



ASSESSMENT

Policy

LESSONS



RESEARCH

Communication



Assessment

Policy

Spanish NEA:
From research applications
to policy implications



Lessons



Research

Communication

Assessment

Spa

From

TIMELINE

Biophysical assessment

Socio-cultural & economic assessment

Conceptual
framework
design

Integral analysis

Ecosystems &
biodiversity

Ecosystem
services & human
wellbeing

Direct & indirect
drivers of change

Spatial analysis

Systematic review

Participatory
scenarios

Market based
methods

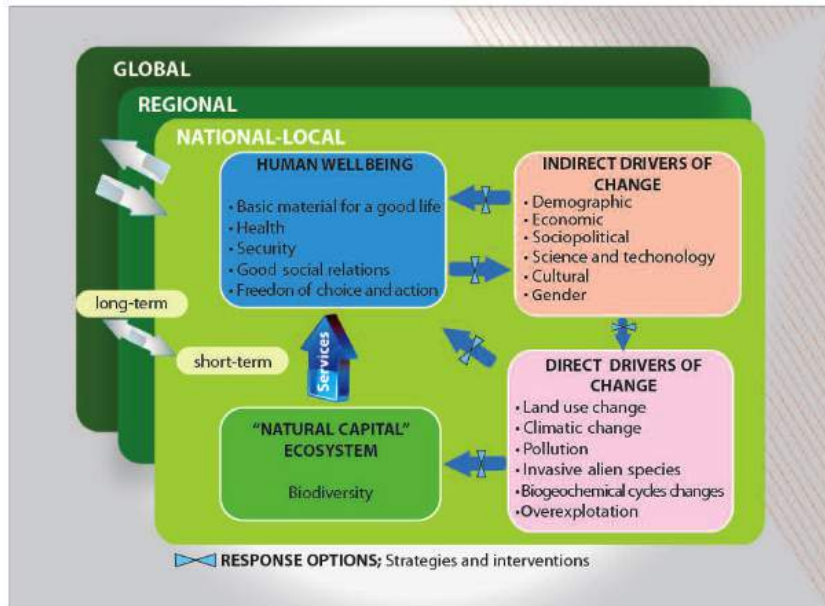
Stated methods
and preferences

2010

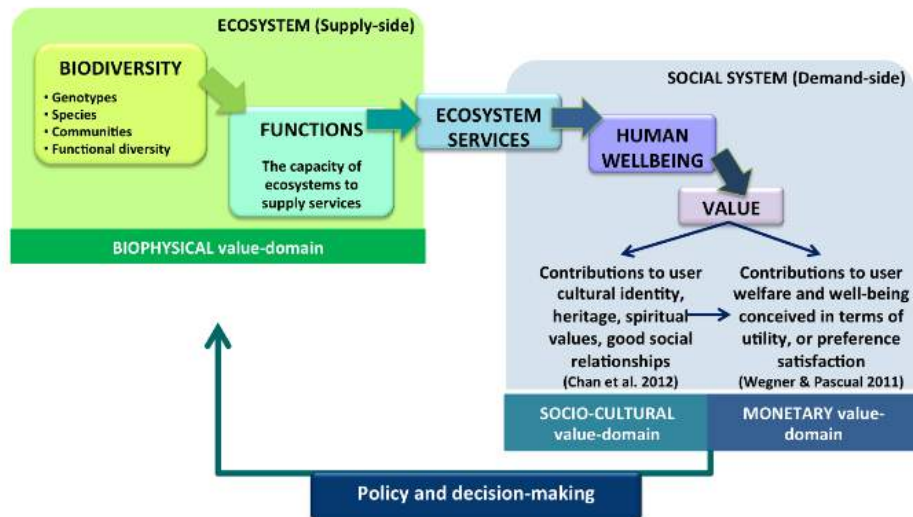
2012

2014
(on going)

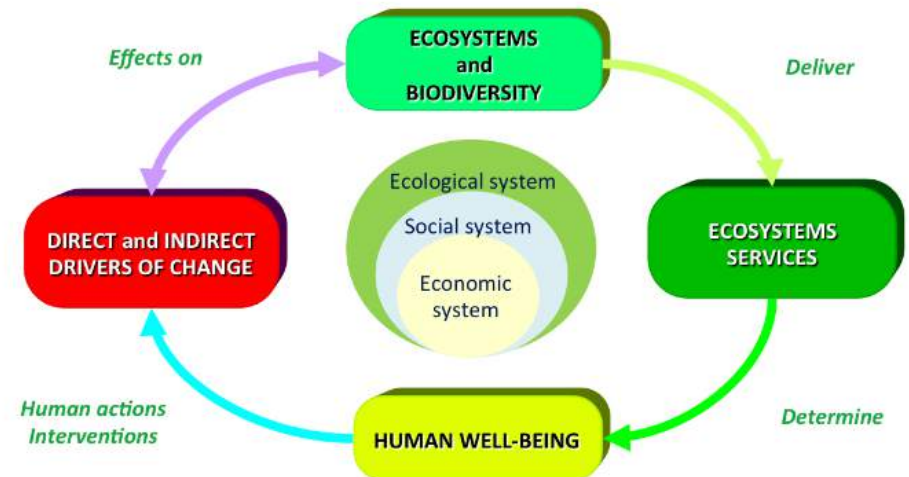
FRAMEWORKS



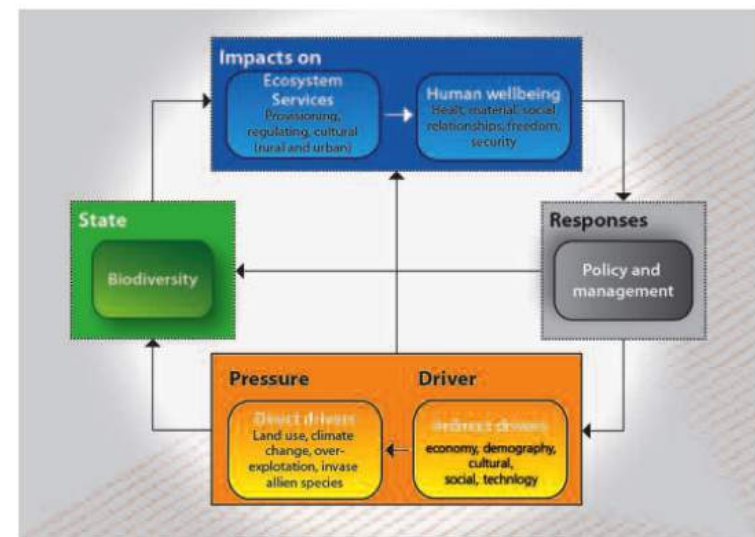
MA, 2005



Martín-López et al, 2013

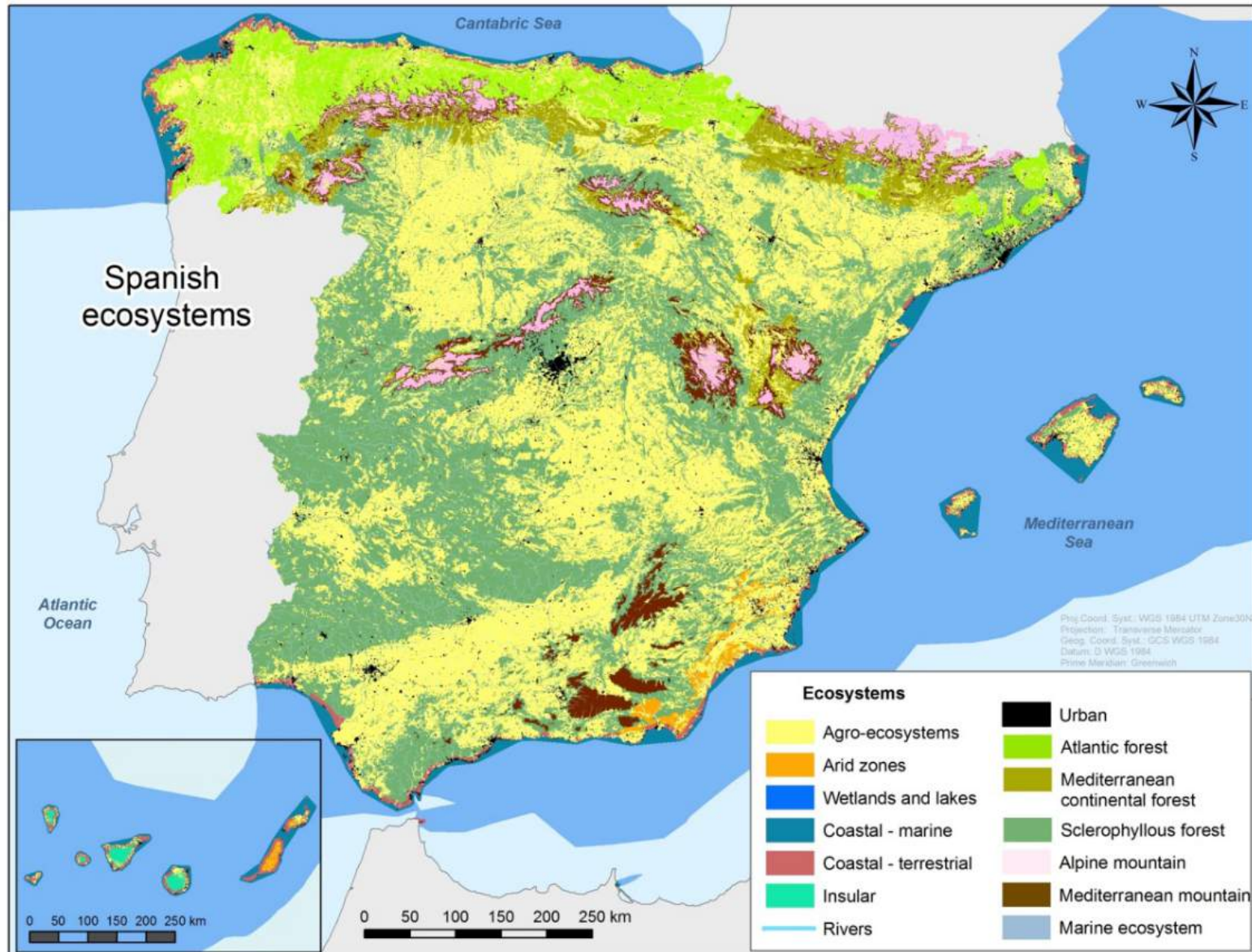


EME, 2011



Santos-Martín et al, 2013

14 ECOSYSTEMS



ES CLASSIFICATION

ES Type	Spanish NEA	MA	TEEB	CICES
Provisioning services	Crops and Livestock	Food (fodder)	Food	Terrestrial plants and animal foodstuffs
	Aquaculture product			Freshwater plants and animal foodstuffs
	Wild plants and animals			Marine algae and animal foodstuffs
	Domestic water use	Fresh water	Water	Water for human consumption
	Agricultural water use			Water for agricultural use
	Industrial water use			Water for industrial and energy use
	Biotic materials (i.e. timber, pulp, vegetal fibers)	Fibre, timber	Raw Materials	Biotic materials
	Gene pool (Native breeds and varieties, genetic information of biotechnological interest)	Genetic resources	Genetic resources	Biotic Materials (Genetic resources)
	Natural medicines (Active ingredients for traditional medicines and pharmaceutical industry)	Biochemicals	Medicinal resources	Biotic Materials (Medicinal and cosmetic resources)
		Ornamental resources	Ornamental resources	Biotic Materials (Ornamental resources)
	Renewable Energy (biomass based and hydropower)			Biomass based energy

ES SELECTION

We selected 22 ecosystem services from the provisioning ($N=8$), regulating ($N=7$) and cultural categories ($N=7$).



