Family Gobiidae

True gobies

True freshwater gobies occur in all sea basins in West Asia except the Mediterranean. In the Black and Caspian Seas, the Ponto-Caspian gobies of the genera *Babka*, *Neogobius*, *Ponticola,* and *Proterorhinus*, as well as the tadpole gobies of the genera *Anatirostrum*, *Benthophilus*, *Benthophiloides*, and *Caspiosoma*, are represented. However, in West Asia, tadpole gobies are not reported to enter freshwaters, unlike in Europe. They are speciose and very diverse in the seas. Only *Benthophilus leobergius* is occasionally reported from the Caspian Sea near river estuaries. Therefore, tadpole gobies are excluded from the coverage of this book. Additionally, other gobies well-known from the European Black Sea coast, including *Ponticola eurycephalus* and *P. ratan* appear absent from Anatolia's coasts. In addition to the Ponto-Caspian gobies listed below, *Gobius cobitis, G. niger*, *G. ophiocephalus* and some additional *Ponticola* species are occasionally recorded as occurring in freshwater. However, we are unaware of documented records of their permanent and regular occurrence. Therefore, they are briefly discussed in the generic chapters below.

In the Persian Gulf and Sea of Oman, additional true gobies are known from inland waters, while only *Glossogobius* regularly enter pure freshwaters. *Bathygobius fuscus*, *Acentrogobius dayi*, and others are occasionally reported from saline inland waters but not from freshwater habitats. *Bathygobius* and *Acentrogobius* are included in the key to ease their identification, but as these species are not considered freshwater fishes, they are excluded otherwise. Indeed, more marine gobies (as *Cryptocentroides arabicus* and *Favonigobius melanobranchus*) might occur in the lower reaches of the rivers, as some have brackish waters. Identification literature for marine fishes should be considered to identify these.

Further reading. Nelson et al. 2016 (diversity).

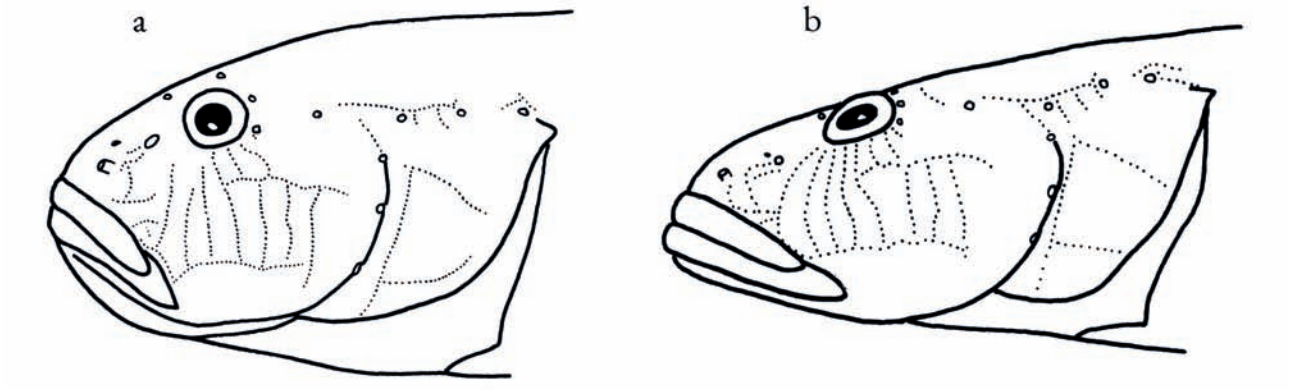


Figure 60. Rows of suborbital transverse papillae. **a,** *Ponticola syrman*; **b,** *Mesogobius batrachocephalus* (from Kottelat & Freyhof 2007; after Miller in Whitehead et al. 1986).

Babka gymnotrachelus; Danube delta, Romania; female, ~70 mm SL.

https://doi.org/10.1515/9783111677811-034

Babka gymnotrachelus

Common name. Racer goby.

Diagnosis. Distinguished from species of *Neogobius* and *Ponticola* entering freshwater in Caspian and Black Sea basins by: ● midline of nape naked in front of preoperculum / ● diagonal bars on body irregular in position and shape / ○ pelvic-disc fraenum with small, rounded lobes whose length is less than $^1/_6$ of fraenum width at base (Fig. 62) / ○ 54–62+2–3 scales in midlateral series / ○ first branched ray of second dorsal about as long as penultimate ray / ○ first dorsal without black spot in posterior part. Size up to 160 mm SL.

Distribution. Black, Azov, and Caspian Sea basins. Since late 1990s, invasive in rivers of northern Black Sea and Baltic basins. No reports of invasive behaviour in West Asia.

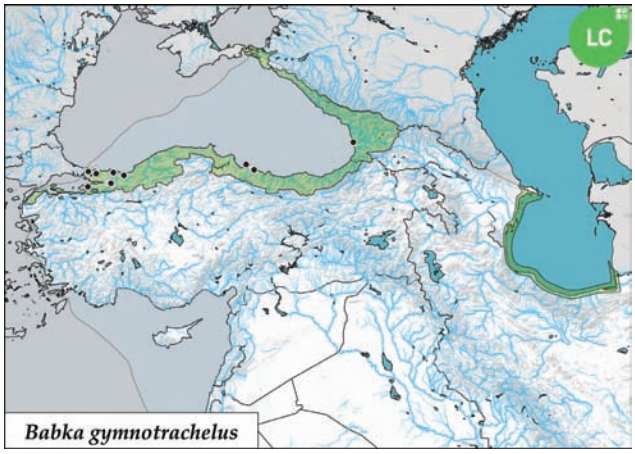
Habitat. Mostly in fresh and brackish water with low salinity (<2 ‰). Estuaries, lagoons, and lakes, large rivers to small fast-flowing streams, on sandy or muddy bottoms. Mainly found in well-vegetated habitats. Common in backwaters and channels.

Biology. Lives up to 4–5 years. Spawns first time at 2 years. Spawns April–June, occasionally until mid-August. Female may spawn repeatedly during a season. Usually spawns for only one season. Adhesive eggs laid on rocks, shells, and aquatic vegetation. Male guard eggs until hatching. Feeds on a wide variety of invertebrates, especially molluscs.

Conservation status. LC.

Remarks. Distribution in West Asia poorly understood. *Babka macrophthalma* from the Caspian basin is a synonym.

Further reading. Ahnelt 2001 (description, invasion); Pinchuk et al. 2003b (biology, description).



Babka gymnotrachelus; Danube delta, Romania; male, ~90 mm SL.

Glossogobius

The genus comprises approximately 42 species primarily found in coastal habitats and freshwaters. Most species are found in freshwater habitats, with many exhibiting an amphidromous lifestyle. However, there are also examples of species exclusively found in freshwater, including those from Madagascar, New Guinea, the Philippines, and Sulawesi. Notably, several species are endemic to the Malili Lakes in Sulawesi. A number of the Malili species are pelagic, exhibiting an enlarged swim bladder. *Glossogobius ankaranensis* is a troglomorphic, cave-dwelling species native to Madagascar. *Glossogobius* are often common and abundant in the lower reaches of rivers and streams. They play an important role as predators in their ecosystems. Three species have been recorded from West Asia. Still, their distribution is poorly known, and more species are likely to occur, particularly along the coast of Oman and Yemen, including Socotra. A comprehensive review of the diversity of these gobies is required. *Glossogobius* are important in coastal fisheries due to their relatively large size and the palatability of their flesh, which lacks bones. These fish are consumed locally and exported fresh and frozen, even to Europe and West Asia. **Further reading.** Hoese & Allen 2015; Hoese et al. 2015 (diversity); Proudlove 1997 (cave species).

Key to species of *Glossogobius* in freshwaters in West Asia

1a - Middle rays in first dorsal prolonged; sensory papilla line 6 absent or very short (often only a few papillae long); each cheek line with 1 row of sensory papillae; 12–16 predorsal scales; 1+1+9–11, usually 1+1+10, gill rakers.
……*Glossogobius tenuiformis*

1b - Middle rays in first dorsal not prolonged; sensory papilla line row 6 distinct and long; each cheek line with 2–3 (rarely more) rows of sensory papillae; 15–24 pre-dorsal scales; 1–2+1+6–9, usually 1–2+1+7–8 gill rakers.
……2

2a - Papillae line 5 below eye and suborbital papillae line 7 doubled.
……*Glossogobius laticeps*

2b - Papillae line 5 below eye and suborbital papillae line 7 single.
……*Glossogobius giuris*

Glossogobius giuris; Karnataka, India; ~150 mm SL.

Glossogobius giuris

Common name. Bareye goby.

