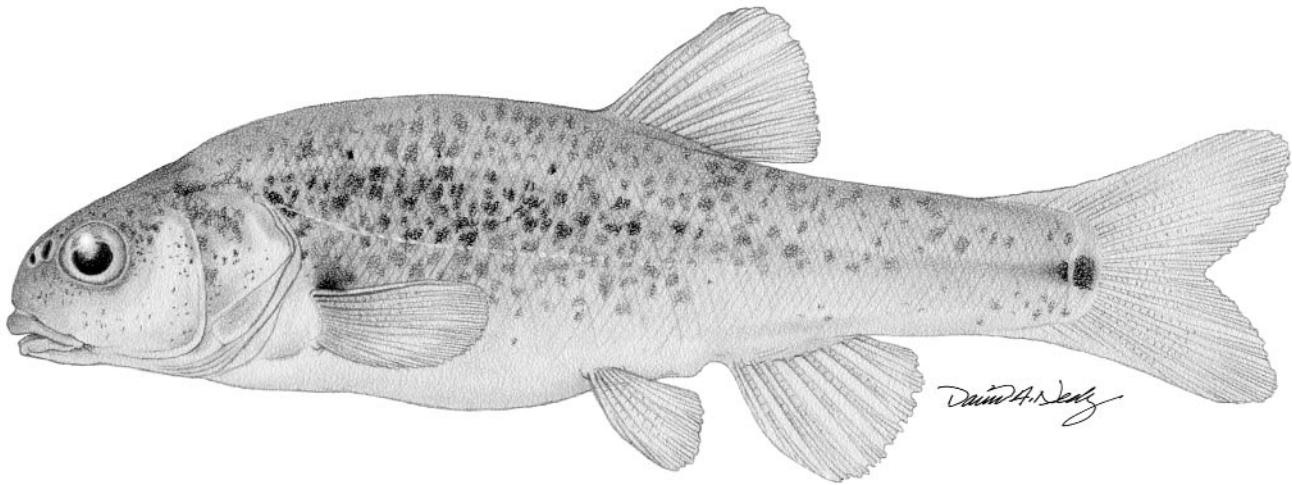


Fig. 2.  
*Eremichthys acros*, desert dace. Illustration © David A. Neely.

Valley of Mexico (Mexico City and its suburbs)  
STATUS: extinct

***Evarra eigenmanni*** Woolman 1894; plateau chub (*carpa verde*)  
(Fig. 6)

ETYMOLOGY: in honor of Carl H. Eigenmann, ichthyologist  
DISTRIBUTION: canals and Chalco Lake at Tlahuac in the  
Valley of Mexico  
STATUS: extinct

***Evarra tlahuacensis*** Meek 1902; endorheic chub (*carpa de Tlahuac*)

ETYMOLOGY: of Tlahuac, Méx.  
DISTRIBUTION: Chalco Lake near Tlahuac, in the Valley of  
Mexico  
STATUS: extinct

#### ***Exoglossum Rafinesque 1818***

("outside tongue," referring to bony tongue-like  
extension of lower jaw)  
cutlip minnows

*Exoglossum* is one of two minnow genera in North America to construct a nest  
using the mouth to pile gravel into a dome-shaped mound (the other is *Nocomis*).

***Exoglossum laurae*** (Hubbs 1931); tonguetied minnow

ETYMOLOGY: in honor of Hubbs' wife, Laura  
DISTRIBUTION: upper Ohio River basin and adjoining Lake  
Ontario drainage with three well-separated populations  
in PA and NY; southwestern OH; and WV, WA, NC  
STATUS: apparently secure

NOTES: Gilbert (1998) listed a western subspecies, *E. l. hubbsi* (Trautman 1931), even though Trautman (1981) later admitted that the eastern and western forms "may be inseparable." Trautman nevertheless recognized the subspecies, deeming it "more conservative" to retain *hubbsi* pending further study. Further studies have indeed shown no or little difference between western and eastern populations (Jenkins and Burkhead, 1994).

***Exoglossum maxillingua*** (Lesueur 1817); cutlip minnow  
(*bee-de-lièvre*)

ETYMOLOGY: "jawbone tongue," referring to bony tongue-like  
extension of lower jaw

DISTRIBUTION: Atlantic Slope rivers from QC south to NC,  
but absent in several New England drainages; a population  
in Farmington R. (MA), presumably a bait-bucket  
introduction, was reproducing in 2001 (Hartel et al., 2002)  
STATUS: common; E (NC)

NOTES: (1) Common name amended in the AFS list from  
"cutlips" to "cutlip," presumably because only the upper  
lip has the fleshy lobe at the center of the lower jaw that  
appears to have been "cut" from the lip. (2) A population  
in the New River drainage of WV and VA, likely introduced  
via bait bucket, hybridizes with *E. laurae* (Jenkins  
and Burkhead, 1994).

#### ***Gila Baird & Girard 1853***

(name of NM river where thought to have been  
first collected, which was actually Zuni R.)  
western chubs

*Gila* has five described subgenera: *Gila*; *Klamathella* Miller 1945 (named after Klamath R., CA and OR); *Siboma* Giard 1856 (a Native American word chosen presumably because Girard liked the sound of it); *Siphateles* Cope 1833 (*siphon*, tube; *ateles*, imperfect, referring to incomplete lateral line on young specimens); and *Temeculina* Cockerell 1909 (after Temecula R. in CA, type locality of *G. orcuttii*). Unpublished evidence supports the recognition of at least three subgenera as genera, but only *Siphateles* has been formerly elevated (Simons and Mayden, 1998); this was for *S. bicolor* although other species (*G. alvordensis* and *G. boraxobius*) likely belong in it as well. With the exception of *S. bicolor*, I follow the AFS list in deferring generic recognition of these subgenera until the evidence has been published. A sixth subgenus, *Snyderichthys* Miller 1945, comprising the leatherside chub, *G. copei*, is now recognized as a valid genus (Simons and Mayden, 1998) or, as followed here, placed into *Lepidomeda* (Johnson et al., 2004). Smith et al. (2002) include *Moapa coriacea* in *Gila*. At least six fossil *Gila* are provisionally recognized: *G. (Siphateles) breviarachus* from Fossil Lake, OR (Pleistocene); *G. cristifera* from White Cone, Navajo Co., AZ (Middle Pliocene); *G. (possibly Siphateles) esmeralda* from Esmeralda Formation, NV (Miocene); *G. (Klamathella) milleri* from Glens Ferry Formation, Twin Falls Co., ID (Pliocene); *G. (Siphateles) trairi* from Jersey Valley, Pershing Co., NV (Pliocene); and *G. turneri* from Big Smoky Valley, Esmeralda Co., NV (Miocene).

***Gila alvordensis*** Hubbs & Miller 1972; Alvord chub

ETYMOLOGY: of the Alvord basin  
DISTRIBUTION: Alvord basin (OR, NV)  
STATUS: imperiled; P (NV) S/V (OR)  
SUBGENUS: *Siphateles*; given generic status in Smith et al.  
(2002) and ODFW (2005)

***Gila atraria*** (Girard 1856); Utah chub

ETYMOLOGY: blackish, referring to color of sides and back  
 DISTRIBUTION: upper Snake R. system (WY, ID); Lake Boneville basin (ID, UT); introduced into other nearby drainages

STATUS: common

SUBGENUS: *Siboma*

***Gila boraxobius*** Williams & Bond 1980; Borax Lake chub

ETYMOLOGY: borax + *bios*, life, i.e., living in borax  
 DISTRIBUTION: Borax Lake (OR)

STATUS: critically imperiled; E (US)

SUBGENUS: *Siphateles*; given generic status in Smith et al. (2002) and ODFW (2005)

***Gila breviceauda*** Norris, Fischer & Minckley 2003; shorttail chub (*carpa colicorta*)

ETYMOLOGY: *brevis*, short; *cauda*, tail, referring to unusually abbreviated tail

DISTRIBUTION: Río Basaseachic (=Candameña), headwater tributary of Río Mayo (Chihuahua)

STATUS: vulnerable, based on decline of watershed since species was last collected in 1979 (Norris et al., 2003)

SUBGENUS: *Gila*

***Gila coerulea*** (Girard 1856); blue chub

ETYMOLOGY: blue, referring to blue snout of breeding males  
 DISTRIBUTION: Klamath and Lost R. systems (OR, CA)

STATUS: vulnerable; SC2 (CA)

SUBGENUS: *Klamathella*; given generic status in Smith et al. (2002) and ODFW (2005)

***Gila conspersa*** Garman 1881; Nazas chub (*carpa Mayrán*)

ETYMOLOGY: to sprinkle, referring to brown spots on scales  
 DISTRIBUTION: interior basins of ríos Nazas and Aquanaval (Coahuila, Durango, Zacatecas)

STATUS: vulnerable

NOTE: Two forms from Coahuila, "Parras slender chub" and "Parras fatty chub," both last seen alive in 1968 and presumed extinct, may represent undescribed taxa (S. Contreras-Balderas, pers. comm.).

SUBGENUS: *Gila*

***Gila crassicauda*** (Baird & Girard 1854); thicktail chub

ETYMOLOGY: *crassus*, fat; *cauda*, tail

DISTRIBUTION: Sacramento-San Joaquin R. drainage, Clear Lake, and Coyote Creek (CA)

STATUS: extinct due to intensive agricultural production, river dredging and channelization, and competition and predation pressures from introduced fishes; last collected in 1957 (Miller et al., 1989)

SUBGENUS: *Siboma*

***Gila cypha*** Miller 1946; humpback chub

ETYMOLOGY: Greek for humpbacked

DISTRIBUTION: scattered populations in Colorado R. basin

STATUS: critically imperiled; E (US); extirpated (NV, WY)

SUBGENUS: *Gila*

***Gila ditaenia*** Miller 1945; humpback chub; Sonora chub (*carpa sonorensis*)

ETYMOLOGY: *di*, two; *taenia*, band, referring to black bands above and below lateral line

DISTRIBUTION: Sycamore (Bear) Canyon (AZ) and throughout Río de la Concepcion (Sonora)

STATUS: imperiled; T (US, Méx.), though widely distributed

and common in Méx. in the late 1980s (Miller et al., 2005)

NOTE: A sympatric form that hybridizes with *G. ditaenia* near La Atascosa (Sonora) may represent an undescribed species (Miller et al., 2005).

SUBGENUS: *Temeculina*

***Gila elegans*** Baird & Girard 1853; bonytail (*carpa elegante*)

ETYMOLOGY: elegant, referring to slim elegance of thin caudal peduncle

DISTRIBUTION: Colorado River basin (US, Baja California, Sonora)

STATUS: critically imperiled; E (US); extirpated (CO, NM, WY, Méx.)

SUBGENUS: *Gila*

***Gila eremica*** DeMarais 1991; desert chub (*carpa del desierto*)

ETYMOLOGY: of the desert, referring to the fish's habitat

DISTRIBUTION: headwaters of the ríos Sonora and Mátape; Río Moctezuma (Sonora)

STATUS: imperiled, T (US); vulnerable, T (Méx.)

SUBGENUS: *Temeculina*

***Gila intermedia*** (Girard 1856); Gila chub (*carpa del Gila*)

ETYMOLOGY: intermediate between two similar *Gila* species

DISTRIBUTION: Gila R. basin (AZ, NM, Sonora)

STATUS: imperiled; E (US, Méx.)

SUBGENUS: *Gila*

***Gila cf. intermedia*** (Monkey Spring chub)

DISTRIBUTION: Monkey Spring system, Santa Cruz Co. (AZ)

STATUS: extinct due to introduction of largemouth bass in

1971 (Minckley et al., 1991)

NOTE: Minckley (1973) provides distinguishing characters.

SUBGENUS: *Gila*

***Gila minacae*** Meek 1902; Mexican roundtail chub (*carpa cola redonda mexicana*)

ETYMOLOGY: described from Miñaca, Méx.

DISTRIBUTION: Río Yaqui basin (Sonora and likely AZ)

STATUS: vulnerable; R (Mex., listed as *G. robusta robusta*)

SUBGENUS: *Gila*

***Gila modesta*** (Garman 1881); Saltillo chub (*carpa de Saltillo*)

ETYMOLOGY: modestly colored compared to *G. nigrescens*

DISTRIBUTION: Río Salinas R. drainage near Saltillo

(Coahuila)

STATUS: critically imperiled; survives in just one of 12 known localities (Contreras-Balderas et al., 2003); R (Méx.)

NOTE: A form very close to *G. modesta* from Iturbide (Nuevo León), may be an undescribed species (S. Contreras-Balderas, pers. comm.).

SUBGENUS: *Gila*

***Gila nigra*** Cope 1875; headwater chub

ETYMOLOGY: black, referring to color, which is actually gray-brown

DISTRIBUTION: Gila R. basin (AZ, NM)

STATUS: imperiled; under review by the US government as a potential candidate for ESA listing

NOTES: (1) Previously known as *G. robusta grahami* Baird & Girard 1853, but the museum specimen to which that name was assigned was later determined to be *G. r. robusta*, therefore rendering the name unavailable (Minckley and DeMarais, 2000). (2) Hypothesized to be a natural hybrid between *G. robusta* and *G. intermedia* (Minckley



and DeMarais, 2000).

SUBGENUS: *Gila*

***Gila nigrescens*** (Girard 1856); Chihuahua chub (*carpa de Chihuahua*)

ETYMOLOGY: blackish, describing snout and top of head  
DISTRIBUTION: Mimbres R. (NM); basins of the interior drainages of ríos Casas Grandes, Santa María, del Carmen, Laguna Bustillos (Chihuahua)  
STATUS: critically imperiled; T (US, Méx.)  
SUBGENUS: *Gila*

***Gila orcuttii*** (Eigenmann & Eigenmann 1890); arroyo chub

ETYMOLOGY: in honor of C. R. Orcutt, who collected type using a blanket as a seine  
DISTRIBUTION: Malibu Cr., Santa Clara, San Luis Rey, Santa Margarita R. drainages (CA); introduced into several other CA drainages  
STATUS: imperiled; SC2 (CA)  
SUBGENUS: *Temeculina*

***Gila pandora*** (Cope 1872); Rio Grande chub

ETYMOLOGY: unknown; Cope is unsure of the “truer affinities” of the species, and mentions several genera to which it may belong. Perhaps its taxonomic ambiguity was a Pandora’s box, i.e., a source of troubles for Cope and future taxonomists.

DISTRIBUTION: upper Rio Grande and Pecos R. systems (CO, NM, TX); introduced into Canadian R. (NM)  
STATUS: vulnerable; T (TX); SC (CO)  
SUBGENUS: *Gila*

***Gila pulchra*** (Girard 1856); Conchos chub (*carpa del Conchos*)

ETYMOLOGY: beautiful, referring to its brilliant coloration  
DISTRIBUTION: Río Conchos basin (Chihuahua, Durango), probably also in Río Sáuz basin just north of Chihuahua  
STATUS: common or apparently secure  
NOTE: Populations in the ríos Yaqui and Fuerte may represent an undescribed species (Miller et al., 2005).  
SUBGENUS: *Gila*

***Gila purpurea*** (Girard 1856); Yaqui chub (*carpa púrpura*)

ETYMOLOGY: purple, referring to color of back and sides  
DISTRIBUTION: Morse Canyon (AZ); San Bernardino Cr. (extreme southeastern AZ into Sonora)  
STATUS: critically imperiled; E (US, Méx.)  
SUBGENUS: *Temeculina*

***Gila robusta robusta*** Baird & Girard 1853; roundtail chub (*carpa cola redonda*)

ETYMOLOGY: stout, referring to rounded caudal peduncle  
DISTRIBUTION: Colorado R. basin (WY, CO, UT, NV, NM, AZ, Sonora, Baja California Norte)  
STATUS: imperiled; E (NM); SC (AZ, CO, WY); CA (UT); R, extirpated (Méx.); under review by the US government as a potential candidate for ESA listing  
SUBGENUS: *Gila*

***Gila robusta jordani*** Tanner 1953; Pahrnagat roundtail chub

ETYMOLOGY: in honor of David Starr Jordan, father of American ichthyology  
DISTRIBUTION: Ash Springs and Pahrnagat R. (NV)  
STATUS: critically imperiled; E (US)  
NOTES: (1) Believed to be a natural hybrid between *G. robusta* and *G. cypha* (Gerber et al., 2001). (2) Should be recognized as a full species because of its unique combi-

nation of apomorphies (Smith et al., 2002).

SUBGENUS: *Gila*

***Gila seminuda*** Cope & Yarrow 1875; Virgin River roundtail chub

ETYMOLOGY: half-naked, referring to absence of ventral scales  
DISTRIBUTION: Virgin R. (AZ, NV, UT); Moapa R. (NV)  
STATUS: critically imperiled; E (US; Virgin R. pop. only)  
NOTE: A natural hybrid between *G. robusta* and *G. elegans* (DeMarais et al., 1992).  
SUBGENUS: *Gila*

#### ***Hemitremia* Cope 1870**

(*hemi*, half; *tremia*, aperture, referring to incomplete lateral line)  
flame chub

***Hemitremia flammea*** (Jordan & Gilbert 1878); flame chub

ETYMOLOGY: flaming, referring to bright red breeding colors  
DISTRIBUTION: Middle Cumberland, Duck and Tennessee R. drainages (TN, KY, GA, AL); tributaries and headwaters of Kelly Cr., Joseph Spring, Choccolocco Cr., and Blue Eye Cr. (AL)  
STATUS: vulnerable; E (GA); D (TN); extirpated (KY, per KSNPC, 2005)

#### ***Hesperoleucus* Snyder 1913**

(*hespero*, western or evening; *leuco*, white, perhaps referring to its distribution and/or its dark above, light below coloration)  
California roaches

Moyle (2002) treats *Hesperoleucus* as congeneric with *Lavinia* because of protein and molecular similarities and ability to produce fertile offspring. The California Department of Fish and Game follows Moyle’s lead. Smith et al. (2002) caution against combining the two genera, stating that “the morphological differences and fossil record suggest that *Lavinia* and *Hesperoleucus* are long-different lineages that share molecular similarity (they differ by only 1.3% sequence divergence) probably because of introgression.” I follow the AFS list in listing the genera separately pending publication of more information. Composition of the California roach species complex follows Moyle (2002), who notes that taxonomic reevaluation “may turn up new subspecies or even species, and perhaps merge presently recognized forms.” The name roach is from the fish’s superficial resemblance to a European minnow also called a roach, *Rutilus rutilus*.

***Hesperoleucus symmetricus symmetricus*** (Baird & Girard 1854); California roach

ETYMOLOGY: symmetrical caudal fin, compared to asymmetrical caudal fin of *Pogonichthys*  
DISTRIBUTION: Sacramento R. drainage (except Pit R.); San Francisco Bay tributaries (CA)  
STATUS: common; SC3 (CA): San Joaquin population only  
NOTES: (1) Moyle (2002) uses the name “Sacramento-San Joaquin roach” for this morphologically variable subspecies. (2) A nominal form, Venus roach, *L. s. venustus* Snyder 1913, described from the Russian R. and Tomales Bay drainages, is listed by Gilbert (1998) as a valid subspecies. (3) CDFG (2005) lists a form from San Joaquin R. tributaries from Cosumnes R. south as a separate undescribed subspecies, “San Joaquin roach.”

***Hesperoleucus symmetricus mitrulus*** Snyder 1913; Pit roach

ETYMOLOGY: turban, probable reference to fish’s convex scales, which can be said to resemble a turban  
DISTRIBUTION: Goose Lake and upper Pit R. tributaries (CA, OR)  
STATUS: vulnerable SC2 (CA); S/P (OR)

***Hesperoleucus symmetricus navarroensis*** Snyder 1913;  
Navarro roach

ETYMOLOGY: of the Navarro R.