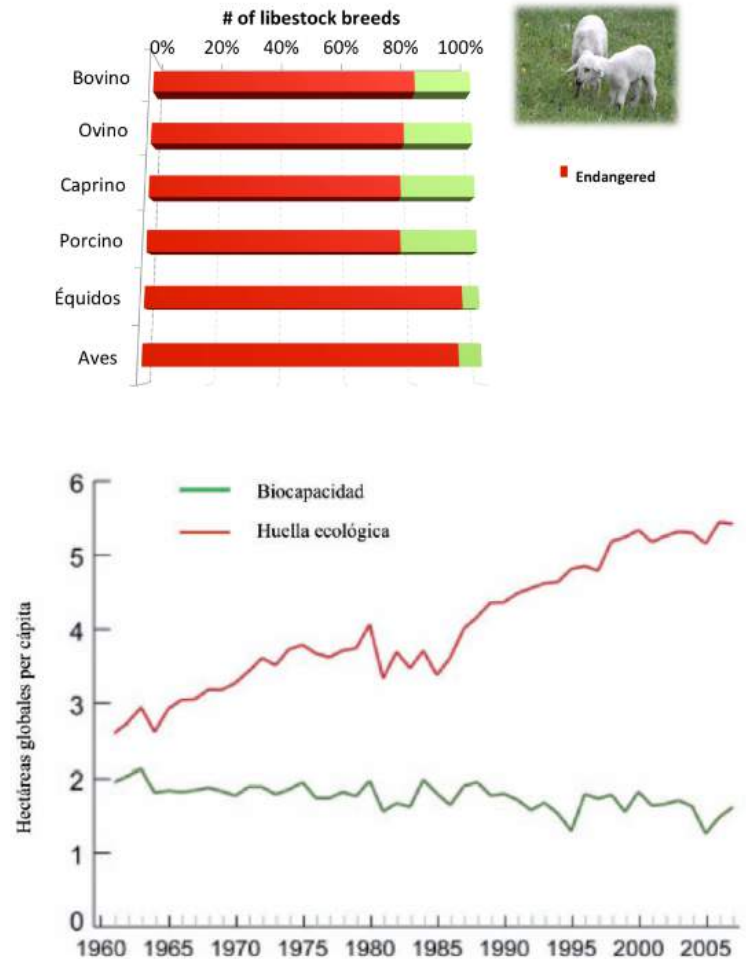
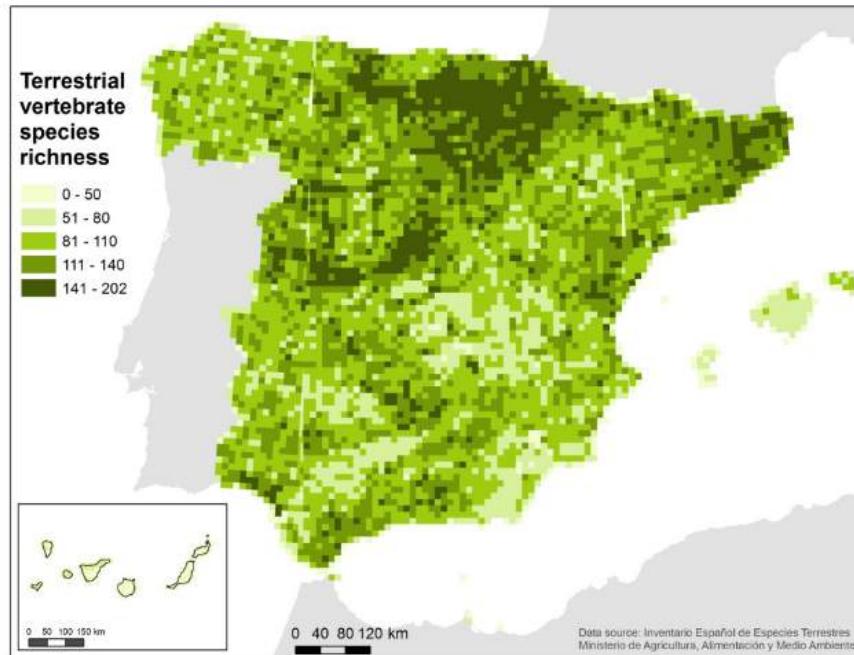
We assessed the influence of direct and indirect drivers of change.

Direct drivers
✓ Land use change
✓ Climate change
✓ Pollution
✓ Invasive alien species
✓ Overexploitation

Indirect drivers
✓ Demographic
✓ Socio-political
✓ Gender
✓ Cultural
✓ Economic
✓ Science & Technology

TYPE OF DATA

(measure, indicator, index....)

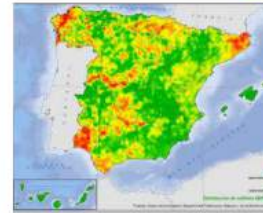


SOURCES OF DATA

National Statistic



Spatial information



In-situ Observations
(case studies)



Simulation Models



STATE OF ES DATA

Provisioning services



Regulating services



Cultural services



Supply metrics



Service metrics

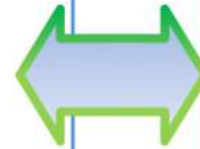


Benefit metrics



STAKEHOLDERS

- ✓ Network of researchers (National Research Council –CSIC- and Universities)- More than 60 researchers from 20 institutions
- ✓ Ministries
- ✓ Regional Governments
- ✓ Spanish Observatory of Sustainability (OSE)
- ✓ Network of complementary projects
- ✓ Communication Unit
- ✓ International advisory board
- ✓ Stakeholders involved: NGOs, enterprises, general population



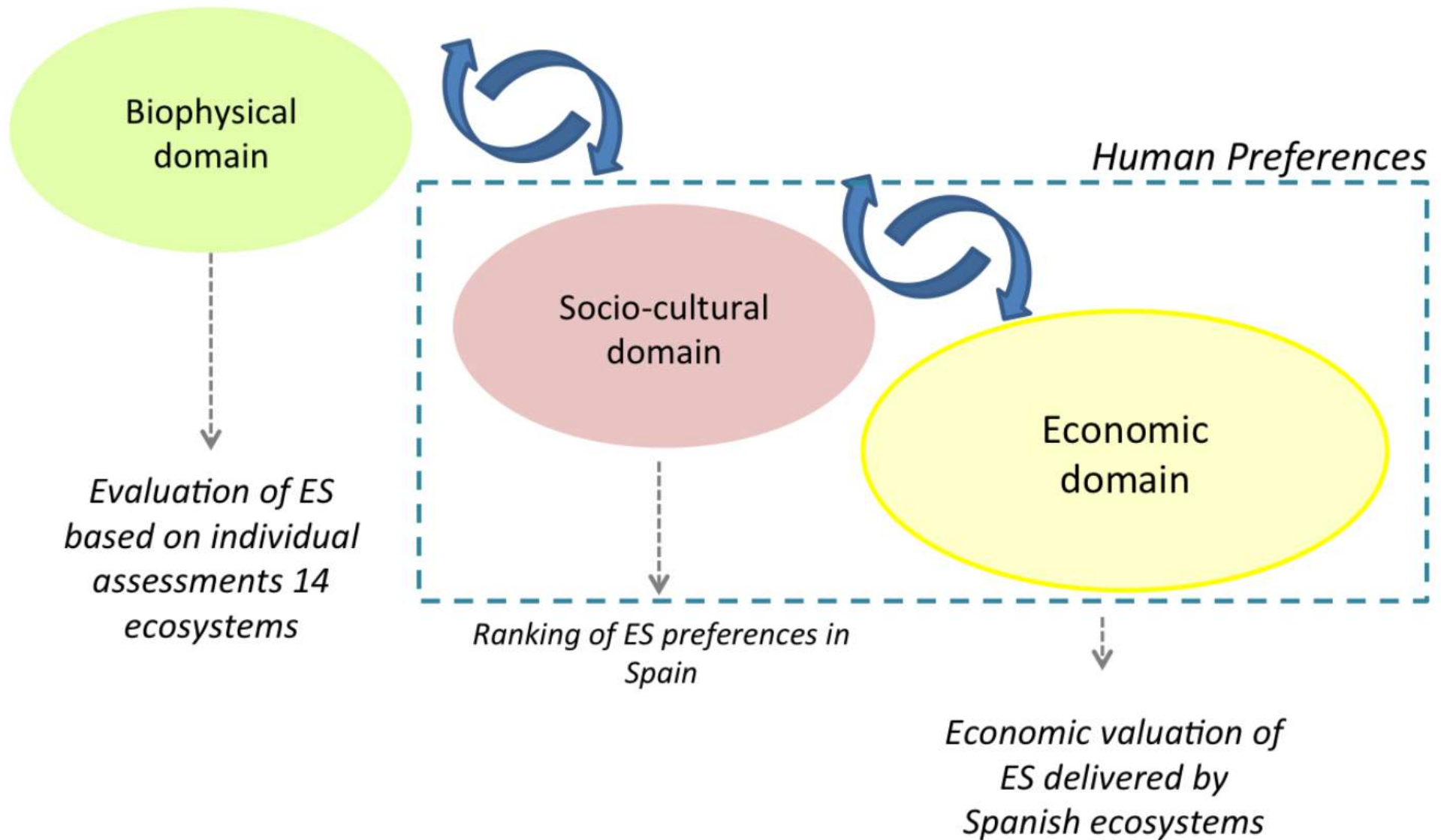
- ✓ Data bases
- ✓ Cartographic information
- ✓ Literature review
- ✓ Expert panels
- ✓ Focus groups
- ✓ Workshops
- ✓ Interviews
- ✓ Questionnaires