Diagnosis. Distinguished from other *Glossogobius* in Iran by: ○ middle rays in first dorsal not prolonged / ○ sensory papilla row 6 distinct and long / ○ caudal roundish / ○ upper part of opercle with cycloid scales / ● each cheek line with 2–3 (rarely more) rows of sensory papillae / ● papillae line 5 below eye and suborbital papillae line 7 single / ○ 18–28 predorsal scales / ○ 1–2+1+6–9, usually 1–2+1+7–8 gill rakers. Size up to 240 mm SL.

Distribution. West Asia: Sarbaz drainage, in Iranian Makran most likely west to Bandar-e Jask. Possibly also along coast of Oman and Yemen. From Iran along coasts of Pakistan and India to Japan, south to Australia, widespread in Oceania. In Red Sea, along east coast of Africa, including Madagascar.

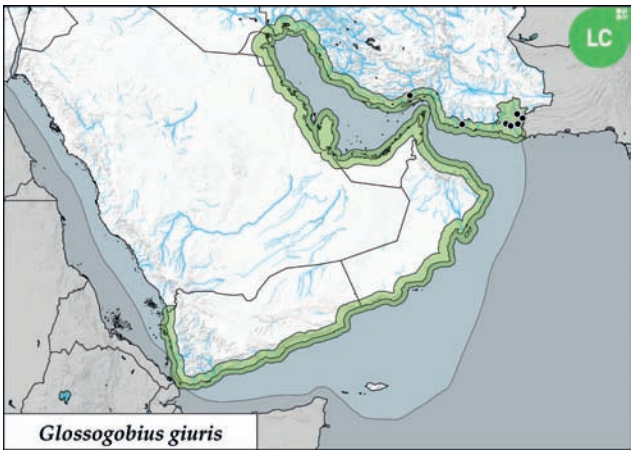
Habitat. Lower part of rivers and coastal lagoons, usually on soft bottoms. Most common in brackish water. Less common in fast-flowing waters on gravel or rocky bottoms. Often found in mangroves in sea. Migrates up to 300 km upstream.

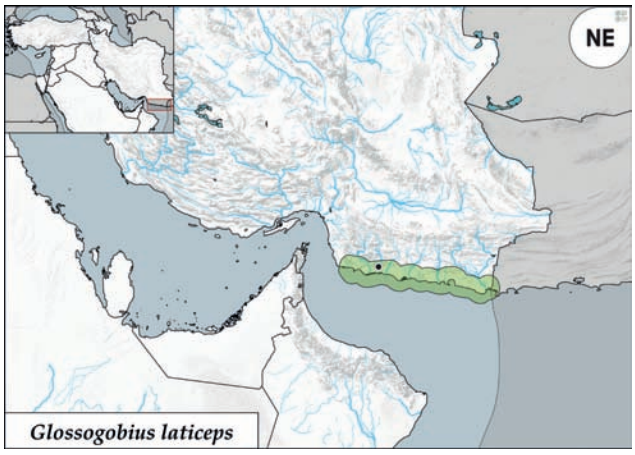
Biology. Facultatively amphidromous can be landlocked in reservoirs and lakes. Matures at about 80-100 mm SL and spawns several times during season. Male guard eggs and larvae swim downstream. Feeds on small insects, crustaceans and small fish. Often buried in fine sediments.

Conservation status. LC.

Remarks. The *G. giuris* species complex in the Indo-West Pacific comprises several molecular lineages, including two unidentified clusters. It remains to be seen which of these correspond to *G. giuris*. The distribution of *G. giuris* here corresponds to the species found in Iran (*G. giuris* B). A species of commercial importance, especially in tropical Asia. The maximum size of this species is given as 500 mm total length, but we have serious doubts that such large individuals exist.

Further reading. Maugé 1986 (distribution); Pethiyagoda 1991 (food); Pusey et al. 2004 (upriver migration); Zarei et al. 2023 (distribution).





Glossogobius laticeps; Gabrik, Iran; juvenile, 74 mm SL. © H.R. Esmaeili

Glossogobius laticeps

Common name. Coastal tank goby.

Diagnosis. Distinguished from other *Glossogobius* in Iran by: ○ middle rays in first dorsal not prolonged / ○ sensory papilla row 6 distinct and long / ● caudal roundish / ● upper part of opercle with cycloid scales / ● each cheek line with 2–3 (rarely more) rows of sensory papillae / ● papillae line 5 below eye and suborbital papillae line 7 double / ○ 19–25 predorsal scales / ○ 1–2+1+6–8, usually 1–1+1+8 gill rakers. Size up to 161 mm SL.

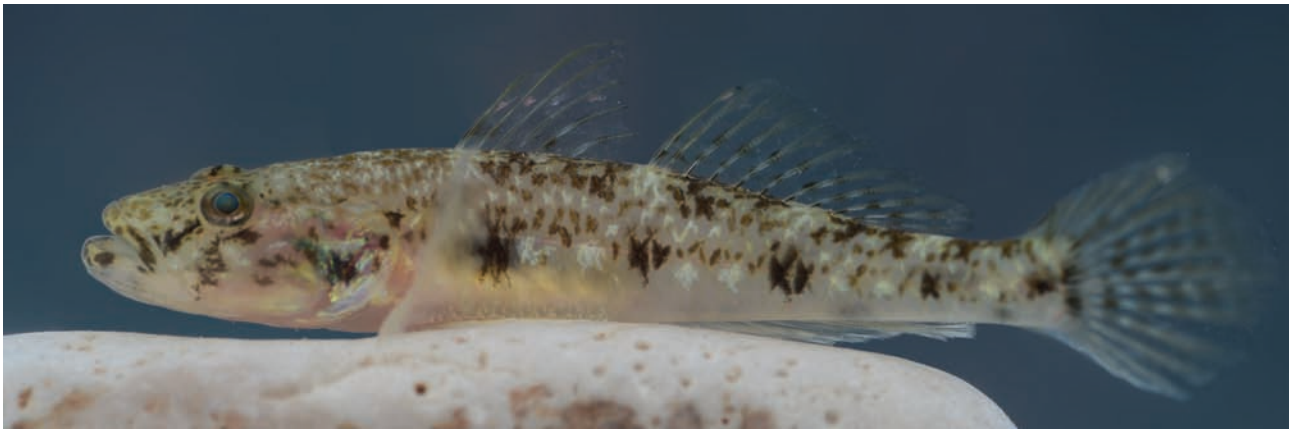
Distribution. West Asia: Gabrik drainage, in Iranian Makran. From Iran along coasts east to New Guinea, Australia, China, Vietnam, and Bangladesh.

Habitat. Lower part of rivers and coastal lagoons, usually on soft bottoms.

Biology. Adults usually in freshwater habitats, juveniles occasionally in estuaries.

Conservation status. NE.

Further reading. Hoese & Hammer 2021; Hammer et al. 2021 (biology, distribution); Zarei et al. 2025 (record from Iran).



Glossogobius tenuiformis; Wadi Shab, Oman; 65 mm SL.

Glossogobius tenuiformis

Common name. Wadi Shab goby.

Diagnosis. Distinguished from other *Glossogobius* in Iran by: • middle rays in first dorsal prolonged / • sensory papilla row 6 absent or very short, often only a few papillae long / • each cheek line with 1 row of sensory papillae / • caudal spade-shaped / • upper part of opercle scaleless / • 12–16 predorsal scales / • 1+1+9–11, usually 1+1+10, gill rakers. Size up to 75 mm SL.

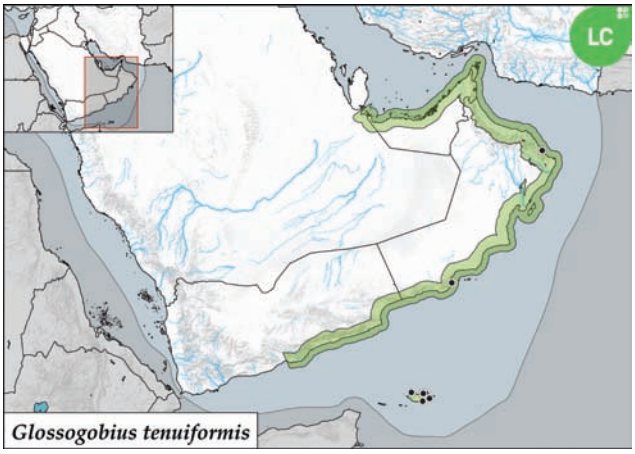
Distribution. Oman: Lower Wadi Shab and Wadi Hasi. Also known from South African coast from Mgeni in Eastern Cape to KwaZulu Natal. Expected to have a wider distribution and records from Sokotra seem to belong to this species.

