

BiodivRestore Knowledge Hub (not) final conference

29 September 2026, 14:00 - 17:30



Welcome Words

by Cloé Durieux (Knowledge Hub Secretariat, ANR)

Some General Information

Recording

- **This conference is being recorded**
- **Recording & slides:** will be posted on Biodiversa+ website after the event

• **REC**

Joining in

- **Rename yourself:** with your name and organisation
- **Use the Q&A function:** we will address questions live or via chat
- **Live polls:** we will invite you to contribute via Zoom

> 270 participants expected online

#BiodivRestoreKH

Posting about the
BiodivRestore Knowledge
Hub Final Conference on
social media?

Don't forget to tag
@BiodiversaPlus



Agenda

Opening

14:00–14:05 · Welcome Words

14:05–14:20 · Nature Restoration Regulation: State of Play and Key Challenges

14:20–14:30 · Introducing the BiodivRestore Knowledge Hub

From Bottlenecks to Solutions

14:30–14:40 · Introducing the Knowledge Hub workplan framing

14:40–15:15 · Session 1 · The Enablers: Governance, People & Finance

15:15–15:35 · Audience Q&A · Session 1

15:35–15:50 · Break

15:50–16:30 · Session 2 · Getting It Right: Standards, Data & Ecological Quality

16:30–16:50 · Audience Q&A · Session 2

Uptake, Legacy & Conclusion

16:50–17:15 · Uptake Dialogues: Making Tools Usable

- **Feedback on the Policy Briefs Campaign**
- **Perspectives From the Italian National Restoration Plan Team**

17:15–17:25 · From Experience to Continuation

17:25–17:30 · Closing Remarks

Nature Restoration Regulation: State of Play and Key Challenges

by Marialuisa Tamborra (European Commission, European Commission - DG ENV)



State of play of the Nature Restoration Regulation

BiodivRestore Knowledge Hub event
Online, 29 September 2026

env-biodiversity@ec.europa.eu

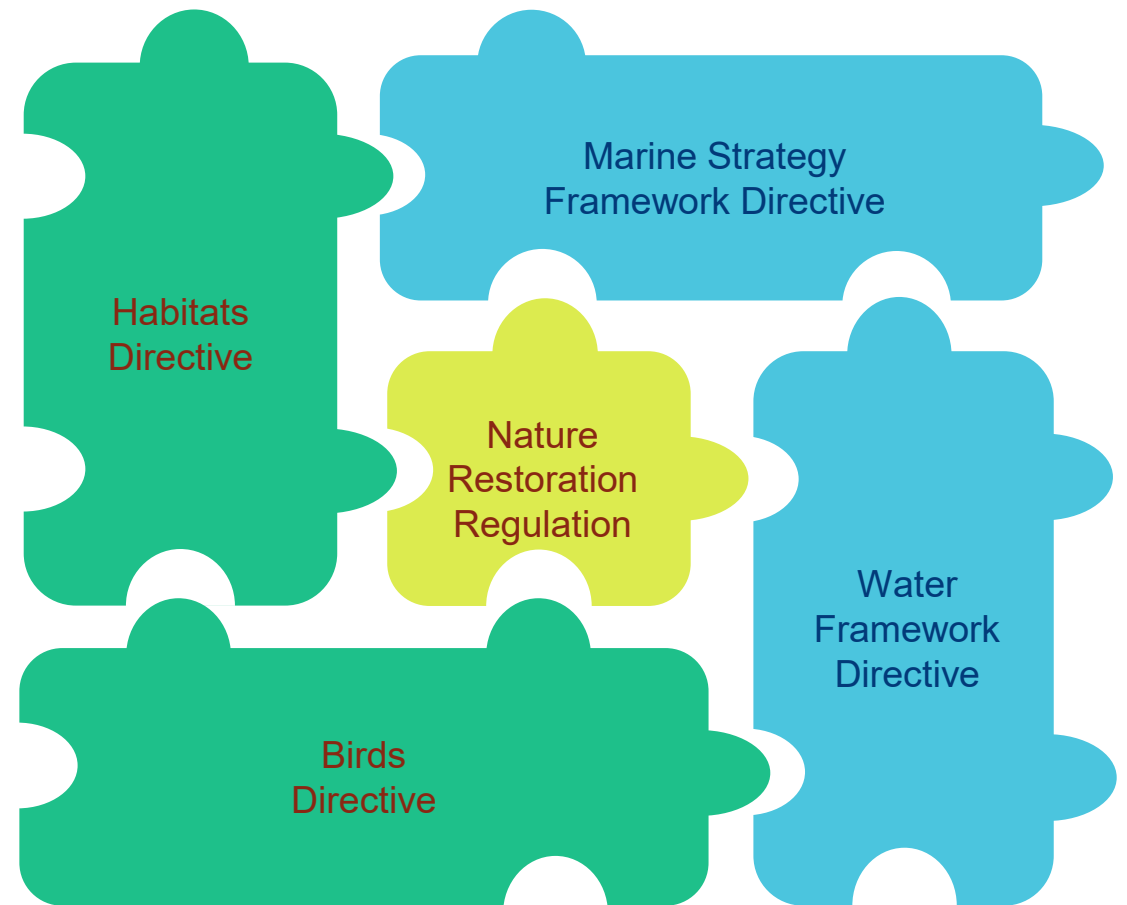
Rationale for the Nature Restoration Regulation

Need for reinforcing large-scale restoration

- Continuing ecosystem degradation and biodiversity loss across the EU
- Conservation to be strengthened but not enough
- 2020 EU Biodiversity Strategy targets not met

Important aspects for designing restoration policy

- Legal form of a regulation - applies directly, no transposition (urgency!)
- Complement and build on existing policy framework
- Focus on the synergies between climate change and biodiversity



Kunming-Montréal Global Biodiversity Framework

2050 Vision: 4 outcome-oriented goals

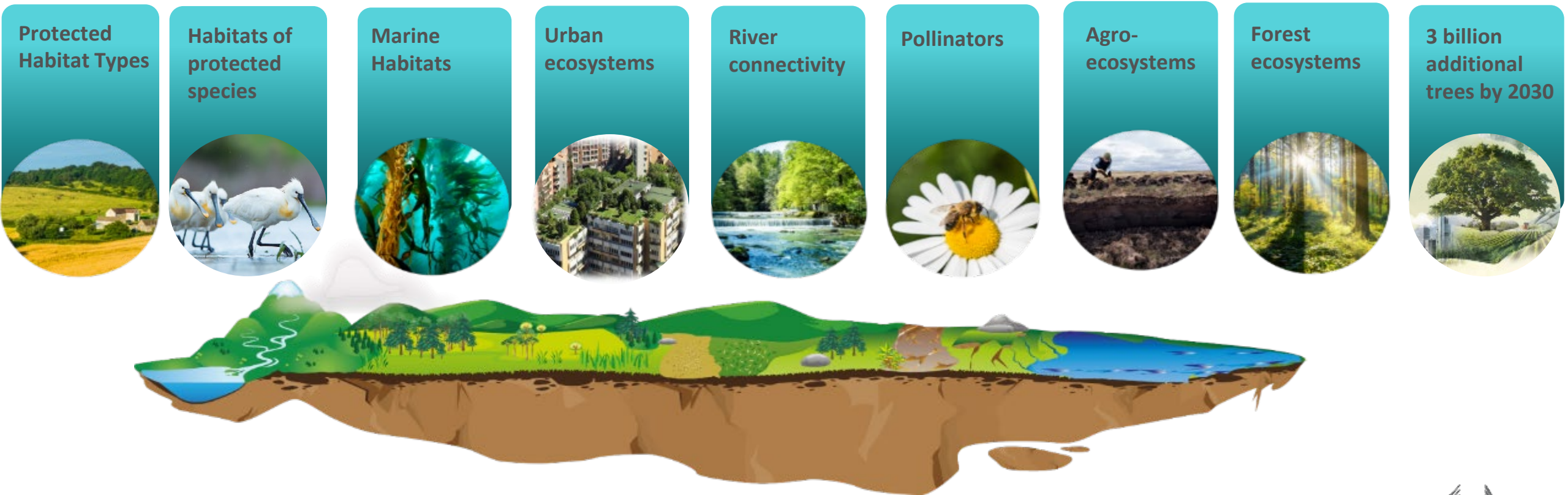
- Goal A: ‘The **integrity, connectivity and resilience** of all ecosystems are maintained, enhanced, or restored, **substantially increasing the area of natural ecosystems by 2050**’