DISTRIBUTION: Russian and Navarro R. (Mendocino Co., CA)

STATUS: imperiled or critically imperiled; SC3 (CA)

***Hesperoleucus symmetricus parvipinnis*** Snyder 1913;  
Gualala roach

ETYMOLOGY: *parvi*, short; *pinnis*, fin

DISTRIBUTION: Gualala R. (Sonoma Co., CA)

STATUS: imperiled or critically imperiled; SC3 (CA)

***Hesperoleucus symmetricus subditus*** Snyder 1913;  
Monterey roach

ETYMOLOGY: Latin for subdued; perhaps Snyder thought its more robust body and shorter fins had a more subdued beauty compared to the “trim and well proportioned” *L. s. venustus* (= *symmetricus*)

DISTRIBUTION: Salinas, Pajaro and San Lorenzo R. drainages of Monterey Bay (CA)

STATUS: vulnerable or imperiled; SC3 (CA)

***Hesperoleucus symmetricus ssp.*** (Clear Lake-Russian River roach)

DISTRIBUTION: Clear Lake drainage and Russian R. (CA)

STATUS: probably apparently secure based on Moyle (2002)

***Hesperoleucus symmetricus ssp.*** (Red Hills roach)

DISTRIBUTION: Horton Cr. and other small streams near Sonora (CA)

STATUS: critically imperiled; SC1 (CA)

***Hesperoleucus symmetricus ssp.*** (San Joaquin roach)

DISTRIBUTION: San Joaquin R. tributaries from Cosumnes R. south (CA)

STATUS: vulnerable

NOTE: Represents several undescribed subspecies or is part of the diverse *L. s. symmetricus* complex (Moyle, 2002).

***Hesperoleucus symmetricus ssp.*** (Tomales roach)

DISTRIBUTION: Walker Cr. and other Tomales Bay tributaries (CA)

STATUS: vulnerable or imperiled; SC3 (CA)

#### ***Hybognathus Agassiz 1855***

(*hybo*, humped; *gnathus*, jaw, referring to slight protrusion of lower jaw)  
silvery minnows

***Hybognathus amarus*** (Girard 1856); Rio Grande silvery minnow (*carpa Chamizal*)

ETYMOLOGY: bitter, referring to the brackish lagoon water in which it was discovered

DISTRIBUTION: Rio Grande drainage (NM, TX, Chihuahua, Coahuila, Nuevo León, Tamaulipas); now occurs only in middle Rio Grande from Cochiti Dam downstream to the headwaters of Elephant Butte Reservoir (NM)

STATUS: critically imperiled; E (US, Méx.); extirpated (TX, Méx.)

***Hybognathus argyritis*** Girard 1856; western silvery minnow

ETYMOLOGY: silvery, referring to its color

DISTRIBUTION: Missouri R. basin from AB and MT south to Mississippi R. basin (IL)

STATUS: apparently secure; T (Can., KS)

***Hybognathus hankinsoni*** Hubbs 1929; brassy minnow (*méné laiton*)

ETYMOLOGY: in honor of T. L. Hankinson, who studied freshwater fish breeding habits

DISTRIBUTION: across extreme southern Can. and northern US from AL to NY, south to CO and KS; Fraser R. system (AB, BC); introduced into PA, VT

STATUS: common; T (CO); NC (KS); SC (QC)

***Hybognathus hayi*** Jordan 1885; cypress minnow

ETYMOLOGY: in honor of Oliver P. Hay, who discovered it

DISTRIBUTION: Ohio and Mississippi R. basins from IN and IL to Gulf Slope drainages from Escambia R. (FL, AL) to Sabine R. (TX)

STATUS: common; E (IL, MO); SC (OK)

***Hybognathus nuchalis*** Agassiz 1855; Mississippi silvery minnow

ETYMOLOGY: nape, referring to dark dorsal stripe that begins at nape

DISTRIBUTION: Mississippi R. basin from MN and WI south to LA, east to Mobile basin, west to Brazos R. (TX)

STATUS: common; E (OH)

***Hybognathus placitus*** Girard 1856; plains minnow

ETYMOLOGY: broad surface, probably referring to relatively broad head

DISTRIBUTION: Missouri, Arkansas, Red, Brazos, and Colorado R. drainages; Mississippi basin from Missouri R. to mouth of Ohio R.; introduced into UT, NM

STATUS: apparently secure; E (CO); NC (KS); D (TN); SC (WY) extirpated (AR)

***Hybognathus regius*** Girard 1856; eastern silvery minnow (*méné d'argent*)

ETYMOLOGY: royal, because Girard considered it a large and beautiful fish

DISTRIBUTION: Atlantic Slope from St. Lawrence R. drainage (QC) to Altamaha R. drainage (GA); Lake Ontario drainage (ON, NY); introduced into ME

STATUS: common; SC (MA)

#### ***Hybopsis Agassiz 1855***

(round-faced, referring to snout of *H. amblops*)  
bigeye chubs

The composition of *Hybopsis*, even its validity, remains controversial. Mayden et al. (1992a) list 21 species, most of which are now placed in *Notropis*. Coburn and Cavender (1992) recognize *Hybopsis* as a subgenus of *Notropis*. Regardless of the classification, the seven species included here form a monophyletic group (Grose and Wiley, 2002). The AFS list acknowledges that this arrangement is subject to change.

***Hybopsis amblops*** (Rafinesque 1820); bigeye chub

ETYMOLOGY: blunt face, referring to shape of snout

DISTRIBUTION: Lake Erie drainage; Ohio R. basin from NY and IL, south to Tennessee R. drainage (GA, AL); Ozarks (MO, AR, OK)

STATUS: common; E (IL); R (GA); extirpated (MI)

***Hybopsis amnis*** (Hubbs & Greene 1951); pallid shiner

ETYMOLOGY: stream or river, referring to its typical habitat

DISTRIBUTION: Mississippi R. basin from WI and MN to LA, KY and OK; Gulf drainages from Amite R. (LA) to Guadalupe R. (TX)

STATUS: apparently secure; E (IL, IN, WI); SC (MN, OK); extirpated (KY [per KSNPC, 2005], MO)

***Hybopsis hypsinotus*** (Cope 1870); highback chub

ETYMOLOGY: high-backed

DISTRIBUTION: above Fall Line in Peedee and Santee R. drainages (VA, NC, SC)

STATUS: apparently secure

***Hybopsis lineapunctata*** Clemmer & Suttkus 1971; lined chub

ETYMOLOGY: *linea*, line; *punctata*, spot, referring to lateral stripe and tail spot

DISTRIBUTION: above Fall Line in Coosa and Tallapoosa R. systems (TN, GA, AL)

STATUS: vulnerable or apparently secure; D (TN)

***Hybopsis rubrifrons*** (Jordan 1877); rosyface chub

ETYMOLOGY: *rubri*, red; *frons*, forehead, referring to breeding colors

DISTRIBUTION: Saluda, Savannah, and Altamaha R. drainages (NC, SC, GA)

STATUS: apparently secure; T (NC)

NOTE: Temporarily known as *Notropis rubescens* Bailey 1991 when *Hybopsis* was placed into *Notropis*, necessitating a replacement name for the senior homonym *N. rubrifrons* (Cope 1865).

***Hybopsis winchelli*** Girard 1856; clear chub

ETYMOLOGY: in honor of Alexander Winchell of the University of Michigan

DISTRIBUTION: Gulf drainages from Ocklockonee R. (FL) to lower Mississippi R. (MS, LA)

STATUS: common

NOTE: A population from the Etowah R. (GA) may represent an undescribed taxon (Burkhead et al., 1997).

***Hybopsis cf. winchelli*** (coastal chub)

DISTRIBUTION: coastal drainages from Perdido R. system east to Apalachicola basin (AL, GA, FL)

STATUS: apparently secure

#### EXOTIC

***Hypophthalmichthys Bleeker 1860***

(*hypo*, under; *ophthalmus*, eye, *ichthys*, fish, referring to downward-looking ventrolateral eye) bighead carps

*H. nobilis* were first brought into the US in 1972 by an Arkansas fish farmer who wanted to use them in combination with other phytophagous fishes to improve water quality and increase fish production in culture ponds. A year later *H. molitris* was imported, again by an Arkansas fish farmer, to control phytoplankton in eutrophic water bodies and also apparently as a food fish. By 1980, both carps began to appear in open waters as a result of escapes from hatcheries and aquaculture facilities, and intentional (illegal) stocking. Both species are widely cultured in México and have escaped into open waters, but so far have yet to establish themselves in the wild (S. Balderas-Contreras, pers. comm.).

***Hypophthalmichthys molitris*** (Valenciennes 1844); silver carp (*carpa plateada*)

ETYMOLOGY: miller or grinder, referring to teeth that grind vegetation

DISTRIBUTION: native: Pacific drainages in eastern Asia from the Amur R. (Russia) south through eastern China to Pearl R., possibly including northern Vietnam. US: established in LA, possibly established in IL; reported in AL, AZ, AR, CO, FL, IN, KS, KY, MO, and TN

***Hypophthalmichthys nobilis*** (Richardson 1845); bighead carp (*carpa cabezona*)

ETYMOLOGY: Latin for well known, presumably referring

to its large size and conspicuous appearance

DISTRIBUTION: native: southern and central China. US: recorded from at least 18 states, with established populations in IL and MO

***lotichthys Jordan & Evermann 1896***

(*io*, smallest letter; *ichthys*, fish, referring to small size) least chub

***lotichthys phlegethontis*** (Cope 1874); least chub

ETYMOLOGY: to flame, referring to red-gold color of breeding male

DISTRIBUTION: Bonneville basin (UT)

STATUS: critically imperiled; CA (UT)

***Lavinia Girard 1854***

(classical feminine name, presumably chosen because Girard liked the sound of it) hitches

See *Hesperoleucus* for reasons why Moyle (2002) and others include *Hesperoleucus* in *Lavinia*. The name hitch is from the Pomo Indian word for this fish. Smith et al. (2002) note several unnamed fossil forms.

***Lavinia exilicauda exilicauda*** Baird & Girard 1854; hitch

ETYMOLOGY: *exil*, slender, *cauda*, tail

DISTRIBUTION: Russian R., Sacramento-San Joaquin and San Francisco Bay drainages (CA)

STATUS: common

NOTE: Likely a complex of undescribed forms (Moyle, 2002).

***Lavinia exilicauda chi*** (Hopkirk 1973); Clear Lake hitch

ETYMOLOGY: a Pomo Indian name for this fish, as is hitch

DISTRIBUTION: Clear Lake (CA)

STATUS: imperiled; SC2 (CA)

***Lavinia exilicauda harengus*** Girard 1856; Monterey hitch

ETYMOLOGY: herring, relevance unknown; since Girard's specimens were missing scales, he may have been referring to a herring's proclivity to shed scales when handled

DISTRIBUTION: Pajaro and Salinas R. drainages (CA)

STATUS: probably apparently secure based on Moyle (2002)

NOTES: (1) Provisionally recognized by Moyle (2002), who says that more research is needed to confirm the separation of *L. e. harengus* from the morphologically diverse *L. e. exilicauda*. (2) Vernacular per Moyle and Davis (2000); also known as Pajaro/Salinas hitch (CDFG, 2005).

***Lepidomeda Cope 1874***

(like the genus *Meda*, but *lepid*, scaled) spinedaces and leatherside chubs

With two exceptions, spinedaces possess dorsal fins in which the front two rays are modified to form a spinose structure. The exceptions are *L. aliciae* and *L. copei*, formerly conspecific and formerly in the genera *Snyderichthys* Miller 1945 or *Gila* Baird & Girard 1853. Northern and southern populations were recognized as distinct species and reassigned to *Lepidomeda* based on cranial shape and molecular data (Johnson et al., 2004).

***Lepidomeda albivallis*** Miller & Hubbs 1960; White River spinedace

ETYMOLOGY: *albus*, white; *vallis*, valley, referring to location

DISTRIBUTION: cool springs and their outflows, White

River Valley (NV)

STATUS: critically imperiled; E (US)

***Lepidomeda aliciae*** (Jouy 1881); southern leatherside chub

ETYMOLOGY: in honor of Jouy's wife, Alice

DISTRIBUTION: Utah Lake and Sevier R. drainages (UT); extirpated from Beaver R. and Provo R. at Utah Lake  
STATUS: imperiled; SC (UT, as *Gila copei*)

**Lepidomeda altivelis** Miller & Hubbs 1960; Pahranagat spinedace  
ETYMOLOGY: *altus*, high; *velum*, sail, referring to large dorsal fin  
DISTRIBUTION: Ash Spring outflow and upper Pahranagat Lake (NV)  
STATUS: extinct due to predation or competition by introduced species; last seen in 1938 (Miller et al., 1989)

**Lepidomeda copei** (Jordan & Gilbert 1881); northern leatherside chub  
ETYMOLOGY: in honor of Edward Drinker Cope, who described dozens of North American minnows  
DISTRIBUTION: tributaries of upper Snake R. and Bear R. drainages (ID, WY, UT)  
STATUS: imperiled or critically imperiled; SC (UT, WY); P (ID)

**Lepidomeda mollispinis mollispinis** Miller & Hubbs 1960; Virgin spinedace  
ETYMOLOGY: *mollis*, soft; *spina*, spine, referring to soft-tipped main dorsal spine  
DISTRIBUTION: Virgin R. and its tributaries (UT, AZ, NV)  
STATUS: imperiled or critically imperiled; SC (AZ); P (NV); CA (UT)

**Lepidomeda mollispinis pratensis** Miller & Hubbs 1960; Big Spring spinedace  
ETYMOLOGY: growing in a meadow, referring to meadows of Big Spring  
DISTRIBUTION: Meadow Valley Wash; Big Spring outflow (extirpated) (NV)  
STATUS: critically imperiled; T (US)

**Lepidomeda vittata** Cope 1874; Little Colorado spinedace  
ETYMOLOGY: striped, referring to lateral and dorsal bands  
DISTRIBUTION: Little Colorado R. system (AZ)  
STATUS: imperiled or critically imperiled; T (US)

#### ***Luxilus Rafinesque 1820***

(*lux*, light; *illu*, small, connoting a small, shiny fish, hence the name shiner)  
highscale shiners

***Luxilus albeolus*** (Jordan 1889); white shiner  
ETYMOLOGY: whitish  
DISTRIBUTION: Atlantic Slope from Chowan R. system (VA) to Cape Fear R. drainage (NC); upper New R. drainage (WV, VA, NC)  
STATUS: common  
NOTE: Likely originated as a natural hybrid between *L. cerasinus* and *L. cornutus* (Jenkins and Burkhead, 1994).

***Luxilus cardinalis*** (Mayden 1988); cardinal shiner  
ETYMOLOGY: red, referring to red fins of breeding males  
DISTRIBUTION: Arkansas R. drainage (MO, AR, KS, OK); Red R. drainage (OK)  
STATUS: apparently secure

***Luxilus cerasinus*** (Cope 1868); crescent shiner  
ETYMOLOGY: cherry red, referring to body color of breeding males

DISTRIBUTION: Roanoke, James, Cape Fear, and New R. drainages (VA, NC)  
STATUS: apparently secure

***Luxilus chrysocephalus chrysocephalus*** Rafinesque 1820; central striped shiner  
ETYMOLOGY: *chryso*, golden; *cephalus*, head, referring to occasional gold iridescence along back  
DISTRIBUTION: Great Lakes and Mississippi R. basin from NY and WI, to AL, LA, TX  
STATUS: common; E (WI); T (NC)  
NOTE: A population from the Blue R. (OK) is believed to be an undescribed species (Boschung and Mayden, 2004).

***Luxilus chrysocephalus isolepis*** (Hubbs & Brown 1927); southern striped shiner  
ETYMOLOGY: *iso*, equal; *lepis*, scales, referring to its more regular scale pattern  
DISTRIBUTION: Mississippi R. basin below confluence of White R. (AR); Gulf drainages (except Coosa R. system)  
STATUS: common  
NOTES: (1) Intergrades with *L. c. chrysocephalus* in the upper Black Warrior R. system, lower Coosa R. system, and lower Tennessee R. drainages in AL and TN (Boschung and Mayden, 2004). (2) Genetic work indicates that *L. c. isolepis* should probably be split into two additional species, one in the Red R. (OK), the other in the Ouachita R. (AR) (T. Dowling, pers. comm.).

***Luxilus coccogenis*** (Cope 1868); warpaint shiner  
ETYMOLOGY: berry-red cheek, referring to mark on side of head  
DISTRIBUTION: upper Tennessee R. drainage (VA, NC, TN, GA, AL); Savannah R. tributaries (NC, SC); Santee and New R. drainages (NC, possibly introduced)  
STATUS: common

***Luxilus cornutus cornutus*** (Mitchill 1817); central common shiner  
ETYMOLOGY: horned, referring to head tubercles of breeding males  
DISTRIBUTION: southern Great Lakes drainage; Ohio R. system south to northern AL; headwater tributaries of Alabama R. (GA); Ozarks of MO to the Arkansas R. system (AR, OK)  
STATUS: common  
NOTE: Usually known as common shiner; "central" added to vernacular per Hubbs and Lagler (1964).

***Luxilus cornutus frontalis*** (Agassiz 1850); northern common shiner (*méné à nageoires rouges*)  
ETYMOLOGY: pertaining to forehead, probably referring to head tubercles of breeding males  
DISTRIBUTION: northern Mississippi R., Great Lakes-St. Lawrence, and Atlantic drainages from southern Can., west to CO, KS, IA and MO, east to New England and the Appalachians south to VA and WV  
STATUS: common; T (CO); SC (WY)  
NOTE: Treated as valid in Hubbs and Lagler (2004).

***Luxilus pilsbryi*** (Fowler 1904); dusky stripe shiner  
ETYMOLOGY: in honor of H. A. Pilsbry, a conchologist  
DISTRIBUTION: White (excluding Black R. system) and Little Red R. systems (MO, AR)  
STATUS: common

***Luxilus zonatus*** (Agassiz 1863); bleeding shiner  
 ETYMOLOGY: banded, referring to black lateral band in males  
 DISTRIBUTION: Ozark tributaries of Missouri, Little, St. Francis, and Black R. (MO, AR)  
 STATUS: common

***Luxilus zonistius*** Jordan 1880; bandfin shiner  
 ETYMOLOGY: *zon*, banded; *istius*, sail, referring to dorsal fin band  
 DISTRIBUTION: Apalachicola R. drainage (FL); Chattahoochee R. system (AL, GA); upper Savannah and upper Altamaha R. drainages (GA, AL); upper Coosa R. (GA) and Tallapoosa R. system (GA, AL) populations probably introduced  
 STATUS: apparently secure

***Lythrurus* Jordan 1876**  
 (blood-red tail)  
 finescale shiners

***Lythrurus alegnotus*** (Snelson 1972); Warrior shiner  
 ETYMOLOGY: *a*, not; *legnotus*, with a colored border, referring to absence of black marginal bands on fins  
 DISTRIBUTION: Black Warrior R. system (AL) above Fall Line  
 STATUS: probably vulnerable based on description of abundance in Boschung and Mayden (2004)  
 NOTE: Hybridizes or intergrades with *L. bellus* in the Black Warrior and Tombigbee R. unit (Warren et al., 2000).

***Lythrurus ardens*** (Cope 1868); rosefin shiner  
 ETYMOLOGY: ardent, referring to bright colors of breeding males  
 DISTRIBUTION: Atlantic Slope from York R. drainage (VA) to Roanoke R. drainage (NC); New R. drainage (VA)  
 STATUS: common  
 NOTE: Also known as blueside shiner (Dimmick et al., 1996).

***Lythrurus atrapiculus*** (Snelson 1972); blacktip shiner  
 ETYMOLOGY: *atra*, black; *piculus*, apex, referring to black tip at top (apex) of dorsal fin  
 DISTRIBUTION: Apalachicola, Choctawhatchee, Yellow, and Escambia R. drainages (GA, AL, FL panhandle)  
 STATUS: apparently secure

***Lythrurus bellus*** (Hay 1881); pretty shiner  
 ETYMOLOGY: beautiful, referring to colorful specimens  
 DISTRIBUTION: Mobile Bay drainage, Bear and Yellow Cr. systems (AL, MS)  
 STATUS: common; T (GA)

***Lythrurus fasciolaris*** (Gilbert 1891); scarlet shiner  
 ETYMOLOGY: *fascio*, band; *laris*, small, referring to lateral bands of breeding males  
 DISTRIBUTION: Ohio R. basin from OH to IL, south to Tennessee R. drainage (AL); upper Black Warrior R. system (AL)  
 STATUS: common; extirpated (IL)  
 NOTE: Also known as scarletfin shiner (Mayden et al., 1992a) and rosefin shiner (Dimmick et al., 1996).

