Nuovi equilibri tra natura e società

I servizi ecosistemici nel rapporto città – montagna

The multiple functions of mountain areas and regulatory services

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ALPENKONVENTION
CONVENTION ALPINE
ALPSKA KONVENCIJA
CONVENZIONE DELLE ALPI

CITTA' DI BIELLA

Città Alpina dell'anno

Fondazione Cassa di Risparmio di Biella

Con il gentile sostegno di
Città di Biella, Città Alpina dell'anno 2021
Associazione Città Alpina dell'anno
Con il contributo della
Fondazione Cassa di Risparmio di Biella

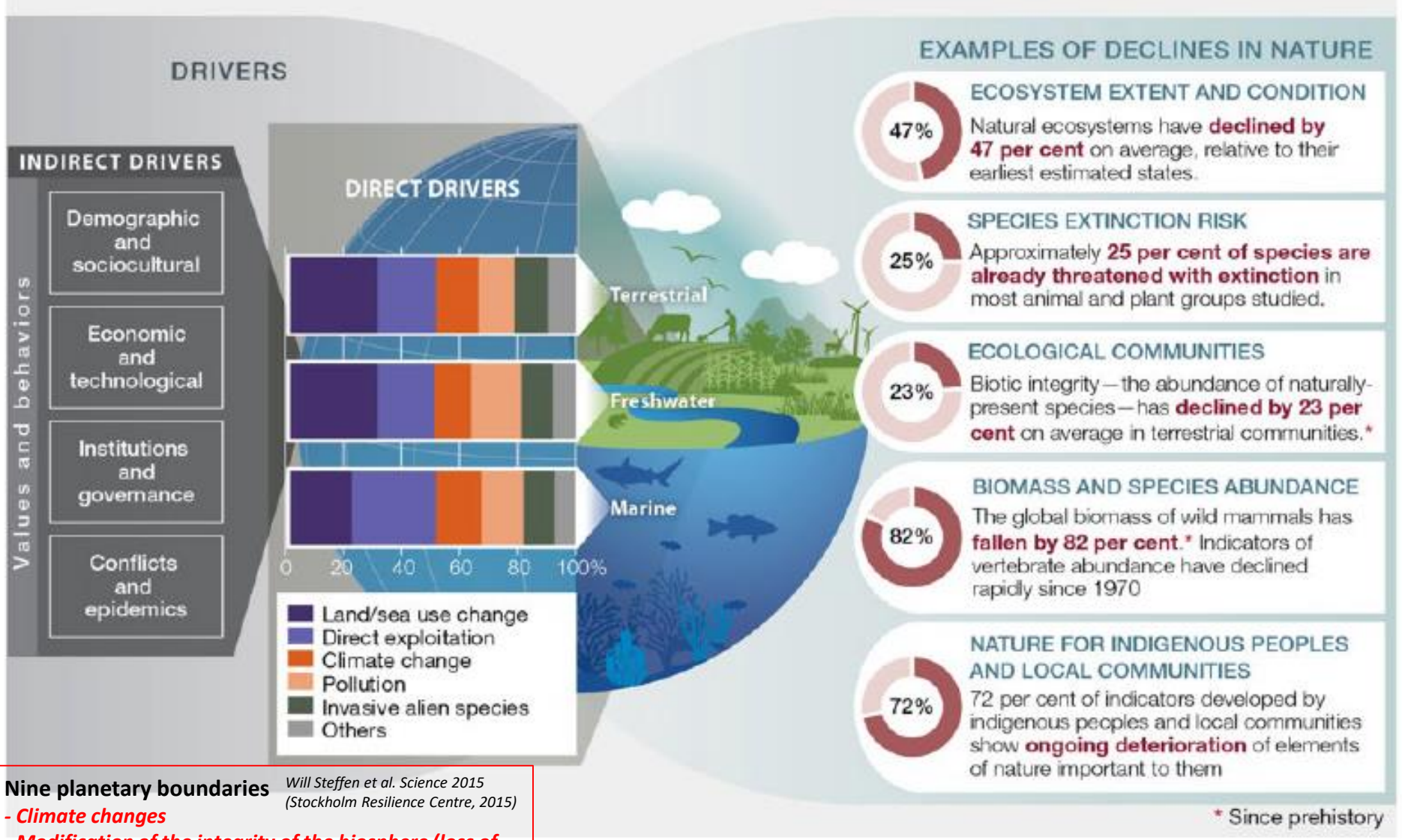
CIPRA aderisce alla campagna
No Women No Panel. Con il convegno annuale contribuiamo all'attuazione della Convenzione delle Alpi.

CONVEGNO ANNUALE
DELLA CIPRA
1-3 LUGLIO 2021
BIELLA / ITALIA

Conferenza internazionale organizzata da
CIPRA Italia e CIPRA Internazionale.

CIPRA
VIVERE
NELLE ALPI

Global decline of ecosystems and decrease in biodiversity, caused by direct and indirect factors of change



Nine planetary boundaries *Will Steffen et al. Science 2015 (Stockholm Resilience Centre, 2015)*

- Climate changes

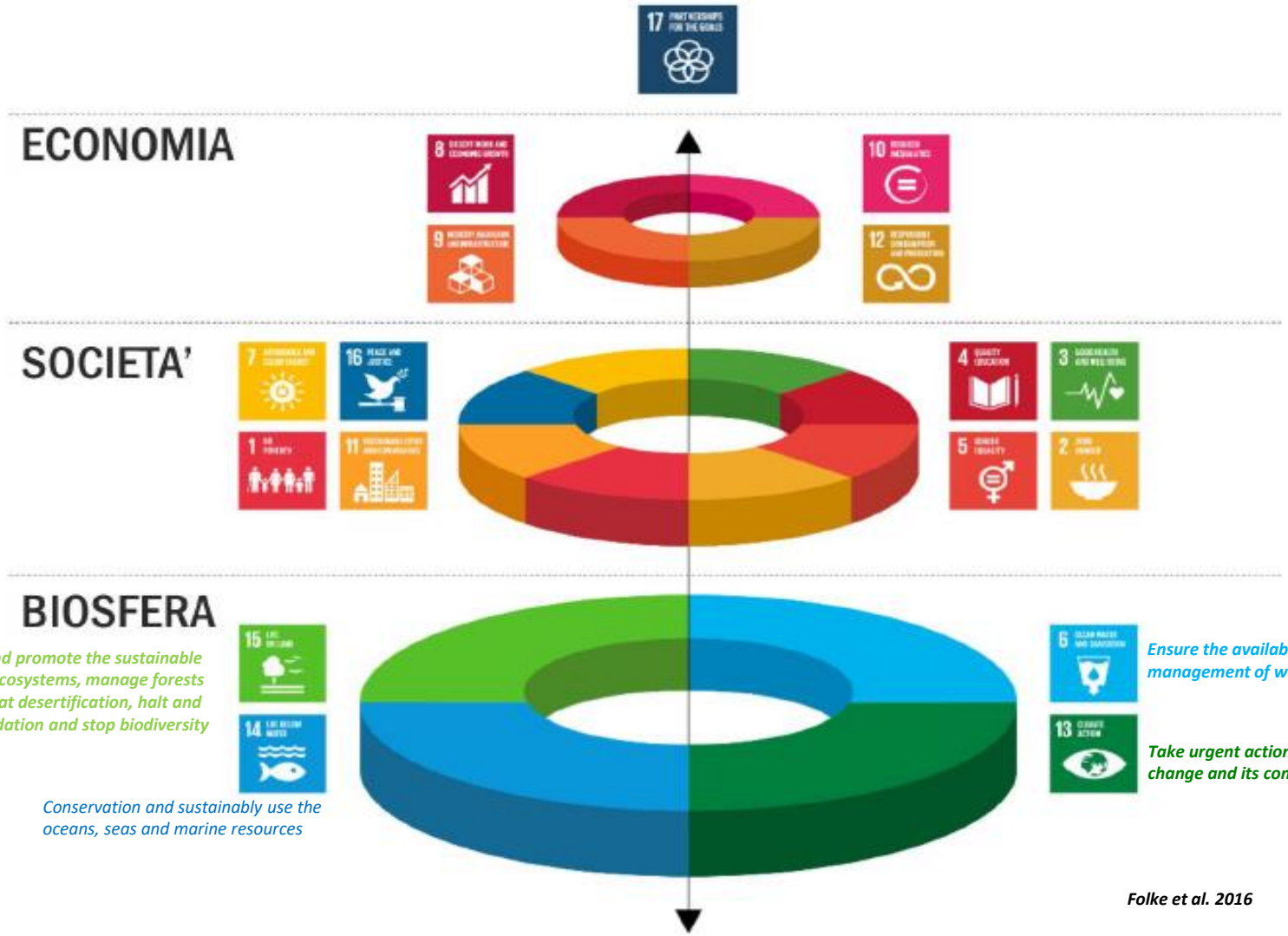
- Modification of the integrity of the biosphere (loss of biodiversity and extinction of species)

- Land system modification (e.g. deforestation)

- Use of fresh water

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) - Global Assessment on Biodiversity and Ecosystem Services, 2019

Sustainable Development Goals: peer and hierarchically ordered vision



Protect, restore and promote the sustainable use of terrestrial ecosystems, manage forests sustainably, combat desertification, halt and reverse soil degradation and stop biodiversity loss