2030 Mission: 23 action-oriented targets

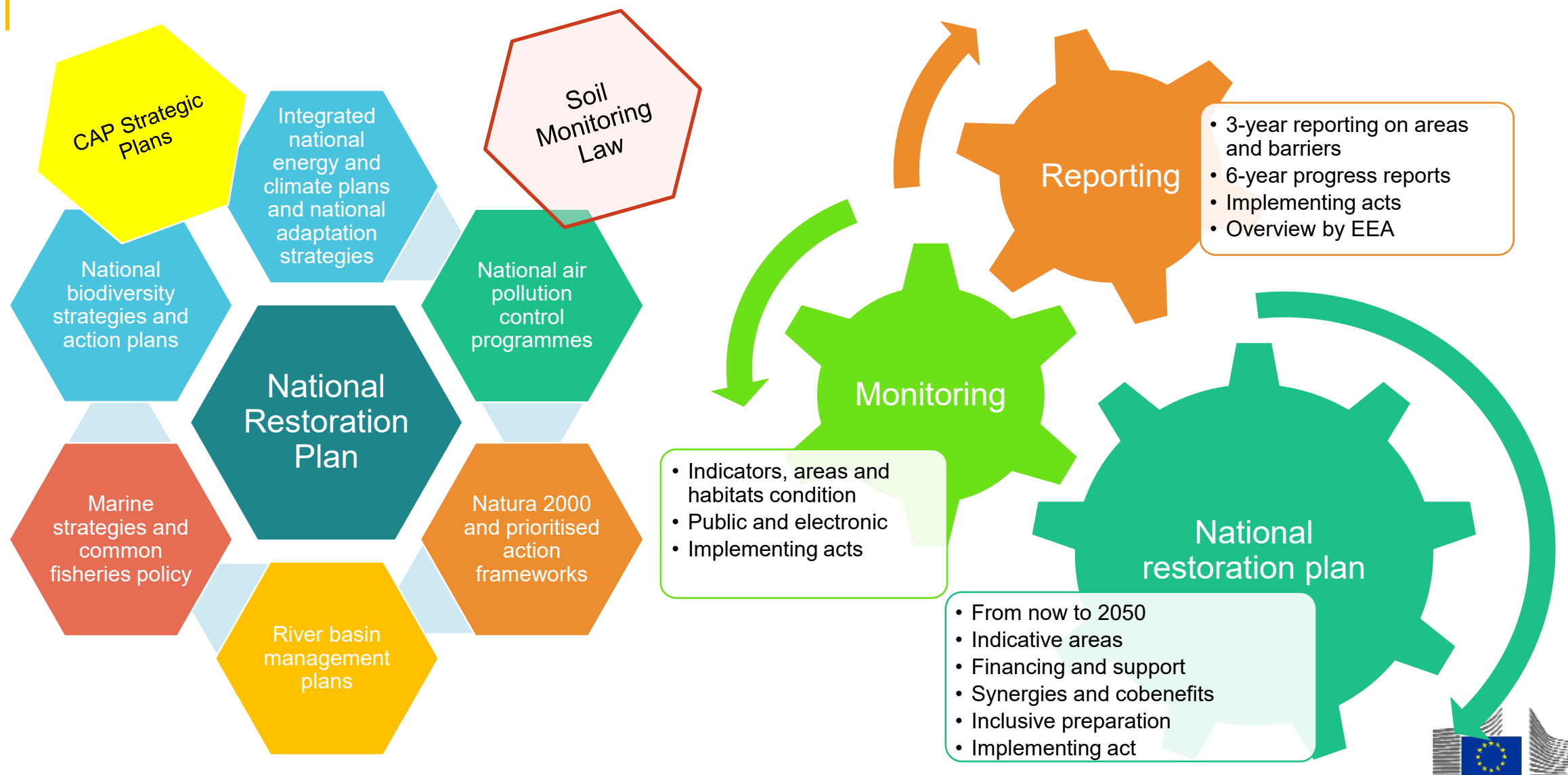
- Target 2: ‘Ensure that **by 2030 at least 30 %** of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under **effective restoration**’
- Other targets relevant for restoration:
 - 6 – invasive alien species,
 - 7 – pollution,
 - 8 – climate change,
 - 11 – nature-based solutions,
 - 12 – urban biodiversity



Specific restoration targets



An integrated implementation framework



The Roadmap towards Nature Credits

EU biodiversity spending has scaled up

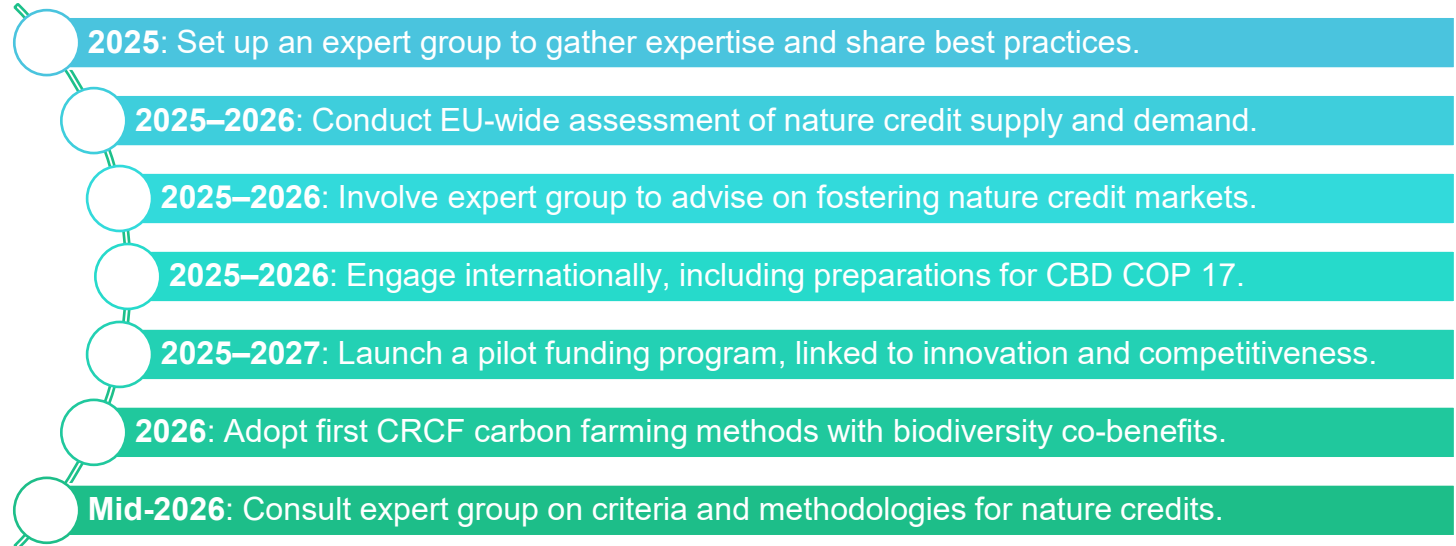
- Target of 10% of total EU budget for biodiversity
- Main contributing funds: CAP, Cohesion Funds, InvestEU, Horizon Europe, LIFE

Biodiversity finance gap remains

- EU: €65bn/year needed, **€37.4 bn/year gap** (EIR 2025)
- Global gap is around \$700bn/year

Leverage private finance along with public funds

- blended finance, de-risk private investment



Nature-positive action

Beyond individual legal compliance
Conservation & restoration

Science-based metrics

coherent approach in line with UN SEEA-EA
Exploring complementarity with ongoing systems

Verified outcomes

Measured or proxied
Context-adapted
By a Third party

High integrity

Sustainability
Transparency & traceability
Inclusiveness
Separation of roles

Not a commodification of nature but an aspiration to create a framework acknowledging and channelling private investment into nature-positive action!

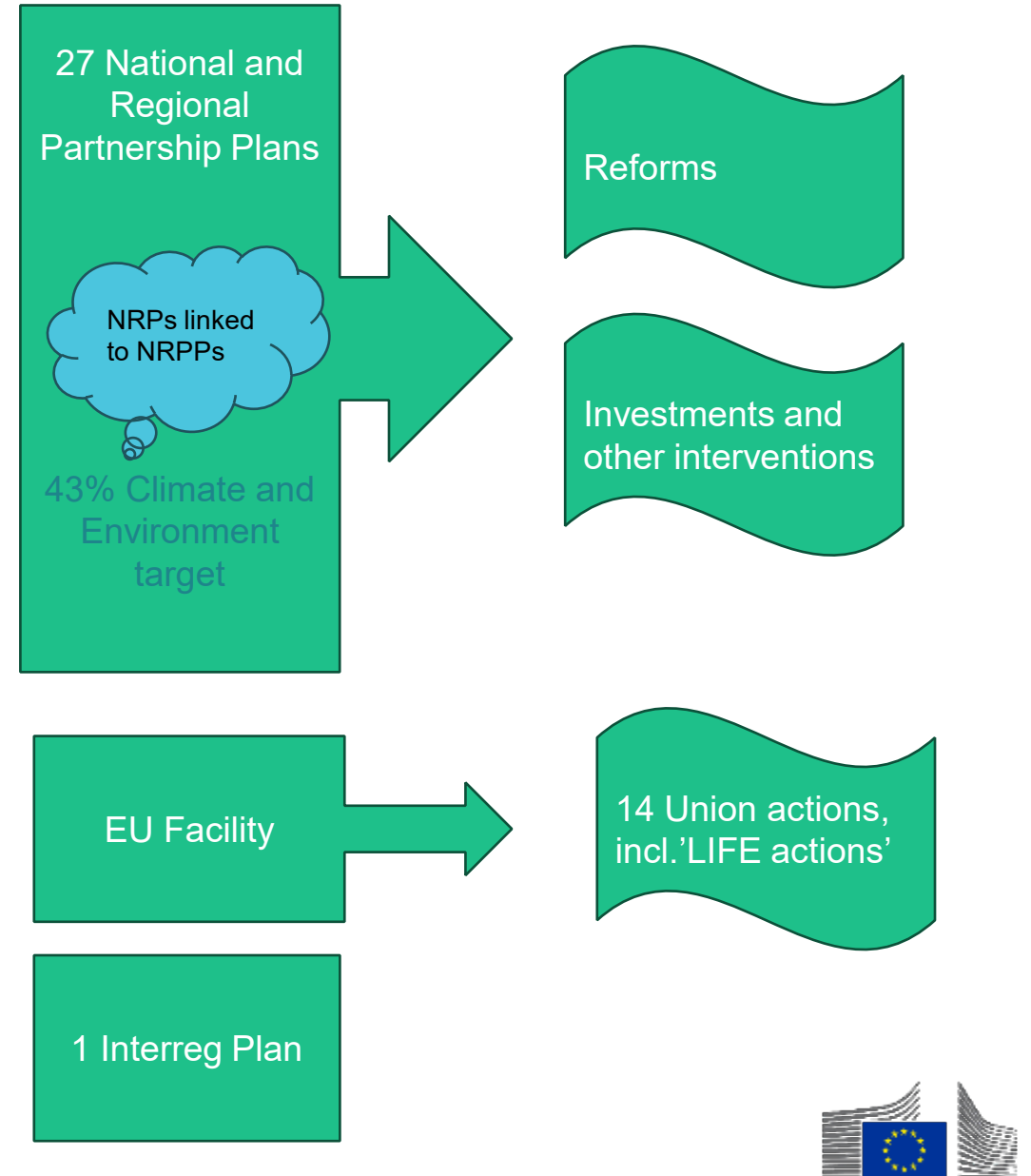
State of play of NRPs

Nature Restoration Plans 2030

- 8 MS (9 soon) submitted NRPs
- Others in the pipeline (under stakeholder consultation or awaiting Ministerial approval)
- Not all submitted NRPs are complete
- 6-month period for the EC to provide a feedback
- Final NRPs by September 2027

Linking the NRPs to EU policies

- Preparing NRPs in view of NRPP under the MFF 2028-2034 as part of 43% earmarking for climate and environment (budget EUR 866 billion)
- Life Snap by March 2027 will be open to MS having submitted NRPs.
- Emerging policy priority: restoring ecosystems as a key policy to address heatwaves and wildfires (SOTEU2026)



EU governance in Biodiversity Science-Policy interface

NRR portal - EEA

EEA Data and dashboards

Explore nature reporting data

Modified 09 Jan 2026

[Home](#) > [Topics](#) > [At a glance](#) > [Nature](#) > [State of nature in Europe: a health check](#) > [Explore nature reporting data](#)

Every 6 years EU Member States are required to report on the sizes of and trends in populations of birds (Article 12 of the Birds Directive) and on the conservation status of and trends in targeted habitats and species (Article 17 of the Habitats Directive) within their European territories.

