The Biodiversity of the River Vjosa corridor

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GBIF and Balkans, Vjosa!

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Downstream of (non) potential dam!!!

GBIF and Balkans, Vjosa!

Recent records for plants and aquatic arthropods - **nearly 2,200 endemic taxa** described from the SEE region; **1,598 species** and **576 subspecies**.

The Balkan Peninsula (Socha – Krka – Sava Rivers used as the northern delineation)
Source: http://upload.wikimedia.org/wikipedia/commons/b/b6/Balkan_topo_en.jpg

The reasons of high diversity in the Balkans

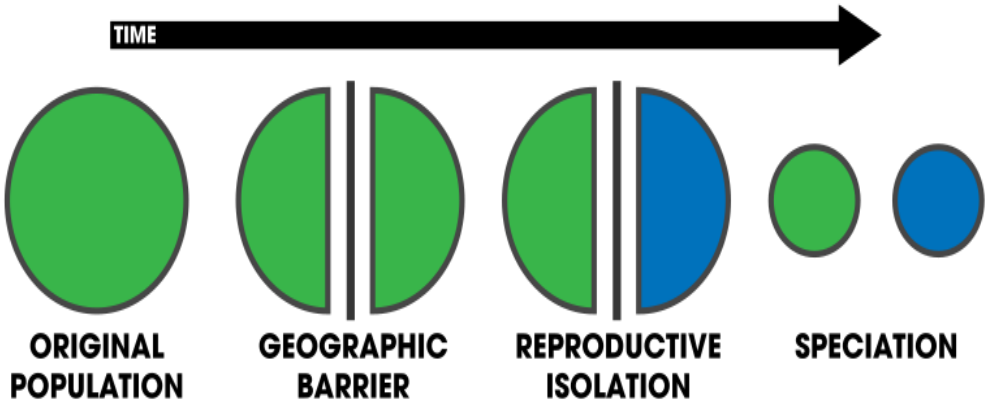
The Balkan Peninsula is part of the Mediterranean basin.
It is one of the 25 most important world hotspot areas of Biodiversity (Myers et al. 2000).

Together with two other South European peninsulas, the Iberian and the Italian, the Balkans were the most important terrestrial Pleistocene glacial refugia in Europe.

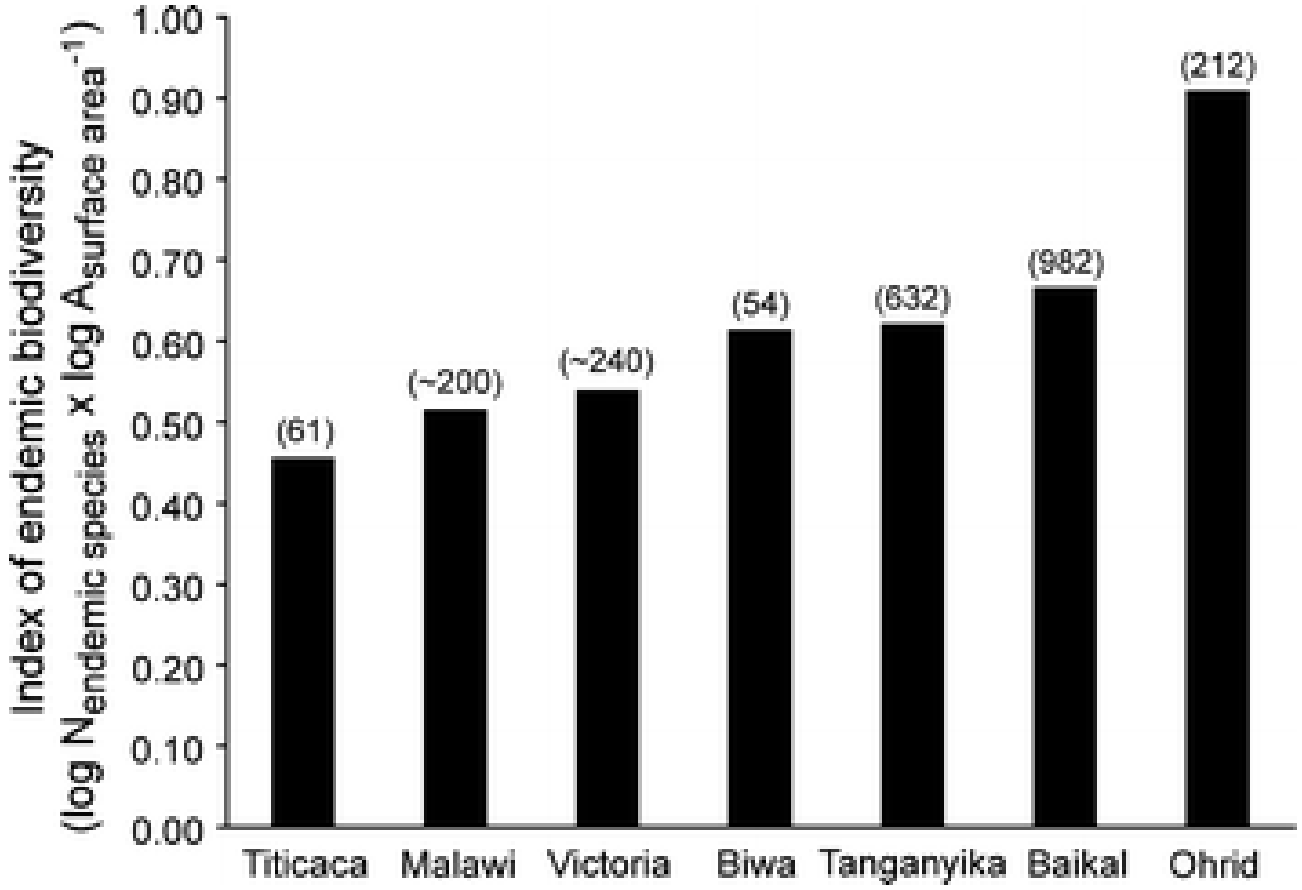
The reasons of high diversity in the Balkans