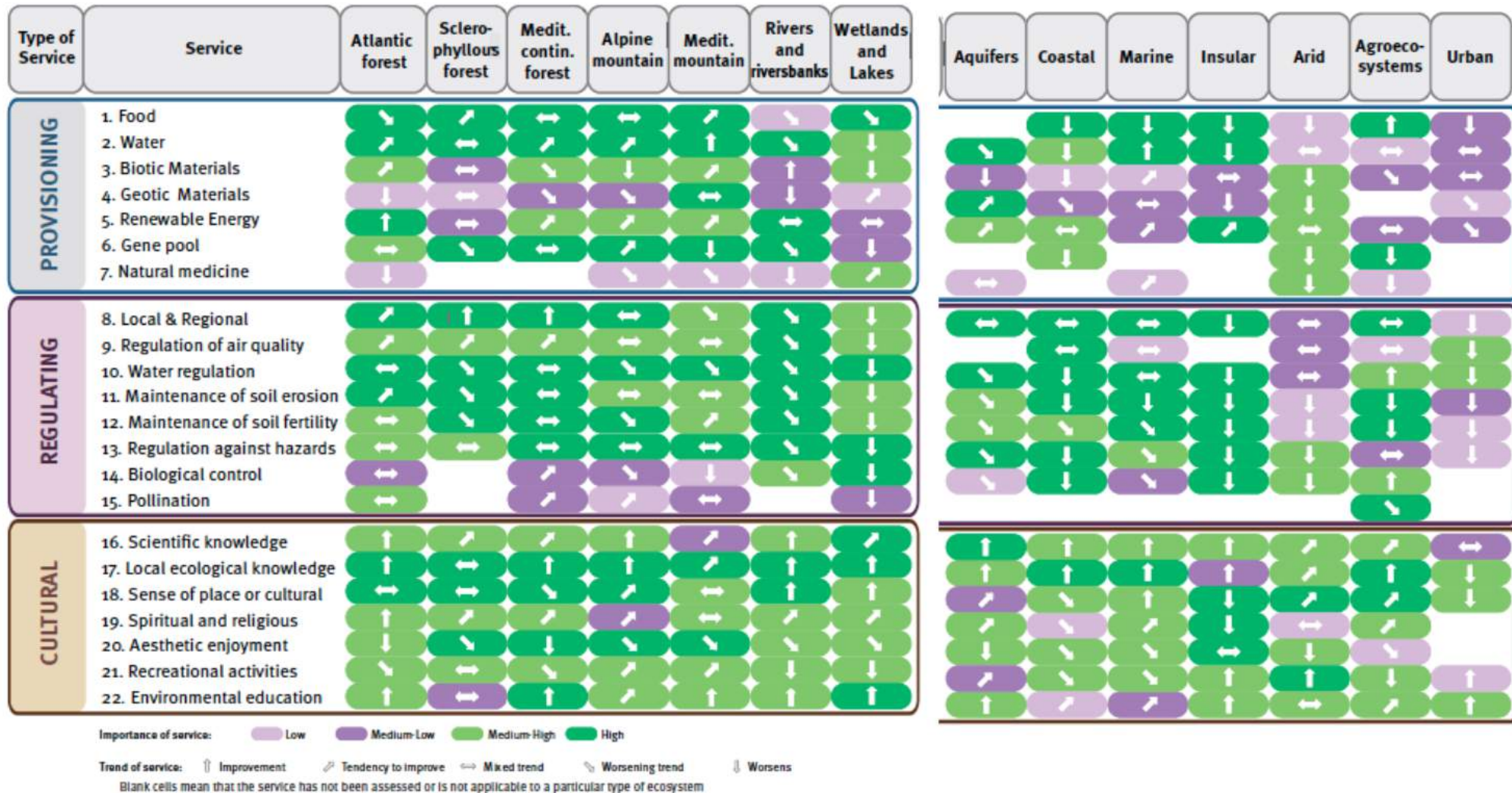


Research

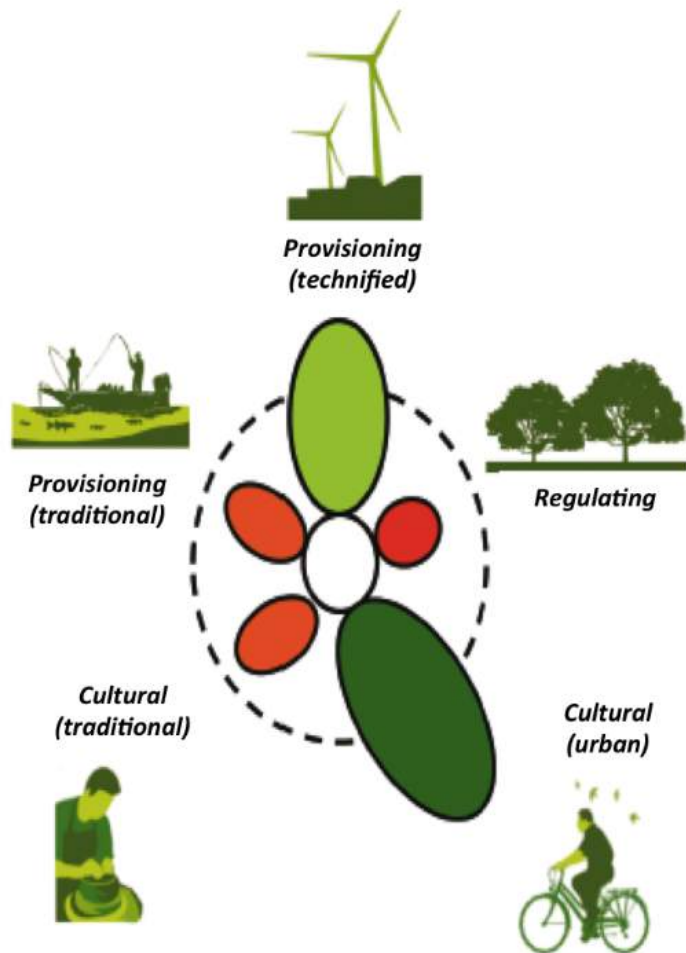
Biophysical, Social and Economic results



ES Biophysical Assessment



Biophysical Key findings



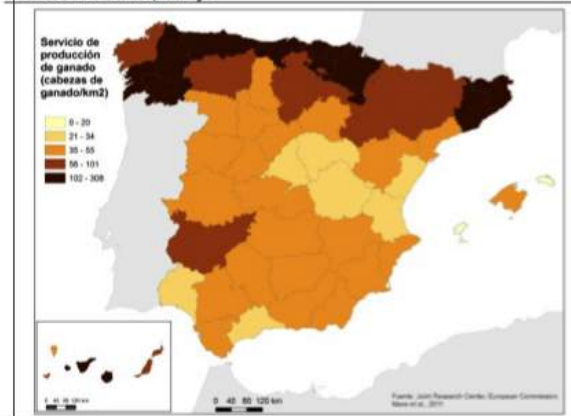
63% of provisioning
87 % of regulating and 29% of
cultural services has been
degraded

ES Mapping

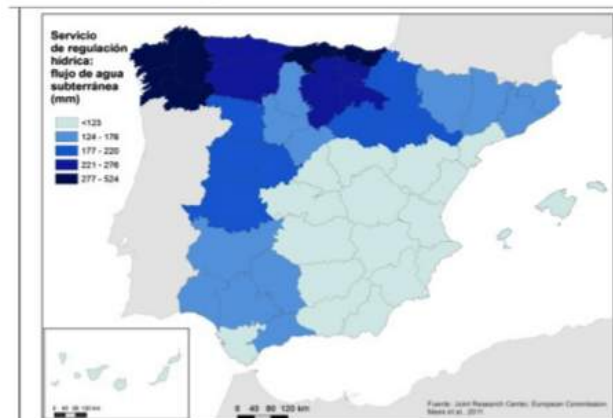
7 Provisioning



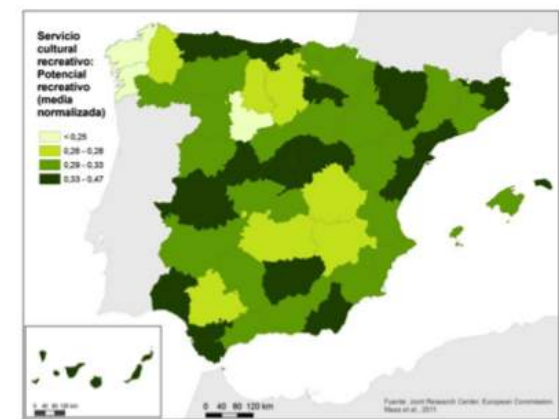
Producción, flujo



12 Regulation



1 Cultural

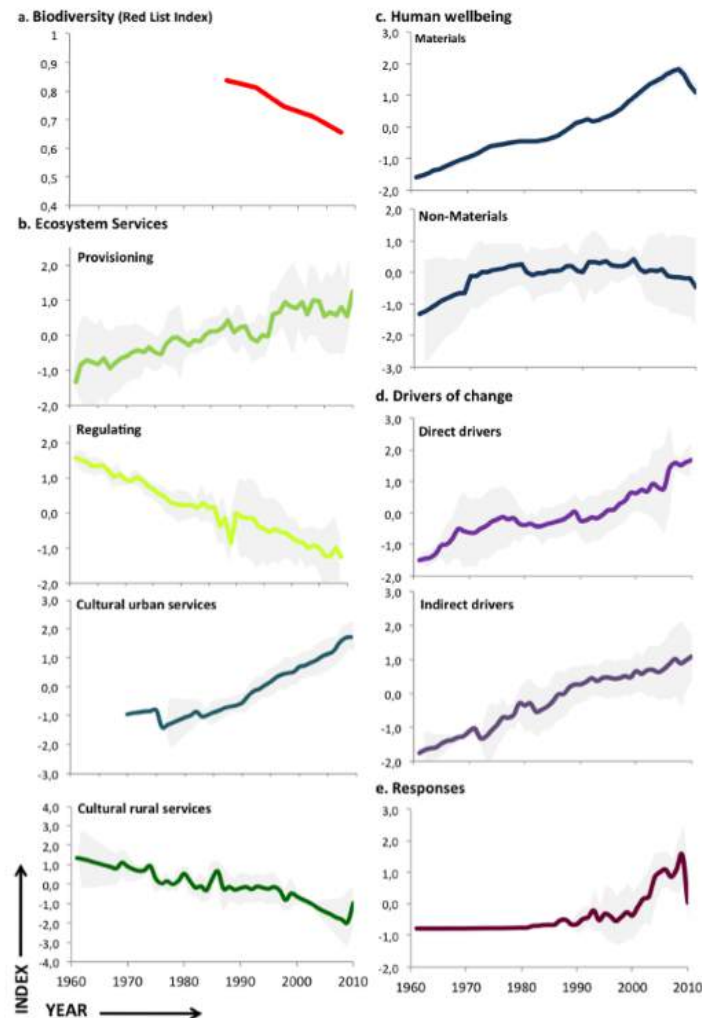


JRC (Joint Research Centre, 2011)

