

## IUCN freshwater Key Biodiversity Area (KBA) validation & delineation workshop for the Eastern Mediterranean



Azraq Oasis, Jordan (Kevin Smith)



02-06 December, 2013

Azraq Wetland Lodge, Jordan

Hosted by Royal Society for the Conservation of Nature, Jordan

Kevin Smith

Freshwater Biodiversity Unit

Global Species Programme

IUCN (International Union for Conservation of Nature)

### Donors:



The **Critical Ecosystem Partnership Fund (CEPF)** is a joint initiative of l'Agence Française de Développement, Conservation International, the European Union, the Global Environment Facility, the Government of Japan, the MacArthur Foundation and the World Bank. A fundamental goal is to ensure civil society is engaged in biodiversity conservation.



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## Introduction

This workshop is part of the project 'Freshwater Biodiversity Assessment and Conservation Priorities for the Mediterranean Basin Hotspot', which is funded primarily through CEPF (Critical Ecosystem Partnership Fund) and the MAVA Foundation. This project aims to provide information for decision making to benefit conservation of freshwater biodiversity in the Mediterranean Basin Hotspot (Figure 1). This information provision is focused on species IUCN Red List assessments and the identification of Key Biodiversity Areas.

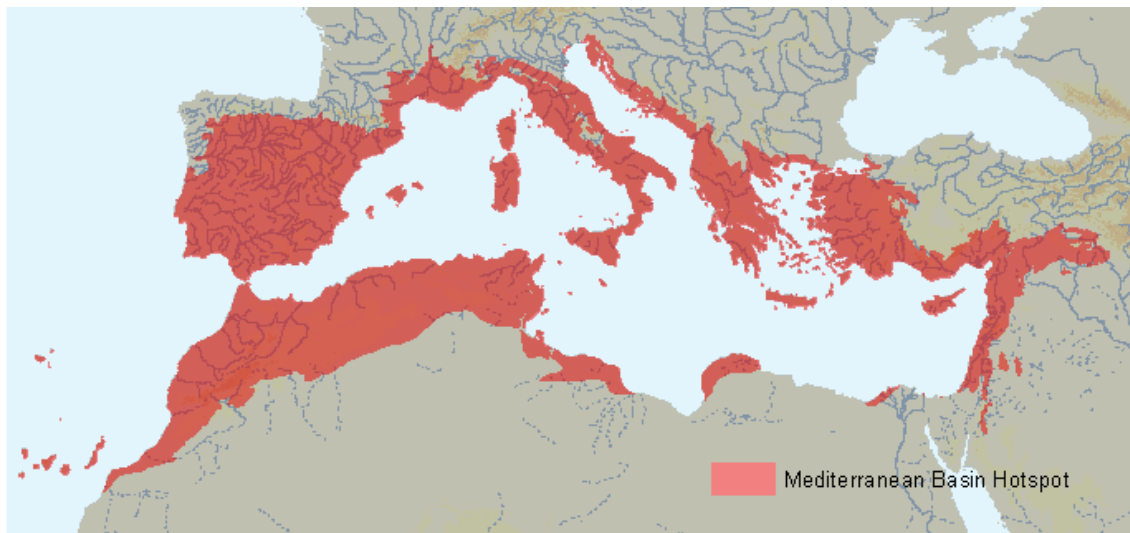


Figure 1. Mediterranean Basin Hotspot

This report is focused on the recent workshop (2-6 Dec, 2013, Jordan) that validated and delineated the freshwater Key Biodiversity Areas in the Eastern Mediterranean region (see Figure 2). The KBAs discussed at this workshop are based on the results of the recent IUCN Red List freshwater species (fish and molluscs) assessments, also undertaken through this project. KBAs delineated by plants and odonates will be identified post this workshop and will be delineated and validated remotely – the reason for not including plants and odonates for this workshop was that very few KBAs were triggered by these species groups as there are few threatened or restricted range species in the region. Therefore we felt it important to focus the limited resources (and space available at the RSCN lodge) for fish and mollusc experts. The IUCN Red List assessment review workshop, upon which this KBA analysis is based, was held in April 2013 (see the IUCN Red List assessment review workshop for the Eastern Mediterranean region report).

## What is a KBA?

The IUCN Red List of Threatened Species™ is widely recognized as the most comprehensive, objective global approach for evaluating the conservation status of plant and animal species. It uses a quantitative threshold based approach to assessing extinction risk of species (IUCN 2012). KBAs arose through the need to similarly identify sites of global significance for biodiversity. Initially for birds (Important Bird Areas) and plants (Important Plant Areas) a set of standardised criteria and thresholds were developed to identify sites in a justifiable and transparent way. The criteria used to identify KBAs are based on Vulnerability of a site (which is the probability that the site will be lost in the future), and irreplaceability of the site (that is the spatial option available – in other words if it is lost from here where else could it be preserved), see below for a summary of the KBA criteria and

thresholds for freshwater taxa (for more detail on the criteria, thresholds and methods used to see Holland *et al.* (2012)). So we see the most extreme example of these in sites such as those that qualify as an Alliance for Zero Extinction (AZE) site, these are single sites which contain an Endangered or Critically Endangered species that occur nowhere else on earth.

**Criteria used to identify a freshwater KBA (Holland et al. 2012)**

**Criterion 1:** A site is known or thought to hold a significant number of one or more globally threatened species or other species of conservation concern.

*Threshold: The presence of one or more CR, EN or VU species will trigger the site as a potential freshwater KBA.*

**Criterion 2:** A site is known or thought to hold non-trivial numbers of one or more species (or infraspecific taxa as appropriate) of restricted range.

*Threshold: A threshold value of 20,000 km<sup>2</sup> should be applied for crabs, fish and molluscs and a threshold value of 50,000 km<sup>2</sup> applied for odonates.*

**Criterion 3:** A site is known or thought to hold a significant component of the group of species that are confined to an appropriate biogeographic unit or units.

