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SCIENCE FOR EVIDENCE-BASED
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ABOUT NATURAL CAPITAL

Country Fact Sheet
SPAIN

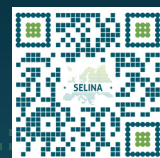**Follow SELINA**

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Country Fact Sheet: Spain (ES)

Edited by:
Paula Rendon and Fernando Santos

Rey Juan Carlos University (URJC), Spain

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This fact sheet is based on what partners in SELINA know about what is going on in their country and some additional literature. If you feel there are ongoing or upcoming research projects, policy initiatives or legislations, concerning the use of biodiversity, ecosystem condition and ecosystem services knowledge in decisions and policies, missing please contact inge.liekens@vito.be and we update the country fact sheet (until March 2027)

Contents

1 Update on projects concerning biodiversity, ecosystem condition and ecosystem services assessment and accounting since 2022

The Spanish national ecosystem assessment (EME) implemented from 2010 to 2016, aimed at contributing to the National Strategy on Green Infrastructure, Connectivity and Ecological Restoration, for maintaining and improving the provision of ecosystem services of the elements linked to the development of green infrastructure. The assessment has been developed at different scales, i.e. national (for 14 ecosystems), sub-national (i.e. Andalucía and Murcia regions), and many case studies at local level.

The National Strategy for Green Infrastructure and Ecosystem Restoration in Spain aims to create a robust framework by 2050. This infrastructure will address critical environmental challenges, including reducing habitat fragmentation, enhancing ecological connectivity, and providing essential ecosystem services for human well-being. Additionally, it will play a crucial role in mitigating climate change effects across both rural and urban areas while promoting societal resilience and adaptive capacities.

The strategy involves several key components: restoring degraded ecosystems, integrating strategic sectorial policies, implementing effective governance models, and fostering social awareness and shared responsibility. As part of this effort, the SELINA Demonstration Project (DP) serves as a national-scale case study. The DP analyses ecosystems and their services as well as potential restoration sites. These insights will guide decisions on preserving critical green infrastructure elements.

As part of the activities under the National Strategy for Green Infrastructure and Ecosystem Restoration, MITECO has developed and updated a methodological guide for identifying green infrastructure elements (MITECO, 2024).
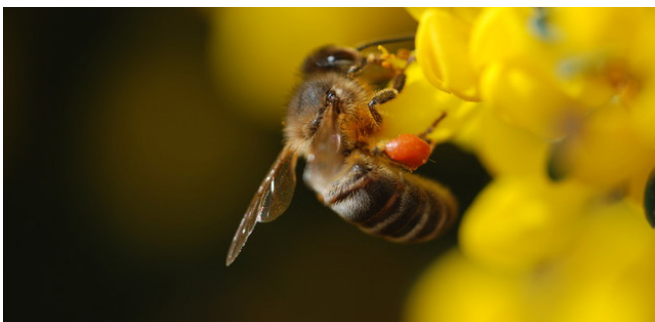
1.1 Ecosystem accounting

The Ecosystem Account for Spain represents a national-scale initiative involving collaboration between URJC the Ministry for Ecological Transition and Demographic Challenge (MITECO) and the National Institute of Statistics of Spain (INE). This study integrates biophysical accounts, extent, condition and ecosystem services, and links this information to economic and human activities.

The study developed core accounts based on the SEEA-EA framework, including a biodiversity thematic account with a specific focus on forest ecosystems. It also introduced new methods and data, such as the National Ecosystem Classification, statistical approaches for monitor ecosystem changes and flows, and innovative techniques using machine learning and deep learning.

1.2 The Ecosystem Account covers various aspects

- Ecosystem Extent Accounts: These encompass all ecosystems (Bruzón et al., 2022).

- Ecosystem Condition Accounts: Specifically for forest ecosystems (Bruzón et al., 2023; Maes et al., 2023).

- Ecosystem Services Supply and Use Tables (Physical Terms): Includes metrics related to crop production, livestock, timber production, freshwater supply, water infiltration, soil fertility, carbon storage, nature recreation, and carbon stock and sequestration (González-García et al., 2022).

- Ecosystem Services Supply and Use Tables (Monetary Terms): Covers economic values associated with crop production, livestock production, timber production, freshwater supply, water infiltration, soil fertility, carbon storage, and nature recreation (Santos-Martín et al., 2016).

- Additionally, thematic accounts focusing on carbon and biodiversity are currently in preparation.

