

415

Cypriniformes II (Loaches and relatives)

Class Actinopterygii

Order Cypriniformes

Number of families 4 of loaches and relatives

Photo: The tiger loach (*Botia dario*) is originally from India and Bangladesh. (Photo by Mark Smith/Photo Researchers, Inc. Reproduced by permission.)



Evolution and systematics

Fossils of this order date as far back as the Oligocene (about 38 million years ago), and have been found in North America, Europe, and Asia.

Cypriniformes are in the superorder Ostariophysii, together with the Gonorhynchiformes, Characiformes, Siluriformes, and Gymnotiformes. This superorder is characterized by having a Webberian apparatus, i.e., the first four or five vertebrae, called ossicles, are modified and connect the inner ear with the swim bladder. Because of this, they can hear very well, which is an advantage in murky fresh waters. This may explain why this group has been so successful inland, while being absent from the marine environment. Another distinguishing characteristic of fishes in this superorder is the production of an alarm substance, a chemical released by their skin when damaged, which helps to warn conspecifics of possible danger.

There have been a number of classifications for the order Cypriniformes. The most commonly employed is that of Nelson (1994), in which the order is divided into two superfamilies. The first superfamily, Cyprinoidea, includes one family and eight subfamilies (Cyprininae, Gobioninae, Rasborinae [=Danioninae], Acheilognathinae, Leuciscinae, Cultinae, Alburninae, and Psilorhynchinae), and has a total of 210 genera and about 2,010 species. The second superfamily, Cobitoidea, includes four families: 1) Gyrinocheilidae, or algae eaters; 2) Catostomidae, or suckers, which includes three subfamilies (Ictiobinae, Cycleptinae, and Catostominae), 3) Cobitidae, or loaches, which includes two subfamilies (Cobitinae and Botiinae); and 4) Balitoridae (=Homalopteridae), or river loaches, which includes two subfamilies (Nemacheilinae and Balitorinae). The superfamily Cobitoidea has a total of about 70 genera and 690 subspecies. This is considered the most primitive within this order. The Cobitoidea represent the scope of this chapter.

Physical characteristics

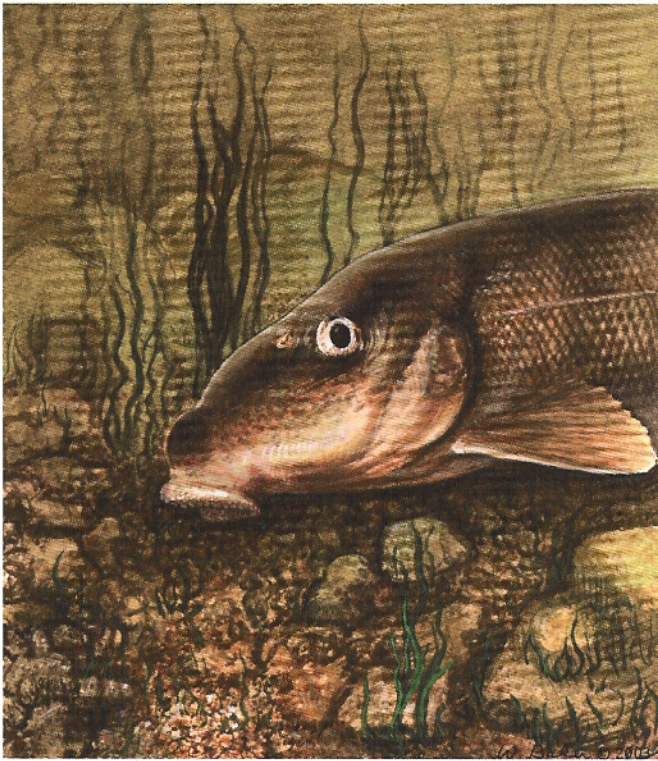
From a morphological viewpoint, the Cobitoidea is not a very well-defined group (it could be said that it was largely put in place to differentiate all noncyprinid families of the Cypriniformes). Therefore, it is difficult to generalize in terms of major morphological characters. For example, the algae eaters, fishes in the family Gyrinocheilidae, lack pharyngeal teeth, while the number of teeth in fishes in other families is extremely variable, reflecting a great deal of ecological adaptations to different types of food. Sometimes the lateral line is complete, in other families it is incomplete or even absent. The algae eaters are further characterized by having a ventral mouth that has been modified for feeding on algae on hard substrate and by having inhalant and exhalant gill openings. The suckers (Catostomidae) have one row of 16 or more pharyngeal teeth and have four sets of chromosomes, a condition called tetraploidy. The loaches (Cobitidae) have an elongated body with a subterminal mouth and three to six pairs of barbels; the river loaches (Balitoridae) have three or more pairs of barbels near the mouth.

Distribution

Suckers occur in China, northeastern Siberia, and North America. The remaining families in this group are native to Eurasia and Africa, with some species having been introduced in other parts of the world. The algae eaters are found in parts of Southeast Asia and Borneo; loaches are found in Europe, Asia, and in Morocco (North Africa), with one species introduced in North America; the river loaches are found throughout most of Eurasia.

Habitat

Like the rest of the Cypriniformes, the families included in this chapter contain all freshwater fishes. They are mostly benthic, feeding and reproducing at or near the bottoms of



A sucker feeds on the sea floor. (Illustration by Wendy Baker)

rivers and streams, especially those that are medium to small in size. Several species are troglomorphic, i.e., blind and depigmented, and living in caves.

Behavior

Fishes in this group can be effective swimmers because of their need to adapt to fast-moving currents. Some members of the family Catostomidae use their ventral mouths to ad-



Clown loaches (*Botia macracanthus*) originate from Borneo and Sumatra, where they live in moving waters. (Photo by M. H. Sharp/Photo Researchers, Inc. Reproduced by permission.)

here to the bottom and thus avoid being swept away by currents. These fishes usually have a reduced swim bladder that prevents them from rising to the surface of the water (their least preferred habitat).

Feeding ecology and diet

There is a great variety of feeding habits and items in this group. Some fishes eat algae, others, such as those in the *Chasmistes* spp. in the family Catostomidae, are midwater planktivores, and most feed on aquatic insect larvae, worms, crustaceans, and detritus from the bottom. A large proportion of species in several families, including the Cyprinidae, have a mouth that is essentially ventral, which allows them to feed from the bottom. Others, such as some representatives of the family Balitoridae, have barbels around the mouth that help them locate food. These barbels can be so sensitive that they can sense an imminent thunderstorm. Members of this superfamily are preyed upon by other fishes and some aquatic reptiles and mammals.

