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Wetlands in a warming world:

Why the Mediterranean needs nature-based solutions

Media kit

OFF YOUR MAP

Life begins in wetlands

Mediterranean wetlands: vital and vanishing

The Mediterranean is getting hotter – and we need its wetlands more than ever. Wetlands are at the heart of life itself. They give us our drinking water, irrigate our crops, support huge biodiversity, underpin cultures, and are increasingly vital in the fight to mitigate and adapt to climate change. But our wetlands are in trouble. Here in the Mediterranean we've destroyed about half of our wetlands in the last 50 years, and there are intense pressures on remaining areas, most of which are damaged and degraded. When we lose our wetlands, we lose all the benefits and services they offer – and with a growing population and a heating planet, we can't afford for this to happen.

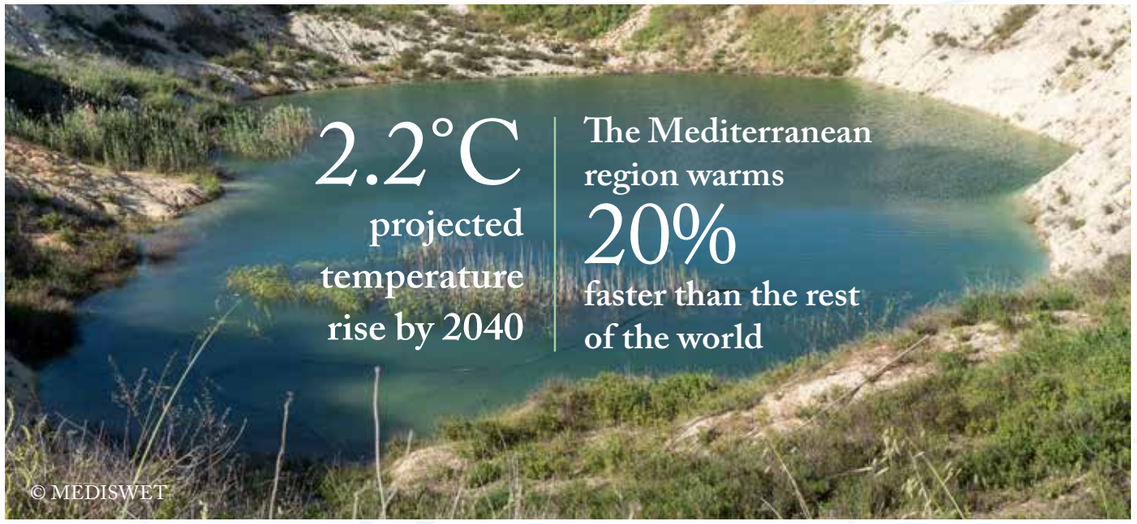
This brief pack explains what wetlands are and why they matter, particularly when it comes to climate change. Preserving and restoring these vital ecosystems is essential for our future survival in a fast-changing world – and groundbreaking work to do so is already underway.

In focus: climate change in the Mediterranean

The Mediterranean is a climate change hotspot, and this makes how we manage its wetlands in the coming decades all the more significant.

Scientific projections for climate change in the Mediterranean have recently been released by the MedECC network. The findings are shocking, confirming that the region will be hit harder and faster than most other parts of the world. This will have serious social, economic and environmental consequences for millions of people.

The overall figures vary depending on the scenarios used in the estimates, but they paint a vivid picture of a region at the sharp end of the climate crisis:



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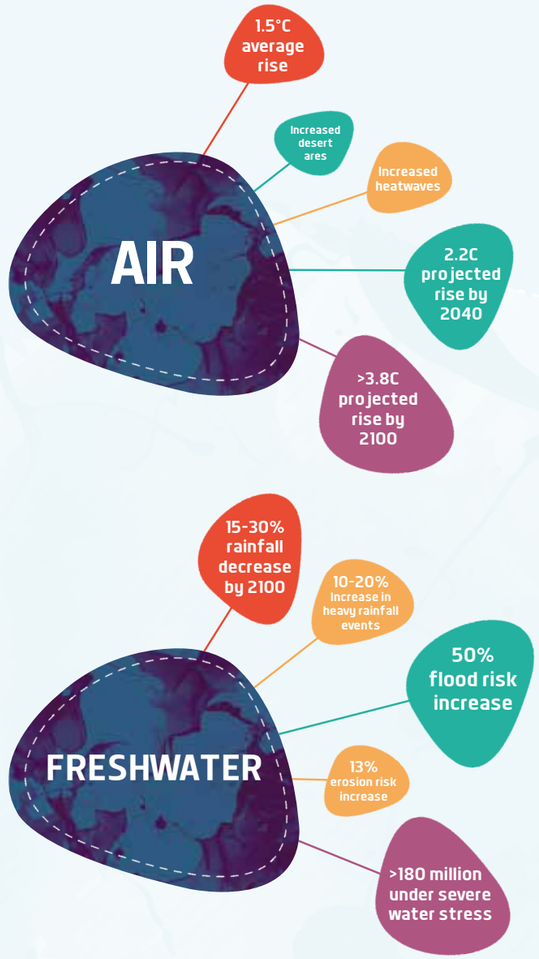


Risks associated to climate and environmental changes in the mediterranean region. A preliminary assessment by the medecc network science-policy interface - 2019

Link: https://www.Dropbox.Com/sh/owdoopjzf1hpjqf/aad-bw3542bswmizaytzsiu6a?Dl=0

Air

- Average rise since pre-industrial times: 1.5°C (global average 1.1C)
- Projected rise by 2040: 2.2°C (global average 1.5°C)
- Projected rise by 2100: >3.8°C (global average 2°C)
- Heatwaves: Increased frequency, intensity and duration
- Desert areas increase in Spain, Portugal, Morocco, Algeria, Tunisia, Sicily, Turkey, Syria

Freshwater

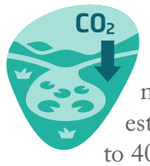
- Rainfall will decrease 15-30% across the region by 2100
- Heavy rainfall events will increase 10-20% except in summer
- Flood risk increases 50% to 2100
- Erosion risk increases 13%
- Available freshwater supplies will decrease from 2-15%
- Mediterranean population already under severe water stress: 180 million (>one-third)
- Projected number by 2040: 250 million

Sea

- The Mediterranean Sea is already warming faster than global averages, and will be 1.8-3.5°C hotter in some parts by 2100
- Global average sea levels will rise between 52-190cm by 2100 (global average 30-98cm)
- Currently rising 3.4mm per year
- Some coastal areas of the Mediterranean will experience 10cm more rise than others
- One-third of the region's coastal population will be affected
- 15 megacities (>1 million inhabitants) are at risk from flooding
- Italy will face substantial flooding in coastal areas
- The Balearics and other areas will see substantial changes in their shorelines

Climate change: wetlands provide nature-based solutions

Against the urgent backdrop of a changing climate, healthy wetlands provide people and planet with diverse critical services – effectively, they offer nature-based solutions to manmade problems.



Carbon sinks

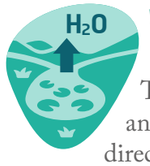
Wetlands are among the world's most significant carbon sinks – estimates show they currently store up to 40% of the world's carbon. Restoring more wetland areas would sequester more carbon, reducing the level of atmospheric greenhouse gases fuelling global heating, and making an important contribution to mitigating future temperature rises. When they're destroyed, though, the carbon they store enters the atmosphere – so damaging wetlands doesn't just prevent us from enjoying their benefits, it directly makes the world a hotter place.

Flood defences

Wetlands disperse and absorb excess water, which slows down flows, preventing soil erosion and flood damage caused by extreme weather events. Water stored in this way can also help maintain river levels during droughts. Such events are increasing, and through this 'sponge effect' wetlands offer a really effective – and entirely natural – way of defending ourselves against the damage they cause.