Habitat. Lower and middle parts of streams that reach sea at least once every few years. Inhabit soft bottoms with sand, silt or hard bottoms with gravel and sell sediments. Expected to occur in many coastal habitats.

Biology. No data. Expected to be amphidromous, to spawn in freshwater habitats and larvae drift to sea.

Conservation status. LC.

Further reading. Freyhof et al. 2020 (distribution, morphology); Al Jufalii et al. 2022 (redescription).



Mesogobius batrachocephalus; Black Sea north of Varna, Bulgaria; 190 mm SL.

Mesogobius batrachocephalus

Common name. Knout goby.

Diagnosis. Distinguished from species of similar genera *Neogobius* and *Ponticola* in freshwaters in Black Sea basin by: ● 8–10 vertical rows of papillae in suborbital area (Fig. 60) / ● 72–85 total scales in midlateral series / ○ nape naked / ○ anterior naris not projecting forward beyond lip / ○ male without bluish-iridescent, small blotches on membrane of first dorsal. Size up to 345 mm SL.

Distribution. Black, Marmara and Azov Sea basins. Freshwaters in Georgia and European range. More records expected from coastal lagoons in Türkiye.

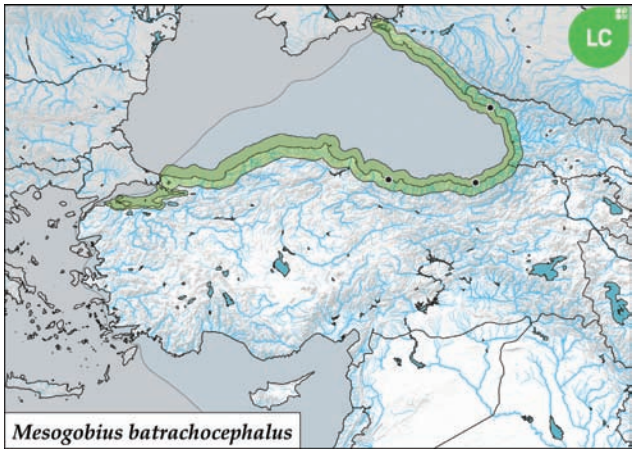
Habitat. Inshore habitats, estuaries, brackish and freshwater lagoons on sandy or rocky bottoms. Often very deep in summer (up to 100 m). Rarely in pure freshwater.

Biology. Lives up to 8 years. First spawns at 3 years in February–May, once a year. Eggs large, laid under or between rocks. Feeds mainly on fish.

Conservation status. LC.

Remarks. *Mesogobius nonultimus* (nape scaled) from the Caspian basin is usually listed as a subspecies of *M. batrachocephalus*. It is a distinct species that does not enter freshwater.

Further reading. Porumb 1961 (biology); Bănărescu 1964 (biology, distribution); Pinchuk et al. 2004b (biology).



Key to species of *Neogobius* in freshwaters in West Asia

1a - First dorsal with large black spot in its posterior part; first branched ray of second dorsal about as long as penultimate ray.

……*N. melanostomus*

1b - First dorsal without or with a very small black spot in its posterior part; first branched ray of second dorsal about twice as long as penultimate ray.

……2

2a - First dorsal without black spot.

……*N. fluviatilis*

2b - First dorsal with small black spot on posterior part, at least in juveniles.

……*N. pallasi*

Neogobius

Neogobius was previously employed as a catchall group for larger gobies in the Black Sea and Caspian basins. Molecular studies have increased our knowledge about the phylogenetic structure of these gobies. *Neogobius* is now restricted to one strict freshwater species in Italy (*N. nigricans*), two euryhaline species (discussed below), and three marine species (*N. bathybius*, *N. caspius*, and *N. pallasi*) in the Black Sea and Caspian basins. *Neogobius pallasi* is known to enter freshwaters in the Volga but not in West Asia. Consequently, it is only included in the key to allow the user of the book to identify this species. Other species previously included in *Neogobius* are now placed in *Babka* and *Ponticola*. **Further reading.** Neilson & Stepien 2009 (phylogeny).

Neogobius fluviatilis; Susurluk drainage, Türkiye; ~60 mm SL.

Neogobius fluviatilis; Obitochnaya, Ukraine; nuptial male, 147 mm SL.

Neogobius fluviatilis

Common name. Monkey goby.

Diagnosis. Distinguished from other species of *Neogobius* entering freshwater in Black and Caspian Sea basins by: ○ first branched ray of second dorsal about twice as long as penultimate ray / ○ 55–61+2–4 scales in midlateral series / ○ no black spot in posterior part of first dorsal. Size up to 200 mm SL.

Distribution. Azov, Black Sea, Marmara, and Caspian basins. Usually near estuaries but often far inland. Invasive in upper parts of rivers in northern Black Sea basin and first recorded in 2011 in lower Maritza on Greek–Turkish border. Also invasive in Europe (Baltic basin, Danube, Rhine). Not known to be invasive in West Asia.

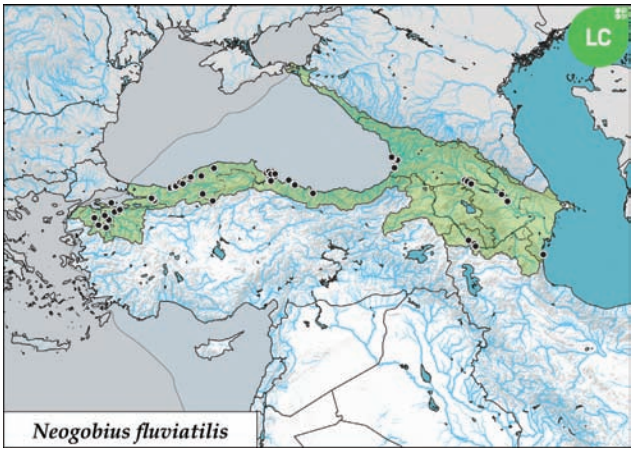
Habitat. Sea shores, inshore habitats, lakes, estuaries, brackish, and freshwater lagoons, large- to medium-sized rivers and streams. Mostly found on open sand or mud bottoms. One of the most abundant species in large lowland rivers.

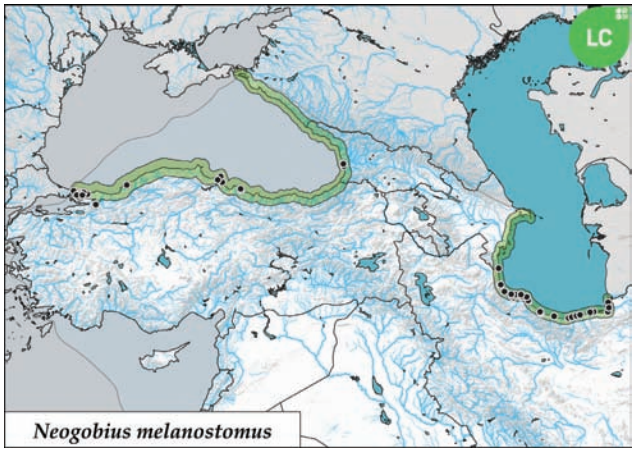
Biology. Lives up to 5 years. First spawns at 2 years in April–July, locally until September, when temperature rises above 13°C. Female may spawn repeatedly during season. Nuptial male black with yellow fin edges. Adhesive eggs laid on stones, shells, and aquatic plants. Male excavate nests under any type of hard substrate and guard eggs until hatching. Feeds on a wide variety of invertebrates, especially molluscs.

Conservation status. LC.

Remarks. *Neogobius fluviatilis* appears to be absent from the southern Caspian basin.

Further reading. Pinchuk et al. 2003a (biology, description).





Neogobius melanostomus; Elbe drainage, Germany; ~100 mm SL.

Neogobius melanostomus

Common name. Round goby.

Diagnosis. Distinguished from other species of *Neogobius* entering freshwater in West Asia by: ● first dorsal with large black spot on posterior part / ● 45–54+2–3 scales in midlateral series / ○ first branched ray of second dorsal about as long as penultimate ray. Size up to 220 mm SL.

Distribution. Azov, Black Sea, Marmara and Caspian basins. Invasive in North America, Volga, Baltic, Black, and North Sea basins reached by shipping channels or direct introductions. No records of invasion in West Asia.

Habitat. Coastal habitats, estuaries, brackish and freshwater lagoons and lakes, large rivers, canals, and harbors on sandy or rocky bottoms. Up to 50–60 m deep in Black Sea in winter. Mostly found on well-vegetated or rocky bottoms.