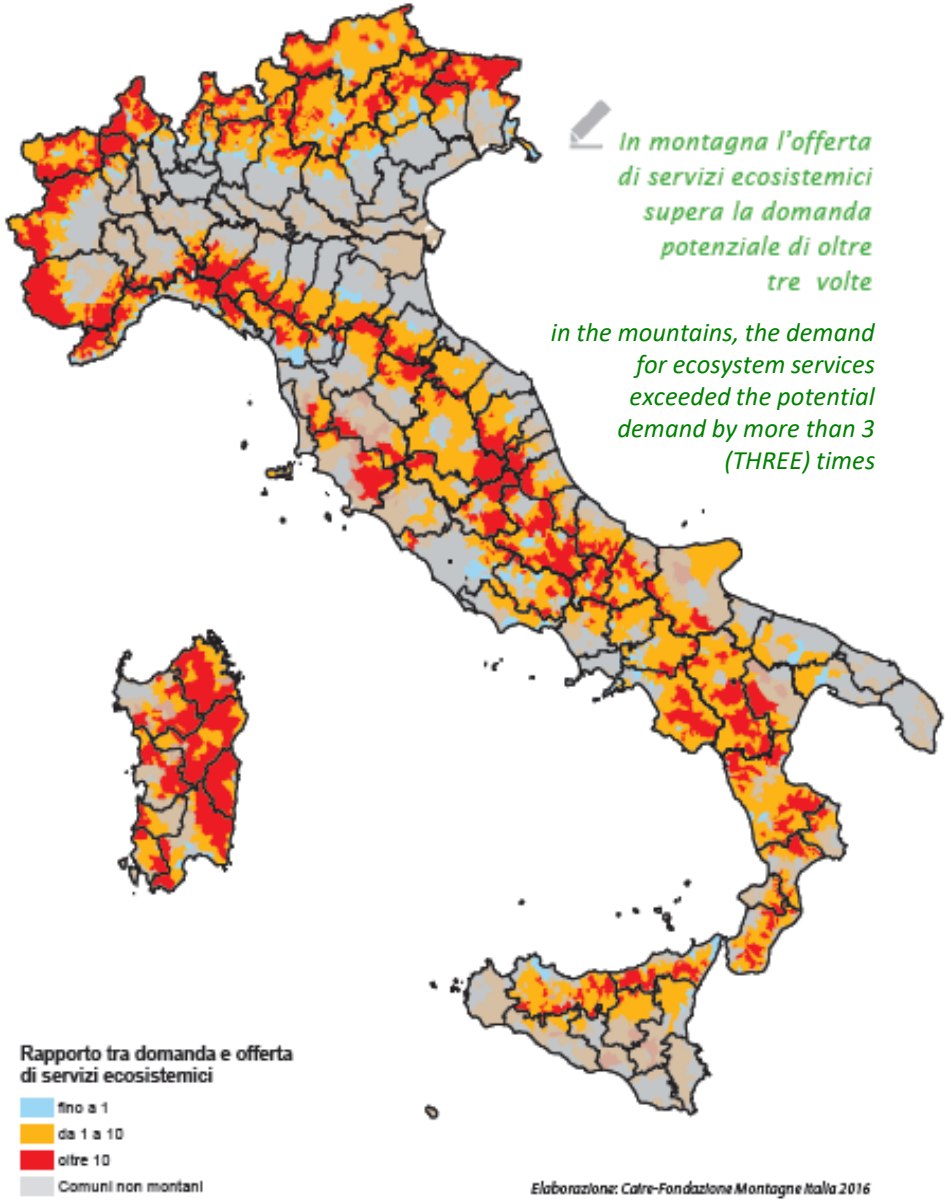
Conservation and sustainably use the oceans, seas and marine resources

Ensure the availability and sustainable management of water and sanitation for all

Take urgent action to combat climate change and its consequences

Folke et al. 2016

POTENTIAL OF MOUNTAIN AREAS



Elaborazione: Catre-Fondazione Montagne Italia 2016

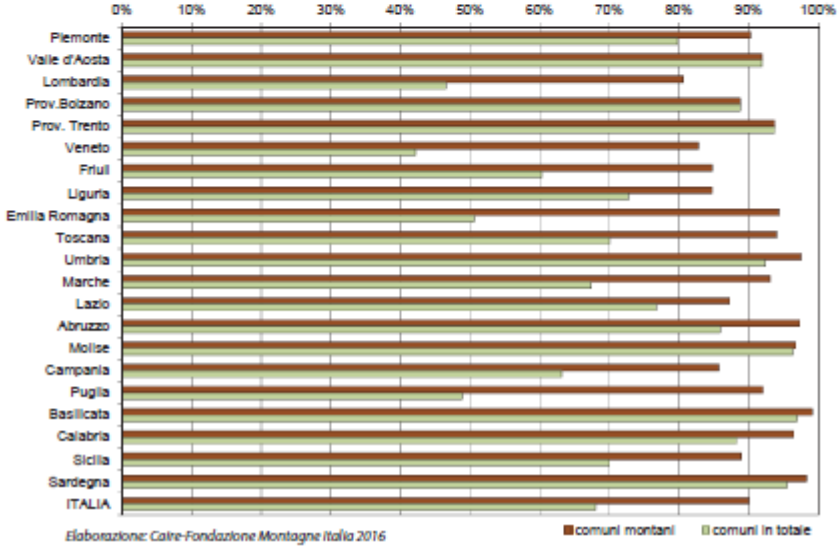
In montagna l'offerta di servizi ecosistemici supera la domanda potenziale di oltre tre volte

in the mountains, the demand for ecosystem services exceeded the potential demand by more than 3 (THREE) times

Comuni con rapporto domanda/offerta superiore a 1

	% comuni montani	% comuni totale	% popolazione montana	% popolazione totale	% superficie montana	% superficie totale
Piemonte	90,2%	79,8%	63,8%	25,1%	94,5%	78,0%
Valle d'Aosta	91,9%	91,9%	57,5%	57,5%	96,9%	96,9%
Lombardia	80,6%	46,5%	49,8%	10,8%	88,9%	57,0%
Prov. Aut. Bolzano	88,8%	88,8%	52,3%	52,3%	94,4%	94,4%
Prov. Aut. Trento	93,7%	93,7%	54,9%	54,9%	92,9%	92,9%
Veneto	82,8%	42,2%	48,3%	14,3%	85,6%	49,3%
Friuli Venezia Giulia	84,8%	60,3%	31,1%	21,6%	91,1%	71,2%
Liguria	84,7%	72,8%	47,4%	18,9%	87,6%	76,0%
Emilia Romagna	94,4%	50,6%	82,3%	15,6%	94,8%	56,4%
Toscana	94,0%	70,0%	71,6%	26,3%	95,0%	76,0%
Umbria	97,6%	92,4%	94,1%	57,8%	98,5%	87,0%
Marche	93,0%	67,4%	84,5%	25,8%	96,1%	70,6%
Lazio	87,2%	76,7%	56,0%	15,1%	86,5%	64,6%
Abruzzo	97,3%	85,9%	82,3%	36,5%	96,4%	82,3%
Molise	96,7%	96,3%	63,8%	62,0%	95,1%	94,6%
Campania	85,8%	63,2%	67,7%	18,4%	93,5%	76,2%
Puglia	92,1%	48,8%	81,7%	29,0%	92,9%	61,2%
Basilicata	99,1%	96,9%	96,0%	72,6%	99,3%	93,2%
Calabria	96,5%	88,3%	87,2%	54,6%	97,7%	88,9%
Sicilia	89,0%	70,0%	36,0%	31,2%	92,8%	76,3%
Sardegna	98,3%	95,5%	85,7%	66,8%	98,6%	95,0%
ITALIA	**90,0%**	**68,0%**	**63,1%**	**24,2%**	**94,1%**	**74,3%**

Comuni con rapporto domanda/offerta superiore a 1



Elaborazione: Catre-Fondazione Montagne Italia 2016

POTENZIALITA' DELLE AREE MONTANE - *POTENTIALITY OF MOUNTAIN AREAS* -

AGRICULTURE

Multifunctionality

Typical products

150 products including Dop, Igp, Doc and Docg
180 agro-food products surveyed by Slow Food
263 traditional products (Ministerial Decree 8/9/1999)
In the municipalities of the National Parks and regional, in 2000, were surveyed 232,000 farms for a UAA of 1,232,500 ha

Other agriculture

FORESTRY

Wood supply chain
Sustainability of uses

ENERGY

Biomass
Wind power
Hydroelectric
etc.

ENTERPRISE

TOURISM

- summer, winter, seasonal or weekend
- mountain, lake and sea
- cultural and artistic
- religious
- mass tourism
- «hit and run»
- food & wine
- ecological

.....

How many of these activities depend in whole or in part on the natural environment? From Natural Capital?

OPPORTUNITIES AND BUSINESS RESPONSIBILITY

Organization Models for Sustainability

- Program 1.1
  Environmental Management Systems
  ISO 14001 Reg. EMAS
- Program 1.2
  Management of Social Responsibility
  SA 8000
  ISO 26000
- Program 1.3
  Management Systems of Health and Safety
  OHSAS 18001
- Program 1.4
  Organizational Models
  D.Lgs. 231/01
  D.Lgs.81/08

Sustainability Productions

GO - GREEN

Energy Management and CO2 reduction

- Program 3.1
  Energy Efficiency and Energy Management
  UNI CEI EN 16001
- Program 3.2
  Energy Production from Renewable Sources
- Program 3.3
  Energy diagnoses and energy saving actions
- Program 3.4
  Towards a carbon free society
  ISO 14064 and ISO 14067

Assoreca
Associazione tra le Società di Consulenza e di Servizi per l'Ambiente, la Sicurezza e la Responsabilità Sociale

ADERENTE A CONFINDUSTRIA SERVIZI INNOVATIVI E TECNOLOGICI

POLICIES AND STRATEGIES FOR GOVERNANCE AND THE GREEN NEW DEAL

KNOWLEDGE CANNOT BE REGARDLESS TO MANAGE THE LARGEST COMPANY WE OWN: ***NATURAL CAPITAL***
You can't manage what you don't know well: knowing the natural capital you have and its effective value, therefore, is the basis of our ability to maximize collective well-being. In economics, then, what is devoid of any monetary value ends up being excessively exploited or ignored.

