

Summary Conservation Action Plans for Mongolian Fishes

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Front cover: Uur River Valley in Hövsgöl aimag, courtesy of Z. Hogan

The Mongolian Biodiversity Databank holds further details on all the species listed in this book. It is available to the public and can be accessed through:

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Because only a limited number of hard copies will be produced, electronic versions of this report will be available through the ZSL library (<http://library.zsl.org>) and www.regionalredlist.com.

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INTRODUCTION TO THE SUMMARY CONSERVATION ACTION PLANS

An expert working group assessed the fishes of Mongolia during the Mongolian Biodiversity Databank Workshop from October 31st to November 4th 2005, using the ‘IUCN Red List Categories and Criteria’ (IUCN, 2001) in conjunction with the ‘Guidelines for Application of IUCN Red List Criteria at Regional Levels’ (IUCN, 2003). This was the first time that regional guidelines had been applied to Mongolian fishes, and the results of the assessment provided an overview of their conservation status. A full list of species occurring in Mongolia and possible species is included in Annex I. Nearly a quarter of fish species found in Mongolia are regionally threatened, including all of Mongolia’s currently known endemic species. During the assessment process, a number of suggestions were made regarding conservation measures that could be implemented to help arrest the decline of these threatened species. These suggestions were expanded after the workshop, and are presented here together with population data and threat information, in the form of summary conservation action plans.

Eleven Mongolian fish species were identified as threatened. Each of these threatened species are the subject of a summary conservation action plan in this document. However, it should be noted that the quantity and quality of available data varies between these species. The taimen (*Hucho taimen*) is the most studied fish species in Mongolia, and the conservation measures suggested here build on existing work. In contrast, the Gobi loach (*Barbatula dgebuadzei*) and Dzungarian dace (*Leuciscus dzungaricus*) have only recently been described and very little is known about them, making baseline research a priority. For other species such as the Siberian sturgeon (*Acipenser baerii*), considerable information is available across the rest of their global ranges, but little is known about their occurrence in Mongolia.

These summary conservation action plans are intended to highlight species that are of particular concern, and alert policy-makers, conservationists, and government and planning authorities of actions that will help to ensure that all fishes of Mongolia maintain viable populations into the future. None of the species listed in this document have specific, detailed action plans in place, and the Summary Conservation Action Plans for Mongolian Fishes are not intended to preclude the need for these detailed plans. Each summary conservation action plan presents information about the status of the species, the current known distribution, threats faced, conservation measures already established, and recommended further conservation measures.

The future of Mongolia’s aquatic biodiversity depends on the response of the Mongolian and global community to the plight of the species discussed in these summary conservation action plans.

FORMAT OF SUMMARY CONSERVATION ACTION PLANS

The Summary Conservation Action Plans for Mongolian Fishes are arranged according to the IUCN threat categories, with the most threatened listed first. Within each threat category, higher-level taxonomy follows the standard ichthyological systematic order (Lundberg, 2006). Each summary conservation action plan follows the format outlined below:

Species name and taxonomic authority

Common names (English and Mongolian)

Synonyms/previous combinations/misidentifications (if applicable)

Description

Brief information on the physical characteristics of the species and any comments on taxonomic issues.

Conservation overview

Global status (global risk of extinction)

IUCN global population assessment for several species given in the ‘2004 IUCN Red List of Threatened Species’ (IUCN, 2004). Alteration of an existing global assessment during the Mongolian Biodiversity Databank Workshop is denoted by a single black circle symbol (●). If this was the first assessment for the species or subspecies using the ‘IUCN Red List Categories and Criteria’ (IUCN, 2001) and it is pending evaluation by IUCN Red List Authorities, this is denoted with a double black circle symbol (●●).

Regional status (risk of extinction within Mongolia)

Regional assessments conducted for the first time for Mongolian fishes using the ‘IUCN Red List Categories and Criteria: Version 3.1’ (IUCN, 2001), and the ‘Guidelines for Application of IUCN Red List Criteria at Regional Levels: Version 3.0’ (IUCN, 2003). For further details please refer to Ocock *et al.* (2006), or the Mongolian Biodiversity Databank. Conservation assessments are identical to global status if endemic to Mongolia.

Legal status (if applicable)

Existing protective legislature for Mongolian fish species, including both Mongolian laws (e.g. Law on Hunting, Law on Fauna) and international laws (e.g. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): see UNEP-WCMC (2006)). All Mongolian fishes have a legislated fishing season (e.g. species in Buir Lake cannot be fished between May 15th and June 1st, and all other species/populations cannot be fished between April 1st and June 16th). Several species are either legislated under the Law on Hunting, or listed as Very Rare or Rare under the Law on Fauna, have restricted fishing seasons which ban fishing for extended periods (Wingard and Odgerel, 2001).

Distribution**Global distribution**

Based on Kottelat (in prep.), Reshetnikov *et al.* (1997) and Reshetnikov (2001).

Regional distribution

Accompanied by a distribution map for Mongolia. Natural distribution of each species (indicating rivers/lakes and their drainage basin), excluding regions where the species has been deliberately introduced or has become invasive due to deliberate introduction in another country. Although these are as accurate and up to date as possible, it should be noted that many species are lacking in distribution data. As further research is conducted, changes to these maps are likely to occur.

Habitat and ecology

Habitat preferences within Mongolia and general comments on ecology.

Dominant threats

Brief outline of dominant threats and their causes, identified as being of immediate and primary concern by participants during the Mongolian Biodiversity Databank Workshop. Threat processes can be complex and reflect multiple factors; for more detailed information please refer to the Mongolian Biodiversity Databank.

Conservations measures in place

Specific conservation actions currently established.

Conservation measures required

Actions suggested by experts at the Mongolian Biodiversity Databank Workshop and by other specialists in subsequent reviews, which are expected to reduce the negative impact of threats and ensure the future persistence of the species.

All summary conservation action plans have been compiled by Joanne Ocock and reviewed by participants of the expert working group and other specialists.