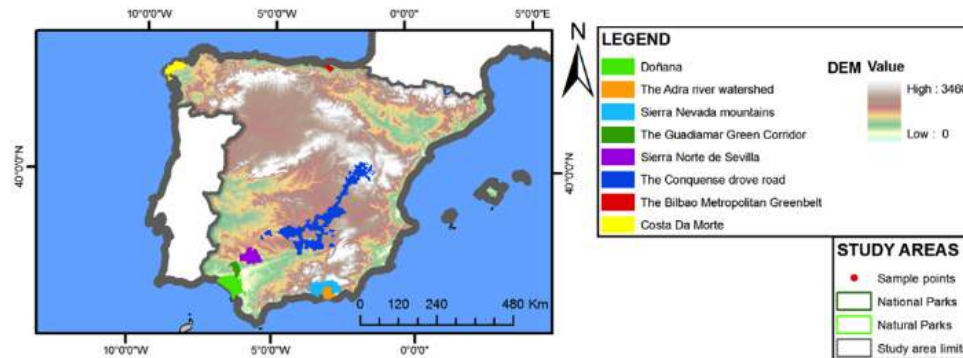
Main drivers of change

Ecosystem services		Trend	Importance	Status*	Indicators	Direct drivers of change					
						Land use change	Climate change	Pollution	Biochemical cycles	Over-exploitation	Invasive alien sp.
PROVISIONING	Food	Agriculture				Production of cereals, fruit and olive	✓	✓		✓	✓
		Livestock				Production of meat		✓		✓	✓
		Beekeeping				Production of <i>Apis mellifera</i>		✓			✓
		Aquaculture				Total aquaculture production				✓	
	Water					Water harvesting for human use	✓	✓	✓	✓	
	Biotic materials	Wood				Wood production	✓			✓	✓
		Paper				Paper pulp production	✓			✓	✓
	Geotitic materials					Cement production	✓			✓	
	Energy					Installed hydroelectric power		✓		✓	
	Gene pool					Based on Ecosystem Assessment	✓				✓
REGULATING	Natural medicines					Based on Ecosystem Assessment		✓		✓	
	Clima regulation					CO ₂ Ratio of emissions and sequestration	✓	✓	✓	✓	
	Air quality					Greenhouse gas emissions	✓	✓	✓	✓	
	Hydrological and water depuration					Water in soil, snow, groundwater and self-cleaning capacity	✓	✓	✓	✓	✓
	Erosion control					Based on Ecosystem Assessment	✓	✓			
	Soil fertilization					Nitrogen fertilizers	✓		✓	✓	✓
	Disturbance regulation					Forest fires	✓	✓		✓	✓
	Biological control					Number of alien exotic sepecies	✓	✓	✓	✓	✓
CULTURAL	Pollination					Based on Ecosystem Assessment	✓	✓	✓		✓
	Scientific knowledge					Number of Spanish scientific publications on ecosystems	✓	✓	✓		
	Recreational activities					Number of tourist accommodations, visitors and overnight stays	✓	✓	✓		
	Aesthetic value					Based on Ecosystem Assessment	✓	✓			
	Environmental education					Equipment for environmental education		✓	✓		✓
	Local ecological knowledge					Traditional use of cork and sheep transhumance	✓			✓	✓
	Spiritual value					Based on Ecosystem Assessment	✓		✓		
Sense of belonging					Based on Ecosystem Assessment	✓					✓

