Safeguarding biodiversity and critical ecosystem services across sectors and scales

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CIRAD

GUARDEN

Learn more here:

Funded by the European Union

GUARDEN project has received funding from the European Union, within the call HORIZON-CL6-2021, under the grant agreement no 101060693

HELLENIC REPUBLIC MINISTRY OF DEVELOPMENT AND INVESTMENTS | GSRI GENERAL SECRETARIAT FOR RESEARCH AND INNOVATION

European Commission

Factsheet

- Call ID: HORIZON-CL6-2021-GOVERNANCE-01-14

"User-oriented solutions building on environ. obs. to monitor critical ecosys. and biodiv. loss and vulnerability in the EU"

- Timing :

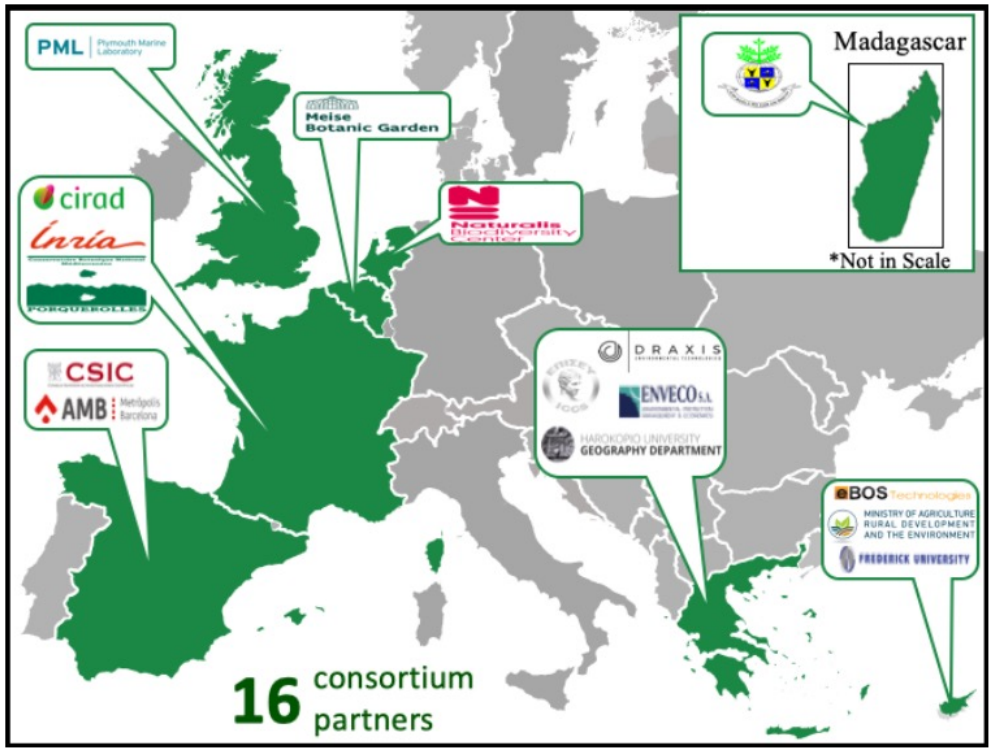
Start 01.11.22 - End 31.10.2025 - 36M

- Budget

EU : 4,556,889€ (+ UK part : 197,700.00 €)

- Consortium

16 Partners (6 EU & 2 Associated Countries)



GUARDEN main mission is to safeguard biodiversity and its contributions to people by bringing them at the forefront of policy and decision-making. This will be achieved through the development of : user-oriented **Decision Support Applications** (DSAs), and leveraging on **Multi-Stakeholder Partnerships** (MSPs).