Protection from rising seas

Along the coast, wetlands buffer the land from waves and wind. As sea levels rise, coastal wetland areas from sand dunes to mangroves become the first line of defence against the encroaching salt waters – which otherwise threaten settlements, farmland, drinking water supplies and freshwater ecosystems. The more robust and resilient they are, the more effectively they can dissipate the energy of the waves.



Water provision and purification

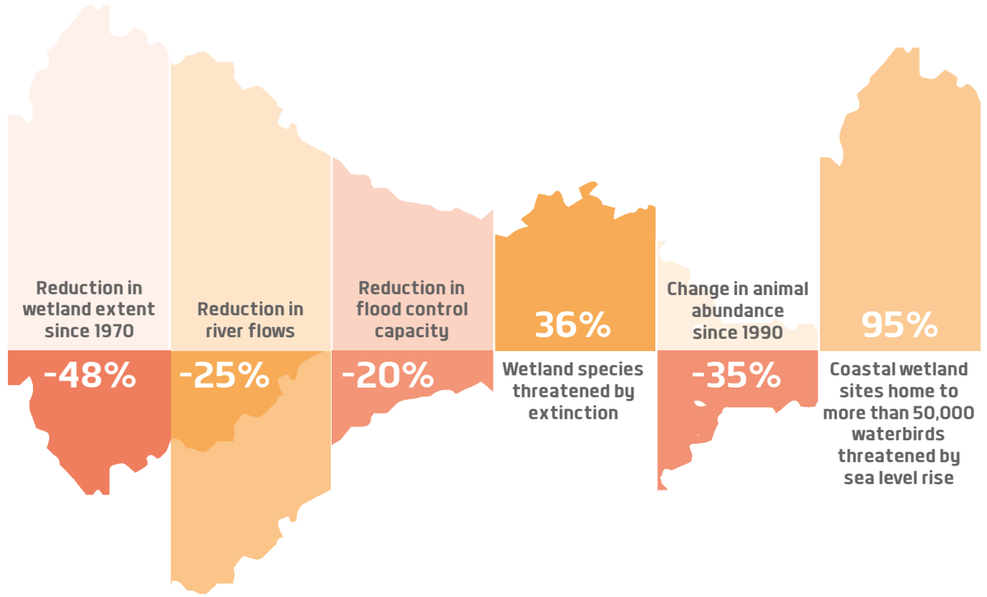
Wetlands are the kidneys of Nature. They play a critical part in storing and cleaning our drinking water, either directly or by recharging groundwater aquifers. Climate change is reducing the quantity and quality of available water, while demand continues to rise. Once water enters wetland systems, plants known as hydrophytes filter its chemicals and sediment, absorbing pollutants and converting them into nutrients, a natural purification and storage system. In a water-stressed Mediterranean, this role is growing more important by the day.

Biodiversity

Wetlands are among the most productive habitats on Earth, and are home to some of the world's richest biodiversity: freshwater wetlands hold more than 40% of the world's species and 12% of all animal species. Coastal wetlands host countless bird species, especially during migrations, and shelter critical fish populations. Biodiversity projections in a heating climate show major losses in all species groups, so it's imperative that existing wetland habitats remain viable and as many others as possible are restored.

Food provision

The global food system is one of the biggest contributors to climate change. Sustainable aquaculture and coastal fisheries can both provide important low-carbon sources of nutrition to reduce net emissions – but to operate successfully over the long term both depend on healthy and resilient wetlands.



Wetlands today: a Mediterranean crisis

Given the importance of their role in fighting climate change and more broadly, what is the state of Mediterranean wetlands today?