Biodiversity Strategy:
Create protected areas for at least 30% of the European surface Restore degraded terrestrial and marine ecosystems

- Biological agriculture
- Reduce the harmfulness of pesticides (50% 2030)
- Stop the decline of pollinators
- Restoration of 25,000 km of free-flowing rivers
- Planting 3 billion trees

Forest Strategies
Single forest law
Focus on the SE mainly of regulation, provided by the forests

Regional policies.
Improvement of work and green growth by investing in green / blue infrastructures

Energy and Climate Policies to support adaptation actions

Agricultural policies support for sustainable agriculture through an increase in compatible practices: Definition of HNV, Biological, Ecodynamic ...

Policies on the Sea. Marine protected areas and improvement of fishing and fight against plastic pollution

- Water" Directive 2000/60 / EC (WFD)
- Floods Directive 2007/60 / EC (FD)
- Nitrates Directive 91/676 / EEC

LN 221/2015
Environmental provisions to promote green economy measures and to limit the excessive use of natural resources

Art. 70
Delegation to the Government for the introduction of remuneration systems for **environmental ecosystem services**
.... without prejudice to the safeguarding over time of the collective function of the asset
.... assignment under concession of a naturalistic asset of common interest, which must keep intact or increase its functions;

Art. 72
National strategy of green communities
....sustainable development plan not only from an energy, environmental and economic point of view

Art. 67
https://www.minambiente.it/pagina/quarto-rapporto-sullo-stato-del-capitale-naturale-italia-2021
Integrate the accounting of Natural Capital and the objectives of prevention, restoration, management and enhancement of Natural Capital in the territorial planning tools at all levels - DEF (Economic and Financial Document)

M2 Transizione ecologica

ECOLOGICAL TRANSITION

MISSIONE 2: RIVOLUZIONE VERDE E TRANSIZIONE ECOLOGICA
MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION

COMPONENTI E RISORSE (MILIARDI DI EURO):

M2C1 - ECONOMIA CIRCOLARE E AGRICOLTURA SOSTENIBILE	5,27
M2C2 - ENERGIA RINNOVABILE, IDROGENO, RETE E MOBILITÀ SOSTENIBILE	23,78
M2C3 - EFFICIENZA ENERGETICA E RIQUALIFICAZIONE DEGLI EDIFICI	15,22
M2C4 - TUTELA DEL TERRITORIO E DELLA RISORSA IDRICA	15,06

59,33
Totale

Missione 2: Rivoluzione verde e transizione ecologica

È volta a realizzare la transizione verde ed ecologica della società e dell'economia per rendere il sistema sostenibile e garantire la sua competitività. Comprende interventi per l'agricoltura sostenibile e per migliorare la capacità di gestione dei rifiuti; programmi di investimento e ricerca per le fonti di energia rinnovabili; investimenti per lo sviluppo delle principali filiere industriali della transizione ecologica e la mobilità sostenibile. Prevede inoltre azioni per l'efficientamento del patrimonio immobiliare pubblico e privato; e iniziative per il contrasto al dissesto idrogeologico, per salvaguardare e promuovere la biodiversità del territorio, e per garantire la sicurezza dell'approvvigionamento e la gestione sostenibile ed efficiente delle risorse idriche.

Mission 2: Green revolution and ecological transition

the ecological transition is aimed at achieving a green and ecological transition of society and the economy to make the system sustainable and ensure competitiveness. It includes interventions for sustainable agriculture and to improve waste management capacity, investment and research programs for renewable energy sources, investments for the development of the main industrial chains of ecological transition and sustainable mobility. It also provides for actions for the efficiency of public and private real estate assets and initiatives to combat hydrogeological instability to safeguard and promote the biodiversity of the territory and to guarantee the security of supply and the sustainable and efficient management of water resources

QUADRO DELLE MISURE E RISORSE (MILIARDI DI EURO):

M2C4 – TUTELA DEL TERRITORIO E DELLA RISORSA IDRICA

15,06
Mld
Totale

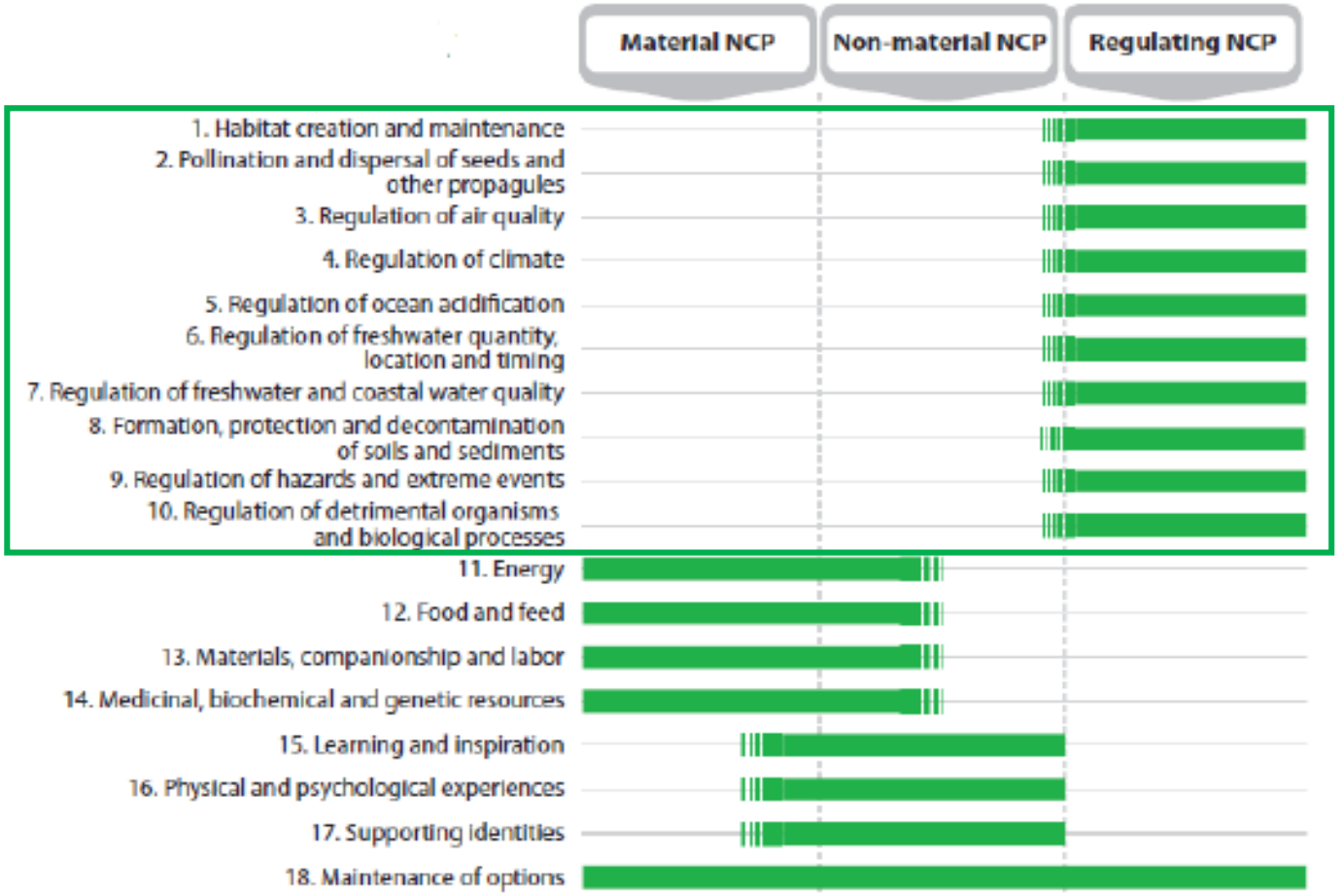
Ambiti di intervento/Misure	Totale
1. Rafforzare la capacità previsionale degli effetti del cambiamento climatico	0,50
Investimento 1.1: Realizzazione di un sistema avanzato ed integrato di monitoraggio e previsione	0,50
2. Prevenire e contrastare gli effetti dei cambiamenti climatici sui fenomeni di dissesto idrogeologico e sulla vulnerabilità del territorio	8,49
Investimento 2.1: Misure per la gestione del rischio di alluvione e per la riduzione del rischio idrogeologico	2,49
Investimento 2.2: Interventi per la resilienza, la valorizzazione del territorio e l'efficienza energetica dei Comuni	6,00
Riforma 2.1: Semplificazione e accelerazione delle procedure per l'attuazione degli interventi contro il dissesto idrogeologico	-
3. Salvaguardare la qualità dell'aria e la biodiversità del territorio attraverso la tutela delle aree verdi, del suolo e delle aree marine	1,69
Investimento 3.1: Tutela e valorizzazione del verde urbano ed extraurbano	0,33
Investimento 3.2: Digitalizzazione dei parchi nazionali	0,10
Investimento 3.3: Rinaturazione dell'area del Po	0,36
Investimento 3.4: Bonifica dei siti orfani	0,50
Investimento 3.5: Ripristino e tutela dei fondali e degli habitat marini	0,40
Riforma 3.1: Adozione di programmi nazionali di controllo dell'inquinamento atmosferico	-
4. Garantire la gestione sostenibile delle risorse idriche lungo l'intero ciclo e il miglioramento della qualità ambientale delle acque interne e marittime	4,38
Investimento 4.1: Investimenti in infrastrutture idriche primarie per la sicurezza dell'approvvigionamento idrico	2,00
Investimento 4.2: Riduzione delle perdite nelle reti di distribuzione dell'acqua, compresa la digitalizzazione e il monitoraggio delle reti	0,90
Investimento 4.3: Investimenti nella resilienza dell'agrosistema irriguo per una migliore gestione delle risorse idriche	0,88
Investimento 4.4: Investimenti in fognatura e depurazione	0,60
Riforma 4.1: Semplificazione normativa e rafforzamento della governance per la realizzazione degli investimenti nelle infrastrutture di approvvigionamento idrico	-
Riforma 4.2: Misure per garantire la piena capacità gestionale per i servizi idrici integrati	-