The present-day geographical distribution of many European temperate species has been shaped by Quaternary climatic fluctuations and ice ages.

The typical scenario predicts **allopatric divergence** following population fragmentation into isolated geographical refugia during glacial periods.



The reasons of high diversity in the Balkans



The reasons of high diversity in the Balkans

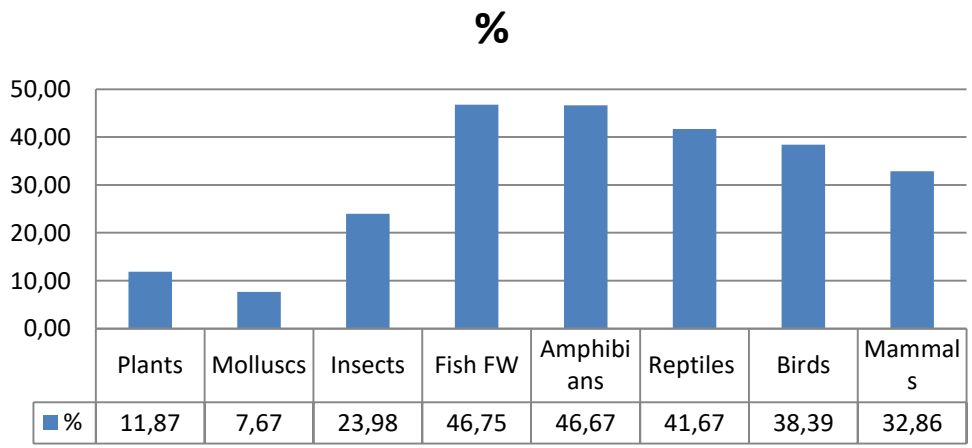
During the Pleistocene (2.7 mio-11,700 y.a.), most of the Balkans, similarly two the Iberian and Appennine Peninsulas, stayed **free of glaciation**. Therefore, this area served as an important refugial area for the European fauna and flora in the cold periods of the Ice Age and as a source for inter and postglacial recolonizations.

Among the Mediterranean peninsulas, the Balkans have been postulated to be the primary source of **post-glacial expansions because the Alps and the Pyrenees acted as migration barriers** for northward movements of species from the other European refugia.

Current knowledge for Vjosa

The work done so far in Vjosa includes data on more than 1840 plant and animal species. These records include 252 Non-vascular plant species, 220 Vascular plants, 64 Mollusk, 1103 Arthropods, 36 Fish, 7 Amphibians, 15 Reptiles, 124 Birds and 23 Mammal species

	Albania	Vjosa	%
Plants	3976	472	11.87
Molluscs	834	64	7.67
Insects	4600	1103	23.98
Fish FW	77	36	46.75
Amphibians	15	7	46.67
Reptiles	36	15	41.67
Birds	323	124	38.39
Mammals	70	23	32.86



Importance the conservation point of view:

Appendix I of the Bern Convention include 3 plant species;

Appendix II 9 insect species, 6 amphibian, 106 bird species, 9 mammals and 13 fish species; there are also 5 endemic species and 2 Endangered one.