GUARDEN

Project consortium

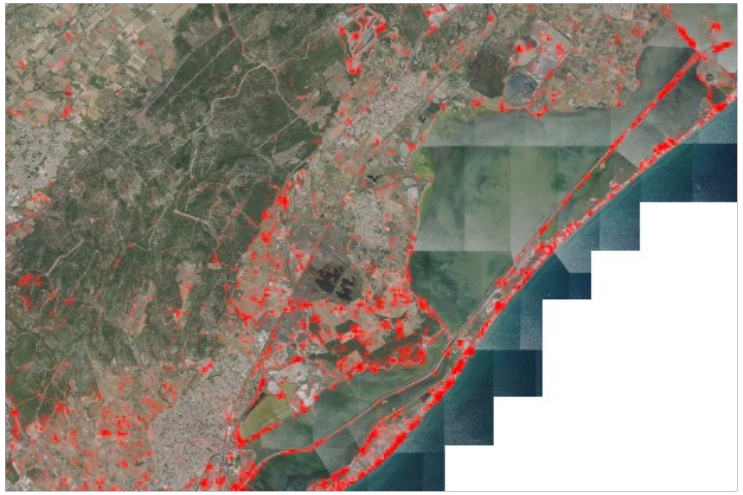
No.	Participant Organisation Name	Short Name	Country	
1*	Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement	CIRAD	FR	RESEARCH
2	Institut National de Recherche en Informatique et Automatique	INRIA	FR	
3	Agencia Estatal Consejo Superior de Investigaciones Cientificas	CSIC	ES	
4	Charokopeio Panepistimio	HUA	EL	
5	Stichting Naturalis Biodiversity Center	NBC	NL	
6	Agentschap Plantentuin Meise	MBG	BE	
7	Institute of Communication and Computer Systems	ICCS	EL	
8	Frederick University Fu	FREDU	CY	
9	Parc National De Port-Cros	CBNM	FR	
10	University of Antananarivo	UNTNR	MG	
11	Draxis Environmental Sa	DRAXIS	EL	SMES
12	eBOS Technologies Limited	EBOS	CY	
13	Plymouth Marine Laboratory Limited	PLY	UK	
14	Enveco S.A. Environmental Protection and Management	ENV	EL	
15	Ministry of Agriculture, Rural Development and Environment of Cyprus	MOA	CY	PO
16	Area Metropolitana De Barcelona	AMB	ES	

Project Overview

GUARDEN will make use of a suite of methods using Deep Learning, Earth Observation, Augmented reality and Public participation tools to :

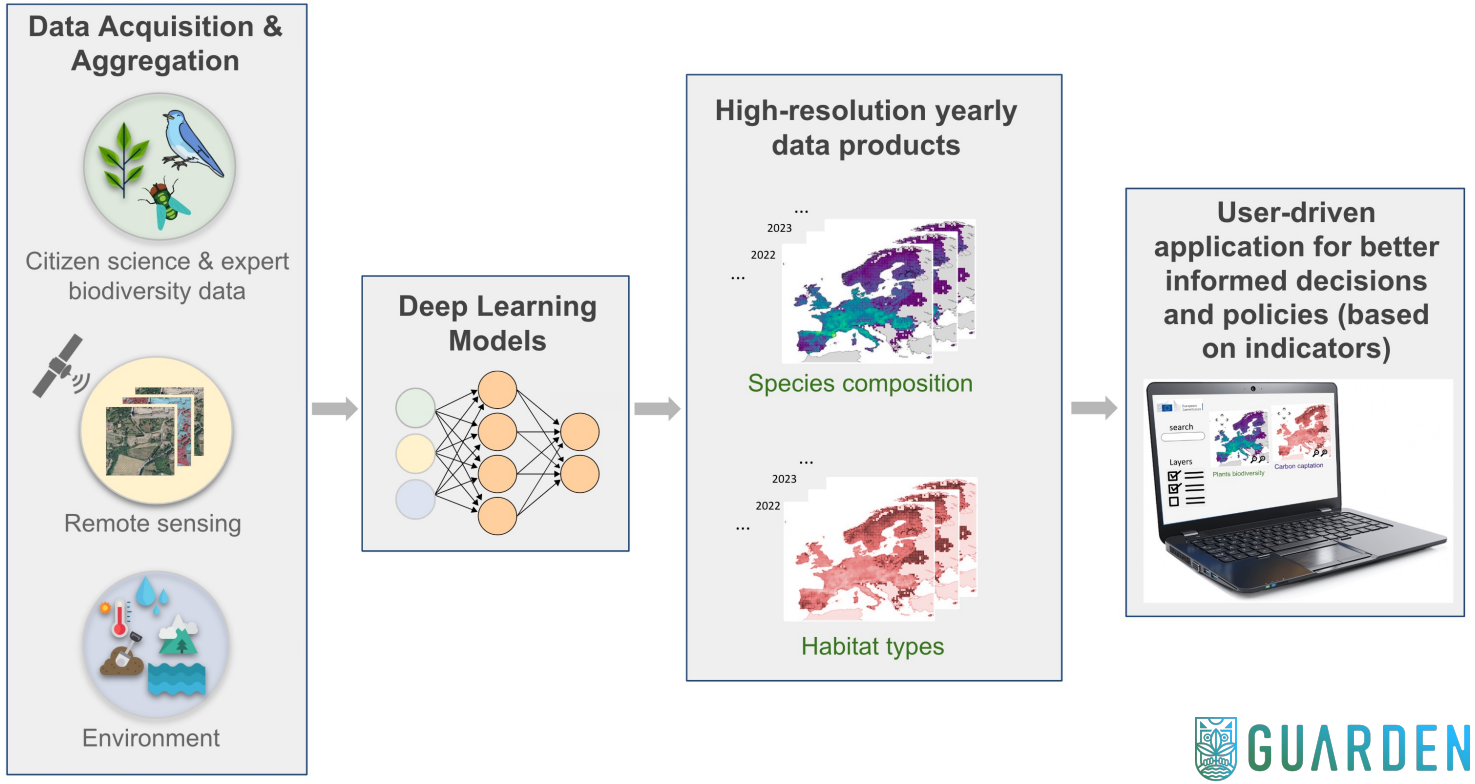
(i) build-up a **new generation of predictive models** of biodiversity and ecosystem status indicators under multiple pressures,

