



# **The Status and Distribution of Freshwater Fish Endemic to the Mediterranean Basin**

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IUCN Freshwater Biodiversity  
Assessment Programme  
2005



## **Acknowledgements**

All of IUCN's Global Red Listing processes rely on the willingness of scientists to contribute and pool their collective knowledge to make the most reliable estimates of species status. Without their enthusiastic commitment to species conservation, this kind of regional overview would not be possible.

We would therefore like to thank Dr Alain Crivelli for producing the majority of the draft species assessments and the following people who also gave their time and valuable expertise to evaluate the assessments; Dr Abdelhamid Azeroual, Ms Roberta Barbieri, Dr Pier Giorgio Bianco, Dr Nina Bogutskaya, Dr Jose Ambrosio González Carmona, Dr Benigno Elvira, Prof Füsün Erk'akan, Dr Jörg Freyhof, Dr Menachem Goren, Dr Ahmet Karataş, Dr Maurice Kottelat, Prof Milorad Mrakovcic, Ms Caroline Pollock, Dr Meta Povz. In each of the detailed individual species assessments, which are available at the IUCN Freshwater Biodiversity Assessment Website ([www.iucn.org/themes/ssc/programs/freshwater](http://www.iucn.org/themes/ssc/programs/freshwater)) the specific contribution of each scientist is fully acknowledged.

Finally, we would like to thank all the staff at the IUCN Centre for Mediterranean Cooperation and in particular Sonsoles San Román Sánchez for making sure the communications and evaluation workshop ran smoothly and also the IUCN Species Programme for providing technical support and workshop facilitation.

This work was funded by the Ministry for Environment of Spain and the Junta de Andalucía that provide core support to the IUCN Centre for Mediterranean Cooperation.

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# 1. Background

## 1.1 Values and Threats of Mediterranean Wetlands

Freshwater in the Mediterranean basin is of huge economic, environmental and livelihood importance. However, with a growing population of 450 million people, and also being the world's main tourist destination with around 175 million visitors a year, the freshwater resources are under a huge amount of pressure.

Wetlands in the region provide income at both an artisanal and commercial scale including the provision of valuable seasonal grazing land, fisheries, agricultural land, reeds for thatching and hunting grounds. Many communities depend upon wetlands for transport and the local population, tourists, agriculture and industry also demand a clean, safe and constant water supply. Wetlands also provide many indirect benefits for which the economic value is difficult to estimate such as flood control, storm protection, groundwater recharge and sediment, pollution and nutrient retention.

All of these services and products depend upon functioning freshwater ecosystems. If the ecological and physical integrity of the ecosystem are compromised fisheries may fail, flooding may be more frequent and severe, and clean drinking water will become ever more scarce.

Historically wetlands in the Mediterranean have been viewed as wastelands with their only perceived value being conversion for other purposes, mainly agriculture. This has resulted in around half of all the regions wetlands being lost. Of those that remain industrialisation, the intensification and expansion of agriculture, an increasing population and the tourism industry have also led to major ecosystem degradation and nearly every important river in the Mediterranean basin has been dammed.

The main current threats to wetlands are:

- Eutrophication resulting from urban sewage and agricultural runoff
- Drainage for irrigation and drinking water
- Dam construction which limits sediment and nutrient flow downstream to deltas and affects species migrations and fisheries productivity
- Over fishing of lakes and lagoons
- Industrial pollution

To protect critical services such as flood control and valuable economic and livelihood benefits all users of freshwater including biodiversity need to be taken into consideration when managing water resources.

## 1.2 Threatened Status

The threatened status of plants and animals is one of the most widely used indicators for assessing the condition of ecosystems and their biodiversity. It also provides an important tool in priority setting exercises for species conservation. At the global level the best source of information on the conservation status of plants and animals is the *IUCN Red List of Threatened Species* (IUCN 2004). The Red List provides taxonomic, conservation status, and distribution information on taxa that have been

evaluated using the *IUCN Red List Categories and Criteria: Version 3.1* (IUCN 2001). This system is designed to determine the relative risk of extinction, with the main purpose of cataloguing and highlighting those taxa that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable).

For inland waters the coverage of species assessed for the Red List is still very poor. Nonetheless, it is clear that of those species that have been assessed a disproportionately high number are threatened with extinction.

### **1.3 Objectives of the Assessment**

The regional assessment has two main objectives:

- To assist in regional planning through provision of a baseline database reporting the status and distribution of freshwater fish endemic to the Mediterranean basin, and;
- To develop a network of regional experts to enable future assessments and the continued updating of the baseline dataset.

The assessment provides two main direct outputs:

- A report on the status of freshwater fish endemic to the Mediterranean region, to include a Red List assessment of freshwater fish and identification of the centres of freshwater fish biodiversity and their main threats.
- A freely available database holding the baseline data for monitoring the status and distribution of the endemic freshwater fish of the Mediterranean basin.

IUCN will ensure the wide circulation of this document to relevant decision makers, NGOs, and scientists to assist in mobilizing conservation action on the ground.

## 2. Assessment Methodology

### 2.1 Global Assessment

This was a global Red List assessment, so only species endemic to the Mediterranean region were assessed. Due to lack of time and funds a full Mediterranean regional assessment, which would include all non-endemic species, could not be undertaken. This will be covered by the full-scale European (planned) and northern Africa regional assessments (2006).

### 2.2 Mediterranean Region

The Mediterranean region in terms of freshwater systems was defined by identifying all the river basins that flowed into the Mediterranean Sea using GIS and the HYDRO1k drainage basin layer (Figure 1). The Nile River was not included in this assessment as it will be included in the parallel Northern African and Eastern African Assessments. The project took advantage of the presence of regional and national ichthyological experts and included in the assessment additional river basins outside the Mediterranean region, most notably throughout the rest of Spain, all of Portugal and the Atlantic coast of Morocco.



Figure 1. Mediterranean river basins as defined for this project.

### 2.3 Assessment

All the species selected had their threatened status assessed according to the 2001 IUCN Red List Categories and Criteria version 3.1 ([www.redlist.org/info/categories\\_criteria2001.html](http://www.redlist.org/info/categories_criteria2001.html)) by Dr. Alain Crivelli, Coordinator of the Aquatic Fauna Programme at Tour du Valat, using existing literature and data sources. All the data collected, including information on distribution, conservation measures, threats, utilisation, habitats and ecology were entered into the IUCN SSC Species Information Service Data Entry Module (SISDEM).

## **2.4 Evaluation Workshop**

Expert ichthyologists for the Mediterranean region identified by Dr William Darwall (IUCN Freshwater Biodiversity Assessment Programme Officer) and Dr Alain Crivelli were invited to attend a five-day regional evaluation workshop held at the IUCN Centre for Mediterranean Cooperation in Malaga. The initial assessments (SISDEM species summary reports with distribution maps) were distributed to all participants before the workshop to allow them to review the data presented and prepare any changes. The participants, and staff from the IUCN Freshwater Biodiversity Assessment Programme and the IUCN Red List Programme evaluated the assessments to check they complied with guidelines for applying the IUCN Red List Categories and Criteria and included the most up to date, comprehensive information.

The resulting assessments therefore provide the best possible scientific consensus concerning species status and are fully backed up in the database with relevant literature and references. Annual updates to the status information will be made as and when new information becomes available.



## 3. Results

### 3.1 Initial Assessments

In the initial assessment 249 Mediterranean endemic freshwater fish species were assessed.

### 3.2 Evaluation of Assessments

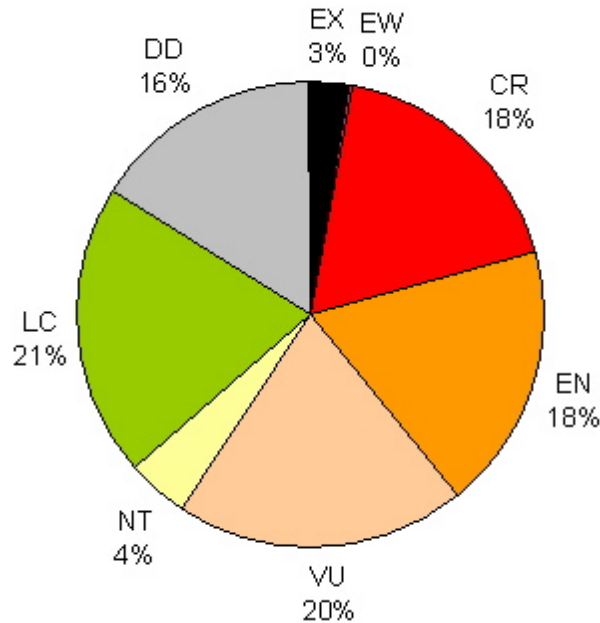
During the evaluation workshop species were added and deleted from the assessment based upon new evidence (unpublished data, grey literature and personal expertise from further studies) regarding their status as true endemics of the Mediterranean region and their taxonomic status. The final number of species assessed and evaluated was 253. See Appendix 3 for information on each species including distribution maps.

### 3.3 Threatened Status

The breakdown of species Red List status is given in Table 1, and in Figure 2. To summarise, 56% of the Mediterranean endemic freshwater fish species are threatened, with 18% Critical, 18% Endangered and 20% Vulnerable. Only 20% (52 species) are assessed as Least Concern and 41 (16%) species remained as Data Deficient. For a full list of the species assessed and their Red List Category see Appendix 1.

**Table 1. Red List Status. Summary of the Red List assessments of the threatened status of Mediterranean endemic freshwater fish (2001 IUCN Red List Categories & Criteria).**

	<b>IUCN Red List Categories</b>	<b>No. species</b>
	Extinct (EX)	7
	Extinct in the Wild (EW)	1
Threatened Categories	Critically Endangered (CR)	45
	Endangered (EN)	46
	Vulnerable (VU)	51
	Near Threatened (NT)	10
	Least Concern (LC)	52
	Data Deficient (DD)	41
	Total number of fish species assessed	253



**Figure 2. Breakdown of the proportions of taxa within each category of globally threatened status (2001 IUCN Red List Categories & Criteria).** The categories are abbreviated as: EX- Extinct; EW-Extinct in the Wild; CR-Critically Endangered; EN-Endangered; VU-Vulnerable; NT-Near Threatened; LC-Least Concern; DD-Data Deficient.