*Threshold: To trigger qualification at least 25% of the total species from a specific taxonomic group must be restricted to the freshwater ecoregion in which the catchment is located.*

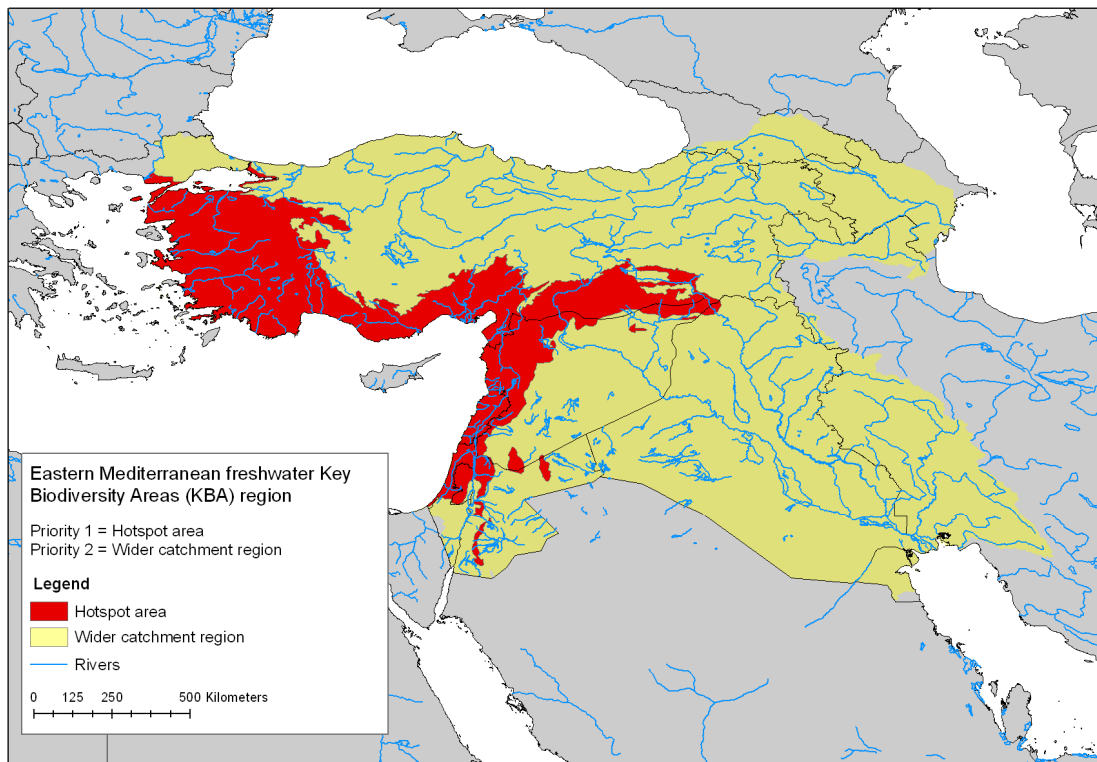


Figure 2. Eastern Mediterranean region showing the Hotspot and wider project region

## Workshop content

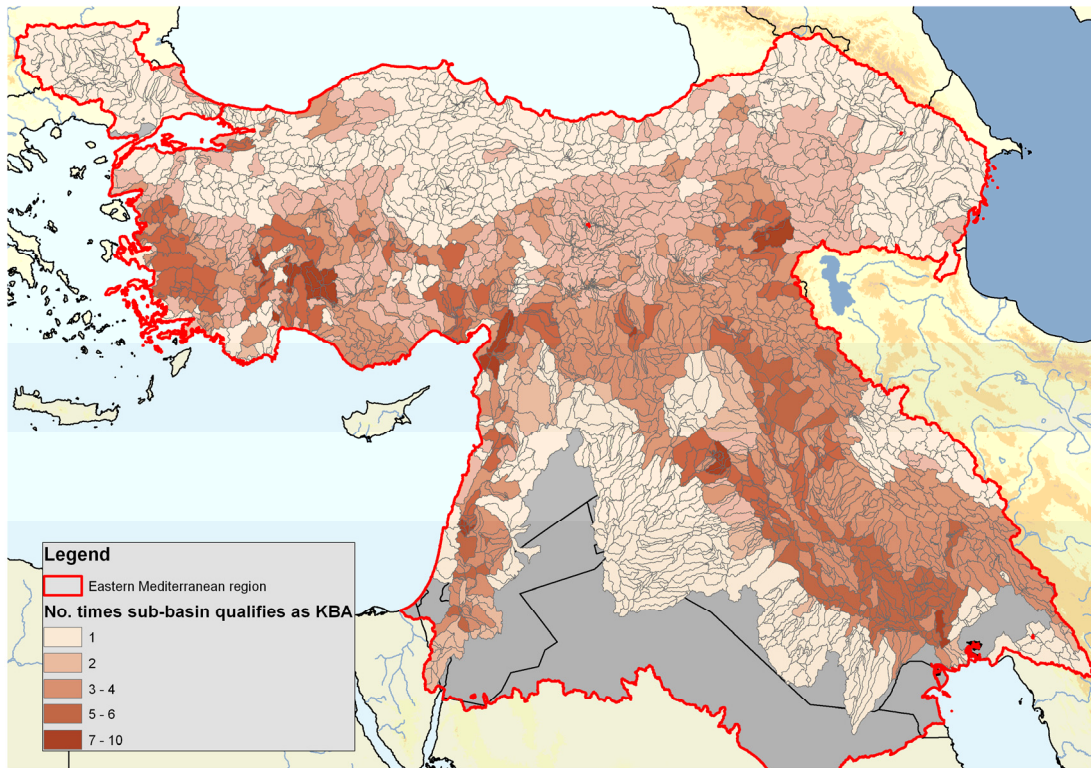
The workshop was held over five days. The first session focused on an introduction to the project (see Annex 1 for the presentation) and IUCN KBA criteria and process. Then the group reviewed the analysis undertaken to show the number of times each sub-basin is triggered as a potential KBA based on the IUCN Red List species data (Figure 3). This analysis shows that most sub-catchments are triggered as KBAs (mostly due to wide ranging threatened species), therefore a prioritisation process was agreed with the participants to firstly focus on the potential Alliance for Zero Extinction Sites (i.e. those sub-catchments containing highly threatened species endemic to that sub-catchment/lake), and to then assess/validate sub-catchments with the highest numbers of trigger species.