Reproductive biology

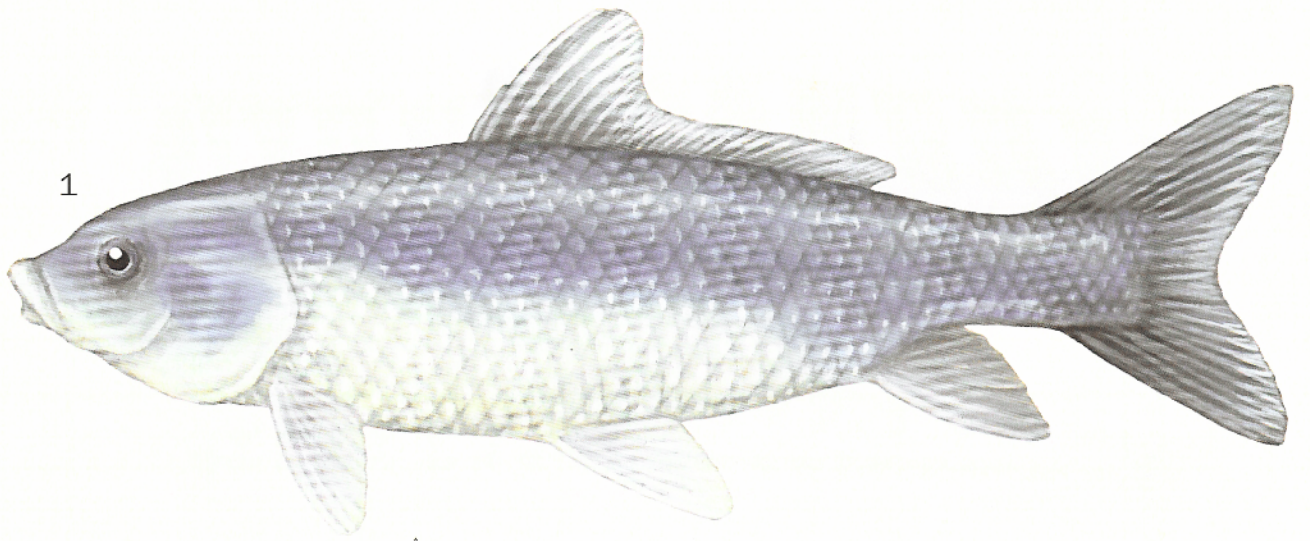
Some species, such as the longnose sucker (*Catostomus catostomus*), can engage in rather extensive upstream migrations prior to spawning. In many cases, two males compete for a single female, but not much is known about the genetic role played by each male. Some fishes, like the members of the family Catostomidae, are tetraploid, having four sets of chromosomes instead of the usual two, but only two sets are functional. The evolutionary meaning of this is unknown. Hybridization occurs among species in all the families, raising the question of the validity of the systematics.

Conservation status

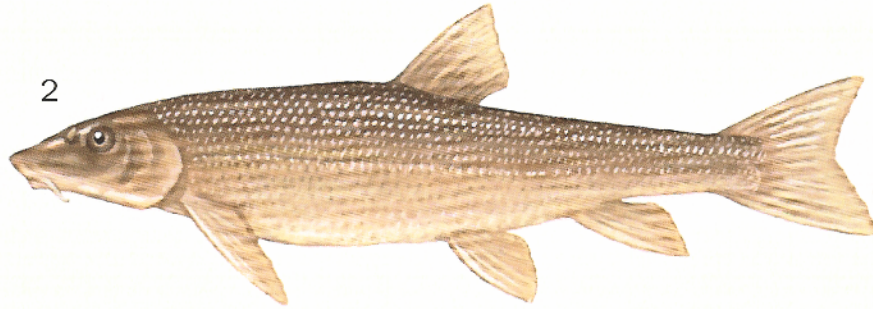
The IUCN Red List includes 65 species from these four families: two (*Chasmistes muriei* and *Moxostoma lacerum*) are Extinct; two are Critically Endangered; six are Endangered; 27 are Vulnerable; seven are Lower Risk/Near Threatened; one is Lower Risk/Conservation Dependent; and 20 are Data Deficient. Many of these species have a very restricted range and live in small streams that are very sensitive to pollution.

Significance to humans

Many species, particularly those in the Gyrinocheilidae, are commonly sold in pet shops because they are believed to be useful in keeping aquaria clean of algae. Others, such as the hillstream loaches of the family Balitoridae, are important as ecological indicators because of their sensibility to minor environmental change. A few species can occasionally be seen in fish markets, but since most are small, they are rarely of any commercial value. Others, such as those living in caves, are of scientific value because of their interest from an evolutionary standpoint.



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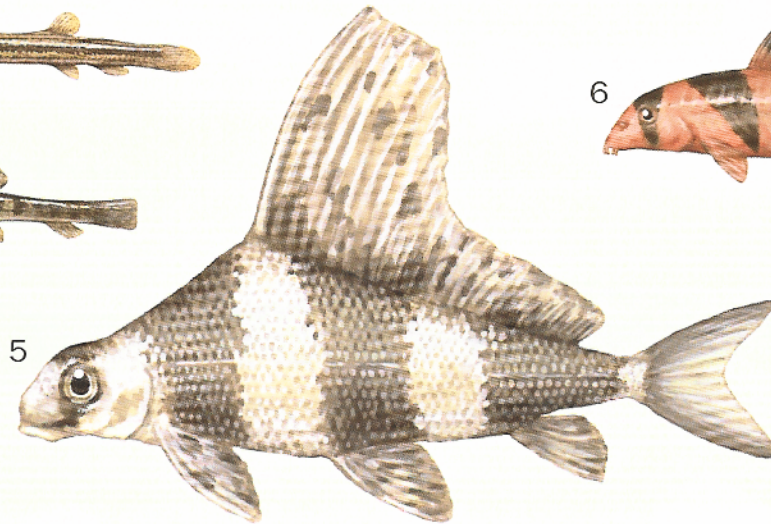
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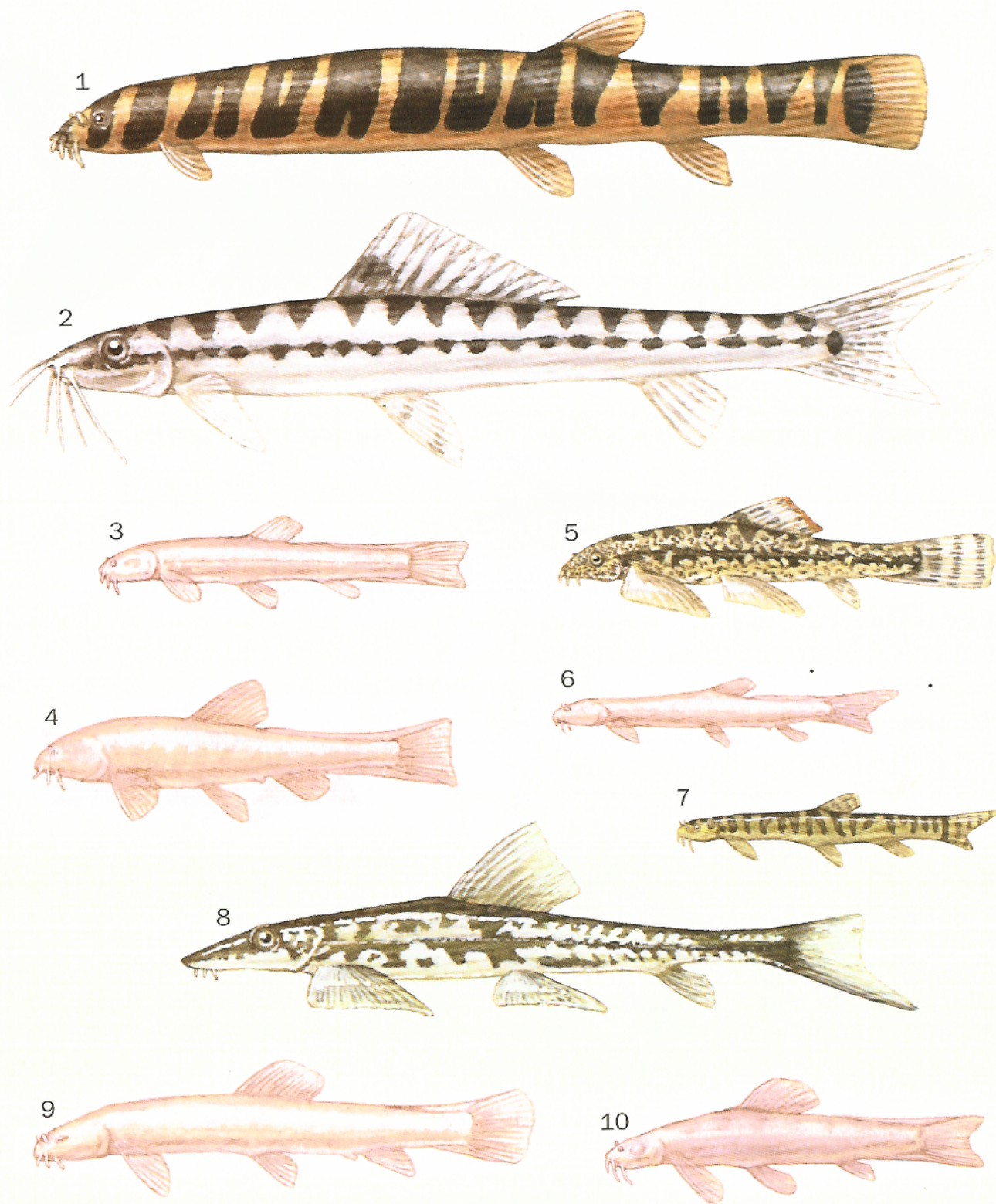
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1. Bigmouth buffalo (*Ictiobus cyprinellus*); 2. Longnose sucker (*Catostomus catostomus*); 3. Weatherfish (*Misgurnus fossilis*); 4. Stone loach (*Barbatula barbatula*); 5. Chinese sucker (*Myxocyprinus asiaticus*); 6. Clown loach (*Botia macracanthus*); 7. Horseface loach (*Acanthopsis choiro-rhynchus*); 8. Chinese algae eater (*Gyrinocheilus aymonieri*); 9. Spotted algae eater (*Gyrinocheilus pennocki*). (Illustration by Bruce Worden)