### 3.4 Species Richness

#### 3.4.1 Mediterranean Endemic Freshwater Fish (Figures 3, 5, 7, 9, 11, 13 and 15)

Centres of species richness include the Po river basin in Northern Italy (Figure 5), the lower Orontes in South West Turkey, lake Kinneret in Israel (Figure 9) and the Lower Guadiana in South Spain (Figure 13) all with between 11-17 species. Slightly lower levels, between 8-10 species, are found in the Neretva and Cetina river basins of Bosnia and Herzegovina and Croatia respectively (Figure 5) the Acheloos, Axios and the lower Pinios river basins in Greece, Lakes Prespa and Ohrid on the Greece, Albanian and FYROM border (Figure 7), the Orontes river basin in West Syria and South West Turkey, the Hula Basin on the Israel Syria border, and the Menderes and lower Gediz rivers in Eastern Turkey (Figure 9). The same level of species richness is also found in some rivers not strictly included as part of the Mediterranean basin, namely the Rio Tajo (Tejo in Portugal), the coastal basins of the Golfo De Cadiz and the Rio Guadiana in Spain (Figure 13).

*\* Note when using grids to analyse species richness based upon river basin distributions, some grid squares over estimate species richness. This occurs where the grid square overlaps two bordering river basins, the result is that the grid square will count the number of species in both river basins. This results in 'lines' of apparent high species richness that follow the borders between some river basins. This artefact can be seen most clearly in Spain, parts of Morocco and the South of Turkey in the following figures.*

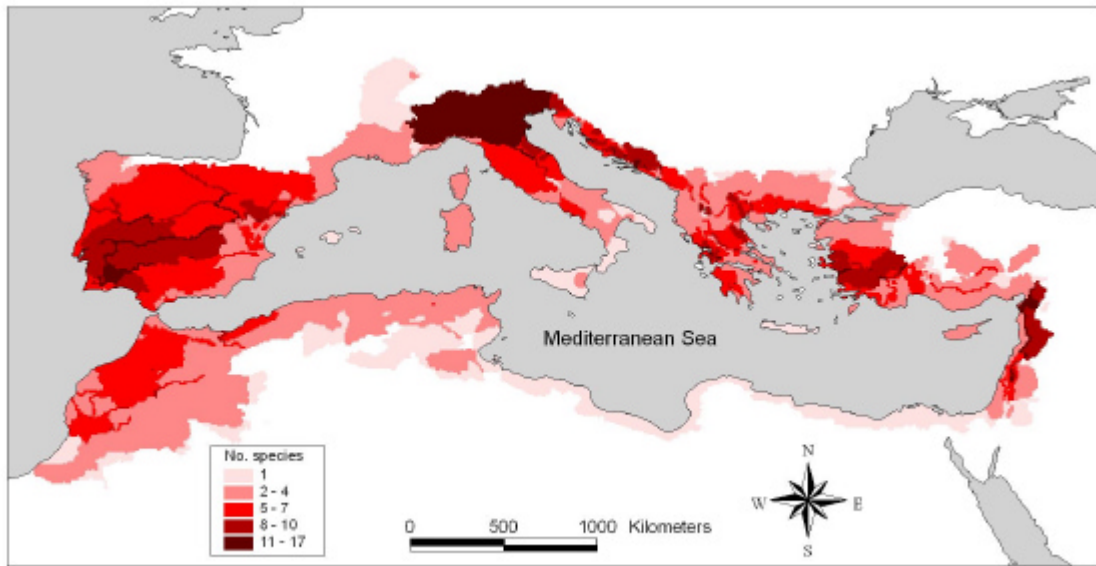


Figure 3. Species Richness of the Mediterranean endemic freshwater fish (mapped to a 5 minute grid following natural breaks)

### 3.4.2. Threatened Mediterranean Endemic Freshwater Fish (Figures 4, 6, 8, 10, 12 and 14)

The greatest concentrations of threatened endemic Mediterranean freshwater fish is in the Rio Guadiana in Southern Spain and Portugal (not strictly part of the Mediterranean basin) (Figure 14) with between 8-10 species. The Orontes river basin in West Syria and South West Turkey, Lake Kinneret and the Hula basin in northern Israel (Figure 10), the lower Neretva river in Croatia and Bosnia Herzegovina (Figure 6), Lake Prespa on the Greece, Albania and FYROM border (Figure 8) and parts of the Tajo river in Spain and Portugal (Figure 14) all contain between 6-7 threatened species.

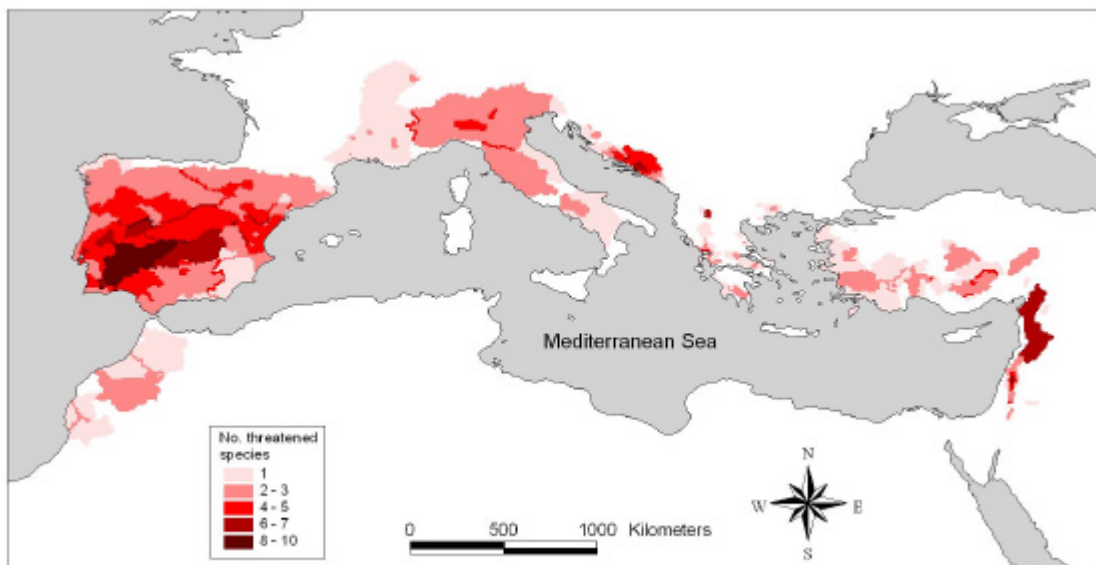


Figure 4. Species richness of threatened Mediterranean endemic freshwater fish (mapped to a 5 minute grid following natural breaks)

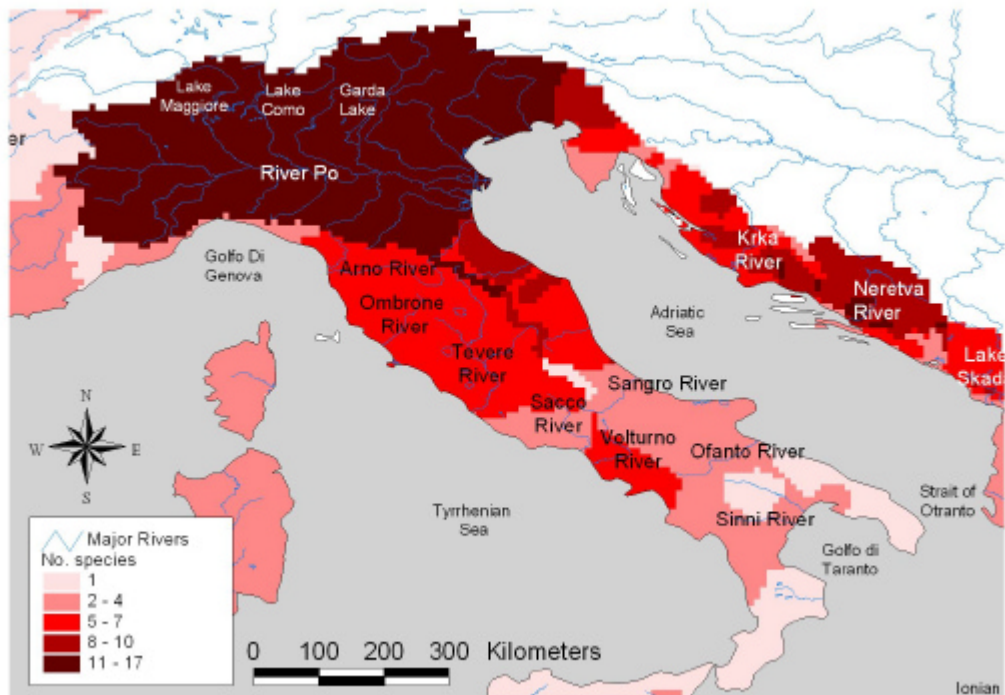


Figure 5. Species richness in Italy and the Adriatic countries (mapped to a 5 minute grid following natural breaks)

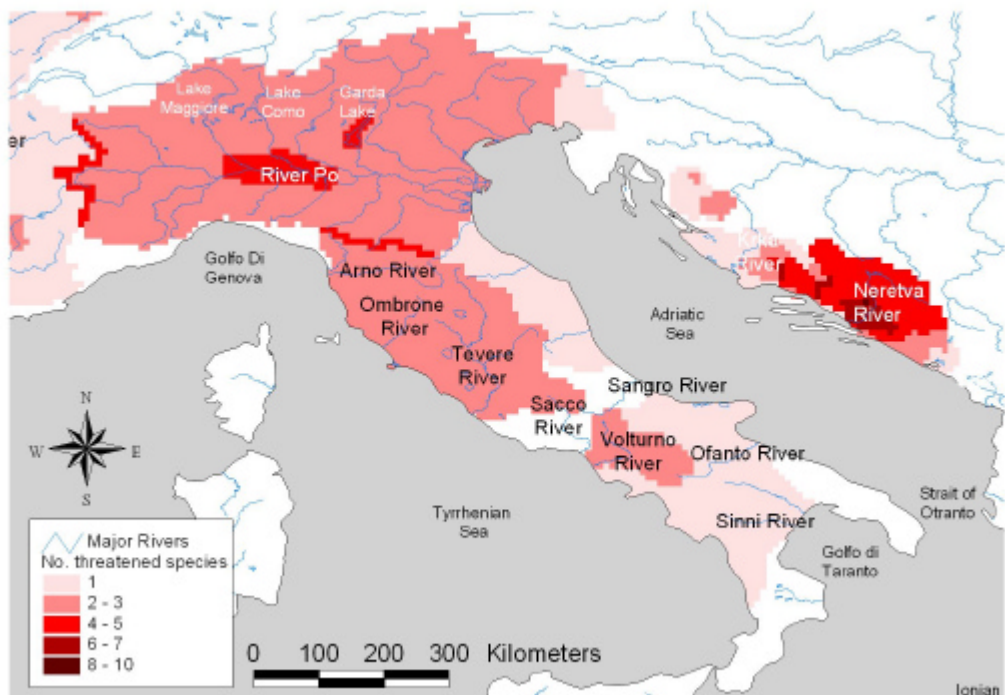


Figure 6. Threatened species richness in Italy and the Adriatic countries (mapped to a 5 minute grid following natural breaks)