ECOSYSTEM SERVICES

(MEA , 2005; de Groot et al., 2002)

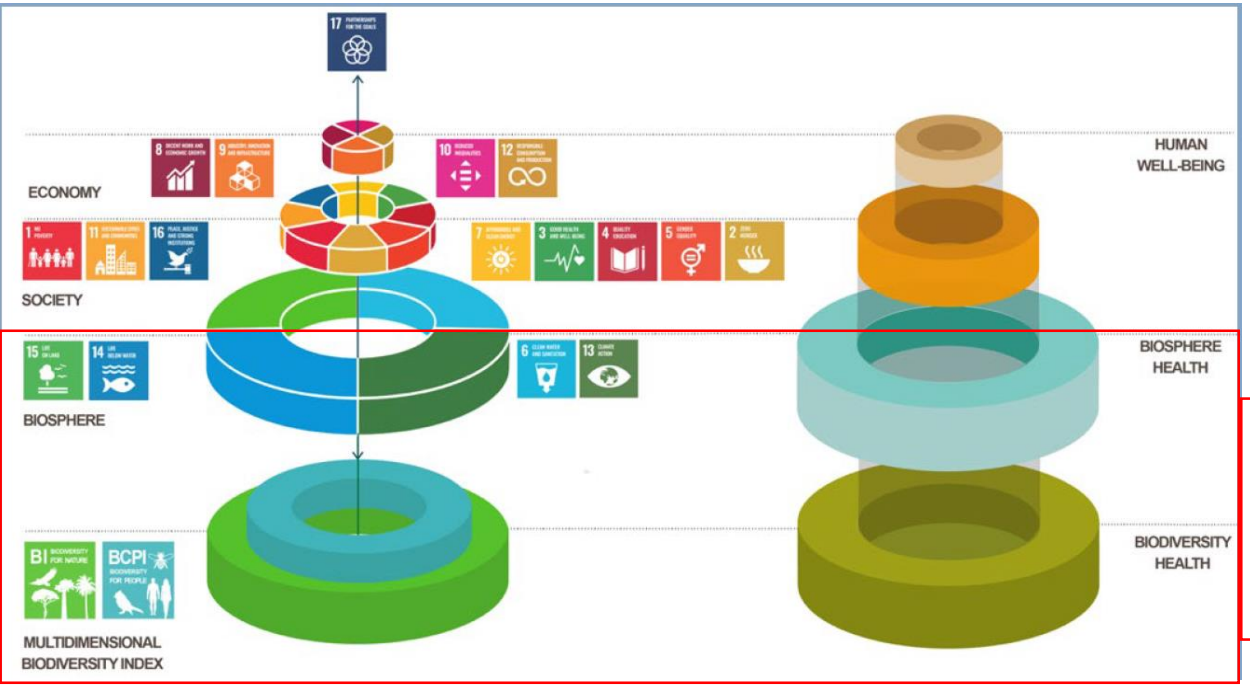
Assets such as food resources, water, air, soil, raw materials, genetic resources, etc., their functional relationships (CO_2 fixation, atmospheric gas regulation, purification, soil conservation, etc.) that, combined with human capital artifacts and services, allow humans to achieve and maintain a condition of well-being (Costanza et al., 1997).

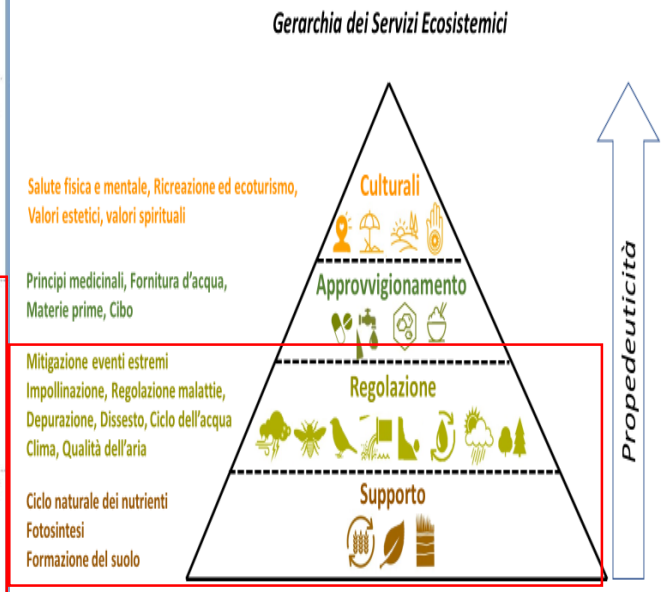
Nature's Contributions to People (NCP)



IPBES website 2019 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services,

Evaluation priority of the regulation ESs also in relation to the biodiversity of socio-environmental systems





Mod.from: Folke, C., Biggs, R., Norström, A. V, Reyers, B. & Rockström, J. Social-ecological resilience and biosphere-based sustainability science. *Ecol. Soc.* **21**,

Soto-Navarro et al. 2020. Building a Multidimensional Biodiversity Index – A scorecard for biodiversity health. Project report. UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), Cambridge, UK and Luc Hoffmann Institute (LHI), Gland, Switzerland.

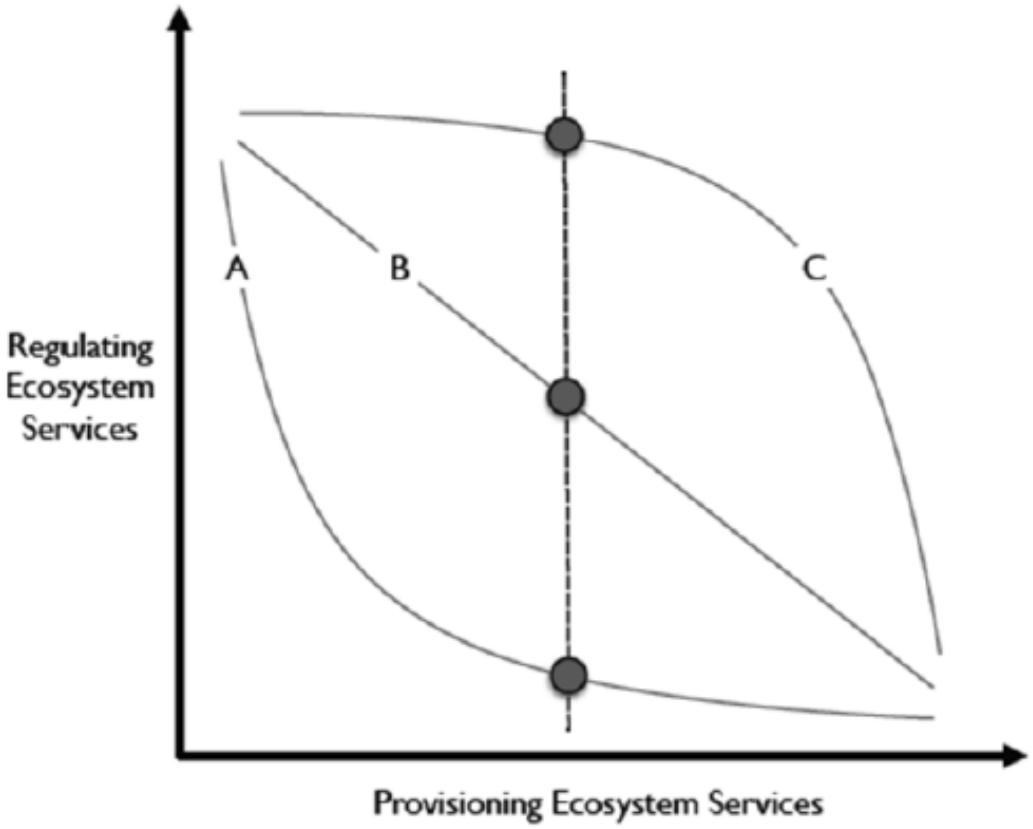
MBI MULTIDIMENSIONAL BIODIVERSITY INDEX coupled that explicitly considers biodiversity and people as part of a healthy system (supported by two sub-indexes; a biodiversity index (BI) and a biodiversity for people index (BCPI)) can help integrate biodiversity into all assessments, policy decisions, and actions that affect human development and well-being.