***Lythrurus fumeus*** (Evermann 1892); ribbon shiner  
 ETYMOLOGY: smoky, referring to dusky coloration  
 DISTRIBUTION: Mississippi R. basin (IL, IN, KY, AL, LA, OK); Gulf drainages from Lake Pontchartrain (LA) to Navidad R. (TX)  
 STATUS: common; SC (OK)

***Lythrurus lirus*** (Jordan 1877); mountain shiner  
 ETYMOLOGY: lily white, referring to pallid coloration  
 DISTRIBUTION: Tennessee and Alabama R. drainages (VA, TN, GA, AL)  
 STATUS: apparently secure  
 NOTE: Hybridizes with *L. bellus* in the upper Cahaba R. system (Boschung and Mayden, 2004).

***Lythrurus matutinus*** (Cope 1870); pinewoods shiner  
 ETYMOLOGY: of the morning, or rosy, referring to “rufous” muzzle and chin  
 DISTRIBUTION: Tar and Neuse R. drainages (NC)  
 STATUS: vulnerable

***Lythrurus roseipinnis*** (Hay 1885); cherryfin shiner  
 ETYMOLOGY: *roseus*, rosy; *pinna*, fin  
 DISTRIBUTION: Gulf drainages from Mobile Bay (AL) to Lake Pontchartrain (LA); Yazoo R., Big Black R. and Bayou Pierre drainages (MS)  
 STATUS: common

***Lythrurus snelsoni*** (Robison 1985); Ouachita shiner  
 ETYMOLOGY: in honor of Franklin F. Snelson, *Lythrurus* expert  
 DISTRIBUTION: Little R. system (OK, AR)  
 STATUS: vulnerable; SC (AR)

***Lythrurus umbratilis umbratilis*** (Girard 1856); western redfin shiner  
 ETYMOLOGY: shade, referring to dusky coloration  
 DISTRIBUTION: Missouri, Salt and Arkansas R. drainages (KS, MO, OK, AR)  
 STATUS: common

***Lythrurus umbratilis cyanocephalus*** Copeland 1877; eastern redfin shiner  
 ETYMOLOGY: *cyan*, blue; *cephalus*, head  
 DISTRIBUTION: Great Lakes and Mississippi R. basins from ON to MN to LA; Gulf drainages west of Mississippi R. to San Jacinto R. (TX)  
 STATUS: common; E (PA); T (WI); SC (NY)  
 NOTE: Hybridizes or intergrades with *L. u. umbratilis* in the Arkansas R. system (Warren et al., 2000).

***Macrhybopsis* Cockerell & Allison 1909**  
 (*macr*, long; referring to more elongated forms of *Hybopsis*)  
 blacktail chubs

***Macrhybopsis aestivalis*** (Girard 1856); speckled chub (*carpa pecosa*)  
 ETYMOLOGY: pertaining to summer, probably referring to its long spawning season  
 DISTRIBUTION: Rio Grande basin and Río San Fernando drainage (TX, NM, Nuevo León, Tamaulipas, Coahuila, Chihuahua)  
 STATUS: vulnerable or apparently secure; T (Méx.)  
 NOTES: (1) Formerly one wide-ranging species, now split into 5 species (*aestivalis*, *australis*, *hyostoma*, *marconis*, *tetranema*) by Eisenhour (1999, 2004). (2) Listed as *Extrarius aestivalis* in Page and Burr (1991).

***Macrhybopsis* cf. *aestivalis*** (Coosa chub)  
 DISTRIBUTION: Mobile basin above Fall Line in Cahaba, Tallapoosa and Coosa R. systems (TN, AL, GA)  
 STATUS: vulnerable or apparently secure  
 NOTE: Vernacular per Boschung and Mayden (2004); also known as fall line chub (Warren et al., 2000).



***Macrhybopsis cf. aestivalis*** (Gulf chub)

DISTRIBUTION: Mobile basin west to Lake Pontchartrain drainage (AL, MS, LA)

STATUS: common or apparently secure

NOTE: Vernacular per Boschung and Mayden (2004); also known as Pine Hills chub (Warren et al., 2000) and Mobile chub (Eisenhour, 2004).

***Macrhybopsis cf. aestivalis*** (pallid chub)

DISTRIBUTION: Escambia R., Choctawhatchee R. and Backwater Bay drainages (AL, FL)

STATUS: vulnerable

NOTE: Vernacular per Boschung and Mayden (2004); also known as Florida chub (Warren et al., 2000).

***Macrhybopsis australis*** (Hubbs & Ortenburger 1929); prairie chub

ETYMOLOGY: southern, referring to its range compared to others in the *aestivalis* complex

DISTRIBUTION: upper Red R. basin (TX, OK)

STATUS: vulnerable or imperiled

***Macrhybopsis gelida*** (Girard 1856); sturgeon chub

ETYMOLOGY: frozen or stiff, allusion unknown

DISTRIBUTION: Missouri R. basin from MT and WY to IL; Mississippi R. between Missouri and Ohio R. (LA, MS)

STATUS: vulnerable; E (IL, NE); T (KS, SD); R (MO); SC (AR, WY); D (TN); CP-I (ND)

***Macrhybopsis hyostoma*** (Gilbert 1884); shoal chub

ETYMOLOGY: *hyo*, hog; *stoma*, mouth, referring to long snout

DISTRIBUTION: Mississippi R. basin from OH, WV and TN, west to MN, WI, NE, KS, OK, TX; western Gulf Slope from Calcasieu-Sabine drainage (LA) west to Lavaca R. drainage (TX)

STATUS: common; E (OH); T (WI)

***Macrhybopsis marconis*** (Jordan & Gilbert 1886); burrhead chub

ETYMOLOGY: referring to San Marcos R., type locality

DISTRIBUTION: San Antonio and Guadalupe R. drainages (TX, NM); Colorado R. drainage on Edwards Plateau near Austin (TX)

STATUS: apparently secure

***Macrhybopsis meeki*** (Jordan & Evermann 1896); sicklefin chub

ETYMOLOGY: in honor of Seth E. Meek, University of Arkansas, who helped collect type

DISTRIBUTION: Missouri R. from MT to mouth; lower Kansas R. (KS); Mississippi R. between Missouri and Ohio R. (LA, MS)

STATUS: vulnerable; E (KS); T (SD); R (MO); SC (AR); D (TN); CP-I (ND)

***Macrhybopsis storeriana*** (Kirtland 1845); silver chub

ETYMOLOGY: in honor of David H. Storer, author of first synopsis of North American fishes (1846)

DISTRIBUTION: Lake Erie drainage; Assiniboine R. (MB); Red R. drainage (MB to MN); Mississippi R. basin (NY to OK) south to Gulf; Gulf Coast drainages from Mobile Bay basin (AL) to Lake Pontchartrain drainage (LA)

STATUS: common; E (KS, PA); SC (Can., WI); CP-II (ND); extirpated (NY)

***Macrhybopsis tetranema*** (Gilbert 1886); peppered chub

ETYMOLOGY: *tetra*, four; *nema*, thread, referring to its four threadlike barbels

DISTRIBUTION: middle and upper portions of Arkansas R. basin (CO, KS, NM, OK, TX)

STATUS: critically imperiled; E (KS); T (NM); SC (OK); extirpated (CO, OK)

***Margariscus Cockerell 1909***

(Greek for pearly)

pearl daces

***Margariscus margarita margarita*** (Cope 1867); Allegheny pearl dace

ETYMOLOGY: Greek for pearl

DISTRIBUTION: VT and NY south along Atlantic Slope to VA; Allegheny R. system (PA)

STATUS: common

***Margariscus margarita koelzi*** (Hubbs & Lagler 1949); Harvey Lake pearl dace

ETYMOLOGY: in honor of Walter N. Koelz, Great Lakes fisheries biologist

DISTRIBUTION: Harvey Lake on Lake Superior's Isle Royale (MI)

STATUS: "uncommon" per NPS (2002)

NOTE: Treated as valid in Hubbs and Lagler (2004), but as a subspecies of *M. nachtriebi* (see below).

***Margariscus margarita nachtriebi*** (Cox 1896); northern pearl dace (*mulet perlé*) (Fig. 9)

ETYMOLOGY: in honor of Henry Nachtrieb, MN state zoologist

DISTRIBUTION: most of Can. south of tundra from Peace R. (BC) to the Maritimes; south to ME and Lake Champlain; northern MI; most of WI to the Dakotas; relict population in Sand Hills of NE

STATUS: common; E (IA); T (SD); SC (WY); R (MO); CP-I (ND)

NOTE: Treated as a full species in Hubbs and Lagler (2004); I defer specific recognition pending publication of a formal taxonomic study.

***Meda Girard 1856***

(a classical name, presumably chosen because

Girard like the sound of it)

spikedace

***Meda fulgida*** Girard 1856; spikedace (*carpita aguda*)

ETYMOLOGY: shining, referring to bluish silver sides

DISTRIBUTION: upper Gila R. system (AZ, NM, Sonora)

STATUS: imperiled; T (US); extirpated (Méz.)

NOTE: Although no actual specimens are known from Méz., the type locality in Río San Pedro was near the US-Méz. border and suitable habitat clearly existed in Sonora in the recent past (Miller et al., 2005).

***Moapa Hubbs & Miller 1948***

(Moapa R.; Moapa is Paiute Indian word for muddy)

Moapa dace

***Moapa coriacea*** Hubbs & Miller 1948; Moapa dace (Fig. 10)

ETYMOLOGY: leathery, referring to texture of skin

DISTRIBUTION: headwaters of Moapa R. (NV)

STATUS: critically imperiled; E (US)



**Mylocheilus Agassiz 1855**

(*mylo*, grinder; *cheilus*, lip, referring to bony sheath around lips)  
peamouths

The peamouth is one of the few minnows in the world that can tolerate salt water, and is the only native minnow in North America that naturally inhabits coastal islands (Wydoski and Whitney, 2003). Three fossil species are known: *M. copei* of the Chalk Hills Formation, Malheur Co., OR (late Miocene); *M. inflexus* of Near Sinkers Cr. in ID (Miocene); and *M. robustus* of Castle Cr., Owyhee Co., ID (late Pliocene).

**Mylocheilus caurinus** (Richardson 1836); peamouth  
ETYMOLOGY: northwestern, from *caurus*, meaning north-west wind

DISTRIBUTION: Nass and Peace R. systems (BC) south to Columbia R. drainage (ID, MT, OR, WA); Vancouver and other coastal islands (BC)

STATUS: common

**Mylopharodon Ayres 1855**

(*mylo*, grinding; *phar*, throat; *odon*, teeth, referring to molariform pharyngeal teeth)  
hardheads

Three fossil species are known: *M. doliolus* from Lower Chalk Hills near Adrian, OR and Brown Cr., Owyhee, ID (perhaps late Miocene); *M. gibbarcus* from Fossil Lake, OR (Pleistocene); and *M. hagermanensis* from Twin Falls Co., ID (late Cenozoic).

**Mylopharodon conocephalus** (Baird & Girard 1854);  
hardhead

ETYMOLOGY: *con*, cone; *cephalus*, head, referring to its rounded shape

DISTRIBUTION: Sacramento-San Joaquin and Russian R. drainages (CA)

STATUS: vulnerable

## EXOTIC

**Mylopharyngodon Peters 1881**

(*mylo*, grinder; *pharynx*, throat; *odon*, tooth, referring to mollusk-crushing pharyngeal teeth)  
black carp

The native range of the black carp includes most major Pacific Ocean drainages of eastern Asia from the Amur R. basin south to the West-Pearl R. basin, and possibly the Red R. of northern Vietnam. Black carp were imported into the US in the 1990s to control pond snails in southern fish farms. Escapes during floods quickly followed. The U.S. Fish and Wildlife Service is considering placing black carp on the list of injurious species of wildlife under the Lacey Act because of its potential to destroy native mollusk populations.

**Mylopharyngodon piceus** (Richardson 1846); black carp  
ETYMOLOGY: pitch-black, referring to brownish-black body color or black-edged scales

DISTRIBUTION: although reproduction has not been documented, wild populations in the lower Mississippi basin and possibly elsewhere are likely established (Nico et al., 2005), hence inclusion on this checklist

**Nocomis Girard 1856**

(a Native American word, presumably chosen because Girard like the sound of it)  
hornyhead chubs

*Nocomis* is one of two minnow genera in North America to construct a nest using the mouth to pile gravel into a dome-shaped mound (the other is *Exoglossum*).

**Nocomis asper** Lachner & Jenkins 1971; redspot chub  
ETYMOLOGY: rough, referring to tubercles on scales on breeding males

DISTRIBUTION: Arkansas R. drainage (MO, KS, OK, AR); Blue R. (OK); upper Ouachita R. drainage (AR)  
STATUS: apparently secure; T (KS)

**Nocomis biguttatus** (Kirtland 1841); hornyhead chub  
ETYMOLOGY: two-spotted, probably referring to red spot on each side of head on breeding males

DISTRIBUTION: NY and PA west through Great Lakes and Mississippi R. basin, to Red R. drainage (MB, ND); south to KY and Ozarks; Platte and Cheyenne R. systems (NB, WY, CO)

STATUS: common; T (KS); SC (MB); CP-III (ND); C (PA); extirpated (CO)

**Nocomis effusus** Lachner & Jenkins 1967; redbill chub  
ETYMOLOGY: effusive, referring to large number of head and body tubercles

DISTRIBUTION: upper Green, upper Barren, Cumberland, Duck, and lower Tennessee R. drainages (KY, TN)

STATUS: apparently secure

**Nocomis leptocephalus leptocephalus** (Girard 1856); bluehead chub

ETYMOLOGY: *lepto*, small; *cephalus*, head

DISTRIBUTION: New R. and Atlantic drainages south to Santee R. (WV, VA, NC)

STATUS: common

**Nocomis leptocephalus bellicus** Girard 1856; Gulf chub  
ETYMOLOGY: Latin for warlike, referring to Black Warrior R. (AL), type locality

DISTRIBUTION: Gulf Slope and Mississippi R. drainages west of Apalachicola drainage (AL, MS, LA); Escambia R. system (AL, FL) population likely introduced

STATUS: common

NOTE: Also known as southern bluehead chub (Gilbert, 1992).

**Nocomis leptocephalus interocularis** Lachner & Wiley 1971; Georgian chub

ETYMOLOGY: *inter*, between; *ocular*, eyes, referring to location of tubercles on the head

DISTRIBUTION: Savannah, Altamaha, and Apalachicola R. drainages (GA, FL); Chattahoochee R. system (AL)

STATUS: common

NOTE: Intergrades with *N. l. leptocephalus* in the Edisto-Combahee R. unit (Warren et al., 2000).

**Nocomis micropogon** (Cope 1865); river chub

ETYMOLOGY: *micro*, small; *pogon*, beard, based on the very small barbels in the specimen Cope described, which was a cross between a common shiner, *Luxilus cornutus*, and *N. micropogon*

DISTRIBUTION: Atlantic Slope above Fall Line from Susquehanna R. (NY) to James R. (VA); Great Lakes basin (except Lake Superior), NY to MI; Ohio R. basin, NY to IL, south to GA and AL; introduced elsewhere

STATUS: common; E (IL)

NOTE: An intergeneric hybrid with *Rhinichthys cataractae* is known as the Cheat minnow, *Rhinichthys (Pararhinichthys) bowersi*; see *R. cataractae*, below.

**Nocomis platyrhynchus** Lachner & Jenkins 1971; bigmouth chub

ETYMOLOGY: *platy*, wide; *rhynchus*, snout

DISTRIBUTION: New R. drainage (WV, VA, NC)

STATUS: apparently secure

**Nocomis raneyi** Lachner & Jenkins 1971; bull chub  
 ETYMOLOGY: in honor of Edward C. Raney, Cornell Univ.  
 ichthyologist and inveterate chubwatcher  
 DISTRIBUTION: Atlantic Slope drainages from James R. (VA)  
 to Neuse R. (NC)  
 STATUS: apparently secure

**Notemigonus Rafinesque 1819**  
 (angled back, reference to narrow back)  
 golden shiners

The golden shiner is the only native North American cyprinid descended from the otherwise European tribe Leuciscini (Coburn and Cavendar, 1992). Used for bait and forage, it has been widely introduced with established exotic populations in PE and every western state except for perhaps ID. The recognition of two subspecies, which intergrade, follows Hubbs and Lagler (2004).

**Notemigonus crysoleucas crysoleucas** (Mitchill 1814);  
 eastern golden shiner  
 ETYMOLOGY: *cryso*, golden; *leucas*, white  
 DISTRIBUTION: Atlantic and Gulf Slope drainages from NS  
 to TX, rare or absent in upland areas, often entering  
 brackish water; St. Lawrence drainage to eastern Lake  
 Ontario drainage  
 STATUS: common

**Notemigonus crysoleucas auratus** Rafinesque 1819; western  
 golden shiner  
 ETYMOLOGY: Latin for gilded, in reference to golden sheen  
 DISTRIBUTION: western Great Lakes, Red R., and Mississippi  
 R. basins west to AB, MY, WY, OK; south Hudson Bay  
 drainage  
 STATUS: common

**Notropis Rafinesque 1819**  
 (ridged or keeled back; a misnomer, see below)  
 eastern shiners

As currently defined, *Notropis* is the second most speciose genus of freshwater fishes in North America, its 90+ species falling well short of the 140+ species in the percid genus *Etheostoma*. As evidenced by the number of cyprinid genera previously assigned to *Notropis* (e.g., *Cyprinella*, *Hybopsis*, *Luxilus*, *Lythrurus*, *Pteronotropis*), the genus has been a taxonomic dumping ground for any small, silvery minnow east of the Continental Divide. The monophyly of *Notropis* remains controversial and in need of systematic study. Most workers recognize three subgenera: *Notropis*, *Alburnops* Girard 1856 (*alburnus*, bleak or white; *ops*, appearance, referring to generally whitish color), and *Hydrophlox* Jordan 1878 (*hydro*, water; *phlox*, flame, referring to red or orange colors of breeding males). In addition, several monophyletic “species groups” are variously recognized. Species placement among these subgenera and species groups is summarized in Table 3. Please note: not every species of *Notropis* falls into one of these subgenera or species groups; their phylogenetic relationships are unclear or have not been investigated. One fossil *Notropis* has been described: *N. megalepis*, Ogallala Formation, Logan Co., KS (Miocene). A note on etymology: When Rafinesque established this genus for *N. atherinoides*, the specimen he used had a ridged, or keeled, back, probably due to shrinkage (Jenkins and Burkhead, 1994).