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1. Coolie loach (*Pangio kuhlii*); 2. Arrow loach (*Nemacheilus masyae*); 3. Cavefish of Nam Lang (*Schistura oedipus*); 4. Kughitang blind loach (*Nemacheilus starostini*); 5. Chinese hillstream loach (*Pseudogastromyzon cheni*); 6. Blind loach (*Paracobitis smithi*); 7. Hillstream loach (*Nemacheilus evezardi*); 8. Anamia (*Annamia normani*); 9. Blind cave loach of Xiaao (*Protocobitis typhlops*); 10. Siju blind cavefish (*Schistura sijuensis*). (Illustration by Bruce Worden)

Species accounts

Anamia

Anamia normani

FAMILY
Balitoridae

TAXONOMY
Parbomaloptera normani Hora, 1931, Annam.

OTHER COMMON NAMES
Laotian: Pa tit hin.

PHYSICAL CHARACTERISTICS
Standard length 3.07 in (7.8 cm). Characterized by a flat belly, a small, horseshoe shaped mouth located far from the tip of the snout. Only one simple ray in the pelvic and pectoral fins.

DISTRIBUTION
Mekong River basin.

HABITAT
Steeped streams and rivers, on shallow and fast waters, prefers rocky bottoms.

BEHAVIOR
Swims slowly over the bottom.

FEEDING ECOLOGY AND DIET
Feeds on small benthic animals, primarily insect larvae.

REPRODUCTIVE BIOLOGY
No information available.

CONSERVATION STATUS
Not listed by the IUCN.

SIGNIFICANCE TO HUMANS
None known. ♦

Stone loach

Barbatula barbatula

FAMILY
Balitoridae

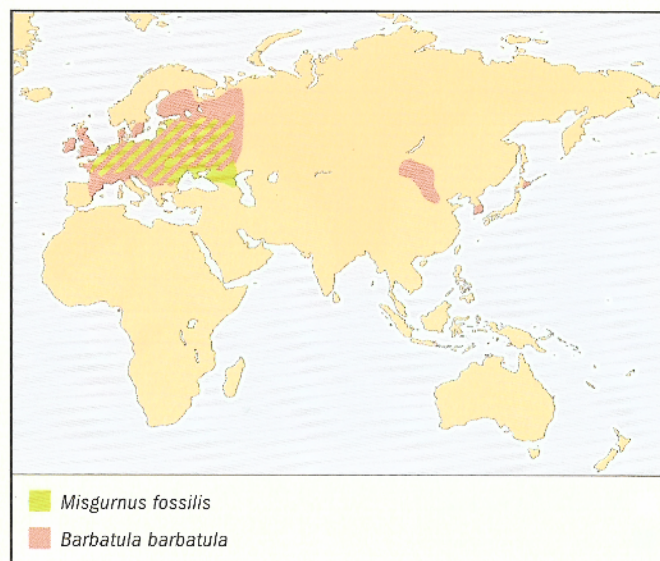
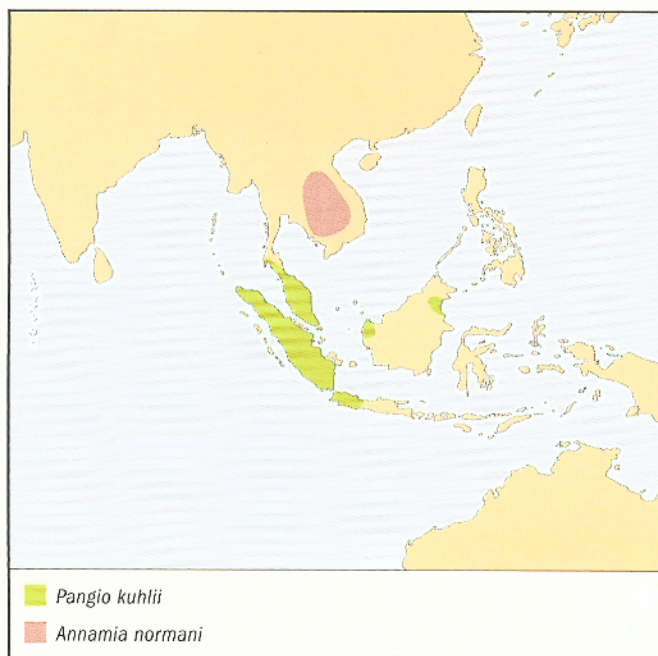
TAXONOMY
Cobitis barbatula Linnaeus, 1758, Europe. May be the same species as *Nemacheilus toni*, the Siberian stone loach.

OTHER COMMON NAMES
English: European stone loach, groundling; French: Loche franche; German: Schmerle; Spanish: Gobio de río.

PHYSICAL CHARACTERISTICS
Maximum total length 8.3 in (21 cm); maximum weight 0.4 lb (200 g). Fishes in this species have an elongated, slender body that is somewhat flattened in the first half but laterally compressed in the second half. The species is characterized by three pairs of mouth barbels and no erectile spine below the eye.

DISTRIBUTION
Very common from Ireland (where it was introduced) throughout Europe (except in the Italian and Iberian peninsula), and Asia to China. There are reports of this species from Siberia and Japan, but the taxonomy of the specimens collected there is not clear.

HABITAT
Shallow, fast-flowing creeks with gravel bottoms, as well as in shallow areas of clear lakes.



