



N° 1
July 2014

THEMATIC NOTE

BIODIVERSITY IN MEDITERRANEAN WETLANDS

A status report at the beginning of the 21st century



Isolated within generally arid landscapes, Mediterranean wetlands - lakes, marshes, chotts, oases, sebkhas, peatlands, lagoons, rivers, wadis, and deltas - are veritable reservoirs of life. For millennia, the most advanced civilisations ensured their prosperity through the rational use of these resources. However, this balance was broken during the 20th century: rampant demographic changes and unsustainable development models greatly increased the pressures on wetlands and their biodiversity, resulting in their degradation or even disappearance. Fortunately, some people have denounced the loss of this exceptional natural heritage, and proposed solutions to coun-

teract its decline. Nonetheless, the situation in Mediterranean wetlands remains very worrying, and new actions must be taken to ensure their future, and the fate of the peoples and species that depend on them. In an effort to conserve Mediterranean wetlands, since 2009 the Mediterranean Wetlands Observatory (MWO) has been working to raise decision-makers' awareness of the importance of these essential habitats. It particularly focussed on the biodiversity of Mediterranean wetlands and their evolution over the past decades.



MedWet





EXCEPTIONAL FAUNA AND FLORA

Renowned for its landscapes and the warmth of its climate, the Mediterranean Basin is also a **hotspot of global biodiversity**. A genuine biogeographical crossroad, Euro-Siberian, Saharan, Afrotropic and Asian species can be found here, alongside a multitude of species unique to this region of the world. They have adapted to the variability of hydric regimes, summer droughts and irregular precipitation.



© Tour du Valat

Diversity of Heron species in the Mediterranean Basin.

THE BIODIVERSITY OF WETLANDS: A SOURCE OF WELL-BEING...



Whether they provide food, medical products or construction materials, many wetland species are **at the core of Mediterranean culture and ways of life**. Lucrative economic activities, such as fisheries, green tourism, and birdwatching have developed around some of them.



© Hellio & Van Ingen

Harvesting of salicornia for food purposes in the Gediz Delta (Turkey).

A study carried out in North Africa has shown that **one out of three species of freshwater fish and aquatic plant species is used** by local populations, providing them with direct socio-economic advantages. To give just one example, in Egypt 380,000 jobs depend on freshwater fishing.



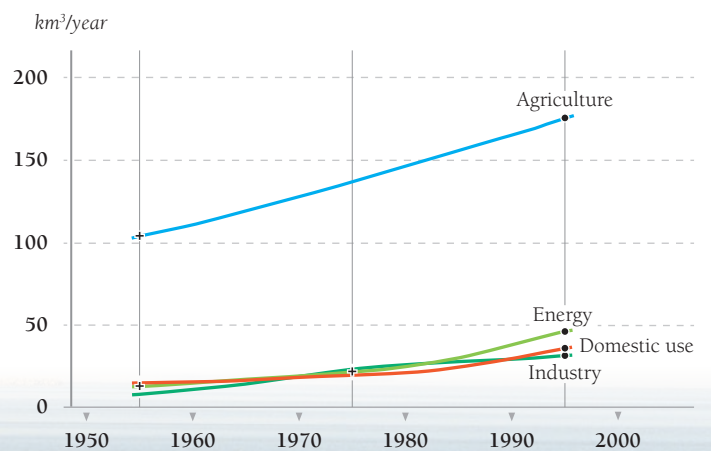
© Hellio & Van Ingen

...BUT FACING MANY THREATS!

The greatest direct threat to wetland biodiversity is the disappearance of these ecosystems. **50% of Mediterranean wetlands disappeared during the 20th century**, and those that subsist have been degraded or artificialized. The over-exploitation and pollution of water resources are two more major threats, aggravated by the construction of numerous dams that modify ecosystem functioning. Finally, numerous species are threatened by climate change, pressures from hunting, fishing or gathering, or the disturbances linked to the over-frequented of certain wetlands.