2 Examples of uptake in decision processes, regulations and/or legislation

The development of Spanish ecosystem accounts aligns with EU Regulation No. 691/2011 of 6 July 2011 on European Environmental Economic Accounts. Both the EU Biodiversity Strategy and the Habitats Directive mandate that each member state produce a six-year report detailing their provisions for compliance. In Spain, this commitment is explicitly outlined in Law 42/2007, enacted on December 13, which focuses on Natural Heritage and Biodiversity.

Ecosystem accounts play a crucial role in achieving the objectives outlined in these strategies and directives. Additionally, stakeholders recognize the importance of ecosystem accounts for climate adaptation, monitoring progress towards Sustainable Development Goals (SDGs), and fulfilling commitments under the Convention on Biological Diversity (CBD). The Spanish National Ecosystem Assessment has already contributed to meeting some of the targets set by the EU Biodiversity Strategy.

2.1 Leverage points

The development of Spanish ecosystem accounts is a key leverage point, aligning with EU Regulation on European Environmental Economic Accounts. These accounts are essential for meeting the requirements of the EU Biodiversity Strategy and the Habitats Directive Spain's commitment to this process is reinforced by the law on Natural Heritage and Biodiversity. Ecosystem accounts support climate adaptation, progress monitoring towards the SDGs and the CBD. The Spanish National Ecosystem Assessment has been instrumental in achieving some EU Biodiversity Strategy targets.

2.2 National Strategy for green infrastructure and ecosystem restoration

Spain has established its legislative framework through Law 33/2015, an amendment to Law 42/2007, which outlines the national strategy for green infrastructure, ecological connectivity, and restoration. Additionally, Order PCM/735/2021 plays a central role in guiding the development and execution of the National Strategy for Green Infrastructure and Ecological Connectivity and Restoration. Aligned with broader EU biodiversity strategies and UN Sustainable Development Goals, this strategy aims to preserve and restore ecosystems and their services through green infrastructure.

Effective implementation of this strategy requires collaborative efforts among various stakeholders, including autonomous communities, ministries, and public administrations. Coordination and cooperation among these entities are crucial for maintaining and enhancing green infrastructure. Currently, the focus extends beyond identifying components to ensuring the integration of standardised and regularly updated cartography.

The National Strategy for Green Infrastructure and Ecosystem Restoration in Spain leverages several key elements to drive progress. These include the restoration of degraded ecosystems, the integration of strategic sectorial policies, effective governance models, and fostering social awareness and shared responsibility. The SELINA Demonstration Project (DP) serves as a national-scale case study, providing crucial insights into ecosystem services and potential restoration sites. Additionally, the development of ecosystem accounts in alignment with EU regulations ensures compliance and supports broader environmental and climate objectives.

3 Perceived barriers and needs to enhance uptake

3.1 Barriers

■ Barriers to the effective implementation of ecosystem accounts include the complexity of integrating diverse data sources and the need for consistent and comprehensive data collection. There can be challenges in ensuring that all stakeholders, including government agencies, researchers, and public organisations, are effectively coordinated and engaged. Additionally, securing adequate funding and resources for ongoing assessment and reporting can be difficult.

■ There is a lack of high-resolution national data, making it difficult to make informed decisions at regional or local levels. Another barrier is the uncertainties related to data quality or modelling. Additionally, standardising existing data and maps is crucial to avoid inconsistencies across different geographical scales and administrative bodies. Lastly, some stakeholders lack the technical capacity to fully implement the tiered approach proposed in the Methodological Guide.

3.2 Needs

■ To address these barriers, there is a need for enhanced data integration and management systems to ensure comprehensive and consistent ecosystem accounting. Strengthening collabora-

tion among stakeholders, including government, academia, and public organisations, is crucial. Adequate and stable funding is necessary to support the continuous development and maintenance of ecosystem accounts. Furthermore, public awareness and understanding of the importance of ecosystem accounts for environmental policy and decision-making need to be increased.

■ Spanish government institutions would benefit from targeted training to enhance their understanding of ecosystem accounts. Additionally, a concise guide outlining practical applications of these accounts would facilitate the process. Furthermore, fostering systematic communication and knowledge-sharing among different countries can lead to more effective implementation.

■ There is a need for targeted training for autonomous communities and governmental institutions. Equipping them with the necessary skills for mapping and assessing ecosystems will enhance their capacity. Furthermore, supporting the use of the methodological guide for identifying green infrastructure elements will facilitate more effective ecosystem management. Furthermore, the consistent application of ecosystem services mapping and assessment within legislative and policy frameworks is necessary to guide decision-making and ensure compliance with national and EU directives.

