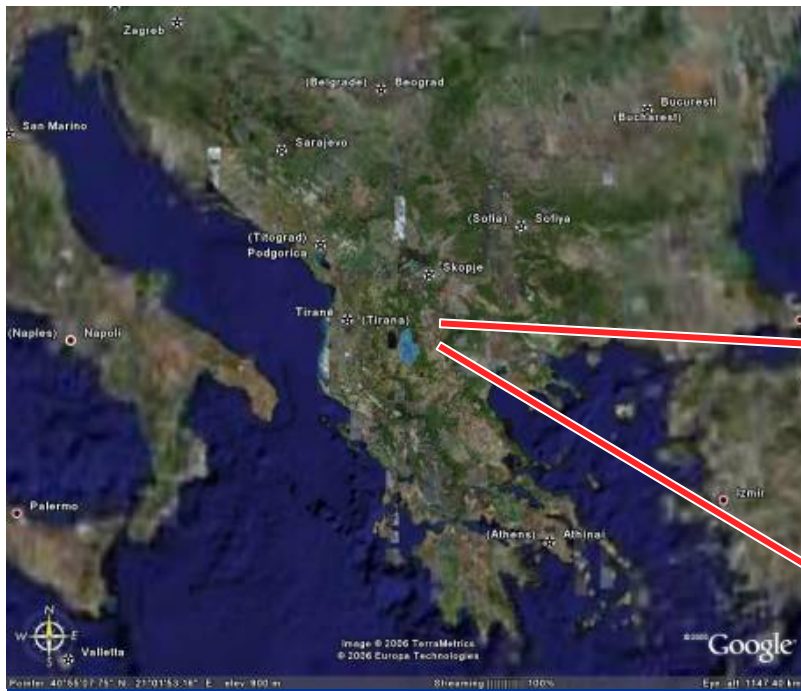




Conservation of globally important biological diversity in the Prespa Lake basin

From Science to Applied Management
DRIMON End User Workshop:
Management issues of Lake Skadar/Shkodra and Lake Prespa
3 June, 2009 Ohrid, Republic of Macedonia

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Transboundary Prespa Lakes Basin

-Situated in the Balkan Peninsula
-Shared among three neighboring countries
- ...has been identified as one of Europe's major trans-boundary "ecological brigs" and biodiversity "hot spot"....



Global significance

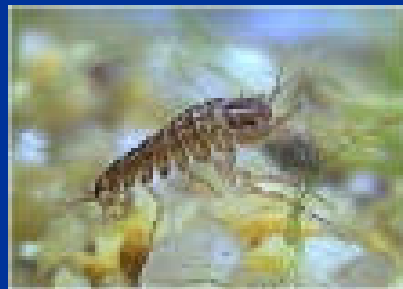
- **Characteristic positioning and origin**
 - Tectonic origin from the Pliocene period, belonging to the Desaret Group of lakes within the Aegean Lake Zone, 12 milion years old
 - Bridges two different geologically different massifs-Karst massife (Shara, Galichica and Suva Gora) and granite massif (Pelister Mountain)
 - Different rock types in each mountain range, the different soil types present, the range in altitude (850-2641m) and the influence of both Mediterranean and Continental climates enables and reflects the rich species diversity.
 - Relative isolation of the high altitude flora and fauna on the surrounding mountain ranges acted as refuges during Pleistocene ice age and resulted with high level species endemism in the region.

Prespa Basin`s Unique Biodiversity

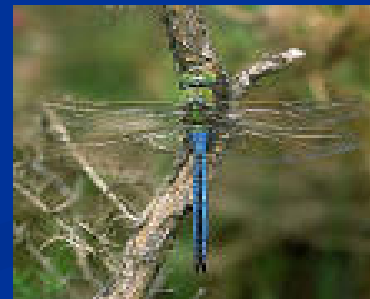
- ✓ **Total species diversity** – registered over 1500 spp. within the trans-boundary Prespa region
- ✓ An unusually high number of species per unit area.
- ✓ Galicica National Park in the Macedonia (**more than 1,300 species, or approx. 37% of the flora of Macedonia**).
- ✓ Given the size of these protected areas (around 250 km² each) this places them **among the top 10 most diverse protected areas in the world** of similar size.
- ✓ The flora of the Albanian Prespa National Park has an estimated **1000 species or 30% of the whole flora of Albania**



MOLLUSCA-Bivalvia
Dreissena polymorpha Pall.



ARTHROPODA-Crustacea
Asellus aquaticus (L.)



ARTHROPODA-Insecta
Anax imperator Leach.