**Notropis aguirrepequenoi** Contreras-Balderas & Rivera-  
 Teillery 1973; Soto la Marina shiner (*carpita del Pílon*)  
 ETYMOLOGY: in honor of Eduardo Aguirre Pequeño,  
 Mexican naturalist  
 DISTRIBUTION: upper half of Río Soto la Marina basin  
 (Tamaulipas)  
 STATUS: vulnerable; R (Méx.)  
 SUBGENUS: *Alburnops*

**Notropis albizonatus** Warren & Burr 1994; palezone shiner  
 ETYMOLOGY: *albi*, white; *zonatus*, belt or girdle, referring to  
 white band above lateral line  
 DISTRIBUTION: Little South Fork and Marrowbone Cr.  
 (KY); Cove Cr. (TN); Paint Rock R. (AL)

STATUS: imperiled; E (US)

**Notropis alborus** Hubbs & Raney 1947; whitemouth shiner  
 ETYMOLOGY: white mouth, referring to unpigmented lips  
 and mouth  
 DISTRIBUTION: Atlantic Slope drainages from Chowan R.  
 (VA) to Santee R. (SC)  
 STATUS: apparently secure; T (VA)

**Notropis altipinnis** (Cope 1870); highfin shiner  
 ETYMOLOGY: *alti*, high; *pinna*, fin  
 DISTRIBUTION: Roanoke R. drainage (VA) to Savannah R.  
 drainage (SC)  
 STATUS: common  
 SPECIES GROUP: “*texanus*”

**Notropis amabilis** (Girard 1856); Texas shiner (*carpita texana*)  
 ETYMOLOGY: attractive, a “very slender and graceful species”  
 DISTRIBUTION: Colorado R. of central TX south to Río  
 Bravo basin (Coahuila, Nuevo León, Tamaulipas), west  
 to Pecos R. (TX, NM) and Río Conchos (Chihuahua)  
 STATUS: apparently secure (US), imperiled (Méx.); extirpated  
 (NM)  
 SUBGENUS: *Notropis*

**Notropis amecae** Chernoff & Miller 1986; Ameca shiner  
 (*carpita del Ameca*)  
 ETYMOLOGY: after Río Ameca, type locality  
 DISTRIBUTION: Río Ameca and two tributaries (Jalisco)  
 STATUS: critically imperiled; presumed extinct (Miller et al.,  
 1989), but “some individuals” were found at one locality  
 in 1996-1997 (López-López and Paulo-Maya, 2001)  
 NOTE: Listed under *Hybopsis* in Miller et al. (2005).  
 SPECIES GROUP: “*calientis*”

**Notropis ammophilus** Suttkus & Boschung 1990; orangefin  
 shiner  
 ETYMOLOGY: *ammos*, sand; *philo*, to love, referring to its  
 occurring over sand  
 DISTRIBUTION: Mobile Bay drainage (AL, MS); Yellow Cr.  
 (MS); Hatchie and Skuna R. drainages (TN, MS)  
 STATUS: apparently secure or common  
 SPECIES GROUP: “*dorsalis*”

**Notropis amoenus** (Abbott 1874); comely shiner  
 ETYMOLOGY: pleasing, or “beautiful,” says Abbott  
 DISTRIBUTION: Atlantic Slope drainages from Hudson R.  
 (NY) to Cape Fear R. (NC)  
 STATUS: common  
 SUBGENUS: *Notropis*

**Notropis anogenus** Forbes 1885; pugnose shiner  
 ETYMOLOGY: *ano*, without; *genus*, chin  
 DISTRIBUTION: Lake Ontario drainage (ON, NY) to ND  
 and IL  
 STATUS: vulnerable; E (IL, IA, NY, ON); T (WI); SC  
 (IN, MN); CP-III (ND); extirpated (OH)  
 SUBGENUS: *Alburnops*

**Notropis ariommus** (Cope 1867); popeye shiner  
 ETYMOLOGY: *ari*, large; *omma*, eye  
 DISTRIBUTION: Ohio R. basin from PA to IN, south to  
 Tennessee R. drainage (GA, AL)  
 STATUS: vulnerable; E (OH); T (GA); SC (VA); extirpated  
 (AL, IN, PA)  
 SUBGENUS: *Notropis*

**Table 3.** Subgeneric and species group placement of notropine cyprinids. Note: not all species of *Notropis* have been assigned to a subgenus or species group. Composition compiled from various sources, but *Notropis* follows Bielawski and Gold (2001) with the addition of *micropteryx* and *percobromus* (both formerly *rubellus*), and “*dorsalis*” group follows Raley and Wood (2001).

Subgenus <i>Notropis</i>	<i>hudsonius</i>	<i>buccatus</i>
<i>amabilis</i>	<i>mekistocholas</i>	<i>dorsalis</i>
<i>amoenus</i>	<i>nazas</i>	<i>longirostris</i>
<i>ariommus</i>	<i>orca</i>	<i>rafinesquei</i>
<i>atherinoides</i>	<i>potteri</i>	<i>sabinae</i>
<i>girardi</i>	<i>procne</i>	“ <i>texanus</i> ” species group
<i>jemezianus</i>	<i>rupestris</i>	<i>altipinnis</i>
<i>micropteryx</i>	<i>saladonis</i>	<i>asperifrons</i>
<i>oxyrhynchus</i>	<i>simus</i>	<i>boops</i>
<i>percobromus</i>	<i>stramineus</i>	<i>chalybaeus</i>
<i>perpallidus</i>	<i>topeka</i>	<i>heterodon</i>
<i>photogenis</i>	Subgenus <i>Hydrophlox</i>	<i>hypsilepis</i>
<i>rubellus</i>	<i>baileyi</i>	<i>petersoni</i>
cf. <i>rubellus</i> (New R., VA)	<i>chiliticus</i>	<i>texanus</i>
<i>scepticus</i>	<i>chlorocephalus</i>	<i>xaenocephalus</i>
<i>stilbius</i>	cf. <i>chlorocephalus</i> (Piedmont shiner)	“ <i>volucellus</i> ” species group
<i>suttkusi</i>	<i>chrosomus</i>	<i>buchanani</i>
<i>telescopus</i>	<i>leuciodus</i>	<i>cahabae</i>
Subgenus <i>Alburnops</i>	<i>lutipinnis</i>	<i>heterolepis</i>
<i>aguirrepequeno</i>	<i>nubilus</i>	<i>maculatus</i>
<i>anogenus</i>	<i>rubricroceus</i>	<i>ozarcanus</i>
<i>atrocaudalis</i>	“ <i>calientis</i> ” species group	<i>spectrunculus</i>
<i>bairdi</i>	<i>amecae</i>	cf. <i>spectrunculus</i> (sawfin shiner)
<i>bifrenatus</i>	<i>aulidion</i>	<i>tropicus</i>
<i>blenni</i>	<i>calabazas</i>	<i>volucellus</i>
<i>braytoni</i>	<i>calientis</i>	<i>wickliffi</i>
<i>buccula</i>	“ <i>dorsalis</i> ” species group	
<i>chihuahua</i>	<i>ammophilus</i>	
<i>edwardraneyi</i>		

***Notropis asperifrons*** Suttkus & Raney 1955; burrhead shiner

ETYMOLOGY: *asper*, rough; *frons*, forehead, referring to snout tubercles

DISTRIBUTION: all river systems of Mobile basin except Tombigbee (TN, GA, AL)

STATUS: apparently secure

SPECIES GROUP: “*texanus*”

***Notropis atherinoides atherinoides*** Rafinesque 1818; river emerald shiner (*méné émeraude*)

ETYMOLOGY: resembling a silverside (*atherina*)

DISTRIBUTION: St. Lawrence and Hudson R. drainages to Mackenzie R. drainage (NT), south through Great Lakes and Mississippi R. basins to Gulf; Gulf Slope drainages from Mobile Bay to Galveston Bay

STATUS: common; T (VA)

NOTE: Usually known as emerald shiner; “river” added to vernacular per Hubbs and Lagler (2004).

SUBGENUS: *Notropis*

***Notropis atherinoides acutus*** (Lapham 1854); lake emerald shiner

ETYMOLOGY: sharp or pointed, referring to sharper snout

DISTRIBUTION: Lake Michigan

STATUS: presumably extinct (Hubbs and Lagler, 2004)

NOTE: Treated as valid in Hubbs and Lagler (2004).

SUBGENUS: *Notropis*

***Notropis atrocaudalis*** Evermann 1892; blackspot shiner

ETYMOLOGY: *ater*, black; *cauda*, tail, referring to black spot on tail

DISTRIBUTION: Red and Calcasieu R. drainages to Brazos R. drainage (AR, OK, LA, TX)

STATUS: apparently secure; SC (AR)

SUBGENUS: *Alburnops*

***Notropis aulidion*** Chernoff & Miller 1986; Durango shiner

(*carpita de Durango*)

ETYMOLOGY: *aulos*, tube or pipe; *idion*, a diminutive suffix, referring to short infraorbital canal

DISTRIBUTION: Río Tunal, east of Durango City

STATUS: R (Méx), but extinct due to habitat loss, pollution and exotic fishes; last seen in 1961 (Miller et al., 1989)

NOTE: Listed under *Hybopsis* in Miller et al. (2005).

SPECIES GROUP: “*calientis*”

***Notropis baileyi*** Suttkus & Raney 1955; rough shiner

ETYMOLOGY: in honor of Reeve M. Bailey, professor and

curator, University of Michigan Museum of Zoology  
DISTRIBUTION: Mobile Bay and Pascagoula R. drainages, Bear Cr. system (AL, MS); Escambia (AL, FL) and Chattahoochee R. drainage (GA) populations possibly introduced

STATUS: common

SUBGENUS: *Hydrophlox*

***Notropis bairdi*** Hubbs & Ortenburger 1929; Red River shiner

ETYMOLOGY: in honor of Spencer F. Baird, founder of U.S.

Museum of Natural History (among other achievements)  
DISTRIBUTION: Red R. drainage (AR, OK, TX); introduced into Cimarron R. (KS, OK)

STATUS: apparently secure

SUBGENUS: *Alburnops*

***Notropis bifrenatus*** (Cope 1867); bridle shiner (*méné d’herbe*)

ETYMOLOGY: *bi*, two, *frenatus*, brindled, referring to black bars across snout

DISTRIBUTION: St. Lawrence-Lake Ontario drainage (QC, ON, NY); Atlantic Slope drainages from ME to VA; lower Neuse R. drainage (NC)

STATUS: vulnerable; E (PA); SC (Can., MA, NC, VA)

SUBGENUS: *Alburnops*

**Notropis blennioides** (Girard 1856); river shiner

ETYMOLOGY: blenny-like, referring to its convex profile  
 DISTRIBUTION: Hudson Bay basin south to Red R. (MN, ND); Mississippi R. basin from WI and MN, south to Gulf, east to WV, west to CO  
 STATUS: common; E (PA); SC (MB); NC (KS)  
 SUBGENUS: *Alburnops*

**Notropis boops** Gilbert 1884; bigeye shiner

ETYMOLOGY: *bo*, ox; *ops*, eye, referring to large eye  
 DISTRIBUTION: Lake Erie drainage (OH); Mississippi R. basin from OH to KS, south to AL, LA, OK  
 STATUS: common; E (IL, MS)  
 SPECIES GROUP: “*texasus*”

**Notropis boucardi** (Günther 1868); Balsas shiner (*carpita del Balsas*)

ETYMOLOGY: in honor of Alphonse Boucard, an ornithologist who collected in Méx.  
 DISTRIBUTION: upper tributaries of Río Balsas basin (Guerrero, Jalisco, Michoacan, Morelos, Puebla)  
 STATUS: common or apparently secure; T (Méx.)  
 NOTE: Listed under *Hybopsis* in Miller et al. (2005).

**Notropis braytoni** Jordan & Evermann 1896; Tamaulipas shiner (*carpita tamaulipeca*)

ETYMOLOGY: in honor of A. M. Brayton, who traveled with Jordan and Evermann in GA, NC and SC  
 DISTRIBUTION: Río Bravo and its tributaries (Chihuahua, Coahuila, Durango, Nuevo León, Tamaulipas); lower Pecos R. (TX)  
 STATUS: imperiled (Méx.); apparently secure (US)  
 SUBGENUS: *Alburnops*

**Notropis buccatus** Cope 1865; silverjaw minnow

ETYMOLOGY: cavity or cheek, referring to both mucous channels and where they occur  
 DISTRIBUTION: Atlantic, Great Lakes and Mississippi R. drainages from NY and MD to MO; Gulf drainages from GA and FL to MS and LA  
 STATUS: common; T (TN)  
 NOTES: (1) Also known as *Ericymba buccata* (e.g., Page and Burr, 1991). (2) May represent a complex of undescribed forms (Mayden et al., 1992a).  
 SPECIES GROUP: “*dorsalis*”

**Notropis buccula** Cross 1953; smalleye shiner

ETYMOLOGY: little mouth, referring to its size compared to close relative, *N. bairdi*  
 DISTRIBUTION: Brazos R. drainage (TX); apparently introduced into Colorado R. drainage (TX)  
 STATUS: imperiled; C (US)  
 SUBGENUS: *Alburnops*

**Notropis buechanani** Meek 1896; ghost shiner (*carpita fantasma*)

ETYMOLOGY: in honor of J. L. Buchanan, then president of Arkansas Industrial University  
 DISTRIBUTION: throughout Mississippi R. basin; Gulf Slope drainages from Calcasieu R. (LA) into lower Río Bravo basin (Coahuila, Nuevo León, Tamaulipas)  
 STATUS: common; E (PA); extirpated (WI)  
 SPECIES GROUP: “*volucellus*”

**Notropis cahabae** Mayden & Kuhajda 1989; Cahaba shiner

ETYMOLOGY: of the Cahaba R.

DISTRIBUTION: Cahaba R. and Locust Fork of Black Warrior R., usually above Fall Line (AL)

STATUS: imperiled; E (US)  
 SPECIES GROUP: “*volucellus*”

**Notropis calabazas** Lyons & Mercado-Silva 2004; Calabazas shiner

ETYMOLOGY: of the Río Calabazas  
 DISTRIBUTION: Río Calabazas (San Luis Potosí)  
 STATUS: “uncommon” (Lyons and Mercado-Silva, 2004)  
 SPECIES GROUP: “*calientis*”

**Notropis calientis** (Jordan & Snyder 1899); yellow shiner (*carpita amarilla*)

ETYMOLOGY: of Aquascalientes, type locality  
 DISTRIBUTION: ríos Lerma, Grande de Santiago, Grande de Morelia; headwaters of Río Santa María (Aquascalientes, Guanajuato, Jalisco, Michoacan, San Luis Potosí)  
 STATUS: common or apparently secure  
 NOTE: Listed under *Hybopsis* in Miller et al. (2005).  
 SPECIES GROUP: “*calientis*”

**Notropis candidus** Suttkus 1980; silverside shiner

ETYMOLOGY: glittering white, referring to its white sides  
 DISTRIBUTION: upper and lower Tombigbee, Black Warrior, Cahaba and Alabama R. (AL)  
 STATUS: apparently secure

**Notropis chalybaeus** (Cope 1867); ironcolor shiner

ETYMOLOGY: steel-colored, referring to dark lateral stripe  
 DISTRIBUTION: Atlantic, Gulf, and Mississippi R. basins from NY to FL, into MO and OK; across Gulf Slope into LA and TX; Illinois R. drainage (IL, IN); Cedar R. (IA); Lake Winnebago system and Wisconsin R. (WI); Lake Michigan drainage (MI, IN)  
 STATUS: apparently secure; E (MS, PA); T (IL); SC (NY, OK); extirpated (IA, MI, WI)  
 SPECIES GROUP: “*texasus*”

**Notropis chihuahua** Woolman 1892; Chihuahua shiner (*carpita chihuahuense*)

ETYMOLOGY: from the Chihuahuan Desert  
 DISTRIBUTION: Rio Grande drainage in Big Bend region of southwest TX; upper portion of Río Conchos (Chihuahua, Durango)  
 STATUS: vulnerable (US), imperiled (Méx.); T (TX)  
 SUBGENUS: *Alburnops*

**Notropis chiliticus** (Cope 1870); redlip shiner

ETYMOLOGY: pertaining to lips, which are colorful  
 DISTRIBUTION: Dan and Peedee R. drainages (VA, NC, SC); introduced into New R. drainage (VA, NC)  
 STATUS: apparently secure; SC (SC)  
 SUBGENUS: *Hydrophlox*

**Notropis chlorocephalus** (Cope 1870); greenhead shiner

ETYMOLOGY: *chloro*, green; *cephalus*, head  
 DISTRIBUTION: Catawba R. system (NC, SC)  
 STATUS: apparently secure  
 SUBGENUS: *Hydrophlox*

**Notropis cf. chlorocephalus** (Piedmont shiner)

DISTRIBUTION: Peedee, Santee and Cooper R. (NC, SC)  
 STATUS: apparently secure  
 SUBGENUS: *Hydrophlox*

**Notropis chrosomus** (Jordan 1877); rainbow shiner

ETYMOLOGY: *chroma*, color; *soma*, body, referring to overall vibrant coloration

DISTRIBUTION: Alabama, Cahaba and Coosa R. systems; Locust Fork headwaters of Black Warrior R. system (AL, GA, TN); populations in Town Cr. and Little Drum Cr. (AL), may be introduced.

STATUS: apparently secure

SUBGENUS: *Hydrophlox*

***Notropis cumingii*** (Günther 1868); Atoyac chub (*carpita del Atoyac*)

ETYMOLOGY: in honor of H. Cuming, who collected type  
DISTRIBUTION: Río Atoyac, tributary to Río Verde (Oaxaca)  
STATUS: imperiled; T (Méx.)

NOTES: (1) Listed under *Hybopsis* in Miller et al. (2005).

(2) *N. imeldae* Cortés 1968 is a junior synonym, but still used by some authors, e.g., Contreras-Balderas et al. (2003, as *Hybopsis*), and Schönhuth et al. (2001), who recognize a genetically divergent population from the Balsas drainage (Oaxaca) as an undescribed species.

***Notropis cummingsae*** Myers 1925; dusky shiner

ETYMOLOGY: in honor of Mrs. J. H. Cummings, amateur naturalist, who hosted Myers during his NC field work  
DISTRIBUTION: Tar R. drainage (NC) to Altamaha R. drainage (GA); St. Johns R. drainage (FL); Aucilla R. drainage to (possibly) Choctawhatchee R. drainage (FL, AL)

STATUS: common

NOTE: A subspecies from the Piedmont of the Carolinas, *N. c. collis* Hubbs & Raney 1951, is generally not accepted as valid (Boschung and Mayden, 2004).

***Notropis dorsalis dorsalis*** (Agassiz 1854); central bigmouth shiner

ETYMOLOGY: pertaining to the back, perhaps referring to darker coloration above lateral line

DISTRIBUTION: Great Lakes, Red R., and Mississippi R. basins from MB to IL, west to WY and CO; populations in WV, OH, MI

STATUS: common; SC (IN, MB); D (TN); extirpated (WV)

NOTES: (1) Usually known as bigmouth shiner; “central” added to vernacular per Hubbs and Lagler (2004). (2) A western subspecies, *N. d. piptolepis* (Cope 1871) from Platte R. system (WY, CO), needs more study.

SPECIES GROUP: “*dorsalis*”

***Notropis dorsalis keimi*** Fowler 1909; eastern bigmouth shiner  
ETYMOLOGY: in honor of Fowler’s friend, Thomas D. Keim, who helped collect type and other fishes for the Academy of Natural Sciences, Philadelphia

DISTRIBUTION: Lake Ontario and Allegheny R. drainages (NY, PA)

STATUS: common; T (PA)

NOTES: Treated as valid in Hubbs and Lagler (2004).

SPECIES GROUP: “*dorsalis*”

***Notropis edwardraneyi*** Suttkus & Clemmer 1968; fluvial shiner

ETYMOLOGY: in honor of Edward C. Raney, Cornell ichthyologist

DISTRIBUTION: Mobile Bay drainage, primarily below Fall Line (AL, MS)

STATUS: apparently secure

SUBGENUS: *Alburnops*

***Notropis girardi*** Hubbs & Ortenburger 1929; Arkansas River shiner

ETYMOLOGY: in honor of Charles Girard, physician-naturalist, who described many minnows

DISTRIBUTION: Arkansas R. drainage (AR to KS, OK, TX panhandle, NM); introduced into Pecos R. (NM)

STATUS: imperiled; E (KS); T (US; Arkansas R. basin population only); extirpated (AR)

SUBGENUS: *Notropis*

***Notropis greenei*** Hubbs & Ortenburger 1929; wedgespot shiner

ETYMOLOGY: in honor of C. W. Greene, who studied under Hubbs

DISTRIBUTION: Ozark tributaries of Mississippi, Missouri, White, and Arkansas R. (MO, AR, OK)

STATUS: common

***Notropis harperi*** Fowler 1941; redeye chub

ETYMOLOGY: in honor of Francis Harper, who collected type

DISTRIBUTION: below Fall Line in Atlantic and Gulf Slope drainages from Altamaha R. (GA) to Escambia R. (AL); south in FL to St. Johns R and Withlacoochee R. drainages

STATUS: apparently secure; R (GA)

***Notropis heterodon*** (Cope 1865); blackchin shiner (*menton noir*)

ETYMOLOGY: *hetero*, variable; *don*, tooth, referring to variations in dentition among specimens

DISTRIBUTION: southern QC and VT west to MN and IA; localized in St. Lawrence, Susquehanna and Hudson R. drainages

STATUS: common; E (OH, PA); T (IL); SC (MB); extirpated (IA)

NOTE: Listed under *Hybopsis* in Miller et al. (2005).

SPECIES GROUP: “*texanus*”

***Notropis heterolepis heterolepis*** Eigenmann & Eigenmann 1893; northern blacknose shiner (*museau noir*)

ETYMOLOGY: *hetero*, variable; *lepis*, scales, referring to variation in scale shape

DISTRIBUTION: Atlantic, Great Lakes, Hudson Bay, and Mississippi R. basins from NS to SA, south to OH and IL, west to MO and KS

STATUS: apparently secure; E (IL, NE, OH, SD); T (IA); CP-III (ND); extirpated (KS)

NOTE: Usually known as blacknose shiner; “northern” added to vernacular per Hubbs and Lagler (2004).