The NC is part of the aggregate stock of resources but a large part is not interchangeable

ESs are not interchangeable objects, nor are they easily mitigated

Ecosystems must have room to function

POTENTIAL TRADE OFF BETWEEN SUPPLY AND REGULATION ESs



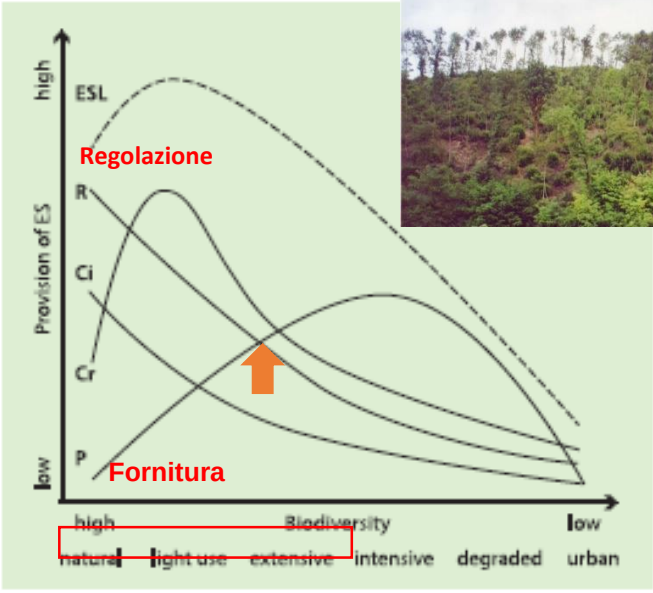
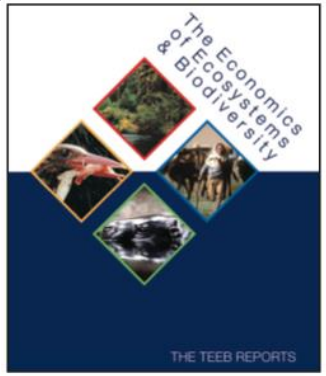


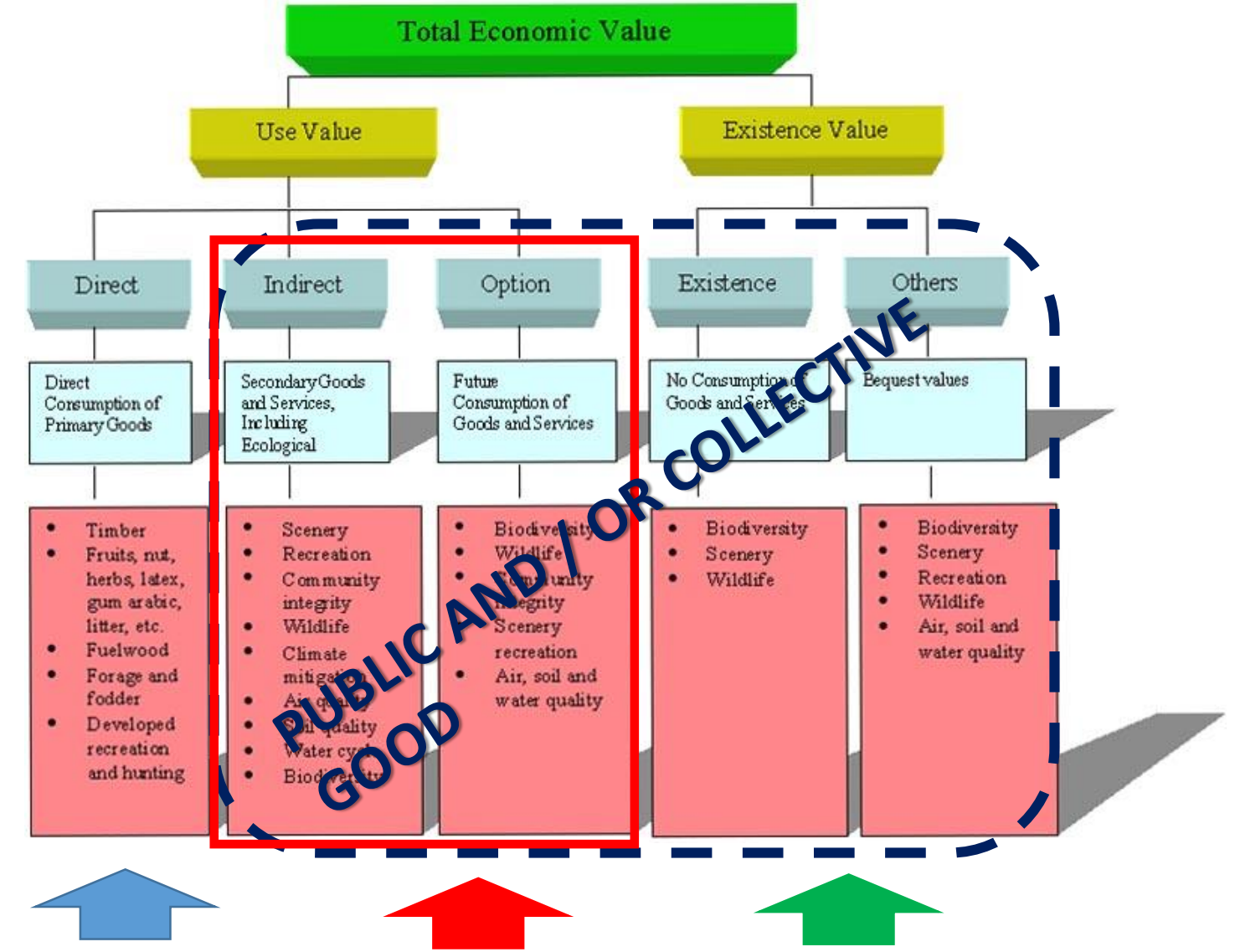
Figure 4. Adapted from Braat & ten Brink (2008). R: sum of regulating services; P: sum of provisioning services; Cr: sum of cultural-recreation value; Ci: sum of cultural-information value (including aspects such as cultural heritage, education, etc.); ESL: sum of all the ecosystem services

A. Directing an ecosystem towards an increase in supply SEs produces a rapid loss of regulation services
B. **Regulatory services** decrease linearly with the increase in supply services
C. Supply services can rise to quite high levels before declining on a regular basis

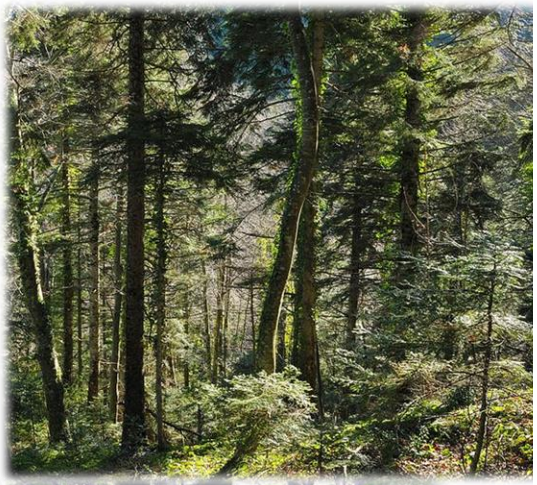


Source: Elmqvist et al. (2010)

WHAT KIND OF VALUE?



WOOD OF ECOLOGICAL FUNCTIONS



SE Regolazione
ECOLOGICA

- **Geopedologica** (suolo e substrato)
  - antierosiva
  - stabilizzante
  - → Protettiva diretta e indiretta
- **Idrologica**
  - Ciclo delle acque: regimazione, depurazione, antivalanghiva
- **Igenica**
  - Ciclo delle componenti gassose: CO_2, O_2, ecc.
  - Componenti non gassose: polveri
- **Climatica**
  - Influenza sui regimi udo-nivometrici, termici, idrometrici, eolici
- **Naturalistica**
  - Serbatoio di scambio per il ciclo di materiali
  - Influenza sulle comunità animali e vegetali, sul paesaggio, sulla biodiversità

Interesse collettivo

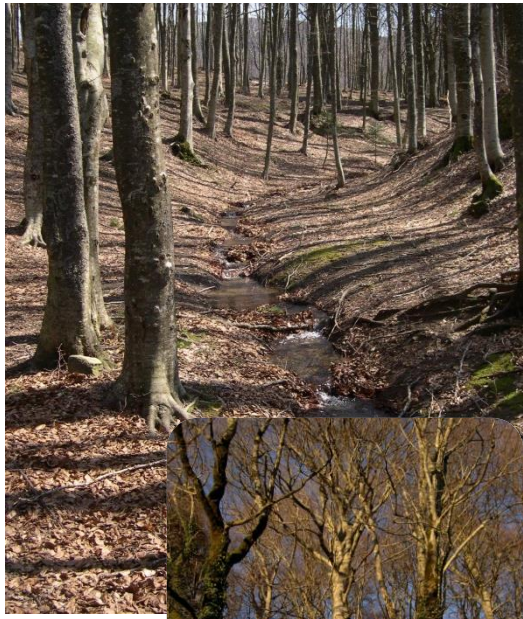
SE Culturali
SOCIALE

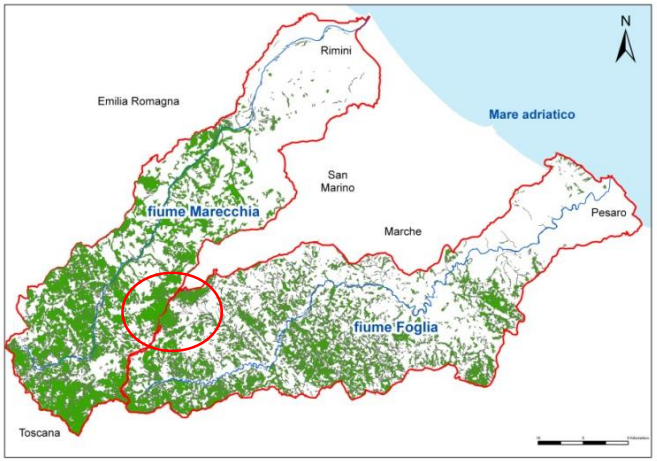
- Escursionistica
- Estetico-Ricreativa
- Scientifica
- Culturale

SE Fornitura
PRODUTTIVA

- **Primaria**
  - Ordinaria estensiva
  - Specializzata intensiva
- **Secondaria**
  - Paralegnosa: resina, sughero, radica ecc.
  - Alimentare: funghi, frutti ecc.
  - Indiretta: Apicoltura, Zootecnia, Ca

Santolini , 2007





Life MGN

Valmarecchia- Parco Sasso Simone Simoncello

Ecological Indicators 37 (2014) 210–219

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journal homepage: www.elsevier.com/locate/ecolind

A forest ecosystem services evaluation at the river basin scale: Supply and demand between coastal areas and upstream lands (Italy)