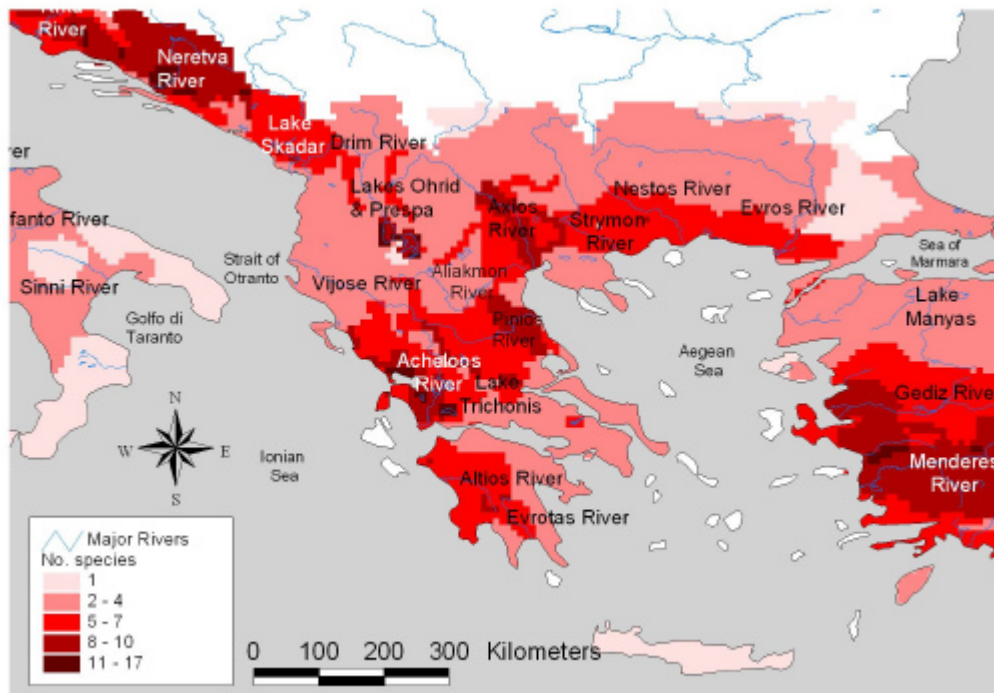


Figure 7. Species richness in Greece, Albania, Bulgaria and the FRYOM (mapped to a 5 minute grid following natural breaks)

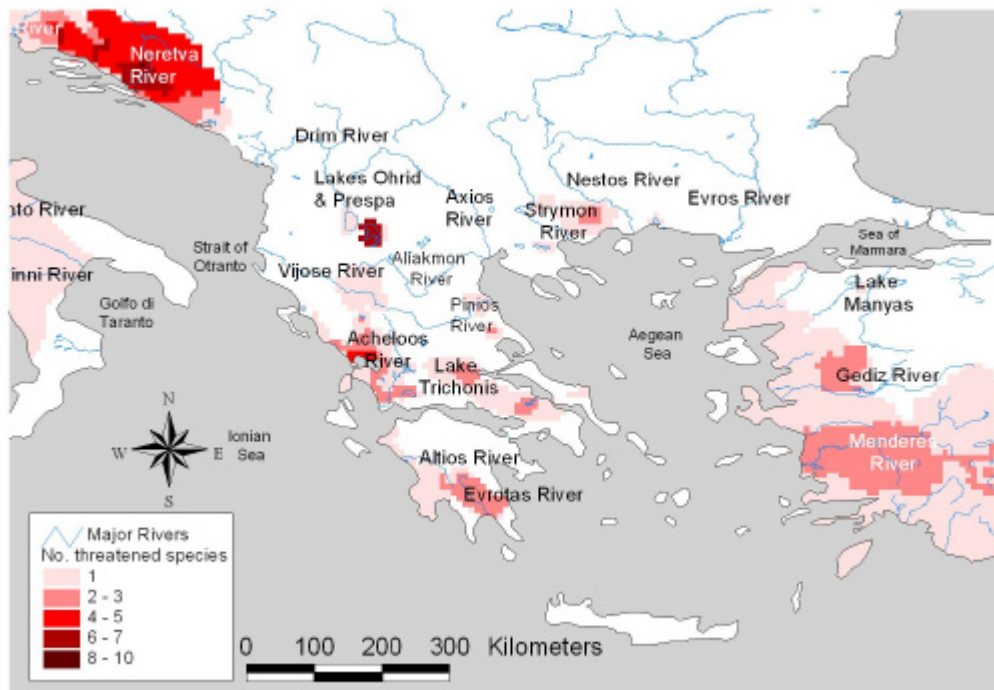


Figure 8. Threatened species richness in Greece, Albania, Bulgaria and the FRYOM (mapped to a 5 minute grid following natural breaks)



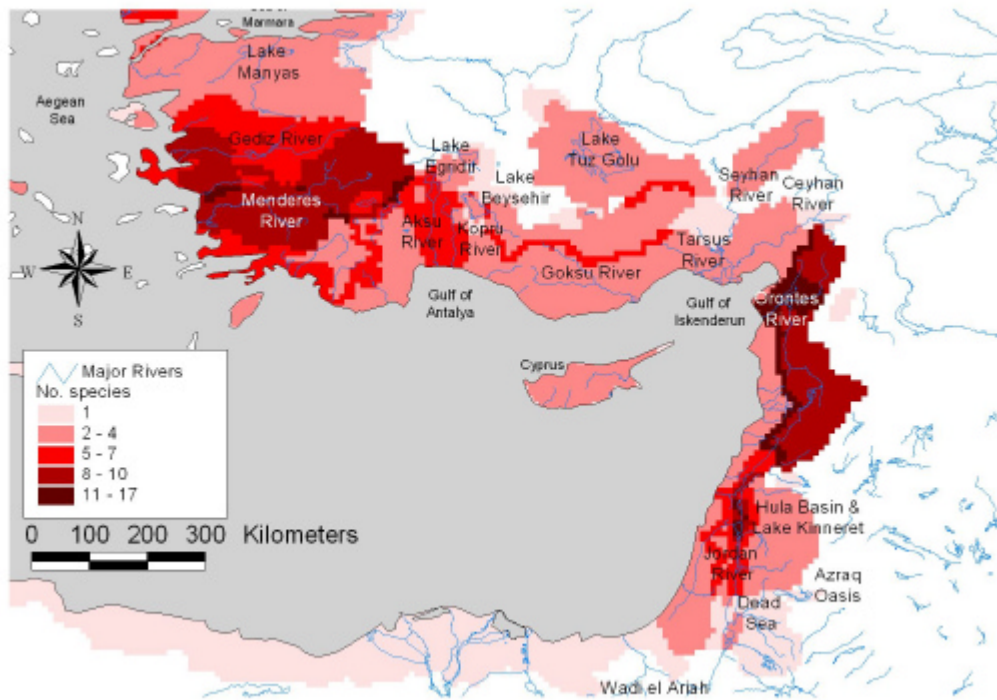


Figure 9. Species richness in Turkey and the Middle East countries (mapped to a 5 minute grid following natural breaks)

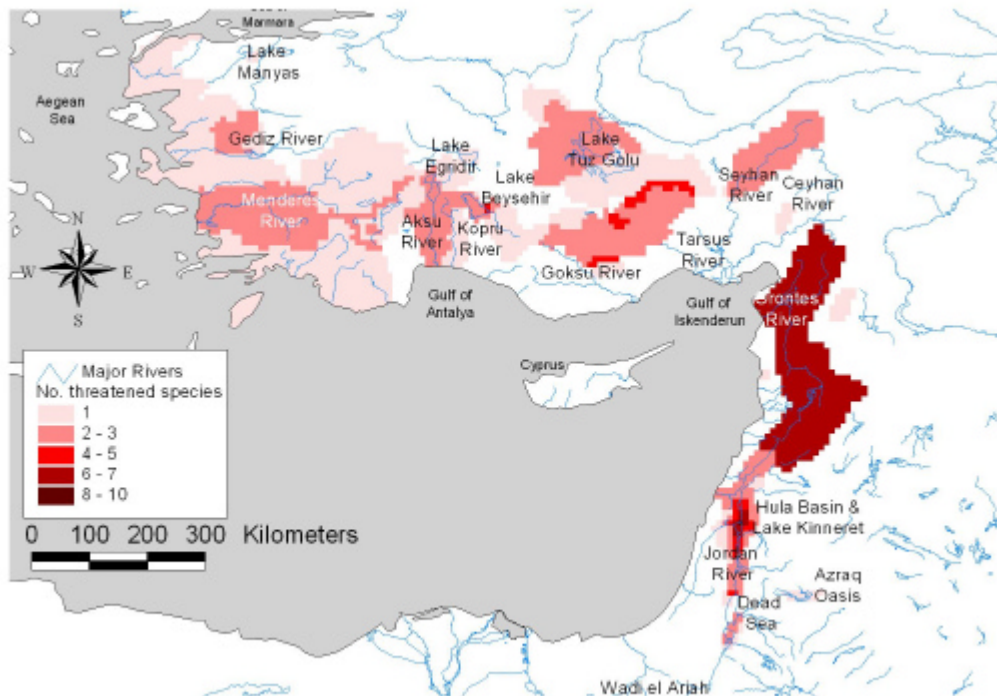


Figure 10. Threatened species richness in Turkey and the Middle East countries (mapped to a 5 minute grid following natural breaks)