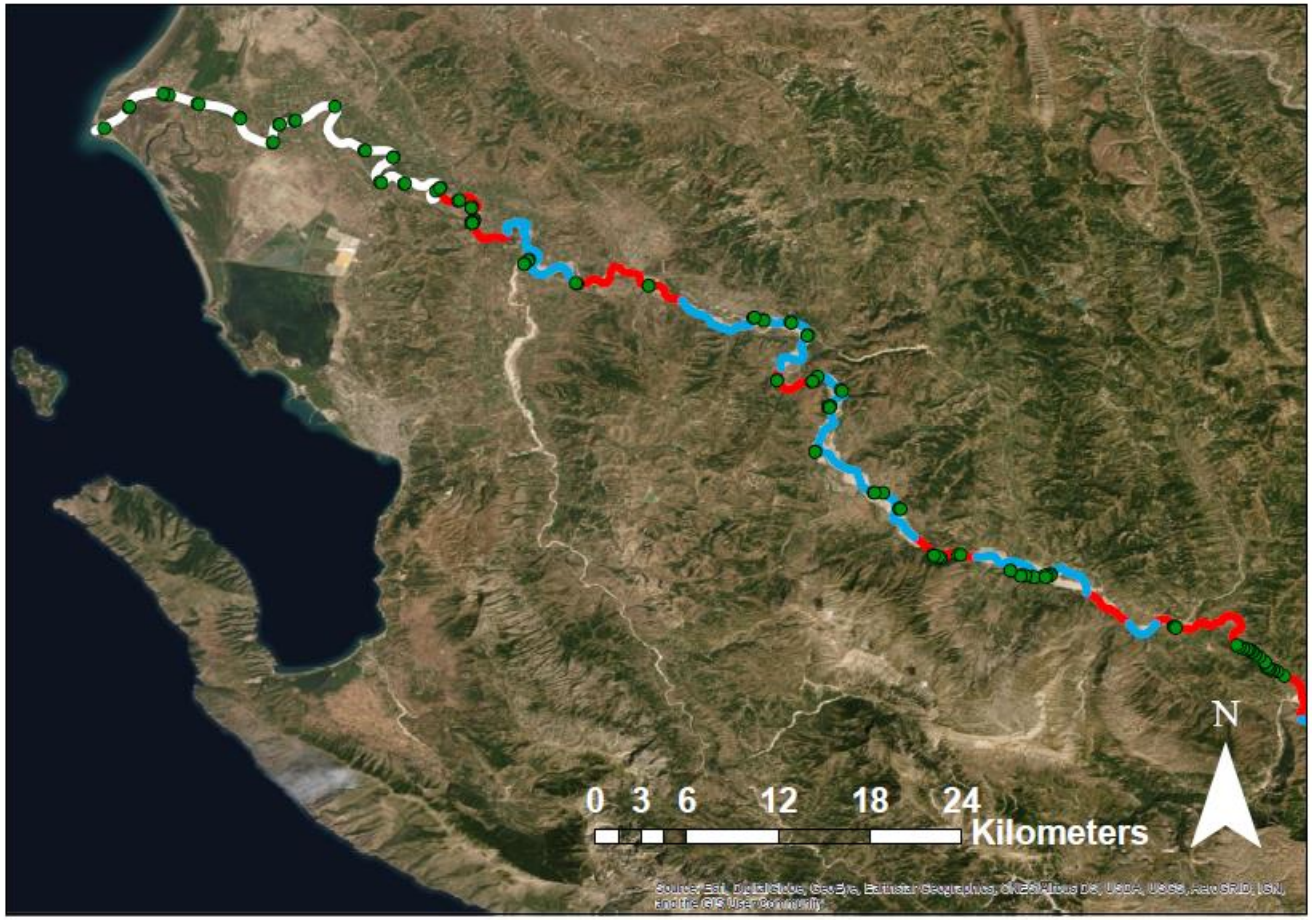
Endemic / Near Endemic species

Isoperla vjosae, Cobitis ohridana, Barbus prespensis, Oxynoemcheilus pindus, Luciobarbus albanicus, Chondrostoma ohridanum, Alburnoides aff. prespensis…

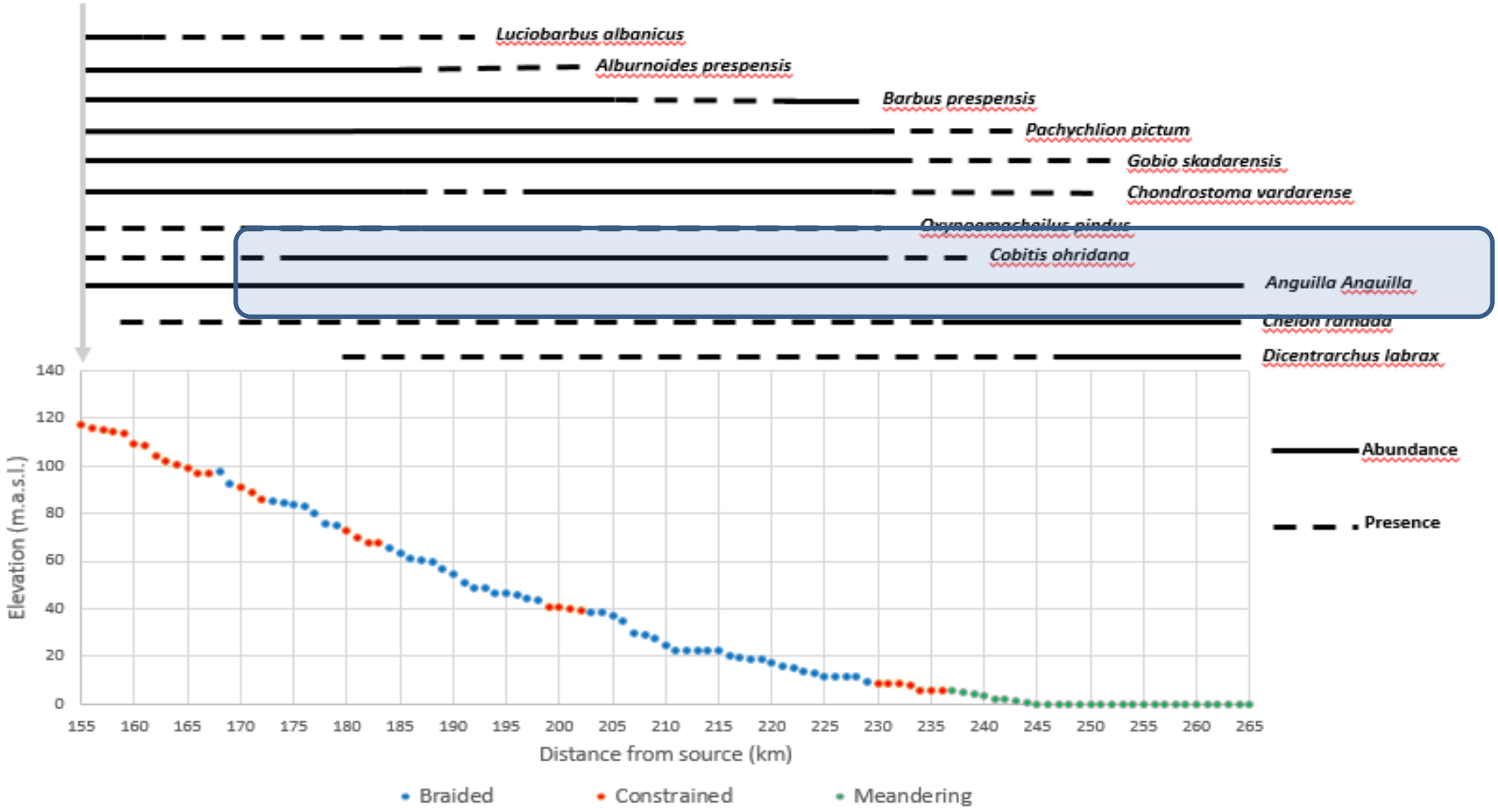
Current knowledge for Vjosa-Fish ecological aspects