The EEA, together with its European Topic Centre on Biological Diversity and consultants from the European Commission, compile and process the reports from the Member States. In addition, they assess the conservation status of species and habitats at the EU level.

These data are from the reporting period 2013-2018.

Methodology	▼
Datasets	▼
Web Viewers	▼
Results at EU level - dashboards	▼
Reporting from the Member States	▼
Data quality and coherence	▼

NRR Reference Portal

[Home page](#)

[Helpdesk](#)

[Browse by topics:](#)

- National Restoration Plans
- National related to specific targets of the Nature Restoration Regulation
- Other supporting material
- Useful material not published or prepared by the European Commission or EMA
- Information on NRR and public consultations in Member States
- Frequently Asked Questions
- Helpdesk

The Nature Restoration Regulation (NRR) Reference Portal includes a comprehensive set of guidelines, explanatory notes, reference data and other materials to assist with the development and implementation of the National Restoration Plans. This is a living page which will be updated regularly with new content. Further information on the NRR objectives, targets, (online and implementation are available in the European Commission's NRR webpages (general NRR website and NRR implementation website)).

New available content:

19/03/2024

Technical reporting manual (update)

15/03/2024

Technical notes on the identification of very common and endangered habitat types referred to in Article 4(2) of the Nature Restoration Regulation (update)

National Restoration Plans

Uniform format	
Uniform Form for National Restoration Plans, and language variants: Implementing regulation – 2012/1915/EU – EUR-Lex	The uniform form is a sample-based planning document, set up to closely follow the requirements of Regulation (EU) 2012/1915 on nature restoration, while allowing flexibility in the implementation phase and allowing for comparability across Member States.
Explanatory notes	Overview of the structure of the draft NRP format and an explanation of its contents. (Updated: 14/07/2023)
NRP preparation tool	Material that aims to facilitate the preparation by Member States of their draft NRP and supports the future submission through Regulation 2. It includes data matrix, reference data, extended templates, and instructions. (Updated: 18/10/2023)
Typology of measures	The typology of measures is used in Part C of the uniform form for national restoration plans. The typology includes types of restoration measures and other measures aimed at avoiding deterioration or supporting measures. (Updated: 20/01/2024)
Typology of assessments	The typology of assessments is used in the national restoration plan (NRP) for assessing the financial information, form information on measures as well as in the section on the habitat of species (annexal area). (Updated: 20/01/2024)
Technical reporting manual	Instructions about using Regulation 2 during the testing phase of the draft NRP. (Updated: 14/04/2024)
Webinar – “Test NRP dashboard in Regulation 2 (14/04)”	Webinar on Regulation 2's webtool for testing NRP dashboard (17/04/2022)
Webinar – “Test conceptual NRP dashboard in Regulation 2 (14/04)”	Webinar on webinar and Regulation 2's webtool for testing conceptual NRP dashboard (14/02/2023)
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Useful material not published or prepared by the European Commission

Disclaimer: The opinions expressed are those of the author(s) only and should not be considered as representative of the official position of the European Commission or the EEA.

Material related to specific
targets of the Nature
Restoration Regulation

[Other supporting material](#)

Useful material not published
prepared by the European
Commission or EEA

[Information on NRR and p](#)

Frequently Asked Question

[Helpdesk](#)

TRIN	Author/Organisation
EcoAdapt project	Advancing freshwater restoration (freshwater (river and lake) restoration project)
FuturaLakes project	Transforming lake restoration (freshwater (river and lake) restoration project)
Spongeworks project	New Horizon project aiming to restore wetlands, floodplains and increasing natural water retention in the landscape
Spongescape project	New Horizon project aiming to restore wetlands, floodplains and increasing natural water retention in the landscape
Spongecoset project	New Horizon project aiming to restore wetlands, floodplains and increasing natural water retention in the landscape
Website of Dem Removal Europe (DRE)	Dem Removal Europe (DRE)
Website of Open Rivers Programme	Open Rivers Programme
Website of the European Centre for River Restoration (ECRR)	European Centre for River Restoration (ECRR)
Nature Restoration Guidance – Wetwaters +	Wetwaters +
Large scale RESToration of COASTal ecosystems through rivers to sea connectivity – Policy briefs	RESTCOAST
Financing European Wetlands: A Roadmap towards an institutional asset class (Publications Landscape Finance Lab)	Landscape Finance Lab
Best practices in European wetland restoration: a review of manuals and guidelines	Springer Nature Link
Website of MGRUIN (Mainstreaming Ecological Restoration of freshwater-related ecosystems in a Landscape context: Innovation, upscaling and transformation: MGRUIN)	MGRUINproject
Supporting the development of national restoration plans	European Research Executive Agency
Guidelines to develop national Forest Bird Index for the new EU Nature Restoration Regulation	European Bird Census Council
Guidelines on native system restoration, monitoring, biodiversity and historical ecology	NORA – the Native System Restoration Alliance
Seagrass Restoration – Handbook	The Catchment Based Approach (CoBA)
Saltmarsh Restoration Handbook	The Catchment Based Approach (CoBA)
Restoring Saltmarsh and Coastal Habitats with Dredged Sediment	The Catchment Based Approach (CoBA)
Implementing the Nature Restoration Regulation through revisiting Guidelines for drifting National Restoration Plans	Revisiting Europe
Habitat Management for Butterflies: Saving the Curve of the Grassland Butterfly index	Butterfly Conservation Europe (BCE)
DAF Briefing/Good Practices Nature Restoration - June 2026	EUROPEAN HABITATS FORUM BRIEFING (EHF)

Information on NRR and public consultations in Member States

This page presents a living list of portals and web resources in Member States about the implementation of the Nature Restoration Regulation.

[Go to the page →](#)

Frequently Asked Questions

Do you have questions on the National Restoration Regulation implementation?

[Go to the Frequently Asked Questions](#) →

Helpdesk

Send us your questions about guidelines or data.

[Helpdesk](#)

Reporting and assessment for policy support – JRC

JRC Ecosystem Assessments (MAES)



JRC SCIENCE FOR POLICY REPORT

Mapping and Assessment of Ecosystems and their Services: An EU ecosystem assessment

Joachim Maas, Anne Teller, Markus Panfili, Denis Abdul Malik, Marco Rognoni, Simona, Andrea Nages, Pat Carlo Rega, Miroslav Cizic, Guido Cenci, Michele Meroni, Giovanni Caudullo, Br Ammann, Battaglini, Josée San M Zhi, Ad de Roo, Ana Cristina Cardoso, Eugenio Serrano, Vito Cerio, Alessio Robert, Georgia Katsoulis, Eduardo G Montanelli, Alberto Dignen, Chiara



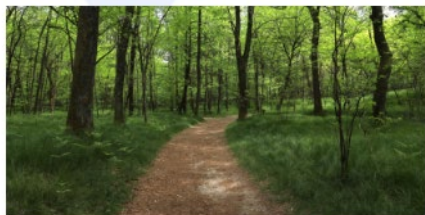
European Commission

Joint Research Centre

Towards the second EU Ecosystem Assessment

Paracchini, M.L., Vallejo, S., Marchetti, A., Marcantonio, M., Baredo, J.J., Sánchez-Espinoza, A., Trombetti, M., Galimberti, F., Alonso Aller, E., Arias Navarro, C., Cardoso, A.C., Grammatikopoulou, I., Czúcz, B., Abdul Malik, D., Cadahia Lorenzo, L., Caudullo, G., Grizzetti, B., Guerrero Fernandez, I., Jones, A., Kolstad, A., Kuželová, P., La Notte, A., Liakos, L., Lique, C., Malhi, Z., Magliozzi, C., Noote, M., Orgiazzi, A., Pardo, A., Petersen, J.E., Prodi, C., Pham, D., Polce, C., Scarpa, S., Van Der Velde, M., Vighi, M., Weiss, M., Zulan, G., Zurbaton Nucci, M.

2026



EU ECOSYSTEM ASSESSMENT

Summary for policymakers



EUR 30099 EN



Log in



Knowledge for policy

Home Knowledge Members Help

Knowledge Centre for Biodiversity

We enhance the knowledge base, facilitate its sharing and foster cross-sectorial policy dialogue for EU policy making in biodiversity and related fields.

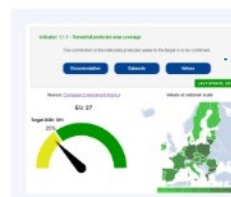
Browse Biodiversity tools



Global Biodiversity Data Viewer (GBDV)



EU Biodiversity Strategy Actions Tracker



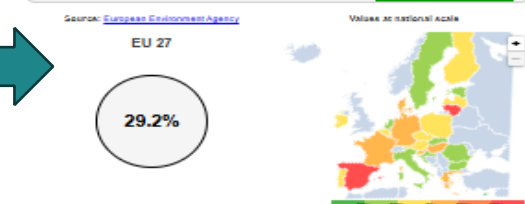
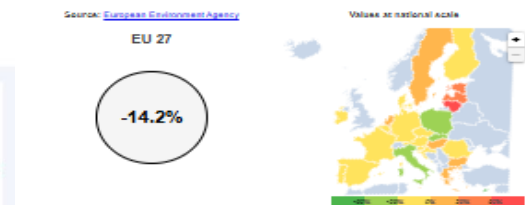
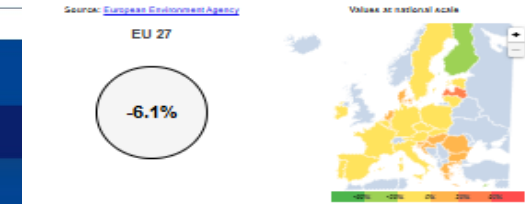
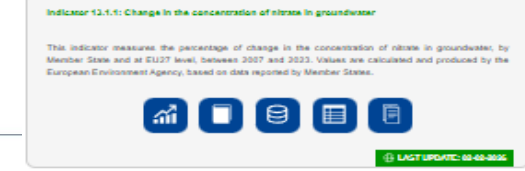
EU Biodiversity Strategy Dashboard



The Biodiversity Information System for Europe (BISE)

Target 12: The losses of nutrients from fertilisers are reduced by 50%, resulting in the reduction of the loss of fertiliser by at least 50%.