BEHAVIOR

Usually swims near the bottom. Mostly active at dusk and night, shelters underneath rocks or burrows in sand.

FEEDING ECOLOGY AND DIET

Feeds on small crustaceans, insect larvae, and benthic invertebrates. They are fed upon by birds.

REPRODUCTIVE BIOLOGY

Breeds from April to June, spawning more than once. Deposits eggs among rocks and aquatic plants.

CONSERVATION STATUS

Not listed by the IUCN.

SIGNIFICANCE TO HUMANS

These fishes are sensitive to pollution and low oxygen levels, so their presence in a river can be taken as an indication of good water quality. ♦

Hillstream loach

Nemacheilus evezardi

FAMILY

Balitoridae

TAXONOMY

Nemacheilus evezardi Day, 1872, "A cave in India." Kottelat (1990) changed the generic status of this species to *Indoreonectes*, but without explanation. Singh and Yazdani (1993) gave it the name of *Oreonectes evezardi*.

OTHER COMMON NAMES

None known.

PHYSICAL CHARACTERISTICS

Maximum total length 2 in (3.8 cm). Characterized by small eyes and minute scales. They are mostly depigmented.

DISTRIBUTION

Kotumsar Cave (18°52'09"N, 81°56'05"E) of the Bastar District, Madhya Pradesh State, India.

HABITAT

The cave in which they occur is at 1,837 ft (560 m) above sea level and is subject to frequent flooding during the monsoon season.

BEHAVIOR

They have a low oxygen consumption, but despite living in a cave, they still exhibit circadian (day-to-day) and circannual (year-to-year) rhythmicity, which suggests that the cave population recently (in terms of evolution) invaded the cave environment.

FEEDING ECOLOGY AND DIET

Little is known.

REPRODUCTIVE BIOLOGY

Little is known.

CONSERVATION STATUS

Not listed by IUCN.

SIGNIFICANCE TO HUMANS

Of scientific value because of its adaptation to its cave environment. ♦

Arrow loach

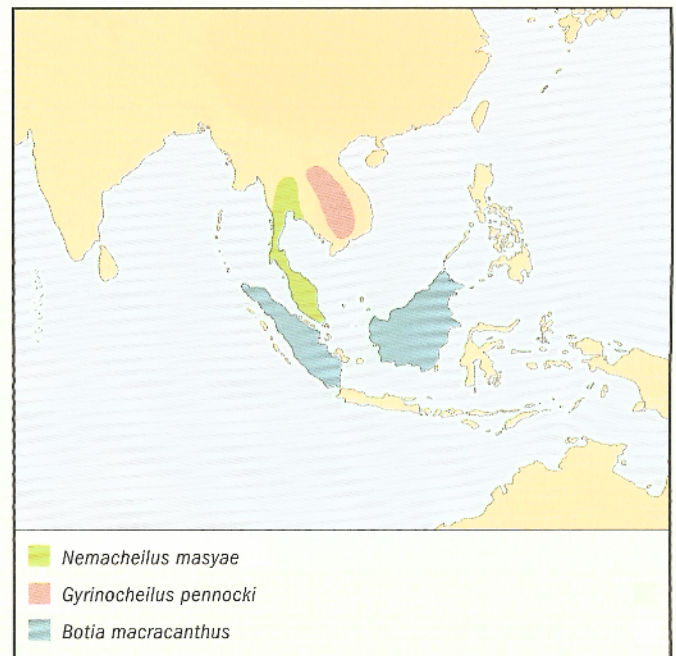
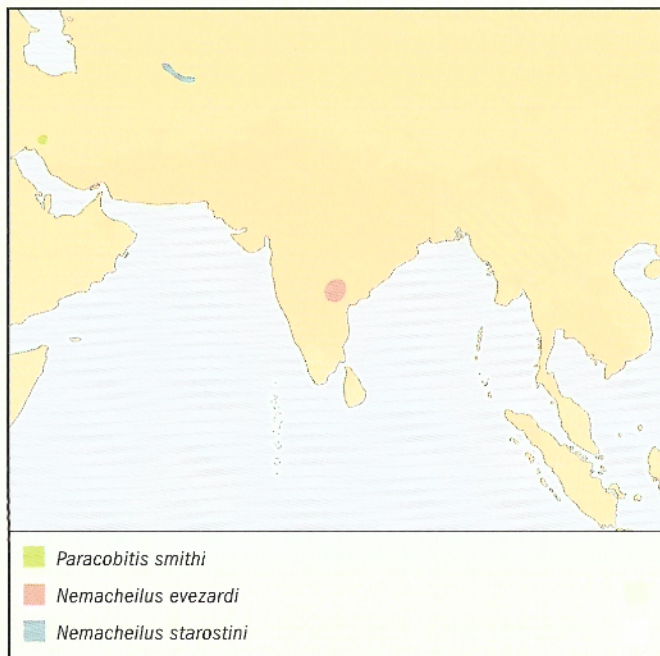
Nemacheilus masyae

FAMILY

Balitoridae

TAXONOMY

Nemacheilus masyae Smith, 1933, Siam.



OTHER COMMON NAMES

None known.

PHYSICAL CHARACTERISTICS

Standard length 5.31 in (13.5 cm). What separates this species from others in the Nemacheilinae in Indochina is the color pattern, which consists of a light background with 14–18 dark blotches along the sides and 12–17 dark saddles along the back. They also have a black spot at the posterior extremity of the lateral line and a black spot on the anterior dorsal rays at about one-fourth of ray length. They have a slender body with the eyes situated more on the top of the head.

DISTRIBUTION

Western Malaysia, Peninsular Thailand, and the Meklong basin, as well as in parts of the Mae Nam Chao Phraya basin.

HABITAT

Mostly forest streams with clear or more turbid waters, in depths of 6.6 ft (2 m) or less in rivers and streams with a moderate current and muddy to sandy bottoms.

BEHAVIOR

Adults can be aggressive toward conspecifics.

FEEDING ECOLOGY AND DIET

Feeds on insect larvae and aquatic invertebrates.

REPRODUCTIVE BIOLOGY

No information is available.

CONSERVATION STATUS

Not listed by the IUCN.

SIGNIFICANCE TO HUMANS

Found in the aquarium trade. ♦

Kughitang blind loach

Nemacheilus starostini

FAMILY

Balitoridae

TAXONOMY

Noemacheilus (Froglobitis) starostini Parin, 1983, Turkmenistan. Weber (2000) gave it the name of *Paracobitis starostini*.

OTHER COMMON NAMES

English: Starostin's loach.

PHYSICAL CHARACTERISTICS

Has no externally visible eyes, no pigmentation, no scales, and no swim bladder, all convergent features among many hypogean species.

DISTRIBUTION

Several sinkholes (ca. 37°55' N, 66°23' E) of the Khrebet Kughitang (mountains), in the Chardzhou province of the Republic of Turkmenistan.

HABITAT

Found in a sinkhole about 62 ft (19 m) deep with a seasonally fluctuating water level. A large portion of the pool is exposed to light part of the time. The pool is connected to an underwater stream. Up to 40 fish can be observed at a time in the pool.

BEHAVIOR

No information is available.

FEEDING ECOLOGY AND DIET

Feeds on insect larvae and small benthic crustaceans.

REPRODUCTIVE BIOLOGY

Other than reproducing via external fertilization, nothing else is known.