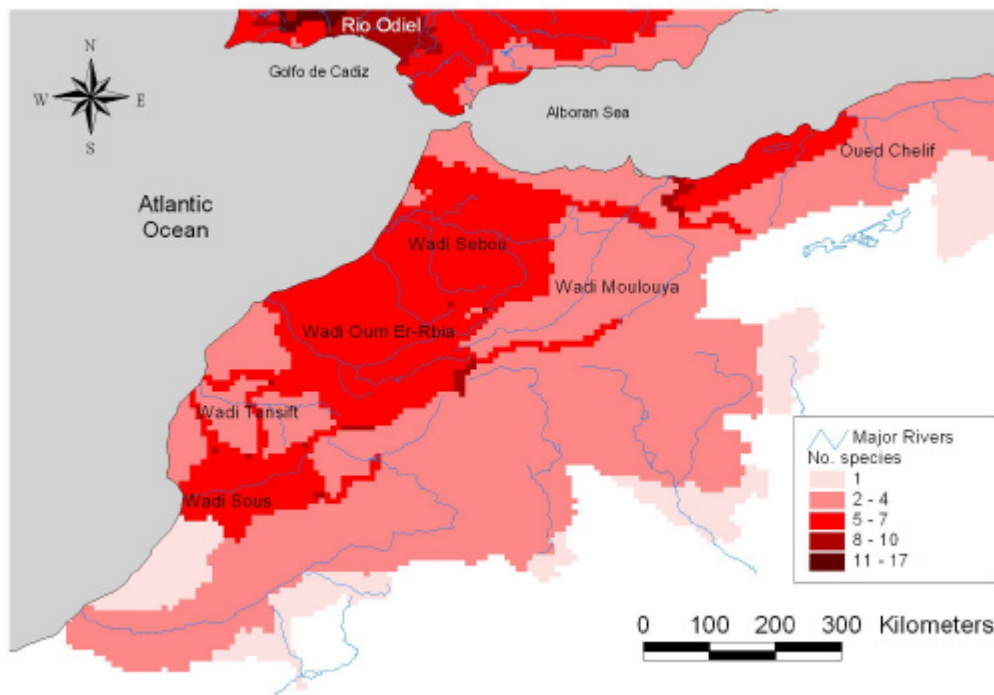


Figure 11. Species richness in Morocco (mapped to a 5 minute grid following natural breaks)

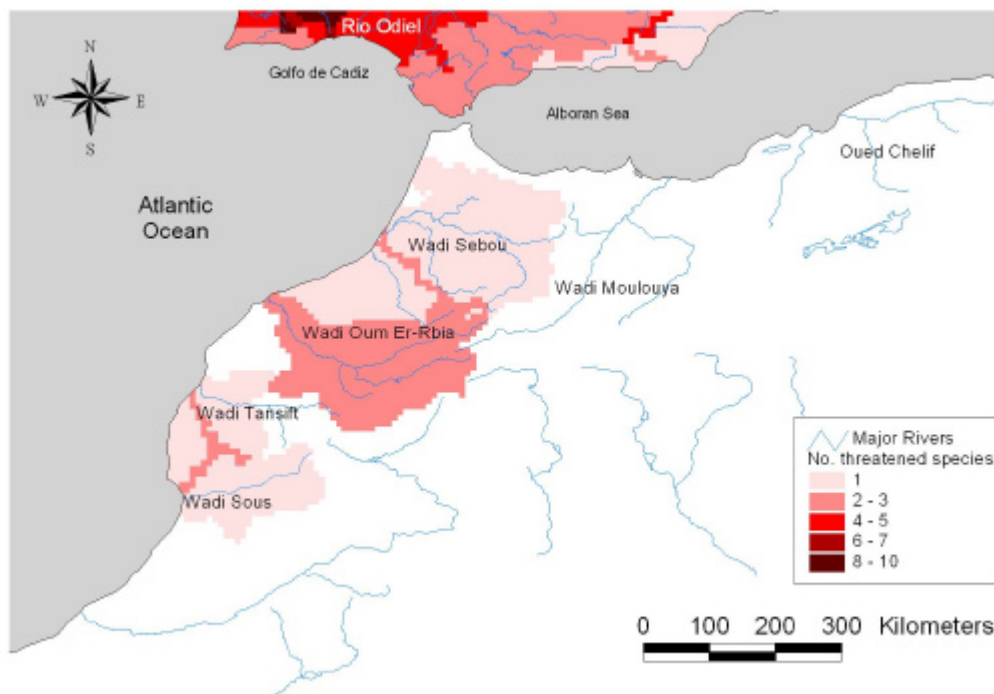


Figure 12. Threatened species richness in Morocco (mapped to a 5 minute grid following natural breaks)

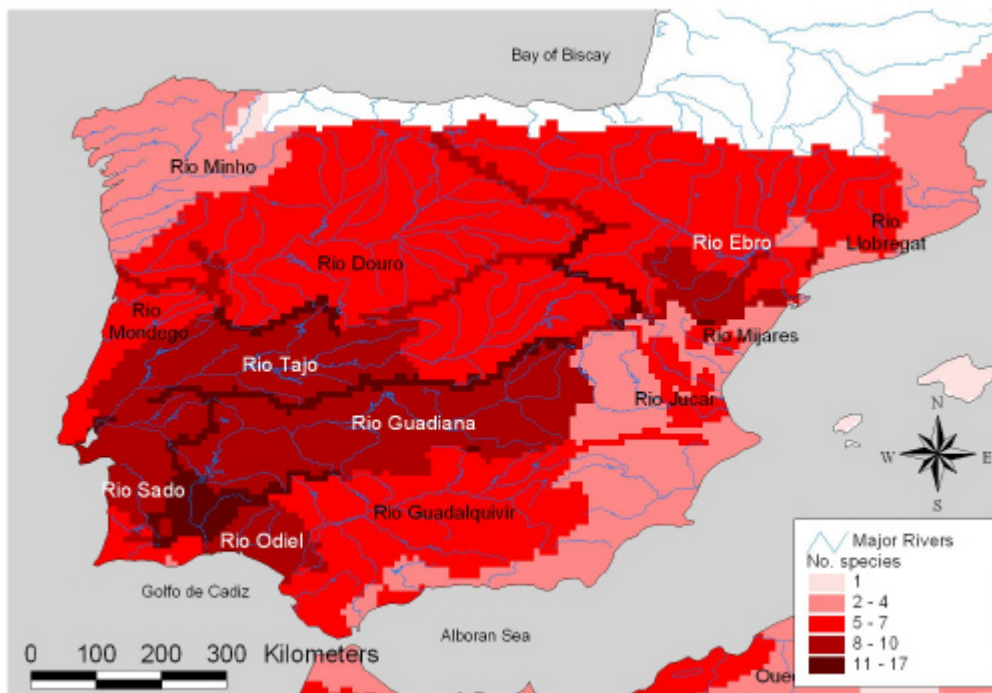


Figure 13. Species richness in Spain and Portugal (mapped to a 5 minute grid following natural breaks)

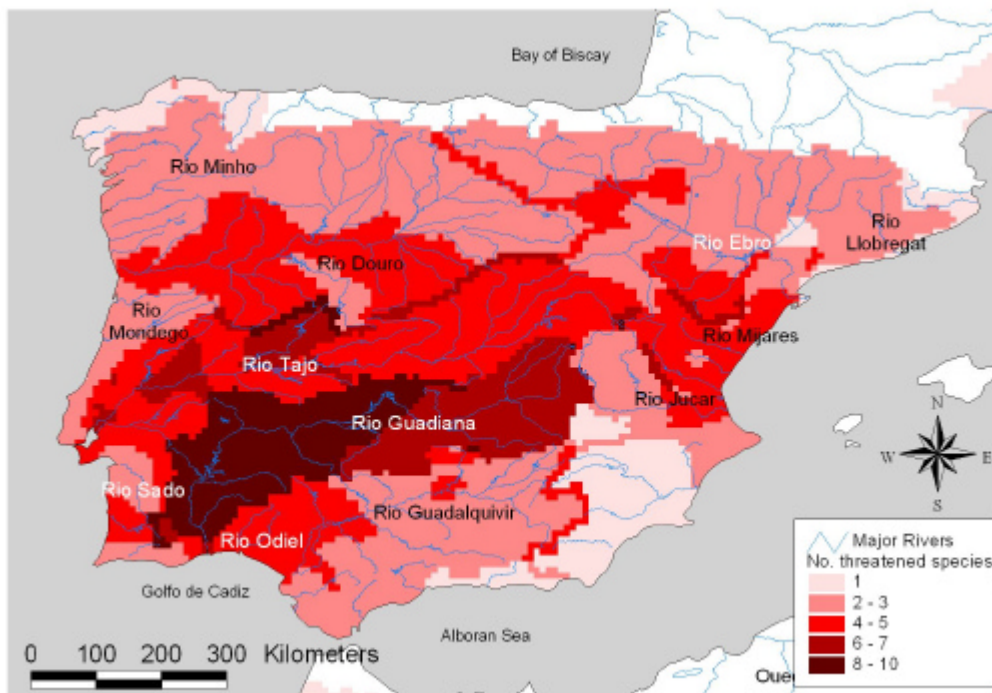


Figure 14. Threatened species richness in Spain and Portugal (mapped to a 5 minute grid following natural breaks)