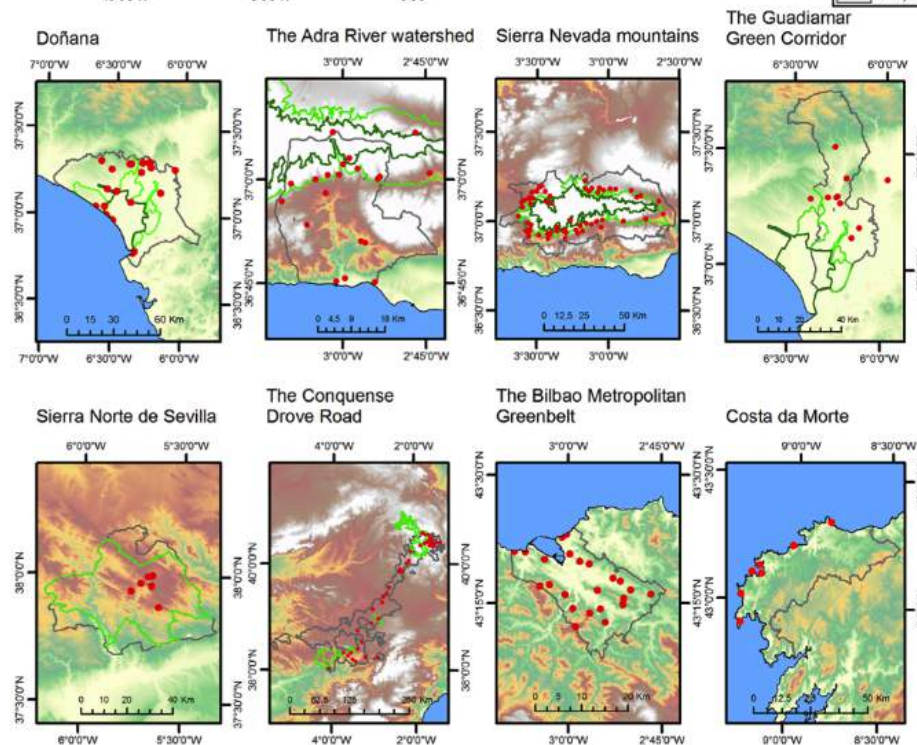
Integration of DPSIR components



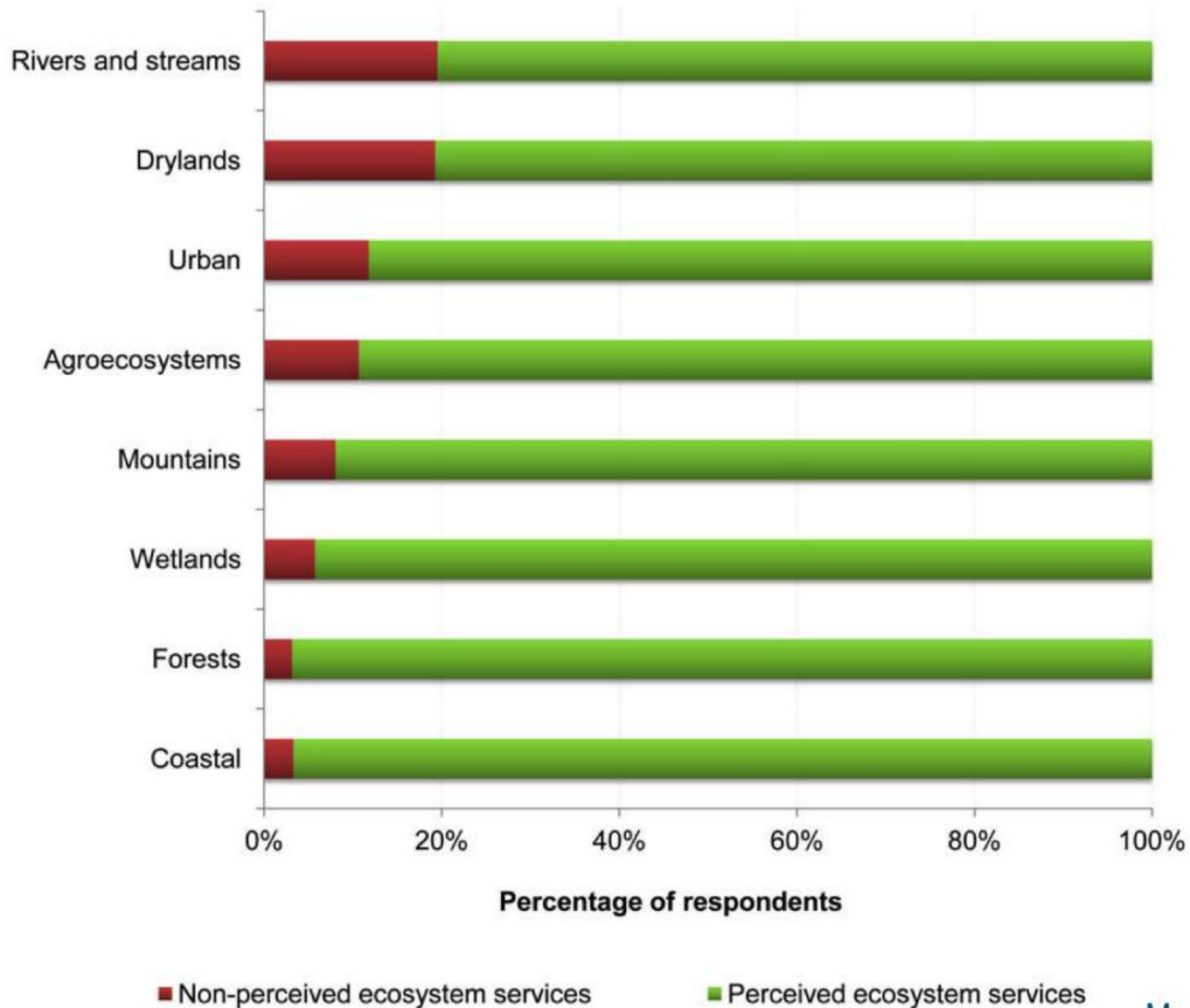
ES Social assessment



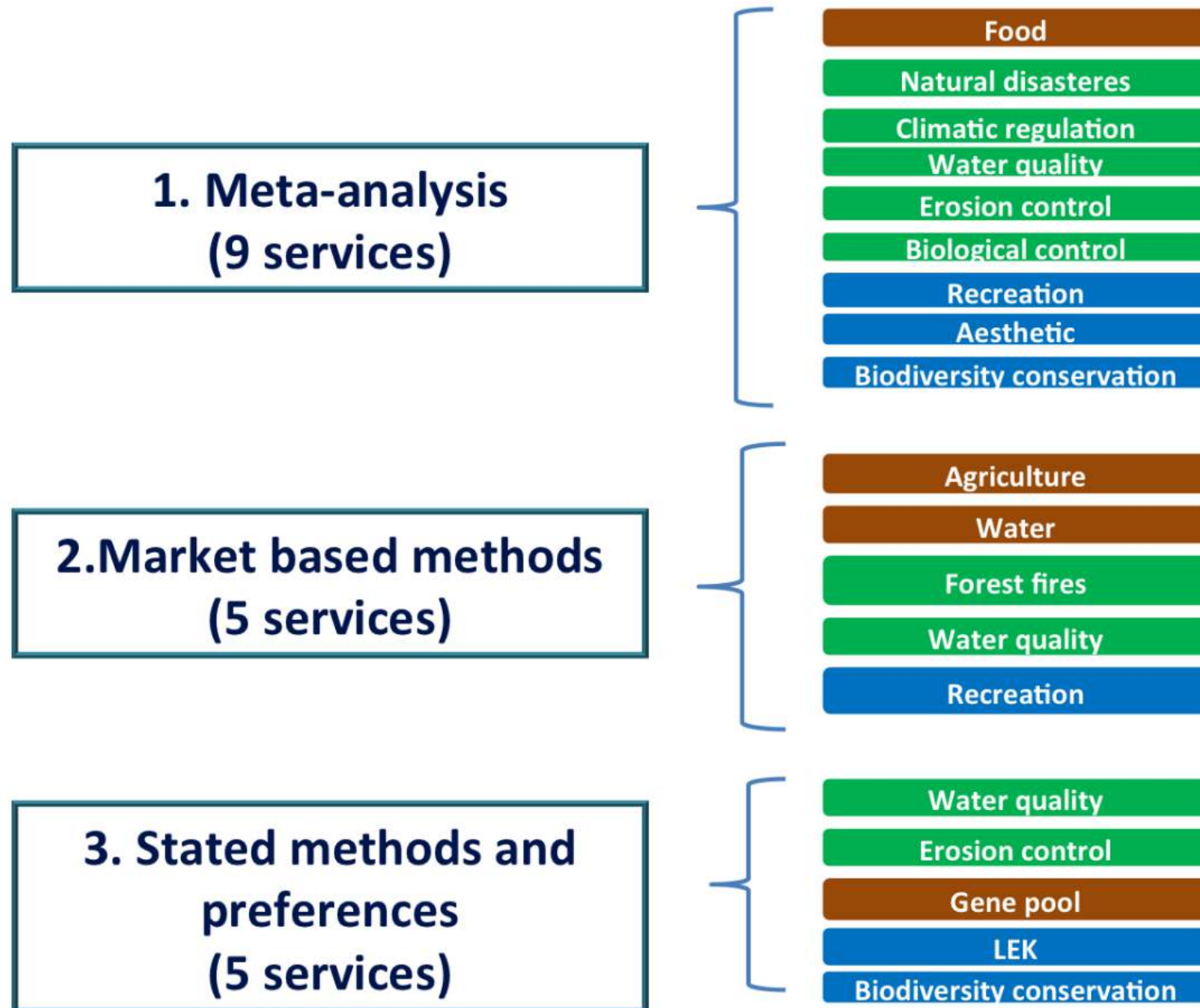
Conducted 3,379 direct face-to-face questionnaires in eight different case study sites



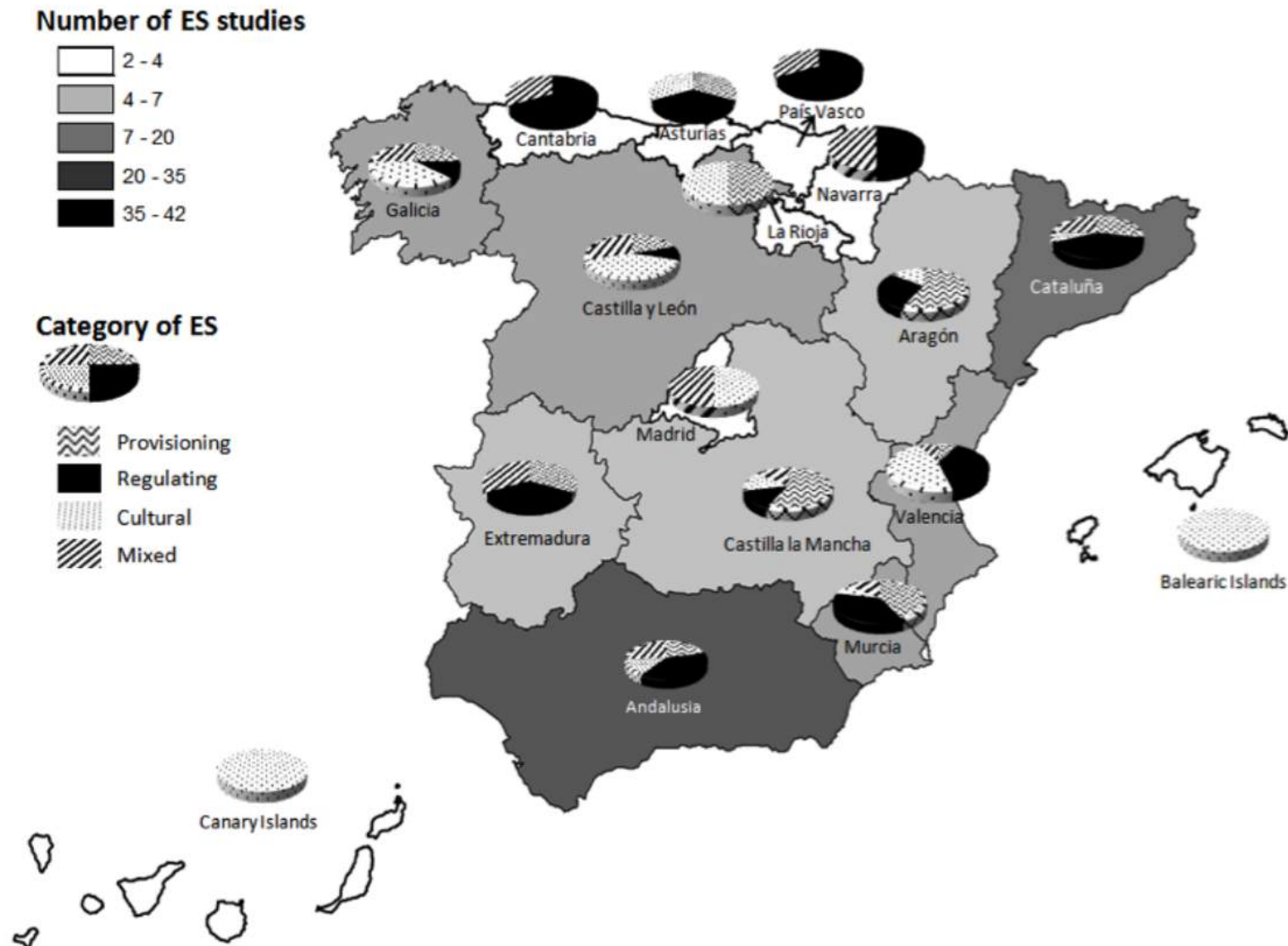
ES Social Preferences






ES Economic Assessment



Meta-analysis: State of the art of ES economic valuation



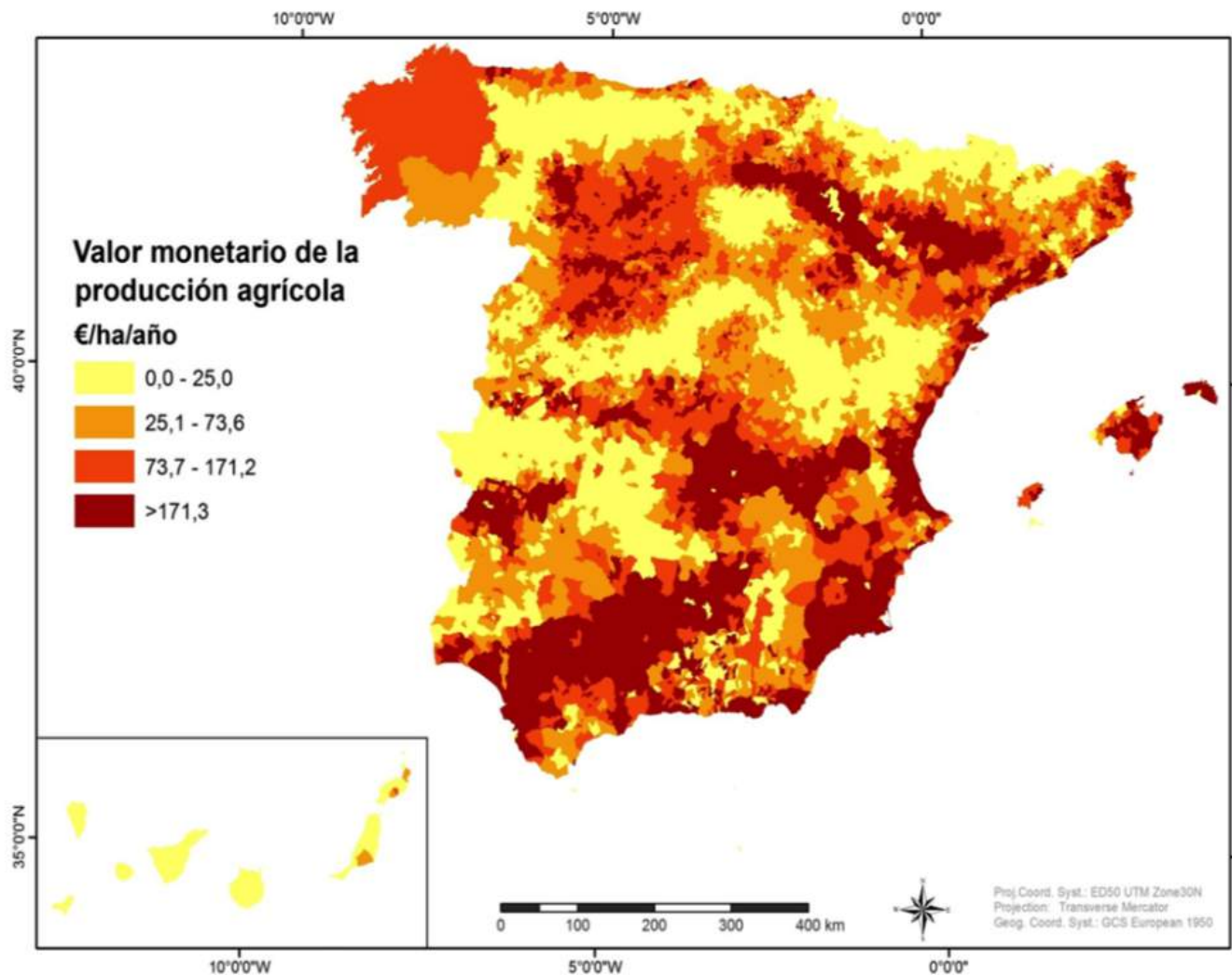
Stated preference methods: Choice experiment