ARTHROPODA-Insecta
Ischnura pumilio (Charp.)

■ Endemics:

- 50 animal species and 19 plant species endemic to the Prespa watershed.
- The largest number of recorded endemics are the invertebrates (28 spp), diatoms (25 spp.), mollusks (11 spp.), and plants (24 spp.).
- 25% of all the diatom species that have been recorded so far in Macro Prespa are new species.
- 9 endemic fish species (5 endemic to the Balkans & 4 endemic to Prespa) have been recorded.



*Leuciscus cephalus
prespensis Kar.*



Chondrostoma prespensis Kar.



Alburnus alburnus belvica



Barbus prespensis Kar.

■ Species Richness in Specific Groups:

- Over 1,600 species of butterflies which considering the size of the Basin (1,605 km²) is quite exceptional (this is almost one species for every square km!).
- Remarkable diversity of the Noctuid moths-*Agrotis Laysanensis*, commonly known “millers” (Order Lepidoptera)
- In Macedonia 8 endemic Noctuid moths, and 7 of these are found only on Galicica Mountain.
- MK-Prespa alone has 356 species, or 76% of all the species recorded in Macedonia
- 51 species of mammals have been recorded, which represents 62% of all mammal species in the Macedonia
- Prespa has 266 spp. of birds, which represents 84% of the entire avifauna of Macedonia



Podarcis taurica



Coluber caspius



Natrix natrix



Lacerta agilis



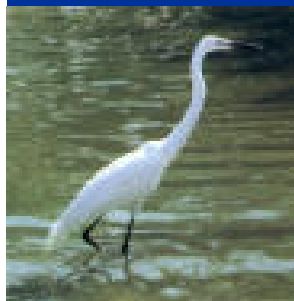
Testudo hermannii

Migratory Species:

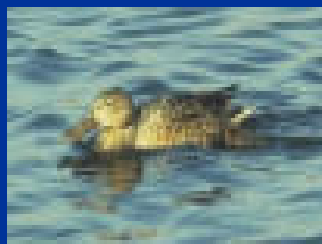
- Prespa acts as a globally important feeding, nesting and breeding location for at least 91 migratory bird species,
- The Dalmatian Pelican (*Pelecanus crispus*) as one of most high profile of the migratory species present in Prespa
- The Prespa region's avifauna has both national and international importance based on the number of national level Red List species
- The global importance of the area has been recognized in the designation of two Ramsar sites or wetlands of international importance, one for Ezerani Nature Reserve and one for the Greek part of Mikri Prespa.



Pelecanus crispus



Egretta alba



Anas clypeata



Bucephala clangula



Aythya ferina



Podiceps cristatus

■ Globally threatened species:

- At least 19 animal species (mostly terrestrial) have been recorded which have a formal IUCN threat status.
- Bats and birds are most significant groups
- Total of 25 species of bats. A third of these (9 species) are classified as Vulnerable or threatened with extinction.
- The most visible threatened species is the Dalmatian Pelican (*Pelecanus crispus*). It is currently listed as Vulnerable.
- The species' largest colony worldwide is on Lake Mikri Prespa, which hosts 10% of the world's breeding population.
- Within reptiles, the turtle, *Testudo hermanni*, is the only threatened (IUCN status = Vulnerable) reptile species in the region, and is of particular concern in the Prespa area since it is collected commercially.
- Fish species-IUCN status of Critically Endangered (*Salmo trutta peristericus*), one fish species that has an IUCN status of Vulnerable (*Barbus prespensis*), and four species that are categorized as Near Threatened



Felis lynx



Pelecanus crispus
vulnerable



Testudo hermannii
vulnerable



Salmo trutta
peristericus
Critically
endangered

- **Project Overall Goal:**

- The Conservation and Sustainable use of the globally significant biological diversity and trans-boundary water resources of the Prespa Lakes Basin

- **Project Strategy:**

- To catalyze adoption of ecosystem management interventions in various productive sector practices and policies which affect the biodiversity and the overall ecosystem integrity
- Strengthen capacity for restoring ecosystem health and conserving biodiversity by piloting ecosystem oriented approaches to spatial planning, water use management, agriculture, forest and fishery management and conservation and protected area management.
- To strengthen trans-boundary cooperation in resource management and conservation by empowering existing trans-boundary institutions and piloting trans-boundary management and conservation activities

- What is common for the both national and trans-boundary level interventions the project aims to mainstream?
- High level participatory sound management interventions within productive sector players and key stakeholders in the region
- Introduction of ecosystem oriented management practices which reflect the latest scientific accomplishment – applied science in forestry, fishery, water management, protected area management.
- Application of the latest “state of the art” methodologies and approaches in development of efficient management practices which are in nature balance and capacity of the Prespa Lakes ecosystem services.