Wetland areas used to extend across vast expanses of the Mediterranean basin, but for hundreds of years wetlands were seen as land that needed to be drained, filled in, cleared, made 'productive'. The process accelerated in the 20th century as a fast-growing population drove runaway development in an increasingly resource-starved region.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Today wetlands cover some 18.5 million hectares, between 1.7-2.4% of the total area of the 27 Mediterranean countries. With a very few exceptions their flooding regimes are now artificially managed, and many of the remaining areas are badly degraded.

The Mediterranean Wetlands Observatory recently carried out detailed research on a range of wetland health indicators across the region. The news is bad for all of them:

- Reduction in wetland extent since 1970: -48%
- Reduction in river flows: -25% to -75%
- Reduction in flood control capacity: -20%
- Wetland species threatened by extinction: 36%
- Change in animal abundance since 1990: -35%
- Percentage of coastal wetland sites home to more than 50,000 waterbirds threatened by sea level rise: 95%

Why are our wetlands disappearing?

Agriculture – The single biggest factor in the loss of Mediterranean wetlands is agriculture. Vast areas have been drained and converted for agricultural use.

Development – From ever-spreading industry and urbanisation to waterfront tourist complexes, infrastructure development has ravaged much of the Mediterranean's natural heritage – wetlands have been at the sharp end of land use change, particularly in coastal regions.

Changes in hydrology – Few wetlands today maintain natural hydrological cycles: dams, dikes and diverted flows for irrigation and other purposes all reduce nature's ability to self-regulate, and ecological processes begin to break down.

Sedimentation/erosion – Wetland vegetation plays an important role in keeping waterways clear – when it's removed for grazing or development, banks are eroded and sedimentation follows.

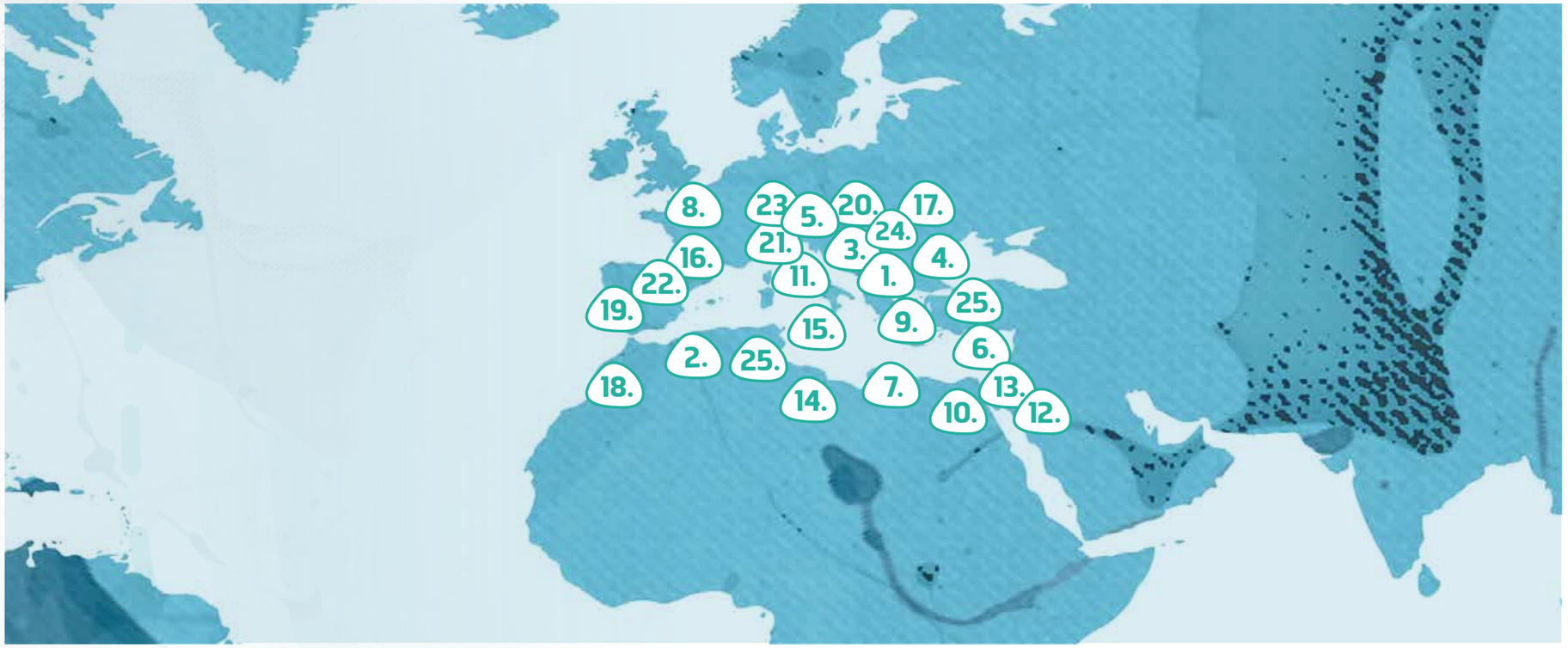
Pollution – Agriculture, industry and urban centres all pollute wetlands, harming biodiversity and reducing the resilience of natural processes.