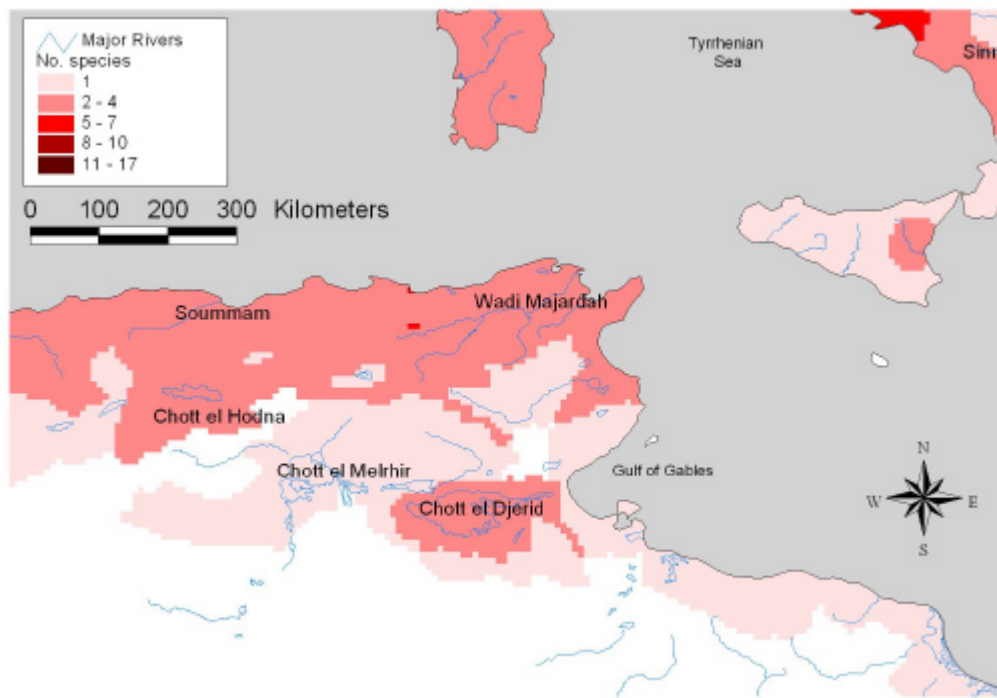


Figure 15. Species richness in Algeria and Tunisia (mapped to a 5 minute grid following natural breaks)

### 3.5 Threats Identified

Table 2 presents a breakdown of the major threats to Mediterranean endemic freshwater fish. Water pollution and water extraction are the two greatest current threats, and along with drought are believed to be the main threats in the future. Other major threats that have been highlighted are intrinsic factors such as restricted range and limited dispersal, and invasive species and the construction of dams. For a complete breakdown of all the threats that were selected see Appendix 2.

Table 2. Major threats to Mediterranean endemic freshwater fish as selected in the SIS DEM

\*Note: More than one threat category can be selected for each species.

Threat category	No. species effected by the threat		
	As a past threat	As a present threat	As a future threat
Pollution (affecting habitat or species)	141	178	197
Water extraction	115	160	183
Restricted range	139	140	143
Limited dispersal	137	137	141
Drought	41	112	180
Invasive alien species (affecting the species)	65	89	111
Dam construction	68	81	88

### **3.6 River Basin Protection and Management**

River basins are complex, open systems with ill-defined boundaries. They fulfil many important functions from supplying water to households and agriculture to acting as navigation channels, they also provide a habitat for many different species, which in turn are valuable resources through activities such as fishing and recreation. It is essential that there is sufficient water of the right quality in the right place at the right time for the social, environmental and economic services provided by these freshwater systems to be protected and developed. Integrated River Basin Management (IRBM) is much broader than traditional water management and is receiving increasing attention as a method to achieve sustainable development of large river basins ([www.riverbasin.org](http://www.riverbasin.org)). The term 'integration' refers to the various aspects that need to be considered in order to achieve sustainable development of river basins. IRBM encompasses various policy areas including land-use planning, agriculture and erosion control and incorporates water demand and supply, trans-boundary aspects, the linkages between water the environment and development (incl. poverty alleviation), as well as organisational and institutional aspects at different scales.

A large part of the Mediterranean basin is included within the European Union (EU) (Spain, France, Italy, Slovenia, Greece, Malta and Cyprus - and Croatia and Turkey who are aspiring to membership), and through its Water Framework Directive it is taking an IRBM approach. The purpose of the Directive is to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater. It will ensure all aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands meet 'good status' by 2015 (<http://www.jncc.gov.uk>). To meet clear objectives that must be achieved by specified dates, each member state has to establish river basin districts and produce a river basin management plan for each district.

The data provided through this assessment is essential for the implementation of an IRBM approach. It will also allow the impacts of IRBM to be monitored, which can feed into an adaptive management process.

## **4. Conclusions**

### **4.1 Methodology – Lessons Learned**

The data set presented here is part of a wider Mediterranean assessment that is assessing other taxa such as amphibians and reptiles. However these data can be viewed independently and represent an essential resource for anyone involved in water resource development planning, or conservation and environmental planning throughout the region. It is hoped that by presenting this dataset, both regional and international researches will be stimulated to provide new data and to improve on the quality of that already provided. It is also hoped that, with time, the spatial resolution of the data will be improved, particularly for species distributions within river basins. Geographic bias in sampling intensity has been identified as a problem in representing a true regional picture of species distributions and threatened status. For example, the lack of data for Northern Africa (except Morocco and parts of Tunisia and Algeria) fish species is apparent. As these sampling biases become apparent, such as through this study, it is hoped that researchers will be encouraged to focus their efforts on the lesser known regions and work towards eliminating this current bias in sampling.

### **4.2 Conservation Priorities**

A number of sites have been identified as regionally important for endemism, and threatened endemic species, the main sites being the Po river, Orontes river, lake Kinneret and Hula basin, Guadiana river, Tajo (Tejo in Portugal) river, Neretva and Cetina river basins, Acheloos river, Axios river, Lakes Prespa and Ohrid and the Menderes river. The main threats have been identified as water pollution and extraction, introduced species, drought and dam construction. The challenge now is to ensure that the information collated and presented here and in the SIS database is made readily available for policy makers and environmental planners in a format that can easily be employed for integration within the development planning process.

### **4.3 Application of Project Outputs**

The outputs from this project can be applied at the regional scale by organisations such as IUCN to prioritise sites for inclusion in regional research programmes and for identification of internationally important sites of biodiversity. All the species assessed in this project will be submitted for inclusion in the IUCN global Red List ([www.iucnredlist.org](http://www.iucnredlist.org)).

## 5. Future Work

If the biodiversity data sets collated by the project are to be effectively integrated within the environmental or development planning process then:

- i) the data that have been collated will need to be voluntarily kept up to date by the network of Mediterranean ichthyological experts, who have provided their valuable time and expertise for this project, when the SISDEM is available online, and;
- ii) established links between regional decision makers and policy makers and the partner organisations must be maintained and strengthened and the data sets must be made available to these people and/or organisations, and;
- iii) a “best practice methodology” for the process of integrating biodiversity information within the development/ environmental planning process must be developed. This methodology should aim to both provide the information in a “user-friendly” format for all stakeholders and to provide guidelines as to when and where the information should be made available. Efforts to take this process forward are a major component of a newly initiated Pan-African five-year assessment funded by the European Union.

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## Appendix 1 Full List of Species Assessed

Family	Genus	Species	IUCN Red List Category
Acipenseridae	<i>Acipenser</i>	<i>naccarii</i>	Critically Endangered (CR)
Balitoridae	<i>Barbatula</i>	<i>buerschii</i>	Least Concern (LC)
Balitoridae	<i>Barbatula</i>	<i>eregliensis</i>	Critically Endangered (CR)
Balitoridae	<i>Barbatula</i>	<i>namiri</i>	Data Deficient (DD)
Balitoridae	<i>Barbatula</i>	<i>pindus</i>	Vulnerable (VU)
Balitoridae	<i>Barbatula</i>	<i>samantica</i>	Endangered (EN)
Balitoridae	<i>Barbatula</i>	<i>seyhanensis</i>	Endangered (EN)
Balitoridae	<i>Barbatula</i>	<i>simavica</i>	Critically Endangered (CR)
Balitoridae	<i>Barbatula</i>	<i>tschайssuensis</i>	Endangered (EN)
Balitoridae	<i>Nemacheilus</i>	<i>dori</i>	Critically Endangered (CR)
Balitoridae	<i>Nemacheilus</i>	<i>insignis</i>	Data Deficient (DD)
Balitoridae	<i>Nemacheilus</i>	<i>jordanicus</i>	Endangered (EN)
Balitoridae	<i>Nemacheilus</i>	<i>leontinae</i>	Data Deficient (DD)
Balitoridae	<i>Nemacheilus</i>	<i>pantheroides</i>	Endangered (EN)
Balitoridae	<i>Nemacheilus</i>	<i>sp.</i>	Endangered (EN)
Balitoridae	<i>Nun</i>	<i>galilaeus</i>	Data Deficient (DD)
Blenniidae	<i>Salaria</i>	<i>economidisi</i>	Critically Endangered (CR)
Blenniidae	<i>Salaria</i>	<i>fluviatilis</i>	Least Concern (LC)
Cichlidae	<i>Astatotilapia</i>	<i>flavijosephi</i>	Endangered (EN)
Cichlidae	<i>Haplochromis</i>	<i>desfontainii</i>	Data Deficient (DD)
Cichlidae	<i>Tristramella</i>	<i>intermedia</i>	Extinct (EX)
Cichlidae	<i>Tristramella</i>	<i>magdelainae</i>	Extinct (EX)
Cichlidae	<i>Tristramella</i>	<i>sacra</i>	Critically Endangered (CR)
Cichlidae	<i>Tristramella</i>	<i>simonis</i>	Least Concern (LC)
Clupeidae	<i>Alosa</i>	<i>macedonica</i>	Vulnerable (VU)
Clupeidae	<i>Alosa</i>	<i>vistonica</i>	Critically Endangered (CR)
Cobitidae	<i>Cobitis</i>	<i>arachthosensis</i>	Endangered (EN)
Cobitidae	<i>Cobitis</i>	<i>bilineata</i>	Least Concern (LC)
Cobitidae	<i>Cobitis</i>	<i>bilseli</i>	Critically Endangered (CR)
Cobitidae	<i>Cobitis</i>	<i>calderoni</i>	Endangered (EN)
Cobitidae	<i>Cobitis</i>	<i>dalmatina</i>	Vulnerable (VU)
Cobitidae	<i>Cobitis</i>	<i>fahireae</i>	Least Concern (LC)
Cobitidae	<i>Cobitis</i>	<i>hellenica</i>	Endangered (EN)
Cobitidae	<i>Cobitis</i>	<i>kurui</i>	Least Concern (LC)
Cobitidae	<i>Cobitis</i>	<i>levantina</i>	Vulnerable (VU)
Cobitidae	<i>Cobitis</i>	<i>maroccana</i>	Vulnerable (VU)
Cobitidae	<i>Cobitis</i>	<i>meridionalis</i>	Vulnerable (VU)
Cobitidae	<i>Cobitis</i>	<i>narentana</i>	Vulnerable (VU)
Cobitidae	<i>Cobitis</i>	<i>ohridana</i>	Least Concern (LC)
Cobitidae	<i>Cobitis</i>	<i>paludica</i>	Vulnerable (VU)
Cobitidae	<i>Cobitis</i>	<i>puncticulata</i>	Critically Endangered (CR)
Cobitidae	<i>Cobitis</i>	<i>punctilineata</i>	Vulnerable (VU)
Cobitidae	<i>Cobitis</i>	<i>stephanidisi</i>	Critically Endangered (CR)
Cobitidae	<i>Cobitis</i>	<i>trichonica</i>	Endangered (EN)