Lower stretch of the river Vjosa with the location of the sampling points (green points) and indicated river typology

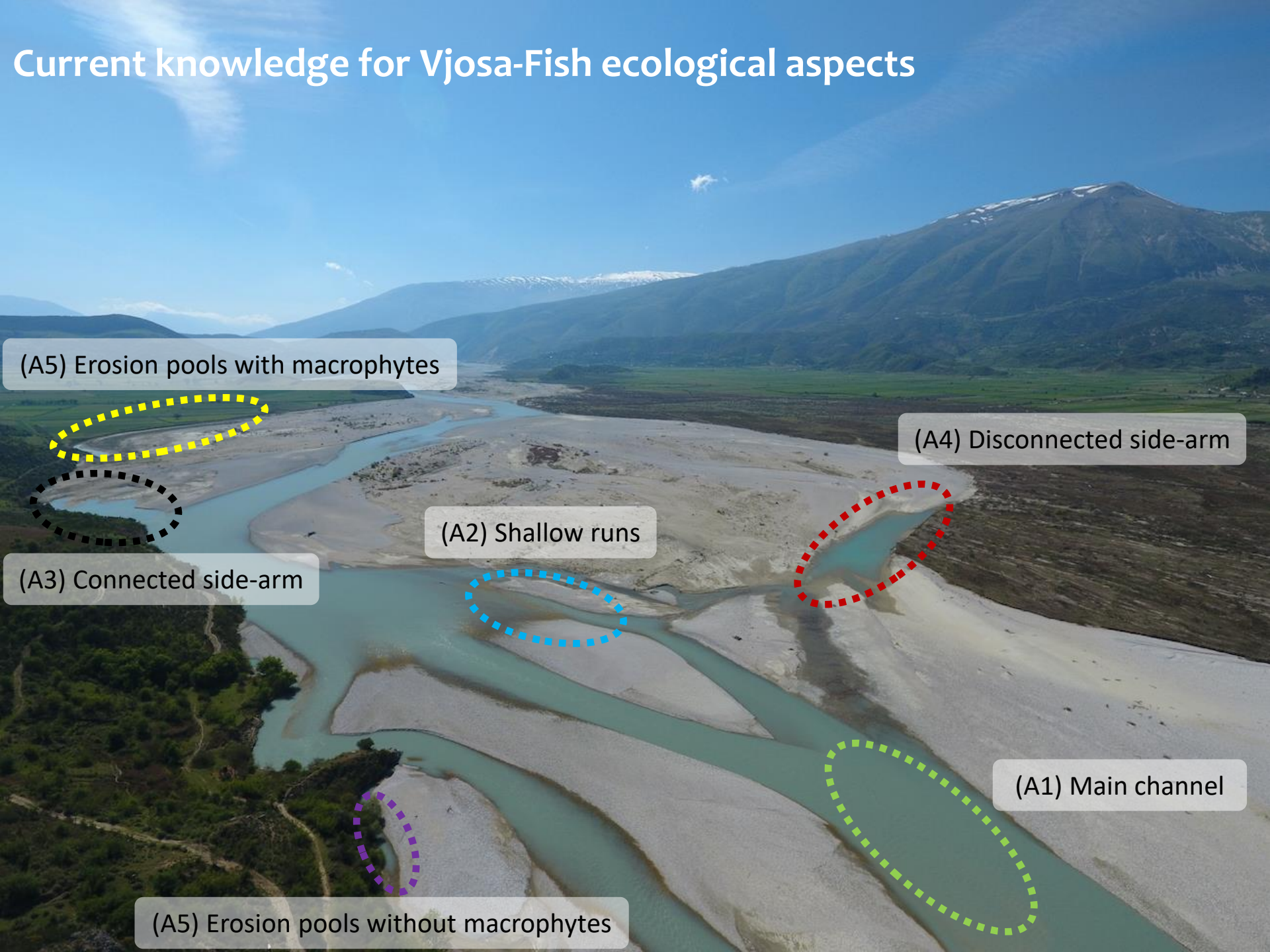
white = meandering, red = constrained and blue = braided.