(ii) and propose a set of **complementary ecological indicators** likely to be incorporated into local management and policy.



50m resolution grid, 10km x 15km

From Deneu et al., 2022. **Very High Resolution SDM Based on Remote Sensing Imagery**. *Front. Plant Sci.* 13:839279. https://doi.org/10.3389/fpls.2022.839279



GUARDEN

Our Operational objectives

• Obj. 1 : To activate **Multi-Stakeholder Partnerships** (MSPs) for improved governance of biodiversity (WP2-6) - *Identification of at least 100 stakeholders*

• Obj. 2 : To deliver open, scalable, secure and interoperable methods and tools **to quantify and characterize change in biodiversity and related ES** (WP3) - *High spatial resolution of mapping EU directive's species and habitats & the monitoring of at least 30 species communities*

• Obj. 3 : To deliver a set of **ICT** tools and tailored **DSA** that transform scientific outputs to actionable knowledge (WP4) - *5 user-friendly DSAs undertaken by the CS*

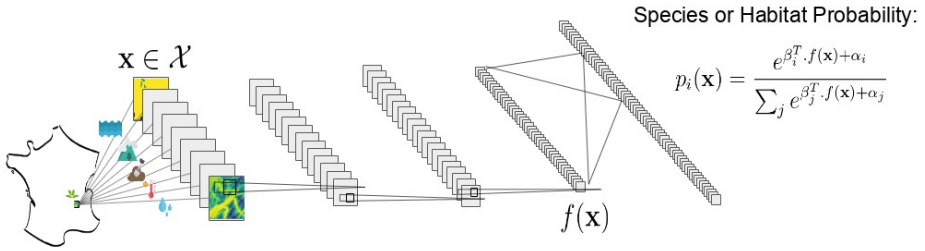
• Obj. 4 : To demonstrate the benefits of GUARDEN in diversified and heterogeneous **Case Studies** with the direct participation of end-users (WP5) - *35 alternative policy / management options considered*

• Obj. 5 : To accelerate the adoption of the GUARDEN DSAs, by **establishing close links and synergies with existing projects and initiatives**, and by pursuing extensive dissemination, communication and capacity building activities (WP6) - At least 15 networking events organised in ≥8 countries to attract relevant stakeholders

Innovation areas

• 1 : **Community-level Species Identification Tools** *-> to increase capacity to analyze multimedia data recording plant and animals communities.*