Invasive species – Whether introduced on purpose or by accident, alien wetland species can out-compete native ones, unbalancing ecosystems. The issue is compounded because waterways act as networks through which new species spread.

Climate change – While wetlands can help defend us against climate change when they're preserved, they're also directly threatened by it. The increased droughts and storms of our heating planet damage wetlands, while rising sea levels will submerge many Mediterranean coastal wetland areas in the coming decades.

Ramsar sites in the Mediterranean

Wetlands do have one effective global mechanism dedicated to their 'conservation and wise use': the Ramsar Convention. An international treaty which came into force in 1976, Ramsar identifies and protects internationally important wetland sites, encouraging action and cooperation between the 170 contracting parties. In total, there are 2,372 Ramsar sites in the world covering over 2.5 million km². There are currently 424 Ramsar sites in the Mediterranean, and campaigners are working hard to bring other important Mediterranean wetland areas under Ramsar protection.



Country	No. of Ramsar sites	(no. of hectares)
1. Albania	4	98,181
2. Algeria	50	2,991,013
3. Bosnia and Herzegovina	3	56,779
4. Bulgaria	11	49,873
5. Croatia	5	94,358
6.Cyprus	1	1,107
7. Egypt	4	415,532
8. France	49	3,714,412
9. Greece	10	163,501
10. Israel	2	366
11. Italy	56	73,308
12. Jordan	2	13,472
13. Lebanon	4	1,075

Country	No. of Ramsar sites	(no. of hectares)
14. Libya	2	83
15. Malta	2	117
16.Monaco	1	23
17. Montenegro	3	21,627
18. Morocco	38	316,086
19. Portugal	31	132,487
20. Serbia	10	63,919
21. Slovenia	3	8,205
22. Spain	75	304,564
23. Syrian Arab Republic	1	10,000
24. FYR of Macedonia	2	21,616
25. Tunisia	41	840,363
26. Turkey	14	184,487

MedWet

The Mediterranean Wetlands Initiative (MedWet), operating within the framework of the Ramsar Convention, encourages and supports wetland managers and governments to adopt policies and implement actions on the ground in favour of the conservation and the sustainable use of Mediterranean wetlands. MedWet is a long-term collaborative effort between Mediterranean countries and entities, the Ramsar Convention Secretariat, intergovernmental institutions, international non-governmental organisations and national institutions specialized in wetland issues. MedWet is an endogenous mechanism based on mutual trust and respect.

A new story for Mediterranean wetlands

The growing number of designated Ramsar sites in the Mediterranean reflects an increasing regional understanding of their utility. Coastal wetlands are particularly important for fighting climate change, and pilot restoration projects are already underway in some key areas where the need is greatest. Ultimately the aim is to scale up and adapt the lessons learned across the wider Mediterranean, so wetlands can once again provide the full range and extent of functions and services we need to underpin a sustainable future for people and planet.