Current knowledge for Vjosa-Fish ecological aspects



Current knowledge for Vjosa-Fish ecological aspects



List of fish species found in April 2017 in different habitats types of the Pocemi floodplain area. 3: abundant, 2: common, 1: rare.

	(A1) Main channel	(A2) Shallow runs	(A3) Connected side-arm	(A4) Disconnected side-arm	(A5) Erosion pools (without Veg.)	(A5, A7) Clear water (with Veg.)
Chelon sp.	2		1			
Barbus prespensis	3	2	1			
Chondrostoma vardarense	3	1	2			
Anguilla anguilla	2		1			
Gobio skadarensis	3	2	2			
Oxynoemacheilus pindus	1	3				
Dicentrarchus labrax	1					
Luciobarbus albanicus	1					
Pachychilon pictum	1		2			1
Alburnoides bipunctatus	1		2			2
Alburnus scoranza	1	1	3	2	1	1
Squalius platyceps	2		3	2	2	1
Cobitis ohridana			1	2	2	1
Pseudorasbora parva				2	1	1
Gambusia holbrooki				1	1	2
Pelasgus thesproticus						3

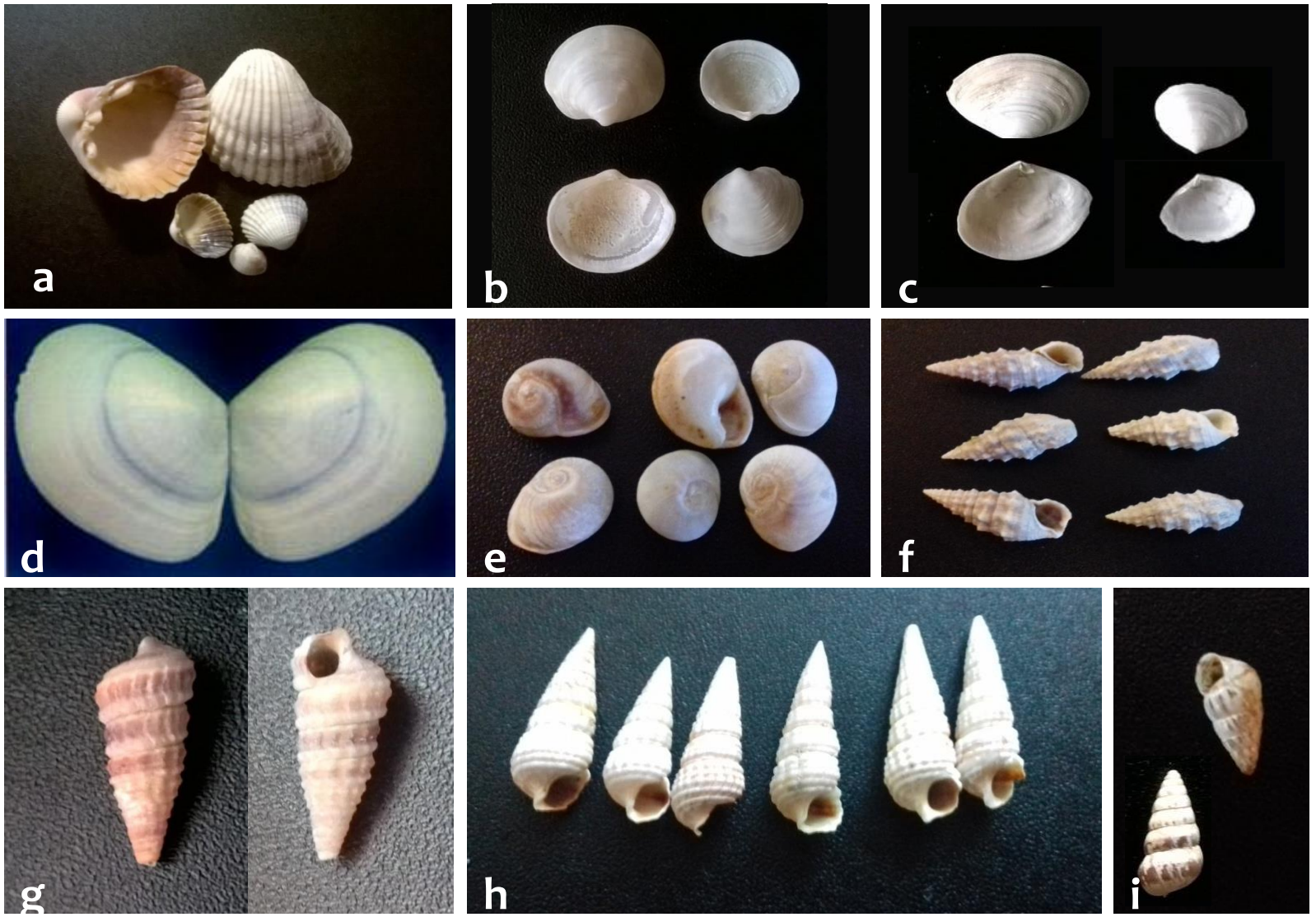
Smooth Newt *Lissotriton (vulgaris) graecus*, Beshisht, Albania ©H. Fontes