Irrigated agriculture causes the most pressure on Mediterranean wetlands, in the context of heavy demographic and agricultural pressures since the World War II. Using large quantities of water (Fig. 1) and nitrogen-based fertilisers, agricultural irrigation greatly reduces the flow of watercourses and locally leads to the eutrophication (suffocation due to the lack of oxygen) of wetlands. For example, in the Camargue and the Hula Valley (Israel), these changes have already had profound effects on bird and fish communities.

Fig. 1: Water requirements (km³/year) by economic sector in Mediterranean countries during the 20th century (source: Margat & Treyer 2004).



DECLINING BIODIVERSITY AND SERVICES ...



Plants and animals combined, **one out of three Mediterranean wetland species is endangered.** These threatened species often belong to groups that are little known to the general public (molluscs, plants, fish), which explains the lack of effort made to halt their decline (Fig. 2). In addition, the “ordinary” biodiversity of Mediterranean wetlands has been considerably eroded in recent decades (Fig. 3). This is the case of species specialising in temporarily flooded or low surface-area habitats, such as many amphibians.

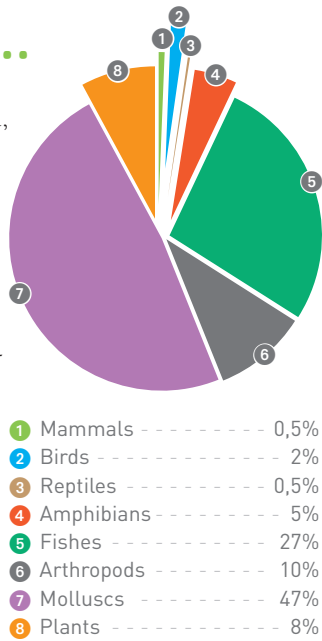
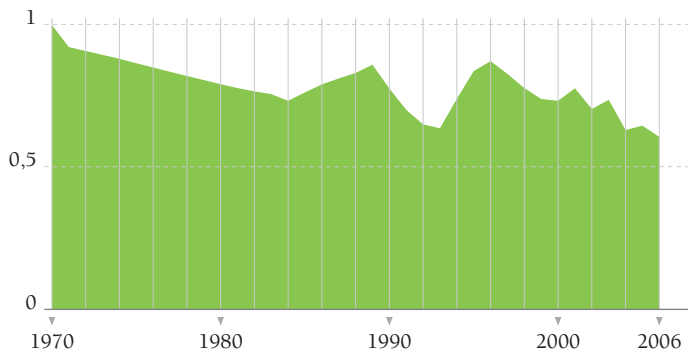


Fig. 3: Abundance Index of fish, amphibians, reptiles, and mammals in the Mediterranean wetlands (source: MWO)

Fig. 2: Taxonomic distribution of the threatened species in the Mediterranean wetlands (source: MWO).



Mediterranean rivers and lakes are host to more than 500 species of fish, half of which are endemic. However, 36 % of these species could disappear in the near future, and 12 of them are already extinct. Among the most emblematic species, we can mention the European Eel, a previously abundant fish. The basis of a lucrative economic activity in the Mediterranean Basin, its populations have dropped dramatically in thirty years. Yet the survival of numerous specialised fisheries, such as those of Ichkeul Lake in Tunisia, depend directly on the fate of the Eel.

✓ The European Eel is now considered as critically endangered in the Mediterranean Basin.

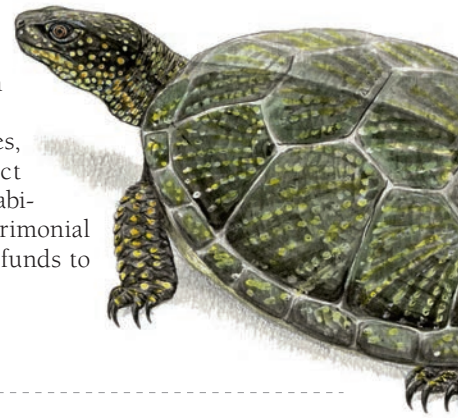


© C. Girard

... BUT THEY CAN STILL COME BACK!