4 On the way to transformative change

The overall conclusion of the IPBES global assessment (IPBES 2019) was that Goals for conserving and sustainably using nature and achieving sustainability cannot be met by current trajectories, and goals for 2030 and beyond, may only be achieved through transformative changes across economic, social, political and technological factors.

Transformative or transformational change refers to "a fundamental, system-wide reorganisation across technological, economic and social factors, including paradigms, goals and values" (IPBES, 2019). Simply said, doing things differently, rather than doing less or optimising the system.

A means to enhance uptake is bringing people of the quadruple helix together and exchange information and learn from each other. Another is to establish projects that can show that it works and lead to possible pathways of transformative change.

4.1 Community of practice

The Committee on Protected Natural Areas is a specialised committee affiliated with the State Commission for Natural Heritage and Biodiversity. Its primary role is to facilitate coordination and collaboration between the Autonomous Communities and MITECO concerning the conservation of Protected Natural Areas in Spain.

The Committee for Protected Natural Areas aims to foster cooperation among the representative and management bodies responsible for various protected natural areas. These specialised committees conduct technical analyses and submit proposals to the State Commission, focusing on thematic matters relevant to their specific areas or those specifically assigned by the Commission.

In 2009, a dedicated working group was established within the Committee to develop Conservation Guidelines for the Natura 2000 Network in Spain. This group comprises experts from most of the Autonomous Communities and the then Ministry of the Environment.

Public Administrations play a crucial role in identifying the elements that constitute Spain's Green Infrastructure within their respective jurisdictions. These identifications are based on the criteria outlined in Goal 0 of the National Strategy for Green Infrastructure and Ecological Connectivity and Restoration.

To ensure consistency in cartography across different geographical scales and administrative bodies, the identification process also relies on the Methodological Guide for identifying green infrastructure elements. This guide was developed by the working group.

Recently, on 31st October 2023, the working group, along with three collaborating universities, conducted an online workshop about the application of the methodological guide. Invitations were extended to 58 individuals from the Autonomous communities in Spain, MITECO, URJC UPM, University of Seville (U. Sevilla - CTFC), and Tragsatec.

In 2024, the working group plans to hold at least two additional meetings. These sessions will focus on implementing the latest version of the guide in various Autonomous Regions, with the goal of developing regional green infrastructure plans by July 2024.

4.2 Seeds of transformative change

3 projects were nominated through the online survey:

- **Implementation of the National Strategy for Green Infrastructure and Ecological Connectivity**

- **Spanish Working Group on Habitat Fragmentation** due to Transportation Infrastructures (WGH-FT) to promote the exchange of knowledge, raising awareness and providing technical guidelines to contribute to developing green infrastructure and sustainable transportation networks.

- **Demonstration project 1**: This initiative will help to establish the guidelines for the identification and conservation of the elements of the territory that make up the green infrastructure of the Spanish territory, and so that the territorial and sectorial planning carried out by public administrations allows and ensures the ecological connectivity and the functionality of ecosystems, mitigation and adaptation to the effects of climate change, defragmentation of strategic areas for connectivity and restoration of degraded ecosystems.

5 References

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Project duration: 1 July 2022 – 30 June 2027

Keywords: biodiversity, ecosystems, ecosystem services, natural capital accounting, evidence-based decision-making, transformative change

Project coordinator: Prof. Dr. Benjamin Burkhard, Leibniz University Hannover (LUH), Institute of Physical Geography and Landscape Ecology

burkhard@phygeo.uni-hannover.de

PROJECT PARTNERS

- Leibniz University Hannover
- Stichting Capitals Coalition
- Ecostack Innovations Limited
- University of Trento
- Pensoft Publishers
- Centre for Ecological Research
- Mykolas Romeris University
- Research Centre of the Slovenian Academy of Sciences and Arts
- University of Patras
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- Estonian University of Life Sciences
- The Cyprus Institute
- Wageningen University
- The Finnish Environment Institute
- Global Change Research Institute SarVision
- Ministry of the Environment of the Slovak Republic
- Gaspar Frutuoso Foundation
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- Municipality of Trento

- Ministry of Environment of the Republic of Lithuania
- Ministry of Environmental Protection and Regional Development of the Republic of Latvia
- Research Centre in Biodiversity and Genetic Resources
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- COHAB Initiative Secretariat
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- ETH Zürich
- Joint Research Centre
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