Adult European Pond Terrapin (*Emys orbicularis)*, Sinanaj, Albania ©M. Thibault

Four-lined snake (*Elaphe quatuorlineata*) near Vasjar, Albania ©M. Thibault

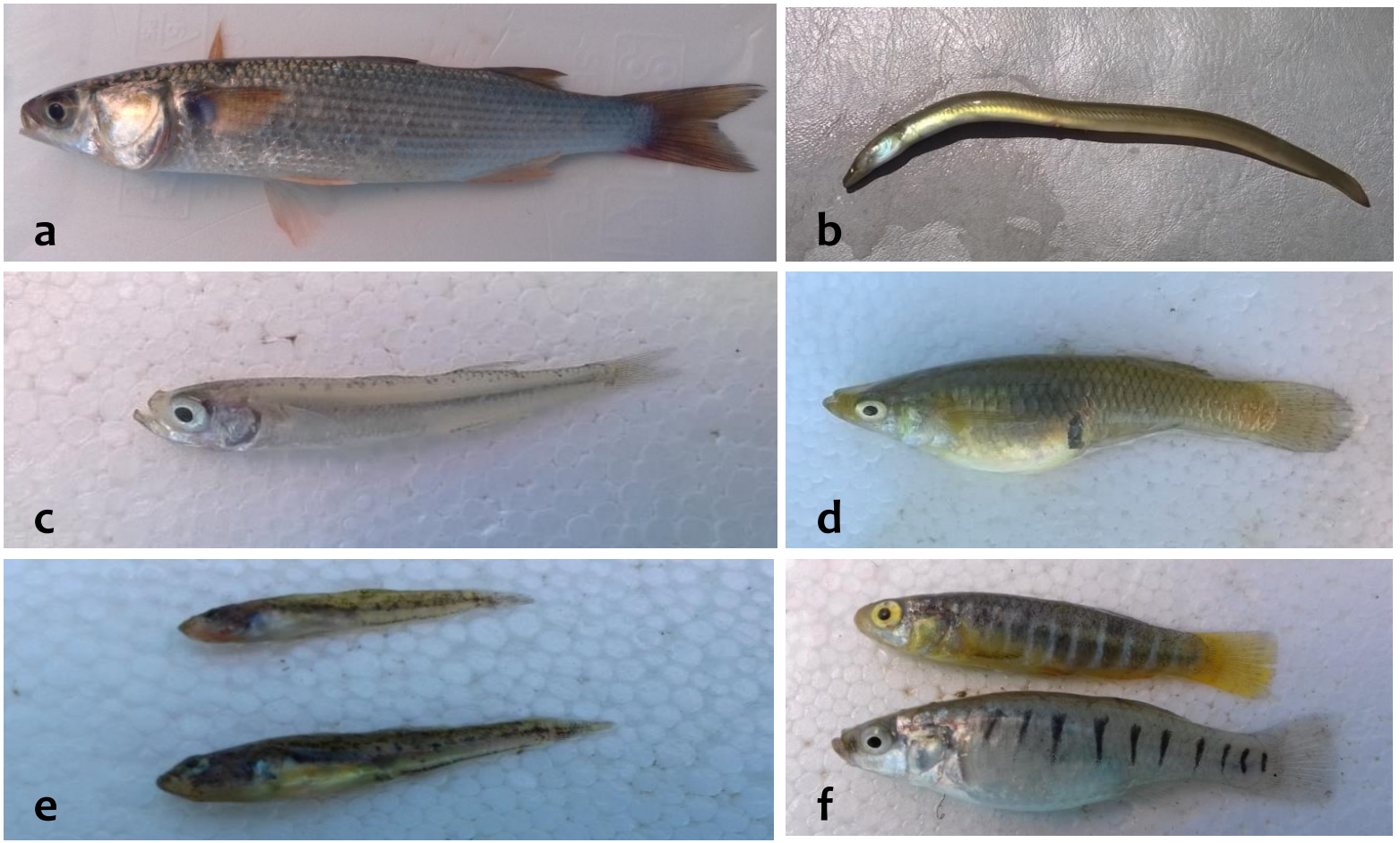
Eurasian Blind Snake (*Xerothyphlops vermicularis*) near Vasjar, Albania ©M. Thibault