Alerted by NGOs and the scientific community, Mediterranean countries have taken measures in favour of their wetlands. Many sites now benefit from protected area status (Fig. 4). Many European Union countries, in particular, now apply strict protection laws to species and habitats considered to have high patrimonial value, and devote considerable funds to saving the rarest species.

The European Pond Turtle, a very threatened reptile species that is the subject of many conservation measures in Europe.



✓

© C. Girard

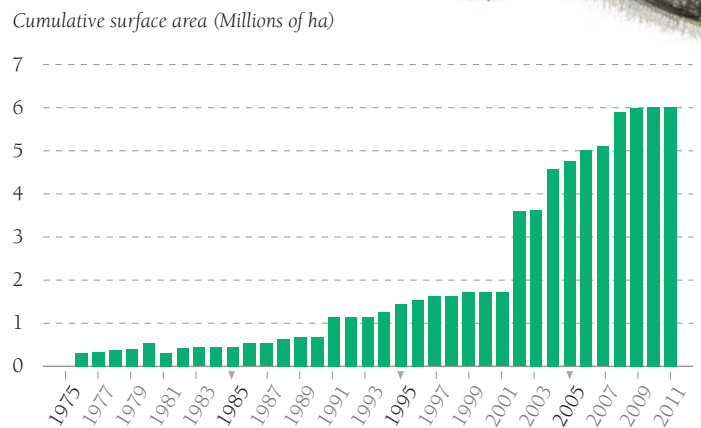


Fig. 4: Surface area of designated Ramsar sites in Mediterranean countries (source: Ramsar).

Waterbird populations in the Mediterranean Basin have risen by 70% since 1970, partly due to the protection of the principal wetlands. This increase concerns above all Western Mediterranean countries, where hunting is better regulated and protected areas are more numerous. Targeted conservation actions have led to the spectacular increase in the populations of Greater Flamingo in the Camargue, and Dalmatian Pelican at Prespa Lake in the Balkans.



© Tour du Valet

➤ Effective conservation actions since the 1970s have been able to save and sustain Greater Flamingo populations in the Camargue (Southern France), for the benefit of the species in the whole Mediterranean Basin.



MEASURES REQUIRED FOR ENSURING THE FUTURE OF OUR WETLANDS AND THEIR BIODIVERSITY

Teeming with life, Mediterranean wetlands have suffered greatly from the economic development of the region. While certain conservation actions have been effective on a local basis, they remain insufficient to reverse the trend. Among the urgent measures to be taken, the MWO recommends the following:



© Tour du Valat

MWO meeting in the Camargue, France

Reinforce the protection of forgotten wetlands (temporary ponds, alluvial forests, wet grasslands) or largely degraded habitats (watercourses). Less spectacular than large water bodies full of birds, they are nevertheless indispensable for highly diverse fauna and flora.

In addition to waterbirds, consolidate the monitoring of other major wetland taxonomic groups, including fish, amphibians, dragonflies, and aquatic plants.

Convince the sectors responsible for economic development of the usefulness of Mediterranean wetlands, in order for them to be taken more into consideration in land-use planning.



Strengthen the enforcement of legislation in favour of wetlands and their biodiversity in Southern and Eastern Mediterranean countries, where the pressures are more intense, but the political responses less ambitious.

Oppose the main causes of the decline in the biodiversity of wetlands, in particular intensive agriculture. Orientations towards more responsible practices, which consume less water and fertilizers, need to be more clearly encouraged.

This document is a synthesis of the report *Biodiversity: Status and trends of species in Mediterranean wetlands*.
www.medwetlands-obs.org/en > About Us > Product > Thematic Collection



Tour du Valat
Le Sambuc
13200 Arles - France
+33 (0)4 90 97 20 13
secretariat@tourduvalat.org
www.medwetlands-obs.org



With the financial support of



The main institutional and technical partners of the MWO



Author: Thomas Galewski - Photo credits: P. Delos du Rau/ONCFS (main), T. Galewski (banner)
Layout: Atelier Guillaume Baldini - Translation: Adam Clark-Gimmg & Charles La Via - A&C International Linguistic Consultants