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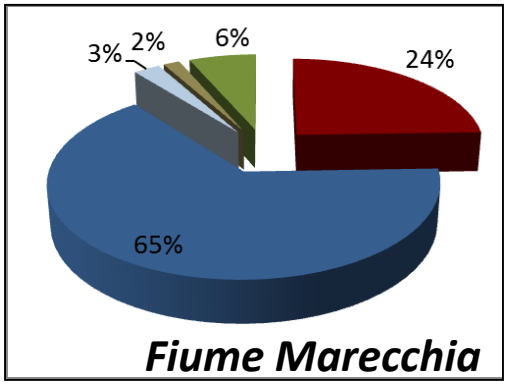
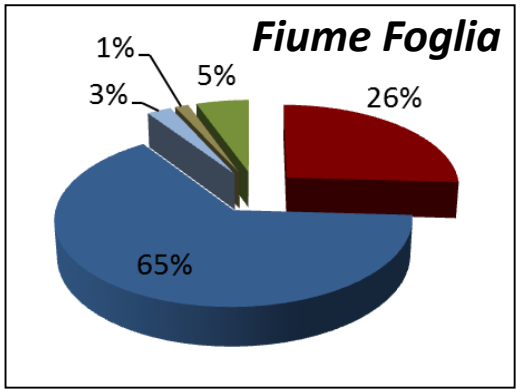
[a] Department of Earth, Life and Environment (DISTEVA), Carlo Bo University of Urbino, campus scientifico Enrico Mattei, 61029 Urbino, Italy
[b] Centre of Molecular and Environmental Biology, Minho University, Campus de Gualtar, 4710-057 Braga, Portugal



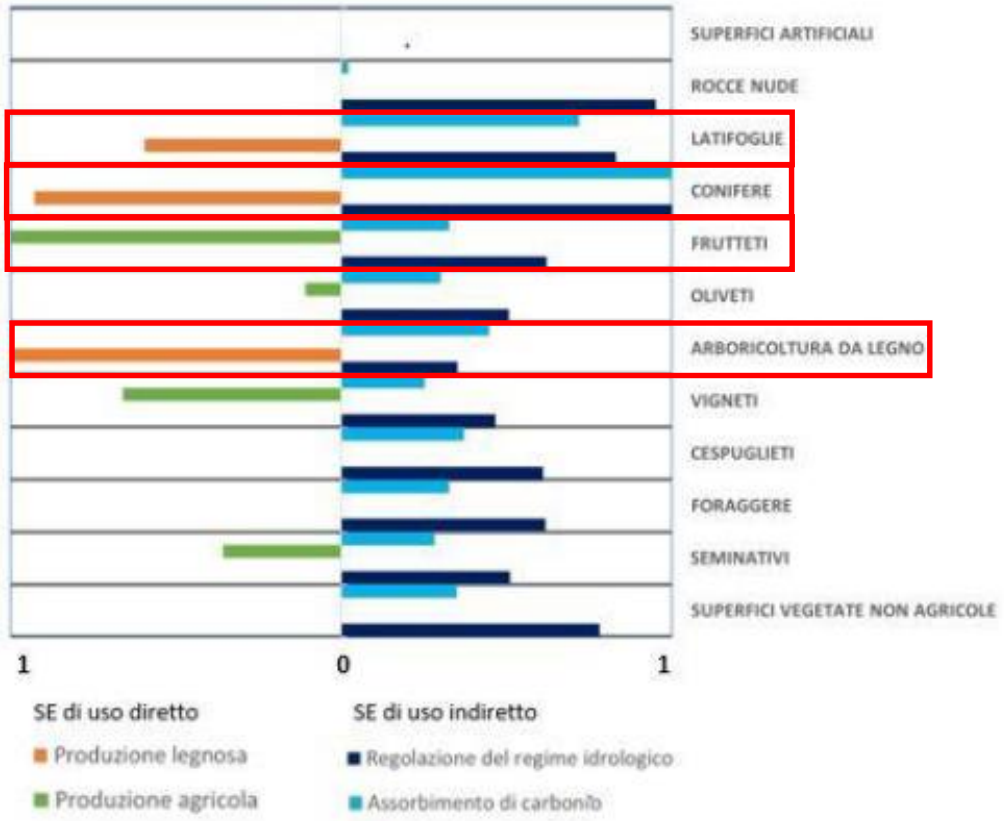


- firewood
- water retention
- drinking water supply
- soil protection
- CO2 sequestration

Table 7
The economic values of the forest ecosystem services of the Marecchia and Foglia river basins.

Type	Ecosystem services	Marecchia river basin		Foglia river basin	
		Value ($\times 10^6$ €/yr)	Value (€/ha yr)	Value ($\times 10^6$ €/yr)	Value (€/ha yr)
Direct value	Firewood	27.3	2085	31.1	2379
Indirect value	Water retention	72.2	3866	77.7	3782
	Drinking water supply	2.9	157	3.1	154
	Soil protection	1.8	96	1.7	84
	CO_2 sequestration	7.3	358	6.6	342
Total indirect value		84.2	4477	89.1	4362

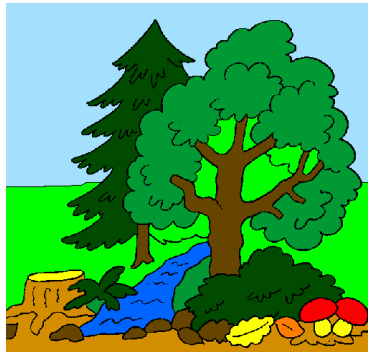
Direct and indirect ECOSYSTEM SERVICES (Supply and Regulation)



Ratings for four regions (Tuscany, Emilia Romagna, Marche, and Umbria).
The value is normalized (0-1) in the coverage classes for the year 2017
(III Natural Capital Report, 2019)

THE FUNCTIONS OF FORESTS IN ITALY

SE in millions of € (data reprocessed from Third Report on Natural Capital, 2019 and ISPRA 2018)



Supply

Forest biomass production	*648*
Water supply	*551*

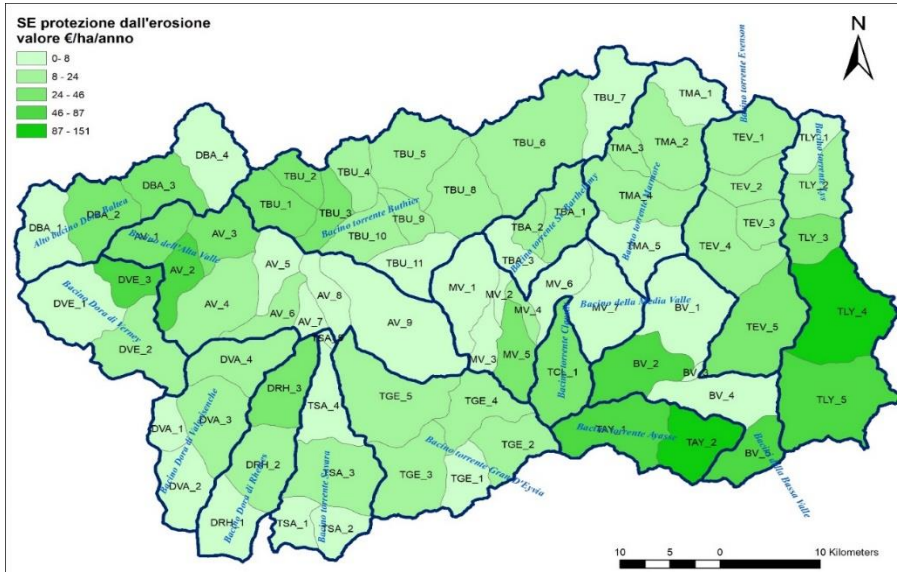
Regulation

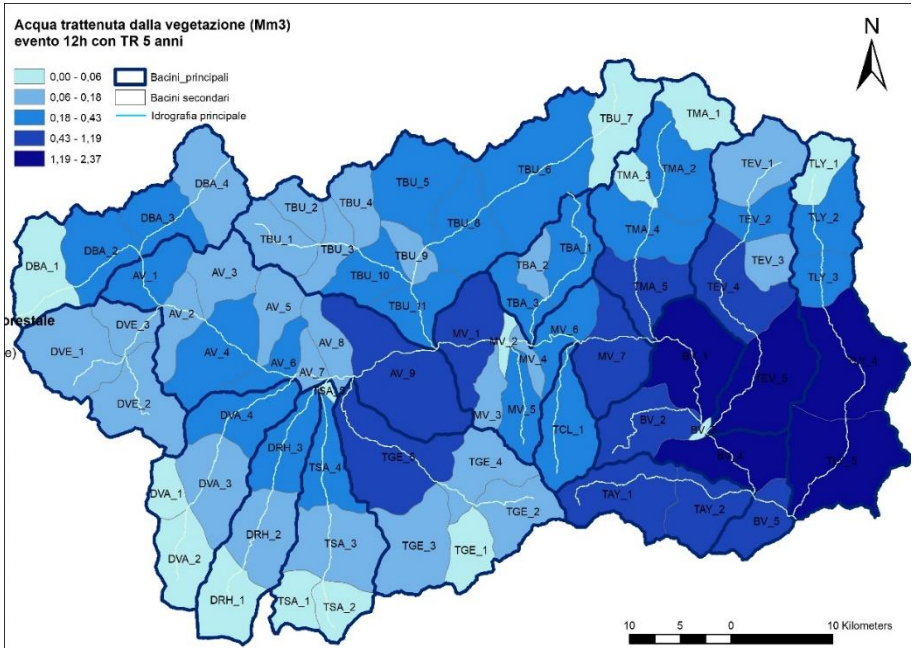
CO2 absorption	*832*
Flood risk	*417*
Hydrological efficiency vegetation	*17.050*
Pollination	*701*