Importance of lowland Vjosa



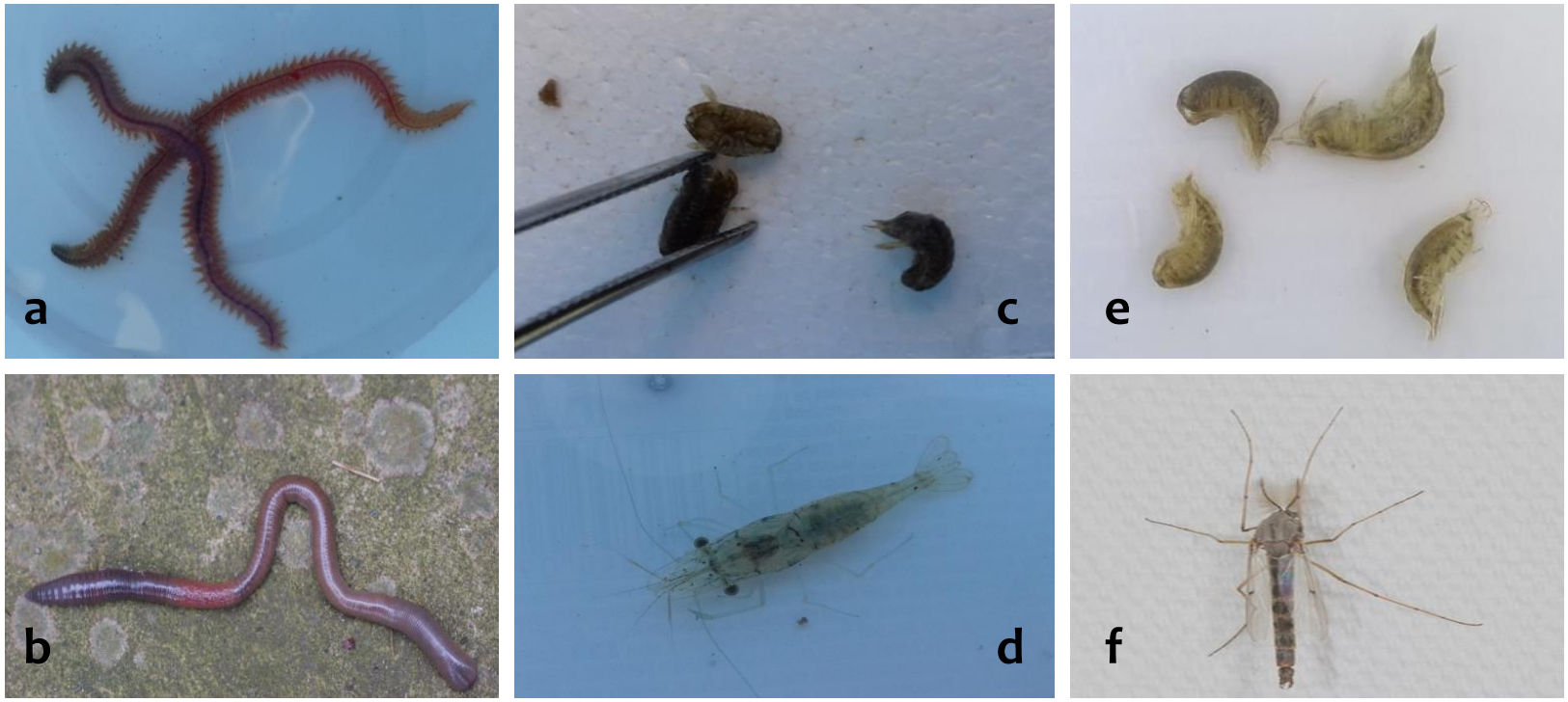
a. Cerastoderma glaucum; b. Loripes lacteus; c. Abra segmentum; d. Scrobicularia cottardi; e. Cyclope neritea; f. Cerithium vulgatum; g. Pirinella tricolor; h. Pirinella conica; i. Ventrosia ventrosa

Importance of lowland Vjosa



a. Mugil cephalus; *b. Anguilla anguilla; c. Atherina boyeri;*
d. Gambusia holbrokii; e. Knipowitschia sp.; f. Aphanus fasciatus