Biology. Lives up to 4 years. Male spawn for first time at 3–4 years, female at 2–3 and 55–80 mm SL. In invasive areas, mature at a smaller size, i.e. 45 mm SL. Spawns April–September. Nuptial male almost completely black. Female may repeat spawning every 18–20 days during a season. Adhesive eggs laid under or between stones, shells and aquatic vegetation. Male guard eggs until hatching in 2–3 weeks. Male usually die after spawning season. Feeds on a wide variety of invertebrates and small fish, mainly molluscs. Egg clutches are sometimes transported attached to the hulls of ships.

Conservation status. LC.

Further reading. Tsepkin et al. 1992 (invasion); Charlebois et al. 1997 (review); Wiesner et al. 2000 (invasion); Pinchuk et al. 2003c (biology, description); Balážová-L'avrinčíková & Kováč 2007 (reproduction in invasive range).

Lake Sapanca in Türkiye is the habitat of both *Neogobius* species, as well as *Babka gymnotrachelus*, *Proterorhinus semilunaris,* and *Knipowitschia caucasica*.

Ponticola

Ponticola are small- or medium-sized fishes and comprise approximately 18 species. They were previously considered species within the genus *Neogobius*, but subsequent molecular and morphological studies have demonstrated that this group represents a distinct genus. *Ponticola* are common in most rivers flowing to the Black and Caspian Seas, and several species occur mostly in allopatry. In addition to those species included in the species chapters, we recognise only five additional species in West Asia (*P. eurycephalus, P. ratan*, *P. iljini*, *P. platyrostris*, *P. cephalargoides*) that are found in brackish waters only and are not known to enter freshwater habitats. Some authors consider *Ponticola odessicus* and *P. goebelii* valid species, yet we have not identified any scientific evidence to support this classification. These species appeared elevated from synonyms to species in checklists without supporting documentation. *Ponticola eurycephalus* is a coastal species that regularly enters freshwaters in the European part of the Black Sea basin. However, this species is not distributed in West Asia. It is included in the key only to allow its identification. *Ponticola ratan* is known from the Black Sea and Caspian (where it is occasionally recorded in the Asian parts of these seas). It may be an accidental species, but from its European range, it has only one freshwater population in an inland reservoir in Ukraine. *Ponticola eurycephalus* and *P. ratan* are excluded from the coverage of this book, as well as *P. iljini*, *P. platyrostris,* and *P. cephalargoides*. The selection between freshwater and marine species in *Ponticola* is somewhat artificial, given the need for a clear border between fresh- and brackish water habitats, particularly in larger river estuaries and coastal limans. Furthermore, the diagnostic characters of the different *Ponticola* species need to be better documented, and the distribution of several species needs to be better understood. **Further reading.** Neilson & Stepien 2009 (phylogeny); Vasil'eva & Vasil'ev 2003a (identification key); Vasil'eva et al. 2015 (Caspian species).

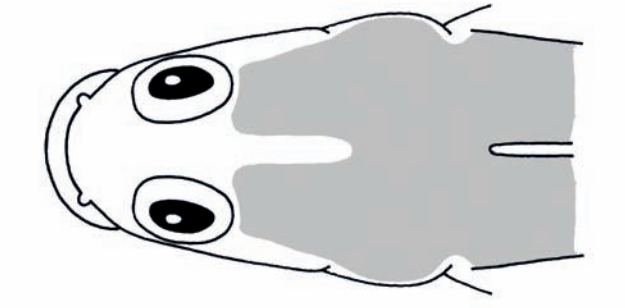


Figure 61. Scalation on nape missing on dorsal midline in some species of Gobiidae.

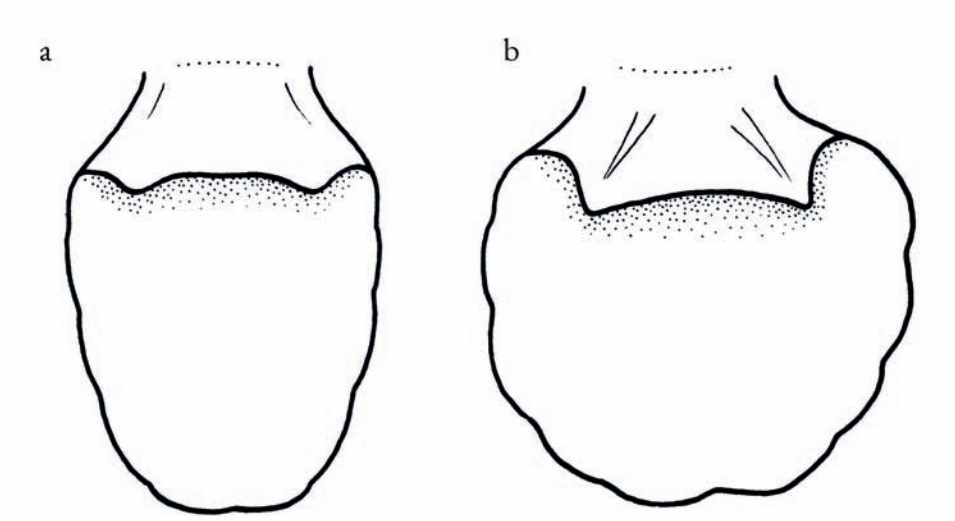


Figure 62. Pelvic-disc fraenum in *Babka* and *Ponticola* species. **a,** with small, rounded lobes; **b,** with angular lobes.

Key to species of *Ponticola* in freshwaters in West Asia

1a - Pelvic-disc fraenum with small, rounded lobes whose length is less than $\frac{1}{6}$ of fraenum width at base.
……2
1b - Pelvic-disc fraenum with angular lobes whose length is $\frac{1}{6}$–$\frac{1}{2}$ of fraenum width at base.
……3

2a - 48–55 total scales in lateral series.
……*P. alasanicus*
2b - 59–69 total scales in lateral series.
……*P. syrman*

3a - Lateral part of upper lip not swollen.
……*P. gorlap*
3b - Lateral part of upper lip distinctively swollen.
……4

4a - Pelvic disc reaching 80–100 % of distance between its origin and anus.
……*P. eurycephalus*
4b - Pelvic disc reaching 40–60 % of distance between its origin and anus.
……5

5a - Lower jaw strongly prognathous.
……6
5b - Lower jaw not or very slightly prognathous.
……7

6a - First dorsal without a dark-brown distal blotch or band.
……*P. constructor* / *P. rizensis*
6b - First dorsal with a dark-brown distal blotch or band.
……*P. cyrius*

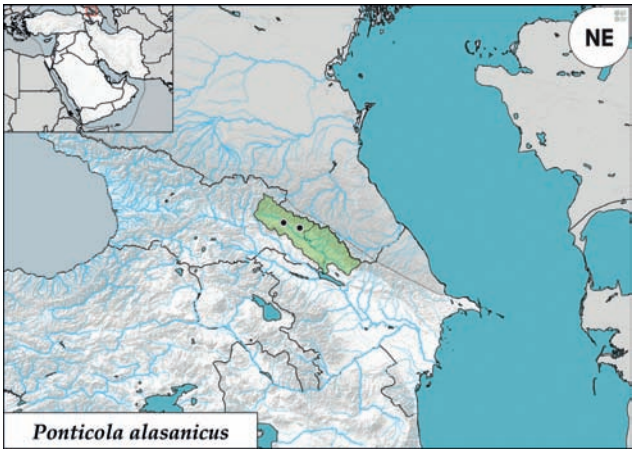
7a - Dorsal head, lips, cheeks, and predorsal colour plain brown; flank very slightly reticulate.
……*P. iranicus* / *P. patimari*
7b - Dorsal head, lips, cheeks, predorsal area, and flank strongly reticulate.
……*P. hircaniaensis*

Ponticola alasanicus; Alazani, Georgia; ~70 mm SL. © A. Epitashvili.

Ponticola alasanicus

Common name. Alazani goby.

Diagnosis. Distinguished from other species of *Ponticola* entering freshwater in West Asia by: ● no suborbital transverse rows below suborbital longitudinal row *b* / ○ pelvic-disc fraenum with small, rounded lobes, whose length is less than 1/6 of fraenum width at base / ○ lower jaw not or very slightly prognathous / ○ 48–55 total scales in midlateral series / ○ second dorsal usually with 15–16½ branched rays / ○ anal with 10–12½ branched rays / ○ lateral part of upper lip distinctively swollen / ○ dorsal head, lips, cheeks and predorsal plain brown / ○ flank very slightly reticulate / ○ pelvic disc not reaching anus / ○ pelvic-disc fraenum with angular lobes whose length is 1/6–1/2 of fraenum width at base. Size up to 74 mm SL.