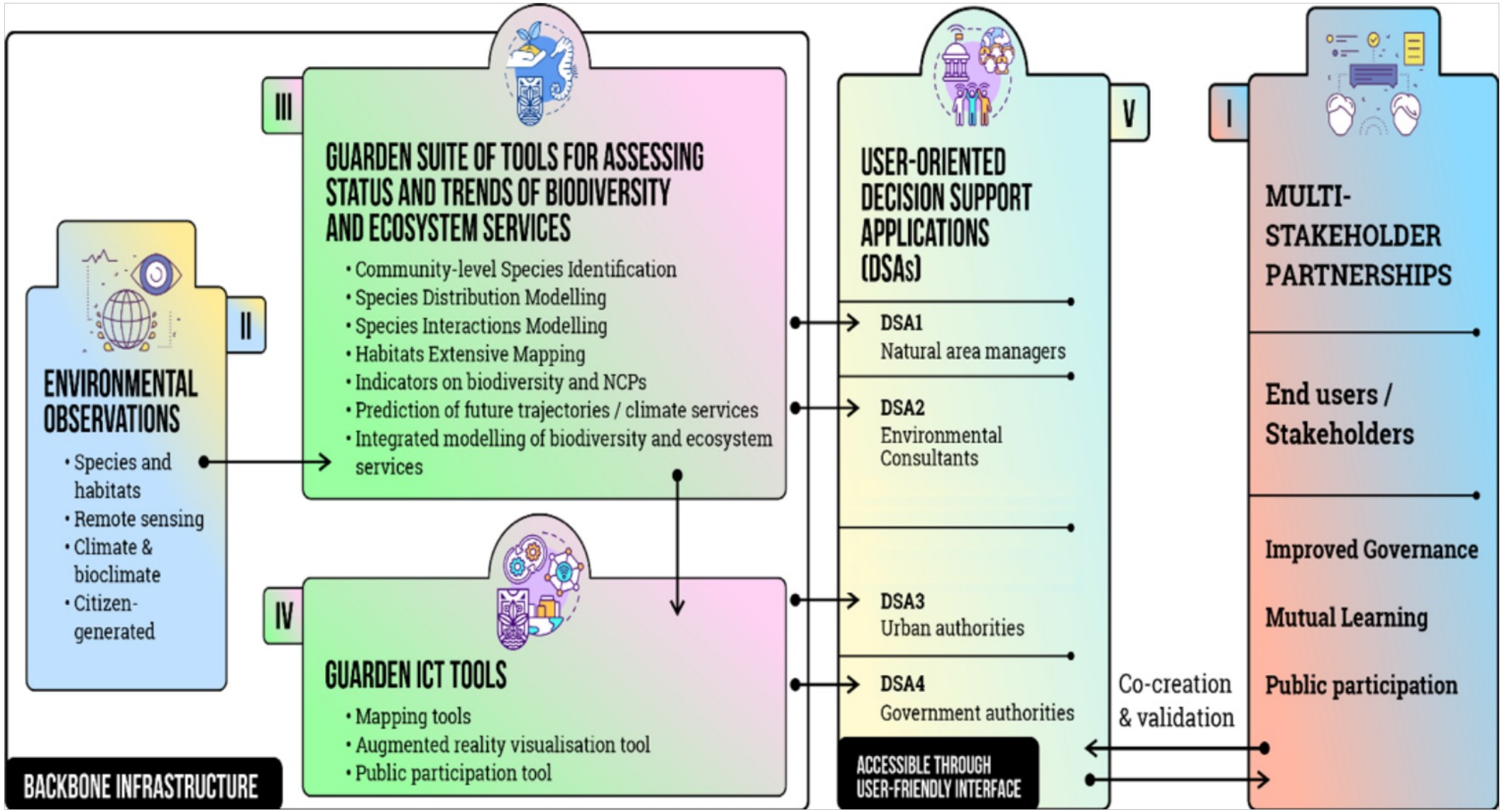
• 2 : **High-resolution Mapping of Species and Habitats Distributions using Deep Learning, Earth Observation and Species interactions** *-> to capture phenological patterns for the characterisation of the habitats and measuring habitat changes along the years.*