SPECIES GROUP: “*volucellus*”

***Notropis heterolepis regalis*** Hubbs & Lagler 1949; Harvey Lake blacknose shiner

ETYMOLOGY: royal, referring to Isle Royale

DISTRIBUTION: Harvey Lake on Lake Superior’s Isle Royale (MI)

STATUS: abundance “unknown” (NPS, 2002)

NOTE: Treated as valid in Hubbs and Lagler (2004).

SPECIES GROUP: “*volucellus*”

***Notropis hudsonius*** (Clinton 1824); northern spottail shiner (*queue à tache noir*)

ETYMOLOGY: of the Hudson R., type locality

DISTRIBUTION: Atlantic and Gulf Slope drainages from St. Lawrence R. to GA; Hudson Bay, northern Great Lakes, and Mississippi R. basins to Mackenzie R. drainage

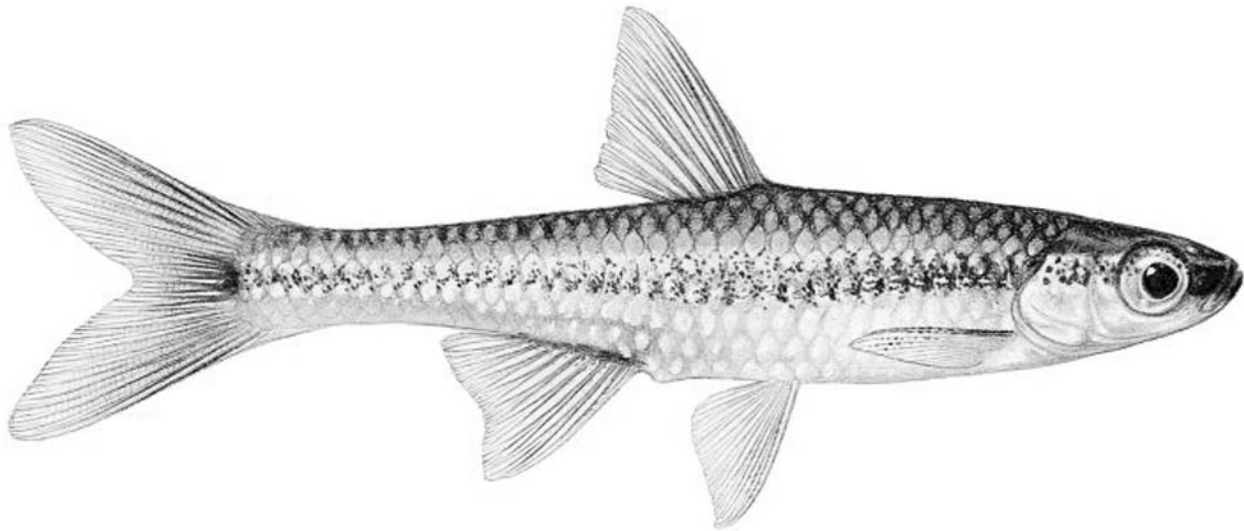


Fig. 11.

*Notropis melanostomus*, blackmouth shiner. Illustration © Joseph R. Tomelleri.

(NT, AB), south to OH, IL and MT

STATUS: common; SC (KY)

NOTE: Usually known as spottail shiner; “northern” added to vernacular per Hubbs and Lagler (2004).

SUBGENUS: *Alburnops*

***Notropis hudsonius* ssp.** (Great Lakes spottail shiner)

DISTRIBUTION: Great Lakes and tributaries, but not in the Lake Superior basin.

STATUS: common

NOTE: Treated as valid by Hubbs and Lagler (2004).

SUBGENUS: *Alburnops*

***Notropis hypsilepis*** Suttkus & Raney 1955; highscale shiner

ETYMOLOGY: *hyps*, high; *lepis*, scale, referring to elevated anterior lateral line scales

DISTRIBUTION: near and above Fall Line in Chattahoochee and Flint R. systems (GA, AL); population from tributary of Tallulah R. (GA) likely introduced

STATUS: vulnerable; T (GA)

SPECIES GROUP: “*texanus*”

***Notropis jemezianus*** (Cope 1875); Rio Grande shiner (*carpita del Bravo*)

ETYMOLOGY: from Jemez Mountains, type locality

DISTRIBUTION: Río Bravo basin (Chihuahua, Coahuila, Nuevo León, Tamaulipas); Rio Grande and Pecos R. (TX, NM)

STATUS: imperiled; R (Méx.)

NOTE: Listed under *Hybopsis* in Miller et al. (2005).

SUBGENUS: *Notropis*

***Notropis leuciodus*** (Cope 1868); Tennessee shiner

ETYMOLOGY: *leucos*, white; *eiodus*, appearance, referring to its silvery hues

DISTRIBUTION: Green, Cumberland, and Tennessee R. drainages (VA, NC, KY, TN, GA, AL); upper Savannah R. drainage (NC, GA); New R. drainage (VA, NC) possibly introduced

STATUS: common

NOTE: Hiwassee R. form likely represents an undescribed

species (Boschung and Mayden, 2004).

SUBGENUS: *Hydrophlox*

***Notropis longirostris*** (Hay 1881); longnose shiner

ETYMOLOGY: *longi*, long; *rostris*, nose

DISTRIBUTION: Gulf Slope drainages from Apalachicola R. (GA, FL) to Mississippi R. basin (MS, LA); upper Altamaha R. drainage (GA)

STATUS: common

NOTE: Likely represents two species, one east of the Mobile basin, one from Mobile basin westward (Boschung and Mayden, 2004).

SPECIES GROUP: “*dorsalis*”

***Notropis lutipinnis*** (Jordan & Brayton 1878); yellowfin shiner

ETYMOLOGY: *luti*, yellow; *pinnis*, fin

DISTRIBUTION: Atlantic and Gulf slopes from Santee R. (NC, SC) to Altamaha, Chattahoochee, and Coosa R. systems (GA); Little Tennessee R. system (NC)

STATUS: apparently secure; SC (NC)

NOTE: Populations from the Altamaha, Savannah and Edisto R. and from the Santee R. may warrant separate taxonomic status (F. C. Rohde, pers. comm.).

SUBGENUS: *Hydrophlox*

***Notropis maculatus*** (Hay 1881); taillight shiner

ETYMOLOGY: spotted, referring to large caudal spot

DISTRIBUTION: below Fall Line in Atlantic, Gulf, and Mississippi R. basins from Cape Fear R. (NC) to Sabine R. (TX), north into IL; throughout FL except for southern tip

STATUS: common; E (IL, MO); SC (OK)

SPECIES GROUP: “*volucellus*”

***Notropis mekistocholas*** Snelson 1971; Cape Fear shiner

ETYMOLOGY: *mekisto*, longest; *cholas*, intestine, referring to its convoluted intestine

DISTRIBUTION: Cape Fear R. drainage near Fall Line (NC)

STATUS: critically imperiled; E (US)

SUBGENUS: *Alburnops*



**Notropis melanostomus** Bortone 1989; blackmouth shiner  
 ETYMOLOGY: *melano*, black; *stomus*, mouth, referring to color of floor of mouth

DISTRIBUTION: lower Black Cr. and Chickasawhay R. (MS); Pond Cr., lower Backwater R. and Shoal R. (FL); Minette Cr. (AL)

STATUS: imperiled; E (FL)

**Notropis micropteryx** (Cope 1868); highland shiner  
 ETYMOLOGY: *micro*, small; *pteryx*, fin, referring to fin size  
 DISTRIBUTION: tributaries of the Green, Cumberland

(below Cumberland Falls) and Tennessee R. (KY, TN, AL, VA, NC)

STATUS: common; D (TN, as *N. rubellus*)

SUBGENUS: *Notropis*

**Notropis moralesi** DeBuen 1956; Papaloapan chub (*carpita Tepelneme*)

ETYMOLOGY: in honor of Salvador Morales, who helped collect type

DISTRIBUTION: Río Tepelneme drainage and presumably other tributaries to Río Papaloapan, west of Jicotlán to around Tepelneme (Oaxaca)

STATUS: critically imperiled; T (Méx.)

NOTES: (1) Listed under *Hybopsis* in Miller et al. (2005).

(2) Based on lack of genetic differentiation, considered a junior synonym of *N. boucardi* by Schönhuth et al. (2001).

**Notropis nazas** Meek 1904; Nazas shiner (*carpita de Nazas*)

ETYMOLOGY: after the Río Nazas

DISTRIBUTION: Río Nazas and Aquanaval basins (Zacatas, Durango)

STATUS: apparently secure or common

SUBGENUS: *Alburnops*

**Notropis nubilus** (Forbes 1878); Ozark minnow

ETYMOLOGY: dusky, referring to body color

DISTRIBUTION: upper Red Cedar R. system (WI); Mississippi R. tributaries (MN, IA, WI, IL); Ozark drainages (MO, KS, AR, OK); Boggy Cr. system (OK)

STATUS: common; T (WI); SC (MN); NC (KS)

SUBGENUS: *Hydrophlox*

**Notropis orca** Woolman 1894; phantom shiner (*carpita de El Paso*)

ETYMOLOGY: killer whale; head is said to resemble a dolphin's

DISTRIBUTION: Río Bravo and tributaries from central NM to mouth; two records from Chihuahua and Tamaulipas

STATUS: extinct due to dams, water diversion, pollution and increased salinity; last seen in 1975 (Miller et al., 1989). Harrison and Stiasny (1995) say its former widespread distribution increases the possibility that it's still extant.

SUBGENUS: *Alburnops*

**Notropis ortenburgeri** Hubbs 1927; Kiamichi shiner  
 ETYMOLOGY: in honor of A.I. Ortenburger, Oklahoma Biological Survey, who discovered it

DISTRIBUTION: upper Ouachita, Arkansas, and Red R. drainages (AR, OK)

STATUS: vulnerable; SC (AR, OK)

**Notropis oxyrhynchus** Hubbs & Bonham 1951; sharpnose shiner

ETYMOLOGY: *oxy*, sharp; *rhynchus*, snout

DISTRIBUTION: Brazos R. and tributaries (TX)

STATUS: vulnerable; C (US)

SUBGENUS: *Notropis*

**Notropis ozarcanus** Meek 1891; Ozark shiner

ETYMOLOGY: from the Ozarks

DISTRIBUTION: above Fall Line in White and Black R. systems (MO, AR)

STATUS: vulnerable

SPECIES GROUP: "*volucellus*"

**Notropis percobromus** (Cope 1871); carmine shiner

ETYMOLOGY: unknown, but here's a guess: *perco*, percoid; *bromus*, a forage grass; since Cope's specimens were collected with sunfishes and darters, maybe he thought this small minnow was "percoid forage"?

DISTRIBUTION: Wabash R. drainage to upper Mississippi and middle Missouri R. drainage (IL, WI, MN, IA, ND, SD, KS, MO); Arkansas R. (KS, OK, AR); Ouachita R. (AR); Whitemouth and Birch R. systems (MB)

STATUS: common; T (Can.); CP-III (ND, as *N. rubellus*)

NOTE: Various distinct forms may warrant taxonomic recognition (Wood et al., 2002).

SUBGENUS: *Notropis*

**Notropis perpallidus** Hubbs & Black 1940; peppered shiner

ETYMOLOGY: *per*, all over; *pallid*, pale coloration

DISTRIBUTION: Ouachita and Red R. drainages (AR, OK)

STATUS: vulnerable

SUBGENUS: *Notropis*

**Notropis petersoni** Fowler 1942; coastal shiner

ETYMOLOGY: in honor of C. Bernard Peterson, who collected type

DISTRIBUTION: Atlantic and Gulf Slope drainages from Cape Fear and Waccamaw R. drainages (NC) to Jordan R. (MS); all but southern FL; Mobile delta (AL)

STATUS: common

SPECIES GROUP: "*texasus*"

**Notropis photogenis** (Cope 1865); silver shiner

ETYMOLOGY: *photo*, light; *genis*, cheek

DISTRIBUTION: Lake Erie and Ohio R. drainages from ON and NY to MI, south to extreme northern GA and AL

STATUS: common; E (GA, MI); SC (ON)

SUBGENUS: *Notropis*

**Notropis potteri** Hubbs & Bonham 1951; chub shiner

ETYMOLOGY: in honor of naturalist George E. Potter, who collected type

DISTRIBUTION: Red and Brazos R. drainages (LA, AR, OK, TX); lower Mississippi R. (LA); San Jacinto, Trinity, and Colorado R. (TX)

STATUS: apparently secure

SUBGENUS: *Alburnops*

**Notropis procne** (Cope 1865); swallowtail shiner

ETYMOLOGY: Prokne, from Greek mythology, whom the gods transformed into a swallow

DISTRIBUTION: Lake Ontario drainage (NY); Atlantic drainages from Delaware and Susquehanna R. (NY) to Santee R. (SC)

STATUS: common

NOTE: Jenkins and Burkhead (1994) "arbitrarily" recognize a southern subspecies, *N. procne longiceps* (Cope 1868).

SUBGENUS: *Alburnops*

**Notropis rafinesque** Suttkus 1991; Yazoo shiner

ETYMOLOGY: in honor of naturalist Constantine Samuel Rafinesque (1783-1840)

DISTRIBUTION: Yazoo R. system (MS)

STATUS: apparently secure

SPECIES GROUP: “*dorsalis*”

**Notropis rubellus** (Agassiz 1850); rosyface shiner (*tête rose*) (Fig. 12)

ETYMOLOGY: reddish, referring to color around jaws of males  
DISTRIBUTION: Great Lakes drainages (WI, MI, ON, QC); upper Ohio R. system (IN, OH, PA); northern Atlantic Slope (NY, MD, VA); Cumberland R. above Cumberland Falls (KY)

STATUS: common

NOTE: Formerly one wide-ranging species, now split into four described species (*rubellus*, *micropteryx*, *percobromus*, *suttkusi*) and an undescribed form mentioned below (Wood et al., 2002).

SUBGENUS: *Notropis*

**Notropis cf. rubellus**

DISTRIBUTION: upper New R. (VA)

STATUS: data not available

SUBGENUS: *Notropis*

**Notropis rubricroceus** (Cope 1868); saffron shiner

ETYMOLOGY: *ruber*, red; *croceus*, saffron

DISTRIBUTION: mountainous areas of upper Tennessee R. drainage (VA, NC, TN); headwaters of Santee and Savannah R. (NC); introduced into New R. drainage (VA, NC)

STATUS: apparently secure or common

SUBGENUS: *Hydrophlox*

**Notropis rupestris** Page 1987; bedrock shiner

ETYMOLOGY: living among rocks, referring to its preference for bedrock pools

DISTRIBUTION: lower Caney Fork system of Cumberland R. drainage (TN)

STATUS: imperiled; D (TN)

SUBGENUS: *Alburnops*

**Notropis sabinae** Jordan & Gilbert 1886; Sabine shiner

ETYMOLOGY: of the Sabine R. (TX), type locality

DISTRIBUTION: St. Francis and lower White R. drainages (MO, AR); Little R. system (LA); Gulf Coast drainages (LA, TX)

STATUS: apparently secure; E (MO)

SPECIES GROUP: “*dorsalis*”

**Notropis saladonis** Hubbs & Hubbs 1958; Salado shiner (*carpita del Salado*)

ETYMOLOGY: of the Río Salado

DISTRIBUTION: Río Salado basin (Nuevo León, Coahuila)  
STATUS: E (Méx.), but now believed to be extinct; last seen in 1968 (Contreras-Balderas et al., 2003)

NOTE: At 38 mm maximum known SL (Miller et al., 2005), the smallest minnow in North America.

SUBGENUS: *Alburnops*

**Notropis scabriceps** (Cope 1868); New River shiner

ETYMOLOGY: rough head, referring to abrasive tubercles on heads of breeding males

DISTRIBUTION: New R. drainage (WV, VA, NC)

STATUS: apparently secure

**Notropis scepcticus** (Jordan & Gilbert 1883); sandbar shiner

ETYMOLOGY: observant, referring to its large eye

DISTRIBUTION: Cape Fear R. drainage (NC) to Savannah R. drainage (GA)

STATUS: apparently secure; R (GA)

SUBGENUS: *Notropis*

**Notropis semperasper** Gilbert 1961; roughhead shiner

ETYMOLOGY: always rough, referring to tubercles

DISTRIBUTION: upper James R. drainage (VA)

STATUS: imperiled or vulnerable; SC (VA)

**Notropis shumardi** (Girard 1856); silverband shiner

ETYMOLOGY: in honor of George C. Shumard, naturalist

DISTRIBUTION: Missouri-Mississippi basin from SD to IL, south to Gulf Coast drainages from Sabine Lake (LA-TX border) to Colorado R. (TX)

STATUS: common; T (KS); extirpated (IA, SD)

NOTE: A form from the Red R. drainage (TX, OK) may represent a valid subspecies, *N. s. brazosensis* Hubbs & Bonham 1951; more study is needed (Gilbert, 1998).

**Notropis simus simus** (Cope 1875); bluntnose shiner (*carpita chata*)

ETYMOLOGY: blunt-nosed

DISTRIBUTION: upper Rio Grande from NM to Ciudad Juárez (Chihuahua)

STATUS: extinct due to dams, water diversion, pollution and increased salinity; last seen in 1964 (Miller et al., 1989).

SUBGENUS: *Alburnops*

**Notropis simus pecosensis** Gilbert & Chernoff 1982; Pecos bluntnose shiner

ETYMOLOGY: of the Pecos R.

DISTRIBUTION: Pecos R. (NM)

STATUS: imperiled; T (US)

SUBGENUS: *Alburnops*

**Notropis spectrunculus** (Cope 1868); mirror shiner

ETYMOLOGY: *specca*, speck; *trunculus*, stem, referring to spot at end of caudal peduncle

DISTRIBUTION: upper Tennessee R. drainage (VA, NC, TN, GA)

STATUS: apparently secure; SC (VA)

SPECIES GROUP: “*volucellus*”

**Notropis cf. spectrunculus** (sawfin shiner)

DISTRIBUTION: Tennessee and Cumberland R. drainages of AL, TN, VA, KY

STATUS: apparently secure

NOTE: Common name refers to tubercles on the leading ray of pelvic fins, which form a saw-tooth pattern.

SPECIES GROUP: “*volucellus*”

**Notropis stilbius** Jordan 1877; silverstripe shiner

ETYMOLOGY: shining, referring to lateral silver stripe

DISTRIBUTION: Mobile Bay drainage (GA, AL, MS, TN), especially above Fall Line

STATUS: apparently secure

SUBGENUS: *Notropis*

**Notropis stramineus stramineus** (Girard 1865); sand shiner (*carpita de arenera; méné paille*)

ETYMOLOGY: of straw, referring to straw-like coloration

DISTRIBUTION: southern SK and QC, through Great Lakes drainage and Ohio R. basin; upper Mississippi basin to

eastern IA, southern MO, and southeastern KS; Red R. in eastern OK and TX; Gulf Coast streams from Rio Grande south to Coahuila and Nuevo León

STATUS: common

NOTES: (1) Also known as *N. ludibundus* (Girard 1856) (e.g., Page and Burr, 1991); although that name has priority, it has been suppressed to maintain nomenclatural stability. (2) Hubbs and Lagler (2004) recognize *N. s. deliciosus* (Girard 1856), “western sand shiner,” as a valid subspecies, and call the nominate form “northeastern sand shiner.” But as Gilbert (1998) and others point out, *deliciosus* is a junior synonym of *N. texanus*; I defer recognition pending a taxonomic review.

SUBGENUS: *Alburnops*

***Notropis stramineus missuriensis*** (Cope 1871)

ETYMOLOGY: of Missouri

DISTRIBUTION: Missouri and Arkansas R. systems (SD, NE, KS, MO, OK)

STATUS: common

NOTE: Recognized as a valid subspecies by Tanyolaç (1973), who notes that it intergrades with *N. s. stramineus* in SD and NE, Missouri R. tributaries (KS, MO), Neosho R. (KS), and upper Red R. system (OK).

