



**WetLands
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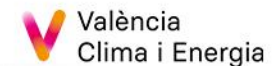
Mediterranean wetlands management and restoration as carbon sinks

“Lunch seminar: Restoring Mediterranean wetlands: from informed policy to implementation”

Brussels, 4th of October of 2022

Vanessa Sánchez
Fundación Global Nature
vsanchez@fundacionglobalnature.org

www.wetlands4climate.eu · info@wetlands4climate.eu



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OUR MISSION

More than 30 years contributing significantly to the protection of nature and biodiversity, promoting sustainability policies and conservation strategies that create value for all sectors involved.

Wetlands & Agrarian sustainability



LIFE Wetlands4Climate

Coordinating Beneficiary:

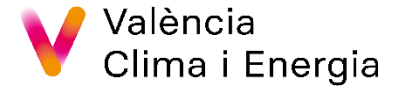


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Associated Beneficiaries:



VNIVERSITAT DE VALÈNCIA  **ICBiBE**
Institut Universitari Cavanilles
de Biodiversitat i Biologia Evolutiva



Financers:

- LIFE Program EU;
- Ministerio Transición Ecológica & Reto Demográfico through Fundación Biodiversidad;
- Agencia Estatal de Investigación del Gobierno de España;
- Conselleria de Agricultura Desarrollo Rural, Emergencia Climática y Transición Ecológica de la Generalitat Valenciana;
- Regidoría de Conservación de Áreas Naturales Devesa-Albufera Ayuntamiento de València;
- Ayuntamiento de Torreblanca
- Naturgy

Total Budget:

2,165,389 Euro (55% financiado por la UE)

Period of implementation

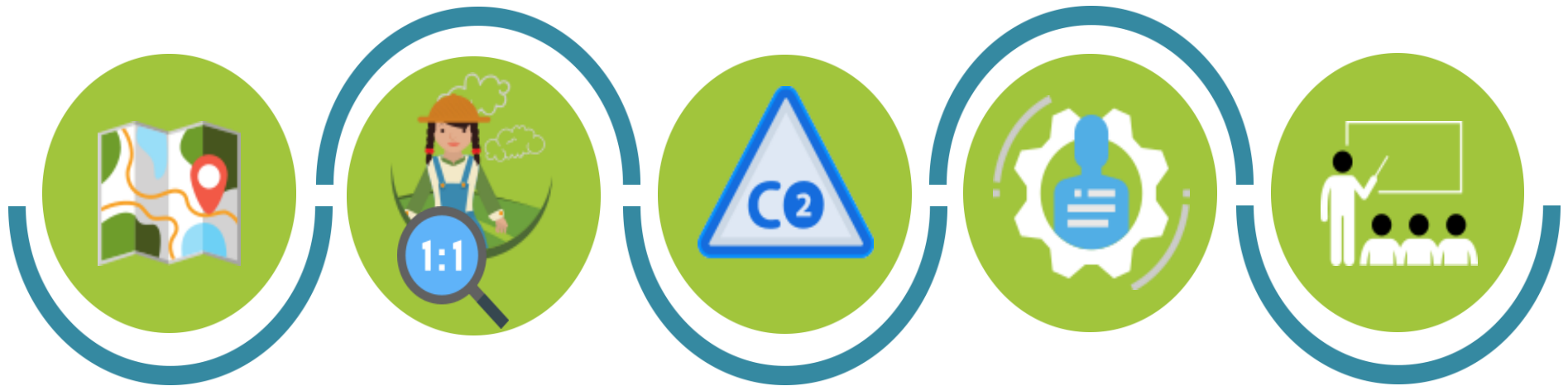
October 2020 to June 2024

OBJECTIVES & SCOPE

- To establish **management guidelines for Mediterranean wetland** so that they function as **carbon sinks while maintaining their ecological integrity**, and providing ecosystem services of a healthy ecosystem, through the design of an experimental protocol in pilot wetlands (management measures: for vegetation, soil and water).
- To **transfer results** to other Mediterranean wetlands through, political advocacy, communication, awareness and training campaigns.
- To **involve the private sector** in financing mitigation to climate change through the development of a specific methodology for Voluntary Carbon Market.