Distribution. Georgia: Alazani in upper Kura drainage.

Habitat. Lowland rivers and marshes with sand bottoms. Often found near submerged trees and roots. Not found in brackish water.

Biology. Spawns May–June. Feeds on aquatic invertebrates.

Conservation status. NE; due to the very poor knowledge about this recently described species.

Further reading. Epitashvili et al. 2023 (description).

Ponticola constructor

Common name. Caucasian goby.

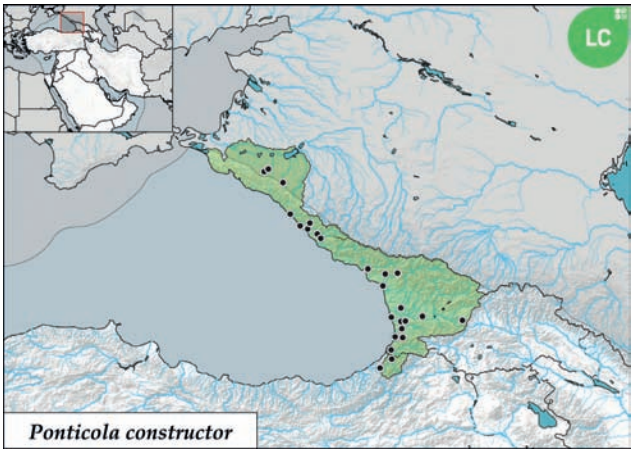
Diagnosis. Distinguished from other species of *Ponticola* entering freshwater in West Asia by: ○ lateral part of upper lip distinctively swollen / ○ lower jaw strongly prognathous / ○ predorsal area finely mottled / ○ two suborbital transverse rows below suborbital longitudinal row *b* / ○ first dorsal without bold, distal dark-brown band / ○ pelvic disc reaching 40–60 % of distance between its origin and anus / ○ 53–74+2–4 scales in midlateral series / ○ pelvic-disc fraenum with angular lobes whose length is 1/6–1/2 of fraenum width at base. Size up to 200 mm SL.

Distribution. Black Sea drainages of southern Caucasus from lower Çoruh (Türkiye) north to Noworossiysk (Russia). Also, in western tributaries of Kuban.

Habitat. Cold mountain to warm foothill streams. Not found in brackish water.

Biology. Matures with 1–2 years and spawns in May–June. Nuptial male almost entirely black. Several females may spawn with one male, and female are expected to spawn several times during season. Male guard eggs and larvae in gravel or rocky burrows. Feeds on a wide range of small invertebrates and fish.

Ponticola constructor; Kuban drainage, Russia; ~85 mm SL.



Conservation status. LC.

Remarks. *Ponticola rhodioni* is treated as a synonym. It has been described based on chromosomal characters only, and morphological or molecular characters do not support *P. rhodioni* as a valid species. Molecular characters distinguish *P. constructor* well from *P. rizensis* and *P. turani*, and published morphological data places *P. constructor* intermediate between these two species. However, all characters used to distinguish *P. constructor*, *P. rizensis*, and *P. turani* largely overlap in fresh material we examined, and further studies are needed to distinguish at least the two species supported by molecular characters (*P. constructor* and *P. rizensis*).

Further reading. Berg 1949b (description as *N. cephalarges constructor*, in part); Vasil'eva & Vasil'ev 1994 (description); Vasil'eva & Vasil'ev 2003b (distribution, description, biology).

Ponticola cyrius

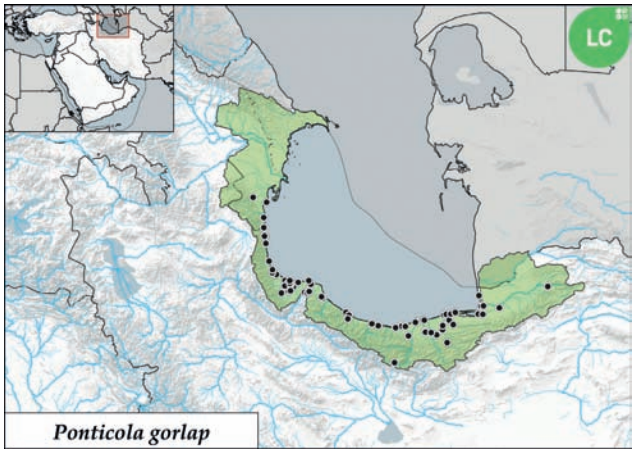
Common name. Kura goby.

Diagnosis. Distinguished from other species of *Ponticola* entering freshwater in West Asia by: ● predorsal area marbled / ● first dorsal with a dark-brown distal blotch or band / ○ lateral part of upper lip usually swollen / ○ two suborbital transverse rows below suborbital longitudinal row *b* / ○ lower jaw slightly prognathous / ○ pelvic disc reaching 40–60 % of distance between its origin and anus / ○ 51–74+2–4 scales in midlateral series / second dorsal usually with / ○ usually with 17–18½ branched rays / ○ anal usually with 13½ branched rays / ○ pelvic-disc fraenum with angular lobes whose length is $\frac{1}{6}$–$\frac{1}{2}$ of fraenum width at base. Size up to 111 mm SL.

Ponticola cyrius; Kura drainage, Türkiye; ~80 mm SL. © M. Özuluğ.

Distribution. Kura drainage from headwaters in Türkiye south to Azerbaijan. Widely reported from Aras, but records questionable.
Habitat. Cold mountain to warm foothill streams. Not found in brackish water or reservoirs.
Biology. Matures at 1–2 and lives for 3 years; spawns May–late August at water temperatures of 11–20°C. Male guard eggs in gravel or rocky burrows. Feeds on a wide range of small invertebrates and fish.
Conservation status. LC.
Remarks. The distribution of this species in Kura is not fully known, and it potentially occurs in sympatry with *P. alasanicus* in upper Kura. In the middle and lower Kura, it occurs in sympatry with *P. gorlap*.
Further reading. Vasil'eva & Vasil'ev 2003c (distribution, description, biology).

Ponticola gorlap
Common name. Caspian bighead goby.
Diagnosis. Distinguished from other species of *Ponticola* entering freshwater in West Asia by: ○ lower jaw strongly prognathous / ○ lateral part of upper lip not swollen / ○ pelvic disc reaching 75–95 % of distance between its origin and anus / ○ 60–71 total scales in midlateral series / ○ 23–28 predorsal scales / ○ two suborbital transverse rows below suborbital longitudinal row *b* / ○ flank mottled / ○ first dorsal without bold, distal dark-brown band / ○ pectoral base with a black blotch / ○ no dark-brown blotches on anterior part of first dorsal / ○ pelvic-disc fraenum with angular lobes whose length is $\frac{1}{6}$–$\frac{1}{2}$ of fraenum width at base. Size up to 200 mm SL.



Ponticola gorlap; Tajan drainage, Iran; ~150 mm SL.

Distribution. Coastal rivers of Azerbaijani and Iranian Caspian coasts. Also, in sea, Volga upstream to Astrakhan until 1977, then spread upstream to lakes Ivankovskoje and Rybinskoje (2000). Invaded Don drainage (Black Sea basin) through Volga-Don canal (first record 1972). Now abundant in Lake Tsimlyansk and lower Don.
Habitat. Inshore habitats, lakes, estuaries, brackish and freshwater lagoons, and large rivers, harbors, on rocky bottoms. Mainly found on well-vegetated or rocky bottoms.
Biology. Most females spawn for first time at 1 year, male at 2 years. Spawns April–May, rarely until July. Adhesive eggs laid on stones, shells, and aquatic vegetation. Male guard eggs until hatching. Feeds mainly on small fish and a variety of invertebrates.
Conservation status. LC.
Remarks. In the lower and middle Kura, it may occur in sympatry with superficially similar *P. cyrius*. Previously, *P. iljini* was treated as a synonym of *P. gorlap*. Still, new research has shown it to be a valid species restricted to the coast of Mangyshlak peninsula in Kazakhstan.
Further reading. Vasil'eva & Vasil'ev 1996 (description as *N. iljini*); Kottelat 1997 (nomenclature); Vasil'eva & Vasil'ev 2003d (biology, description); Vasil'eva et al. 2016 (description of *P. iljini*).