Tarjeta 1 de 9 (bloque 1)			
	Opción de futuro 1	Opción de futuro 2	Opción futuro 3: Mantener tendencia actual
CALIDAD de AGUA de los RÍOS y sus RIBERAS	RESTAURACIÓN 84% tiene buen y muy buen estado 	COMO HOY 58% tiene buen y muy buen estado 	COMO HOY 58% tiene buen y muy buen estado 
CONOCIMIENTO ECOLÓGICO LOCAL	PRESERVACIÓN Puesta en valor y reconocimiento 	COMO HOY Pérdida de conocimiento y abandono de prácticas 	COMO HOY Pérdida de conocimiento y abandono de prácticas 
ESPECIES AMENZADAS	COMO HOY 20% de especies protegidas 	CONSERVACIÓN TOTAL 95% de especies protegidas (anfibios, aves, reptiles, peces, invertebrados, mamíferos, plantas) 	COMO HOY 20% de especies protegidas 
CONTROL de la EROSIÓN del SUELO	COMO HOY 64% superficie con baja erosión 	RESTAURACIÓN 70% superficie con baja erosión 	COMO HOY 64% superficie con baja erosión 
RAZAS GANADERAS AUTÓCTONAS	COMO HOY 70% de razas con programas de mejora 	MEJORA 95% de razas con programas de mejora 	COMO HOY 70% de razas con programas de mejora 
COSTE por HOGAR (impuestos extras) PERIODO 2014-2020	70€/hogar Al año y hasta 2020 	10€/hogar Al año hasta 2020 	0€/hogar NO se llevarán a cabo las propuestas 
Yo prefiero:	<input type="checkbox"/> (pinchar abajo "opción futuro 1")	<input type="checkbox"/> (pinchar abajo "opción futuro 2")	<input type="checkbox"/> (pinchar abajo "mantener")

On-line survey with 800
valid questionnaires
Representative of the
Spanish population
Sampling error <5%

Market based Methods

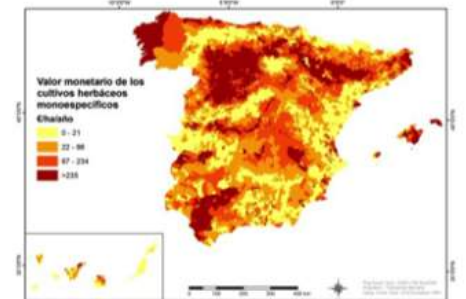
Total (€/ha/año)



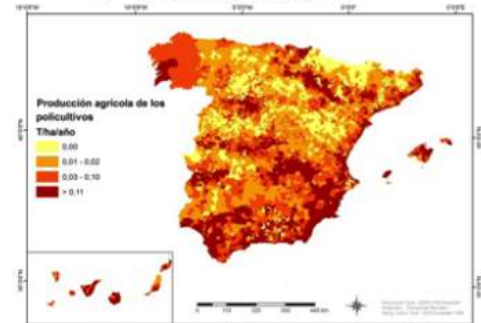
Woody crops



Monoespecific



Policulture



ES Economic Values

		VALOR ECONÓMICO MEDIO (Min - Max)		
		MERCADOS (€/ha/año)	METAANALISIS (€/ha/año)	MODELOS DE ELECCIÓN (€/hogar/año)
Abastecimiento	1. Alimentos	166.4 (0.1 – 8.100)	371.04 (0.91 -1972.65)	
	2. Agua	3.717 875 – 23.000		
	3. Acervo genético			16.35 (12.41- 20.28)
Regulación	4. Regulación climática		181.35 (0.01 -528.44)	
	5. Depuración hídrica	3.717 (875 – 23.000)	135.31 (0.01- 1970.31)	32.58 (27.05-38.11)
	6. Control de la erosión		31.99 (0.87- 234.72)	14.05 (9.85-18.24)
	7. Perturbaciones naturales	1.75 (0.1- 2.700)	262.83 (1.99-1364.45)	
	8. Control biológico		15.43 (0.15 - 56.30)	
Cultural	9. Recreativo o turismo	41 (1- 700)	186.36 (0.44 -1836.90)	
	10. Conocimiento local			14.50 (9.54-19.46)
	11. Sentimiento espiritual		6.26 (0.12-100.03)	22.50 (9.38-25.62)
	12. Disfrute estético		84.84 (0.41- 1871.99)	

Policy

EU Assessments

Country case studies

Belgium

Czech Republic

France

Germany

Norway

Poland

Portugal

Romania

Spain

Switzerland

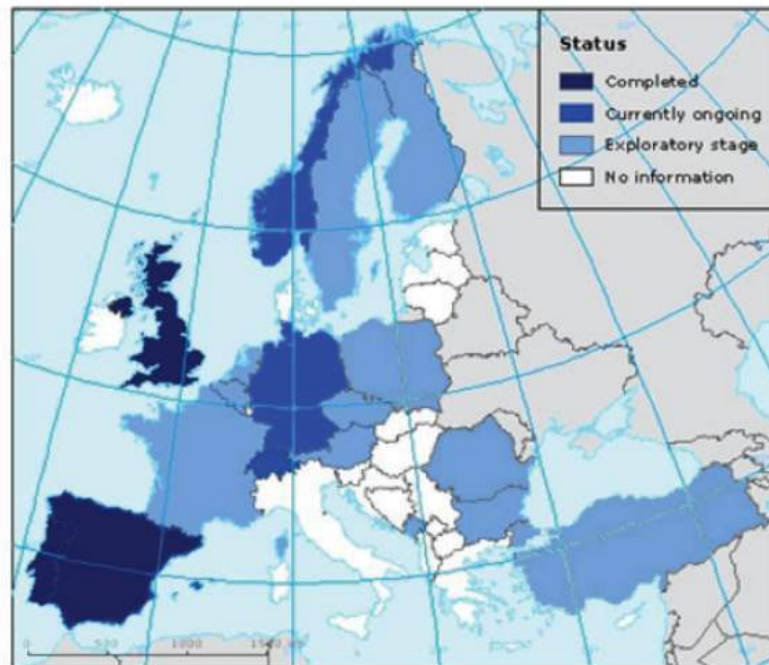
Turkey

United Kingdom

This section aims at recording case studies within Europe. Information, initially collected through a survey conducted in 2010 ([Ecosystem assessments in Europe, 2010 report](#)), is regularly updated based on additional information received from countries (cf "[Ecosystem assessments in Europe Update - June 2011](#)").

For some countries, more information is available by clicking on the map. The case-studies here documented reflect the diversity of approaches and activities among countries.

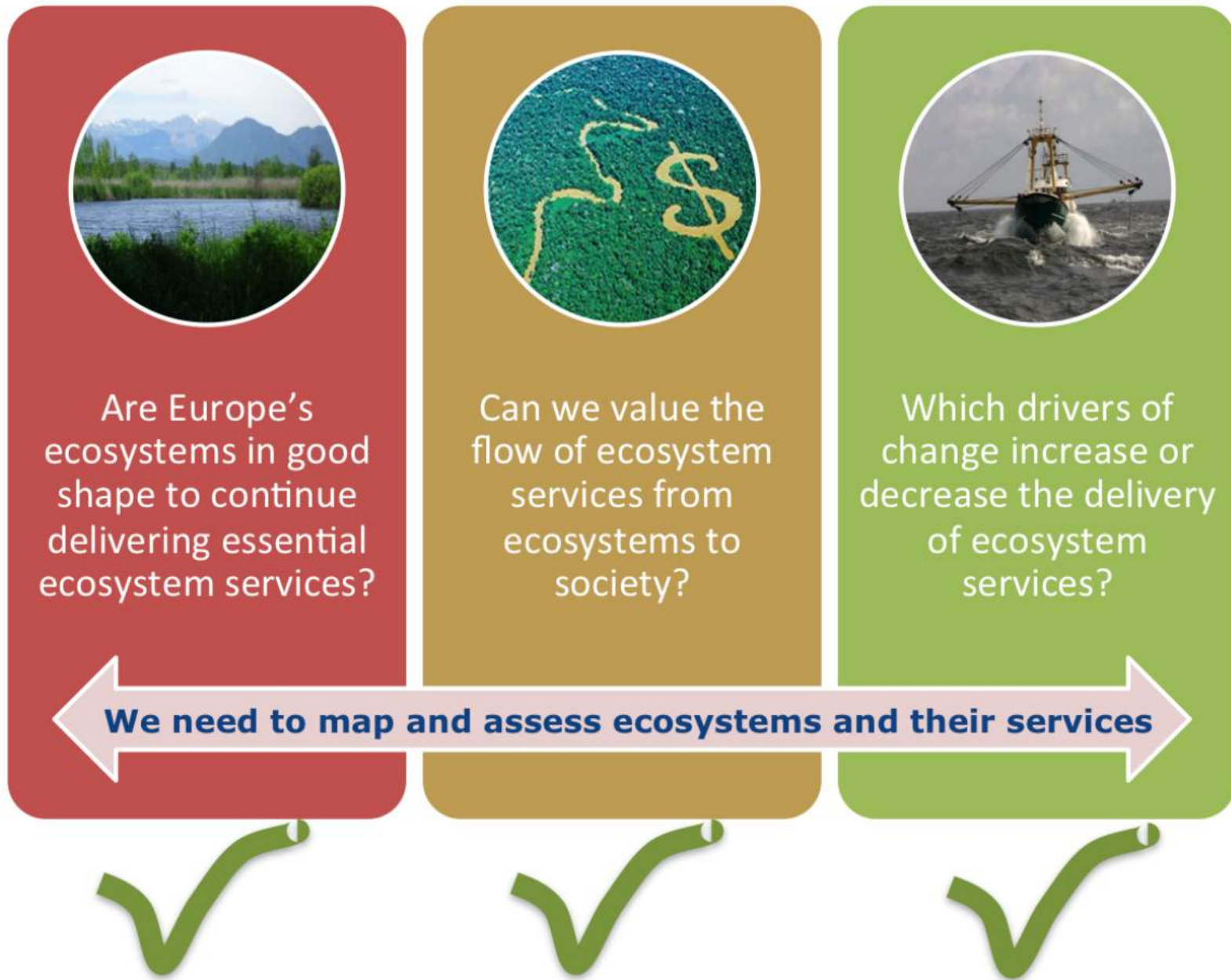
Status of national ecosystem assessments in EEA member countries