Process step by step:



1) Selection of wetlands for testing restoration and their mitigation potential

2) Field actions developments and measurements

3) Protocol for the verification and certification of credits

4) Transfer (policies, networks; training

5) Education, communication and awareness



1) Selection of wetlands for testing restoration and their mitigation potential

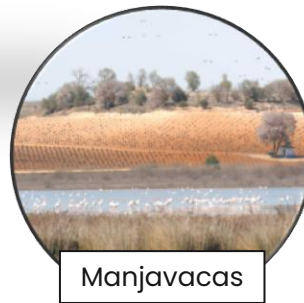


1) Selection of wetlands for testing restoration and their mitigation potential

Freshwater wetlands of Castilla y León



Saline Wetlands of Castilla-La Mancha



Coastal Wetlands of C. Valenciana



2) Field actions development and measurement: linking measures to management methods; drawing up guidelines, inspiring management procedures and policies, and training managers (implementation and replication)



FGN

- Actions: vegetation, soil and water management



UVEG

- Characterization and Carbon cycle measurement



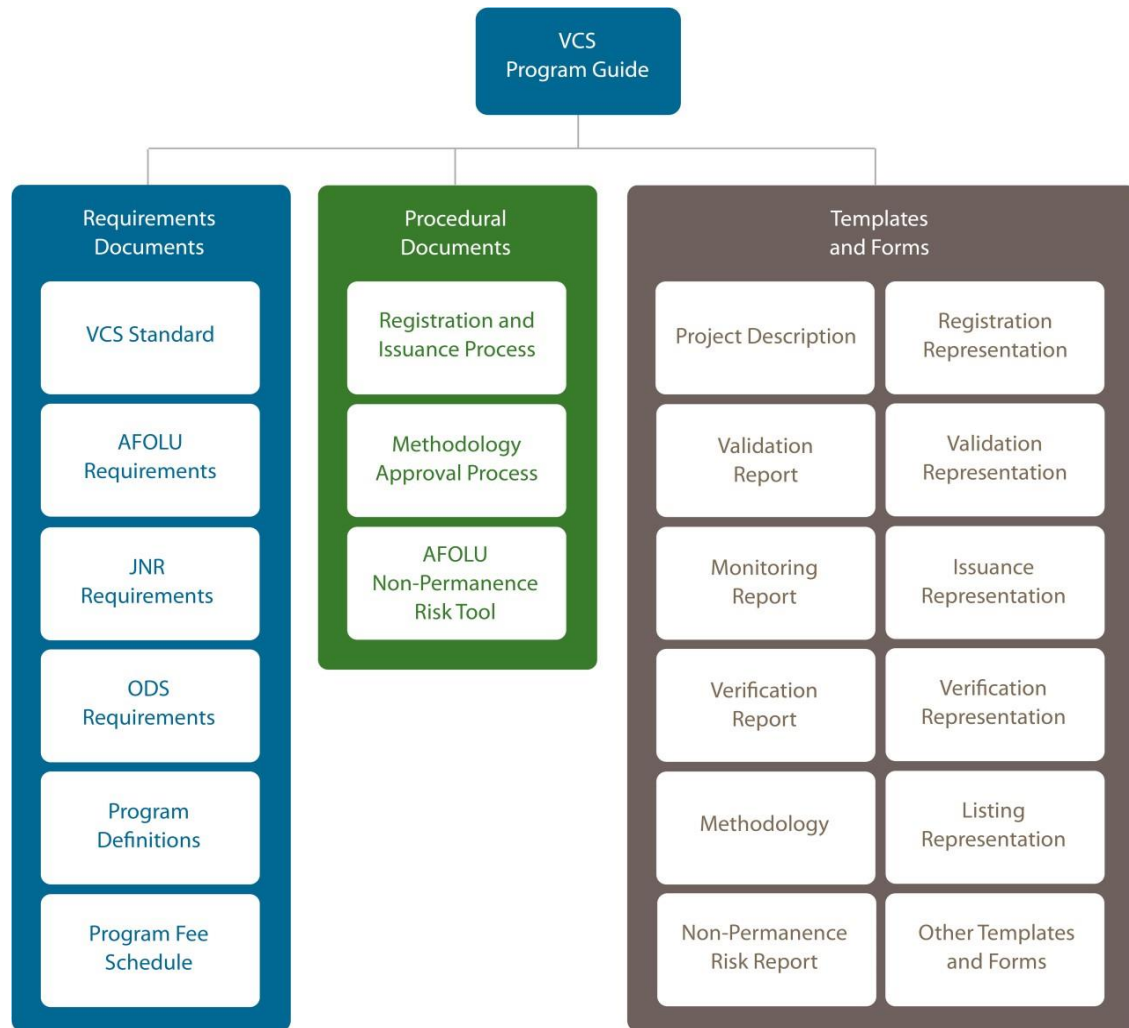
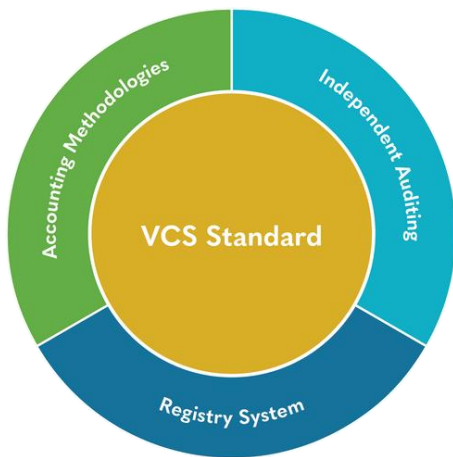
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3) Protocol for carbon credits verification and certification