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THE SUMMARY CONSERVATION ACTION PLANS

CRITICALLY ENDANGERED

Acipenser baerii

Brandt, 1896

Order: Acipenseriformes

Family: Acipenseridae



Photograph courtesy of T. Frutigen

Common names:

Siberian sturgeon (English), Shiwer hilem (Mongolian)

Description

This species may live for up to sixty years, and generally reaches sexual maturity between the ages of 18-24 (males) and 24-28 (females) (CITES, 2000). Typical weight is around 65 kg, although fish weighing up to 200 kg have been caught in the past (CITES, 2000). The Mongolian population migrates from Lake Baikal to rivers such as the Selenge, which is a major spawning ground, not to the sea. The spawning season lasts from May to June (M. Erdenebat, pers. comm.).

Conservation overview

Global status: Vulnerable, A2d (Sturgeon Specialist Group, 1996).

The following subspecies have been assessed (Sturgeon Specialist Group 1996):

Acipenser baerii baerii Endangered, A2d

Acipenser baerii baikalensis Endangered, A1ace

Acipenser baerii stenorrhynchus Vulnerable, A2d

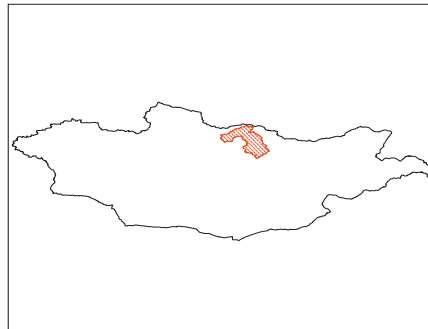
However, subspecific taxonomy may require revision (M. Kottelat, pers. comm.).

Regional status: Critically Endangered, B2ab(iii,v)

Legal status: Listed in Appendix II of the Convention on International Trade in Endangered Species, and Appendix II of the Convention on Migratory Species. Listed as Very Rare under the Mongolian Law on Fauna (Wingard and Odgerel, 2001). The Mongolian Law on Hunting states that it may not be harvested for personal or industrial purposes. However, there is difficulty enforcing this ban, and a license to catch this sturgeon may be obtained from the Ministry for Nature and Environment (Wingard and Odgerel, 2001).

Distribution

Global distribution: Ob to Kolyma river basins, including Yenisey River and Lake Baikal and Zaisan, Russia. The southern range includes Selenge River, Mongolia, and Irtysh River, Kazakhstan.



Regional distribution: Selenge and Orkhon rivers, and the lower reach of Kharaa River (Arctic drainage).

Habitat and ecology

Acipenser baerii undertakes two migrations in summer. The first starts half way through April and ends mid June. The second takes place from the end of July until mid September (Baasanjav and Tsendayush, 2001). Migration stops with decreasing water temperatures. Breeding sites are usually large-grain sand and pebble beds. After breeding, they move downstream to deep water holes and Lake Baikal (Baasanjav and Tsendayush, 2001). They have been observed to overwinter in the deep pools of Selenge River.

Dominant threats

The major threat to this species is overfishing. Although the sale of caviar has recently been banned by the Secretariat to the Convention on Trade in Endangered Species (CITES, 2006), sturgeon meat continues to retail for high prices. The rivers inhabited by this species in Mongolia are also impacted by urban pollution (especially Kharaa and Tuul rivers), and by pollution from large and small gold mining operations, which generate both localised sedimentation that may bury eggs at sturgeon spawning grounds, and inorganic pollution through the use of mercury or cyanide leaching for gold extraction. Water turbidity has also increased along Selenge River as a result of local deforestation. Globally, this is the most frequently captive-bred sturgeon in the world (CITES, 2000), and it is also at risk from genetic pollution resulting from translocation and escapes of captive fish (M. Kottelat, pers. comm.).

Conservations measures in place

- This species is conserved under Mongolian and international laws, however no conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Surveys to ascertain population size and location of spawning sites in Mongolia.
- Control of illegal fishing.
- Collaboration with Russian scientists on information and conservation actions.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, D. Gilroy, M. Kottelat, B. Mendsaikhan and K. Smith.

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ENDANGERED

Barbatula dgebuadzei (Prokofiev, 2003)

Order: Cypriniformes

Family: Balitoridae

Common names: Gobi loach (English), Gobiin ereelj (Mongolian)

Description

This is a recently described species of stone loach. The largest known specimen is 141 mm in length.

Conservation overview

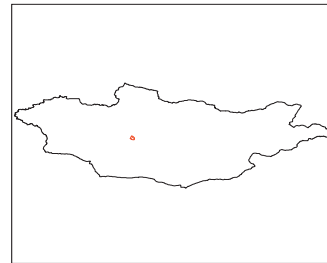
Global status: Endangered B2ab(iii) ●●

Regional status: Endangered B2ab(iii)

Distribution

Global distribution: Mongolia.

Regional distribution: Zag stream and the Baidrgag River basin near Zag town (Central Asian Inland drainage basin).



Habitat and ecology

No data available at present.

Dominant threats

Decline in habitat quality due to nearby gold mining.

Conservation measures in place

- No conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Population surveys in Zag stream and the surrounding drainage basin. Establish baseline data to assess future population trends.
- Research on ecology and habitat, e.g. spawning period and location.
- Research on environmental impact of the nearby gold mine and mitigation of detrimental effects.
- Research on the presence of other threat processes and their impacts.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, M. Kottelat, B. Mendsaikhan and K. Smith.

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Leuciscus dzungaricus Koch and Paepke, 1998

Order: Cypriniformes

Family: Cyprinidae

Common names: Dzungarian dace (English), Jungariin sugas (Mongolian)

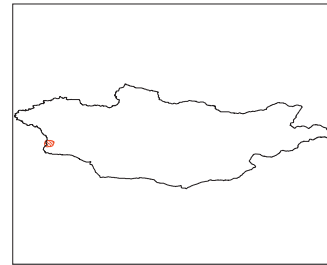
Conservation overview

Regional status: Endangered, B1ab(v) and B2ab(v)

Distribution

Global distribution: Mongolia and China. It is not known whether the species also occurs in Kazakhstan.

Regional distribution: Lower part of Bulgan River.



Habitat and ecology

No data available at present.

Dominant threats

Potential continued decline of mature individuals due to illegal commercial fishing.

Conservation measures in place

- No conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Population surveys. Establish baseline data to be able to determine future population trends.
- Research on ecology and habitat, e.g. spawning period and location.
- Investigation of levels of illegal fishing.
- Investigation of other potential threat processes affecting the population.
- Information sharing and collaboration with Chinese scientists.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, M. Kottelat, B. Mendsaikhan and K. Smith.