CONSERVATION STATUS

Classified as Vulnerable by the IUCN because of the susceptibility of their narrow habitat to underground pollution.

SIGNIFICANCE TO HUMANS

Of scientific interest because of their adaptation to the hypogean environment. ♦

Blind loach

Paracobitis smithi

FAMILY

Balitoridae

TAXONOMY

Noemacheilus smithi Greenwood, 1976, Iran.

OTHER COMMON NAMES

None known.

PHYSICAL CHARACTERISTICS

Lacks externally visible eyes, pigmentation, and scales.

DISTRIBUTION

Found exclusively in a natural well in an oasis at Kaaje-Ru (33°05' N, 48°36' E), in Ab-i-Serum Valley near Tang-e-haft railway station, at the Zagros Mountains, in the Lorestan (Khorramabad) province of Iran.

HABITAT

Occurs in a well-like water resurgence that seems to be the result of a collapsed subterranean system. This is probably part of a larger, but complex, narrow, and inaccessible network of underground waters. This species is syntopic with *Iranocypris typhlops*, that is, it shares the same habitat within the same geographical range.

BEHAVIOR

No information is available.

FEEDING ECOLOGY AND DIET

Most likely feeds on small invertebrates and/or detritus.

REPRODUCTIVE BIOLOGY

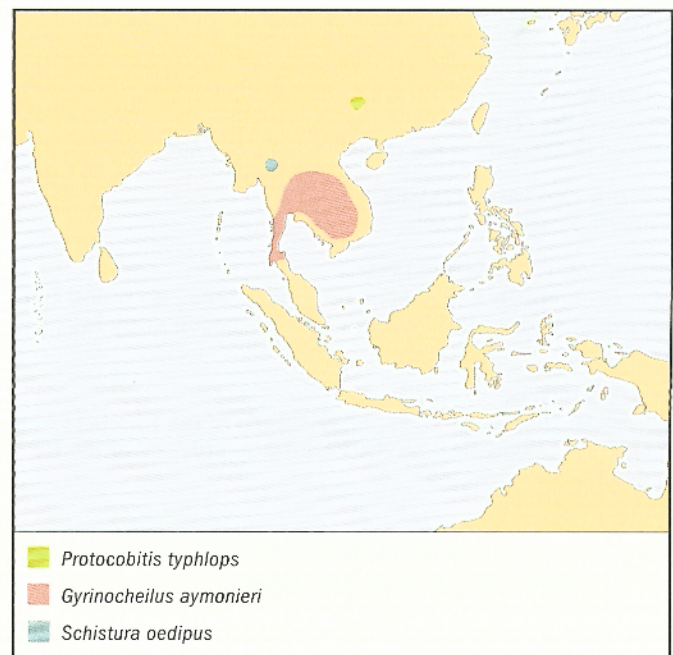
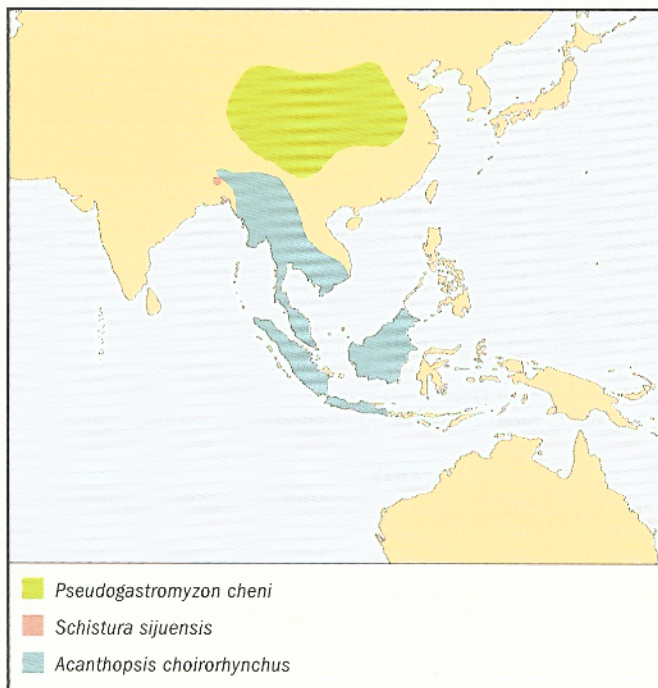
Nothing is known about its reproductive habits except that fertilization is external.

CONSERVATION STATUS

Not listed by IUCN.

SIGNIFICANCE TO HUMANS

None known. ♦

Chinese hillstream loach*Pseudogastromyzon cheni***FAMILY**
Balitoridae**TAXONOMY**
Pseudogastromyzon cheni Liang, 1942, Fukien, China.**OTHER COMMON NAMES**
German: Chinesischer Flossensauger.**PHYSICAL CHARACTERISTICS**
Maximum total length at least 2 in (5 cm). They have fins as modified suckers, and their mouths are below their bodies, like saltwater rays.**DISTRIBUTION**
Inland waters of China.**HABITAT**
Benthic; prefers waters of 68–77°F (20–25°C).**BEHAVIOR**
Not aggressive, and thus do not defend well against other fishes trying to take away territory.**FEEDING ECOLOGY AND DIET**
Feeds on a variety of sources, including algae, plants, and invertebrates.**REPRODUCTIVE BIOLOGY**
Breeds in pits built under rocks.**CONSERVATION STATUS**
Not listed by the IUCN.**SIGNIFICANCE TO HUMANS**
Common in the aquarium trade. ♦**Cavefish of Nam Lang***Schistura oedipus***FAMILY**
Balitoridae**TAXONOMY**
Nemacheilus oedipus Kottelat, 1988, Tham Nam Lang, Thailand.**OTHER COMMON NAMES**
None known.**PHYSICAL CHARACTERISTICS**
Standard length 2.2 in (5.4 cm). It is microphthalmic, almost totally depigmented, and has embedded scales. Also characterized by a forked caudal fin.**DISTRIBUTION**
Thailand, in the Mae Hong Son Province in the Tham (cave) Nam Lang (19°31' N, 98°09' E).**HABITAT**
Has been found in an outflow of a cave with a stream that is probably part of Nam Lang, part of a karstic endoreic basin, usually on muddy bottoms.**BEHAVIOR**
Scotophilic (moves away from light) and may have some residual "biological clock" (day/night rhythmicity).**FEEDING ECOLOGY AND DIET**
Feeds on insects and roundworms.**REPRODUCTIVE BIOLOGY**
Scatters eggs on the bottom.**CONSERVATION STATUS**
Listed as Vulnerable by the IUCN.**SIGNIFICANCE TO HUMANS**
No commercial value; of scientific interest. ♦

Siju blind cavefish

Schistura sijuensis

FAMILY

Balitoridae

TAXONOMY

Noemacheilus sijuensis Menon, 1987, Siju Cave, India.

Noemacheilus Mesonoemacheilus sijuensis appears on the plate caption of the original description. Pillai and Yazdani (1977) refer to this fish as *Nemacheilus multifasciatus*. However, Talwar and Jhingran (1991) consider these two separate species, and when referring to *N. multifasciatus* make no mention of it being found in a cave.

OTHER COMMON NAMES

None known.

PHYSICAL CHARACTERISTICS

Standard length 2 in (5.1 cm). The first cave individuals belonging to this species may have been reported by Hora (1924), who described three specimens as "*Nemacheilus*" sp. from the "Siju Cave, Assam, India." One specimen caught within 115 ft (35 m) of the cave mouth showed coloration comparable to the epigeal (not cave-restricted) forms. Two others netted about 1,800 ft (550 m) from the entrance of the cave were paler in color, had reduced scales and reduced eyes.