National voluntary carbon
Market MITECO/OECC, CO2
Absorption projects



4) Transfer, replication (training)



Transfer National, Regional and European level: MITECO, OECC, IPCC (LULUCF) Networks (Wetlands International, RAMSAR, MedWet ...)



Training of Wetlands managers

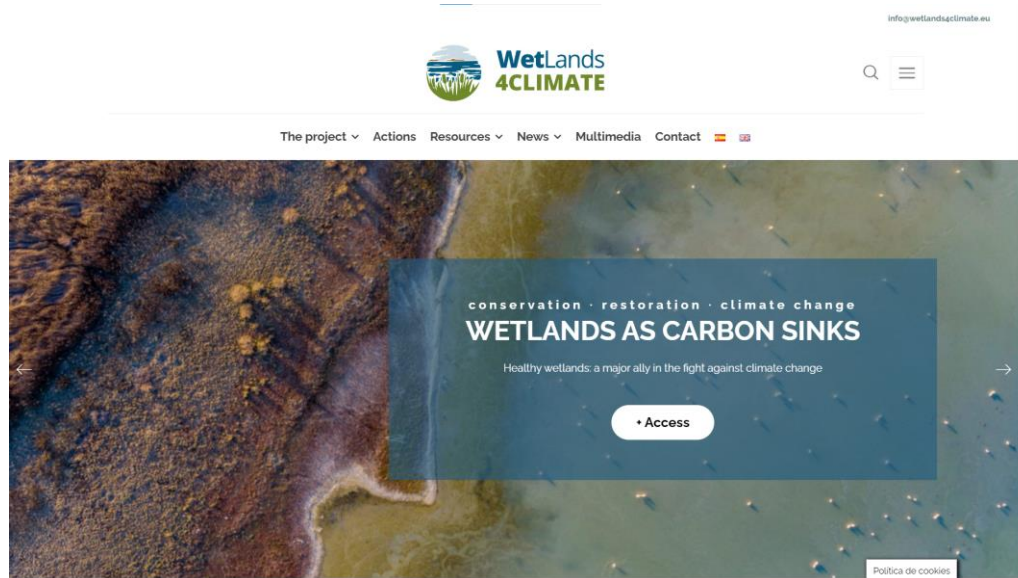


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5) Education, communications and awareness