Ponticola hircaniaensis
Common name. Gorgan goby.
Diagnosis. Distinguished from other species of *Ponticola* entering freshwater in West Asia by: ○ lower jaw not or very slightly prognathous / ○ 60–71 total scales in midlateral series / ○ 19–23 predorsal scales / ○ lateral part of upper lip swollen / ○ dorsal head, lips, cheeks, predorsal area, and flank strongly reticulate / ○ two suborbital transverse rows below suborbital longitudinal row *b* / ○ pelvic disc reaching 40–60 % of distance between its origin and anus / ○ first dorsal with marginal pale orange-yellow band and dark oblique spot / ○ upper part of pectoral base with one dark-brown stripe / ○ pelvic-disc fraenum with angular lobes whose length is $\frac{1}{6}$–$\frac{1}{2}$ of fraenum width at base. Size up to 92 mm SL.
Distribution. Iran: Kaboudval and Zarrin Gol in Gorgan drainage.
Habitat. Small, fast-flowing headwater streams with gravel bottoms. Not found in brackish water.
Biology. No data
Conservation status. EN; appears to be declining within its very small range.
Remarks. This species has hybridised with *P. gorlap* and mtDNA from *P. gorlap* is present in individuals from the only known population.
Further reading. Zarei et al. 2022b (description).

Ponticola hircaniaensis; Kaboudval drainage, Iran; 74 mm SL.

Ponticola iranicus; Sefid drainage, Iran; ~80 mm SL.

Ponticola iranicus

Common name. Sefid goby.

Diagnosis. Distinguished from other species of *Ponticola* entering freshwater in West Asia by: ○ lower jaw not or very slightly prognathous / ○ 54–70 total scales in midlateral series / ○ second dorsal usually with 15–16½ branched rays / ○ anal usually with 11–12½ branched rays / ○ lateral part of upper lip distinctively swollen / ○ dorsal head, lips, cheeks and predorsal plain brown / ○ flank very slightly reticulate / ○ first dorsal with marginal pale orange-yellow band and dark oblique spot / ○ upper part of pectoral base upper part with one dark-brown stripe / ○ pelvic disc reaching 40–60 % of distance between its origin and anus / ○ two suborbital transverse rows below suborbital longitudinal row *b* / ○ pelvic-disc fraenum with angular lobes whose length is $\frac{1}{6}$–$\frac{1}{2}$ of fraenum width at base. Size up to 86 mm SL.

Distribution. Iran: Lower and middle Sefid drainage.

Habitat. Cold, fast-flowing, gravel-bottomed rivers and larger streams. Not found in brackish water.

Biology. Spawns end February–end April. Male guard eggs in gravel or rocky burrows.

Conservation status. LC.

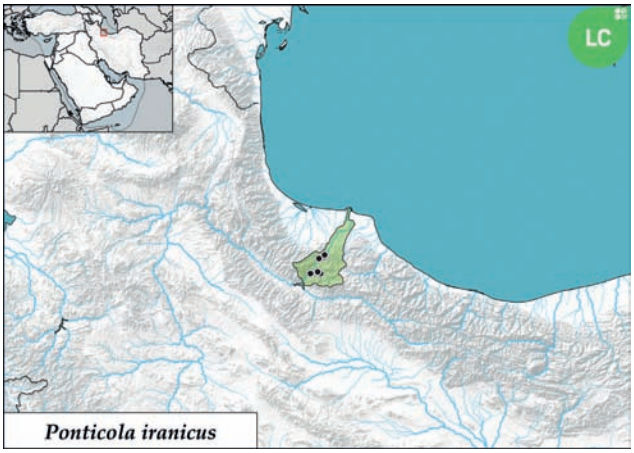
Remarks. This species is very similar to *P. patimari*, and a recent publication suggests that the two may be indistinguishable by external characters. They occur in syntopy in Lower Sefid, and may represent just populations of one old species.

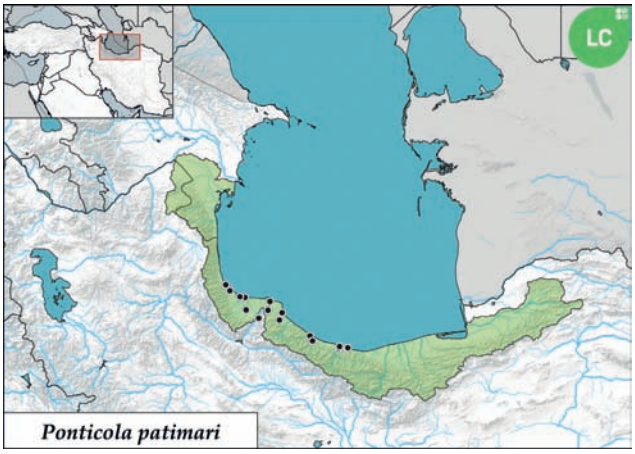
Further reading. Vasil'eva et al. 2015 (description); Zarei et al. 2022b, c (distribution, biogeography, genetics, morphology).

Ponticola patimari

Common name. South Caspian freshwater goby

Diagnosis. Distinguished from other species of *Ponticola* entering freshwater in West Asia by: ○ lower jaw not or very slightly prognathous / ○ 44–56 total scales in midlateral series / ○ second dorsal usually with 15–16½ branched rays / ○ anal usually with 11–12½ branched rays / ○ lateral part of upper lip swollen / ○ dorsal head, lips, cheeks, and predorsal plain brown / ○ flank very slightly reticulate / ○





Ponticola patimari; Khei drainage, Iran; 63 mm SL.

first dorsal with marginal pale orange-yellow band and dark oblique spot / ○ upper part of pectoral base upper part with one dark-brown stripe / ○ pelvic disc reaching 40–60 % of distance between its origin and anus / ○ two suborbital transverse rows below suborbital longitudinal row *b* / ○ pelvic-disc fraenum with angular lobes whose length is $\frac{1}{6}$–$\frac{1}{2}$ of fraenum width at base. Size up to 100 mm SL.

Distribution. Iran: Cheshme kile to Astara in southern Caspian basin. Absent from Sefid except lower most part and in rivers of Anzali Lagoon.

Habitat. Cold mountain to warm foothill streams. Not found in brackish water.

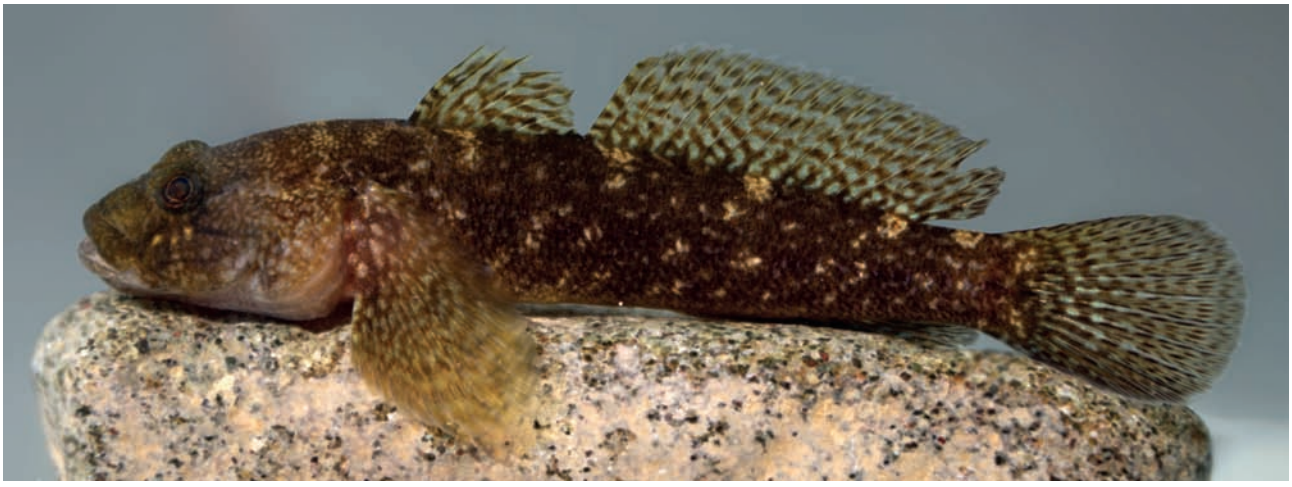
Biology. Male guard eggs in gravel or rocky burrows. Feeds mainly on small fish and a wide variety of invertebrates.

Conservation status. LC.

Further reading. Eagderi et al. 2020 (description); Zarei et al. 2022b, c (distribution, biogeography, genetics, morphology).

The Sefid in Iran, here after heavy rain, is the habitat of *Ponticola iranicus*.

Ponticola rizensis; İyidere drainage, Türkiye; ~60 mm SL. © M. Özuluğ.



Ponticola rizensis; Aksu drainage, Türkiye; ~70 mm SL. © M. Özuluğ.