Subtarget 12.1: The losses of nutrients from fertilisers are reduced by 50%



EU Biodiversity Strategy Dashboard



Biodiversity Knowledge Provision

Biodiversity Knowledge Use

44 European Countries
(EU-MS & Other European Countries)

Subregional European Technical & Scientific Cooperation Support Centre (TSCC)

European Commission
Knowledge Centre for
Biodiversity (EC KCBD)

Biodiversity Information System for
Europe (BISE)

Science Service for
Biodiversity (SSBD)



EU Biodiversity Observation
Coordination Centre (EBOCC)

TSCC Coordination Group

- KCBD
- Royal Belgian Institute of Natural Sciences
- IUCN Centre for Mediterranean Cooperation

Global Coordination Entity
(CBD Secretariat)

CBD Secretariat

European Commission
Policy DGs

EU Biodiversity
Platform & Subgroups

EU Business &
Biodiversity Platform

Informal Advisory Group Technical &
Scientific Cooperation (IAG-TSC)

European Statistical Office
(EUROSTAT)

Joint Research Centre (JRC)

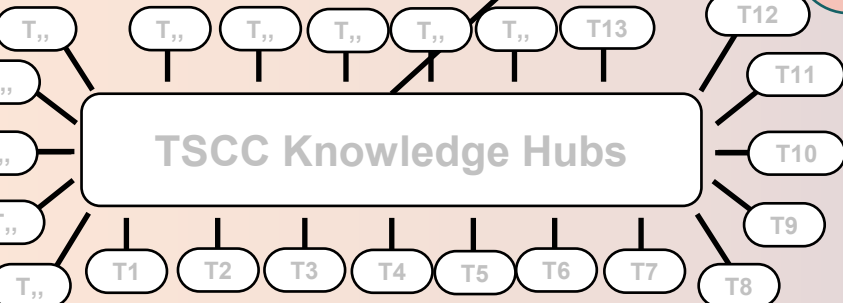
European Environment
Agency (EEA)

Horizon Europe projects &
other research initiatives, ,
including Biodiversa+

Other programmes, projects
& initiatives

Non-Governmental
Organisations (NGOs)

TSCC Knowledge Hubs



Thank you



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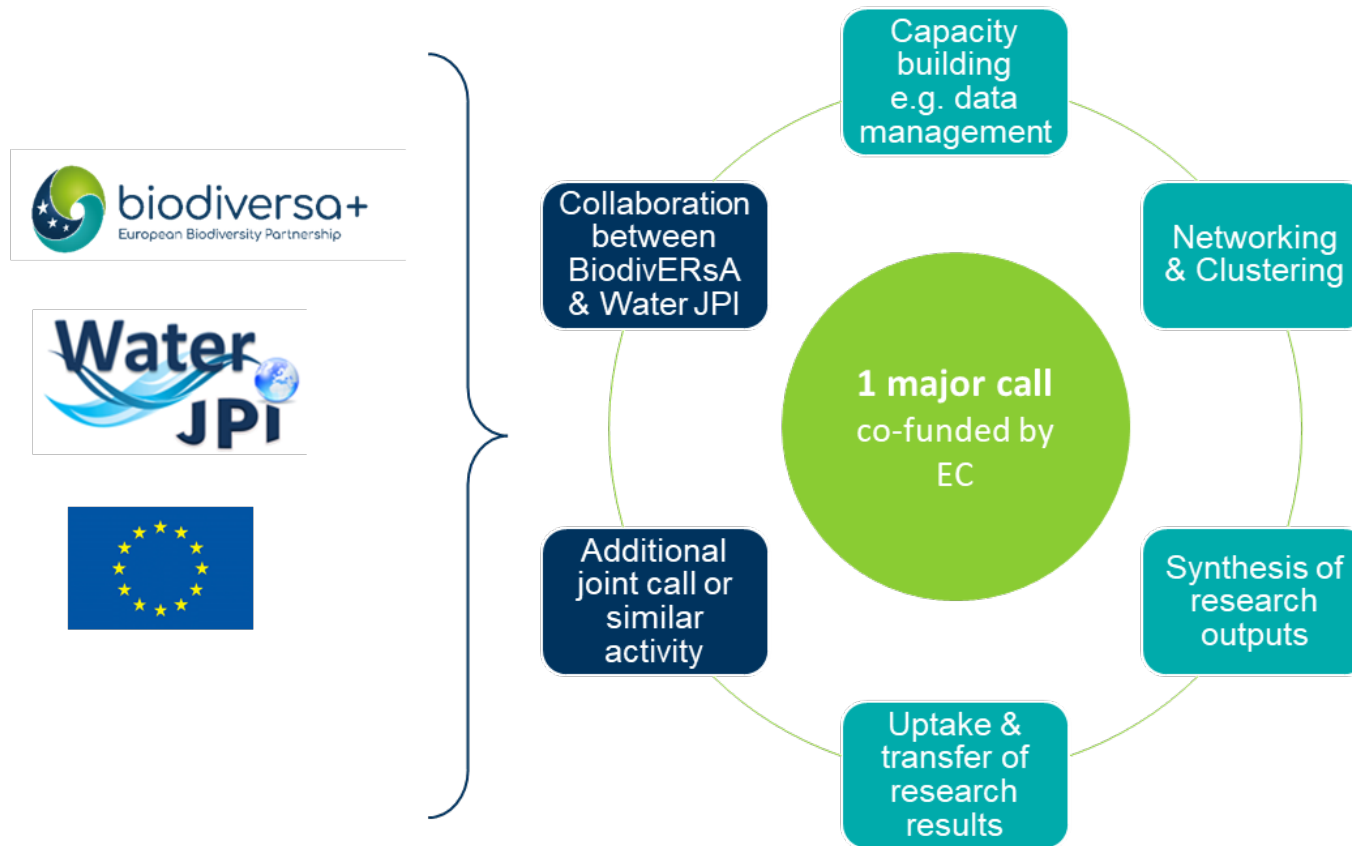


Introducing the BiodivRestore Knowledge Hub

*by Rainer Sodtke (Biodiversa+ co-chair, DLR) and Ondrej Kusbach
(Knowledge Hub Secretariat, TACR)*

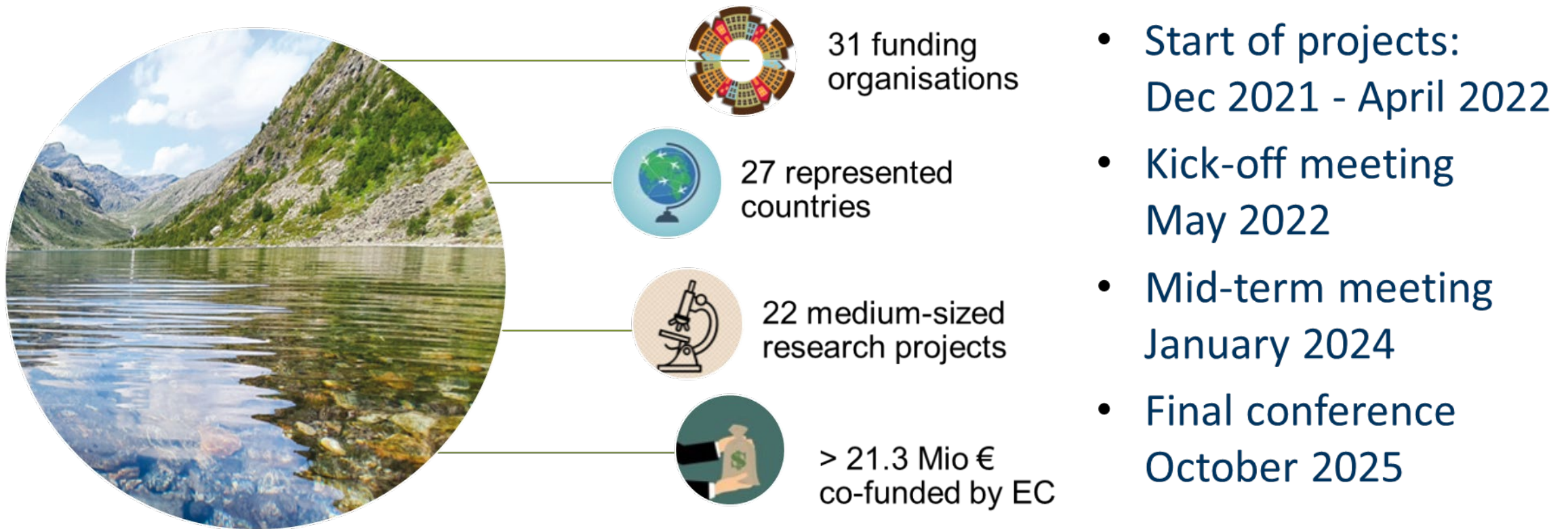
The BiodivRestore ERA-Net Cofund Action

ERA-Net Cofund Action 2020-2026



The BiodivRestore Research Call 2020-2021

Conservation and restoration of degraded ecosystems and their biodiversity, including a focus on aquatic systems



What is the Knowledge Hub?