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Coregonus pidschian (Gmelin, 1788)

Order: Salmoniformes

Family: Coregonidae

Common names: Pidschian
or Arctic whitefish (English),
tsagaan zagas (Mongolian)

Previous combinations:
Coregonus lavaretus pidschian



Photograph courtesy of D. Gilroy

Description

This is a silver fish which typically reaches 30 cm (Berg, 1962) but can reach 50 cm (Maitland, 2000). Adults possess a pronounced hump behind the head. Maturity is reached at 2-4 years, and adults can live for up to 12 years (Maitland, 2000). There are several forms of this species, two are recorded from Mongolia, a lake form and a lake/river form, which may be genetically distinct (Dulmaa, 1972; M. Kottelat, pers. comm.).

Conservation overview

Global status: Data Deficient (World Conservation Monitoring Centre, 1996)

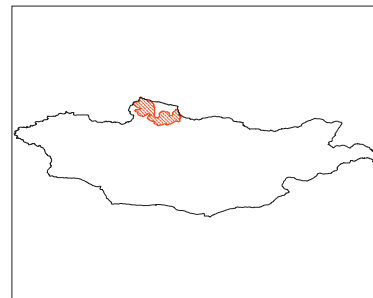
Regional status: Endangered, B2ab(iii,v)

Legal status: Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The Mongolian Law on Hunting prohibits the catching of this fish from August 1st to October 20th (Wingard and Odgerel, 2001). However, there is difficulty enforcing this ban.

Distribution

Global distribution: Finland across to Eastern Russia, Mongolia, river basins bordering the Bering Sea in Alaska (U.S.A.), and across to the Mackenzie River Basin, Canada.

Regional distribution: Darkhad Depression and Uur and Eg rivers (Arctic drainage).



Habitat and ecology

The lake/river form goes upstream to spawn, and feeds on invertebrates, especially bivalves and crustaceans. The lake form spawns in lakes and feeds on plankton.

Dominant threats

The main threat to this species is the introduced coregonid *Coregonus peled*, which was introduced into Dood Tsagaan Lake in Darkhad Depression in 1985. The pidschian population has declined by about 50% since 1993 due to competition with *C. peled*. Hybridisation is also occurring between these species. The pidschian is a target for commercial fishing, and records indicate that until 1986, this species represented 70-80% of the commercial catch in the Darkhad Depression (Baasanjav and Tsendayush, 2001). Although official records of individual species are no longer kept, it is suspected this percentage has significantly decreased (G. Baasanjav, pers. comm.).

Conservations measures in place

- This species is conserved under Mongolian and international laws, however, no conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Surveys to ascertain population size.
- Research to identify spawning sites and migration routes.
- Genetic and morphological analyses to decide whether the two 'forms' represent different species or mere variation within a single species.
- Initiate official records of the commercial catch of this species.
- Control of illegal fishing.
- Prevention of further introductions of non-native coregonid species.
- Review the Law on Fauna to recognise the threatened status of this species.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, D. Gilroy, M. Kottelat, B. Mendsaikhan and K. Smith.

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Thymallus grubei

Dybowski, 1869

Order: Salmoniformes

Family: Thymallidae

Common names: Amur grayling
(English), Amaryn khadran
(Mongolian)



Photograph courtesy of B. Dresler

Description

Usually reaches a length of 305 mm and a weight of 320 g (Berg, 1962).

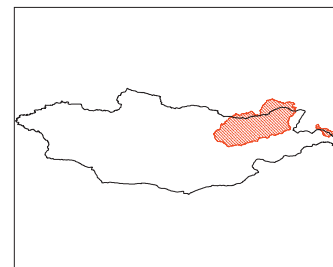
Conservation overview

Regional status: Endangered, B2ab(iii,v)

Distribution

Global distribution: Amur River Basin (China, Russia, Mongolia).

Regional distribution: Kherlen, Onon and Khalkhin rivers; absent from Buir Lake (Amur drainage).



Habitat and ecology

This species prefers strong currents and areas with overhanging vegetation. It winters in deep waters, feeding as soon as ice melts, and migrating upstream to breed in river headwaters. It feeds on invertebrates and is prey to taimen, lenok and other predatory fish (Baasanjav and Tsendayush, 2001).

Dominant threats

This species is primarily threatened by illegal fishing driven by commercial

demand, which is occurring throughout its habitat and causing a decline in the number of mature individuals. Its habitat is also becoming locally degraded through sedimentation and inorganic pollution caused by gold mining.

Conservation measures in place

- No conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Increased control of illegal fishing.
- Research on the impact of gold mining on the species and mitigation of detrimental effects.
- Initiate official records of the commercial catch of this species.
- Review the Law on Fauna to recognise the threatened status of this species.
- Collaboration with Russian and Chinese scientists on research and conservation actions.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, M. Kottelat, B. Mendsaikhan and K. Smith.

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Berg, L.S. (1962). *Freshwater fishes of the U.S.S.R. and adjacent countries*. Vol. 1, 4th edition. Israel Program for Scientific Translation, Jerusalem. (Russian version published 1948)

Thymallus nigrescens

Dorogostaisky, 1923

Order: Salmoniformes

Family: Thymallidae

Common names: Hövsgöl grayling (English), Hövsgöl khadran (Mongolian)



Photograph courtesy of B. Mendsaikhan

Description

This grayling is blackish-blue in colour and omnivorous (Berg, 1962). Ten year-old fish reach up to 310-350 mm in length, with females reaching a maximum weight of 330 g, and males weighing considerably less (Dulmaa, 1999). The two forms of this species occurring in Hövsgöl Lake may be genetically distinct (Dulmaa, 1983; B. Mendsaikhan, pers. comm.).

Conservation overview

Global status: Endangered, B2ab(i,ii,iii,iv,v) ●●

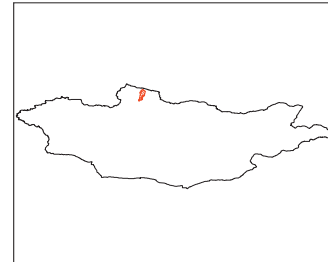
Regional status: Endangered, B2ab(i,ii,iii,iv,v)

Legal status: The Mongolian Law on Hunting prohibits the catching of fish species not covered by other restrictions between April 1st and June 15th (Wingard and Odgerel, 2001), but this ban is difficult to enforce. Hövsgöl Lake is a World Heritage Site and National Park, though these measures were not established specifically for this species.