DISTRIBUTION

Siju Cave (ca. 25°25' N, 90°30' E), Garo Hills, Meghalaya, India.

HABITAT

Found only in caves.

BEHAVIOR

No information is available.

FEEDING ECOLOGY AND DIET

Nothing known.

REPRODUCTIVE BIOLOGY

No information is available.

CONSERVATION STATUS

Listed as Vulnerable by the IUCN.

SIGNIFICANCE TO HUMANS

Of scientific interest because of their adaptations to the cave environment. ♦

Longnose sucker

Catostomus catostomus

FAMILY

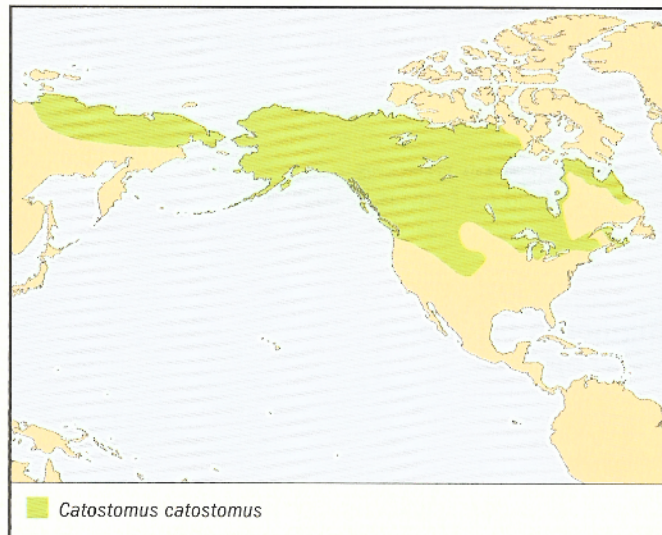
Catostomidae

TAXONOMY

Cyprinus catostomus Forster, 1773, tributaries of the Hudson's Bay.

OTHER COMMON NAMES

English: Black sucker, red-sided sucker; French: Meunier rouge; German: Maulbiden-Saugdöbel.



PHYSICAL CHARACTERISTICS

Maximum total length 21.2 in (64 cm); maximum weight 7.3 lb (3.3 kg). This species is characterized by a ventrally placed sucking mouth with thick papillose lips. The fishes also have an inconspicuous but complete lateral line, short gill rakers, and slightly rounded caudal tips. The color varies with age and reproductive state: young fishes are usually dark gray with small black spots; adults may be reddish brown, dark brassy green or black above, paler on the lower sides, with the ventral parts white. Breeding males are usually dark above with a brilliant reddish stripe along each side, and show prominent tubercles on the rays of the anal and caudal fins and also on the head. Breeding females are greenish gold to copper, with a less brilliant red stripe.

DISTRIBUTION

North America throughout most of Canada and Alaska; and in the drainages of the Delaware River (New York State, United States), Columbia River, upper Monongahela River (Maryland and West Virginia, United States), and Missouri River (south to Nebraska and Colorado, United States), and in the Great Lakes basin and the Arctic basin of Siberia (Russia).

HABITAT

Clear, cold, deep waters of lakes and tributary streams; occasionally brackish water in the Arctic.

BEHAVIOR

Moves from lakes into inlet streams or from slow, deep pools into shallow, gravel-bottomed portions of streams to spawn.

FEEDING ECOLOGY AND DIET

Feeds on benthic invertebrates. Young are preyed upon by other fishes and fish-eating birds; adults in spawning streams are eaten by otters, bears, ospreys, and eagles.

REPRODUCTIVE BIOLOGY

Spawning takes place during daytime over coarse gravel bottoms. Males, which do not engage in nest-building behavior, stay close to the bottom of fast-moving streams. Females keep themselves to the banks of still water from which they swim to the areas where the males are. Females are soon escorted by up to five (but usually two) males to the center of the stream. Males then engage in a ritual that lasts up to six seconds, either clasping the females with their pelvic fins or vibrating with

their anal fins against her. Egg deposition occurs at this time. After this, males and females return to their place of origin.

CONSERVATION STATUS

Not listed by the IUCN.

SIGNIFICANCE TO HUMANS

Utilized as food for humans or dogs. ♦

Bigmouth buffalo

Ictiobus cyprinellus

FAMILY

Catostomidae

TAXONOMY

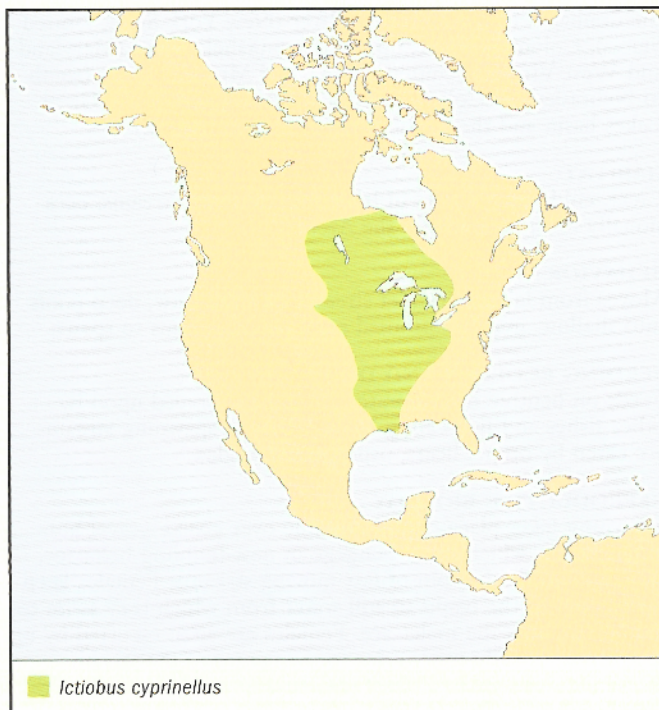
Sclerognathus cyprinella Valenciennes, 1844, near New Orleans, Lake Pontchartrain, Louisiana, United States.

OTHER COMMON NAMES

English: Bigmouth buffalo, bullhead buffalo, common buffalo; Romanian: Buffalo cu gura mare.

PHYSICAL CHARACTERISTICS

Maximum total length 48.4 in (123 cm); maximum weight 70.3 lb (31.9 kg). Characterized by a large, robust, and somewhat deep body. They are dorsally lighter in color on the rest of the body. Other characteristics include an anteriorly curved ventral line, a bluntly rounded snout, and a terminate mouth with thin lips, of which the lower one is striated. They have a total of approximately 165 short pharyngeal teeth. The dorsal fin is sickle shaped, with between 24 and 32 rays; the anal fin rays have between 8 and 10 rays. The lateral line is complete, with between 34 and 39 scales.

**DISTRIBUTION**

North America: in the Hudson Bay (Nelson River drainage), lower Great Lakes, and Mississippi River basins from Ontario to Saskatchewan in Canada, and from Montana south to Louisiana in the United States. Successfully introduced to California, Arizona, Virginia, and North Carolina, in the United States; and in Uzbekistan, the Jordan River, Romania, and Cuba.

HABITAT

Occurs in a great variety of habitats, including still waters such as ponds, pools, impoundments, and floodplain lakes with shallow waters, as well as large rivers, main channels, and backwaters of small to large rivers.