The Maristanis project – a collaboration between several conservation-focused NGOs and private donors – is running projects at four Mediterranean wetland sites. They encompass a diverse set of wetland types which face a range of challenges:

- Oristano, Sardinia – Coastal lagoons
- Ghar el Melah, Tunisia – Coastal lagoons and dune system
- Ulcinj, Montenegro – Salt pans
- Buna River, Albania – Lower delta

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Oristano: the Maristanis project

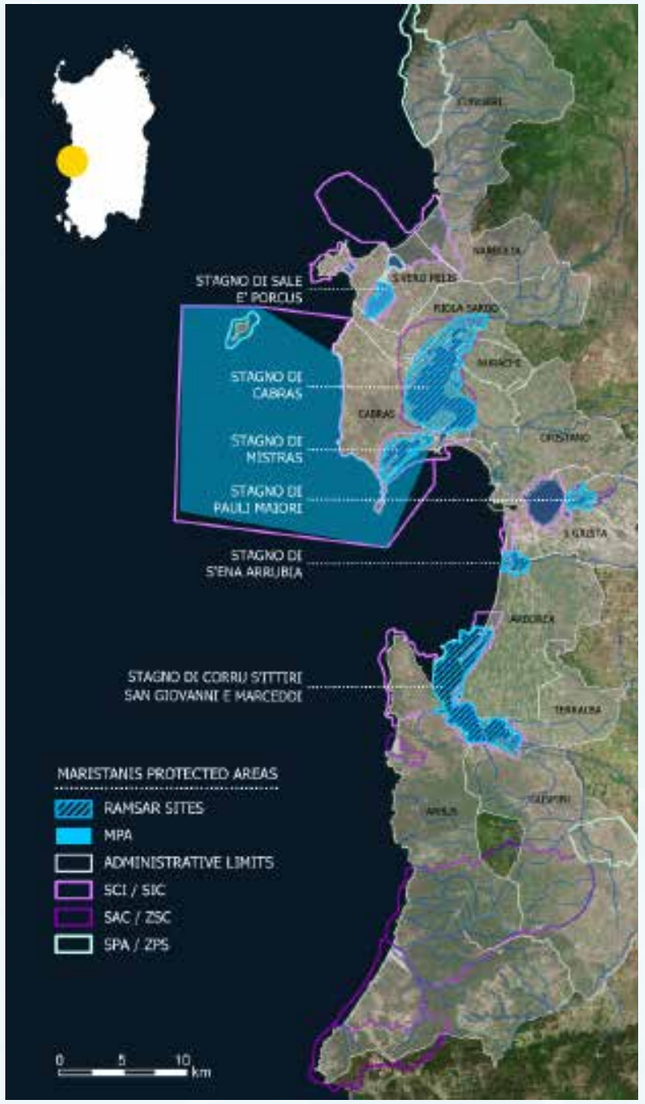
Projections show that Oristano in Sardinia is one of the first Mediterranean areas that will be severely affected by widespread flooding as sea levels rise: by 2100, local towns that are today home to around 35,000 people will be under water. The wetlands of Oristano hold immense biodiversity and environmental value, have been central to the region's economy and culture, and are a key solution to climate change. But in recent decades they've been severely degraded by human activities and other impacts, with no adequate management measures taken in response.

Current pressures on Oristano wetlands

- Intensive agriculture and livestock
- Intensive aquaculture
- Changed flow regimes: silting, landfill, abandoned irrigation/drainage channels
- Pollution from mining and other waste
- Coastal development

Climate/environmental impacts

- Coastal erosion
- Saltwater intrusion
- Water shortages
- Loss of biodiversity
- Habitat fragmentation
- Invasive species



Off Your Map's Maristanis project aims to turn this situation round, using the local wetlands as a foundation for a more resilient future.