SUBGENUS: *Alburnops*

***Notropis suttkusi*** Humphries & Cashner 1994; rocky shiner

ETYMOLOGY: in honor of Royal D. Suttkus, noted authority on southeastern fishes and mentor to many ichthyologists

DISTRIBUTION: Red R. tributaries of the Ouachita Mountains (OK, AR)

STATUS: vulnerable

SUBGENUS: *Notropis*

***Notropis telescopus*** (Cope 1868); telescope shiner

ETYMOLOGY: far seeing, referring to large eye

DISTRIBUTION: Cumberland and Tennessee R. drainages (VA, NC, KY, TN, GA, AL); Little, St. Francis, and White R. drainages (MO, OR); introduced into upper New R. drainage (WV, VA)

STATUS: common

SUBGENUS: *Notropis*

***Notropis texanus*** (Girard 1856); weed shiner

ETYMOLOGY: from Texas, type locality

DISTRIBUTION: Great Lakes, Hudson Bay, and Mississippi R. basins from MI, WI, and MN, south to Gulf; Gulf Slope drainages from Suwannee R. (GA, FL) to Nueces R. (TX)

STATUS: common; E (IA, IL); SC (WI); extirpated (MI)

SPECIES GROUP: “*texanus*”

***Notropis topeka*** (Gilbert 1884); Topeka shiner

ETYMOLOGY: Topeka, KS, where type was collected

DISTRIBUTION: Mississippi R. basin from MN and SD, south to MO and KS

STATUS: imperiled; E (US)

NOTE: Also known as *N. tristis* (Girard 1856) (e.g., Page and Burr, 1991); although that name has priority, it has been suppressed to maintain nomenclatural stability.

SUBGENUS: *Alburnops*

***Notropis tropicus*** Hubbs & Miller 1975; pygmy shiner (*carpita tropicalis*)

ETYMOLOGY: referring to its tropical distribution

DISTRIBUTION: Río Pánuco basin (Tamaulipas, San Luis Potosí, Veracruz)

STATUS: apparently secure or common

NOTE: At 41 mm maximum known SL (Miller et al., 2005), the second smallest minnow in North America, just 3 mm larger than *N. saladonis*.

SPECIES GROUP: “*volucellus*”

***Notropis uranoscopus*** Suttkus 1959; skygazer shiner

ETYMOLOGY: *urano*, sky; *scopus*, watcher, referring to upturned eyes

DISTRIBUTION: Cahaba R., Uphapee Cr, and Alabama R. in Dallas Co. and Wilcox Co. (AL)

STATUS: vulnerable

***Notropis volucellus*** (Cope 1865); mimic shiner (*méné pâle*)

ETYMOLOGY: Latin for winged or swift

DISTRIBUTION: St. Lawrence-Great Lakes, Hudson Bay, and Mississippi R. basins from QC and MB south to Gulf; Atlantic Slope drainages from James R. (VA) to Neuse R. (NC); Gulf Slope drainages from Mobile Bay (GA, AL) to Nueces R. (TX); introduced in MA and CT

STATUS: common

NOTE: Likely a complex of cryptic species (Boschung and Mayden, 2004).

SPECIES GROUP: “*volucellus*”

***Notropis wickliffi*** Trautman 1931; channel shiner

ETYMOLOGY: in honor of E. L. Wickliff, one of Trautman’s associates

DISTRIBUTION: deeper waters of the Ohio and Mississippi R. drainages from PA south to LA

STATUS: common

SPECIES GROUP: “*volucellus*”

***Notropis xaenocephalus*** (Jordan 1877); Coosa shiner

ETYMOLOGY: *xaeno*, to scratch; *cephalus*, head, referring to head tubercles of breeding males

DISTRIBUTION: above Fall Line in Coosa and Tallapoosa R. systems (TN, GA, AL)

STATUS: apparently secure

SPECIES GROUP: “*texanus*”

### ***Opsopoeodus* Hay 1881**

(*opsopoeos*, chef or fancy cook, *odus*, tooth, meaning “teeth for dainty feeding,” an allusion to its small, upturned jaws) pugnose minnows

*Opsopoeodus* is one of two North American minnow genera known to cluster its eggs on the undersides of rocks (the other is *Pimephales*). The two subspecies intergrade in northern FL and southern GA (Boschung and Mayden, 2004).

***Opsopoeodus emiliae emiliae*** Hay 1881; pugnose minnow

ETYMOLOGY: in honor of Hay’s wife, Emily

DISTRIBUTION: Edisto R. drainage (SC to FL), across Gulf Slope to Nueces R. drainage (TX); Mississippi R. and Great Lakes basins to KS, MN and ON

STATUS: common; E (MI, OH); SC (Can., IA, WI); extirpated (WV)

***Opsopoeodus emiliae peninsularis*** (Gilbert & Bailey 1972);

peninsula pugnose minnow

ETYMOLOGY: of the peninsula

DISTRIBUTION: peninsular FL

STATUS: common or apparently secure

**Oregonichthys Hubbs 1929**

(fish of Oregon)  
Oregon chubs

**Oregonichthys crameri** (Snyder 1908); Oregon chub  
ETYMOLOGY: in honor of Frank Cramer, who helped collect type  
DISTRIBUTION: Willamette R. valley (OR)  
STATUS: imperiled; E (US)

**Oregonichthys kalawatseti** Markle, Pearsons & Bills 1991;  
Umpqua chub

ETYMOLOGY: "Oregon once had a remarkable diversity of native peoples with more native languages than all of Europe. The Kalawatset, a tidewater Umpqua people . . . were part of this lost human diversity and serve to forewarn of a parallel decline in diversity of Oregon's native freshwater fishes."  
DISTRIBUTION: Umpqua R. (OR)  
STATUS: vulnerable or imperiled; S/V (OR)

**Orthodon Girard 1856**

(*ortho*, straight; *don*, teeth, referring to knifelike teeth)  
blackfishes

Two fossil species have been described: *O. hadrognathus* from Glenns Ferry Formation, Elmore Co., ID (Pliocene), and *O. onkognathus* from Chalk Hills Formation near Adrian, OR (Miocene-Pliocene). I amend the widely used vernacular for the genus from "Sacramento blackfish" to "blackfishes" to include the fossil forms.

**Orthodon microlepidotus** (Ayres 1854); Sacramento blackfish  
ETYMOLOGY: *micro*, small; *lepid*, scales, referring to its fine scales  
DISTRIBUTION: Sacramento-San Joaquin, Pajaro and Salinas R. drainages, and Clear Lake (CA); introduced into southern CA reservoirs and NV  
STATUS: common

**Phenacobius Cope 1867**

(*phenax*, imposter; *bios*, life; i.e., looks like a herbivore and superficially like a sucker, *Catostomus*, but is neither)  
suckermouth minnows

**Phenacobius catostomus** Jordan 1877; riffle minnow  
ETYMOLOGY: *cato*, low; *stoma*, mouth, referring to downward pointing mouth and superficial resemblance to suckers (*Catostomus*)  
DISTRIBUTION: Mobile basin (TN, GA, AL), primarily above Fall Line  
STATUS: apparently secure

**Phenacobius crassilabrum** Minckley & Craddock 1962;  
fatlips minnow

ETYMOLOGY: *crassi*, fat; *labrum*, lip  
DISTRIBUTION: upper Tennessee R. drainage (VA, NC, TN, GA)  
STATUS: vulnerable or apparently secure; E (GA)

**Phenacobius mirabilis** (Girard 1856); suckermouth minnow  
ETYMOLOGY: strange; Girard thought fish belonged to the "most curious genus" of American minnows, *Exoglossum*  
DISTRIBUTION: Mississippi R. basin from OH and WV west to WY, CO, and NM, south to AL and OK; Lake Erie drainage (OH); Sabine Lake (LA, TX); Galveston Bay and Colorado R. (TX); Upper Pecos R. (NM)  
STATUS: common; E (CO, MS); T (NM); SC (WI)

**Phenacobius teretulus** Cope 1867; Kanawha minnow

ETYMOLOGY: terete body form  
DISTRIBUTION: upper Kanawha R. drainage (WV, VA, NC)  
STATUS: vulnerable or apparently secure; SC (NC)

**Phenacobius uranops** Cope 1867; stargazing minnow

ETYMOLOGY: *ura*, sky; *ops*, eye, referring to upward-pointing eyes  
DISTRIBUTION: upper Barren-Green R. drainage (KY); upper Cumberland R. (KY, TN) below Cumberland Falls; upper Tennessee R. drainage (AL, TN, VA)  
STATUS: apparently secure; T (GA)

**Phoxinus Rafinesque 1820**

(*phoxinos*, Greek for minnow)  
redbelly daces

*Phoxinus* is the only North American cyprinid genus that also naturally occurs in Eurasia, where as many as 13 additional species are recognized. Three subgenera are recognized: *Phoxinus* (all the Eurasian species), *Chrosomus* Rafinesque 1820 (*chroma*, color; *soma*, body, referring to overall vibrant coloration), and the monotypic *Pfrille* Jordan 1924 (a German name for *P. phoxinus*, the most common Eurasian species). *P. eos* and *P. neogaeus* produce a nearly all-female (~97%) and viable hybrid where their ranges overlap throughout northern US and southern Canada (Goddard and Schultz, 1993).

**Phoxinus cumberlandensis** Starnes & Starnes 1978; black-side dace

ETYMOLOGY: of the Cumberland R. drainage  
DISTRIBUTION: upper Cumberland R. drainage above Big South Fork (KY, TN)  
STATUS: imperiled; T (US)  
SUBGENUS: *Chrosomus*

**Phoxinus eos** (Cope 1862); northern redbelly dace (Fig. 13)  
ETYMOLOGY: Greek for dawn, probably referring to bright red belly

DISTRIBUTION: Atlantic, Great Lakes, Hudson Bay, upper Mississippi, Missouri, and Peace-Mackenzie R. drainages from NS to NT and BC, south to PA, WI, NE and CO  
STATUS: common; E (CO, MA); T (NE, SD); CP-II (ND); extirpated (PA)  
SUBGENUS: *Chrosomus*

**Phoxinus erythrogaster** (Rafinesque 1820); southern redbelly dace (*ventre rouge du nord*)

ETYMOLOGY: *erythro*, red; *gaster*, belly  
DISTRIBUTION: Great Lakes and Mississippi R. basins from NY to MN, south to Tennessee R. drainage (AL), and White-Arkansas R. drainage (AR, OK); isolated populations in KS, MS, CO, NM  
STATUS: common; E (CO, MI, MS, NM); T (PA)  
NOTE: Represents a complex of undescribed forms (Boschung and Mayden, 2004).  
SUBGENUS: *Chrosomus*

**Phoxinus neogaeus** Cope 1867; finescale dace (*ventre citron*)  
ETYMOLOGY: *neo*, new; *gaia*, world, being a New World version of the Old World *Phoxinus phoxinus*

DISTRIBUTION: Atlantic, Great Lakes, Hudson Bay, upper Mississippi, Missouri, and Peace-Mackenzie R. drainages from NM to YK and BC, south to NY, WI and WY  
STATUS: common; E (SD); T (NE); SC (WY); CP-III (ND)  
SUBGENUS: *Pfrille*

**Phoxinus oreas** (Cope 1868); mountain redbelly dace  
ETYMOLOGY: of the mountains

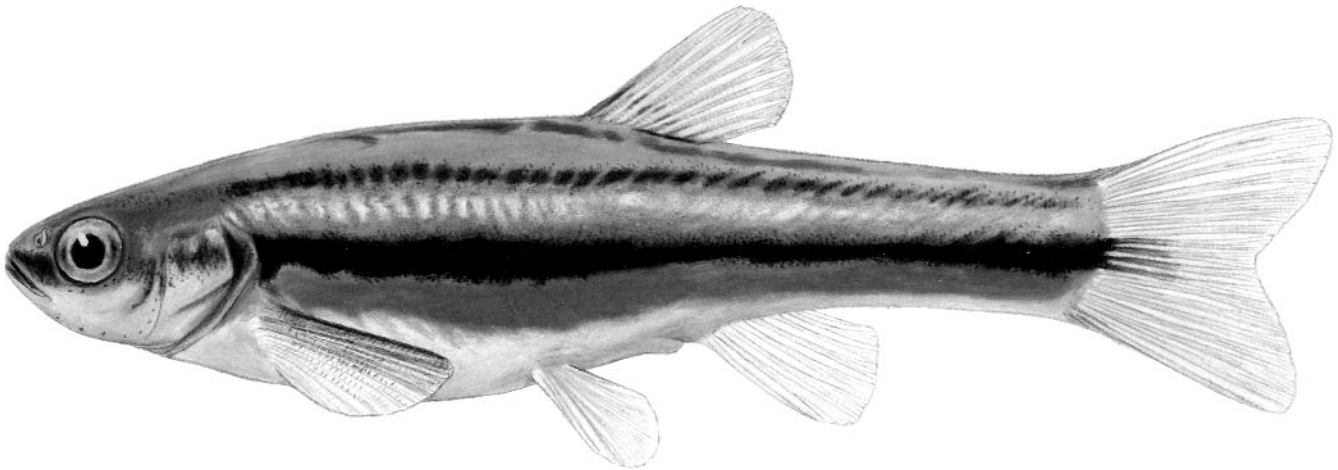


Fig. 3.  
*Phoxinus eos*, northern redbelly dace. Illustration © Emily S. Damstra.

DISTRIBUTION: Atlantic Slope from Shenandoah R. (VA) to Neuse R. drainage (NC); upper New R. drainage (WV, VA, NC); introduced into upper Holston R. system (VA)  
STATUS: common  
SUBGENUS: *Chrosomus*

***Phoxinus saylora*** Skelton 2001; laurel dace  
ETYMOLOGY: in honor of Charles F. Saylor, Tennessee Valley Authority ichthyologist  
DISTRIBUTION: Walden Ridge portion of Cumberland Plateau (TN)  
STATUS: critically imperiled; E (TN)  
NOTE: Clinch R. system (VA) populations may represent an undescribed species (Skelton and Strange, 2003).  
SUBGENUS: *Chrosomus*

***Phoxinus tennesseensis*** Starnes & Jenkins 1988; Tennessee dace  
ETYMOLOGY: of the Tennessee R. drainage  
DISTRIBUTION: upper Tennessee R. drainage (TN) and Holston R. system (VA, NC, SC)  
STATUS: vulnerable; E (VA); D (TN)  
SUBGENUS: *Chrosomus*

***Pimephales Rafinesque 1820***

(*pime*, fat; *phales*, head)  
fathead minnows

*Pimephales* is one of two North American minnow genera known to cluster its eggs on the undersides of rocks (the other is *Opsopoeodus*). The "rosy red" used as a bait and feeder fish is likely a *P. promelas* x *P. vigilax* hybrid (Muller, 2000).

***Pimephales notatus*** (Rafinesque 1820); bluntnose minnow (*ventre-pourri*)  
ETYMOLOGY: marked, probably referring to caudal fin spot  
DISTRIBUTION: Great Lakes, Hudson Bay, and Mississippi R. basins from QC to MB, south to LA; Atlantic Slope from St. Lawrence R. to Roanoke R. (VA); Gulf Slope from Mobile Bay drainage to Mississippi R.  
STATUS: common; E (MI, OH); SC (Can., IA, WI); extirpated (WV)

***Pimephales promelas promelas*** Rafinesque 1820; fathead minnow (*carpita cabezona*; *tête-de-boule*)

ETYMOLOGY: *pro*, in front of; *melas*, black; referring to black head of breeding males  
DISTRIBUTION: much of North America from Great Slave Lake drainage (NT) to Chihuahua, northeast to QC and ME; absent from southeastern US but widely introduced  
STATUS: common

***Pimephales promelas harveyensis*** Hubbs & Lagler 1949; Harvey Lake fathead minnow  
ETYMOLOGY: of Harvey Lake  
DISTRIBUTION: Harvey Lake on Lake Superior's Isle Royale (MI)  
STATUS: "rare" (NPS, 2002)  
NOTE: Treated as valid in Hubbs and Lagler (2004).

***Pimephales tenellus tenellus*** (Girard 1856); eastern slim minnow  
ETYMOLOGY: delicate, probably referring to its slender form  
DISTRIBUTION: Arkansas R. drainage west of the AR-OK border (KS, AR, OK)  
STATUS: apparently secure

***Pimephales tenellus parviceps*** (Hubbs & Black 1947); western slim minnow  
ETYMOLOGY: *parvi*, small; *ceps*, head, referring to its short head  
DISTRIBUTION: Castor, St. Francis, Black, White, lower Arkansas, Ouachita, and Little R. systems (AR, MO)  
STATUS: vulnerable or imperiled  
NOTE: Hybridizes or intergrades with *P. t. tenellus* in the Arkansas R. system (Warren et al., 2000).

***Pimephales vigilax vigilax*** (Baird & Girard 1853); bull-head minnow (*carpita cabeza de toro*)  
ETYMOLOGY: watchful, perhaps referring to vigilance of nest-guarding males  
DISTRIBUTION: upper Red R. (TX, OK), San Jacinto and Brazos R. (TX) southwest across Gulf Slope into lower Río Bravo to lower ríos Salado and San Juan (Coahuila, Nuevo León, Tamaulipas); introduced elsewhere  
STATUS: common

***Pimephales vigilax perspicuus*** (Girard 1856)  
ETYMOLOGY: referring to perspicuous red and yellow colors



DISTRIBUTION: Mississippi R. basin from PA to MN, south to Gulf Slope drainages from Mobile Bay to Rio Grande

STATUS: common; extirpated (PA)

**Plagopterus Cope 1874**

(*plago*, wound; *pterus*, fin, referring to the spinose armature of the dorsal fin) woundfin

**Plagopterus argentissimus** Cope 1874; woundfin  
 ETYMOLOGY: most silvery; Miller and Hubbs (1960) deem it the most silvery of North America's minnows  
 DISTRIBUTION: Virgin and Gila R. systems (UT, NV, AZ); almost certainly once occurred in Méx., but confirmed records are lacking (AFS list)  
 STATUS: critically imperiled; T (US)

**Platygobio Gill 1863**

(*platy*, flat; *gobio*, generic name for similar Eurasian minnow) flathead chubs

**Platygobio gracilis gracilis** (Richardson 1836); northern flathead chub  
 ETYMOLOGY: slender  
 DISTRIBUTION: Mackenzie, Saskatchewan and Lake Winnipeg drainages (YK, NT, MB, SK, AB, BC); Missouri-Mississippi R. basin from AB and MT to LA  
 STATUS: common; E (MO); T (KS); SC (CO, OK); CP-III (ND)

**Platygobio gracilis gulonellus** (Cope 1865); southern flathead chub  
 ETYMOLOGY: small throat, perhaps referring to shorter snout  
 DISTRIBUTION: upper Rio Grande and Pecos R. drainages (NM); Arkansas R. drainage (NM, OK, TX)  
 STATUS: common; SC (OK)

**Pogonichthys Girard 1854**

(*pogon*, beard; *ichthys*, fish, referring to well-developed barbel) splittails

**Pogonichthys ciscooides** Hopkirk 1974; Clear Lake splittail  
 ETYMOLOGY: cisco-like, referring to its similarity to *Coregonus*  
 DISTRIBUTION: Clear Lake and its tributaries (CA)  
 STATUS: extinct due to eutrophication, water diversions, pesticides and exotic fishes; last seen in 1970 (Miller et al., 1989)

**Pogonichthys macrolepidotus** (Ayres 1854); splittail  
 ETYMOLOGY: *macro*, large; *lepid*, scale  
 DISTRIBUTION: Sacramento-San Joaquin R. drainage (CA); now restricted to San Francisco Bay delta and lower Sacramento R.  
 STATUS: imperiled; SC1 (CA)

**Pteronotropis Fowler 1935**

(*ptero*, winged, referring to *Notropis* species with enlarged dorsal fin on breeding males) flagfin shiners

The taxonomy of *Pteronotropis* is in a state of flux. Genetic analyses of *P. hubbsi* and *P. welaka* show that they are not related to other members of the genus (Simons et al., 2000) and may warrant separate generic status. In addition, some authors (e.g., Suttkus and Mettee, 2001; Suttkus et al., 2003) retain *Pteronotropis* as a subgenus of *Notropis*. *P. metallicus* and *P. stonei* were not included on the AFS list pending publication of Suttkus et al. (2003).