BEHAVIOR

Usually forms schools.

FEEDING ECOLOGY AND DIET

Benthic feeders that feed on copepods, caldocerans, bottom plants, aquatic insects, mollusks, small fishes, and fish eggs. They are preyed upon by northern pikes, black bullheads, and walleyes.

REPRODUCTIVE BIOLOGY

Usually mature at age three. Spawning often occurs between April and May (at least in North America), when water temperatures rise suddenly and remain between 60.1 and 65°F (15.6 and 18.3°C). Adults migrate into the shallow bays and inlets of lakes or into sloughs and flooded marshes of large rivers. At times they swim over the top of one another as they move through small, shallow inlets into the sloughs. They can spawn at any time of the day over low, sparse vegetation, rocks, or even mud, but the water must be clear. Spawning takes place in groups of one female surrounded by two to four males. During spawning, the female swims, making huge ripples and hitting the surface with her tail. Then she sinks to the bottom and releases her eggs. The males then push in all around in order to move into a position to fertilize the eggs. Then they make a tremendous rush, causing the water to foam. The whole spawning process is very noisy and splashy. Depending on her size, a single female can lay 100,000–750,000 eggs. The eggs adhere to any object they contact. Hatching occurs after 9 or 10 days and the larvae remain in shallow water to feed.

CONSERVATION STATUS

Not listed by the IUCN, but not as abundant as in the early twentieth century. This decline was due to overexploitation for commercial purposes.

SIGNIFICANCE TO HUMANS

Important food fishes; this species has been artificially propagated. Fishes in this species may compete with native minnows and suckers, as well as with juvenile sport fishes, for food and space. The meat is nutritious; the taste of the flesh is considered to be inferior to that of the flesh of the catfish but superior to that of carp. ♦

Chinese sucker

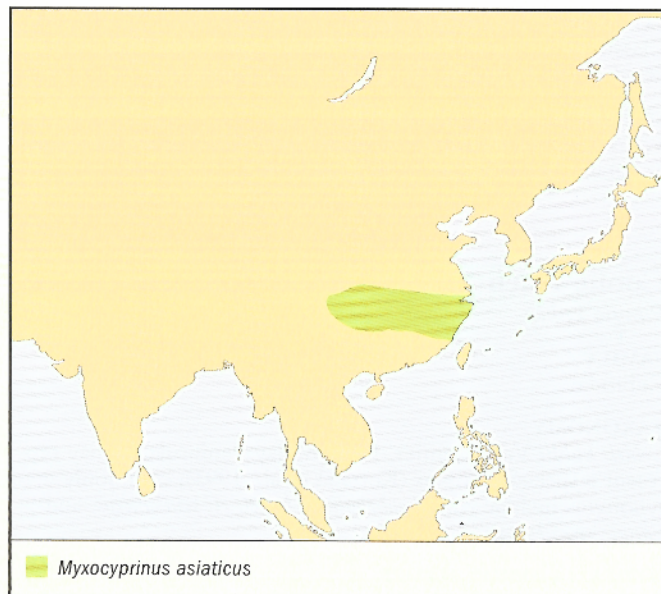
Myxocyprinus asiaticus

FAMILY

Catostomidae

TAXONOMY

Carpoides asiaticus Bleeker, 1865, China.

**OTHER COMMON NAMES**

English: High fin banded shark, freshwater batfish; German: Wimpelkarpfen; Finnish: Kiinanimukarppi.

PHYSICAL CHARACTERISTICS

At least 23.6 in (60 cm) in length. The most important characteristic of this species is its unusual deep, flat body, that elongates somewhat as the fish grows.

DISTRIBUTION

Upper and middle tributaries of the Yangtze River basin in China.

HABITAT

Unlike most other Catostomidae, they occur in large (and cool) rivers of temperate areas.

BEHAVIOR

Forms schools.

FEEDING ECOLOGY AND DIET

Feeds on algae and plants (at least under captive conditions).

REPRODUCTIVE BIOLOGY

Spawns in small groups in quiet waters.

CONSERVATION STATUS

Not listed by the IUCN, but considered endangered in China due to habitat destruction.

SIGNIFICANCE TO HUMANS

Sold in the aquarium trade. Prior to construction of Gezhouba Dam on the Yangtze River, the fish was a popular food fish in Sichuan Province. After construction of the dam, catches declined dramatically and attempts to reestablish reproducing populations have not been successful. Small breeding populations remain below the dam. ♦

Horseface loach

Acanthopsis choirorhynchus

FAMILY

Cobitidae

TAXONOMY

Cobitis choirorhynchus Bleeker, 1854, Sumatra.

OTHER COMMON NAMES

English: Banana fish, longnose loach; German: Lanstirnschmerle; Laotian: Pa it; Malay: Jeler; Spanish: Locha de hocico largo; Thai: Pla sai, pla chon sai; Vietnamese: Cá chia voi.

PHYSICAL CHARACTERISTICS

Maximum total length 12 in (30 cm). Mimetic fishes with a great ability to change coloration to appear similar to almost all natural backgrounds.

DISTRIBUTION

India, Myanmar, Thailand, Malaya, Indonesia (Sumatra and Java), Borneo, and Vietnam (basinwide mainstream of the lower Mekong River).

HABITAT

Demersal, freshwater fishes found mostly in swift, clear streams, as well as in large rivers and flooded fields. Burrows in sandy or gravelly bottoms.

BEHAVIOR

Nocturnal; likes to bury during the day. Not aggressive.

FEEDING ECOLOGY AND DIET

Omnivorous.

REPRODUCTIVE BIOLOGY

Oviparous; lays eggs underneath small rocks.

CONSERVATION STATUS

Not listed by the IUCN.

SIGNIFICANCE TO HUMANS

Common in the aquarium trade. ♦

Clown loach

Botia macracanthus

FAMILY

Cobitidae

TAXONOMY

Cobitis macracanthus Bleeker, 1852, Sumatra. Sometimes known as *Botia macracantha*.

OTHER COMMON NAMES

English: Tiger botia; German: Prachtsschmerle; Malay: Ikan macan.

PHYSICAL CHARACTERISTICS

Maximum total length 12 in (30 cm). They have a rather deep body, which is orange with three black stripes. A fourth stripe is sometimes present. The caudal fin is forked. Males have a larger tail that hooks inward rather than pointing straight out from the body. Females are smaller and more slender.

DISTRIBUTION

Sumatra and Borneo in Indonesia. It has been introduced in Thailand and the Philippines, but the success of such introductions is unknown.

HABITAT

Demersal freshwater fishes that prefer streams.

BEHAVIOR

Nonaggressive; spends most of the time at the bottom swimming or stationary among vegetation.

FEEDING ECOLOGY AND DIET

Feeds on benthic algae and weeds, benthic crustaceans, and worms.

REPRODUCTIVE BIOLOGY

Breeds only at the beginning of the rainy season and does so in fast-flowing rivers. Rarely breeds under captive conditions, which is why so little is known about their reproductive behavior.

CONSERVATION STATUS

Not listed by the IUCN.

SIGNIFICANCE TO HUMANS

Popular aquarium fishes; sometimes consumed as food. ♦

Weatherfish

Misgurnus fossilis

FAMILY

Cobitidae

TAXONOMY

Cobitis fossilis Linnaeus, 1758, Europe.