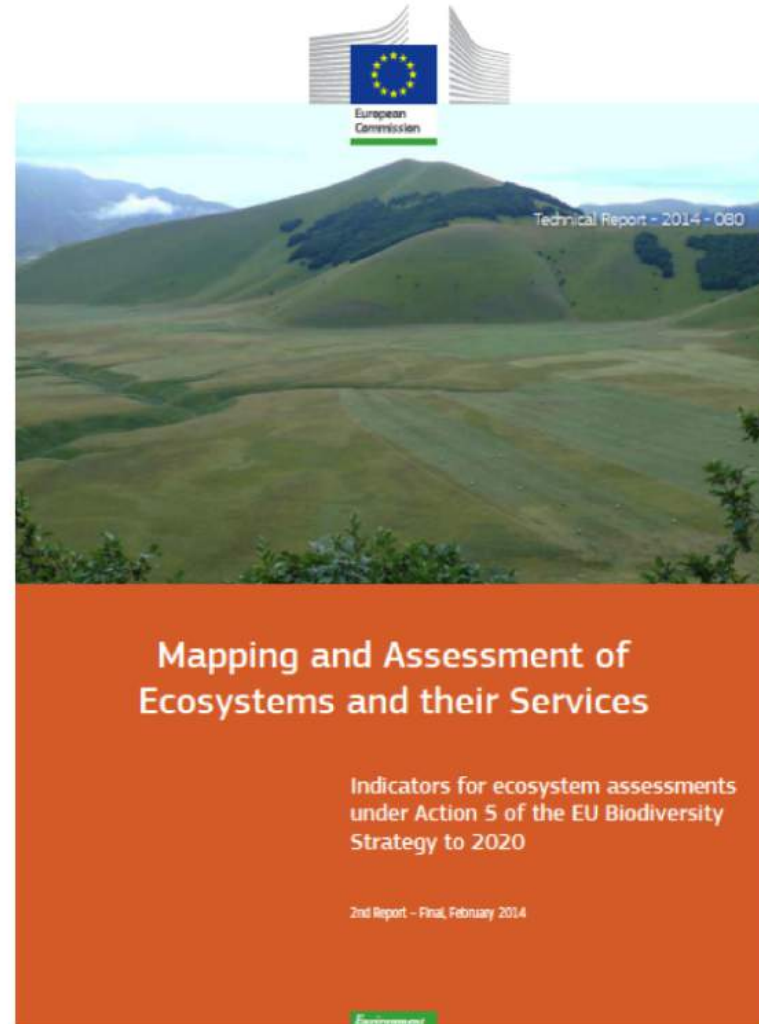
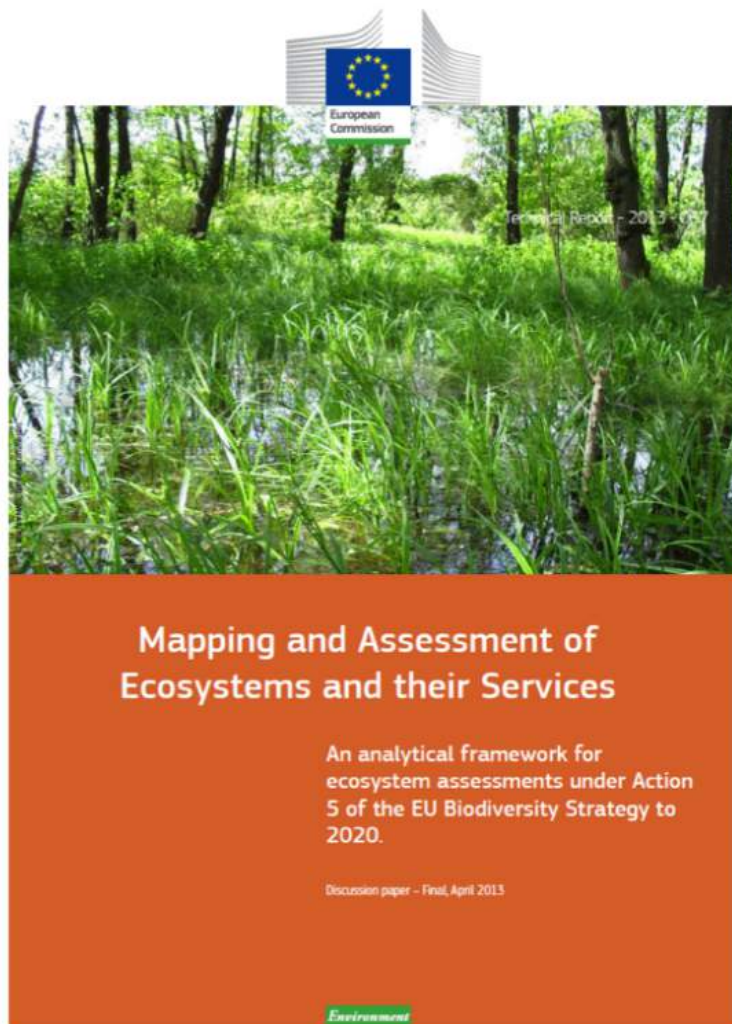
If you would like to provide (or update) the information about the initiatives you are involved in, please contact us.

- Three EEA member countries have completed a national ecosystem assessment: [Portugal](#), [Spain](#) and [UK](#);
- Three EEA member countries are working on national ecosystem assessment: [Switzerland](#), [Germany](#) and [Norway](#);
- And 12 EEA member countries are in an exploratory stage: Austria, [Belgium](#), Bulgaria, [Czech Republic](#), [France](#), Finland, Montenegro, Netherlands, [Poland](#), [Romania](#), Sweden and [Turkey](#).

Spain contribution to the EU biodiversity strategy



Spain contribution to the MAES WP



MESEU: Leading role in the Mediterranean MS

UK CEH	<i>Ireland</i>	<i>Denmark</i>	<i>Sweden</i>	<i>Finland</i>	<i>Germany</i>
Spain UAM	<i>Portugal</i>	<i>Italy</i>	<i>Greece</i>	<i>Malta</i>	<i>Cyprus</i>
Austria UBA	<i>Czech R</i>	<i>Slovak R</i>	<i>Croatia</i>	<i>Hungary</i>	<i>Slovenia</i>
Belgium INBO	<i>Luxemburg</i>	<i>France</i>	<i>Romania</i>	<i>Bulgaria</i>	<i>Poland</i>
Netherlands ALTERRA	<i>Estonia</i>	<i>Lithuania</i>	<i>Latvia</i>	<i>Israel</i>	

Contributions to IPBES: Assessment catalog, Deliverable 2a & 2b

[Home](#)[About the Catalogue](#)[Contact](#)[Login to add/edit data](#)

Spanish National Ecosystem Assessment *Spain*

[PRINT ASSESSMENT](#)[DOWNLOAD EXCEL](#)

Geographical coverage

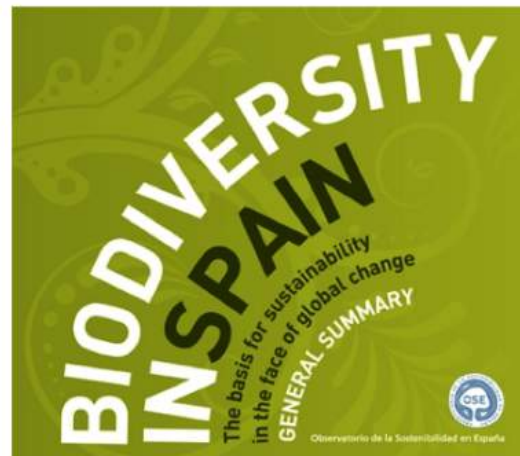
A light blue world map serves as the background for the table. A small icon of two overlapping squares is visible in the top left corner of the map area.