The group then split into two sub-groups (Levant & Turkey) and discussed each KBA one by one. For each KBA the following attributes were discussed:

- Site boundary delineation – to determine if the KBA should be delineated as the single sub-catchment or merged with adjacent catchments to form a more logical management unit
- Name the KBA site – based on major rivers or lakes in the KBA catchment
- Identify focal areas + management zones (focal areas are often the areas where the species is found within the sub-catchment)
- Confirm presence of KBA “trigger” species
- Confirm/complete list of KBA overlap with existing protected areas + management focus
- General site text description
- Identify main threats & habitats
- Propose conservation actions + scale of action
- Propose organisations to “champion” each site



KBA working groups



**Figure 3. Number of times each sub-basin is triggered as a potential KBA based on the IUCN Red List species data**

## Participants

The participants were identified through the expertise of the relevant IUCN specialist groups, participants to the previous IUCN Red List assessment review workshop and RSCN. At the workshop we needed expertise on the species that were triggering the KBAs (fish and molluscs) but also expertise on general site conservation within the region identification of threats, conservation measures and site champions.

There were 15 participants at the workshop (listed below), providing a good spread of taxonomic, conservation and geographic expertise. Unfortunately Engin Yilmaz of Doğa Derneği, Turkey fell ill a few days before the workshop so could not attend, however his colleague Süreyya İsfendiyaroğlu was already attending the workshop. In addition a number of others were also invited who could not attend including Ramsar Focal Points (Mr Fayez Karimeh, Ministry of Irrigation Syria; Mr Serif Hizli, Directorate of Nature Conservation & National Parks Turkey; Ms Lina Yamout, Ministry of Environment Lebanon); Bassima Khatib Society for the Protection of Nature in Lebanon; Dr. Manal Nader Environment Institute, Lebanon.

### *Workshop Participants:*

#### **Fishes:**

Dr. Jorg Freyhof, Leibniz Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany. IUCN Freshwater Fish Specialist Group Regional Chair for Europe.

Prof. F. Guler Ekmekci, Hydrobiology Section, Biology Dept., Hacettepe University, Ankara, Turkey.

Dr. Nashat Hamidan, Royal Society for the Conservation of Nature, Jordan.

#### **Molluscs:**

Dr. Ümit Kebapçı Department of Biology, Mehmet Akif Ersoy University, Burdur, Turkey.

Dr. Manuel Peixoto de Magalhães Lopes Lima, CIIMAR – Interdisciplinary Centre of Marine and Environmental Research, University of Porto, Portugal.

Dr. Dirk van Damme, Gent University, Belgium

Prof. Zuhair Amr, Jordan University of Science & Technology, Jordan.

#### **Conservation management:**

Süreyya İsfendiyaroğlu, Doğa Derneği, Turkey

Haiffa Abdulhalim, IUCN Regional Office for West Asia, Jordan

Cagri Gocek, WWF Turkey

Laith El Moghrabi, Consultant, Jordan

#### **IUCN (facilitators):**

Mr. Kevin Smith, Freshwater Biodiversity Unit, IUCN Global Species Programme, Cambridge, UK.

Dr. Savrina Carrizo, Freshwater Biodiversity Unit, IUCN Global Species Programme, Cambridge, UK.

Ms. Violetta Barrios, Mediterranean Species Programme, IUCN-Centre for Mediterranean Cooperation, Malaga, Spain.

#### **RSCN:**

Khaled Younis, Royal Society for the Conservation of Nature, Jordan





Participant group photo left to right, back row: Nashat Hamidan; IUCN ROWA colleague; Süreyya İsfendiyaroğlu; Ümit Kebapçı; Jörg Freyhof; Violetta Barrios; Laith El Moghrabi; Guler Ekmekci; Kevin Smith. Front row: Haiffa Abdulhalim; Savrina Carrizo; Dirk van Damme; Manuel Lima; Cagri Gocek.

### Results (provisional)

At the workshop the participants delineated and validated 69 separate freshwater KBAs (Figures 4, 5 & 6), most of these are along the Mediterranean coastal basins of Turkey and the Levant, or along the lower and middle stretches of the Tigris. An example of the worksheet completed for each KBA can be seen in Annex I.

Figures 7, 8, and 9, show the number of KBA trigger species (fishes and molluscs) validated for the KBA during the workshop. The highest number of trigger species (provisional/draft results) are found in the Egrdir Lake, Lower Asi Drainage, and Lake Beysehir and Catchments KBAs, all within Turkey (Lower Asi is also with Syria) .

The number of KBA trigger species covered by the resulting KBA network is 107 freshwater fish species (of which 91 are threatened; 83 qualify as restricted range species, and 7 qualify as biome restricted species) and 61 mollusc species (of which 47 are threatened, 50 qualify as restricted range species, and 10 qualify as biome restricted species) (see Annex II).

### Next steps

The next steps in the project will be to tidy the data from the workshop, for example making final edits to trigger species for the KBAs, and incorporate the KBAs identified from the odonata and aquatic plants. Once this has been done a consolidation with existing (terrestrial) KBAs (for example Important Bird Areas) can be undertaken and then the results will be uploaded to the World Biodiversity Database (WBDB).