- **50 experts** - from BiodivRestore projects but also other Horizon 2020/Horizon Europe restoration projects and initiatives.
- **Interdisciplinary group of experts** (biodiversity, ecology, social sciences, political sciences, land management and law).
- The aim is to **support the Member States with the implementation of the Nature Restoration Regulation (NRR)** and also to **feed in the Research and Innovation agenda on restoration**.
- The KH has participated in multiple **events and conferences** and was a visible actor on the field of restoration.

Key milestones

May 2024 - Launch of the BiodivRestore Knowledge Hub

May 2025 - Annual Event of the Knowledge Hub

September 2026 - (not) Final Conference of the Knowledge Hub



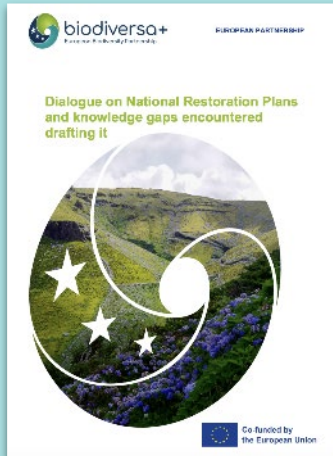
Introducing the Knowledge Hub Workplan Framing

by Laura Guimaraes (Knowledge Hub co-chair, CIIMAR, University of Porto)

Biodiversa+ Dialogue-Event “*National Restoration Plans and knowledge gaps encountered when drafting them*” (May 2025)

Aim: exchange on the preparation of the **National Restoration Plans (NRPs)** due by Member States on September 2026

Who: 20 EU Member States representatives & 6 BiodivRestore Knowledge Hub experts



Access the report here!



- Practical and scientific challenges in National Restoration Plans drafting
- Knowledge gaps, support needs for policy, science & funding alignment
- Coordination with BiodivRestore Knowledge Hub activities

Key Challenges Identified

Data & Baselines

- Inadequate or fragmented data in **Natura 2000** areas
- Poor coverage of **marine and freshwater ecosystems**
- Need for operational guidance on **habitat mapping, restoration measures**



Capacity Constraints

- **Limited human and technical resources** in ministries/agencies
- Unclear **governance and coordination**
- Need for **long-term expertise** and **allocation of resources to education and training in the multiple fields covered by the NRR**



Stakeholder Involvement

- **Uneven consultation**; weak public engagement
- Better communication needed on **co-benefits and costs of inaction**

Barriers & Opportunities

Barriers

- **Reluctance** of primary production sectors (agriculture, forestry, fisheries)
- **Fragmented funding and policy incoherence** (e.g., Common Agricultural Policy vs. Nature Restoration Regulation)
- Uncertainty in benefit quantification and **cost–benefit** communication

Opportunities

- Strengthened inter-ministerial and cross-border **cooperation**
- Creation of **national and biogeographical hubs** for coordination
- Use of **citizen science**, modelling & centralised databases
- Integration of restoration **with climate and socio-economic goals**



Knowledge Gaps & BiodivRestore Knowledge Hub Support

Knowledge Gaps

- **Favourable Reference Areas (FRAs)** definition and quantification methods
- Data and methods for **large-scale, long-term** restoration
- Lack of **harmonised monitoring standards** across Member States
- **Socio-economic analyses**: cost of inaction, conflict management, incentive design
- Approaches to address the **lack of baseline data**

Some BiodivRestore Knowledge Hub Support

- **Regulation Digest** simplifying NRR interpretation
- **Knowledge gaps paper** and Policy Briefs on **enabling conditions, public-private-partnerships** and **adaptive management**
- ...



Conclusions and Next Steps

Urgency

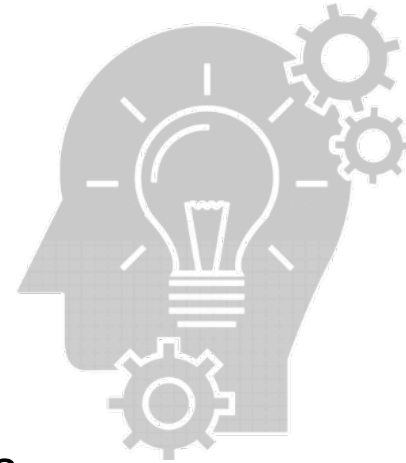
- First National Restoration Plans **risk low ambition due to lack of data, capacity and political will**

Immediate Needs

- **Science-based operational tools** for FRAs and restoration mapping
- Clearer **funding alignment** and stronger **EU policy coherence**

Long-Term Vision

- integrate restoration with One Health and climate policies
- Reform Common Agricultural Policy conditionality to support agroecological transitions
- Foster adaptive management, citizen participation and continuous learning



Effective NRR implementation demands robust science–policy interfaces, resource mobilisation and cross-sectoral collaboration at all levels

Session 1 - The Enablers: Governance, People, and Finance

Moderated by Vito Emanuele Cambria (KH co-chair, Sapienza University of Rome)

Session 1 - The Enablers: Governance, People, and Finance

Getting restoration right together: a foundational digest on the Nature Restoration Regulation

By Rachel Kristensen (Municipal Councillor - City of Nedlands), Franziska Wenskus (University of Duisburg-Essen)

1. Implementation challenge addressed



The identified challenges

- NRR implementation brings together different sectors, disciplines, levels of governance and areas of expertise, each with different terminology, perspectives and responsibilities.
- There is a **need for a common language and shared understanding** of the key elements of the NRR, restoration and scientific best practice.
- Effective implementation requires **crossing the bridge between policy, science and practice, connecting national planning with regional and local implementation.**

Without this connection, knowledge and expertise can remain fragmented across the implementation chain, limiting opportunities to learn from each other and optimise restoration outcomes.

The digest was developed through an **iterative process of engagement.**

The Knowledge Hub used conferences, Member State dialogue, NRR Expert Group engagement and the expertise of its interdisciplinary members to identify implementation challenges, knowledge gaps and user needs.

These insights were progressively brought together into a common, accessible reference document which links the NRR with restoration science, practical experience and best practice.

1. Implementation challenge addressed

How *Getting Restoration Right Together* responds

- ✓ Provides a **common reference and shared starting point** for understanding the NRR, restoration principles and scientific best practice.
- ✓ Brings together legal requirements, scientific knowledge and practical restoration experience in one accessible resource.
- ✓ **Uses ecosystem-specific guidance and DOs & DON'Ts** to connect scientific evidence with practical restoration decisions.
- ✓ Supports an interdisciplinary approach, helping policy makers, scientists, practitioners and stakeholders understand how their respective knowledge and roles contribute to implementation.
- ✓ **Connects the different levels of the implementation chain**, from NRR requirements and national planning through to regional and local restoration action, monitoring and adaptive management.

2. Primary users

Designed for interdisciplinary audiences, it is a common starting point for understanding both the NRR and the principles of good restoration.

Primary users

- **Restoration practitioners and land managers:** planning, implementing and managing restoration.
- **Regional and local authorities:** translating NRR and NRP objectives into restoration action.
- **Stakeholders and organisations involved in restoration:** including NGOs, landowners, farmers, foresters, fishers and other relevant sectors.

Should also be considered by

- **National policymakers** and **National Restoration Plans teams**
- **European Commission / Member State representatives**



A user-friendly digest, bringing together key NRR objectives, obligations and targets with **restoration DOs and DON'Ts**, **ecosystem-specific guidance** and **practical decision support** for developing and reviewing National Restoration Plans and for planning, implementing, monitoring and managing restoration under the NRR at national, regional and local levels.

3. NRR obligation / implementation step

Where does it support NRR implementation?

This is a **WHOLE** NRR implementation support tool. The *Getting Restoration Right Together* digest supports the transition from “*What does the NRR require?*” → “*What does this mean for restoration?*” → “*How do we implement it using scientific best practice?*”

How it can support each stage:

- ➔ **Drafting:** Understand NRR objectives, obligations, targets and definitions; identify restoration needs and applicable targets.
- ➔ **Assessment:** Consider ecosystem condition, baselines, restoration needs, reference conditions and pressures.
- ➔ **Planning:** Select and design restoration measures; consider scale, connectivity, stakeholders, policy synergies and financing.
- ➔ **Implementation:** Apply ecosystem-specific DOs & DON'Ts and restoration principles to reduce implementation risks.
- ➔ **Monitoring:** Establish objectives, indicators and monitoring approaches linked to restoration outcomes.
- ➔ **Management / revision:** Use adaptive management to learn from implementation and adjust actions where needed.

4. Key messages

What problems does the digest help solve?

- 1 **NRR complexity:** The digest provides a clear, accessible entry point to the NRR.
- 2 **From legal requirements to restoration action:** The digest links NRR requirements with restoration principles, science and practical experience.
- 3 **Risk of ineffective restoration and environmental harm:** The DOs & DON'Ts and ecosystem guidance highlight practices that can help reduce these risks.
- 4 **Fragmented knowledge and practice:** The digest brings this knowledge together in one practical reference.
- 5 **Different users, different levels:** The digest provides a common reference point across disciplines and levels of implementation.
- 6 **From planning to implementation:** The digest provides practical support across the restoration process, rather than only at the planning stage.

5. How to operationalise it

When	How to use
Now – NRP drafting and preparation	Use as a quick-reference guide to understand the NRR Articles, obligations and targets; identify restoration needs; and inform the design and review of restoration measures in the draft NRP.
NRP assessment and review – 2026–27	Use to review proposed approaches against restoration best practice : Are the right pressures being addressed? Are baselines and objectives clear? Are measures appropriate to the ecosystem and scale? Are stakeholders and connectivity considered?
Final NRP development – 2027	Use alongside the developing NRP to identify gaps, risks and opportunities for improvement before measures are finalised.
Implementation – from 2027 onwards	Use as a practical reference for translating NRP commitments into restoration action at national, regional and local levels.
Monitoring and adaptive management	Return to the relevant principles, DOs & DON'Ts and ecosystem guidance when assessing progress, identifying unexpected problems and adjusting restoration approaches .
Ongoing learning	Use as a shared reference for knowledge exchange , helping practitioners compare experience, identify good practice and support future restoration decisions.



Use it first to **understand and plan**; then to **review and improve**; and finally as a **practical reference** throughout implementation, monitoring and adaptive management.