Family	Genus	Species	IUCN Red List Category
Cobitidae	<i>Cobitis</i>	<i>turcica</i>	Endangered (EN)
Cobitidae	<i>Cobitis</i>	<i>vettonica</i>	Endangered (EN)
Cobitidae	<i>Cobitis</i>	<i>zanandreaei</i>	Vulnerable (VU)
Cottidae	<i>Cottus</i>	<i>petiti</i>	Vulnerable (VU)
Cyprinidae	<i>Acanthobrama</i>	<i>centisquama</i>	Endangered (EN)
Cyprinidae	<i>Acanthobrama</i>	<i>lissneri</i>	Least Concern (LC)
Cyprinidae	<i>Acanthobrama</i>	<i>telavivensis</i>	Extinct in the Wild (EW)
Cyprinidae	<i>Acanthobrama</i>	<i>terraesanctae</i>	Least Concern (LC)
Cyprinidae	<i>Alburnus</i>	<i>akili</i>	Extinct (EX)
Cyprinidae	<i>Alburnus</i>	<i>albidus</i>	Vulnerable (VU)
Cyprinidae	<i>Alburnus</i>	<i>belvica</i>	Vulnerable (VU)
Cyprinidae	<i>Alburnus</i>	<i>orontis</i>	Endangered (EN)
Cyprinidae	<i>Alburnus</i>	<i>qalilus</i>	Vulnerable (VU)
Cyprinidae	<i>Anaocypris</i>	<i>hispanica</i>	Endangered (EN)
Cyprinidae	<i>Aulopyge</i>	<i>huegeli</i>	Endangered (EN)
Cyprinidae	<i>Barbus</i>	<i>albanicus</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>antinorii</i>	Data Deficient (DD)
Cyprinidae	<i>Barbus</i>	<i>bocagei</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>callensis</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>caninus</i>	Endangered (EN)
Cyprinidae	<i>Barbus</i>	<i>canis</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>chantrei</i>	Endangered (EN)
Cyprinidae	<i>Barbus</i>	<i>comizo</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>cyclolepis</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>euboicus</i>	Critically Endangered (CR)
Cyprinidae	<i>Barbus</i>	<i>figuiguensis</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>fritschii</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>graecus</i>	Endangered (EN)
Cyprinidae	<i>Barbus</i>	<i>graellsii</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>guiraonis</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>haasi</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>harterti</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>issenensis</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>ksibi</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>labiosa</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>lepineyi</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>longiceps</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>lorteti</i>	Data Deficient (DD)
Cyprinidae	<i>Barbus</i>	<i>macedonicus</i>	Data Deficient (DD)
Cyprinidae	<i>Barbus</i>	<i>magniatlantis</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>massaensis</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>meridionalis</i>	Near Threatened (NT)
Cyprinidae	<i>Barbus</i>	<i>microcephalus</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>moulouyensis</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>nasus</i>	Near Threatened (NT)
Cyprinidae	<i>Barbus</i>	<i>pallaryi</i>	Least Concern (LC)

Family	Genus	Species	IUCN Red List Category
Cyprinidae	<i>Barbus</i>	<i>paytonii</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>peloponnesius</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>plebejus</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>prespensis</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>reinii</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>sclateri</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>setivimensis</i>	Least Concern (LC)
Cyprinidae	<i>Barbus</i>	<i>steindachneri</i>	Vulnerable (VU)
Cyprinidae	<i>Barbus</i>	<i>tyberinus</i>	Least Concern (LC)
Cyprinidae	<i>Capoeta</i>	<i>antalyensis</i>	Vulnerable (VU)
Cyprinidae	<i>Capoeta</i>	<i>bergamae</i>	Vulnerable (VU)
Cyprinidae	<i>Capoeta</i>	<i>pestai</i>	Critically Endangered (CR)
Cyprinidae	<i>Chondrostoma</i>	<i>arcasii</i>	Vulnerable (VU)
Cyprinidae	<i>Chondrostoma</i>	<i>arrigonis</i>	Critically Endangered (CR)
Cyprinidae	<i>Chondrostoma</i>	<i>beysehirensis</i>	Endangered (EN)
Cyprinidae	<i>Chondrostoma</i>	<i>duriense</i>	Vulnerable (VU)
Cyprinidae	<i>Chondrostoma</i>	<i>genei</i>	Least Concern (LC)
Cyprinidae	<i>Chondrostoma</i>	<i>holmwoodii</i>	Data Deficient (DD)
Cyprinidae	<i>Chondrostoma</i>	<i>kinzelbachi</i>	Endangered (EN)
Cyprinidae	<i>Chondrostoma</i>	<i>knerii</i>	Vulnerable (VU)
Cyprinidae	<i>Chondrostoma</i>	<i>lemmingii</i>	Vulnerable (VU)
Cyprinidae	<i>Chondrostoma</i>	<i>lusitanicus</i>	Critically Endangered (CR)
Cyprinidae	<i>Chondrostoma</i>	<i>macrolepidotus</i>	Least Concern (LC)
Cyprinidae	<i>Chondrostoma</i>	<i>meandrense</i>	Vulnerable (VU)
Cyprinidae	<i>Chondrostoma</i>	<i>miegii</i>	Least Concern (LC)
Cyprinidae	<i>Chondrostoma</i>	<i>oretanum</i>	Critically Endangered (CR)
Cyprinidae	<i>Chondrostoma</i>	<i>phoxinus</i>	Endangered (EN)
Cyprinidae	<i>Chondrostoma</i>	<i>polylepis</i>	Least Concern (LC)
Cyprinidae	<i>Chondrostoma</i>	<i>prespense</i>	Vulnerable (VU)
Cyprinidae	<i>Chondrostoma</i>	<i>scodrense</i>	Extinct (EX)
Cyprinidae	<i>Chondrostoma</i>	<i>soetta</i>	Endangered (EN)
Cyprinidae	<i>Chondrostoma</i>	<i>toxostoma</i>	Vulnerable (VU)
Cyprinidae	<i>Chondrostoma</i>	<i>turiense</i>	Endangered (EN)
Cyprinidae	<i>Chondrostoma</i>	<i>vardarense</i>	Near Threatened (NT)
Cyprinidae	<i>Chondrostoma</i>	<i>willkommii</i>	Vulnerable (VU)
Cyprinidae	<i>Garra</i>	<i>ghorensis</i>	Critically Endangered (CR)
Cyprinidae	<i>Gobio</i>	<i>benacensis</i>	Endangered (EN)
Cyprinidae	<i>Gobio</i>	<i>elimeius</i>	Data Deficient (DD)
Cyprinidae	<i>Gobio</i>	<i>hettitorum</i>	Vulnerable (VU)
Cyprinidae	<i>Hemigrammocapoeta</i>	<i>caudomaculata</i>	Data Deficient (DD)
Cyprinidae	<i>Hemigrammocapoeta</i>	<i>culiciphaga</i>	Data Deficient (DD)
Cyprinidae	<i>Hemigrammocapoeta</i>	<i>kemali</i>	Critically Endangered (CR)
Cyprinidae	<i>Hemigrammocapoeta</i>	<i>nana</i>	Vulnerable (VU)
Cyprinidae	<i>Ladigesocypris</i>	<i>ghigii</i>	Vulnerable (VU)
Cyprinidae	<i>Ladigesocypris</i>	<i>irideus</i>	Data Deficient (DD)
Cyprinidae	<i>Ladigesocypris</i>	<i>mermere</i>	Data Deficient (DD)