**Pteronotropis euryzonus** (Suttkus 1955); broadstripe shiner  
 ETYMOLOGY: *eury*, broad; *zonus*, band, referring to broad lateral band

DISTRIBUTION: lower tributaries of Chattahoochee R. drainage (AL, GA)

STATUS: vulnerable; R (GA)

**Pteronotropis grandipinnis** (Jordan 1877); Apalachee shiner  
 ETYMOLOGY: *grand*, large; *pinnis*, fins, referring to enlarged dorsal fin of breeding males

DISTRIBUTION: Apalachicola R. drainage (GA, FL, AL)  
 STATUS: data not available (Boschung and Mayden, 2004)

**Pteronotropis hubbsi** (Bailey & Robison 1978); bluehead shiner

ETYMOLOGY: in honor of Carl L. Hubbs, *Notropis* expert  
 DISTRIBUTION: Red, Ouachita and Atchafalaya R. systems west of Mississippi R. (TX, OK, AR, LA); Wolf Lake (IL)

STATUS: vulnerable; E (IL) but believed to be extirpated (Ranvestel and Burr, 2004); T (TX); SC (AR, OK)

**Pteronotropis hypselopterus** (Günther 1868); sailfin shiner  
 ETYMOLOGY: *hypselo*, high; *pterus*, wing, referring to high dorsal fin of breeding males

DISTRIBUTION: Gulf Coastal Plain from Mobile Bay drainage (AL) to lower Choctawhatchee R. and St. Andrews Bay drainages (FL)

STATUS: common

**Pteronotropis merlini** (Suttkus & Mettee 2001); orangetail shiner

ETYMOLOGY: in honor of Merlin G. Suttkus, who helped his brother Royal collect fishes

DISTRIBUTION: Choctawhatchee and Pea R. above their confluence (AL)

STATUS: data not available (Boschung and Mayden, 2004)

**Pteronotropis metallicus** (Jordan & Meek 1884); metallic shiner

ETYMOLOGY: referring to metallic dusky lateral band  
 DISTRIBUTION: Lower tributaries of Chattahoochee R. drainage (AL, GA)

STATUS: data not available due to its recent (2003) separation from *P. hypselopterus*

**Pteronotropis signipinnis** (Bailey & Suttkus 1952); flagfin shiner

ETYMOLOGY: *signi*, banner; *pinnis*, fins, referring to striking color of median fins

DISTRIBUTION: Coastal Plain streams from Apalachicola R. drainage (FL) to Pearl R. drainage (MS, AL)

STATUS: common

**Pteronotropis stonei** (Fowler 1921); lowland shiner  
 ETYMOLOGY: in honor of Witmer Stone, who collected type

DISTRIBUTION: Coastal Plain and lower Piedmont from the Pee Dee R. (SC) to Satilla R. (GA)

STATUS: data not available due to its recent (2003) separation from *P. hypselopterus*

**Pteronotropis welaka** (Evermann & Kendall 1898); bluenose shiner

ETYMOLOGY: Native American name for St. Johns R., meaning "chain-of-lakes"

DISTRIBUTION: St. Johns R. drainage (FL); Gulf Coast

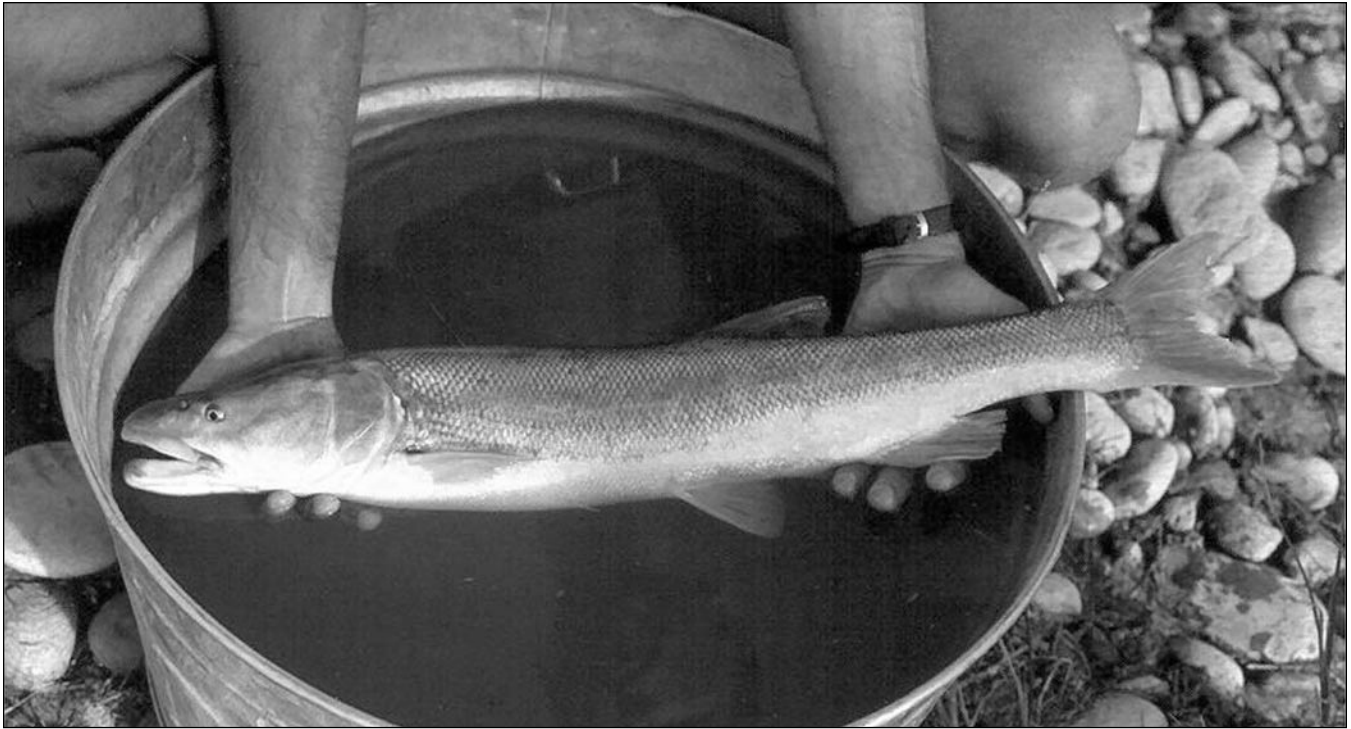


Fig. 4.

*Ptychocheilus lucius*, Colorado pikeminnow. Photo © Glenn Clemmer.

Courtesy: Nevada Natural Heritage Program, State of Nevada, Department of Conservation and Natural Resources.

drainages from Apalachicola R (GA, FL) to Pearl R.  
(MS, LA)

STATUS: vulnerable or apparently secure; R (GA); SC (FL)

***Ptychocheilus Agassiz 1855***

(*ptycho*, folded; *cheilus*, lip; referring to  
the skin fold behind the jaws)  
pikeminnows

Vernacular changed from “squawfishes” because it was deemed offensive; although the precise origin of the term “squaw” is uncertain, many Native American groups believe it refers to female Indians in a derogatory manner (Nelson et al., 1998). Two fossil species have been described: *P. arciferus* from Catherine Cr., Owyhee Co., ID (late Pliocene); and *P. preluccius* from Roberts Mesa, Navajo Co., AZ (Pliocene). *P. lucius* is the largest cyprinid in North America. Historical accounts describe specimens reaching 1.8 m and 45 kg; the largest specimen caught recently was 124 cm and 21.3 kg (McCann, 2000).

***Ptychocheilus grandis*** (Ayres 1854); Sacramento pikeminnow

ETYMOLOGY: large, referring to its length

DISTRIBUTION: Sacramento-San Joaquin, Pajaro-Salinas,  
Russian, Clear Lake, and upper Pit R. drainages (CA)

STATUS: apparently secure or common

***Ptychocheilus lucius*** Girard 1856; Colorado pikeminnow  
(*carpa gigante del Colorado*)

ETYMOLOGY: pike, referring to its pike shape

DISTRIBUTION: Colorado R. basin (AZ, NM, UT, CO, WY,  
Baja California, Sonora)

STATUS: critically imperiled; E (US, Méx.); extirpated (CA,  
NV, WY, Méx.)

***Ptychocheilus oregonensis*** (Richardson 1836); northern  
pikeminnow

ETYMOLOGY: of Oregon

DISTRIBUTION: Pacific drainages from Naas R. (BC) to  
Columbia R. (NV); Harney R. basin (OR); Peace R. sys-  
tem (BC, AB)

STATUS: common

***Ptychocheilus umpqua*** Snyder 1908; Umpqua pikeminnow

ETYMOLOGY: of the Umpqua R. and Umpqua Indian tribe

DISTRIBUTION: Umpqua and Siuslaw R. drainages (OR)

STATUS: apparently secure

NOTE: Siuslaw R. population may warrant separate taxo-  
nomic recognition based on genetic, chromosomal and  
morphological evidence (ODFW, 2005).

***Relictus Hubbs & Miller 1972***

(a relict fish, left behind when pluvial waters dried up)  
relict dace

***Relictus solitarius*** Hubbs & Miller 1972; relict dace

ETYMOLOGY: alone, it being the only inhabitant of any of  
the lake basins in which it occurs

DISTRIBUTION: Lakes Franklin, Gale, Waring, Steptoe and  
Spring basins (NV)

STATUS: imperiled or vulnerable; S (NV)

***Rhinichthys Agassiz 1849***

(*rhino*, snout; *ichthys*, fish, referring to prominent snout)  
riffle daces

*Rhinichthys* is the most widespread genus of minnows in North America. *R. cataractae*, with its five subspecies, is the most widespread species of North American minnow. Several *Rhinichthys* are highly variable with high degrees of endemism and represent complexes of poorly known or undescribed forms. The forms listed here are those that have at least some taxonomic support for recognition; whether their morphological differences are genetically fixed or plastic is



not known. More work is needed to resolve the number and distribution of taxa in this genus.

**Rhinichthys atratulus** (Hermann 1804); eastern blacknose dace (*naseux noir de l'est*)

ETYMOLOGY: dressed in black, referring to stripe on body and around snout

DISTRIBUTION: NS south on Atlantic Slope to Carolinas; Lake Ontario and east through the St. Lawrence R. basin  
STATUS: common

NOTES: (1) Formerly one wide-ranging species, now split to include *R. obtusus* (see below). (2) Hybridizes or intergrades with *R. obtusus* in the James and Roanoke R. drainages (Warren et al., 2000).

**Rhinichthys cataractae cataractae** (Valenciennes 1842); eastern longnose dace (*naseux des rapides*)

ETYMOLOGY: of cataracts, referring to Niagara Falls, type locality

DISTRIBUTION: east of Continental Divide from northern Can. to Appalachians (GA)

STATUS: common

NOTES: (1) Also known as Great Lakes blacknose dace (Hubbs and Lagler, 2004), who restrict its distribution to northern Great Lakes and St. Lawrence drainages and refer to mid-Atlantic population as a separate (presumably undescribed) subspecies. (2) Hybridizes with *Nocomis micropogon* in the Monongahela and Cheat R. (WV) to form the Cheat minnow, *R. bowersi* Goldsborough & Clark 1908. Arguments for recognizing this form are given by Stauffer et al. (1997), who propose the new genus *Pararhinichthys*; arguments against are given by Poly and Sabaj (1998).

**Rhinichthys cataractae dulcis** (Girard 1856); western longnose dace (*carpita rinconera*)

ETYMOLOGY: sweet, referring to Sweetwater R. (WY), type locality

DISTRIBUTION: west of the Continental Divide from Arctic Circle (McKenzie R. drainage) south to UT, CO and NM, into the Río Bravo basin (Chihuahua, Coahuila, Nuevo León)

STATUS: common

NOTE: May be referable only to population from headwaters of North Platte R. in WY (Gilbert, 1998); distribution given here, following Page and Burr (1991), is provisional

**Rhinichthys cataractae smithi** Nichols 1916; Banff long-nose dace

ETYMOLOGY: in honor of Harlan I. Smith, who collected type

DISTRIBUTION: Cave and Basin Hotsprings, Banff National Park (AB)

STATUS: extinct due to exotic fishes and introgression with *R. c. cataractae*; almost completely introgressed and virtually extinct by 1981 (Renaud and McAllister, 1988)

NOTE: Renaud and McAllister (1998) argue for its taxonomic validity; Nelson and Paetz (1992) wonder if morphological differences were the result of the eggs being reared in the warm waters of a hot spring.

**Rhinichthys cataractae ssp.** (Millicoma dace)

DISTRIBUTION: Coos and Millicoma R. systems (OR)

STATUS: imperiled; S/P (OR)

**Rhinichthys cataractae ssp.** (Nooksack dace)

DISTRIBUTION: Nooksack R. system (BC); Puget Sound

and Pacific drainages of Olympic Peninsula (WA)  
STATUS: vulnerable; E (Can.)

**Rhinichthys cobitis** (Girard 1856); loach minnow (*carpita locha*)

ETYMOLOGY: similar to European loaches (*Cobitis*)

DISTRIBUTION: upper Gila R. basin (AZ, NM, Sonora)

STATUS: imperiled; T (US); E, extirpated (Méx.)

NOTE: Name frequently given as *Tiaroga cobitis* (e.g., Miller et al., 2005). Woodman (1992) recommends placement in *Rhinichthys*; Simons and Mayden (1999) recommend placement in *Tiaroga* Girard 1856 until relationships are clarified. I follow the AFS list in going with the latter.

**Rhinichthys deaconi** Miller 1984; Las Vegas dace

ETYMOLOGY: in honor of James Deacon, desert fish ecologist and conservationist

DISTRIBUTION: Las Vegas Creek (NV)

STATUS: extinct due to groundwater pumping; last collected in 1940, but probably survived until about 1955 (Miller et al., 1989).

NOTE: Treated as a subspecies of *R. osculus* in Smith et al. (2002).

**Rhinichthys evermanni** Snyder 1908; Umpqua dace

ETYMOLOGY: in honor of B. W. Evermann, ichthyologist

DISTRIBUTION: Umpqua R. drainage (OR)

STATUS: vulnerable

**Rhinichthys falcatus** (Eigenmann & Eigenmann 1893); leopard dace

ETYMOLOGY: falcate, referring to its sickle-shaped fins

DISTRIBUTION: Fraser and Columbia R. drainages (BC, WA, OR, ID)

STATUS: apparently secure; C (WA)

**Rhinichthys obtusus** Agassiz 1854; western blacknose dace

ETYMOLOGY: blunt, more so than in *R. atratulus*

DISTRIBUTION: west of the Appalachians from NY to the eastern Great Plains (SD, NE), north to central MB and south to central GA and AL; Great Lakes drainage east to eastern Lake Erie

STATUS: common; NC (KS)

NOTES: (1) Formerly a subspecies of *R. atratulus*; recognition as a full species follows the AFS list. (2) *R. meleagris* Agassiz 1854, treated as a valid species in Smith (1986), and as a provisionally valid subspecies in Boschung and Mayden (2004), is a junior synonym. (3) Also known as orangeside dace (Etnier and Starnes, 2001) and southern blacknose dace (Boschung and Mayden, 2004).

**Rhinichthys osculus osculus** (Girard 1856); speckled dace (*carpita pinta*)

ETYMOLOGY: kissing, referring to small mouth

DISTRIBUTION: *sensu lato*: Kettle R. system (BC) through

WA and CA, and Colorado R. system; *sensu stricto*:

southern Gila R. system (AZ, Sonora)

STATUS: common; E, extirpated (Méx.)

NOTES: (1) There are no recognized subspecies in many parts of its range; these forms may be referred to by the binomial *R. osculus*; the trinomial *R. o. osculus* refers to the Gila R. populations mentioned above. (2) Keith Creek (BC) population may represent a unique subspecies that is isolated from the rest of the species by a waterfall (Peden and Hughes, 1984).

***Rhinichthys osculus adobe*** (Jordan & Evermann 1891);

Sevier River speckled dace

ETYMOLOGY: Spanish for clay, referring to coloration

DISTRIBUTION: Sevier River basin (UT)

STATUS: data not available

***Rhinichthys osculus carringtonii*** (Cope 1872); Bonneville speckled dace

ETYMOLOGY: in honor of Campbell Carrington, government survey naturalist

DISTRIBUTION: Bonneville basin, Harney-Malheur basin, Snake River, and some Columbia basin populations (OR, NV, UT, ID, WY)

STATUS: data not available

NOTES: (1) Proper spelling of name includes extra “y” (Eschmeyer, 1998). (2) Also known as Snake River speckled dace (La Rivers, 1962) and, incorrectly, as Pacific speckled dace (Kimsey and Fisk, 1964); see *R. o.* spp. (Sacramento speckled dace), below.

***Rhinichthys osculus klamathensis*** (Evermann & Meek 1898); Klamath speckled dace

ETYMOLOGY: of the Klamath R. drainage

DISTRIBUTION: Klamath R. drainage (CA, OR); introduced into Rogue R. (OR)

STATUS: common per Moyle (2002)

***Rhinichthys osculus lariversi*** Lugaski 1972; Big Smoky Valley speckled dace

ETYMOLOGY: in honor of Ira La Rivers, Nevada zoologist

DISTRIBUTION: Big Smoky Valley (Nye Co., NV)

STATUS: critically imperiled; S (NV)

***Rhinichthys osculus lethoporus*** Hubbs & Miller 1972; Independence Valley speckled daceETYMOLOGY: *letho*, forget; *porus*, pore, referring to extreme reduction of lateral line

DISTRIBUTION: Warm Springs, Independence Valley (NV)

STATUS: critically imperiled; E (US)

***Rhinichthys osculus moapae*** Williams 1978; Moapa River speckled dace

ETYMOLOGY: of the Moapa R.

DISTRIBUTION: Moapa R. (NV)

STATUS: critically imperiled; S (NV)

***Rhinichthys osculus nevadensis*** Gilbert 1893; Ash Meadows speckled dace

ETYMOLOGY: of Nevada

DISTRIBUTION: Ash Meadows (NV); Armagosa R. Canyon (CA)

STATUS: critically imperiled; E (US)

NOTES: (1) Armagosa population may represent a distinct subspecies; its placement within *R. o. nevadensis* follows Moyle (2002). (2) Also known as Nevada speckled dace (Kimsey and Fisk, 1964) and Armagosa speckled dace (Smith et al., 2002).

***Rhinichthys osculus nubilus*** (Girard 1856); blackside speckled dace

ETYMOLOGY: dusky, referring to body color

DISTRIBUTION: Yaquina, Alsea and Siuslaw R. (OR)

STATUS: data not available

NOTE: ODFW (2005) lists two vernaculars, blackside speckled dace and coastal speckled dace; I select the former since it matches the Latin epithet.

***Rhinichthys osculus oligophorus*** Hubbs & Miller 1972;

Clover Valley speckled dace

ETYMOLOGY: *olig*, few; *porus*, pore, referring to reduced lateral line

DISTRIBUTION: three springs in Clover Valley (NV)

STATUS: critically imperiled; E (US)

***Rhinichthys osculus reliquus*** Hubbs & Miller 1972;

Grass Valley speckled dace

ETYMOLOGY: relict, referring to its being the only surviving native fish in Grass Valley (until 1938, that is)

DISTRIBUTION: single spring-fed creek in Grass Valley (NV)

STATUS: extinct due to predation from stocked trout and water diversions; collected in 1938 and never seen again (Miller et al., 1989)

***Rhinichthys osculus robustus*** (Rutter 1903); Lahontan speckled dace

ETYMOLOGY: stout, referring to its heavier body

DISTRIBUTION: Lahontan drainage (NV, CA)

STATUS: common

NOTE: Also known as western speckled dace (Smith et al., 2002).

***Rhinichthys osculus thermalis*** (Hubbs & Kuhne 1937);

Kendall Warm Springs speckled dace

ETYMOLOGY: Latin for hot spring

DISTRIBUTION: Kendall Warm Springs and its outflow in the upper Green R. system (WY)

STATUS: critically imperiled; E (US)

***Rhinichthys osculus velifer*** Gilbert 1893; Pahrnatag speckled daceETYMOLOGY: *velum*, sail; *fero*, bearing, referring to dorsal fin

DISTRIBUTION: Ash Springs in Pahrnatag Valley (NV)

STATUS: critically imperiled

NOTE: Also known as Pahrnatag terete dace (Smith et al., 2002).

