

Wetlands and Biodiversity

Wetlands importance for biodiversity conservation

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Definition of wetlands:

“Wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres.”

“The wise use of wetlands is their sustainable utilization for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem”.

Definition of biodiversity:

“The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”.

WETLANDS - RESERVOIRS OF BIODIVERSITY:

Wetlands in general are home to a great diversity of species. Although freshwater ecosystems cover only 1% of the Earth's surface, they hold more than 40% of the world's species and 12% of all animal species.

On the marine front, coral reefs are among the most biologically diverse ecosystems on the planet, rivaling tropical rainforests, the most diverse of the land ecosystems. Although they cover only 0.2% of the ocean floor, coral reefs may contain 25% of all marine species.

Four thousand species of fish and 800 species of reef-building corals have already been described for reefs, but the total number of species associated with reefs is quite likely to be more than a million.

Wetland animal and plant species play a role in the pharmaceutical industry – 80% of the world's population depends on traditional medicine for primary health care.

Wetlands support spectacular concentrations of wetland-dependent wildlife, such as shorebirds, black lechwe antelope, hippopotamus, shoebill stork, and jaguar.

WETLANDS - RESERVOIRS OF BIODIVERSITY:

In Brief.....

- *Freshwater wetlands hold more than 40% of the world's species and 12% of all animal species.*
- *Some wetlands contain significant numbers of endemic species - such as Lake Tanganyika with 632 endemic animal species and the Amazon river with an estimated 1,800 endemic species of fish.*
- *Wetland biodiversity is a significant reservoir of genes that has considerable economic potential in the pharmaceutical industry and in commercial crop plants such as rice.*
- *Coral reefs rival tropical rainforests in terms of biological diversity; they may contain 25% of all marine species. Reefs hold an estimated 4,000 species of fish and 800 species of reef-building corals; total number of species associated with reefs may be over one million.*

COMMON CONCERNS OF RAMSAR AND THE CBD

National Policy Issues:

- ✚ Promoting the wise use of wetlands in their national territory development of National Wetland Policies which, with their cross-sectoral nature, contribute to National Biodiversity Strategies.
- ✚ Conservation and sustainable use of biodiversity: National Biodiversity Strategies clearly include wetlands.

COMMON CONCERNS OF RAMSAR AND THE CBD

Identification and Monitoring:

- ✚ Promoted regional and national inventories of wetland biodiversity; it has developed guidelines on monitoring change of ecological character in wetlands; it has developed standard recording techniques for wetlands and established a database of Ramsar sites.
- ✚ Identification and monitoring of components of biological diversity, for identifying of processes or categories of activities which have adverse impacts on biological diversity, and for maintaining data derived from the preceding activities.

COMMON CONCERNS OF RAMSAR AND THE **CBD**

In-Situ Conservation:

- ✚ **Designation of suitable wetlands for the Ramsar List, together with other wetlands meeting the Ramsar criteria, provide the basis for conservation of biological diversity in wetlands.**
- ✚ **Establishment of a system of protected areas or areas where special measures need to be taken to conserve biological diversity.**

COMMON CONCERNS OF RAMSAR AND THE **CBD**

Sustainable Use of Components of Biological Diversity

- ✚ The wise use concept established in Article 3.1 of Ramsar extends to all wetlands in the territory of a Contracting Party. Empowerment of local communities and increased involvement of the private sector are priorities in the Strategic Plan 1997-2002.
- ✚ integrating consideration of the conservation and sustainable use of biological resources into national decision-making, of support for local populations, and of encouraging cooperation between governmental authorities and the private sector.

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Research and Training:

- ✚ Training of personnel competent in the fields of wetland research, management and wardening. The MedWet initiative on Mediterranean wetlands has acquired considerable experience in training applied to Mediterranean wetlands.
- ✚ Special needs of developing countries, calls for research and training courses.

COMMON CONCERNS OF RAMSAR AND THE CBD

Public Education and Awareness:

- ✚ Giving the highest priority to education and public awareness (MedWet initiative on Mediterranean wetlands has acquired considerable experience in this field in Mediterranean wetlands, and these results could be used in other regions.
- ✚ Promoting understanding of the measures required for conservation of biological diversity and for cooperation between states on this topic.

