NetworkNature Week

Science-Policy Dialogue

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NetworkNature Science-Policy Dialogue, Looking Forward: Nature Restoration

CNIT Forest, Paris la Defense

Nature-based solutions in national nature restoration planning: ambitions and challenges

Marta Zimny, Ministry of Climate and Environment, Poland
Juliana Schlaberg, Federal Agency for Nature Conservation, Germany
Lorenzo Ciccarese, Sustainable Development Foundation, Italy

The Italian Plan: three tests of operational credibility

2,078
MEASURE SHEETS

A substantial catalogue of proposed measures—but not 2,078 new projects, completed interventions or verified ecological outcomes.

The question is whether the measures are sufficient, well located, funded and deliverable.

01

ECOLOGICAL NEED

Where is degradation occurring?
What is driving it?
What recovery is required?

02

DELIVERY CAPACITY

Who will implement the measures?
With what authority, funding,
skills and practical resources?

03

PROOF OF RESULTS

What measurable improvement
is expected, by when, and
how will it be maintained?

The test is not the size of the inventory, but its capacity to produce lasting ecological recovery

DEFINITION

What do we mean by Nature-based Solutions?

UNEA Resolution 5/5 (March 2022)

"Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine **ecosystems**, which address **social, economic and environmental challenges effectively and adaptively**, while simultaneously **providing human well-being, ecosystem services, resilience and biodiversity benefits**."

- Ecosystems at the centre
- Societal and environmental challenges + biodiversity benefits (a bridge among crises)
- Effectiveness, monitoring and adaptation

NbS ≠ tree planting

The ecological context determines the right intervention.

Restoration ≠ NbS

There is overlap, but the concepts are not interchangeable.

Question 1 — Which approaches deliver multiple benefits?

Q1 | Design for multiple benefits

Start from the ecosystem (habitat) and the pressures—not from a preferred intervention