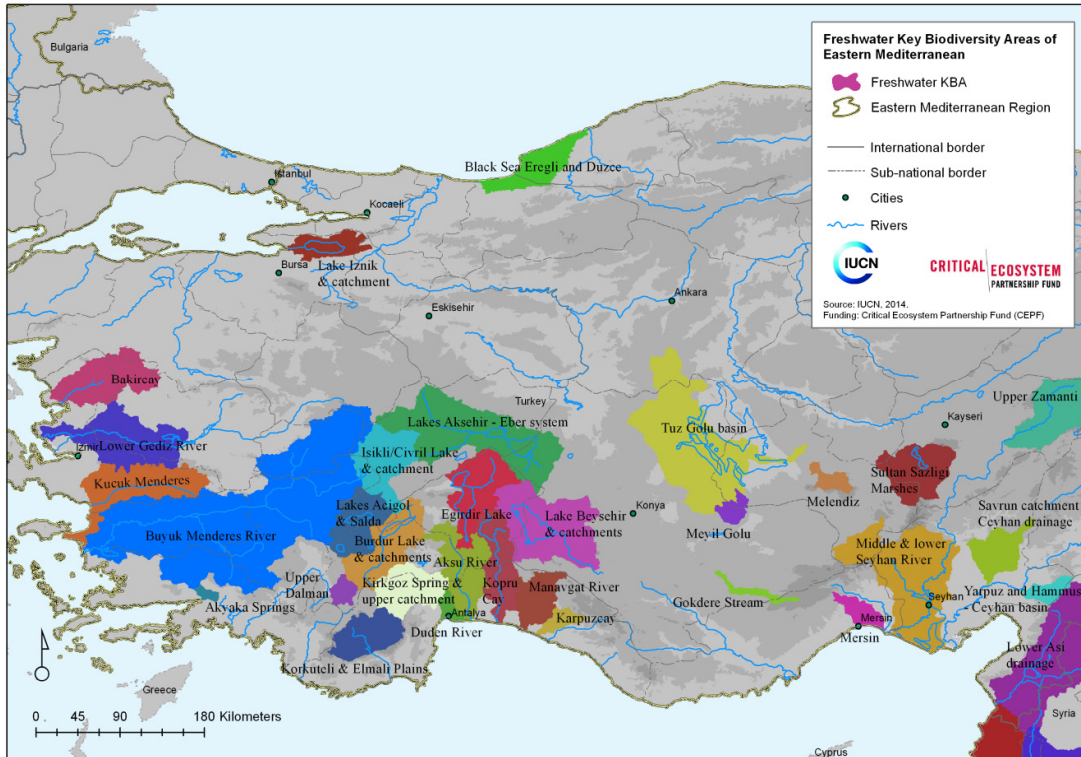


Figure 4. Freshwater KBAs for fishes and molluscs – Eastern Mediterranean Region (WEST)

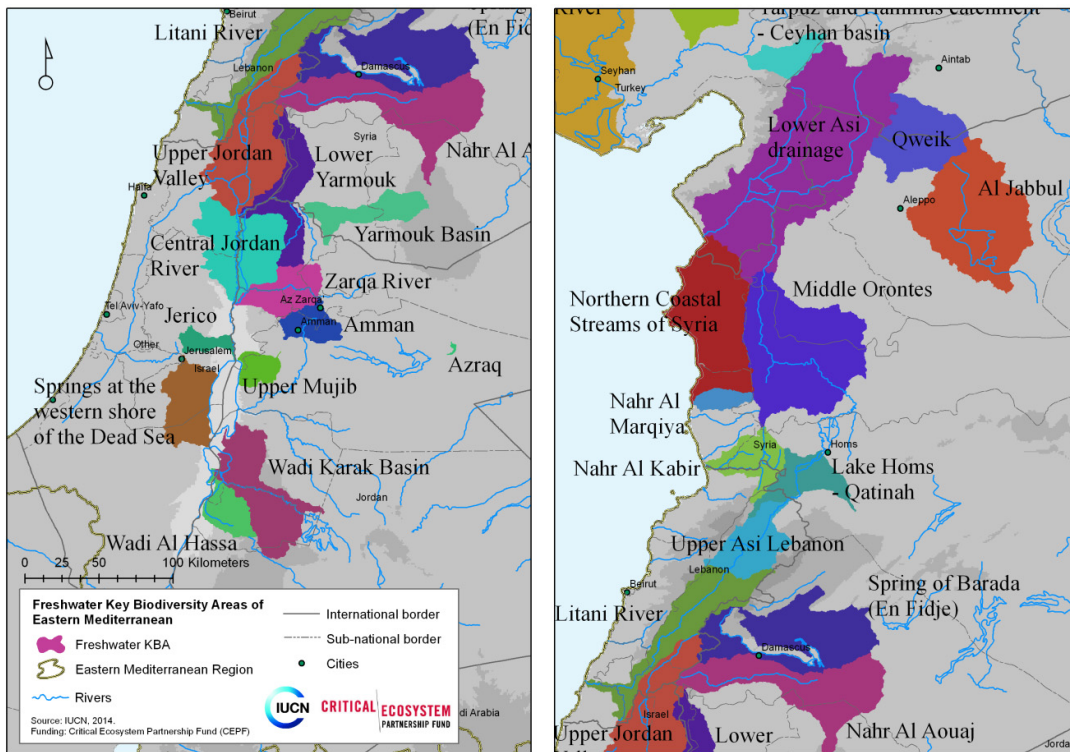


Figure 5. Freshwater KBAs for fishes and molluscs – Eastern Mediterranean Region (CENTRAL)

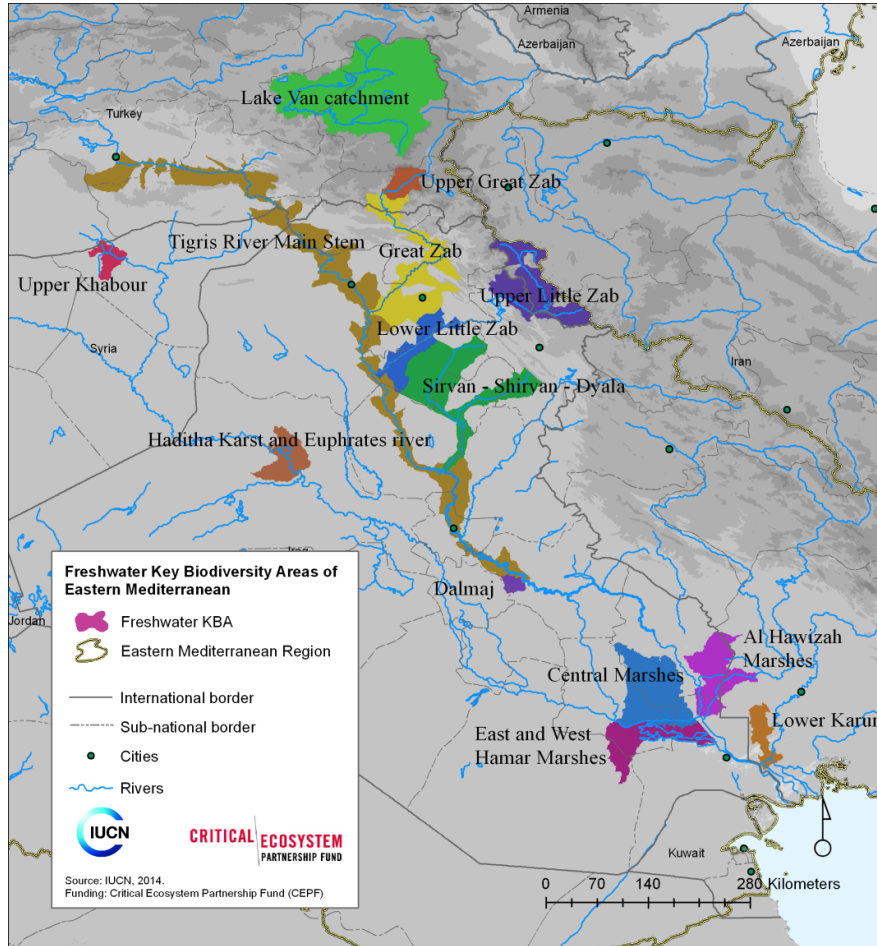


Figure 6. Freshwater KBAs for fishes and molluscs – Eastern Mediterranean Region (EAST)