Distribution

Global distribution: Mongolia.

Regional distribution: Lake Hövsgöl and its associated rivers.



Habitat and ecology

The species occurs in shallow waters in Hövsgöl Lake, from near the shore down to a depth of 50 m. It has been known to spawn in the lake, but also the rivers and streams associated with the lake are important spawning habitats, with fish migrating up to 15 km upstream. The two grayling populations occurring in Hövsgöl Lake spawn at different times; one population begins the migration to spawning areas at the end of May, the other population at the end of July/start of August (Dulmaa, 1983; B. Mendsaikhan, pers. comm.).

Dominant threats

This species is threatened by overfishing and loss of spawning sites. Poaching occurs despite Hövsgöl Lake being a protected area, mainly on the west and east sides of the lake furthest from the ranger station and where there is only one ranger per 60 km². Ninety-six permanent rivers previously flowed into the lake, but today only 20 contain permanent water and most dry up between June and July, preventing the species from migrating upstream to spawn (B. Mendsaikhan, pers. comm.). It is suspected this is due to climate change, but may also be caused by habitat degradation around the lake such as tree-felling.

Conservations measures in place

- This species is conserved under Mongolian laws, however, no conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Control of illegal fishing.
- Improved communication between rangers in different areas to track movement of poachers.
- Genetic and morphological analyses to determine if the two forms represent different species.
- Further research, building on previous work by the Hövsgöl Project, into the region's rivers drying up.

- Collaboration between conservation organisations and aimags (provinces) on control of fishing, especially during spawning periods.
- Collaboration between conservation organisations and aimags to regulate tourist activities around the lake.
- Revise the Law on Fauna to recognise the threatened status of this species and ensure that fishing restrictions cover its specific spawning season.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, M. Kottelat, B. Mendsaikhan and K. Smith.

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Hucho taimen (Pallas, 1773)

Order: Salmoniformes

Family: Salmonidae

Common names: Taimen (English), tul (Mongolian)



Photograph courtesy of Z. Hogan

Description

Sport fishing organisations report an average adult length of around 80 cm, although adults up to 160 cm in length have occasionally been caught (Parkinson, 2005).

Conservation overview

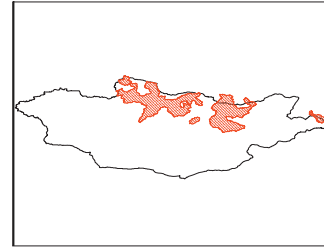
Regional status: Endangered, A2de and A3de and B2ab(iii,v)

Legal status: Listed as Rare under the Mongolian Law on Fauna, although it remains possible to obtain fishing licenses for the species (Wingard and Odgerel, 2001). The Mongolian Law on Hunting prohibits the catching of any fish between April 1st and June 15th, but there is difficulty in enforcing this ban. Mongolian anglers can catch a maximum of two fish for domestic use with one licence. Foreign anglers require a licence for catch-and-release fishing from the Ministry of Nature and Environment. Fishing camps and tour operators require contracts with the local soum, which first needs approval from the relevant aimag before they can apply for the licences. It is also possible to purchase fishing licences to kill taimen from the Ministry of Nature and Environment (Wingard and Odgerel, 2001; A. Parkinson, pers. comm.).

Distribution

Global distribution: Ob to Lena river basins (Russia), Okhotsk Sea Basin to Amur River Basin (China, Russia, Mongolia), western upper tributaries of Pechora River (Russia), Kama River (Russia and Kazakhstan).

Regional distribution: Shishked, Eg, Uur, Delger Moron, Ider, Chuluud, Eroo, Selenge, Orkhon, and Tuul rivers, and Darkhad Depression (Arctic drainage), and Onon, upper Kherlen and Khalkhin rivers (Amur drainage).



Habitat and ecology

This species starts feeding on invertebrates in its first month and becomes piscivorous after two months (~ 50 mm) (Holcik, 1988); it begins feeding on small graylings, lenok and sculpins as well as insects after two years (Matveyev *et al.*, 1998).

It is a migratory species that moves up or downstream to spawning locations. Taimen spawning occurs in spring, and is triggered by water temperature and secondarily by water flow (Vander Zanden, 2005). Spawning sites are located in primary river channels and the mouths of smaller tributaries. Redds (nests) are found at the pool-riffle transition where gravels are looser and there is good ground water exchange. A survey of spawning sites in the Eg-Uur watershed of northern Mongolia found taimen redds in 15-150 cm of water, with eggs covered by 10-20 cm of gravel and small cobble (D. Gilroy, pers. comm.). The species migrates to overwinter in deep pools where large congregations may occur.

Dominant threats

The taimen is threatened by over-fishing and habitat degradation. The largest current threat to the species is poaching using gill nets, dynamite and grenades, which occurs across its range. Most fish are caught by local fishers who sell them at local markets or to middlemen for illegal export to buyers in China and Russia. Taimen are most susceptible to poaching during winter, when they are in large groups. This is also a very popular sport-angling fish for both foreign and local people. Increased access to fishing supplies and private all-terrain vehicles have made the species more accessible. A lack of awareness of appropriate catch-and-release methods among local fishers poses a significant threat, and many tour operators permit clients to kill taimen rather than employing catch-and-release.

Taimen habitat is being degraded by mining, overgrazing, deforestation and organic pollution. Large-scale placer gold mining operations, which can cause serious sediment loading in streams and rivers that threatens fish respiration, spawning success and early development, are present in Tuul, Eroo and Orkhon rivers. A hardrock mine using cyanide to leach gold is located just upstream from Eg River on the Tavt tributary in Bulgan aimag's Teshig soum; the used cyanide leachate stored in settling ponds poses a great threat to all biota downstream. Sedimentation associated with overgrazing appears to be the main threat in Orkhon, Selenge, Ider and Chuluut rivers, and organic pollution is being discharged in sections of Tuul and Kharaa rivers. Water levels have also been dropping since the late 1980s, apparently as a result of land-use change, overgrazing, deforestation and climate change.