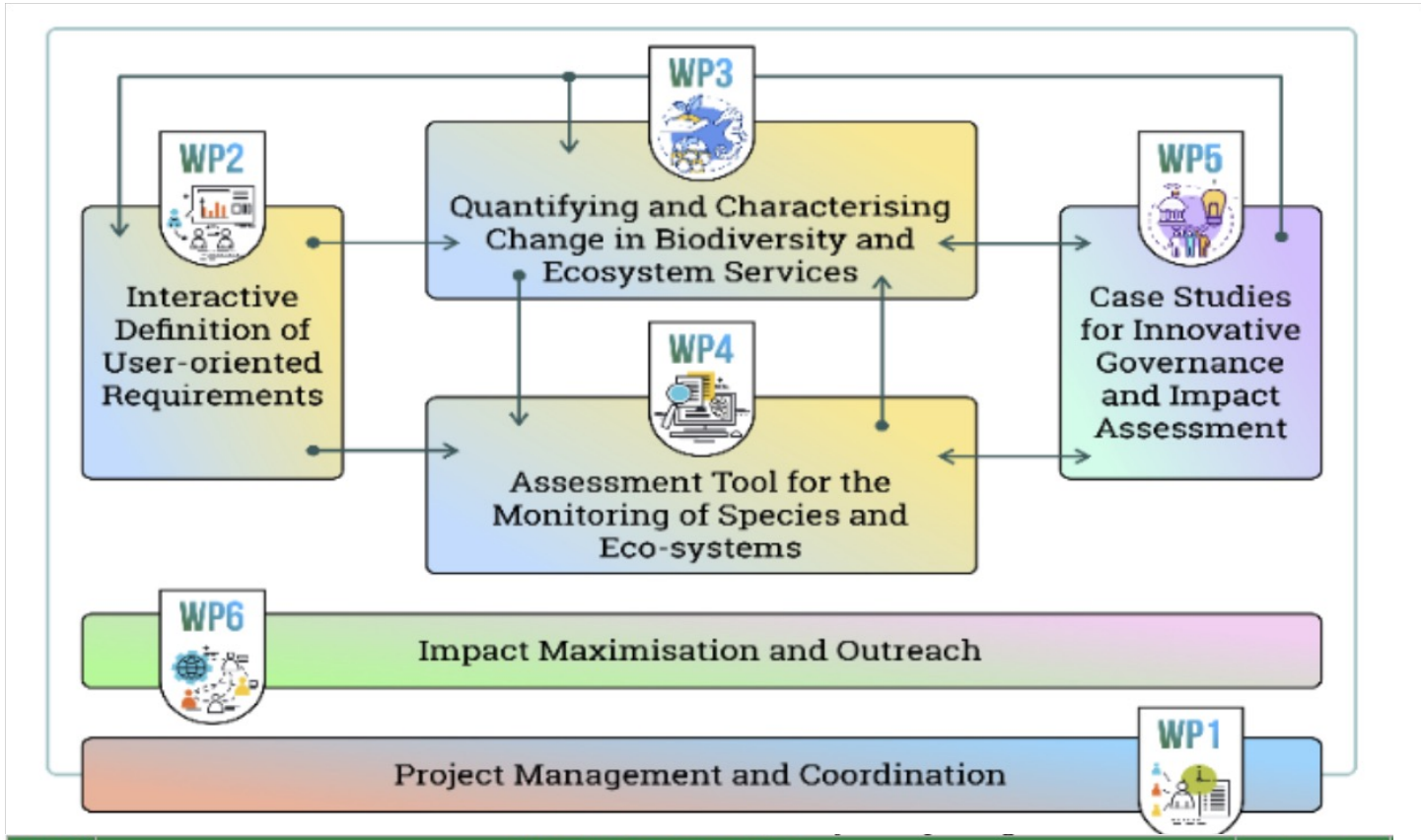
• 3 : **Integrated modelling of biodiversity and ES addressing policy objectives** *-> integration of multiple data sources & use of those in participatory modelling approaches for the quantification and mapping of ES.*

• 4 : **User-centred design and public participation** *-> The GUARDEN DSAs tools will be developed in a collaborative manner with intended end users.*