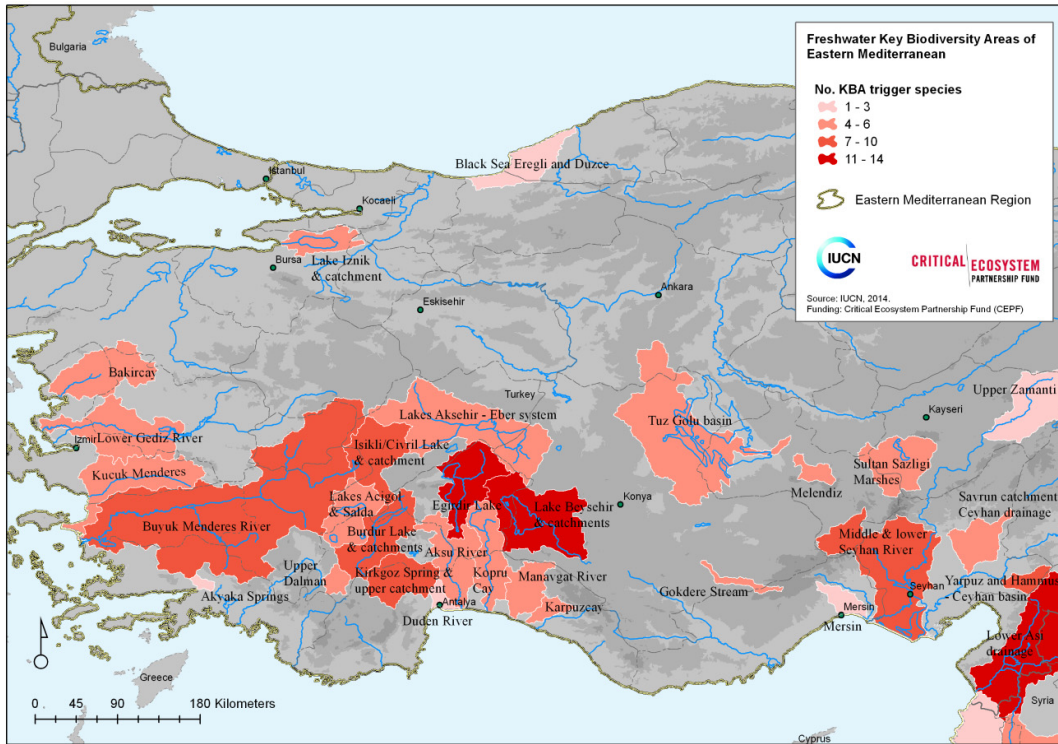


Figure 7. KBA trigger species (fishes & molluscs) for the freshwater KBAs – Eastern Mediterranean Region (WEST)

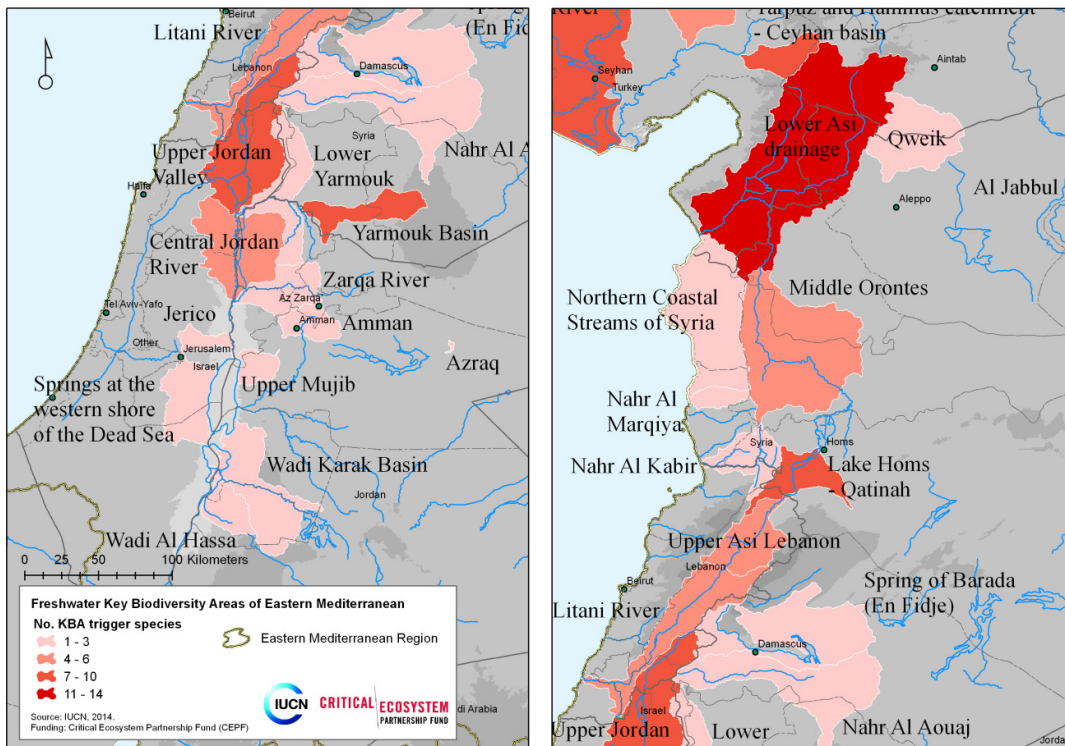


Figure 8. KBA trigger species (fishes & molluscs) for the freshwater KBAs – Eastern Mediterranean Region (CENTRAL)