***Rhinichthys osculus yarrowi*** Jordan & Evermann 1891;

Green River speckled dace

ETYMOLOGY: in honor of Henry C. Yarrow, naturalist

DISTRIBUTION: Green R. drainage (WY, CO, UT)

STATUS: data not available

NOTE: Also known as Colorado River speckled dace (e.g., TNHC, 1998).

***Rhinichthys osculus* ssp.** (Diamond Valley speckled dace)

DISTRIBUTION: Diamond Valley (NV)

STATUS: possibly extinct

***Rhinichthys osculus* ssp.** (Foskett speckled dace)

DISTRIBUTION: two small springs on the west side of Coleman Lake (Lake Co., OR)

STATUS: critically imperiled; T (US)

***Rhinichthys osculus* ssp.** (Long Valley speckled dace)

DISTRIBUTION: Whitmore Spring and Little Alkali Lake in Long Valley (Owens R. drainage, CA)

STATUS: critically imperiled per Moyle (2002)

***Rhinichthys osculus* ssp.** (Meadow Valley speckled dace)

DISTRIBUTION: Meadow Valley Wash (NV)

STATUS: imperiled

***Rhinichthys osculus* ssp.** (Monitor Valley speckled dace)

DISTRIBUTION: Monitor Valley (NV)

STATUS: critically imperiled

**Rhinichthys osculus ssp.** (Oasis Valley speckled dace)

DISTRIBUTION: Oasis Valley (NV)

STATUS: critically imperiled; P (NV)

**Rhinichthys osculus ssp.** (Owens speckled dace)

DISTRIBUTION: Owens R. drainage (CA)

STATUS: imperiled or critically imperiled; SC1 (CA)

**Rhinichthys osculus ssp.** (Sacramento speckled dace)

DISTRIBUTION: Sacramento and western San Joaquin R.

drainages; Pit R.; Monterey Bay tributaries (CA)

STATUS: common per Moyle (2002)

NOTES: (1) The name *R. o. carringtonii* has incorrectly been applied to this form (Moyle, 2002). (2) The Pit and Monterey populations are provisionally assigned to this form pending more study (Moyle, 2002).

**Rhinichthys osculus ssp.** (Santa Ana speckled dace)

DISTRIBUTION: headwaters of the San Gabriel, Los Angeles, and Santa Ana R. (CA)

STATUS: critically imperiled; SC1 (CA)

**Rhinichthys osculus ssp.** (White River speckled dace)

DISTRIBUTION: White R. (NV)

STATUS: vulnerable or imperiled

**Rhinichthys umatilla** (Gilbert & Evermann 1894); Umatilla dace

ETYMOLOGY: after Umatilla, OR, type locality

DISTRIBUTION: Columbia R. drainage (BC, ID, WA, OR)

STATUS: apparently secure

NOTES: (1) Reportedly of hybrid origin, with *R. osculus* and *R. falcatus* being the parent species and giving rise to genomically separated populations, including some in which one of the parent species does not occur; multiple origins of hybrid populations may require further taxonomic splitting (Cannings and Ptolemy, 1998). (2) Listed as a subspecies of *R. osculus* in ODFW (2005).

## EXOTIC

**Rhodeus Agassiz 1832**

(Greek for rose, referring to rosy color of breeding males)  
bitterlings

The bitterling, famous for its unique breeding behavior involving the deposition of eggs into freshwater mussels, is native to Europe from the Seine and other rivers of France eastward to Asia Minor and northern China. Its one extant American population dates from a probable aquarium release in the 1930s. Its American numbers are declining, apparently as a result of a declining freshwater mussel population brought about by water pollution.

**Rhodeus sericeus** (Pallas 1776); bitterling

ETYMOLOGY: silken, perhaps referring to soft, lustrous color of breeding males

DISTRIBUTION: Bronx R. (NY)

**Richardsonius Girard 1856**

(in honor of surgeon-naturalist John Richardson,  
who first described the redbase shiner)  
redside shiners

One fossil species is known: *R. durranti* from Glens Ferry Formation, Owuhee Co., ID (Pliocene). ODFW (2005) recognizes "coastal redbase shiner," *R. siustavoi* (Evermann & Meek 1898), and "hotspring redbase shiner," *R. thermophilus* Evermann & Cockerell 1909, stating that both were "lumped with *R. balteatus* without evidence."

**Richardsonius balteatus balteatus** (Richardson 1836); Columbia redbase shiner

ETYMOLOGY: girdled, possibly referring to "broad scarlet-red stripe" on breeding males

DISTRIBUTION: Pacific Slope drainages from BC to OR, ID, WY; Peace R. (Arctic basin) system (AB, BC)

STATUS: common

**Richardsonius balteatus hydrophlox** (Cope 1872); Bonneville redbase shinerETYMOLOGY: *hydro*, water; *phlox*, flame, referring to brilliant breeding colors

DISTRIBUTION: Bonneville basin (ID, WY, UT)

STATUS: common

**Richardsonius egregius** (Girard 1858); Lahontan redbase

ETYMOLOGY: exceptional, being one of the most colorful fishes of the American West

DISTRIBUTION: Lahontan and other interior basins and lakes (NV, CA, OR); Sacramento R. system (CA) population possibly introduced

STATUS: common; S/P (OR)

## EXOTIC

**Scardinius Bonaparte 1837**

(after Scardus [now Shar], a mountain range that formed  
the boundary between ancient Moesia and Macedonia)  
rudds

Native to western Europe to the Caspian and Aral Sea basins, *S. erythrophthalmus* first entered North America, possibly as food and game, in the late 1800s or early 1900s. Additional introductions occurred in the late 1960s or early 1970s for culture as bait. Bait bucket releases and escapes from aquaculture facilities and farm ponds have facilitated its spread.

**Scardinius erythrophthalmus** (Linnaeus 1758); ruddETYMOLOGY: *erythros*, red; *ophthalmus*, eye, referring to red fleck on iris

DISTRIBUTION: US: Lake Cobbecontee (ME); Roeliff-Jansen Kill drainage (NY); lower Charles R., Cambridge (MA); one or more lakes in NE; Pactola Reservoir, Sheraton and Newall lakes (SD). Can.: St. Lawrence River basin (ON).

**Semotilus Rafinesque 1820**

("banner, spotted," referring to spot  
on dorsal fin of *S. atromaculatus*)  
creek chubs

**Semotilus atromaculatus** (Mitchill 1818); creek chub (*mulet à cornes*)ETYMOLOGY: *atro*, black; *maculatus*, spotted, referring to prominent spot on dorsalDISTRIBUTION: most of eastern US and southeastern Can., west to MB, MT, WY, CO, OK, TX; upper Pecos and Canadian R. systems (NM); widely introduced elsewhere  
STATUS: common**Semotilus corporalis** (Mitchill 1817); fallfish (*ouitouche*)

ETYMOLOGY: of the body, perhaps referring to its chubby physique

DISTRIBUTION: Atlantic Slope from NM to James R. drainage (VA); Hudson Bay, Lake Ontario and St. Lawrence drainages (QC, ON, NY)

STATUS: common

**Semotilus lumbee** Snelson & Suttkus 1978; sandhills chub

ETYMOLOGY: referring to Lumbee Indians of Lumber R., Robeson Co. (NC)

DISTRIBUTION: Carolina Sandhills of NC and SC  
STATUS: vulnerable; SC (NC)

***Semotilus thoreauianus*** Jordan 1877; Dixie chub  
ETYMOLOGY: in honor of Henry David Thoreau, philosopher,  
poet, minnow lover

DISTRIBUTION: headwater streams of the Tombigbee R.  
system, Mobile basin, and Ochlockonee R. basin (AL,  
GA, FL)

STATUS: apparently secure

***Siphateles Cope 1833***

(*siphon*, tube; *ateles*, imperfect, referring to incomplete  
lateral line on young specimens)  
tui chubs

Formerly a subgenus of *Gila*, the recognition of *Siphateles* as a full genus follows  
Mayden and Simons (1998) and unpublished evidence presented by Harris and  
Markle (2001). Only one species, the polytypic *S. bicolor*, is listed at this time;  
two other species, *Gila alvordensis* and *G. boraxobius*, will likely be assigned to  
*Siphateles* pending a formal taxonomic revision. The distribution and number of  
taxa referable to *S. bicolor* is under investigation. Harris and Markle (2001) recom-  
mend recognition of nine allopatrically distributed species: *S. bicolor*, *S.*  
*columbianus*, *S. euryomas*, *S. isolatus*, *S. mohavensis*, *S. newarkensis*, *S. obesus*, *S.*  
*thalassinus*, and an unnamed species from Silver Lake, OR. I defer listing these  
taxa as full species pending formal publication. Instead, I list all forms that have  
at least some taxonomic support for subspecific recognition. Smith et al. (2002)  
list several unnamed fossil forms. Tui is from the Paiute Indian name for *S. bicolor*,  
“tui-pagwi,” with “pagwi” presumably being the Paiute word for minnow.

***Siphateles bicolor bicolor*** (Girard 1856); Klamath tui chub

ETYMOLOGY: two-colored, referring to darker coloration  
above, white or silvery below

DISTRIBUTION: Klamath R. system (CA, OR)

STATUS: apparently secure

***Siphateles bicolor columbianus*** (Snyder 1908); Columbia  
tui chub

ETYMOLOGY: of the Columbia R., which at one time was  
connected to the Harney basin

DISTRIBUTION: Harney basin (OR)

STATUS: data not available

***Siphateles bicolor euchilus*** Hubbs & Miller 1972; Fish  
Creek Springs tui chub

ETYMOLOGY: *eu*, good or well; *chila*, lip, referring to large  
mouth and fleshy lips

DISTRIBUTION: Fish Creek Springs (Fish Creek Valley, NV)

STATUS: critically imperiled; P (NV)

***Siphateles bicolor euryomas*** Williams & Bond 1981;  
Sheldon tui chub

ETYMOLOGY: *eury*, wide; *soma*, body, referring to its wide  
head and body

DISTRIBUTION: Piute Cr. (Lake Co., OR); Fish Cr. system  
(NV)

STATUS: critically imperiled; P (NV); S/C (OR)

***Siphateles bicolor isolatus*** Hubbs & Miller 1972;

Independence Valley tui chub

ETYMOLOGY: isolated, referring to its being confined to  
Warm Springs

DISTRIBUTION: Warm Springs Marsh (Elko Co., NV)

STATUS: critically imperiled; E (NV)

NOTE: Reported as extinct for many years (e.g., Miller et al.,  
1989) but rediscovered in 1994 (Rissler et al., 2001).

***Siphateles bicolor mohavensis*** (Snyder 1918); Mohave tui  
chub

ETYMOLOGY: of the Mojave R.

DISTRIBUTION: Mojave R. basin (CA)

STATUS: critically imperiled; E (US)

***Siphateles bicolor newarkensis*** Hubbs & Miller 1972;  
Newark Valley tui chub

ETYMOLOGY: of Newark Valley and pluvial Lake Newark

DISTRIBUTION: Diamond Park, Moores Ranch, and Warm  
Springs (Newark Valley, NV)

STATUS: critically imperiled; S (NV)

***Siphateles bicolor obesus*** (Girard 1856); Lahontan Creek  
tui chub

ETYMOLOGY: plump, referring to chubby form of some  
specimens

DISTRIBUTION: streams and springs in the Lake Lahontan  
basin (CA, NV)

STATUS: apparently secure

***Siphateles bicolor oregonensis*** (Snyder 1908); Oregon  
Lakes tui chub

ETYMOLOGY: of Oregon

DISTRIBUTION: Abert Lake basin (OR)

STATUS: imperiled; S/V (OR)

NOTE: Also known as XL Spring tui chub (TNHC, 1998).

***Siphateles bicolor pectinifer*** (Snyder 1917); Lahontan  
Lake tui chub

ETYMOLOGY: comb-like, referring to gill rakers, which are  
finer and more numerous than in *S. b. obesa*

DISTRIBUTION: lakes in the Lake Lahontan basin (CA, NV)

STATUS: vulnerable; SC3 (CA)

***Siphateles bicolor snyderi*** (Miller 1973); Owens tui chub

ETYMOLOGY: in honor of John Otterbein Snyder, pioneer  
ichthyologist of the American West

DISTRIBUTION: isolated springs in Owens R. gorge below  
Crowley Reservoir (CA)

STATUS: critically imperiled; E (US)

NOTE: Introgressed with introduced *S. b. obesus* or extirpated  
throughout most of its range; only 3 natural and 4 trans-  
plant populations persist (Leunda et al., 2005).

***Siphateles bicolor thalassinus*** (Cope 1883); Goose Lake  
tui chub

ETYMOLOGY: sea-green, referring to its “light, translucent  
green” when “fresh”

DISTRIBUTION: Goose Lake basin (OR, CA); Thomas Cr.  
basin (OR)

STATUS: imperiled; SC1 (CA); S/P (OR)

***Siphateles bicolor vaccaceps*** Bills & Bond 1980; Cowhead  
Lake tui chub

ETYMOLOGY: *vacca*, cow; *ceps*, head, referring to locality

DISTRIBUTION: Cowhead Slough and connected ditches of  
now-dry Cowhead Lake (Medoc Co., CA)

STATUS: critically imperiled; proposed E (US); SC1 (CA)

***Siphateles bicolor ssp.*** (Big Smoky Valley tui chub)

DISTRIBUTION: Big Smoky Valley (Nye Co., NV)

STATUS: critically imperiled; S (NV)

NOTE: Population from Charnock Springs often listed as a  
separate taxon (e.g., TNHC, 1998).

***Siphateles bicolor ssp.*** (Catlow tui chub)

DISTRIBUTION: Catlow Valley (Lake Co., Harney Co., OR)

STATUS: critically imperiled; S/V (OR)



***Siphateles bicolor* ssp.** (Dixie Valley tui chub)

DISTRIBUTION: Dixie Valley (Churchill Co., NV)  
 STATUS: critically imperiled

***Siphateles bicolor* ssp.** (Duckwater Creek tui chub)

DISTRIBUTION: Duckwater Creek, Railroad Valley (NV)  
 STATUS: critically imperiled

***Siphateles bicolor* ssp.** (Eagle Lake tui chub)

DISTRIBUTION: Eagle Lake (CA)  
 STATUS: imperiled

NOTE: Regarded as a hybrid between *S. b. obesa* and *S. b. pectinifer*; however, the isolated nature of Eagle Lake makes it highly likely that this population is a distinct subspecies (Moyle, 2002).

***Siphateles bicolor* ssp.** (Fish Lake Valley tui chub)

DISTRIBUTION: Fish Lake Valley (Esmerelda Co., NV)  
 STATUS: critically imperiled

***Siphateles bicolor* ssp.** (High Rock Spring tui chub)

DISTRIBUTION: High Rock Spring (Lassen Co., CA)  
 STATUS: extinct in 1989 due to predation from stocked Mozambique tilapia (Moyle, 2002)

***Siphateles bicolor* ssp.** (Hot Creek Valley tui chub)

DISTRIBUTION: Twin Springs, Hot Creek Valley (NV)  
 STATUS: critically imperiled

***Siphateles bicolor* ssp.** (Hutton Spring tui chub)

DISTRIBUTION: small spring, northwest side of Alkali Lake (Lake Co., OR)  
 STATUS: critically imperiled; T (US)

***Siphateles bicolor* ssp.** (Little Fish Lake Valley tui chub)

DISTRIBUTION: Little Fish Lake Valley (NV)  
 STATUS: critically imperiled

***Siphateles bicolor* ssp.** (Pit River tui chub)

DISTRIBUTION: Pit River basin (CA)  
 STATUS: "uncertain" (Moyle, 2002)

***Siphateles bicolor* ssp.** (Railroad Valley tui chub)

DISTRIBUTION: Green, Blue Eagle, Bull Creek, Butterfield, and Kate springs, all Railroad Valley (NV)  
 STATUS: critically imperiled

NOTE: Separate spring populations may be regarded as distinct taxa.

***Siphateles bicolor* ssp.** (Silver lake tui chub)

DISTRIBUTION: Bridge Cr., Buck Cr., Thompson Reservoir, and Silver Cr. (Lake Co., OR)  
 STATUS: data not available

***Siphateles bicolor* ssp.** (Summer Basin tui chub)

DISTRIBUTION: spring-fed pond, southwest side of Summer Lake (OR)  
 STATUS: critically imperiled

***Siphateles bicolor* ssp.** (toikona tui chub)

DISTRIBUTION: a spring at Cabin Bar Ranch on the shore of Owens Lake (CA); refuge population at Mule Spring  
 STATUS: critically imperiled based on Chen and May (2003)  
 NOTES: (1) Warrants recognition as a subspecies separate from *S. b. snyderi* (Chen and May, 2003). (2) Name comes from *toikonanishi*, "standing in the cattails," a Paiute Indian name for tui chubs.

***Siphateles bicolor* ssp.** (Warner Basin tui chub)

DISTRIBUTION: Warner basin (Lake Co., OR)  
 STATUS: imperiled

***Stypodon Garman 1881***

(*stypo*, stump; *don*, tooth, referring to snail-grinding teeth)  
 stumptooth minnow

***Stypodon signifer*** Garman 1881; stumptooth minnow (carpa de Parras)

ETYMOLOGY: *signum*, mark; *fero*, bearer, perhaps referring to prominent lateral band

DISTRIBUTION: Río Parras basin (Coahuila)  
 STATUS: E (Méx.); extinct in 1930 due to pollution and water diversion (Miller et al., 1989)

## EXOTIC

***Tinca Cuvier 1816***

(Latin for tench)  
 tench

*T. tinca* is native to most of Europe, including the British Isles, and parts of western Asia. It was imported to America, along with *Cyprinus carpio*, by the U.S. Fish Commission in 1877, apparently for use as a food and sport fish.

***Tinca tinca*** (Linnaeus 1758); tench

ETYMOLOGY: see above

DISTRIBUTION: US: established populations in CA, CO, ID, WA, and possibly MD and NY; Can.: Christina, Tugulnuit and Osoyoos lakes (BC)

***Yuriria Jordan & Evermann 1896***

(from Lake Yuriria in Guanajuato, where *Y. alta* abounds)

***Yuriria alta*** (Jordan 1880); Jalisco chub (*carpa blanca*)

ETYMOLOGY: high, referring to elevated back

DISTRIBUTION: Río Lerma basin (excluding Lago de Chapala), including upper Río Ameca and Río Grande de Santiago and its northern tributaries below El Salto de Juanacatlán (Aguascalientes, Guanajuato, Jalisco, México, Michoacan, Zacatecas)

STATUS: common or apparently secure

***Yuriria chapalae*** (Jordan & Snyder 1899); Chapala chub (*carpa de Chapala*)

ETYMOLOGY: of Chapala

DISTRIBUTION: Lago de Chapala and Río Grande de Santiago above falls, where it is sympatric with *Y. alta*

STATUS: common or apparently secure

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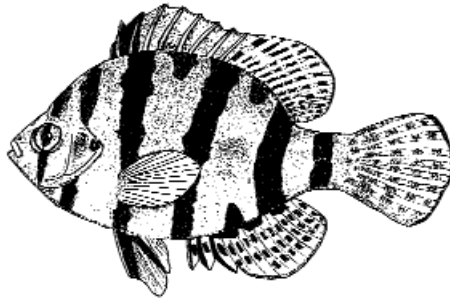
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Mission: dedicated to the appreciation, study and conservation of the continent's native fishes.

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The North American Native Fishes Association is a not-for-profit, tax-exempt corporation that serves to bring together professional and amateur aquarists, anglers, fisheries biologists, ichthyologists, fish and wildlife officials, educators, and naturalists who share an interest in the conservation, study, and captive husbandry of North America's native fishes. A portion of each member's dues helps support two important initiatives: NANFA's Conservation Research Grant Program, which funds research on the biology and conservation of North America's most neglected and imperiled fishes; and the Gerald C. Corcoran Education Grant, which funds educational outreach programs aimed at children and the general public.

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*Dionda serena*, Nueces roundnose minnow, an inhabitant of spring-fed streams in the Nueces and Frio River drainages in the Edwards Plateau region of Texas.  
Photograph © Garold Sneegas.

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