Conservations measures in place

- The Taimen Conservation Fund (TCF) operates in the Eg-Uur watershed and has many initiatives relating to taimen conservation in the community.

Conservation measures required

- Improved communication between rangers in different areas to track movement of poachers.
- Revise the Law on Fauna to recognise the threatened status of this species by making it illegal for tourists and non-subsistence anglers to use catch-and-kill methods.
- Establish several fishing zones with different opening dates for catch-and-release angling, to protect the species from disturbance during spawning.
- Pressure on local governments to prosecute hunting ban infringements.
- Increased co-operation and collaboration between aimag authorities, angling companies and researchers across the range of the species.
- Co-operation between aimags using the new watershed management law to implement conservation management plans for cross-boundary watersheds.
- Education programmes for communities and schools which address biological and ecological issues, general information on the status of the taimen, the regulation and enforcement of protective legislature, and the public's rights if they encounter poachers.
- Promote development of community tourism partnerships, community-based natural resource management systems, concession systems, or fishery management plans, to enable partnerships and revenue sharing between sport fishing operators and communities.
- Promote catch-and-release amongst all anglers (foreign and Mongolian) and publish catch-and-release guidelines.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, S. Chandra, M. Erdenebat, D. Gilroy, Z. Hogan, L. Joppa, M. Kottelat, B. Mendsaikhan, A. Parkinson, K. Smith and J. Vander Zanden.

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- Matveyev, A.N., Pronin, N.M., Samusenok, V.P. and Bronte, C. R. (1998). Ecology of Siberian taimen *Hucho taimen* in the Lake Baikal Basin. *Journal of Great Lakes Research* 24(4): 905-916.
- Skopet, M. B. (2005). *Trip report (Eg-Uur watershed drainage, April 10 – May 5, 2005)*. Report to Taimen Conservation Fund.
- Vander Zanden, J. (2005) *Mongolia taimen research project. Recommendations from Professor Jake Vander Zanden*. Report to Taimen Conservation Fund.
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VULNERABLE

Oreoleuciscus angusticephalus Bogutskaya, 2001

Order: Cypriniformes
Family: Cyprinidae



Photograph courtesy of M. Erdenebat

Common names: Lake osman or bigmouth osman (English), nohoi sugas (Mongolian)

Previous names: *Oreoleuciscus pewzowi*

Description

This species has a long lower jaw and a large head. It typically reaches a length of 700-800 mm and weighs up to 10 kg (Dulmaa, 1999). The classification of all *Oreoleuciscus* spp. is problematic (M. Kottelat, pers. comm.; M. Erdenebat, pers. comm.).

Conservation overview

Global status: Vulnerable, B1ab(v) ●●

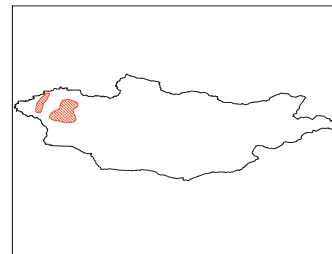
Regional status: Vulnerable, B1ab(v)

Legal status: The Mongolian Law on Hunting prohibits the catching of all *Oreoleuciscus* spp. from April 15th and August 1st (Wingard and Odgerel, 2001), but there is difficulty enforcing this ban. The species is found in several lakes in Khar Us Nuur National Park and Uvs Nuur Strictly Protected Area, although none of these areas were protected specifically for this species.

Distribution

Global distribution: Mongolia.

Regional distribution: Khar Us, Khar, Nagoon, Khyargas, Achit, Tolbo and Uureg lakes (Central Asian Inland basin).



Habitat and ecology

An omnivorous species that inhabits freshwater lakes.

Dominant threats

This species is threatened by illegal fishing. It is heavily fished outside protected areas, and is also subject to fishing in protected areas.

Conservations measures in place

- This species is conserved under Mongolian laws, however, no conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Surveys to ascertain population size and trends and location of spawning sites.
- Communication and information-sharing with the managers and rangers in Khar Us Nuur National Park, and Uvs Nuur Strictly Protected Area.
- Initiate official records of the commercial catch of this species.
- Control of illegal fishing.
- Revise the Law on Fauna to recognise the threatened status of this species.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, M. Kottelat, B. Mendsaikhan and K. Smith.

References

Bogutskaya, N.G. (2001). A revision of Altai osmans of the genus *Oreoleuciscus* (Cyprinidae: Leuciscinae) with a description of a new species, *O. angusticephalus*, from River Kobdo (Hovd) system, West Mongolia. *New contributions to freshwater fish research: Proceedings of the Zoological Institute of the Academy of Sciences of the USSR*: 287, 5-43.

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Wingard, J.R. and Odgerel, P. (2001). *Compendium of environmental law and practice in Mongolia*. GTZ Nature Conservation and Buffer Zone Development Project and GTZ Commercial Civil Law Reform Project. Published report. (English and Mongolian)

Oreoleuciscus humilis Warpachowski, 1889

Order: Cypriniformes

Family: Cyprinidae

Common names: Small osman or dwarf osman (English), dabjaa sugas (Mongolian)

Description

This is a slender fish with a body length of up to 200 mm (Dulmaa, 1999). It lives for up to 15 years. The spawning season extends from late June to August. A dwarf form and a lake form of this species are recognised. The Gobi population represents an isolated, severely fragmented population, which exhibit many forms that may be different species or variation within the species (M. Kottelat, pers. comm.; M. Erdenebat, pers. comm.).

Conservation overview

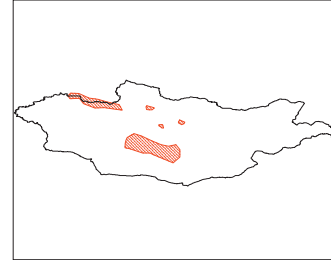
Regional status: Vulnerable, B2ab(ii,iii,iv,v)

Legal status: The Mongolian Law on Hunting prohibits the catching of all *Oreoleuciscus* spp. between April 15th and August 1st (Wingard and Odgerel, 2001). However, there is difficulty enforcing this ban.

Distribution

Global distribution: Lake Terekhol (Republic of Tuva, Russia), upper tributaries of Ob River (Russia), Mongolia.