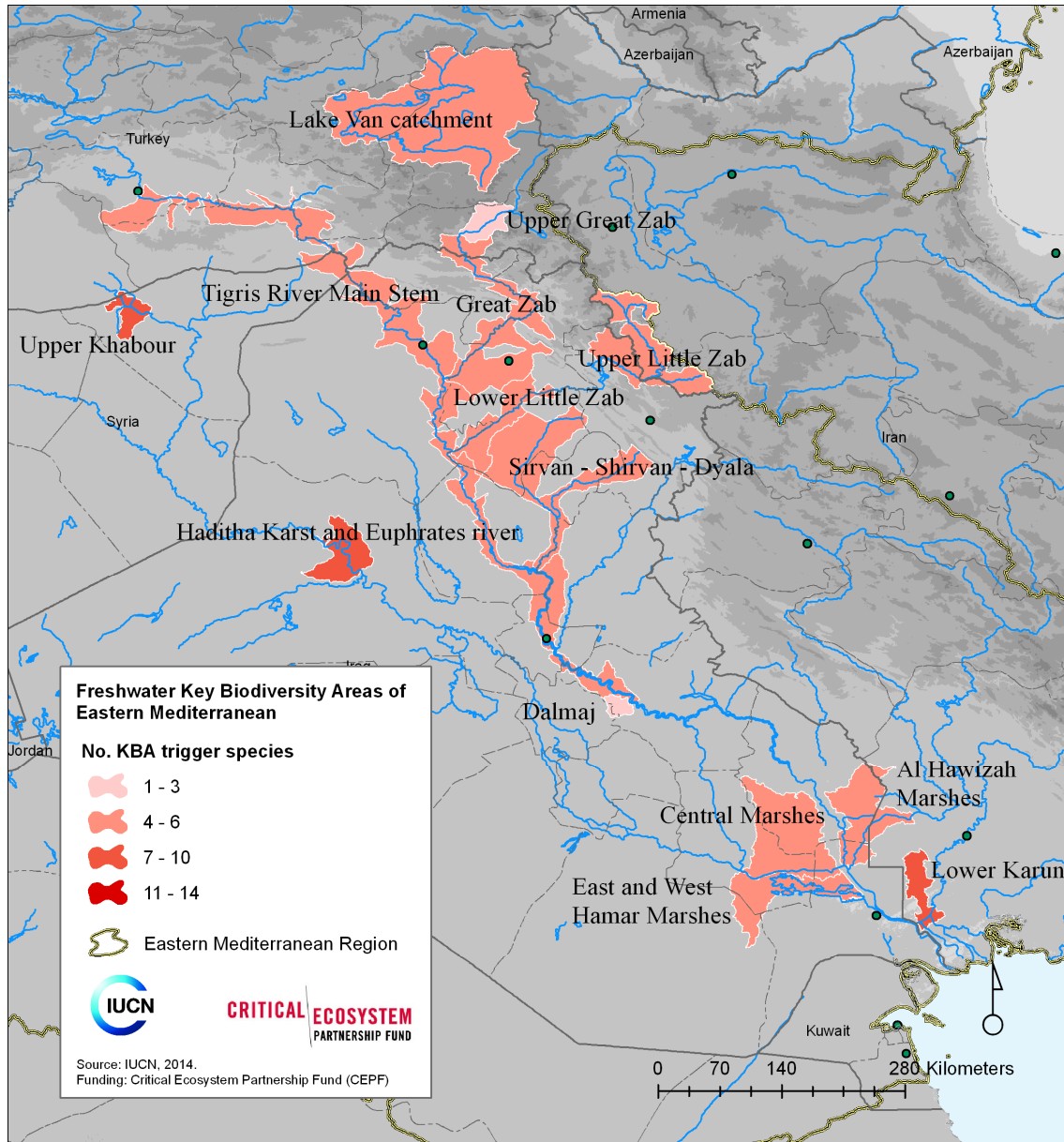


Figure 9. KBA trigger species (fishes & molluscs) for the freshwater KBAs – Eastern Mediterranean Region (WEST)

## References

Holland, R.A., Darwall, W.R.T. and Smith, K.G. 2012. Conservation priorities for freshwater biodiversity: The Key Biodiversity Area approach refined and tested for continental Africa. *Biological Conservation* 148(1):167-179

IUCN. (2012). IUCN Red List Categories and Criteria: Version 3.1. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. iv + 32pp. [http://jr.iucnredlist.org/documents/redlist\\_cats\\_crit\\_en.pdf](http://jr.iucnredlist.org/documents/redlist_cats_crit_en.pdf)

## Annex I. Example of KBA data sheet.

HYBAS ID	COUNTRY
2080703920	Turkey

### SITE PROFILE

National Site Name	Savrun catchment (Ceyhan drainage)
English Name	
KBA delineation	Catchment
Focal area delineation	No
Site description	Permanent streams flowing into the middle part of the Ceyhan River.
Management required at catchment scale	Catchment
Management required at focal area within catchment	No

### TRIGGER SPECIES

HYBAS ID	BINOMIAL	Criterion1	Criterion2	Criterion3	Group	Notes
2080703920	Capoeta erhani	NA	7329.892258	NA	Fishes	Endemic to wider Ceyan catchment
2080703920	Cobitis evreni	EN	3993.285128	NA	Fishes	Endemic to wider Ceyan catchment
2080703920	Hemigrammocapoeta culiciphaga	NA	15665.31008	NA	Fishes	
2080703920	Potomida littoralis	EN	NA	NA	Molluscs	
2080703920	Unio crassus	EN	NA	NA	Molluscs	
	Unio terminalis	VU			Molluscs	New (unpublished record)

### PROTECTED AREAS

HYBAS ID	COUNTRY	NAME	DESIG	DESIG TYPE	GOV TYPE	Management Focus
2080703920	TUR	Cocak Cehennemdere	Game Reserve	National	Federal or national ministry or agency	
		Savrun	Game Reserve			

### SITE CHAMPIONS

Cukurova University
Sutcu Imam University
Ministry of Forestry and Water

HABITAT	YES	NO	Notes
<b>5 WETLANDS INLAND</b>			
5.1 Permanent Rivers/Streams/Creeks(includes waterfalls)		yes	