OTHER COMMON NAMES

French: Loche d'étang; German: Europäischer Schlammpeitzger; Czech: Cik; Finnish: Mutakala; Romanian: Chiscar.

PHYSICAL CHARACTERISTICS

Maximum total length 12 in (30 cm). Very elongated bodies. The total number of spines per fins is dorsal: three; dorsal (soft rays): five to six; pectoral: one; pectoral (soft rays): eight; anal: three; anal (soft rays): five; and caudal: 14. They have 16–17 gill rakers. Total number of vertebrae 49–50.

DISTRIBUTION

Central and eastern Europe, from France to Russia; successfully introduced in Spain and Croatia.

HABITAT

Mainly the lower reaches of slow-flowing rivers, in still pools, over sandy bottoms.

BEHAVIOR

Although it is a facultative air-breather, spends most of the day buried in the sand and is considered nocturnal. Not aggressive.

FEEDING ECOLOGY AND DIET

Feeds on small invertebrates, mostly insect larvae and mollusks.

REPRODUCTIVE BIOLOGY

Reaches sexual maturity when two years old. Spawns between April and June. The developing eggs and embryos of this species interact with each other in such a manner that the embryos of more advanced stages are in most cases suppressing the development of younger ones.

CONSERVATION STATUS

Classified as Lower Risk/Near Threatened by the IUCN. Also listed in the Appendix III of the Bern Convention.

SIGNIFICANCE TO HUMANS

Valuable as an ecological indicator because of its sensitivity to pollutants accumulated in sediments. ♦

Coolie loach

Pangio kublii

FAMILY

Cobitidae

TAXONOMY

Cobitis kublii Valenciennes, 1846, Malay Peninsula. It may represent a species complex (Kottelat et al., 1993); commonly used synonyms include *Acanthopbthalmus kubli*, *A. semicinctus*, and *Pangio semicincta*.

OTHER COMMON NAMES

English: Leopard loach, slimy loach; German: Halbgebändertes Dornauge; Spanish: Culebrita.

PHYSICAL CHARACTERISTICS

Maximum total length 4.7 in (12.0 cm). This species is characterized by an elongated and scaleless body. The basic color is dark brick red, with six to ten lighter, irregular stripes running down the body. They also have a dark and large quadrangular blotch occupying the proximal half of the caudal fin. All fins are small and transparent.

DISTRIBUTION

Indonesia in West Java, Sumatra, Kalimantan Timur and Kalimantan Barat in Borneo, and the Malay Peninsula at least as far north as Phangnga. Introduced in the Philippines with unknown success.

HABITAT

Sandy bottoms of clear, fresh waters.

BEHAVIOR

Solitary and nocturnal, they like to burrow in fine sand.

FEEDING ECOLOGY AND DIET

Omnivorous bottom feeders.

REPRODUCTIVE BIOLOGY

Scatters adhesive, floating green eggs that attach to floating vegetation. Growth rate constant; reaches maturity between 2.44 and 3.22 in (6.2–8.2 cm) in length.

CONSERVATION STATUS

Not listed by the IUCN.

SIGNIFICANCE TO HUMANS

They can be found in the aquarium trade. ♦

Blind cave loach of Xiaao

Protocobitis typhlops

FAMILY

Cobitidae

TAXONOMY

Protocobitis typhlops Yang Chen, and Lan, 1994, cave in Guangxi, Duan County, China.

OTHER COMMON NAMES

None known.

PHYSICAL CHARACTERISTICS

Adult length up to 1.77 (5.4 cm). These fishes are depigmented, and lack visible eyes and a lateral line. Scales are rudimentary and only along the midline of the sides of the body. Also lack a bony swim-bladder capsule, which may be a primitive characteristic.

DISTRIBUTION

Asia in a cave located in the province of Guangxi, Duan county, near the town of Xiaao (24°15'N, 107°05' E), China.

HABITAT

The cave where they live is 689 ft (210 m) above sea level.

BEHAVIOR

Swims slowly near the bottom.

FEEDING ECOLOGY AND DIET

Nothing is known.

REPRODUCTIVE BIOLOGY

Nothing is known.

CONSERVATION STATUS

Classified as Vulnerable by the IUCN.

SIGNIFICANCE TO HUMANS

Of scientific value because of its adaptations to the cave environment. ♦

Chinese algae eater

Gyrinocheilus aymonieri

FAMILY

Gyrinocheilidae

TAXONOMY

Psilorhynchus aymonieri Tirant, 1883, mountains of Samrong-Tong, Cambodia.

OTHER COMMON NAMES

English: Sucker loach; German: Siamesische Saugschmerle; Spanish: Pez ventosa, chupa-algas; Khmer: Chun chuok dai; Thai: Pla e-dood.

PHYSICAL CHARACTERISTICS

Standard length 11.02 in (28 cm). This species, like other members of the family, is characterized by a ventral mouth modified for sucking. They also have nine branched dorsal rays, 36 to 43 lateral line scales, no dark spots on the pelvic and anal fins, a small dark spot always present behind the spiracle, and sometimes tiny tubercles on the side of the head and large tubercles on the snout. It has a long black stripe laterally and a pair of bright blue spots, one underneath the head and one on top of the anal fin.

DISTRIBUTION

Asia, specifically the Mekong, Chao Phraya, Meklong, and Xe Bangfai basins, and also the northern Malay Peninsula.

HABITAT

Solid surfaces in flowing waters of medium to large-sized rivers and flooded fields.

BEHAVIOR

Under fast-flowing current conditions, holds on to fixed objects with its suckerlike mouth. Has a small spiracle that oper-

ates as an inhalant opening for absorbing oxygen from the water. Because of the small size of the gill cavity, lives in highly oxygenated waters with a breathing rate of up to 240 times per minute. Peaceful as juveniles, but become territorial and aggressive as adults.

FEEDING ECOLOGY AND DIET

Almost exclusively herbivorous; feeds mostly on algae but occasionally consumes phytoplankton, zooplankton, and insect larvae.

REPRODUCTIVE BIOLOGY

No information is available.

CONSERVATION STATUS

Not listed by the IUCN.

SIGNIFICANCE TO HUMANS

Popular among aquarists because of their reputed ability to clean algae in home aquaria. Large individuals are sold in fish markets of Southeast Asia. Small ones are used to make *prahoc*, a fermented fish paste consumed mostly in Cambodia. ♦

Spotted algae eater

Gyrinocheilus pennocki

FAMILY

Gyrinocheilidae

TAXONOMY

Gyrinocheilops pennocki Fowler, 1937, Siam.

OTHER COMMON NAMES

Khmer: Trey smok; Laotian: Ko, pa wa.

PHYSICAL CHARACTERISTICS

Standard length 11 in (28.0 cm). They are characterized by having large tubercles on sides of head (in larger specimens), 10 branched dorsal rays, with all fins strongly spotted, and a dark spot just behind the spiracle. Brownish coloration, darker dorsally. They have approximately 12 diffused, vertical, dark stripes laterally.

DISTRIBUTION

Mekong basin.

HABITAT

Solid surfaces of the bottom of fast-moving waters.

BEHAVIOR

No information is available.

FEEDING ECOLOGY AND DIET

Feeds mostly on algae, but occasionally on aquatic plants, zooplankton, and small invertebrates.

REPRODUCTIVE BIOLOGY

No information is available.

CONSERVATION STATUS

Not threatened.

SIGNIFICANCE TO HUMANS

Large individuals are occasionally sold in fish markets. ♦

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