■ Introduction of sustainable ecosystem oriented forestry

- Development of Forest Management Guidelines and Action Plan inline with international principals on sustainable forestry-demonstration of ecosystem oriented forest management
- Introduction of new silvicultural techniques to the forest management authorities for improvement the forest management towards maximizing species composition, age structure of forest stands and forest species diversity
- Piloting incorporation of certain ecosystem priorities into the forest management planning in Prespa commercial forest for the Leva Reka – Bigla forest unit (e.g. re-forestation and afforestation with native tree species only)
- Forest management interventions-aim to protect and conserve forest species diversity, to enhance the use of indigenous species (autochtonous) and protect the use of introduced (alochtonous) forest stands



Strengthening Protected Area Management-Ezerani Strict Nature Reserve

- Ornithological locality Ezerani in 29.07.1996 designated as Strict Nature Reserve
 - Prespa's birds diversity hot spot area
- 2080 ha high diversity, breeding, nesting and feeding habitats for several endangered waterfowl bird's





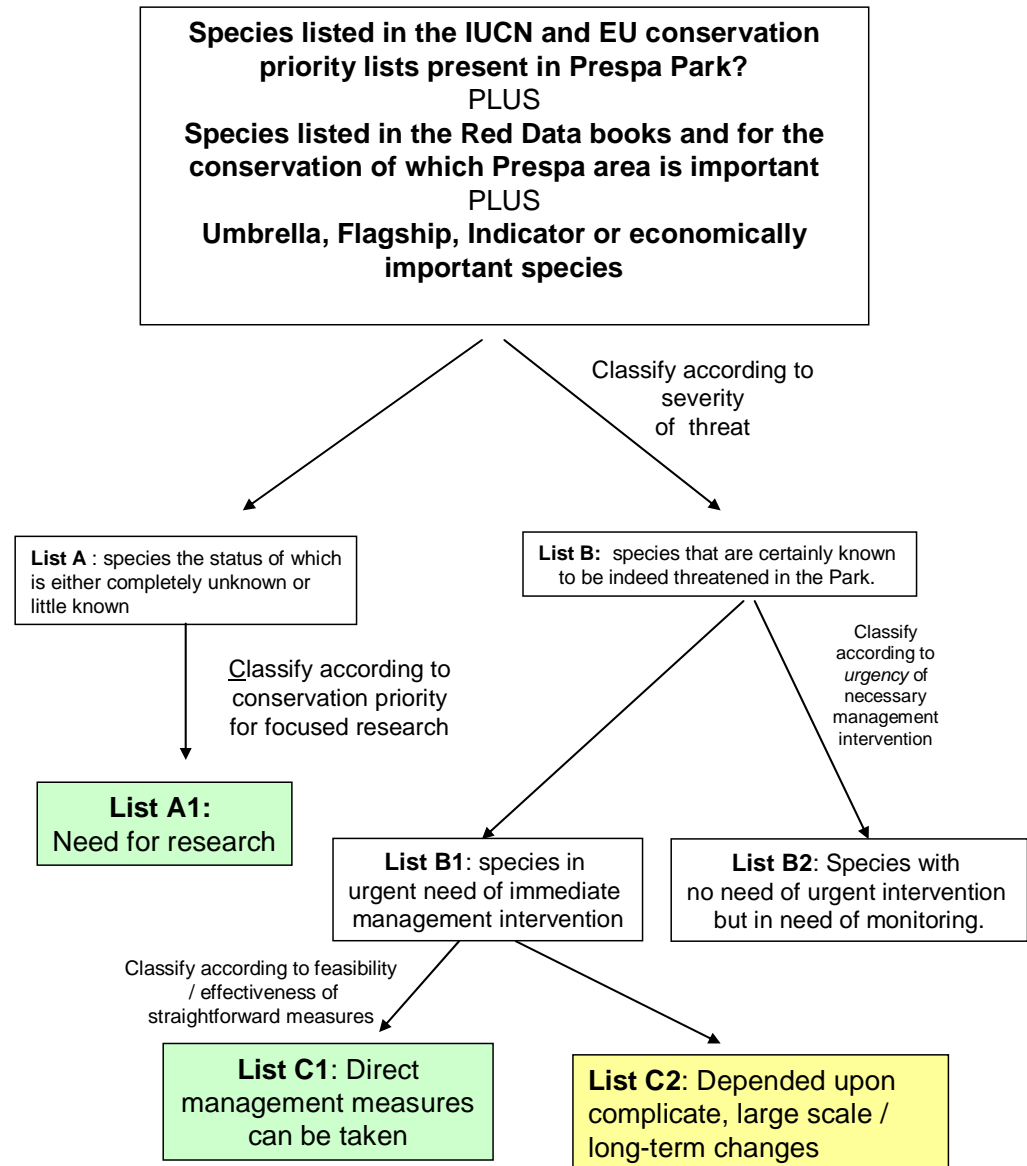
Strengthening Protected Area Management-Ezerani Strict Nature Reserve