Regional distribution: Taatsiin Tsagaan, Buun Tsagaan, Orog and Sangiin Dalai lakes, Baidrag, Ongi, Tes, Khungyin, Tuin, Tarna and Khuiten rivers, and the Gobi Valley of the Lakes and Valley of the Great Lakes (Central Asian Inland basin), and tributaries of Selenge and Orkhon rivers (Arctic drainage).



Habitat and ecology

Mainly found in small streams and rivers, and in lakes.

Dominant threats

This species is primarily threatened by the drying up of the lakes in the Gobi Valley of the Lakes, such as Ulaan Lake, which is now completely dry, and Orog Lake, which nearly dried out in 1980. Goldmines in the Gobi Valley of the Lakes and in the tributaries of Selenge and Orkhon rivers also pose a threat to the species through habitat degradation.

Conservations measures in place

- This species is conserved under Mongolian laws, however, no conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Little is known about this species. Research is required on its general biology, population size, spawning sites, migratory paths, interaction with other species, and the effects of pollution and sedimentation.
- Genetic and morphological research to determine if the Gobi populations are different species or variation within a single species.
- Control of illegal fishing.
- Collaboration with Russian scientists on research and conservation actions.
- Revise the Law on Fauna to recognise the threatened status of this species.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, M. Kottelat, B. Mendsaikhan and K. Smith.

References

- Dulmaa, A. (1999). Fish and fisheries of Mongolia. In: Petr, T. (Ed). *Fish and fisheries at higher altitudes. Asia FAO Technical Paper 385*. Rome.
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Thymallus brevirostris

Kessler, 1879

Order: Salmoniformes

Family: Thymallidae

Common names:

Mongolian grayling
(English), Mongol khadran
(Mongolian)



Photograph courtesy of M. Erdenebat

Description

This is the largest grayling species found in Mongolia, reaching up to 70 cm in length with a body weight of up to 3 kg (Baasanjav and Tsendayush, 2001).

Conservation overview

Global status: Vulnerable, B2ab(iii,v) ●●

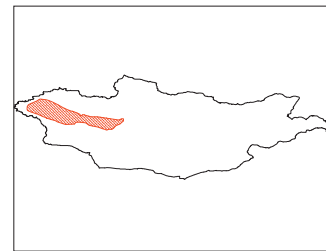
Regional status: Vulnerable, B2ab(iii,v)

Legal status: The Mongolian Law on Hunting prohibits the catching of any fish between April 1st and June 15th (Wingard and Odgerel, 2001). However, there is difficulty enforcing this ban. Nearly 80% of the grayling's distribution is within various protected areas, although none of these were established specifically for this species.

Distribution

Global distribution: Mongolia.

Regional distribution: Khovd, Zavkhan and Bogd rivers, and Khar, Khar Us, Achit, Tolbo, Airag, Tal, Khoton, Khorgon, Dayan and Khukh lakes (Central Asian inland basin).



Habitat and ecology

An omnivorous species that inhabits freshwater lakes and rivers.

Dominant threats

This species is found in a number of locations including several strictly protected areas, but is illegally fished everywhere it occurs. It is also affected by habitat degradation caused by a range of different factors, especially along Khovd River.

Erosion and sedimentation is being caused by drying up of lakes, overgrazing, vegetation removal from the banks of lakes, road building and mining. Rivers in Khovd aimag are becoming polluted with untreated sewage from Altai and Khovd towns, and a hydro-electric power station is currently being built on Chono haraih river between lakes Khar Us and Khar, which is likely to disrupt grayling migration, particularly in Khar lake. There is also a potential threat of genetic contamination from inappropriate translocations to replace locally extinct populations.

Conservations measures in place

- This species is conserved under Mongolian laws, however, no conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Re-establish communication with Khovd River dam project, provide further recommendations and maintain involvement.
- Improve communication with protected area researchers and rangers, and better facilitation of information between interested parties on population numbers, migration and spawning sites.
- Initiate official records of the commercial catch of this species.
- Control of illegal fishing.
- Research into regional effects of climate change, supported by the local university and local participants.
- Revise the Law on Fauna to recognise the threatened status of this species and ensure that fishing restrictions cover its specific spawning season.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, M. Kottelat, B. Mendsaikhan and K. Smith.

References

- Baasanjav, G. and Tsendayush, Y. (2001). *Fishes of Mongolia*. ADMON, Ulaanbaatar.
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Brachymystax lenok

(Pallas, 1773)

Order: Salmoniformes

Family: Salmonidae

Common names:

Lenok (English), zeveg

(Mongolian)



Photograph courtesy of M. Skopets

Description

This slow-growing fish reaches 670 mm in length and averages 3.25 kg in weight, although it can reach 6 kg (Berg, 1962). Non-breeding individuals are golden-brown in colour, but during spawning the body becomes dark red and the dorsal and pectoral fins become multicoloured. Russian authors record two forms, pointed-snout and blunt-snout lenok, in the Amur drainage, and morphological and genetic data indicate that these are distinct species (Bogutskaya and Naseka, 2004). The pointed-snout lenok represents *B. lenok*, but the nomenclature of the blunt-snout lenok is not yet satisfactorily resolved; the name *B. tumensis* is presently used for this taxon, but this will probably be changed in the near future (M. Kottelat, pers. comm.). The pointed-snout lenok occurs in the Arctic and Pacific drainages of Mongolia, the blunt-snout lenok is known only from the Pacific drainages.

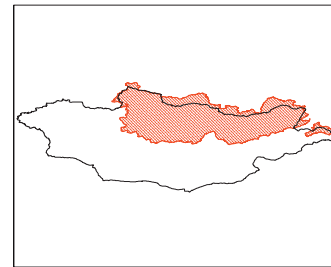
Conservation overview

Regional status: Vulnerable, A3d

Distribution

Global distribution: Rivers draining to Arctic and Pacific oceans, from the Ob and Irtysh rivers to the Amur River basin (China, Russia, Kazakhstan, Mongolia, Korea).

Regional distribution: Selenge, Orkhon, Eroot, Tuul, Delger Moron, Eg, Chuluut, Suman and Ider rivers, and Hövsgöl, Terkhin Tsagaan, Ugii lakes and lakes of the Darkhad Depression (Arctic drainage); and Kherlen, Onon and Khalkhin rivers and Buir Lake (Amur drainage).