Importance of lowland Vjosa

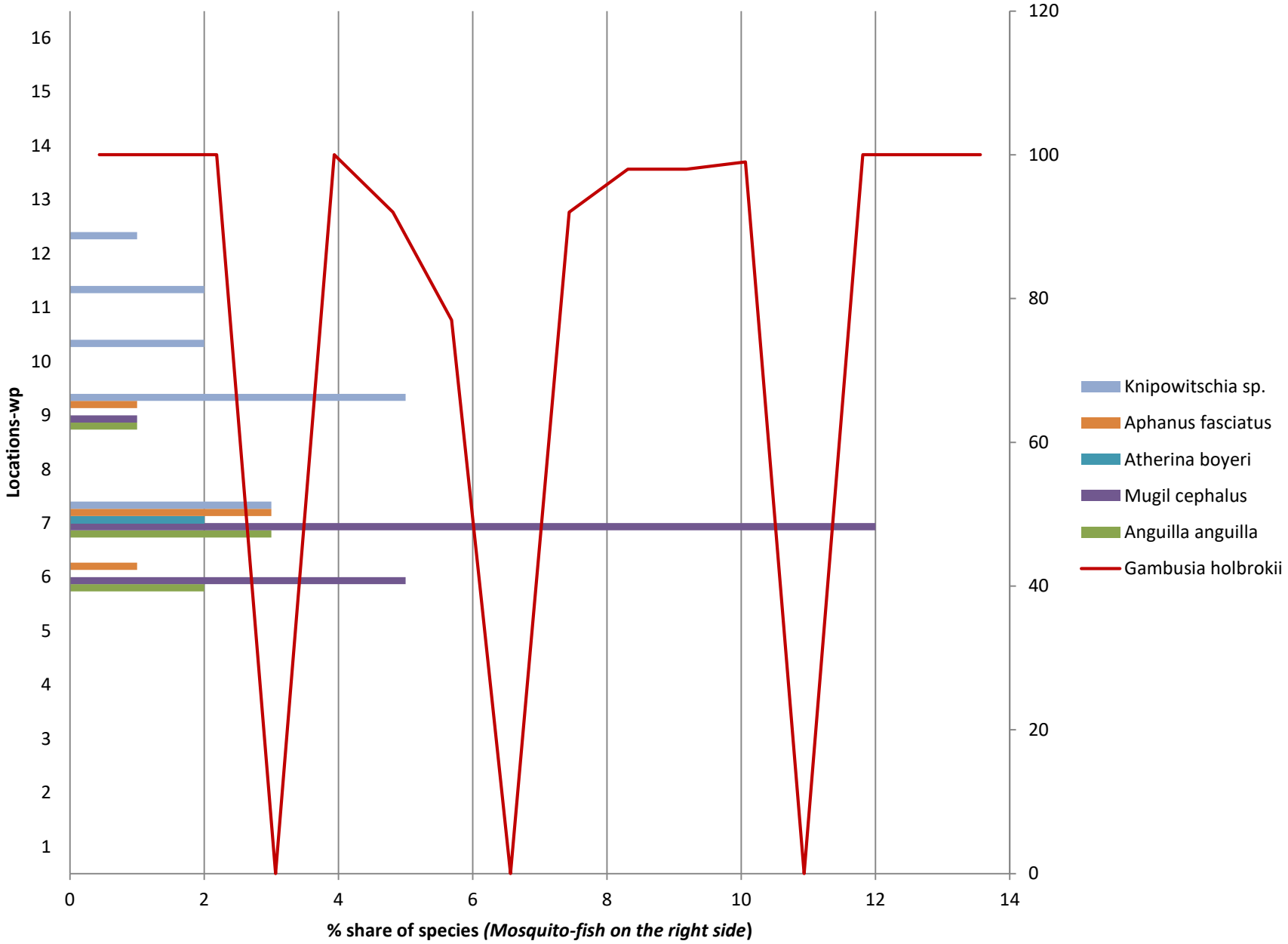


a. Phyllodocidae; b. Lumbricidae; c. Idotea baltica; d. Crangon crangon; e. Gammarus; f. Chironomus plumosus

Importance of lowland Vjosa

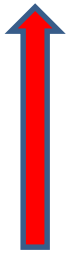
a. Ceratophyllum demersum; b. Typha angustifolia; c. Lemna minor; d. Schoenoplechtus lacustris;
e. Potamogeton crispus; f. Potamogeton pectinatus; g. Phragmites australis; h. Scirpus holoschoenus; i. Mentha pulegium

Importance of lowland Vjosa



Vjosa Habitats-highligting int_criterions for conservation purposes

EBRD Performance Requirement 6 (PR6) 2014, European Investment Bank (EIB) Environmental and Social Handbook 3, 2013, and International Finance Corporation (IFC) Performance Standard 6 (PS6) 2012.

Criterion	Description	Vjosa case
1	Habitat of significant importance to Critically Endangered, Endangered or Vulnerable species, as defined by the International Union for the Conservation of Nature (IUCN) Red List of threatened species and in relevant national legislation	 Very high
2	Habitat important to the survival of endemic or restricted-range species, or unique assemblages of species	 Very high
3	Habitat supporting globally significant migratory and/or congregatory species	 Very high
4	Highly threatened or unique ecosystems	 Very high
5	Areas associated with key evolutionary processes	 Very high
6	Habitat of key scientific value	 Very high

Downstream of potential Dam

Agriculture, current land use and soil salinisation.....

Tourism, coastal line, beach area, forget unique dunes....

Its is highly believed that changes in water regime will be reflected mainly as changes in water-level fluctuation.

Changes in fish assemblages will include a decrease in benthic invertivorous fish/shifts in invertivorous fish assemblage structure.

Changes in water regime and water transparency, caused by impoundment, directly or indirectly will impact invertivorous fish assemblages (*O. pindus*!).

Alterations of fish assemblages following environmental changes will have consequences over the entire ecosystem, including a potential decrease in the diversity of mechanisms for energy flow.


Thank you for the attention!