Getting Restoration Right Together

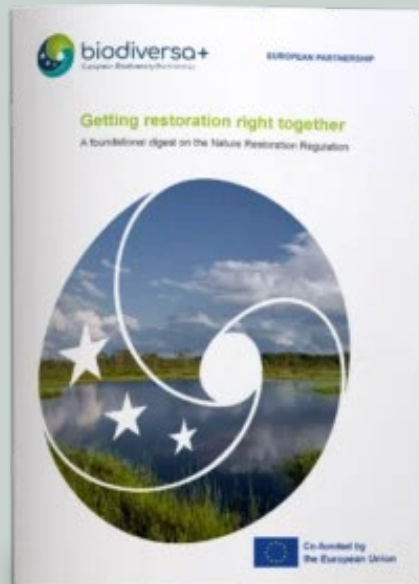
Plan. Restore. Monitor. Adapt.

Science-Informed Restoration for Lasting Recovery and Successful NRR Implementation

Access the full document!

KH DIGEST

PUBLISHED TODAY



Getting restoration right together:
a foundational digest on the Nature
Restoration Regulation

SCAN TO ACCESS



Want to know more? Join our 1-hour dedicated webinar!

SAVE THE DATE

1

WHEN

Oct 15, 2026 • 13:00 (Paris time)

2

TOPIC

Knowledge Hub webinar
Getting restoration right together

3

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Session 1 - The Enablers: Governance, People, and Finance

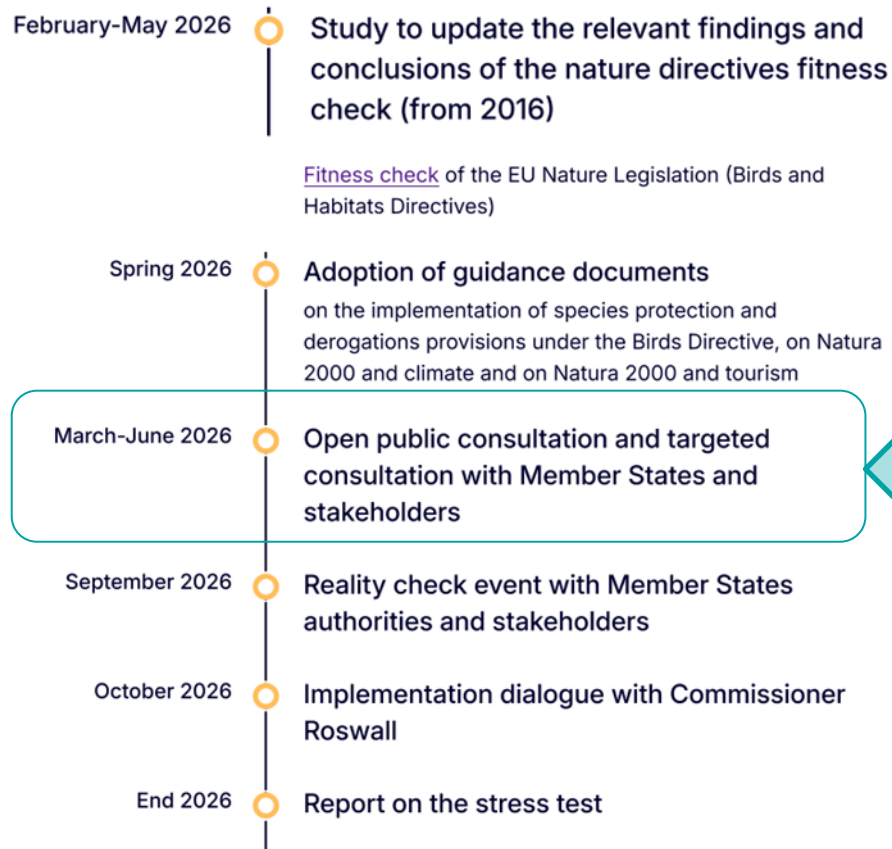
White Paper

Safeguarding Europe's Biodiversity Legislation – Scientific Evidence in
Support of the EU Birds and Habitats Directives under the 2026 Stress Test

By Metodi Sotirov (University of Freiburg)

1. Implementation challenge addressed

Challenge 1 Governance and coordination for implementation



Published on 22nd June 2026

Access the white paper here!



2. Primary users

- **EU institutions (COM, EP, CEU, ECJ) and MS authorities:** *polycymaking*
- **MS authorities (envi, agri, forest, fish, water, clima, energy):** *implementation, monitoring*
- **Restoration practitioners, project managers, consultants, and think-tanks:** *implementation, monitoring, policy advocacy*
- **Landowners, land-users and natural resource managers:** *implementation, policy advocacy*
- **Extractive industries and businesses (e.g., mining, agriculture, forestry, fisheries):** *implementation, policy advocacy*
- **Environmental NGOs, social rights CSOs, and citizens groups:** *implementation, monitoring, policy advocacy*
- **Researchers and educators, think-tanks, mediators, journalists, mass-media:** *monitoring, (implementation), policy advocacy*

3. NRR obligation / implementation step

Relevant to the Nature Restoration Regulation:

- NRR Art. 4 (Restoration of habitat types, Natura 2000)
- NRR Art. 14-18 (National Restoration Plans)

Among the questions addressed:

- What does current scientific evidence tell us about the **effectiveness** of the Birds and Habitats Directives?
- What **implementation barriers** continue to **limit conservation and restoration**?
- How can **governance, funding and cross-sectoral policy coherence** better support biodiversity objectives?
- What **improvements in monitoring, data systems and administrative capacity** could strengthen implementation without weakening existing safeguards?

4. Key messages



Assessing effectiveness

Scientific evidence indicates that the Birds and Habitats Directives remain fundamentally fit for their conservation objectives, but their domestic implementation in EU-27 varies widely.



Assessing socio-economic benefits

Available evidence points to economic and societal benefits associated with the Natura 2000 network (200-300 € billion/year) compared to implementation costs (ca. 10,2 € billion/year).



Strengthening funding and governance

Implementation challenges extend beyond the Directives themselves and require stronger cross-sectoral approaches.



Reviewing priorities

Pathways towards effective conservation outcomes include:

- Sufficient/appropriate implementation and improved monitoring;
- Increased administrative capacity and secured legal certainty; and
- Sufficient nature friendly funding and cross-sectoral policy coherence.



Birds and Habitats Directives provide much of the legal ecological and technical foundation for implementing the **Nature Restoration Regulation**.

5. How to operationalise it

Users can **download, read, circulate and cite** the:

White Paper



Summary for Policymakers



Press Release



Users can **refer** to White Paper:

Sept 2026

Oct 2026

Dec 2026

Beyond

Reality checks begin with MS authorities & stakeholders; NRR/NRPs Art. 4 implementation starts

Reality checks continue; talks with Commissioner Roswall

Final Stress Test report published by EC

Ongoing NRR & NRP Art. 4 implementation

Session 1 - The Enablers: Governance, People, and Finance

Report

Stakeholder Conflicts and Conflict Management in Nature Restoration

By Metodi Sotirov (University of Freiburg) & Rik De Vreese (European Forest Institute, UNPplus project)

1. NRR Implementation challenge addressed

Challenge 2: Participation, legitimacy and implementation capacity

Conflict type	Dominant decision-making logic	Central diagnostic question	Typical restoration manifestation	Primary conflict management pathway
Interest-based	Consequences	<i>What do actors gain or lose?</i>	Income loss, opportunity costs, unequal benefits or risks	Economic incentives, compensation, benefit sharing
Rules-based	Formal/legal appropriateness	<i>What are actors required, permitted or prohibited to do?</i>	Conflicting legislation, policy incoherence, unclear rights or mandates	Legal clarification, enforcement, policy change or integration
Norms-based	Social appropriateness	<i>Is the process or outcome regarded as fair and legitimate?</i>	Lack of recognition, procedural injustice, contested legitimacy	Participation, mediation, procedural reform, recognition
Ideological / knowledge-based	Cognition and interpretation	<i>What is true, valuable and desirable?</i>	Competing restoration paradigms, beliefs, knowledge or problem definitions	Dialogue, joint learning, knowledge exchange, reframing
Power-based	Authority and control	<i>Who decides and who can influence outcomes?</i>	Exclusion, unequal authority, resource control, institutional dominance	Governance reform, empowerment, redistribution of authority



2. Primary users

- **EU institutions (COM, EP, CEU, ECJ) and MS authorities:** *polycymaking*
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3. NRR obligation / implementation step

- **Stakeholder conflict** becomes particularly important for restoration when it produces opposition, non-compliance, litigation, delay, withdrawal, polarisation, institutional blockage or another behaviour that affects implementation.
- We expect to see stakeholder conflicts directed at the **whole Nature Restoration Regulation** and **all National Restoration Plans stages**.
- Report offers **25 case studies** with direct relevance for:
 - Art. 4 (Habitat types/Natura 2000)
 - Art. 5 (Marine ecosystems) and Art. 9 (Rivers and floodplains)
 - Art. 11 (Agricultural ecosystems), Art. 12 (Forest ecosystems) and Art. 13 (Tree planting)
 - Art. 8 (Urban ecosystems)
 - Art. 14-17 (National Restoration Plans)