Habitat and ecology

This species prefers cold water rivers and elevated lakes. It is omnivorous, feeding on larval and adult insects, amphipods, small fish, frogs, mice and salmon spawn (Berg, 1962; Dulmaa, 1999). It does not migrate to the ocean, with local movements occurring throughout the year in the Kherlen, Onon, and Selenge rivers, and Terhiin tsagaan, Hövsgöl and the lakes of the Darkhad Depression (Baasanjav and Tsendayush, 2001).

Dominant threats

The species is threatened by increasing fishing pressure as it is becoming a favoured food species in Ulaanbaatar and China. It is also threatened by local habitat

degradation from pollution caused by gold mining on Tuul and Eroo rivers. There is evidence that it has started to decline, and it is suspected that populations will decrease by at least 30% over the next 15 years.

Conservation measures in place

- No conservation measures specifically aimed at this species have been established to date.

Conservation measures required

- Control of illegal fishing.
- Collaboration with Russian and Chinese scientists on research and conservation actions.

Compiled by: Joanne Ocock.

Reviewed by: G. Baasanjav, J. E. M. Baillie, M. Erdenebat, M. Kottelat, B. Mendsaikhan and K. Smith.

References

- Baasanjav, G. and Tsendayush, Y. (2001). *Fishes of Mongolia*. ADMON, Ulaanbaatar.
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- Kottelat, M. (In prep.). *Fishes of Mongolia: a checklist of the fishes known to occur in Mongolia with comments on systematics and nomenclature*. World Bank, Washington D.C.

Annex I. List 1: Species identified as occurring within Mongolia and assessed at the Mongolian Biodiversity Databank Workshop.

| <i>Scientific name</i> | <i>Common name</i> | <i>Regional assessment</i> | <i>Global assessment</i> |
|--|-----------------------|------------------------------------|---------------------------|
| PETROMYZONTIFORMES | | | |
| Petromyzontidae | | | |
| <i>Lethenteron reissneri</i> (Dybowski, 1869) | Eastern brook lamprey | Not Applicable | Not Evaluated |
| ACIPENSERIFORMES | | | |
| Acipenseridae | | | |
| <i>Acipenser baerii</i> Brandt, 1869 | Siberian sturgeon | Critically Endangered, B2ab(iii,v) | Vulnerable A2d |
| <i>Acipenser schrenkii</i> Brandt, 1869 | Amur sturgeon | Data Deficient | Endangered, A1acd and A2d |
| CYPRINIFORMES | | | |
| Balitoridae | | | |
| <i>Barbatula dgebuadzei</i> (Prokofiev, 2003) | Gobi loach | Endangered, B2ab(iii) | Endangered, B2ab(iii) ●● |
| <i>Barbatula toni</i> (Dybowski, 1869) | Siberian stone loach | Least Concern | Not Evaluated |
| <i>Lefua costata</i> Kessler, 1876 | Lefua | Not Applicable | Not Evaluated |
| <i>Triplophysa gundriseri</i> Prokofiev, 2002 | Tes Gol loach | Data Deficient | Not Evaluated |
| Cobitidae | | | |
| <i>Cobitis melanoleuca</i> Nichols, 1925 | Siberian spiny loach | Least Concern | Not Evaluated |
| <i>Misgurnus mohoity</i> (Dybowski, 1869) | Amur weather loach | Least Concern | Not Evaluated |

| <i>Scientific name</i> | <i>Common name</i> | <i>Regional assessment</i> | <i>Global assessment</i> |
|--|--------------------------|----------------------------|--------------------------|
| Cyprinidae | | | |
| <i>Acheilognathus asmussi</i> (Dybowski, 1872) | Amur spiny bitterling | Near Threatened | Not Evaluated |
| <i>Carassius carassius</i> (Linnaeus, 1758) | Crucian carp | Not Applicable | Not Evaluated |
| <i>Carassius gibelio</i> (Bloch, 1782) | Prussian carp | Least Concern | Not Evaluated |
| <i>Chanodichthys erythropterus</i> (Basilewsky, 1855) | Red-fin culter | Not Applicable | Not Evaluated |
| <i>Chanodichthys mongolicus</i> (Basilewsky, 1855) | Mongolian culter | Not Applicable | Not Evaluated |
| <i>Culter alburnus</i> Basilewsky, 1855 | White culter | Not Applicable | Not Evaluated |
| <i>Cyprinus rubrofuscus</i> Lacépède, 1803 | Asian common carp | Not Applicable | Not Evaluated |
| <i>Eupallasella percnurus</i> Pallas, 1814 | Lake minnow | Data Deficient | Data Deficient |
| <i>Gnathopogon strigatus</i> (Regan, 1908) | Manchurian gudgeon | Not Applicable | Not Evaluated |
| <i>Gobio acutipinnatus</i> Menschikov, 1939 | Irtysh gudgeon | Not Applicable | Not Evaluated |
| <i>Gobio cynocephalus</i> Dybowski, 1869 | Dog-faced gudgeon | Data Deficient | Not Evaluated |
| <i>Gobio soldatovi</i> Berg, 1914 | Amur gudgeon | Data Deficient | Not Evaluated |
| <i>Gobio tenuicorps</i> Mori, 1934 | Eastern whitefin gudgeon | Not Applicable | Not Evaluated |
| <i>Hemibarbus labeo</i> (Pallas, 1776) | Horse gudgeon | Data Deficient | Not Evaluated |
| <i>Hemibarbus maculatus</i> Bleeker, 1871 | Spotted horse gudgeon | Data Deficient | Not Evaluated |
| <i>Hemiculter leucisculus</i> (Basilewsky, 1855) | Hemiculter | Not Applicable | Not Evaluated |
| <i>Ladislavia taczanowskii</i> Dybowski, 1869 | Sharp-jawed minnow | Data Deficient | Not Evaluated |
| <i>Leuciscus baicalensis</i> (Dybowski, 1874) | Siberian dace | Least Concern | Not Evaluated |