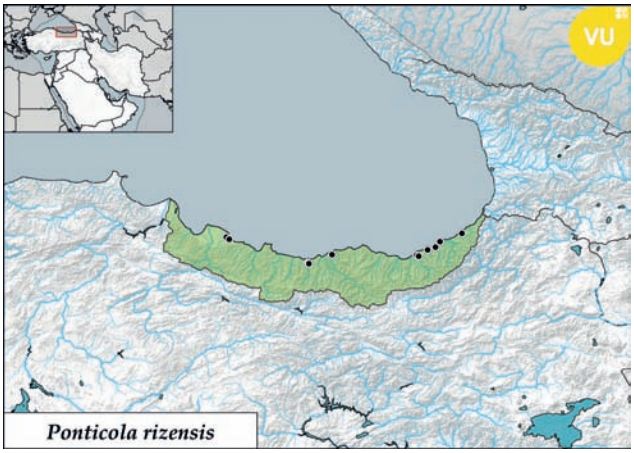
Ponticola cf. *rizensis*; Filyos drainage, Türkiye; ~80 mm SL. © M. Özuluğ.

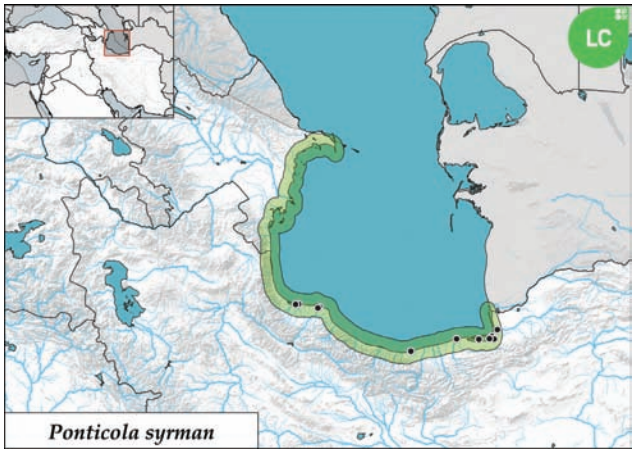
Ponticola rizensis

Common name. Colchic goby.

Diagnosis. Distinguished from other species of *Ponticola* entering freshwater in West Asia by: ○ lateral part of upper lip distinctively swollen / ○ lower jaw prognathous / ○ predorsal area uniform brown or dark-grey / ○ first dorsal without bold, distal, dark-brown band / ○ head depressed, wider than deep / ○ 59–73 +3 scales in midlateral series / ○ caudal peduncle depth 18–22 % of caudal peduncle length / ○ two suborbital transverse rows below suborbital longitudinal row *b* / ○ pelvic disc reaching 40–60 % of distance between its origin and anus / ○ pelvic-disc fraenum with angular lobes whose length is $\frac{1}{6}$–$\frac{1}{2}$ of fraenum width at base. Size up to 124 mm SL.

Distribution. Türkiye: Aksu (Giresun) east to Hopa drainages.
Habitat. Cold mountain to warm foothill streams. Not found in brackish water.
Biology. Male guard eggs in gravel or rocky burrows. Feeds mainly on small fish and a variety of invertebrates.
Conservation status. VU; appears to be slowly declining within its relatively small range.
Remarks. Molecular characters do not distinguish *P. rizensis* and *P. turani* from each other but clearly distinguish both together from *P. constructor.* Published morphological data place *P. constructor* somewhere between these two species. However, all characters used to differentiate *P. constructor*, *P. rizensis,* and *P. turani* largely overlap in fresh material we examined, and further studies are needed to distinguish at least the two species supported by molecular characters (*P. constructor* and *P. rizensis*). *Ponticola rizensis* and *P. turani* have been published in the same study. As a first reviser, we give priority to *P. rizensis* over *P. turani.* This makes *P. turani* a synonym of *P. rizensis*. *Ponticola* west of Aksu might belong to this species.
Further reading. Kovačić & Engin 2008 (description).





Ponticola syrman; Danube delta, Romania; ~100 mm SL.

Ponticola syrman
Common name. Syrman goby.
Diagnosis. Distinguished from other species of *Ponticola* entering freshwater in West Asia by: ○ pelvic-disc fraenum with small, rounded lobes, whose length is less than $\frac{1}{6}$ of fraenum width at base / ● three suborbital transverse rows below suborbital longitudinal row *b* / ○ interorbital distance equal to eye diameter) / ○ lateral part of upper lip not distinctively swollen / ○ lower jaw not or very slightly prognathous / ○ pelvic disc reaching 60–70 % of distance between its origin and anus / ○ 57–67+2–3 scales in midlateral series / ○ head depressed, wider than deep. Size up to 220 mm SL.
Distribution. Azov, northern Black Sea, and Caspian basins. In West Asia only confirmed from Caspian but not from Black Sea basin.
Habitat. Inshore habitats, estuaries, brackish and freshwater lagoons, and large rivers on muddy bottoms. Restricted to coastal areas and rarely found in freshwater.
Biology. Lives up to 4 years. First spawns at 1–2 years in March–June. Female may spawn twice in a season. Adhesive eggs laid under or between stones, shells, and aquatic vegetation. Male guard eggs until hatching. Feeds on a wide variety of invertebrates and small fish.
Conservation status. LC.
Further reading. Pinchuk et al. 2003d (biology, description).

Proterorhinus

All freshwater species of *Proterorhinus* have long been confused under the name *P. marmoratus*. Morphological and molecular data indicate that *P. marmoratus* does not enter pure freshwaters; it inhabits brackish waters in the Black Sea. Consequently, it is only mentioned in the key. *Proterorhinus semilunaris* also enters brackish waters and both may occur at similar salinities and may form hybrids. Three species occur in the Black Sea and two, potentially three, in the Caspian basin. All three Caspian species have been described from coastal habitats: *P. nasalis* and *P. blennioides* from the Caspian Sea near Baku (Azerbaijan) and *P. semipellucidus* from the mouth of the Karasu, a tributary of Gorgan Bay (Iran). *Proterorhinus nasalis* from Azerbaijan and Russia and *P. semipellucidus* from Iran might be conspecific or two allopatric species. Much more research is needed on this genus and the situation might be quite different from what is presented here in summer 2025.

Further reading. Kessler 1877 (description of *P. semipellucidus*); Neilson & Stepien 2009 (phylogeny with mixed-up names); Zarei et al. 2021 (phylogeny with mixed-up names); Vasil'eva et al. 2025 (*P. blennioides*).

Key to species of *Proterorhinus* in Black Sea basin

1a - Head length 24–28 % SL; 15–17. anal rays.
……*P. marmoratus*
1b - Head length 28–35 % SL; 13–14, rarely 16 anal rays.
……2

2a - Head length 28–31 % SL; usually 14. anal rays.
……*P. semilunaris*
2b - Head length 31–35 % SL; usually 13. anal rays.
……*P. victori*

Key to species of *Proterorhinus* in Caspian Sea

1a - Eye diameter 16–21 % HL, as wide or smaller than interorbital space.
…… *P. blennioides*
1b - Eye diameter 20–28 % HL, wider than interorbital space.
…… 2

2a. Usually second 15–17½ branched rays in second dorsal fin; usually 13–15½ branched anal rays; 39–61 scales in midlateral series.
…… *P. nasalis*
2b. Usually 14–15½ branched rays in second dorsal fin; usually 10–14½ branched anal rays; 36–45 scales in midlateral series.
…… *P. semipellucidus*

Proterorhinus blennioides; Samur, Dagestan, Russia; nuptial male, ~65 mm SL. © A. Naseka.

Proterorhinus blennioides

Common name. Caspian tubenose goby.

Diagnosis. Distinguished from other species of *Proterorhinus* in Caspian basin by: ○ eye diameter 16–21 % HL / ○ usually 13½ branched anal rays. Size up to 90 mm SL.

Distribution. Iranian Caspian basin.

Habitat. Usually associated with dense vegetation or coarse rocks.