BIODIVERSITY

Habitat quality, connectivity, native species and ecological processes

WATER

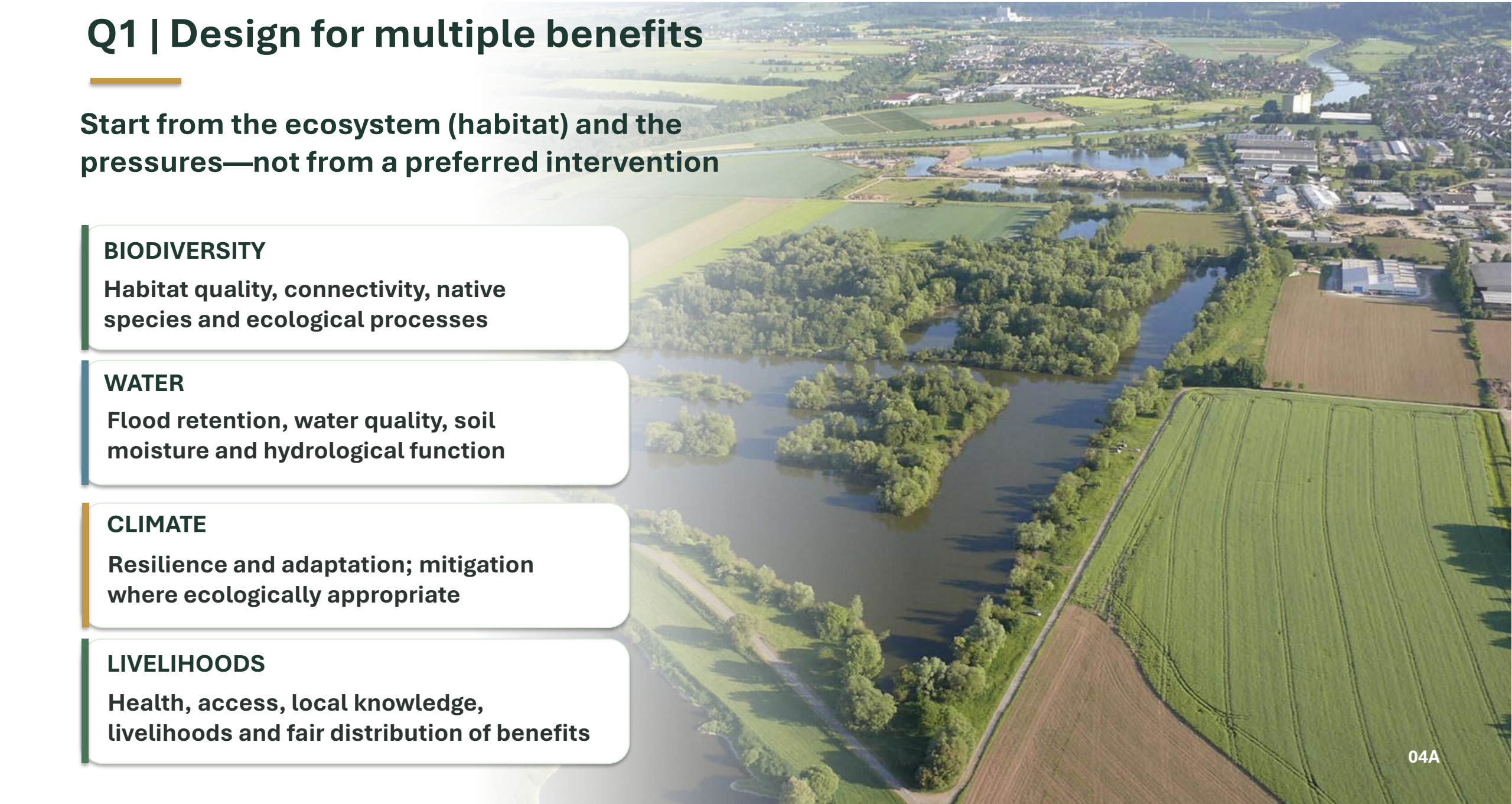
Flood retention, water quality, soil moisture and hydrological function

CLIMATE

Resilience and adaptation; mitigation where ecologically appropriate

LIVELIHOODS

Health, access, local knowledge, livelihoods and fair distribution of benefits



Q1 | Design for multiple benefits

One Approach Does Not Fit all

River Corridors & Wetlands

Reconnect floodplains and recover riparian vegetation to improve habitat connectivity, water retention, flood resilience, and carbon storage.

Agricultural Landscapes

Deploy hedgerows, ponds, field margins & riparian buffers for pollination and soil protection—must align with viable farming incentives.

Forest Ecosystems

Prioritize structural & species diversity, deadwood, and natural regeneration. *Not just maximizing tree cover or planted sapling counts.*

Urban Ecosystems

Protect green/blue spaces to reduce heat and manage rainfall. Address spatial inequality—city averages hide underserved areas.

*Use a **landscape approach**: diagnose trade-offs, protect existing ecosystems first, and monitor outcomes over time.*

From local interventions to landscape-scale restoration



Strategies and Actions to Recover the Landscape after Flooding: The Case of Vernazza in the Cinque Terre National Park (Italy)

Rosalba D'Onofrio * and Elio Trusiani *

School of Architecture and Design "E. Vittoria," University of Camerino, 63100 Ascoli Piceno, Italy

* Authors to whom correspondence should be addressed.

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- Diagnose degradation
- Set measurable ecological objectives
- Identify synergies and trade-offs
- Monitor outcomes and adapt management

Italy: three examples of restoration in practice

URBAN & PERI-URBAN FORESTS

A programme across 14 metropolitan cities, supported by "Next Genration EU»

Funding: 230 Meuros

Main programme targets include planting out 3.9M trees and shrubs across 3,900 ha.



PO RIVER BASIN

Renaturalisation across 56 intervention sites in four regions.

Funding: 357 Meuros

Measures include side channels, wetlands and riparian vegetation to reduce river artificiality.