| <i>Scientific name</i> | <i>Common name</i> | <i>Regional assessment</i> | <i>Global assessment</i> |
|---|----------------------------|------------------------------------|---------------------------|
| <i>Leuciscus dzungaricus</i> Koch and Paepke, 1998 | Dzungarian dace | Endangered, B1ab(v) and B2ab(v) | Not Evaluated |
| <i>Leuciscus idus</i> (Linnaeus, 1758) | Ide | Near Threatened | Not Evaluated |
| <i>Leuciscus waleckii</i> (Dybowski, 1869) | Amur ide | Data Deficient | Not Evaluated |
| <i>Microphysogobio tungtingensis</i> (Nichols, 1926) | Buir gudgeon | Data Deficient | Not Evaluated |
| <i>Oreoleuciscus angusticephalus</i> Bogutskaya, 2001 | Lake osman | Vulnerable, B1ab(v) | Vulnerable, B1ab(v) ●● |
| <i>Oreoleuciscus humilis</i> Warpachowski, 1889 | Small osman | Vulnerable, B2ab(ii,iii,iv,v) | Not Evaluated |
| <i>Oreoleuciscus potanini</i> (Kessler, 1879) | Potanin's osman | Least Concern | Not Evaluated |
| <i>Phoxinus phoxinus</i> (Linnaeus, 1758) | Common minnow | Least Concern | Not Evaluated |
| <i>Pseudaspius leptocephalus</i> (Pallas, 1776) | False asp | Data Deficient | Not Evaluated |
| <i>Pseudorasbora parva</i> (Temminck and Schlegel, 1846) | Pseudorasbora | Data Deficient | Not Evaluated |
| <i>Rhodeus sericeus</i> (Pallas, 1776) | Amur bitterling | Data Deficient | Not Evaluated |
| <i>Rhynchocypris czekanowskii</i> (Dybowski, 1869) | Siberian minnow | Data Deficient | Not Evaluated |
| <i>Rhynchocypris lagowskii</i> (Dybowski, 1869) | Eastern Siberian minnow | Data Deficient | Not Evaluated |
| <i>Rutilus rutilus</i> (Linnaeus, 1758) | Roach | Least Concern | Not Evaluated |
| <i>Sarcocheilichthys soldatovi</i> (Berg, 1914) | Amur marble gudgeon | Not Applicable | Not Evaluated |
| <i>Saurogobio dabryi</i> Bleeker, 1871 | Lizard gudgeon | Not Applicable | Not Evaluated |
| <i>Squalidus chankaensis</i> (Dybowski, 1872) | Khanka gudgeon | Not Applicable | Not Evaluated |
| <i>Tinca tinca</i> (Linnaeus, 1758) | Tench | Not Applicable | Not Evaluated |

| <i>Scientific name</i> | <i>Common name</i> | <i>Regional assessment</i> | <i>Global assessment</i> |
|--|--------------------|--|---------------------------------------|
| SILURIFORMES | | | |
| Siluridae | | | |
| <i>Silurus asotus</i> Linnaeus, 1758 | East Asian catfish | Least Concern | Not Evaluated |
| SALMONIFORMES | | | |
| Coregonidae | | | |
| <i>Coregonus chadary</i> Dybowski, 1869 | Chadary | Data Deficient | Not Evaluated |
| <i>Coregonus migratorius</i> (Georgi, 1775) | Omul | Data Deficient | Not Evaluated |
| <i>Coregonus pidschian</i> (Gmelin, 1788) | Pidschian | Endangered, B2ab(iii,v) | Data Deficient |
| Thymallidae | | | |
| <i>Thymallus arcticus</i> (Pallas, 1776) | Arctic grayling | Near Threatened | Not Evaluated |
| <i>Thymallus brevirostris</i> Kessler, 1879 | Mongolian grayling | Vulnerable, B2ab(iii,v) | Vulnerable, B2ab(iii,v) ●● |
| <i>Thymallus grubei</i> Dybowski, 1869 | Amur grayling | Endangered, B2ab(iii,v) | Not Evaluated |
| <i>Thymallus nigrescens</i> Dorogostaisky, 1923 | Hövsgöl grayling | Endangered, B2ab(i,ii,iii,iv,v) | Endangered, B2ab(i,ii,iii,iv,v) ●● |
| Salmonidae | | | |
| <i>Brachymystax lenok</i> (Pallas, 1773) | Lenok | Vulnerable, A3d | Not Evaluated |
| <i>Hucho taimen</i> (Pallas, 1773) | Taimen | Endangered, A2de and A3de and B2ab(iii,v) | Not Evaluated |

| <i>Scientific name</i> | <i>Common name</i> | <i>Regional assessment</i> | <i>Global assessment</i> |
|--|--------------------|----------------------------|--------------------------|
| ESOCIFORMES | | | |
| Esocidae | | | |
| <i>Esox reichertii</i> Dybowski, 1869 | Amur pike | Least Concern | Not Evaluated |
| GADIFORMES | | | |
| Lotidae | | | |
| <i>Lota lota</i> (Linnaeus, 1758) | Burbot | Data Deficient | Not Evaluated |
| SCORPAENIFORMES | | | |
| Cottidae | | | |
| <i>Cottus sibiricus</i> Kessler, 1889 | Siberian sculpin | Data Deficient | Not Evaluated |
| <i>Cottus szanaga</i> Dybowski, 1869 | Amur sculpin | Data Deficient | Not Evaluated |
| <i>Leocottus kesslerii</i> (Dybowski, 1874) | Kessler's sculpin | Data Deficient | Not Evaluated |
| <i>Mesocottus haitej</i> (Dybowski, 1869) | Haitej sculpin | Data Deficient | Not Evaluated |
| PERCIFORMES | | | |
| Odontobutidae | | | |
| <i>Perccottus glenii</i> Dybowski, 1877 | Amur sleeper | Not Applicable | Not Evaluated |
| <i>Perca fluviatilis</i> Linnaeus, 1758 | Perch | Least Concern | Not Evaluated |
| <i>Perca fluviatilis</i> Linnaeus, 1758 | Perch | Least Concern | Not Evaluated |

List 2: Possible or newly identified species occurring within Mongolia.

| <i>Scientific name</i> | <i>Common name</i> |
|--|--------------------|
| CYPRINIFORMES | |
| Cyprinidae | |
| <i>Hemiculter varpachovskii</i> Nikolskii, 1903 | Buir hemiculter |
| <i>Micophysogobio anudarini</i> Holcík and Pivnicka, 1969 | |
| <i>Phoxinus ujmonensis</i> Kashenko, 1899 | |