4. Key messages

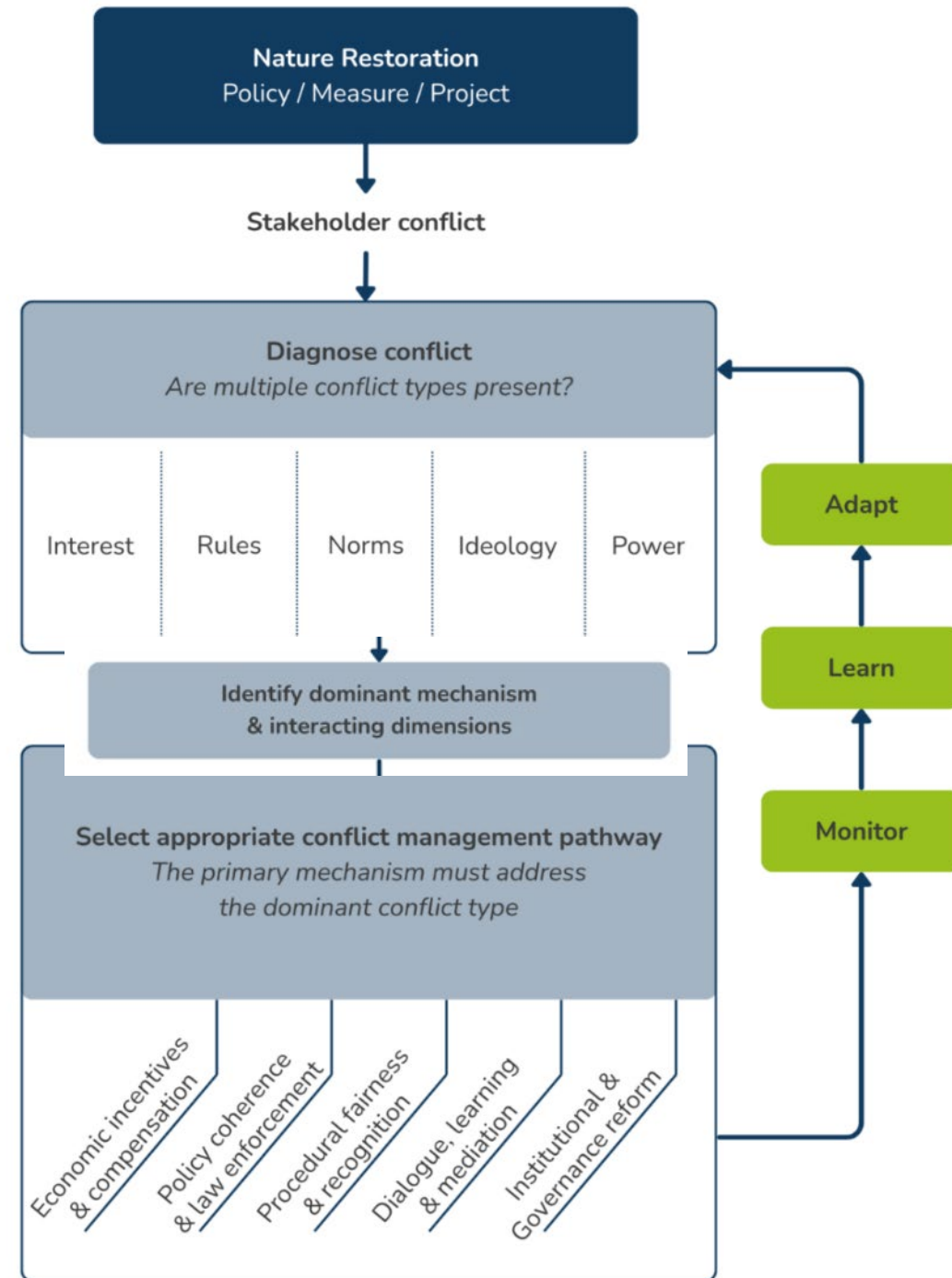
1. Nature Restoration is an **ecological intervention AND a process of societal choice and governance**.
2. **Conflict-sensitive governance is an integral part** of Nature Restoration Planning and implementation.
3. **Conflict management strategies** need to correspond to the dominant and interacting causes.
4. Conflict management aims not necessarily at eliminating the conflict, but at **resolution, mitigation, understanding and transforming** the underlying conditions.

4. Key messages

5

Diagnose before prescribing, and allow for learning and adaptation

1. Identify the **subject and parties** to the conflict: what is contested, which actors are involved and what claims or demands they advance.
2. Diagnose the **underlying cause(s)** of the opposition.
3. Identify the **dominant and interacting conflict cause**.
4. **Match conflict management pathways and instruments** to the dominant and interaction conflict causes.
5. **Monitor the outcomes and re-diagnose.**
6. **Adapt** the conflict management strategy if needed.



5. Implications for Nature Restoration Planning

1

Anticipate conflict early

Undertake stakeholder and conflict analysis before restoration measures and locations become fixed and before conflicts emerge. Guiding questions include:

- Who is likely to bear costs and who receives benefits?
- Which EU, national, regional or sectoral rules may conflict?
- Do affected stakeholders consider procedures and outcomes legitimate?
- Which competing values, knowledge claims and understandings of restoration are present?
- How are authority, resources and effective influence distributed among the actors involved?

2

Diagnose causes, not only positions

Distinguish material interests, conflicting rules, legitimacy concerns, knowledge/value disagreements and power inequalities.

3

Match conflict management instruments to conflict types

Use compensation for material losses, legal coordination for rule conflicts, meaningful participation for legitimacy problems, dialogue and learning for knowledge/value conflicts, and institutional reform where power is central.

4

Combine and sequence conflict management instruments

Most real conflicts require economic, legal, procedural, informational and institutional measures in combination rather than a single intervention.

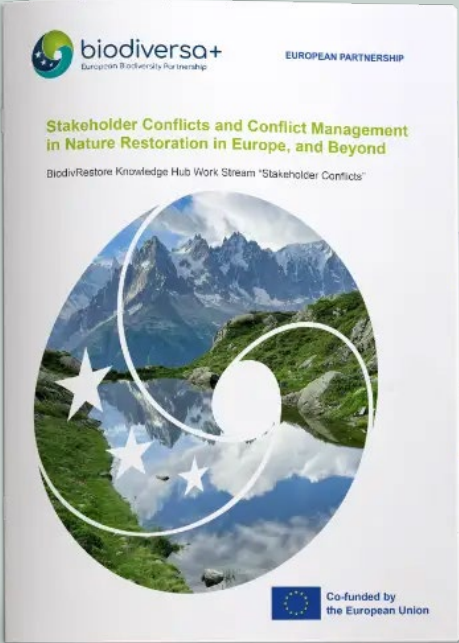
5

Monitor and re-diagnose

Include social and governance indicators alongside ecological monitoring because conflicts can evolve during implementation.

Access the full document!

CONFLICTS REPORT PUBLISHED TODAY



Stakeholder Conflicts and Conflict Management in Nature Restoration

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Societal conflicts report

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Session 1 - The Enablers: Governance, People, and Finance

Policy Brief and Workshop
Enabling Public-Private Partnerships (PPP) to Finance EU Nature Restoration
By Judith Fisher (Fisher Research Pty Ltd)

Public-Private Partnerships – A Definition

Collaborative agreements between government entities and private sector which leverage strengths of both sectors to deliver public services or infrastructure more efficiently and effectively.

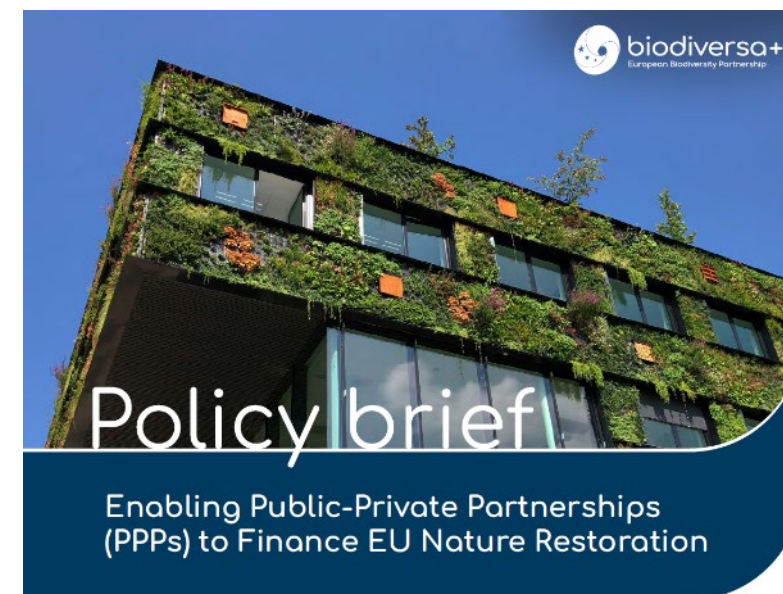
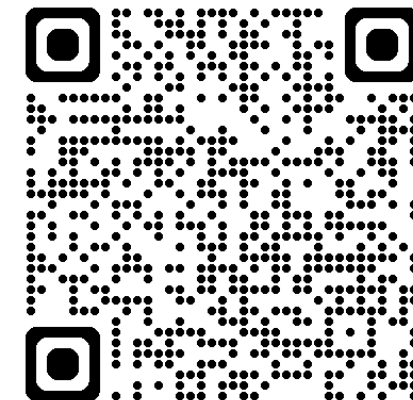
Key features:

- **Risk sharing** (allocating risks to the party best able to manage them)
- **Long-term contracts** (typically spanning 20-30 years)
- **Private sector investment** (reducing immediate financial burden on the public sector)
- **Performance-based payments** (ensuring accountability and quality)
- **Innovation and efficiency** through private sector involvement

Ultimate aim: Finance, build and operate projects that serve the public

Why PPPs?