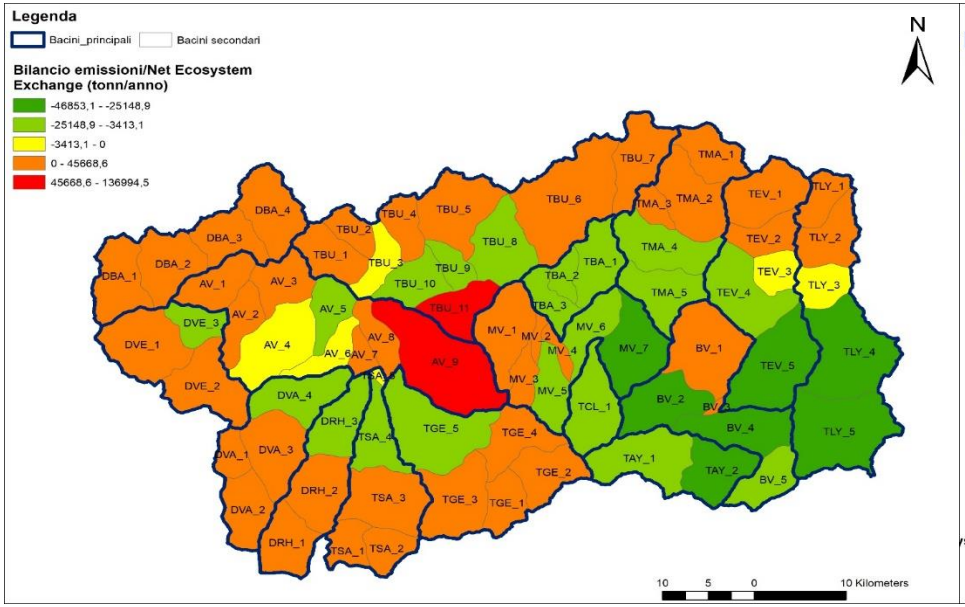
Cultural

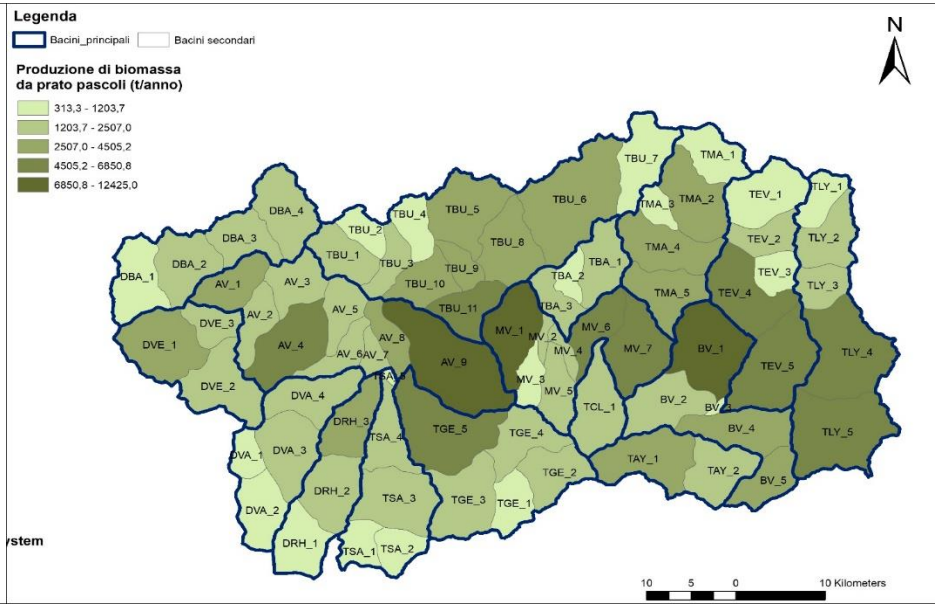
Recreational activities	*3.463*

Direct and indirect ECOSYSTEM SERVICES (Supply and Regulation)







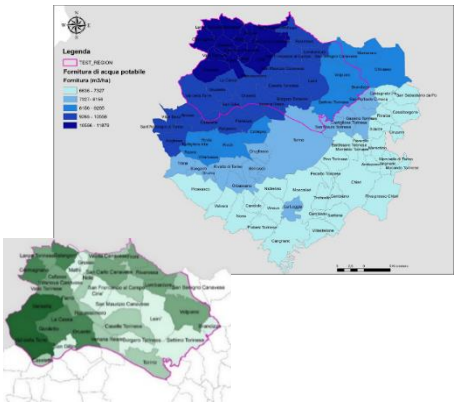


THE PLANNING AND INTEGRATED MANAGEMENT OF THE SEs - the thresholds of use of the resource

CORONA VERDE- TO

Ecosystem Services Regulation

- *Water cycle (quality and quantity)*
- *Instability*
- *Air quality*



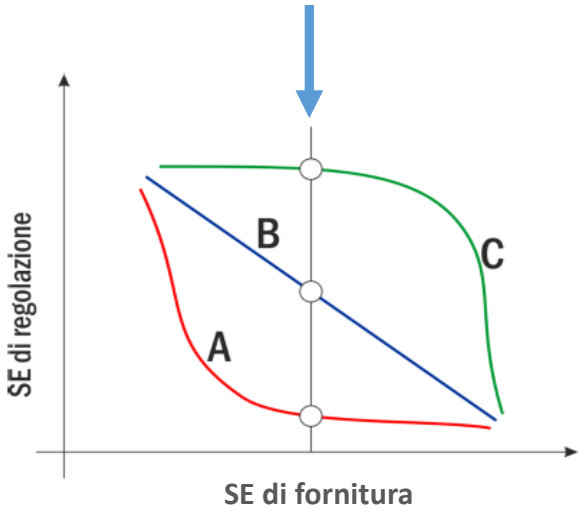
Water Protection Plan

Definition of ERCs

Hydrogeological instability

Air Quality Plan

Balance points of resource use



Potential trade-offs between supply and regulatory SEs.

A) Steering an ecosystem toward an increase in supply SEs produces a rapid loss of regulatory services

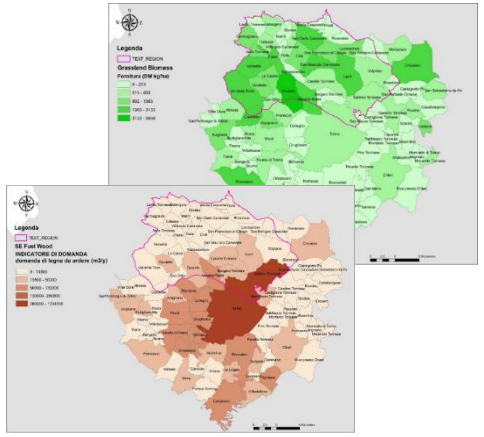
B) Regulation services decline linearly as supply services increase

C) Supply services can increase to fairly high levels before decreasing on a regular basis.

Source: Elmqvist et al. (2010)

Ecosystem Services Supply

- *Forest production*
- *Forage*



Forest Plan

INTEGRATED RURAL DEVELOPMENT PLAN (PSR)

Agri-environmental agreements

Integration between Plans

- **Capacity for collaboration**
- **New roles (municipalities, municipal union, etc.)**
- **New models of Governance**
- **Models of useful and circular economy**
- **New taxation**

COMPETENCES

Riccardo Santolini

ESs for the System action plan and not for emergency actions: the management of ERC

Scuola Superiore Sant'Anna

laboratorio ref. ricerche

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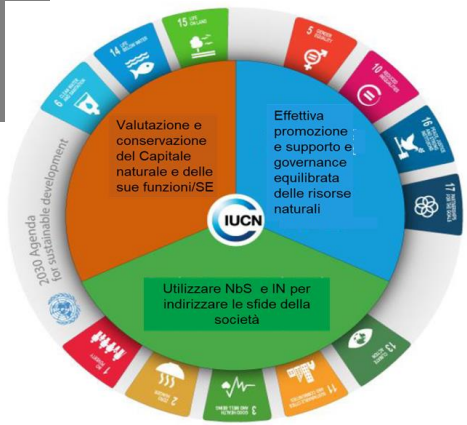
Natural based solution and IN for maintaining the functions of Natural Capital

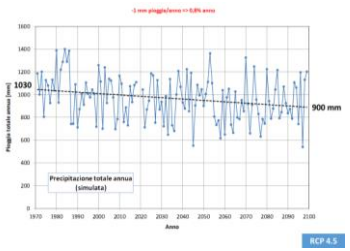
ERC – ASSESSMENT OF ENVIRONMENTAL COSTS

«Water» Directive 2000/60/EC (WFD)

DM 24 february 2015, n. 39



- FORESTATION
- LAMINATION
- STORAGE
- WASTE WATER
- CREATION AND REQUALIFICATION OF ECOSYSTEMS
- MAINTENANCE
- MONITORING
-