WETLANDS & REWETTING

Projects in parts of the Northern Apennines seek to restore wetland habitats and hydrology.

Interventions include lakes, peatlands and watercourses.



These are programme/project descriptions—not, by themselves, evidence of verified ecological outcomes.

Question 2 — How can we engage sectors and make restoration feasible?

Q2 | From a list of measures to a credible National Restoration Plan

The draft plan submitted in September 2026 contains 2,078 measure sheets—not 2,078 completed projects.

1	**BASELINE**	What is the ecological starting point?
2	**OBJECTIVE**	What measurable change is expected, where and by when?
3	**RESPONSIBILITY**	Who delivers and who is accountable?
4	**COST & FUNDING**	Are implementation and long-term costs covered? (The full financing requirement remains to be clarified)
5	**MONITORING**	How will progress, effectiveness and durability be tested?

Some cost estimates of the drafs of the Italy's NRP remain incomplete; full financing needs, additionality and maintenance must be made transparent.

Q2 | Multilevel governance: many actors, one ecological system

Restoration depends on decisions made well beyond conservation policy.

AGRICULTURE

Land management, soil and landscape features

FORESTRY

Forest structure, diversity and connectivity

WATER

River continuity, wetlands and catchments

ENERGY & TRANSPORT

Infrastructure siting and mitigation hierarchy

CITIES & REGIONS

Spatial planning, urban nature and local delivery

BUSINESS & FINANCE

Value chains, risk, disclosure and investment

Roles are allocated across national, regional and local institutions; the challenge is coordination, capacity, accountability and continuity.

Incentives: spatial priorities and incentives

REDIRECT HARMFUL INCENTIVES

Assess subsidies and fiscal measures that drive ecosystem degradation; redirect support fairly towards nature-positive outcomes.

REWARD LONG-TERM STEWARDSHIP

Align payments, procurement, investment and technical assistance with measurable ecological outcomes and maintenance.

Kunming–Montreal Global Biodiversity Framework

- Target 2: restore degraded ecosystems; Target 3: conserve areas of importance for biodiversity.
- Targets 1–8 address pressures; Targets 9–13 sustainable use and benefit sharing.
- Targets 14–23 mainstream biodiversity and enable action, including finance (Target 19) and harmful incentives (Target 18).

Role of Forest Nurseries & FRM in Implementing articles and targets of Regulation (EU) 2024/1991

NRL Article & Scope	Specific Restoration Target	Role & Demand for Forest Nurseries / FRM	Key FRM Requirements
Art. 4 – Terrestrial, coastal and freshwater ecosystems	Restore 30% of degraded habitats by 2030, 60% by 2040 and 90% by 2050.	FRM for restoring forest habitats and degraded ecosystems.	Native species; suitable provenances; genetic diversity; traceability.
Art. 8 – Urban ecosystems	No net loss of urban green space and tree canopy by 2030 (2024 baseline); increasing trends thereafter.	Trees and shrubs for urban forests, green spaces and connectivity.	Diverse, climate-resilient species; urban tolerance; quality planting stock.
Art. 9 – Rivers and alluvial plains	Restore river connectivity and floodplain functions; remove barriers to restore 25,000 km of free-flowing rivers by 2030.	FRM for riparian forests, alluvial woodlands and floodplain restoration.	Native riparian species; suitable provenances; flood tolerance; genetic diversity.
Art. 10 – Pollinators	Reverse pollinator decline by 2030; achieve increasing trends thereafter.	Flowering native trees and shrubs supporting pollinators and ecological corridors.	Native flowering species; complementary flowering periods; species diversity.
Art. 11 – Agricultural ecosystems	Improve at least 2 of 3 biodiversity indicators; restore drained organic soils.	FRM for agroforestry, hedgerows and woody landscape features.	Native species; genetic diversity; multifunctionality; agricultural suitability.
Art. 12 – Forest ecosystems	Improve at least 6 of 7 forest biodiversity indicators.	FRM for forest restoration, diversification, connectivity and resilience.	Genetic diversity; suitable provenances; native species; climate adaptation.
Art. 13 – Additional tree planting	Plant at least 3 billion additional trees by 2030.	Large-scale nursery production for planting and ecological connectivity.	Adequate quantity and quality; native species; genetic diversity; traceability.