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Benefits and values of wetlands:

- # sediment and erosion control;
- # flood control;
- # maintenance of water quality and abatement of pollution;
- # maintenance of surface and underground water supply;
- # support for fisheries, grazing and agriculture;
- # outdoor recreation and education for human society;
- # provision of habitat for wildlife, especially waterfowl;
- # contribution to climatic stability.

**Wetlands are among the most
productive life-support systems in the
world immense socio-economic and
ecological importance to mankind
critical for the maintenance of
biodiversity perform a great role in
the biosphere**

Halls, A.J. (ed.), 1997. *Wetlands, Biodiversity and the Ramsar Convention: The Role of the Convention on Wetlands in the Conservation and Wise Use of Biodiversity*. Ramsar Convention Bureau, Gland, Switzerland.

Inadequate understanding of the crucial role and utility of wetlands and ignoring their importance is a matter of serious concern. Ironically, wetlands have been perceived as:

- wastelands associated with disease, difficulty and danger
- habitats were considered obstacles in the path of progress and hence drained, filled, despoiled and degraded for economic gains.

The wetland loss has been responsible for bringing to the verge of extinction countless species of animals and plants.

Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 1971)

The publication ***Wetland Biodiversity*** covers a wide range of issues:

- ✚ Diversity status and conservation issues; threatened or endangered animal species recorded in the number of wetlands
- ✚ Policies and management aspects related to wetland biodiversity for all the seven regions of the world as identified by the Ramsar Convention.
- ✚ Overview of wetland biodiversity followed by some case studies from different regions of the world
- ✚ Role of the Ramsar Convention in promoting conservation of wetlands.

Ramsar definitions of inventory, assessment and monitoring:

Inventory: The collection and/or collation of core information for inland water management, including the provision of an information base for specific assessment and monitoring activities.

Assessment: The identification of the status of, and threats to, inland waters as a basis for the collection of more specific information through monitoring activities.

Monitoring: Collection of specific information for management purposes in response to hypotheses derived from assessment activities, and the use of these monitoring results for implementing management.

Danube Delta Biodiversity:



**Whiskered Terns
habitually seek out the
large leaves of water lilies
on which it builds its nest**



**The Danube Delta is home to 300
bird species, about 64 percent of
all species recorded in Ukraine
over the past two decades**



**The sterlet is the smallest of the
European sturgeon species**



**A Whiskered Tern
with its chicks**

Danube Delta Biodiversity:



← ↑
Stratiotis aloides
Typha latifolia



← ↑
Lythrum salicaria
Polygonum amphibiu



Sparganium sp.



Hippophae rhamnoides



Convolvulus persicus



Danube Delta Biodiversity:



Ardea purpurea



Ardea cinerea



Ixobrychus minutus



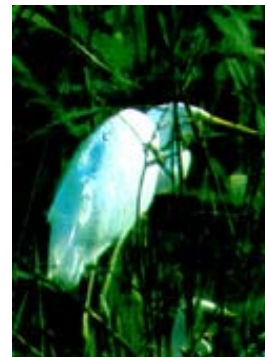
Botaurus sp.



Ciconia ciconia



Ciconia nigra



Egretta alba



Ardeola raloides



Platalea leucorodia



Plegadis falcinellus



Phalacrocorax carbo



Podiceps cristatus



Coloniw de pelicani

Danube Delta Biodiversity:



Cygnus olor



Pelecanus crispus



Colonie mixtă



Glareola pratincola



Vipera ursini



Vipera ammodytes



Pelobates syriacus



Triturus dobrogensis



Recurvirostra acosetta



Emys orbicularis



Lutra lutra

Danube Delta Biodiversity:



Nympheoides peltata



Polyommatus icarus

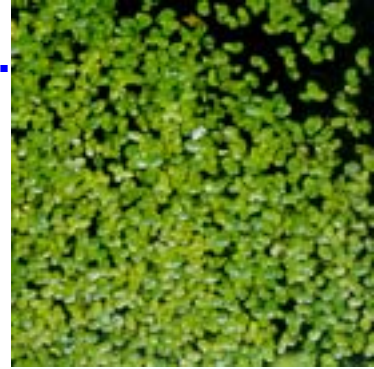


Nymphaea alba

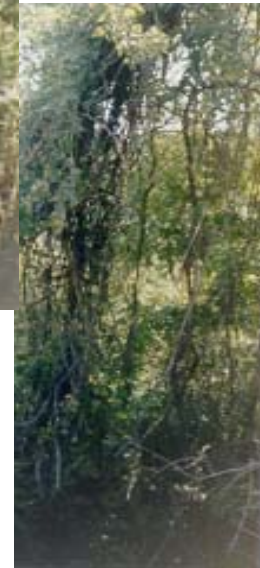


Nuphar luteum

Lemna sp.



Humulus lupulus,
Clematis vitalba,
Vitis vinifera ,
Periploca graeca
in the Letea Forest



Danube Delta Biodiversity:



Nepa cinerea



Labidura riparia



Ranatra liniaris



Libellula depressa



Sympetrum sanguineum

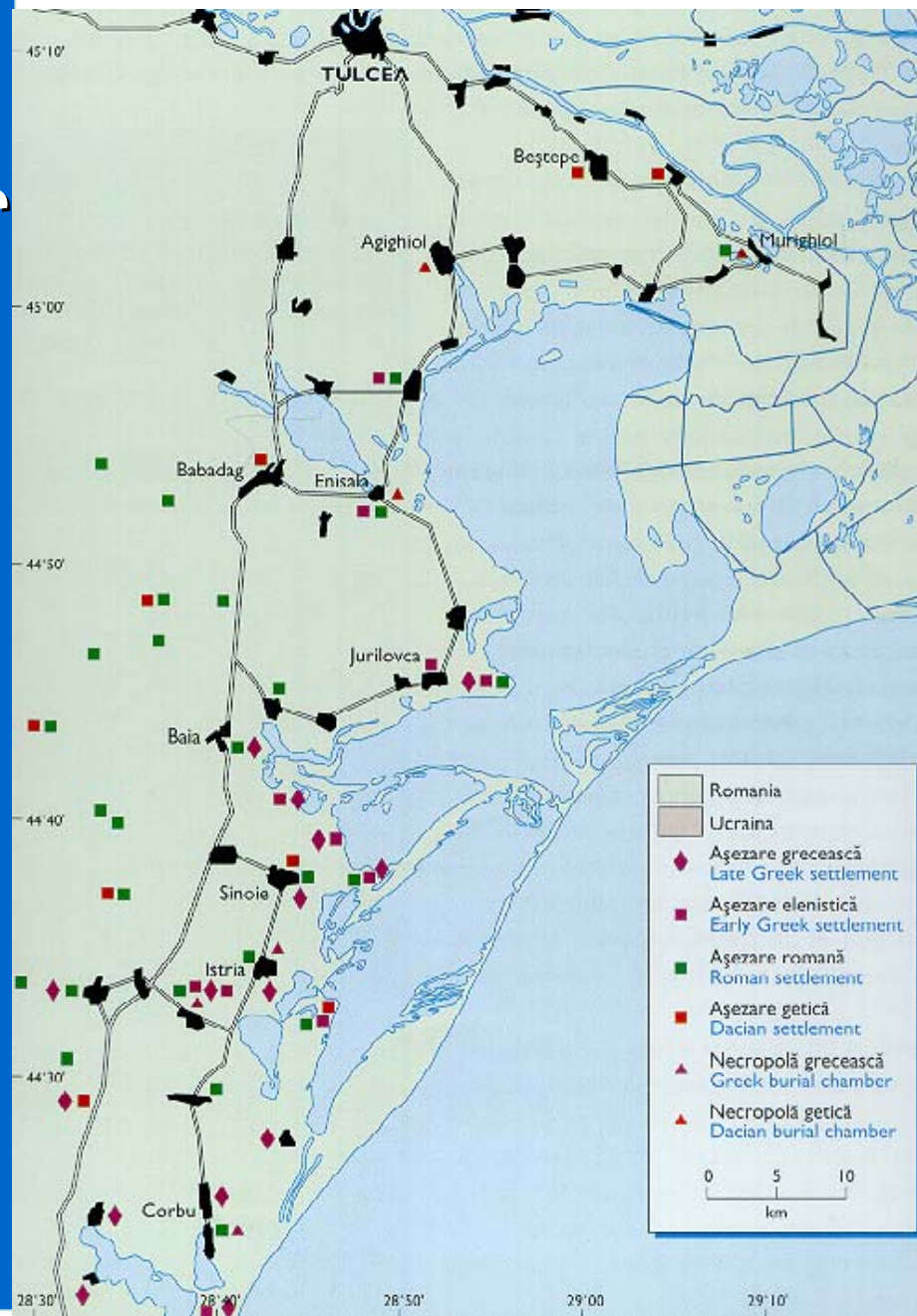
Danube Delta Biodiversity:



Danube Delta Biodiversity:



Danube Delta Biodiversity:



Cultural diversity



Marine Biodiversity: Romanian Waters (Ro) – Black Sea (BS)

Taxonomic groups	Ro	BS	Taxonomic groups	Ro	BS
Bacteria	113	146	Crustacea	4	5
Cyanobacteria	41	83	Phyllopora		
Micromyceta	55	91	Cladocera	46	68
Chlorophyta (Microphyta)	22	104	Copepoda	192	325
Chrysophyta	20	42	- Calanoida	13	18
Euglenophyta	3	16	- Cyclopoida	28	50
Xathophyceae	4	4	- Harpacticoida	151	257
Pyrrophyta	76	185	Cirripedia	7	11
Bacillariophyta	440	747	Ostracoda	31	138
Chlorophyta (Macrophyta)	39	86	Mysidacea	19	21
Phaeophyta	26	74	Cumacea	19	23
Rhodophyta	70	145	Isopoda	23	44
Phanerogoma (aquatica)	3	6	Tanaidacea	5	6
Sand vegetation	138	?	Amphipoda	89	131
Rhizopoda	49	238	Decapoda	30	44
- Amoebozoa	?	95	Chelicerata -	14	58
- Foraminifera	49	138	Acarina		
- Heliozoa	?	5	Pantopoda	1	8
Sporozoa	44	45	Insecta	294	
Ciliata	277	424	Mollusca	179	315
Porifera	17	54	- Polyplacophora	2	3
Coelenterata	47	66	- Gastropoda	106	212
- Hydrozoa	39	56	- Bivalvia	70	99
- Scyphozoa	3	3	- Scaphopoda	1	1
- Anthozoa	5	7	Sipunculida	3	3
Ctenophora	2	3	Phoronida	3	3
Plathelminthes	120	285	Bryozoa	29	36
Nematoda	88	211	Entoprocta	2	2
Acanthocephala	8	12	Tardigrada	10	15
Kinorhyncha	10	10	Echinodermata	3	16
Gastrotricha	31	35	Chaetognata	2	2
Rotatoria	84	135	Ascidiacea	5	12
Nemertini	43	51	Appendicularia	1	1
Annelida	181	239	Cephalocordata	?	1
- Polychaeta	139	173	Pisces	112	160
-	4	6	Amphibia	7	7
Archiannelida			Reptilia	13	16
- Oligochaeta	30	43	Aves	150	
- Hirudinea	8	17	Mammalia	6	6
			TOTAL	3244	5275



Mnemiopsis leidyi



Beroe ovata



Aurelia aurita



Ercolania funerea



Ficopomatus enigmaticus



Corallina officinalis

Marine Biodiversity: Romanian Waters (Ro) – Black Sea (BS)

Exotic species



*Scapharca
inaequalis*



Eriocheir sinensis



Mya arenaria



Rapana venosa



Callinectes sapidus



Coastal Mussel beds (*Mytilus galloprovincialis*) and *Rapana* eggs

Underwater jungle of algae...



Shallow water brown algae *Cystoseira barbata* – Vama Veche

Birds...



Birds and...



Mammals – coquet primates...on Mamaia beach





Thank you for the attention!

Marian-Traian Gomoiu