Budget economies SYSTEMIC AND NON-EMERGENCY ACTION PLANS

Tab. 23		Lamone		Bidente/Ronco		Marecchia		TOTALE		
Caratteristiche bacini / Interventi di Manutenzione	Pendenze	Estensione	Costo manutenzione (€)	Estensione	Costo manutenzione (€)	Estensione	Costo manutenzione (€)	Estensione	Costo manutenzione (€/anno)	Costo manutenzione (€ in 10 anni)
Boschi e foreste* (ha)	< 10%	1.617,03	4.527.691,62	140,57	393.587,12	765,46	2.143.275,12	2.523	7.064.553,86	21.193.662
	> 10%	26.451,04	92.578.644,81	25.909,18	90.682.122,41	19.042,68	66.649.384,58	71.403	249.910.151,80	749.730.455
aree senza manutenzione										
eliminazione superfici a taglio (dato RER ciclo decennale) (ha)		1.836		1755		1177		4.768		
no manutenzione per fustaie dense in parchi nazionali/regionali (ha) (AAPP)		1.928	di cui 976 pianura	3848		42		5.818		
totale aree da eliminare ha		3.764		5603		1219		10.586		
totale aree da eliminare % rispetto al totale		13%		22%		6%				
Boschi e foreste* (ha) al netto delle aree a taglio e AAPP	Pendenze	Estensione	Costo manutenzione (€)	Estensione	Costo manutenzione (€)	Estensione	Costo manutenzione (€)	Estensione	Costo manutenzione (€/anno)	Costo manutenzione (€ in 10 anni)
	< 10%	641,03	1.794.891,62	140,57	393.587,12	765,46	2.143.275,12	1.547	4.331.753,86	12.995.262
	> 10%	23.663,20	82.821.203,22	20.306,26	71.071.924,69	17.823,41	62.381.930,03	61.793	216.275.057,94	648.825.174
Prati stabili (ha)*		799	1.848.886	1.264,0	2.924.896	1.559	3.607.063	3.622	8.380.845	25.142.535
Canali aree agricole (Km) (regimazione acque)**	< 10%	540,00	1.868.400,00	189,30	654978	275,80	954.268,00	1.005,10	3.477.646	17.388.230
	> 10%	1.953,30	11.836.998,00	2.299,70	13936182	1.122,30	6.801.138,00	5.375,30	32.574.318	162.871.590
Totale										867.222.790

Maintenance of agri-environmental systems

€ 1.105.663.552

equal to 0.07% of the regional GDP

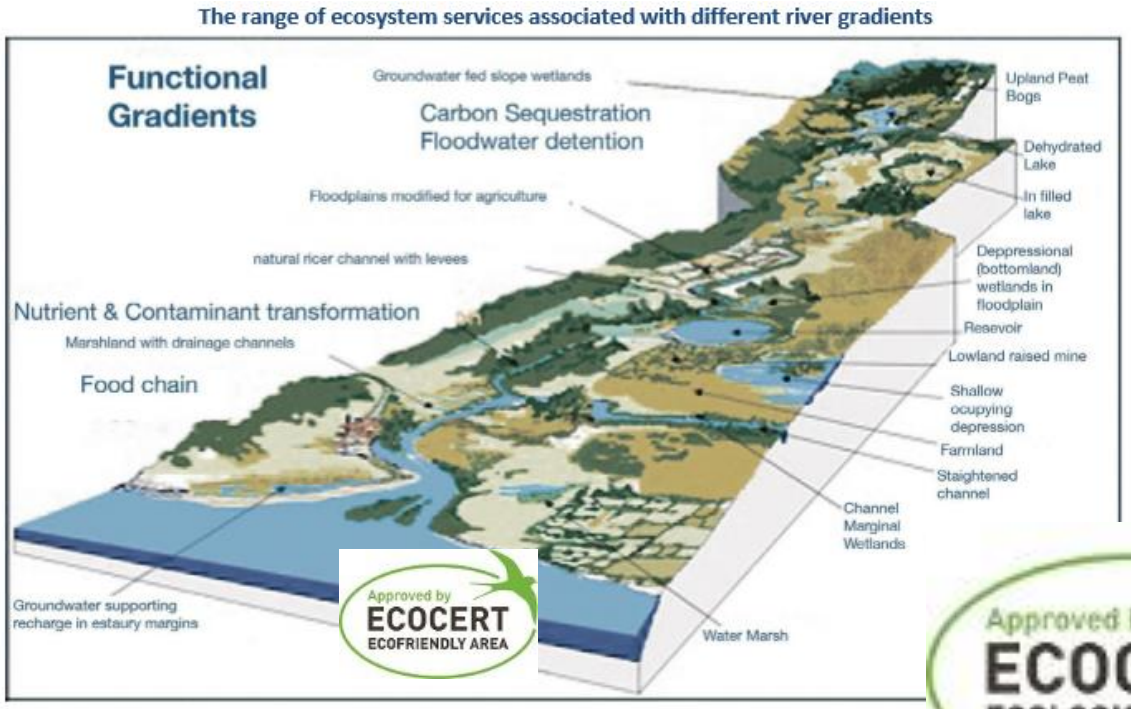
Tab. 25	Lamone			Bidente/Ronco			Marecchia			TOTALE		
Caratteristiche bacini / Tipi di Interventi	Estensione ha	Acqua stoccata m3	Costo interventi €	Estensione ha	Acqua stoccata m3	Costo interventi €	Estensione ha	Acqua stoccata m3	Costo interventi €	Estensione ha	Acqua stoccata m3	Costo interventi €
forestazione	n.d.		n.d.	24,0	10392	775.500	180	77.741	5.924.820	204	88.133	6.700.320
laminazione	9,5	100.000	668.234	94,3	943.000	6.601.000	84	841.200	5.888.400	188	1.884.200	13.157.634
stoccaggio	314	13.990.000	98.064.568	61,9	2.476.000	17.332.000	94	3.754.800	26.283.600	470	20.220.800	141.680.168
acque reflue	n.d.		n.d.	11,6	116.000	812.000	100	1.500.000	10.500.000	12	116.000	812.000
acquisizione aree	314		20.410.800	192		12.467.000	458		29.739.450	964		62.617.250
manutenzione	342		1.025.400	192		575.400	458		1.372.590	992		2.973.390
Totale parziale		14.090.000	120.169.002		3.545.392	38.562.900		6.173.741	79.708.860	2.828	23.809.133	238.440.762

Increase of the carrying capacity of ecosystems

SUM SUSTAINABILITY MANAGEMENT

INTEGRATED FUNCTION CERTIFICATION

The challenge and the main advantage of an integrated and territorial environmental management procedure is to have a tool available that allows you to coordinate all environmental initiatives in a business, within a global and cross-functional approach.



Source: Rieu-Clarke, *et al.*, *UN Watercourses Convention – User's Guide* (CWLPS 2012), at 166 (citing UK M

ISO 14001

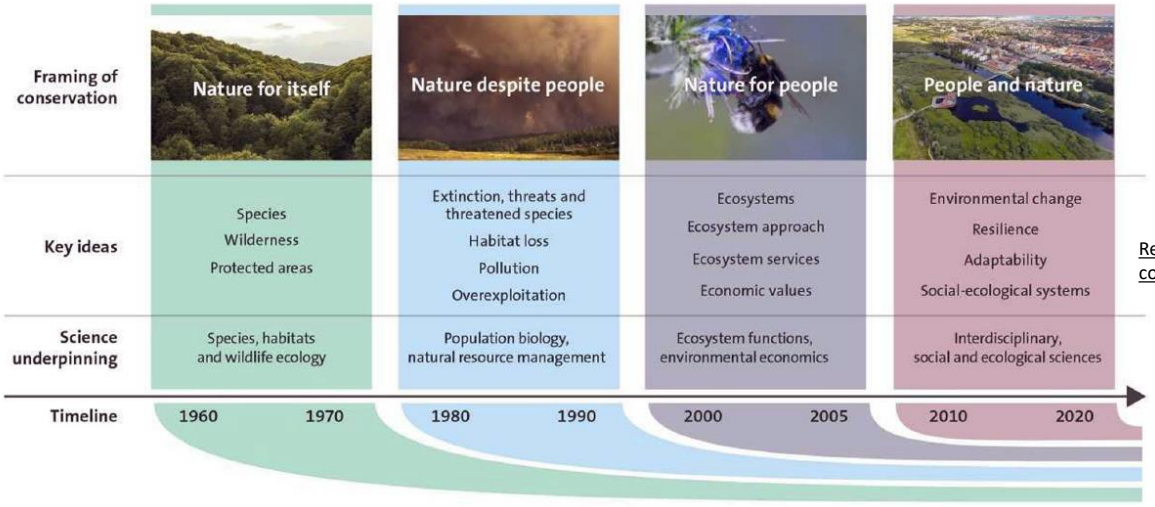
Approved by ECOCERT ECOLOGICAL AREA

EMAS
GESTIONE AMBIENTALE VERIFICATA
Reg.n.IT - 00XXXX

GROUP ECOCERT
Certification body for sustainable development

PARTICIPATION IS AWARENESS

Reconfigure the relationship between man and nature over time



Folke et al. 2021. Our future in the Anthropocene biosphere. Ambio. https://doi.org/10.1007/s13280-021-01544-8

Socio-ecological system

CLEAR OBJECTIVES

INTEGRATION

MULTIFUNCTIONALITY

Management Body for Parks and Biodiversity

CONSIDERATIONS

Identify FUNCTIONAL ECOLOGICAL / ECONOMIC UNITS (management areas, hydrogeographic basins, ecoregions, ...) in which to develop the resource assessment and management process through restoration ecology actions (Nbs and IN)*;*

Trigger processes of territorial equalization of the area on an ecosystem basis through an environmental balance;

Integration of actions between government sectors (eg. Departments, etc.) with the aim of maintaining ecological functions and resources;

Understand the potential effects on ecological functions and related dependencies and consider interactions at different scales to avoid the impacts of out-of-scale;

The enhancement of the activities that deal with the care of the territory (agriculture and sustainable forestry) that offer at least the maintenance of the ES.

Identity and Understanding how local populations can influence and / or depend on ecological functions and widen the benefits for the local populations in which companies operate by decreasing their conflicts; Corporate responsibility and non-financial reporting;

Corporate responsibility and non-financial reporting;

New taxation

Useful and circular economy models that economically recognize who provides SEs in relation to the demand in a territorial equalization perspective, implementing the decrees already partially prepared.

Thank you for your attention

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