Family	Genus	Species	IUCN Red List Category
Cyprinidae	<i>Leuciscus</i>	<i>anatolicus</i>	Endangered (EN)
Cyprinidae	<i>Leuciscus</i>	<i>spurius</i>	Data Deficient (DD)
Cyprinidae	<i>Leuciscus</i>	<i>svallize</i>	Vulnerable (VU)
Cyprinidae	<i>Mirogrex</i>	<i>hulensis</i>	Extinct (EX)
Cyprinidae	<i>Pachychilon</i>	<i>macedonicum</i>	Data Deficient (DD)
Cyprinidae	<i>Pachychilon</i>	<i>pictum</i>	Least Concern (LC)
Cyprinidae	<i>Petroleuciscus</i>	<i>smyrnaeus</i>	Data Deficient (DD)
Cyprinidae	<i>Phoxinellus</i>	<i>adpersus</i>	Vulnerable (VU)
Cyprinidae	<i>Phoxinellus</i>	<i>alepidotus</i>	Endangered (EN)
Cyprinidae	<i>Phoxinellus</i>	<i>croaticus</i>	Endangered (EN)
Cyprinidae	<i>Phoxinellus</i>	<i>dalmaticus</i>	Critically Endangered (CR)
Cyprinidae	<i>Phoxinellus</i>	<i>fontinalis</i>	Critically Endangered (CR)
Cyprinidae	<i>Phoxinellus</i>	<i>ghetaldii</i>	Vulnerable (VU)
Cyprinidae	<i>Phoxinellus</i>	<i>jadovensis</i>	Critically Endangered (CR)
Cyprinidae	<i>Phoxinellus</i>	<i>krbavensis</i>	Critically Endangered (CR)
Cyprinidae	<i>Phoxinellus</i>	<i>metohiensis</i>	Vulnerable (VU)
Cyprinidae	<i>Phoxinellus</i>	<i>pseudalepidotus</i>	Vulnerable (VU)
Cyprinidae	<i>Pseudophoxinus</i>	<i>anatolicus</i>	Endangered (EN)
Cyprinidae	<i>Pseudophoxinus</i>	<i>antalyae</i>	Data Deficient (DD)
Cyprinidae	<i>Pseudophoxinus</i>	<i>battalgili</i>	Endangered (EN)
Cyprinidae	<i>Pseudophoxinus</i>	<i>callensis</i>	Data Deficient (DD)
Cyprinidae	<i>Pseudophoxinus</i>	<i>crassus</i>	Endangered (EN)
Cyprinidae	<i>Pseudophoxinus</i>	<i>drusensis</i>	Endangered (EN)
Cyprinidae	<i>Pseudophoxinus</i>	<i>egridiri</i>	Critically Endangered (CR)
Cyprinidae	<i>Pseudophoxinus</i>	<i>epiroticus</i>	Critically Endangered (CR)
Cyprinidae	<i>Pseudophoxinus</i>	<i>fahirae</i>	Critically Endangered (CR)
Cyprinidae	<i>Pseudophoxinus</i>	<i>handlirschi</i>	Critically Endangered (CR)
Cyprinidae	<i>Pseudophoxinus</i>	<i>kervillei</i>	Endangered (EN)
Cyprinidae	<i>Pseudophoxinus</i>	<i>laconicus</i>	Critically Endangered (CR)
Cyprinidae	<i>Pseudophoxinus</i>	<i>maeandri</i>	Data Deficient (DD)
Cyprinidae	<i>Pseudophoxinus</i>	<i>maeandricus</i>	Data Deficient (DD)
Cyprinidae	<i>Pseudophoxinus</i>	<i>minutus</i>	Data Deficient (DD)
Cyprinidae	<i>Pseudophoxinus</i>	<i>prespensis</i>	Endangered (EN)
Cyprinidae	<i>Pseudophoxinus</i>	<i>punicus</i>	Data Deficient (DD)
Cyprinidae	<i>Pseudophoxinus</i>	<i>stymphalicus</i>	Least Concern (LC)
Cyprinidae	<i>Pseudophoxinus</i>	<i>syriacus</i>	Critically Endangered (CR)
Cyprinidae	<i>Pseudophoxinus</i>	<i>thesproticus</i>	Near Threatened (NT)
Cyprinidae	<i>Pseudophoxinus</i>	<i>zeregi</i>	Critically Endangered (CR)
Cyprinidae	<i>Rutilus</i>	<i>aula</i>	Least Concern (LC)
Cyprinidae	<i>Rutilus</i>	<i>basak</i>	Least Concern (LC)
Cyprinidae	<i>Rutilus</i>	<i>karamani</i>	Least Concern (LC)
Cyprinidae	<i>Rutilus</i>	<i>ohridanus</i>	Least Concern (LC)
Cyprinidae	<i>Rutilus</i>	<i>prespensis</i>	Vulnerable (VU)
Cyprinidae	<i>Rutilus</i>	<i>rubilio</i>	Near Threatened (NT)
Cyprinidae	<i>Rutilus</i>	<i>ylikiensis</i>	Data Deficient (DD)
Cyprinidae	<i>Sabanejewia</i>	<i>larvata</i>	Least Concern (LC)

Family	Genus	Species	IUCN Red List Category
Cyprinidae	<i>Scardinius</i>	<i>acarnanicus</i>	Near Threatened (NT)
Cyprinidae	<i>Scardinius</i>	<i>elmaliensis</i>	Data Deficient (DD)
Cyprinidae	<i>Scardinius</i>	<i>graecus</i>	Critically Endangered (CR)
Cyprinidae	<i>Scardinius</i>	<i>scardafa</i>	Critically Endangered (CR)
Cyprinidae	<i>Squalius</i>	<i>alburnoides</i>	Vulnerable (VU)
Cyprinidae	<i>Squalius</i>	<i>aradensis</i>	Vulnerable (VU)
Cyprinidae	<i>Squalius</i>	<i>carolitertii</i>	Least Concern (LC)
Cyprinidae	<i>Squalius</i>	<i>illyricus</i>	Near Threatened (NT)
Cyprinidae	<i>Squalius</i>	<i>keadicus</i>	Endangered (EN)
Cyprinidae	<i>Squalius</i>	<i>lucumonis</i>	Endangered (EN)
Cyprinidae	<i>Squalius</i>	<i>microlepis</i>	Endangered (EN)
Cyprinidae	<i>Squalius</i>	<i>palaciosi</i>	Critically Endangered (CR)
Cyprinidae	<i>Squalius</i>	<i>peloponnensis</i>	Least Concern (LC)
Cyprinidae	<i>Squalius</i>	<i>prespensis</i>	Least Concern (LC)
Cyprinidae	<i>Squalius</i>	<i>pyrenaicus</i>	Near Threatened (NT)
Cyprinidae	<i>Squalius</i>	<i>torgalensis</i>	Endangered (EN)
Cyprinidae	<i>Squalius</i>	<i>zrmanjae</i>	Near Threatened (NT)
Cyprinidae	<i>Telestes</i>	<i>beoticus</i>	Endangered (EN)
Cyprinidae	<i>Telestes</i>	<i>montenigrinus</i>	Least Concern (LC)
Cyprinidae	<i>Telestes</i>	<i>muticellus</i>	Least Concern (LC)
Cyprinidae	<i>Telestes</i>	<i>pleurobipunctatus</i>	Least Concern (LC)
Cyprinidae	<i>Telestes</i>	<i>polylepis</i>	Critically Endangered (CR)
Cyprinidae	<i>Telestes</i>	<i>turskyi</i>	Critically Endangered (CR)
Cyprinidae	<i>Telestes</i>	<i>ukliva</i>	Extinct (EX)
Cyprinidae	<i>Tropidophoxinellus</i>	<i>hellenicus</i>	Least Concern (LC)
Cyprinidae	<i>Tropidophoxinellus</i>	<i>spartiaticus</i>	Vulnerable (VU)
Cyprinidae	<i>Tylognathus</i>	<i>klatti</i>	Data Deficient (DD)
Cyprinidae	<i>Varicorhinus</i>	<i>angorae</i>	Data Deficient (DD)
Cyprinidae	<i>Varicorhinus</i>	<i>maroccanus</i>	Data Deficient (DD)
Cyprinidae	<i>Vimba</i>	<i>melanops</i>	Data Deficient (DD)
Cyprinodontidae	<i>Aphanius</i>	<i>anatoliae</i>	Data Deficient (DD)
Cyprinodontidae	<i>Aphanius</i>	<i>apodus</i>	Data Deficient (DD)
Cyprinodontidae	<i>Aphanius</i>	<i>baeticus</i>	Endangered (EN)
Cyprinodontidae	<i>Aphanius</i>	<i>fasciatus</i>	Least Concern (LC)
Cyprinodontidae	<i>Aphanius</i>	<i>iberus</i>	Endangered (EN)
Cyprinodontidae	<i>Aphanius</i>	<i>richardsoni</i>	Critically Endangered (CR)
Cyprinodontidae	<i>Aphanius</i>	<i>sirhani</i>	Critically Endangered (CR)
Cyprinodontidae	<i>Aphanius</i>	<i>sureyanus</i>	Data Deficient (DD)
Gasterosteidae	<i>Pungitius</i>	<i>hellenicus</i>	Critically Endangered (CR)
Gobiidae	<i>Economidichthys</i>	<i>pygmeus</i>	Least Concern (LC)
Gobiidae	<i>Economidichthys</i>	<i>trichonis</i>	Endangered (EN)
Gobiidae	<i>Knipowitschia</i>	<i>croatica</i>	Vulnerable (VU)
Gobiidae	<i>Knipowitschia</i>	<i>ephesi</i>	Critically Endangered (CR)
Gobiidae	<i>Knipowitschia</i>	<i>goerneri</i>	Data Deficient (DD)
Gobiidae	<i>Knipowitschia</i>	<i>mermere</i>	Critically Endangered (CR)
Gobiidae	<i>Knipowitschia</i>	<i>milleri</i>	Critically Endangered (CR)

<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>IUCN Red List Category</b>
Gobiidae	<i>Knipowitschia</i>	<i>panizzae</i>	Least Concern (LC)
Gobiidae	<i>Knipowitschia</i>	<i>punctatissima</i>	Near Threatened (NT)
Gobiidae	<i>Knipowitschia</i>	<i>thessala</i>	Endangered (EN)
Gobiidae	<i>Padogobius</i>	<i>bonelli</i>	Least Concern (LC)
Gobiidae	<i>Padogobius</i>	<i>nigricans</i>	Vulnerable (VU)
Percidae	<i>Zingel</i>	<i>asper</i>	Critically Endangered (CR)
Percidae	<i>Zingel</i>	<i>balcanicus</i>	Data Deficient (DD)
Petromyzontidae	<i>Eudontomyzon</i>	<i>hellenicus</i>	Critically Endangered (CR)
Petromyzontidae	<i>Lethenteron</i>	<i>zanandreaei</i>	Least Concern (LC)
Salmonidae	<i>Acantholingua</i>	<i>ohridana</i>	Vulnerable (VU)
Salmonidae	<i>Salmo</i>	<i>aphelios</i>	Data Deficient (DD)
Salmonidae	<i>Salmo</i>	<i>balcanicus</i>	Data Deficient (DD)
Salmonidae	<i>Salmo</i>	<i>carpio</i>	Critically Endangered (CR)
Salmonidae	<i>Salmo</i>	<i>letnica</i>	Data Deficient (DD)
Salmonidae	<i>Salmo</i>	<i>lumi</i>	Data Deficient (DD)
Salmonidae	<i>Salmo</i>	<i>macedonicus</i>	Data Deficient (DD)
Salmonidae	<i>Salmo</i>	<i>macrostigma</i>	Data Deficient (DD)
Salmonidae	<i>Salmo</i>	<i>marmoratus</i>	Least Concern (LC)
Salmonidae	<i>Salmo</i>	<i>pallaryi</i>	Extinct (EX)
Salmonidae	<i>Salmo</i>	<i>peristericus</i>	Endangered (EN)
Salmonidae	<i>Salmo</i>	<i>platycephalus</i>	Critically Endangered (CR)
Salmonidae	<i>Salmothymus</i>	<i>obtusirostris</i>	Endangered (EN)
Siluridae	<i>Silurus</i>	<i>aristotelis</i>	Data Deficient (DD)
Valenciidae	<i>Valencia</i>	<i>hispanica</i>	Critically Endangered (CR)
Valenciidae	<i>Valencia</i>	<i>letourneuxi</i>	Critically Endangered (CR)

## Appendix 2 Full List of Threats Identified

### Table of the threat categories chosen in the SIS DEM for Mediterranean endemic freshwater fish.

\* Note: More than one threat category can be selected for each species.