<b>15 ARTIFICIAL AQUATIC</b>			
15.1 Water Storage Areas (over 8ha)		yes	
<b>THREATS</b>			
	<b>YES</b>	<b>NO</b>	<b>Notes</b>
<b>1.RESIDENTIAL &amp; COMMERCIAL DEVELOPMENT</b>			
1.1 Housing & urban areas			
1.2 Commercial & industrial areas		yes	Cement
1.3 Tourism & recreation areas			
<b>2 AGRICULTURE &amp; AQUACULTURE</b>			
2.1 Annual & perennial non-timber crops		yes	
2.2 Wood & pulp plantations			
2.3 Livestock farming & ranching			
2.4 Marine & freshwater aquaculture			
<b>7 NATURAL SYSTEM MODIFICATION</b>			
7.1 Fire & fire suppression			
7.2 Dams & water management/use		yes	
7.3 Other ecosystem modifications			
<b>9 POLLUTION</b>			
9.1 Domestic & urban waste water			
9.2 Industrial & military effluents		yes	
9.3 Agricultural & forestry effluents		yes	
9.4 Garbage & solid waste			
9.5 Air-borne pollutants			
9.6 Excess energy			
<b>11 CLIMATE CHANGE &amp; SEVERE WEATHER</b>			
11.1 Habitat shifting & alteration			
11.2 Droughts		yes	
11.3 Temperature extremes			
11.4 Storms & flooding			
11.5 Other impacts			
<b>ACTIONS</b>			
	<b>Current</b>	<b>Recommended</b>	<b>Notes</b>
<b>1 LAND/WATER PROTECTION</b>			
1.1 Site/area protection			
1.2 Resource & habitat protection			
<b>2 LAND/WATER MANAGEMENT</b>			
2.1 Site/area management	yes		For whole Ceyhan catchment
2.2 Invasive/problematic species control			
2.3 Habitat & natural process restoration		yes	

## Annex II. KBA trigger species (provisional)

Species	Criterion 1 Threatened species	Criterion 2 Restricted Range	Criterion 3 Biome Restricted
<b>Fishes</b>			
<i>Acanthobrama centisquama</i>	Thr.		
<i>Acanthobrama tricolor</i>	Thr.		
<i>Alburnus attalus</i>	Thr.	RR	
<i>Alburnus baliki</i>	Thr.	RR	
<i>Alburnus battalgilae</i>	Thr.	RR	
<i>Alburnus demiri</i>	Thr.	RR	
<i>Alburnus nasreddini</i>	Thr.	RR	
<i>Alburnus orontis</i>	Thr.	RR	
<i>Alburnus qalilus</i>	Thr.	RR	
<i>Alburnus tarichi</i>		RR	
<i>Alburnus timarensis</i>	Thr.	RR	
<i>Aphanius danfordii</i>	Thr.	RR	
<i>Aphanius dispar ssp. richardsoni</i>	Thr.		
<i>Aphanius mesopotanicus</i>	Thr.		
<i>Aphanius sirhani</i>	Thr.	RR	Biome R
<i>Aphanius sureyanus</i>	Thr.	RR	Biome R
<i>Aphanius transgrediens</i>	Thr.	RR	
<i>Barbus ercisanus</i>		RR	
<i>Barbus grypus</i>	Thr.		
<i>Caecocypris basimi</i>	Thr.	RR	
<i>Capoeta antalyensis</i>	Thr.	RR	
<i>Capoeta barroisi</i>	Thr.	RR	
<i>Capoeta caelestis</i>		RR	
<i>Capoeta erhani</i>		RR	
<i>Capoeta kosswigi</i>		RR	
<i>Capoeta mauricii</i>	Thr.	RR	
<i>Capoeta pestai</i>	Thr.	RR	
<i>Capoeta turani</i>		RR	
<i>Carasobarbus kosswigi</i>	Thr.		
<i>Chondrostoma beysehirense</i>	Thr.	RR	
<i>Chondrostoma fahirae</i>	Thr.	RR	
<i>Chondrostoma holmwoodii</i>	Thr.		
<i>Chondrostoma kinzelbachi</i>	Thr.	RR	
<i>Chondrostoma meandrense</i>	Thr.		
<i>Cobitis battalgili</i>	Thr.	RR	
<i>Cobitis bilseli</i>	Thr.	RR	
<i>Cobitis evreni</i>	Thr.	RR	
<i>Cobitis levantina</i>	Thr.	RR	
<i>Cobitis phrygica</i>	Thr.	RR	
<i>Cobitis splendens</i>	Thr.	RR	

Species	Criterion 1 Threatened species	Criterion 2 Restricted Range	Criterion 3 Biome Restricted
<i>Cobitis turcica</i>	Thr.	RR	
<i>Garra ghorensis</i>	Thr.	RR	
<i>Gobio battalgilae</i>		RR	
<i>Gobio gymnostethus</i>	Thr.	RR	
<i>Gobio hettitorum</i>	Thr.	RR	
<i>Gobio insuyanus</i>	Thr.	RR	
<i>Gobio intermedius</i>	Thr.	RR	
<i>Gobio maeandricus</i>	Thr.	RR	
<i>Gobio microlepidotus</i>	Thr.	RR	
<i>Haplochromis flavijosefi</i>			
<i>Hemigrammocapoeta culiciphaga</i>		RR	
<i>Hemigrammocapoeta nana</i>	Thr.		
<i>Knipowitschia ephesi</i>	Thr.	RR	Biome R
<i>Knipowitschia mermere</i>	Thr.	RR	
<i>Luciobarbus esocinus</i>	Thr.		
<i>Luciobarbus kottelati</i>	Thr.	RR	
<i>Luciobarbus longiceps</i>	Thr.		
<i>Luciobarbus subquincunciatus</i>	Thr.		
<i>Luciobarbus xanthopterus</i>	Thr.		
<i>Mesopotamichthys sharpeyi</i>	Thr.	RR	
<i>Mirogrex terraesanctae</i>		RR	
<i>Oxynoemacheilus anatolicus</i>	Thr.	RR	
<i>Oxynoemacheilus atili</i>		RR	
<i>Oxynoemacheilus ercisianus</i>	Thr.	RR	
<i>Oxynoemacheilus eregliensis</i>	Thr.	RR	
<i>Oxynoemacheilus galilaeus</i>	Thr.		
<i>Oxynoemacheilus germencicus</i>	Thr.		Biome R
<i>Oxynoemacheilus hamwii</i>	Thr.	RR	
<i>Oxynoemacheilus insignis</i>	Thr.		
<i>Oxynoemacheilus leontinae</i>		RR	
<i>Oxynoemacheilus mediterraneus</i>		RR	
<i>Oxynoemacheilus mesudae</i>	Thr.	RR	
<i>Oxynoemacheilus panthera</i>	Thr.	RR	
<i>Oxynoemacheilus phoxinoides</i>	Thr.	RR	
<i>Oxynoemacheilus seyhanensis</i>	Thr.		
<i>Oxynoemacheilus seyhanicola</i>	Thr.	RR	
<i>Oxynoemacheilus tigris</i>	Thr.	RR	
<i>Oxynomacheilus eregliensis</i>	Thr.		
<i>Pseudophoxinus alii</i>	Thr.	RR	
<i>Pseudophoxinus anatolicus</i>	Thr.	RR	
<i>Pseudophoxinus antalyae</i>	Thr.	RR	Biome R
<i>Pseudophoxinus burduricus</i>	Thr.		
<i>Pseudophoxinus crassus</i>	Thr.	RR	
<i>Pseudophoxinus drusensis</i>	Thr.	RR	