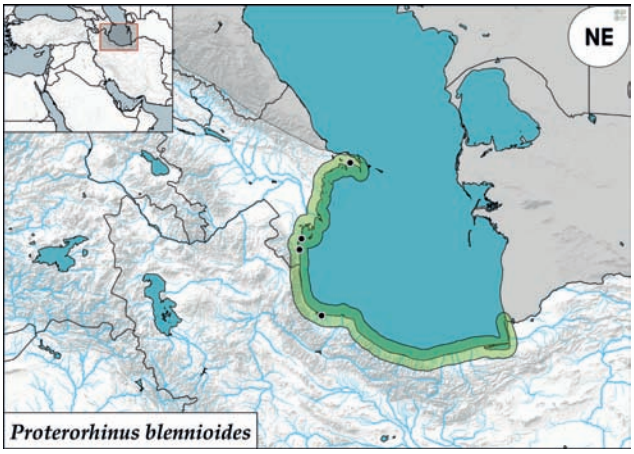
Biology. No data

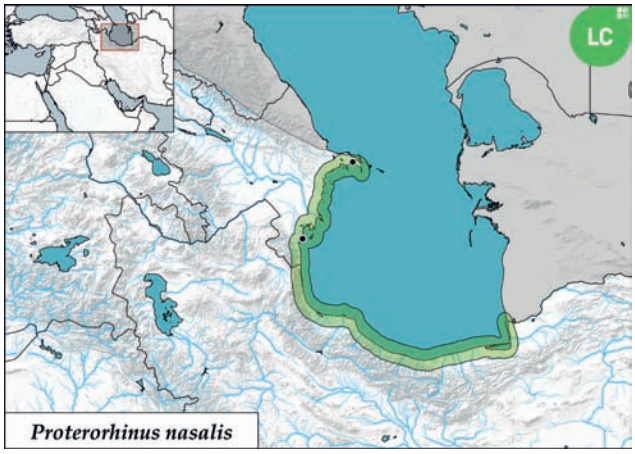
Conservation status. NE.

Remarks. In recent molecular literature, this species has been misidentified as *P. semipellucidus*, a synonym of *P. nasalis* or a species potentially endemic to the Iranian Caspian basin.

Further reading. Stepien & Tumeo 2006 (genetics as *P. semipellucidus*); Zarei et al. 2021 (phylogeny as *P. semipellucidus*); Vasil'eva et al. 2025 (redescription).

Proterorhinus blennioides; Samur, Dagestan, Russia; female, ~50 mm SL. © A. Naseka.





Proterorhinus nasalis; Baltic Sea, Estonia; non-nuptial male, ~ 50 mm SL. © K. Kurina

Proterorhinus cf. *semipellucidus* Gorgan Bay, Iran; non-nuptial male, ~60 mm SL.

Proterorhinus nasalis

Common name. Eastern tubenose goby.

Diagnosis. Distinguished from other species of *Proterorhinus* in Caspian basin by: ○ eye diameter 20–28 % HL / ○ usually 14, rarely up to 16½ branched anal rays. Size up to 90 mm SL.

Distribution. Caspian and Azov basins. Native to Volga delta, now reaching as far as Lake Rybinskoye. Reached eastern Baltic basin in Russia, Estonia and Finland in recent years.

Habitat. A variety of slow-flowing or still waters. Usually associated with dense vegetation or coarse rocks.

Biology. Spawns first time at 1–2 years, usually for 1–2 seasons, in April–August. Females spawn more than once in a season. Male guard eggs deposited in burrows. Larvae and juveniles benthic. Feeds on benthic invertebrates.

Conservation status. LC; invasive in Volga and Baltic basin, where it is spreading, reportedly facilitated by canalisation of main rivers and reservoirs or slow-flowing waters created by hydroelectric plants.

Remarks. In recent literature, this species has been misidentified as *P. semipellucidus*, a species potentially endemic to the Iranian Caspian basin. It cannot be excluded that *P. semipellucidus* might be a valid species, and future research is encouraged to investigate this question. In recent literature, this species has been misidentified as *P. semipellucidus*, a species potentially endemic to the Eastern Caspian basin. *Proterorhinus semipellucidus* was redescribed too late to get full credits in this book. It can be identified by the key on page 675.

Further reading. Miller 2004 (description, biology); Naseka et al. 2005 (invasion); Zarei et al. 2021 (phylogeny); Kurina et al. 2024 (Baltic invasion); Vasil'eva et al. 2025a (*P. blennioides*); Vasil'eva et al. 2025b (*P. semipellucidus*).

Proterorhinus nasalis; Azov basin, Ukraine; ~50 mm SL.

Proterorhinus semilunaris; Lake Sapanca, Türkiye; female, ~35 mm SL.

Proterorhinus semilunaris; Lake Sapanca, Türkiye; male, ~55 mm SL.

Proterorhinus semilunaris

Common name. Western tubenose goby.

Diagnosis. Distinguished from other species of *Proterorhinus* in Black Sea basin by: ○ head length 28–31 % SL / ○ eye diameter 20–28 % HL / ○ 13–16, usually 14½ anal rays / ○ total scales in midlateral series 41–47. Size up to 90 mm SL.

Distribution. Marmara and Black Sea basins, and Maritza and Struma drainages in eastern Aegean. In Danube, historically present up to about Vienna, invasive since 1970s, now reaching upstream to Germany and France. Invaded Baltic and North Sea basins since 1992, now widespread from Sommes (France) east to Vistula (Poland). Also in upper Rhône. In South Bug and Dnieper native far upstream. No reports of spread into Anatolia and arrived in North America in 1991 in ballast of ships.

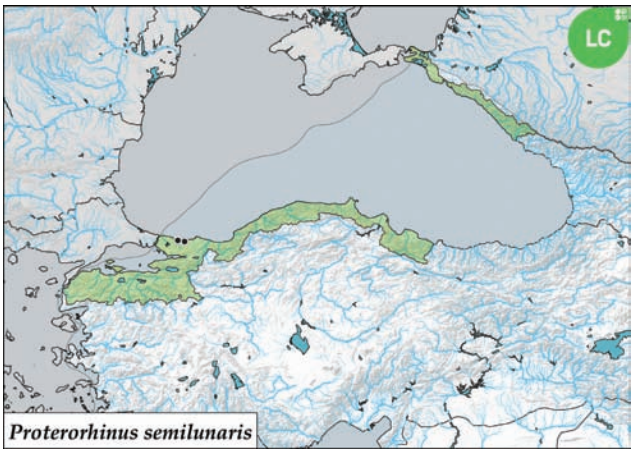
Habitat. A variety of slow-flowing or standing waters, from estuaries to small, slow-flowing pre-montane streams. Usually associated with dense vegetation or coarse rocks. Often very abundant in backwaters and lakes, increasing in reservoirs and canals.

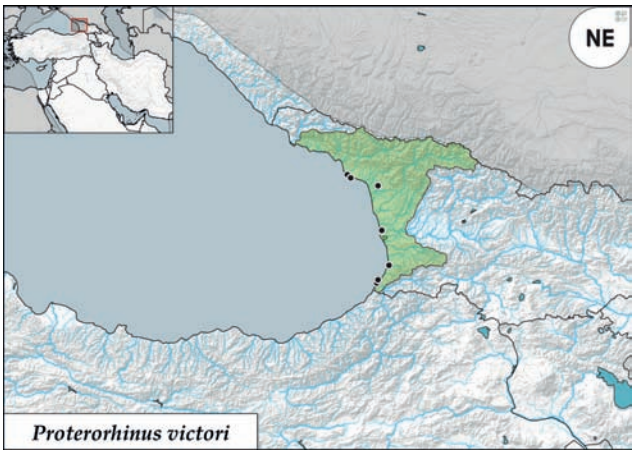
Biology. Spawns first time at 1–2 years, usually for 1–2 seasons, in April–August. Female spawn more than once in a season. Male guard eggs deposited in burrows, larvae and juveniles benthic. Feeds on benthic invertebrates.

Conservation status. LC.

Remarks. Molecular studies revealed different haplotypes within populations in Georgia indicate past hybridisation with *P. victori*. Further studies are needed to resolve the species diversity of tubenose gobies.

Further reading. Ahnelt et al. 1998 (invasion); Pinchuk et al. 2004a (description, biology); Naseka et al. 2005 (invasion); Stepien & Tumeo 2006 (genetics).





Proterorhinus Kintrishi, Georgia; ~60 mm SL. © M. Geiger (LIB).

Proterorhinus victori

Common name. Georgian tubenose goby.

Diagnosis. Diagnosis. Distinguished from other species of Proterorhinus in Black Sea basin by: ○ head length 31–35 % SL / ○ eye diameter 20–27 % HL / ○ 12–14½, usually 13½ anal rays / ○ total scales in midlateral series 42–59. Size up to 75 mm SL.

Distribution. Georgia: Chorokhi, Kintrishi, Mchishta and lakes Kakhaberi and Inkiti in Black Sea basin.

Habitat. A variety of slow-flowing or still waters. Usually associated with dense vegetation or coarse rocks.

Biology. No data

Conservation status. NE; due to the very poor knowledge about this recently described species.

Remarks. The presence of mtDNA from *P. semilunaris* in fish from Kintrishi indicates some degree of hybridisation between the two species.

Further reading. Zarei et al. 2021 (phylogeny); Vasil'eva 2024 (description)