Building solutions: individual strategies, an overall goal

Oristano is a good illustration of how multiple pressures compound the difficulty of wetland management: targeted initiatives within an integrated overall framework are essential. The Maristanis project focuses on eight strategies:

1. Improve knowledge base on all Oristano wetlands
2. Establish effective community management governance structures
3. Ensure connectivity of marine and terrestrial coastal systems, integrating conservation measures on land and sea to preserve natural environmental processes
4. Promote sustainable water management and efficient water use in cooperation with business and other actors
5. Remove or reduce pollution sources, particularly those connected with commercial activity
6. Improve conservation status of flora and fauna, and eliminate invasive alien species
7. Enhance economic and cultural value of region's wetland heritage to drive sustainable tourism
8. Raise general awareness of the importance of coastal wetlands to restore bonds between people and nature

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Oristano: nature-based solutions in action

In practical terms these eight strategies demand significant actions in many different areas – below are some examples of the diverse wetland conservation initiatives underway in Oristano. They show how nature-based solutions can do a great deal to solve some of our most pressing human and environmental challenges:

- Riparian areas of lagoons/ponds and wetlands restored with native plants that filter agricultural runoff, while also creating or protecting nesting areas. Some buffer areas are also planned, barriers between agriculture and wetlands which may also become feeding areas for cranes and other birds.
- Buffer strips constructed along 'renatured' canals using natural vegetation to replace old concrete cladding: this mitigates impacts of farming run-off, reduces erosion, and restores ecological connectivity and natural balance.
- Fishfarm bulkheads and sluices removed to allow natural water circulation and purification through local wetlands, creating much better conditions for productive and sustainable aquaculture.
- Endangered sand dune systems protected with eco-friendly walkways, reducing erosion, increasing resilience, and strengthening coastal protection against rising seas and storm surges.
- Alien species removed, native plants reintroduced to aid phytoremediation and improve water quality for human use.
- Sheep wool 'banners' created to absorb and degrade leaked fuel in fishing harbour, helping coastal fisheries and making livelihoods more secure.
- Artificial nests built for threatened waterbird species, strengthening biodiversity and improving ecosystem functions.
- Reconstruction and conservation of heritage buildings maintains links with local social traditions and attracts visitors – 'Museum of weaving' launched in Ramsar area.
- Traditional weaving promoted to create new market for heritage craft, using replanted climate-change-resistant wetland reeds, empowering marginalised workers with new skills and livelihoods.
- Water use targeted to reduce pressure on limited resources: micro-irrigation projects developed with local producer cooperatives, water efficiency apps created for tourist sector to promote sustainable development as visitor numbers rise.

Wetlands and a sustainable future

The Mediterranean Basin is currently facing the most severe ecological and climatic crisis of its long history, with unprecedented biodiversity loss on land and under water, water shortages, increasingly frequent storms and fires, coastal erosion and other major challenges.

If nothing is done to mitigate these impacts, the unique ecosystems of the region and its growing population will be seriously affected over the next decades, with likely consequences including weakened human security, health problems, natural resource conflicts, increased migration, and economic collapse.

It's time for Mediterranean countries with their common history to join forces for their common future. They must save their precious natural capital to ensure the resilience of their unique ecosystems and their human societies, and maintain the political stability of a strategically important region of the world.

Wetlands are among the best available nature-based solutions to address the many challenges of the climate and ecological changes taking place. Governments, private companies, local communities, NGOs and international organisations must act now in a coordinated way to secure a sustainable future for Mediterranean wetland ecosystems and the many crucial services they provide for wildlife and human well-being. Moreover, preserving Mediterranean wetlands is key to achieving the Sustainable Development Goals in the region by 2030.

This document has been created for the media trip to Oristano (Sardinia) on 25-27 October 2019 organised by the IUCN Centre for Mediterranean Cooperation in collaboration wtih the Medsea Foundation and Medwet.

Off Your Map is a collaboration between the following partners, with the funding and support of the MAVA Foundation.

Off your map website:
http://offyourmap.org/

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