Species	Criterion 1 Threatened species	Criterion 2 Restricted Range	Criterion 3 Biome Restricted
<i>Pseudophoxinus egridiri</i>	Thr.	RR	
<i>Pseudophoxinus elizavetae</i>	Thr.	RR	
<i>Pseudophoxinus fahrettini</i>	Thr.	RR	
<i>Pseudophoxinus hasani</i>	Thr.	RR	
<i>Pseudophoxinus hittitorum</i>	Thr.	RR	
<i>Pseudophoxinus kervillei</i>	Thr.		
<i>Pseudophoxinus maeandri</i>	Thr.	RR	
<i>Pseudophoxinus maeandricus</i>	Thr.	RR	
<i>Pseudophoxinus syriacus</i>	Thr.	RR	
<i>Pseudophoxinus zekayi</i>	Thr.	RR	
<i>Salmo labecula</i>	Thr.	RR	
<i>Salmo opimus</i>	Thr.	RR	Biome R
<i>Salmo platycephalus</i>	Thr.	RR	
<i>Seminemacheilus ispartensis</i>	Thr.	RR	
<i>Seminemacheilus lendlii</i>	Thr.		
<i>Squalius cappadocicus</i>	Thr.		
<i>Squalius carinus</i>	Thr.	RR	
<i>Squalius cii</i>		RR	
<i>Squalius recurvirostris</i>	Thr.	RR	
<i>Tristramella simonis</i>		RR	
<i>Tylognathus festai</i>	Thr.		
<i>Typhlogarra widdowsoni</i>	Thr.	RR	
<i>Vimba mirabilis</i>		RR	Biome R
<b>Molluscs</b>			
<i>Anodonta pseudodopsis</i>	Thr.	RR	
<i>Anodonta pseudopsis</i>	Thr.	RR	
<i>Belgrandiella cavernica</i>	Thr.	RR	
<i>Belgrandiella libanica</i>	Thr.		
<i>Bithynia pesicii</i>	Thr.	RR	
<i>Bithynia pseudemmericia</i>	Thr.	RR	
<i>Bithynia yildirimii</i>	Thr.	RR	
<i>Bythinella occasiuncula</i>	Thr.	RR	
<i>Bythinella turca</i>	Thr.	RR	
<i>Dreissena iconica</i>			
<i>Falsibelgrandiella bunarica</i>		RR	
<i>Falsipyrgula barroisi</i>	Thr.	RR	Biome R
<i>Falsipyrgula beysehirana</i>	Thr.		
<i>Falsipyrgula pfeiferi</i>	Thr.	RR	Biome R
<i>Graecoanatolica brevis</i>	Thr.	RR	
<i>Graecoanatolica conica</i>	Thr.	RR	
<i>Graecoanatolica dinarica</i>	Thr.		
<i>Graecoanatolica kocapinarica</i>	Thr.	RR	
<i>Graecoanatolica lacustriturca</i>	Thr.	RR	Biome R
<i>Graecoanatolica pamphylica</i>	Thr.	RR	

Species	Criterion 1 Threatened species	Criterion 2 Restricted Range	Criterion 3 Biome Restricted
<i>Graecoanatolica tenuis</i>	Thr.	RR	
<i>Gyraulus argaeicus</i>	Thr.	RR	
<i>Gyraulus bekaensis</i>	Thr.	RR	
<i>Gyraulus huwaizahensis</i>			
<i>Gyraulus nedyalkovi</i>	Thr.	RR	
<i>Gyraulus pamphylicus</i>	Thr.	RR	Biome R
<i>Heleobia contempta</i>		RR	
<i>Hydrobia anatolica</i>	Thr.	RR	
<i>Hydrobia soosi</i>		RR	
<i>Islamia anatolica</i>	Thr.	RR	Biome R
<i>Islamia bunarbasa</i>	Thr.	RR	Biome R
<i>Islamia pseudorientalica</i>	Thr.	RR	Biome R
<i>Kirelia carinata</i>	Thr.	RR	
<i>Kirelia murtici</i>	Thr.	RR	
<i>Leguminaia saulcyi</i>	Thr.	RR	
<i>Leguminaia wheatleyi</i>		RR	
<i>Margaritifera homsensis</i>	Thr.	RR	
<i>Melanopsis ammonis</i>	Thr.	RR	
<i>Melanopsis buccinoidea</i>		RR	
<i>Melanopsis dircaena</i>	Thr.	RR	
<i>Melanopsis germaini</i>	Thr.	RR	
<i>Melanopsis infracincta</i>	Thr.	RR	Biome R
<i>Melanopsis khabourensis</i>	Thr.	RR	Biome R
<i>Potomida littoralis</i>	Thr.		
<i>Pseudamnicola geldiyana</i>	Thr.	RR	
<i>Pseudamnicola solitaria</i>	Thr.		
<i>Pseudobithynia kathrinae</i>	Thr.	RR	
<i>Pseudobithynia levantica</i>	Thr.	RR	
<i>Pseudobithynia pentheri</i>		RR	
<i>Pseudorientalia natolica</i>	Thr.	RR	
<i>Pyrgorientalia zilchi</i>			
<i>Sadleriana byzanthina</i>		RR	
<i>Stagnicola tekecus</i>		RR	
<i>Tefennia tefennica</i>	Thr.	RR	
<i>Theodoxus altenai</i>	Thr.	RR	Biome R
<i>Theodoxus cinctellus</i>		RR	
<i>Theodoxus euphraticus</i>		RR	
<i>Torosia proschwitzi</i>		RR	
<i>Turcorientalia anatolica</i>	Thr.		
<i>Unio crassus</i>	Thr.		
<i>Unio terminalis</i>	Thr.		