GUARDEN concept

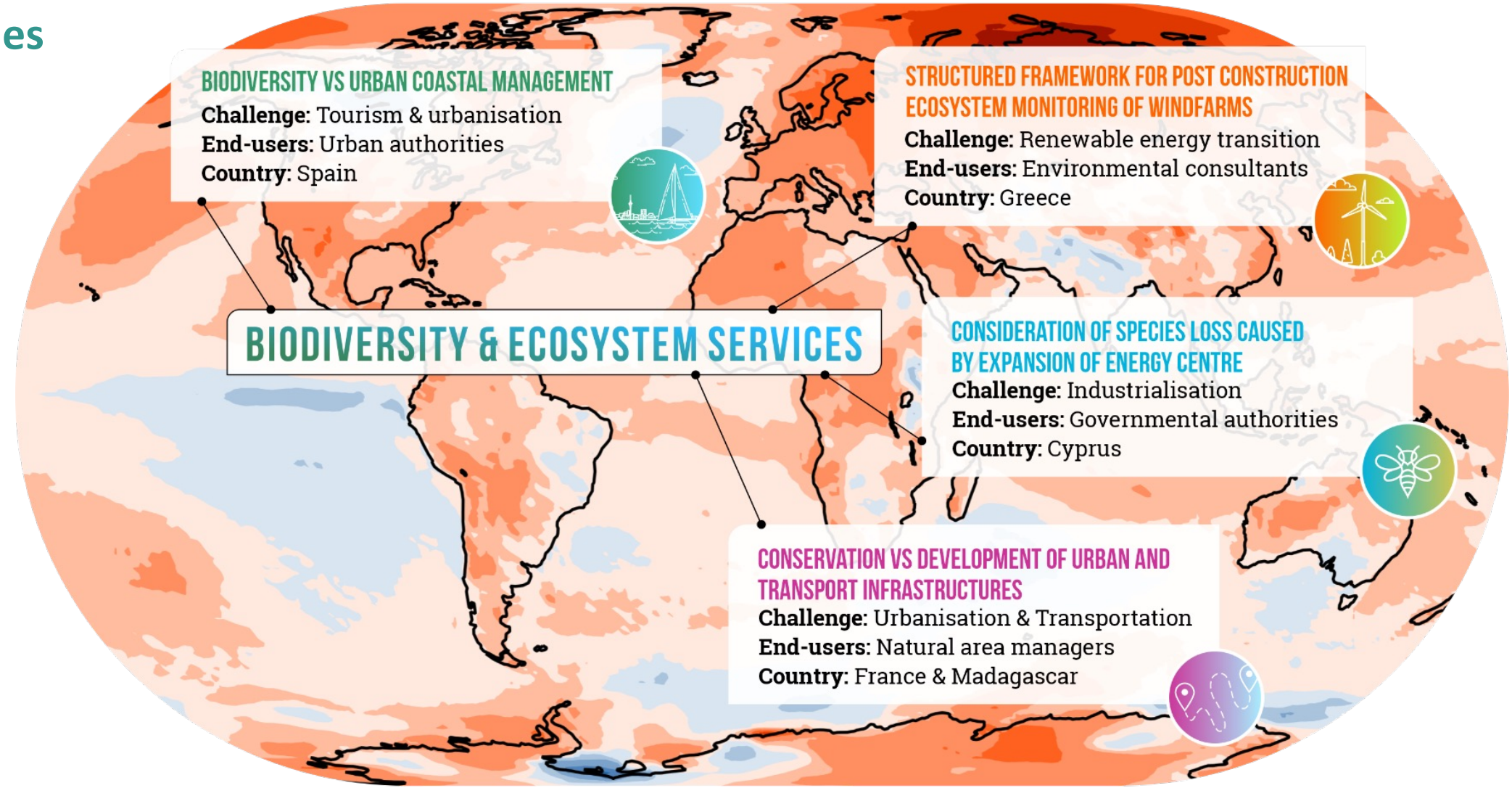


WP dependencies



WP#	Work Package Title	Lead
WP1	Project Management and Coordination	**CIRAD**
WP2	Interactive Definition of User-oriented Requirements	**DRAXIS**
WP3	GUARDEN Suite of Tools for Quantifying and Characterising Change in Biodiversity and Ecosystem Services	**INRIA**
WP4	GUARDEN ICT Tools, System Integration, and Decision Support Applications	**CSIC**
WP5	Case Studies for Innovative Governance and Impact Assessment	**EBOS**
WP6	Impact Maximisation and Outreach	**CIRAD**

Cases studies



Thank you !

cirad

Inria

eBOS Technologies

DRAXIS
ENVIRONMENTAL TECHNOLOGIES

Naturalis
Biodiversity
Center

Meise
Botanic Garden

FREDERICK UNIVERSITY

HAROKOPIO UNIVERSITY
GEOGRAPHY DEPARTMENT

CSIC
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

PML | Plymouth Marine Laboratory

ΕΠΙΣΕΥ
ICCS

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PORQUEROLLES

IZAY ADALA NO TOA AN-DRAINY

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