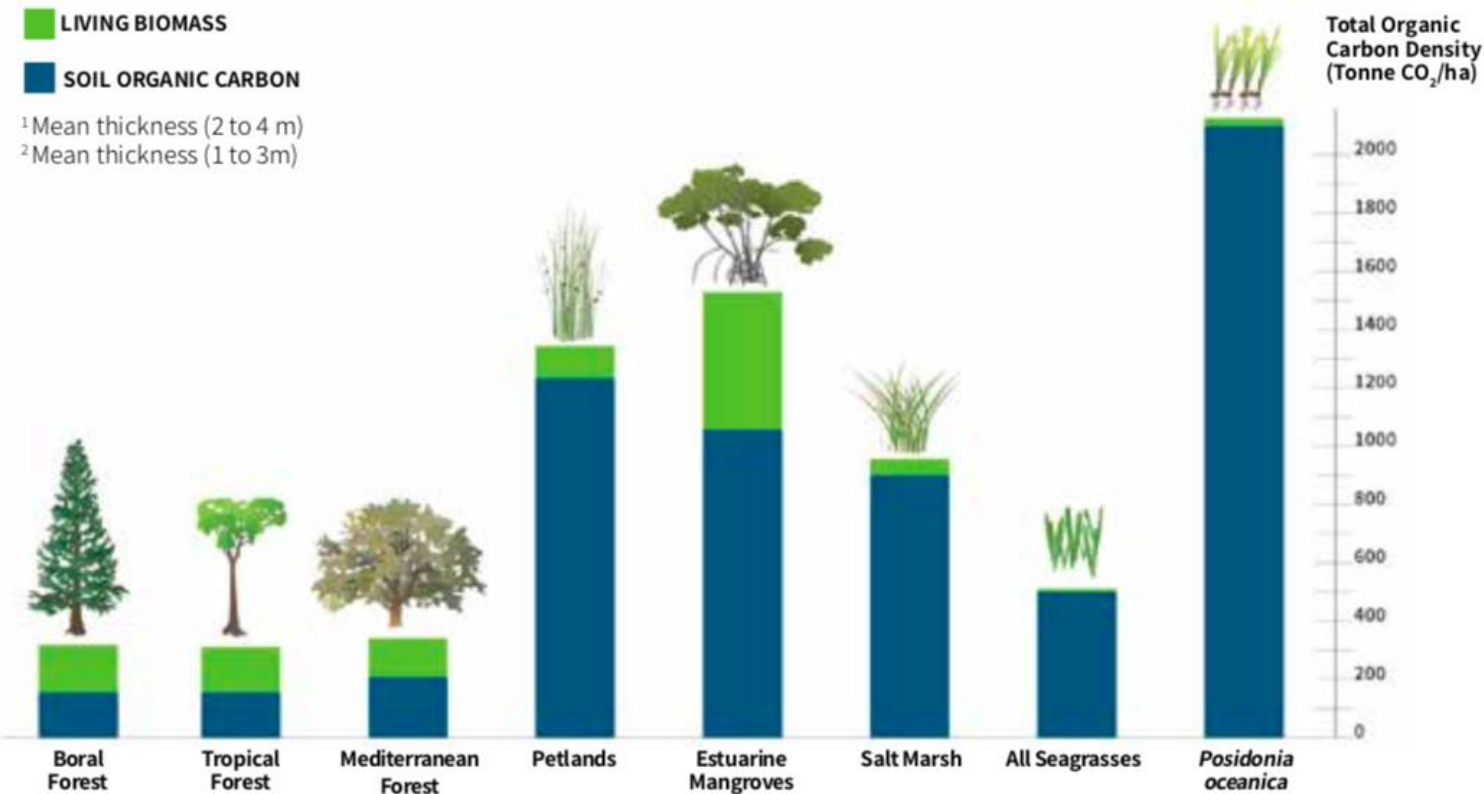
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Social Networks; Exhibition (12 panels), videos (14) environmental education workshops (500) and participation in conferences (50) with more than 15.000 attendees + scholars+ visits to exhibition



Why are wetlands so important as carbon sinks?