Geographical scale of the assessment	National
Country or countries covered	Spain
Any other necessary information or explanation for identifying the location of the assessment, including site or region	Europe

Linking EU and Spanish biodiversity strategy



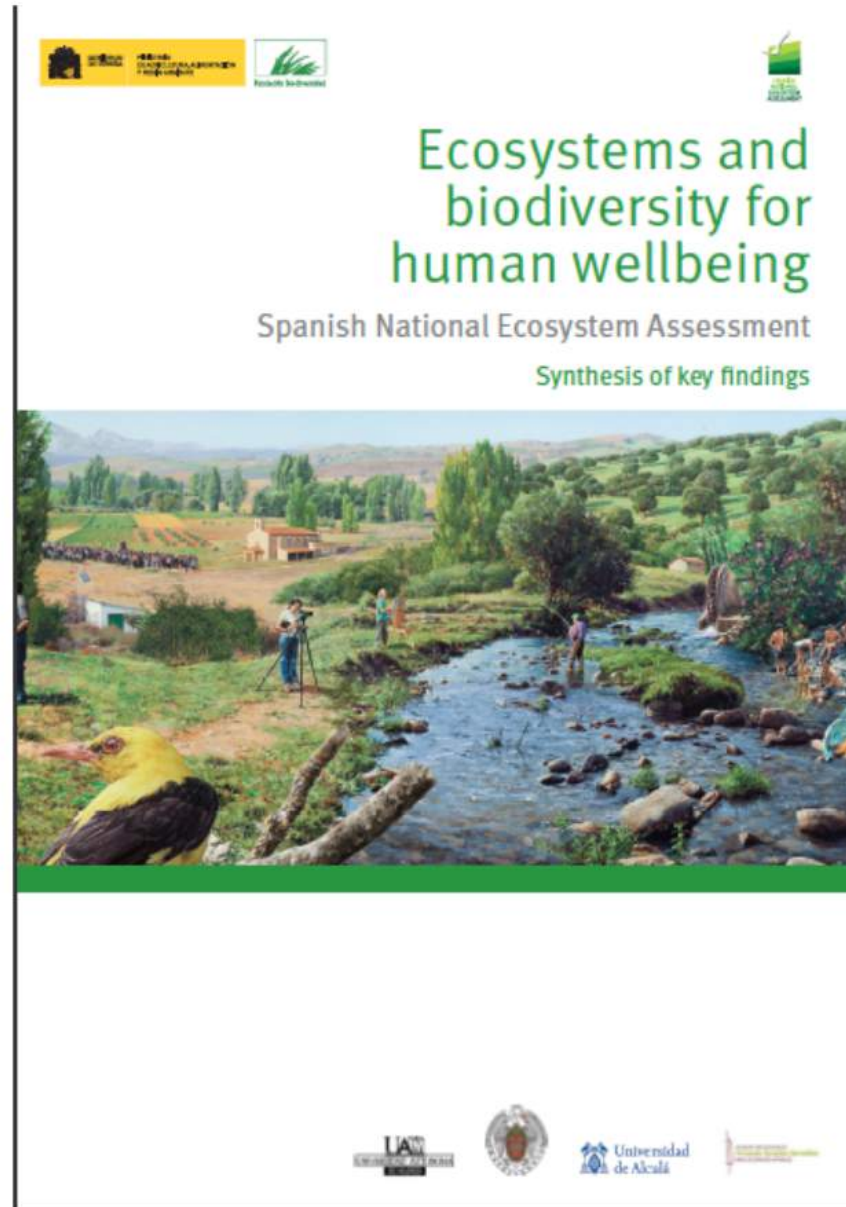
Contributions to other assessments in Spain





Communication

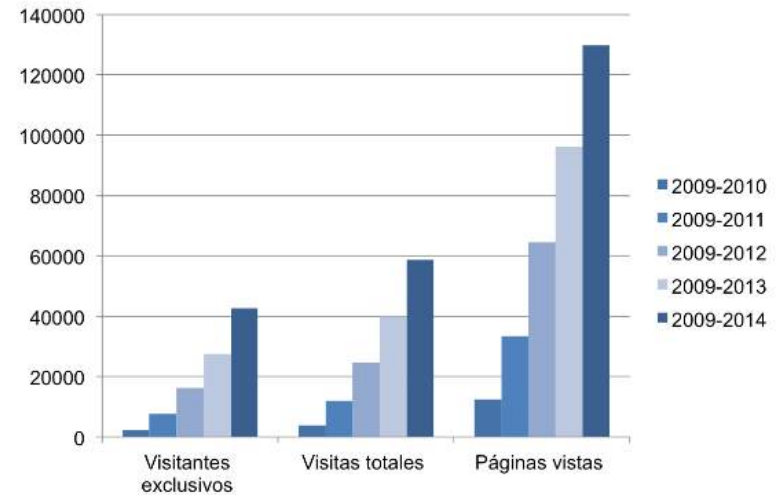
SYNTHESIS OF BIOPHYSICAL ASSESSMENT



www.ecomilneo.es



Totales desde la creación de la web



Communication materials

BOLETÍN Nº11

Primavera-Verano 2014



Editorial

POR EQUIPO DE COMUNICACIÓN DE EME



Nuevo proyecto: Evaluación del servicio de la pesca en el contexto de los ecosistemas acuáticos de España.

El proyecto de investigación aplicada "Evaluación del servicio de la pesca en el contexto de los ecosistemas acuáticos de España" se enmarca, conceptual y metodológicamente, en el proyecto la Evaluación de los Ecosistemas del Milenio de España (www.ecomilenio.es) que ha evaluado el estado de los servicios de los ecosistemas y su incidencia en el bienestar humano a escala estatal en los últimos 50 años.

[Leer completo](#)



RESUMEN DEL ESTADO DEL PROYECTO

Finaliza el EMEC

El proyecto de investigación aplicada "VALORACIÓN ECONÓMICA DE LOS SERVICIOS DE LOS ECOSISTEMAS SUMINISTRADOS POR LOS ECOSISTEMAS DE ESPAÑA" ha finalizado su andadura en junio de 2014. Durante los próximos meses se van a presentar los resultados y los informes técnicos correspondientes a las distintas entidades que nos han apoyado durante estos dos últimos años. Este proyecto se enmarca, conceptual y metodológicamente, en el proyecto "La Economía de los ecosistemas y la Biodiversidad" (TEEB en sus siglas en inglés, <http://www.teebweb.org/>).

[Leer resumen completo](#)

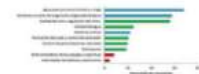


Figura 2. Distribución de los servicios de los ecosistemas evaluados en el proyecto EMEC.

CASO DE ESTUDIO

Valoración socio-económica de servicios de los ecosistemas

Destacados

Materiales educativos de la "Evaluación de los Ecosistemas del Milenio de España"



Guía del profesorado de los materiales educativos de la "Evaluación de los Ecosistemas del Milenio de España"



EME participa en el 2º informe de "Mapping and Assessment of Ecosystems and their Services" (MAES)

EVALUACIÓN DE LOS ECOSISTEMAS DEL MILENIO DE ESPAÑA (EME)

Material educativo



Lessons

Ecosystem assessments have revealed new possibilities for analyzing the complex relations between nature and human society.

There are some frameworks that can help simplify the complexity and help us figure out what to measure

There are some existing data sources that might help but the gaps are problematic

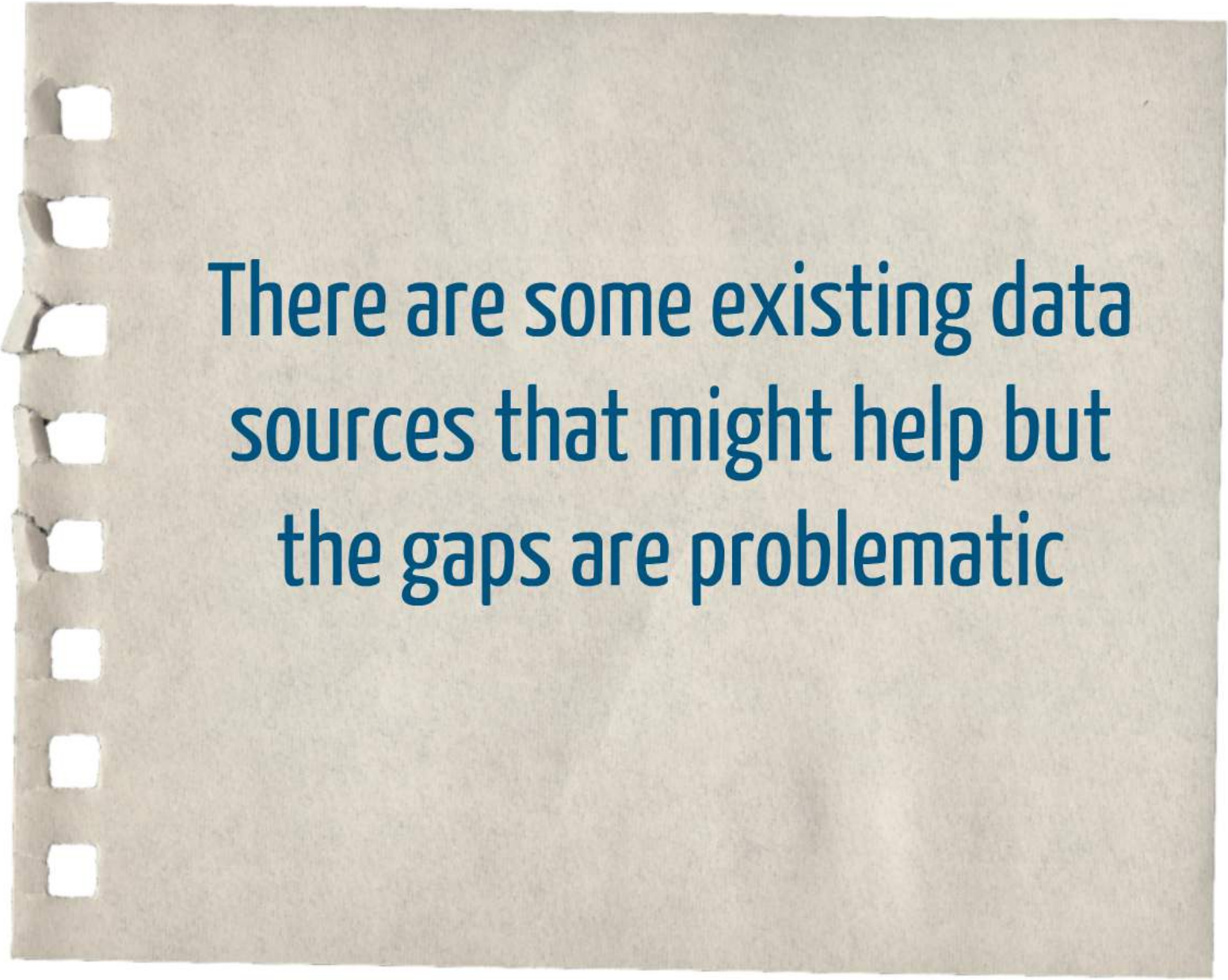
A key challenge to be addressed is developing comprehensive assessment frameworks, in which biophysical, socio-cultural, and economic value domains can be properly integrated

National ecosystem assessments provide evidence on the status and trends of ecosystem conditions with potential policy implications at different levels but it also have limitations

More structural changes are required in the Spanish institutional framework to reach 2020 biodiversity international targets

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More structural changes are required in the Spanish institutional framework to reach 2020 biodiversity international targets

thank you!

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www.ecomilenio.es

www.uam.es/Sociecosistemas



Assessment

Policy

Spanish NEA:
From research applications
to policy implications



Lessons



Research

Communication