\* Note: The threats are accumulative. For example if 1.3.1. Dam building is selected it also selects the 'upper layers' to that category, in this case it would be 1.3. Infrastructure development and 1. Habitat loss/degradation. If 4.1 Drought is selected 4. Natural Disasters is also selected.

\* Note: If more than one lower category is selected it only adds once to the upper category. For example, if 3.1.1. Agricultural, 3.1.2. Domestic and 3.1.3. Industrial Water pollution are all selected for one species, it would only add once to 3.1. Water Pollution and once to 3. Pollution.

\* Note: Upper categories can be selected on their own. For example 1. Habitat loss/degradation can be selected without specifying a lower category.

\* Note: As there currently is no threat category for Water Extraction, 1.3.6. Ground Water Extraction under Habitat Loss was selected as a surrogate.

#### Key:

1. Habitat loss/degradation (human induced)	Layer 1 (Top layer)
1.3. Extraction	Layer 2
1.3.2. Fisheries	Layer 3
1.3.2.1. Subsistence	Layer 4 (bottom layer)

Threat Category	No. species selecting threat		
	Past	Present	Future
<b>1. Habitat loss/degradation (human induced)</b>	<b>158</b>	<b>183</b>	<b>200</b>
1.1. Agriculture	1	1	1
1.3. Extraction	131	170	189
1.3.2. Fisheries	14	11	10
1.3.2.1. Subsistence	7	6	5
1.3.2.2. Artisanal/small scale	12	9	8
1.3.2.3. Industrial/large scale	1	0	0
1.3.6. Groundwater extraction	115	160	183
1.3.7. Other extraction	5	6	6
1.4. Infrastructure development	73	87	96
1.4.2. Human settlement development	1	2	2
1.4.3. Tourism development	2	2	3
1.4.4. Transport - land/air	0	0	1
1.4.5. Water transport development	2	2	2
1.4.6. Dams building	68	81	88
1.4.7. Telecommunications development	2	2	2
<b>2. Invasive alien species (affecting the species)</b>	<b>65</b>	<b>89</b>	<b>111</b>
2.1. Alien competitors	7	7	9
2.2. Alien predators	19	26	28
2.3. Hybridizers	5	8	9
<b>3. Harvesting</b>	<b>10</b>	<b>14</b>	<b>14</b>
3.1. Harvesting for food	7	10	10
3.1.1. Subsistence use	5	7	7
3.1.2. Subnational/national trade	6	6	6
3.1.3. Regional/international trade	2	2	2
3.5. Harvesting for culture/scientific/leisure	2	4	4

Threat Category	No. species selecting threat		
	Past	Present	Future
3.1.1. <i>Subsistence use</i>	0	1	1
3.1.2. <i>Subnational/national trade</i>	1	2	2
3.1.3. <i>Regional/international trade</i>	1	2	2
3.6. <i>Other harvesting</i>	1	1	1
<b>4. Accidental mortality</b>	<b>2</b>	<b>2</b>	<b>2</b>
4.1. <i>Bycatch</i>	2	2	2
4.1.1. <i>Fisheries related bycatch</i>	2	2	2
4.1.1.2. <i>Hooking</i>	1	2	2
4.1.1.4. <i>Dynamite</i>	1	0	0
4.1.1.5. <i>Poisoning</i>	2	2	2
<b>6. Pollution (affecting habitat or species)</b>	<b>141</b>	<b>178</b>	<b>197</b>
6.2. <i>Land pollution</i>	0	1	1
6.2.1. <i>Agriculture land pollution</i>	0	1	1
6.2.2. <i>Domestic land pollution</i>	0	1	1
6.3. <i>Water pollution</i>	135	175	195
6.3.1. <i>Agriculture water pollution</i>	57	72	72
6.3.2. <i>Domestic water pollution</i>	44	59	59
6.3.3. <i>Industrial water pollution</i>	31	36	36
6.3.7. <i>Sediment</i>	1	1	1
6.3.8. <i>Sewage</i>	24	27	26
<b>7. Natural disasters</b>	<b>42</b>	<b>113</b>	<b>181</b>
7.1. <i>Drought</i>	41	112	180
7.3. <i>Temperature extremes</i>	1	1	1
<b>8. Changes in native species dynamics</b>	<b>2</b>	<b>3</b>	<b>5</b>
8.2. <i>Predators</i>	2	2	2
8.4. <i>Hybridizers</i>	0	0	2
<b>9. Intrinsic factors</b>	<b>161</b>	<b>162</b>	<b>166</b>
9.1. <i>Limited dispersal</i>	137	137	141
9.2. <i>Poor recruitment/reproduction</i>	5	5	5
9.5. <i>Low densities</i>	4	4	4
9.7. <i>Slow growth rates</i>	3	3	3
9.8. <i>Population fluctuations</i>	3	3	3
9.9. <i>Restricted range</i>	139	140	143
9.10. <i>Other intrinsic factor</i>	12	12	12
<b>10. Human disturbance</b>	<b>1</b>	<b>1</b>	<b>1</b>
10.1. <i>Recreation/tourism</i>	0	1	1
10.7. <i>Unknown</i>	1	0	0
<b>11. Other threat</b>	<b>1</b>	<b>1</b>	<b>2</b>
<b>12. Unknown threat</b>	<b>23</b>	<b>21</b>	<b>21</b>
<b>13. No threat</b>	<b>1</b>	<b>2</b>	<b>2</b>

# Appendix 3 Example Species Summary and Distribution Map

You can download all the species summaries and distribution maps at [www.iucn.org/themes/ssc/programs/freshwater](http://www.iucn.org/themes/ssc/programs/freshwater).

## Barbatula samantica

**Taxonomic Authority:** (Banarescu & Nalbant, 1978)

**Region:** 1

**Synonyms:**

Orthrias brandti samantica Banarescu & Nalbant, 1978

**Common Names:**

**Order:** Cypriniformes

**Family:** Balitoridae

**Notes on taxonomy:** The taxonomy of Barbatula is in need of revision.

### General Information

**Biome**  Terrestrial  Freshwater  Marine

**Geographic Range of species:**

B. samantica is found only in the Zamanti Stream of the Seyhan River, Turkey.

**Habitat and Ecology Information:**

Riverine species.

**Conservation Measures:**

None known to be in place.

**Threats:**

Water pollution (Canli et al. 1998), water extraction, drought and the construction of a fuel pipeline are the main threats to the species.

**Species population information:**

No published data on trends, but the population is believed to be declining as a result of habitat degradation.

### Country Distribution

Turkey

### Upper Level Habitat Preferences

**Score**

### Lower Level Habitat Preferences

**Score**

5.1 Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)

1

### Major threats

Code	Description of threat	Past	Present	Future
1	Habitat Loss/Degradation (human induced)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.3	Extraction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.3.6	Groundwater extraction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.4	Infrastructure development	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.4.6	Dams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Pollution (affecting habitat and/or species)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6.3	Water pollution	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	Natural disasters	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7.1	Drought	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	Intrinsic factors	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.1	Limited dispersal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.9	Restricted range	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

### Conservation Measures

Code	Conservation measures	In place	Needed
1	Policy-based actions	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.2	Legislation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.2.1	Development	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.2.1.1	International level	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.2.1.2	National level	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.2.2	Implementation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.2.2.1	International level	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.2.2.2	National level	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Research actions	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.2	Population numbers and range	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.3	Biology and Ecology	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.4	Habitat status	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.5	Threats	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Habitat and site-based actions	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.1	Maintenance/Conservation	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Utilisation of Species

Purpose/Type of Use	Subsistence	National	International	Other purpose:
Primary forms removed from the wild	100%	>75%	51-75%	26-50% <25% <i>Other forms removed from the wild:</i>
Source of specimens in commercial trade	100%	>75%	51-75%	26-50% <25% <i>Other source of specimens:</i>

Trend in wild offtake/harvest in relation to total wild population numbers over last five years:

Trend in offtake/harvest produced through domestication/cultivation over last five years:

CITES:

### Red Listing

**Red List Assessment:** Endangered (EN)  Possibly Extinct

**Red List Criteria:** B1ab(iii)

**Rationale for the Red List Assessment:** The species is restricted to the Zamanti Stream in the Seyhan River watershed. Extent of occurrence is estimated at less than 5,000 km<sup>2</sup>. It is known from no more than five locations and habitat quality is declining as a result of pollution, water extraction, drought and dam construction.

**Current Population Trend:** Decreasing

**Date of Assessment:** 14/12/2004

**Assessor(s):** A.J. Crivelli

**Evaluator:** A. Karatash, F. Erk'akan, N. Bogutskaya & M. Goren



**Notes on Red listing:**

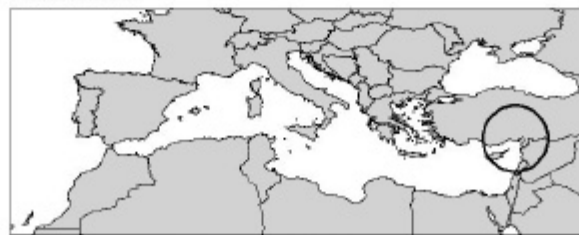
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 Canli, M. Ay, Ö and Kalay, M., 1998. Levels of heavy metals (Cd, Pb, Cu, Cr and Ni) in tissue of Cyprinus carpio, Barbus capito and Chondrostoma regium from the Seyhan River, Turkey., Turkish Journal of Zoology., , 22, 149-155. ,



0 50 100 150 Kilometers

 Rivers  
 *Barbatula samantica*



0 1000 2000 Kilometers