- Reassessment and re-establishment of Ezerani Strict Nature Reserve
- Preparation of study on natural values of the Ezerani Reserve
- Assessing the natural, cultural and socio-economic values of the reserve against various international guidelines and criteria: IUCN guidelines, International Conventions (Bern, Bon), important EU Directives (Habitats and Birds Directives), etc
- Application of various monitoring effectiveness tools to asses the overall reserve's management-WWF METT (Monitoring and Effectiveness Tracking Toll)
- Establishment of management committee, management body/administration-assessment of the possible managerial arrangements based on international criteria (IUCN,WWF, national, etc.)

■ Conservation Action Planning for the Priority Trans-boundary Habitats and Species

- science-based and consensus driven process for the development of conservation action plans for selected priority habitats and species in the Prespa Lakes basin.
- Identification of the trans-boundary conservation landscape applying landscape species approach.
- The landscape map supported identification of the biological requirements of priority species and plant or animal communities (feeding, nesting, home range) in order to identify key habitats (feeding areas, nesting sites) supporting these species and particularly their placements within the landscape.
- Development and pilot implementation of priority habitats and species conservation action plans (following various international mechanisms and protocols – NATURA 2000, EU Birds and habitats directive, biodiversity conventions, national red lists and etc.)
- Establishment of relevant transboundary and national technical working groups or sub-working groups of key experts and stakeholders to drive the trans-boundary species conservation action planning process. Trilateral Monitoring and Conservation Working Group (MCWG) – plays main steering role for the overall process

- Scientifically sound protocols for determination of priority species in need for conservation management interventions.
- International Conservation guidelines: IUCN Red List Species, EU Directive 79/409 (wild birds), EU Directive 92/43 (natural habitats and wild life flora and fauna)
- National Red List data (threatened, endangered, vulnerable, rare, intermediate)
- Species listed as: umbrella, flagship, indicator, endemic or economically important



■ Development of trans-boundary monitoring system

- Scientifically driven process of development of trans-boundary monitoring system of ecosystem health parameters (abiotic and biotic)
- Consensus driven process in designing and establishing participatory field protocols and field survey data among various monitoring associated institutions and stakeholders (Scientific Institutions, Relevant Ministries, Universities, NGOs, etc).
- International institution facilitated process: MedWet –Mediterranean Wetlands
- Establishment of various process coordination bodies supporting the development of the study (MCWG)-Monitoring and Conservation Working Group
- Highly participatory process overseen by the MCWG (representatives from Ministries, scientific/research institutions, NGOs...)

- Enhancement of the trans-boundary cooperation in fisheries management and promotion of ecosystem oriented fisheries management

- Situation analysis on key fish parameters (relative abundance and species diversity and population trends) and fisheries management issues
- Analysis of current management practices in the three countries (fish conservation issues and introduction on non-native fish species)
- Assessment of immediate priority research gaps-threats to the indigenous, particularly the endemic fish species from: introduction of non-native and/or predatory species, habitat degradation and change, over fishing and other factors.
- Assessment of the ecology of the exotic fish species *Carassius auratus gibelio*, *Silururs glanis*, *Pseudorasbora parva* and *Lepomys gibossus* and their known impacts on native and endemic species of fish in Prespa Lakes.
- trans-boundary fisheries management plan/guidelines based on the latest international guidelines for sustainable fisheries (FAO guidelines, Code of conduct for responsible fisheries, etc)

A scenic landscape photograph of a large, calm lake. The water is a deep blue-green color, reflecting the sky and the surrounding green hills. In the background, there are rolling mountains with some snow-capped peaks under a clear blue sky. The foreground is framed by the branches of evergreen trees on both sides. In the lower right corner, a small boat is visible near the shore. The text "THANK YOU!!!" is overlaid in the center of the image in a bold, red, serif font with a black outline.

THANK YOU!!!