Question 3 — Where can science and innovation make the greatest contribution?

Q3 | Four priorities for research and innovation 1/2

1 BETTER BASELINES

Spatial data and indicators that capture ecosystem condition—not only area or activity.

2 BETTER MEASURES

Methods to assess biodiversity, climate, water and livelihood outcomes together.

3 BETTER IMPLEMENTATION

Evidence on costs, feasibility, incentives, governance and distributional effects.

4 ADAPTIVE MONITORING

Long-term data to test assumptions, detect failure and adjust measures.

Uncertainty is a reason to monitor and adapt—not a reason to postpone action.

Build the science–policy interface into the plan

POLICY QUESTIONS

What must change?

SCIENCE & METHODS

Which indicators and designs?

IMPLEMENTATION

What is delivered, where and how?

MONITORING

What changed—and for whom?

For Italy, indicators under Articles 8, 11 and 12 need appropriate datasets. The National Forest Inventory can collect policy-relevant attributes from the outset.

Q3 | Four priorities for research and innovation 2/2

NRL Indicator	Unit	Ecological & Policy Rationale	Italian NFI (IFNI) Contribution
Standing Deadwood	m^3/ha	Key habitat for saproxylic species, cavity nesters & natural cycles	Direct field tallying of standing dead trees (DBH, decomposition status)
Lying Deadwood	m^3/ha	Essential component for soil carbon, fungi & microhabitat quality	Field surveys of coarse woody debris on ground (volume & decay stage)
Uneven-Aged Structure	% area	Indicates structural complexity, higher resilience & biodiversity	Dendrometric data (height, diameter, age) classify even/uneven structure
Forest Connectivity	Index (0-100)	Key for ecosystem movement, species flux & climate adaptation	CFI2020 map combined with landscape metrics & ecological corridors
Common Forest Birds	Index	Bioindicator sensitive to habitat quality changes & restoration efficacy	NFI structural data integrated with ISPRA / EBCC ornithological schemes
Soil Organic Carbon	t C/ha	Major terrestrial carbon sink; links climate mitigation with restoration	Not in current IFNI; requires LUCAS topsoil data & new inventory parameters
Native Tree Species	% area	High native dominance reflects naturalness & ecosystem health	Identifies species composition (>50% native canopy threshold)
Tree Species Diversity	Index	Guarantees ecosystem functionality, stability & stress resistance	Tree species censusing allows computation of diversity indices

From a Plan on paper to restoration on the ground

Six tests for strengthening implementation in 2027



1 SPATIAL PRIORITISATION

Map restoration needs and define measurable ecological outcomes.



2 FINANCIAL CREDIBILITY

Cost implementation, maintenance and monitoring; identify additional funding.



3 GOVERNANCE & CAPACITY

Engage Regions, municipalities and river basin authorities with clear responsibilities.



4 SECTORAL INTEGRATION

Translate Articles 11 and 12 into concrete agricultural and forestry commitments.



5 DELIVERY INFRASTRUCTURE

Strengthen monitoring, research partnerships and restoration supply chains.



6 ADAPTIVE MANAGEMENT

Use monitoring evidence to adjust measures and address underperformance.

The ultimate test

Can the Plan deliver measurable ecological outcomes at scale?

Three priorities for delivery

1 **Plan for ecological outcomes—not activity counts.**

2 **Align sectors, incentives and finance with restoration goals.**

3 **Make science, monitoring and adaptive management part of implementation.**

The measure of success is whether ecosystems recover, biodiversity improves, ecological functions return and benefits endure.

Thank you | Questions & discussion