

Appendix 1. Thematic session 6 presentation:  
 Wetland Ecosystem Biodiversity and its Values  
 (Daniel Cebrían)

**Thematic Session 6:**

**Wetland Ecosystem Biodiversity and its Values**

by Daniel Cebrían  
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**Water and Wetlands in the Mediterranean  
 the next 20 years**  
 International Symposium - Agadir, Morocco 6-8 February 2012

**Context**

The Mediterranean Basin is characterized by a high biological diversity resulted from its climate, diversity of landscapes, convulsed geological history and location at the intersection of two major landmasses.

(from: <http://www.mines.utah.edu/geol/medimology/>)

**• Second largest biodiversity hotspot in the world**

The Basin has an area of 2,085,292 km<sup>2</sup>, of which only 98,009 km<sup>2</sup> remains undisturbed. However, it is considered the second largest biodiversity hotspot in the world because of its outstanding flora and fauna, and their threatened status.

**• A crossroad of marine biodiversity**

Mediterranean marine species belong to several biogeographical categories, including 'relic' species as well as many other with their origins in the Atlantic Ocean (50%) or Red Sea (17%).

**• Vital signs of Mediterranean hotspot**

60% of Mediterranean plant species are unique to the region, and about one third of the fauna is also endemic, including 1,912 species of amphibians, birds, cartilaginous fishes, freshwater fishes, crabs and crayfish, mammals, dragonflies and reptiles.

Hotspot Original Extent (km <sup>2</sup> )	2,085,292
Hotspot Vegetation Remaining (km <sup>2</sup> )	98,009
Endemic Plant Species	11,700
Endemic Threatened Birds	9
Endemic Threatened Mammals	11
Endemic Threatened Amphibians	14
Extinct Species™	5
Human Population Density (people/km <sup>2</sup> )	111
Area Protected (km <sup>2</sup> )	90,242
Area Protected (km <sup>2</sup> ) in Categories I-IV*	28,751

**Biodiversity of Mediterranean wetlands**

Wetlands are major reservoirs of biodiversity in the Mediterranean hotspot, many of them being protected and hosting populations of species covered by the Protocol concerning Specially Protected Areas and Biological Diversity (SPA/BD) of the Barcelona Convention.



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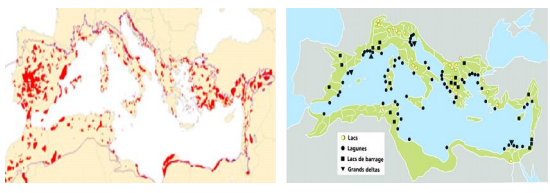
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### Biodiversity and ecosystem services


Biodiversity is a central element of the benefits (ecosystem services) provided by the Mediterranean wetlands, ensuring food security through the genetic diversity of agricultural crops and the role of pollinators. Plants and bacteria are also potential sources of new medicines.

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Most of Mediterranean wetlands (right) are consistent with the Key Biodiversity Areas in the Mediterranean Basin Hotspot (left).



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### • Flora and Fauna



There are many species of both flora and fauna that depend on wetlands at least during a part of their life. For a considerable number, water and wetlands are absolutely necessary for the completion of their biological cycle.




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### • Cultural values

In Mediterranean countries where traditional activities related to water management are practiced, wetlands constitute habitats for numerous threatened species, as it is the case of extensive fish farming in Doñana (SW Spain).


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### International Efforts to the Conservation of Mediterranean Wetland Biodiversity

Mediterranean wetlands have been designated officially for conservation with a variety of legal figures:

- **Ramsar Wetlands of International Importance.** More than 150 Mediterranean wetland sites have been inscribed in the List of Wetlands of International Importance.
- **Specially Protection Areas of Mediterranean Importance (SPAMI),** following the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean Sea.
- **Natura 2000 Sites,** in accordance with the Art. 6 of the Habitats' Directive 92/43/EEC.
- **MAB and World Heritage Sites,** defined within the framework of UNESCO's Man and Biosphere (MAB) Programme.

In all cases, the main goal is to provide a wide and adequate protection framework for all the components of Mediterranean biodiversity.

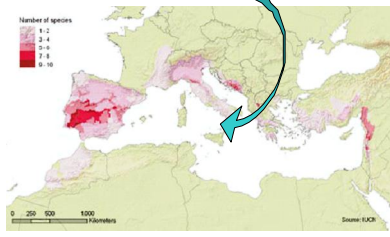



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### Pressures and threats for the biodiversity of Mediterranean Wetlands

At present, Mediterranean biodiversity is seriously threatened, with about 19% of species under risk of extinction: 5% Critically Endangered, 7% Endangered and 7% Vulnerable.

Habitat loss and degradation are the major causes of this decline, with a particularly high impact on wetland ecosystems (e.g. more than half of the endemic Mediterranean freshwater fishes are threatened).

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### Protection and Use of Biodiversity: the main Challenges

Main causes of threat	Main conservation actions
<ul style="list-style-type: none"> <li>- Habitat loss and degradation</li> <li>- Pollution</li> <li>- Overexploitation</li> <li>- Natural disasters</li> <li>- Invasive alien species</li> <li>- Human disturbance</li> <li>- Bycatch</li> </ul>	<ul style="list-style-type: none"> <li>- Species protection (Legislation and Action Plans)</li> <li>- Site protection (Protected areas networks)</li> <li>- Conservation of the wider environment (Ecosystem approach)</li> <li>- Sustainable economic activities (fishery, tourism, etc.)</li> <li>- Communication and education</li> <li>- Monitoring and research</li> </ul>


Many Mediterranean wetlands and lagoons are exploited in terms of artisanal capture fisheries and aquaculture activity, to the extent that ecosystem integrity has become strongly dependent on these activities.



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However, not enough information is available on positive interactions between sustainable wetland-linked economic activities and environment, particularly concerning the conservation of threatened species.




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### Actions to be taken



It is necessary to assess how traditional / sustainable activities contribute to enhance the environment, as a prior step to elaborate management guidelines applicable to all Mediterranean wetlands and lagoons, under the principles accounted by:

- The Ramsar Convention.
- The 1978 (revised in 1995) Barcelona Convention (and its protocols) for the Protection of the Marine Environment and the Coastal Region of the Mediterranean.
- The 1992 Convention on Biological Diversity Rio Summit.
- The 2002 Johannesburg Declaration on Sustainable Development.
- The 2003 Food and Agriculture Organization (FAO) Code of Conduct of Responsible Fisheries in the Mediterranean.
- The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets.



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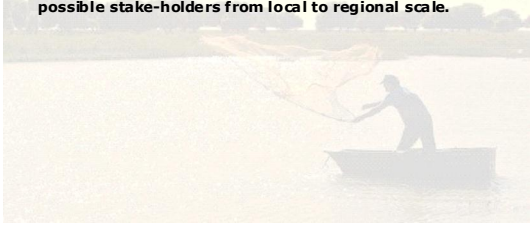

The Regional Activity Centre for Specially Protected Areas (RAC/SPA) of the UNEP Mediterranean Action Plan, through the ASP/BD Protocol and its Strategic Action Programme for the Conservation of Biological Diversity (SAP-BIO) in the Mediterranean Region, has the appropriate international legal and policy framework to assess this issue, by means of regional projects and other actions.

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### Conclusions

- The evaluation of problems affecting Mediterranean wetland biodiversity should consider its relationships with traditional and other sustainable economic activities.
- It is necessary to implement actions towards an eco-friendly management of wetland biodiversity, involving all possible stake-holders from local to regional scale.

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Thank you very much!