The importance of wetlands for long-term carbon sequestration is particularly significant when compared to terrestrial ecosystems.

Carbon stored in the soils can remain there for centuries

Figure 5: Comparison of soil C_{org} storage in the top metre of the soil with total ecosystem C_{org} storage for major ecosystem types. Here, the seagrass *Posidonia oceanica* is a unique seagrass in terms of the quantity of organic carbon that can be stored in its sediments and matte. Soil Data: Top meter sediment [12, 111, 112, 113].

Fuente: UICN (2021). Manual para la creación de proyectos de carbono azul en Europa y en el Mediterráneo. Otero, M. (Ed.), <http://life-blunatura.eu/>

Considering Mediterranean Wetlands in carbon sequestration?

Intact wetlands are important habitats in terms of carbon sequestration and storage.

Wetlands (mainly peatlands) have the highest carbon stocks of any terrestrial habitat making them a key ecosystem for carbon storage. They contain 30% of total organic soil carbon despite covering only around 5–8% of the world's area¹.

Let's compare the **carbon sequestration rates per hectare** of different wetlands:

- Permanent Freshwater and brackish marshes, typical wetland type of the Mediterranean Spanish coast, show a big capacity for C capture, especially in the restored sites (**~950 g C m⁻² yr⁻¹) (9,5 t ha⁻¹yr⁻¹)** with a paramount role of helophytes ⁽²⁾
- Some global estimates indicate that salt marshes rank among the most effective ecosystems in carbon sequestration with an average of 242.2 g C m⁻² yr⁻¹ ⁽³⁾
- While long-term carbon sequestrations rates in peatlands are on average 26.6 g C m⁻² yr⁻¹ ⁽⁴⁾

So that, **Carbon sequestration in Coast Permanent Freshwater and brackish marshes, typical wetland type of the Mediterranean coast, could fix up to 35 times more carbon than peatlands per year**



Key factors when prioritizing Mediterranean wetlands for restoration for carbon benefits

- **Restoring the biodiversity value** of the wetland should be the primary objective
- It is important to assess the **factors affecting the success of restoration for carbon benefits**, including site conditions, the time needed to achieve restoration, the costs and benefits of restoration actions, the permanence of carbon gains, and how to monitor carbon flows
- The **feasibility of restoration** considering the current state of the ecosystem, its context, and potential to recover.



Junta de Comunidades de Castilla-La Mancha ©



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Key factors when prioritizing Mediterranean wetlands for restoration for carbon benefits

- **Site condition or conservation status:** the degradation or restoration level influence the C balance and GHG exchanges and, consequently, determine the mitigating/warming role of Mediterranean wetlands on a short to medium time scale. Hydro-morphological alterations and water pollution may convert healthy ecosystems contributing to C sequestration and climate change mitigation into C emitting ecosystems.
- **Wetland management measures** could significantly influence the carbon balance, being able to strengthen the carbon retention capacity, but also reverse this function and increase carbon emissions into the atmosphere.
- There is a general **lack of information** on carbon stocks and flows in managed systems and the effects of management measures on carbon fluxes are not well documented. This lack of information is covered by LIFE Wetlands4Climate, results will be available at the end of 2023.



Should Mediterranean Wetlands be considered as Blue Carbon?

- **The IPCC considers Blue carbon as:**

All biologically-driven carbon fluxes and storage **in marine systems** that are amenable to management. These ecosystems have high carbon burial rates on a per unit area basis and accumulate carbon in their soils and sediments.

There is **current debate** regarding the application of the blue carbon concept to other coastal and non-coastal processes and ecosystems, including the open ocean ¹

- **Mediterranean wetlands**, saline or freshwater inland wetlands, Permanent Freshwater and brackish marshes between others, **should be included in Blue carbon ecosystems**, since the primary production and the carbon storage in sediments and soils is such as important as in marine ecosystems.



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