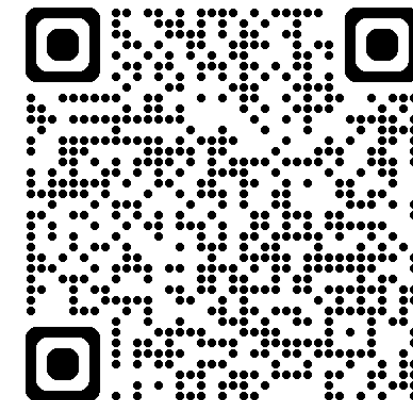
- Public Private Partnerships (PPP) can **align public oversight with private investment**
- Lay the foundations for **transformative change**
- Provide EU policymakers with **tested mechanisms** to channel private capital into nature restoration
- Safeguard **transparency** and **equity** via measurable public benefits and co-benefits
- Ensure **local participation** and **benefit-sharing**



Translations available in Finnish, French and German

Important Context

- **Legally binding targets** now in place via the Nature Restoration Regulation and the Green Deal
- Previous budget allocations softened with EU Competitiveness Compass and risks to EU LIFE and Common Agricultural Policy funding
- Expectation that **private finance will be instrumental in filling an estimated €65 billion annual nature investment gap**
- Roadmap Towards Nature Credits further sets the trajectory
- Not solely a lack of capital, but a **mismatch between how ecological systems function and how policy, reporting and funding is structured**



Translations available in Finnish, French and German

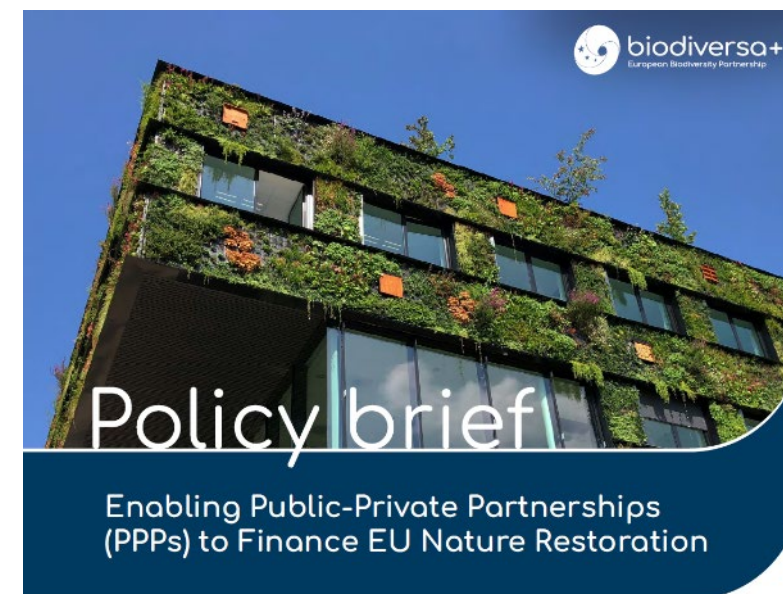
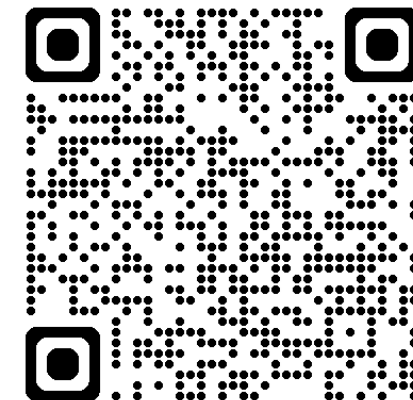
Enabling Integration of Nature into the EU's Economic Strategy

- **Share knowledge** on building robust and impactful business cases offering monetary and non-monetary values
- **Build capacity** within public authorities to design and manage PPPs for nature restoration
- **Help create a narrative** for restoration in market-failure locations - e.g., retrofitting Nature-based Solutions where services are lacking
- **Develop communication strategies** to increase societal awareness that...

Healthy ecosystems (water, pollination, food, climate) = Economic prosperity and human wellbeing

Key Messages

1. Growing competition for public funding will put financial resources dedicated to the Nature Restoration Regulation (NRR) at risk.
2. Nature underpins economic sectors that have the capacity, and can act as an incentive, to invest in nature restoration.
3. Limits and risks embedded in the policy landscape may undermine engagement of private sectors in nature restoration financing.
4. Public-Private Partnerships can facilitate private investment and support transformative change in nature financing.



Translations available in Finnish, French and German

Expected Operational Outcomes

1. **Increased pipeline** of investment-ready projects aligned with NRR targets, using pilot PPPs that align restoration goals with measurable nature and climate outcomes.
2. **Improved delivery** capacity within Member States via reduced reliance on full public funding.
3. **Enhanced market confidence** using the Leverage of public funding and mainstreaming cross-sectoral investment flows into nature restoration.

PPP Policy Brief Launch - June 10th 2026, Paris

Toward Nature-Positive Finance – Scientific Foundations for Action

Supported by: Biodiversa+, Banque de France, BiodivRestore Knowledge Hub, CO-OP4CBD, the French Foundation for Biodiversity Research (FRB), and the RESPIN project.

Key Focus - bridging the gap between scientific research and financial decision-making while addressing **nature-related economic risks**.

Key Messages

- 1. Nature loss directly impacts credit, insurance, inflation and financial stability.**
- 2. Redirect funding to opportunities which actively ensure nature positive financial flows.**



PPP's assist investors to redirect financial flows – from risk awareness to risk preparedness:

“By engaging with available scientific knowledge and expertise, financial institutions and businesses can strengthen the robustness of their decisions and take action” through PPPs

Want to know more? Watch the replay of our 1-hour dedicated webinar!



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biodiversa+
European Biodiversity Partnership



Thank you

Authors:

- Emma Hart (University College Dublin)
- Shane Mc Guinness (University College Dublin)
- Tom Wild (University of Sheffield)
- Laura Puértolas (Albirèm)
- Benjamin Kupilas (Ecologic)
- Rory Canavan (Independent)
- Judith Fisher (The University of Western Australia)





Audience Q&A on Session 1 - The Enablers: Governance, People, and Finance

Moderated by Vito Emanuele Cambria (KH co-chair, Sapienza University of Rome)

BiodivRestore Knowledge Hub (not) final conference

29 September 2026, 14:00 - 17:30

**Let's take a break
Until 15:50**



Session 2 - Getting It Right: Standards, Data, and Ecological Quality

Moderated by Rachel Kristensen (KH co-chair, Municipal Councillor - City of Nedlands)

Session 2 - Getting It Right: Standards, Data, and Ecological Quality

Paper

What knowledge and tools are still missing? Insights from freshwater, terrestrial and marine restoration

By Mario Brauns (Helmholtz Centre for Environmental Research UFZ)

1. Implementation challenge: From restoration targets to effective implementation

- Nature Restoration Regulation implementation requires **decisions on how to restore effectively**
- Effective restoration requires **robust knowledge and practical tools**



2. Who can use this evidence?

- **Policy & authorities:** Where should knowledge and capacity building be prioritised?
- **Research & funding community:** Where should research efforts and resources be targeted?
- **Restoration practitioners:** Where are practical tools needed and where could existing approaches be shared or adapted?



3. Relevance for NRP implementation

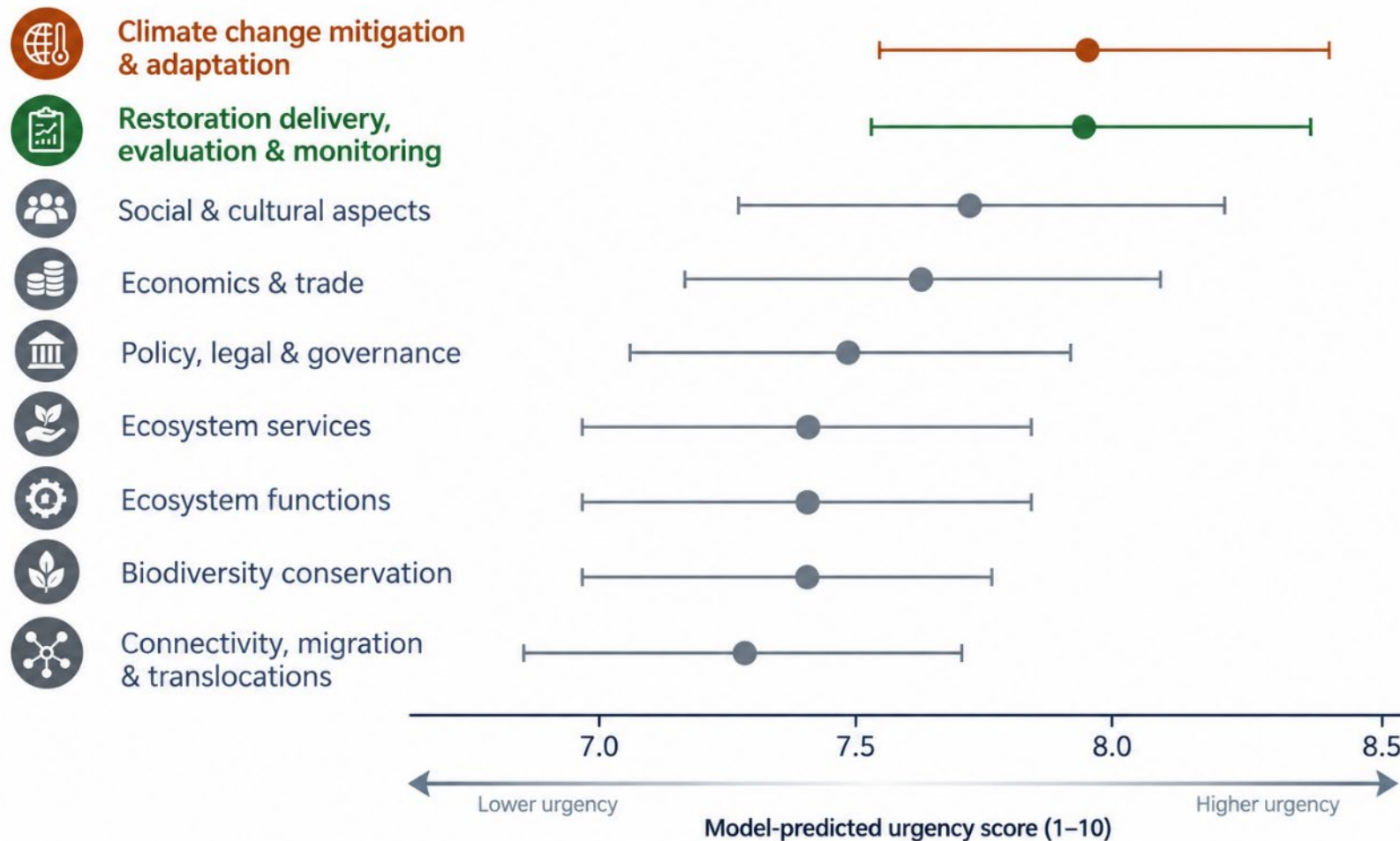


We asked the restoration community

- **Q1:** What are the key knowledge gaps in restoration for your ecosystem? Prioritise them by urgency.
- **Q2:** Are essential tools like manuals and guidelines available to address these knowledge gaps?
- Freshwater, terrestrial, marine ecosystems, 9 predefined knowledge gap categories
- **319 survey responses** predominantly from research community



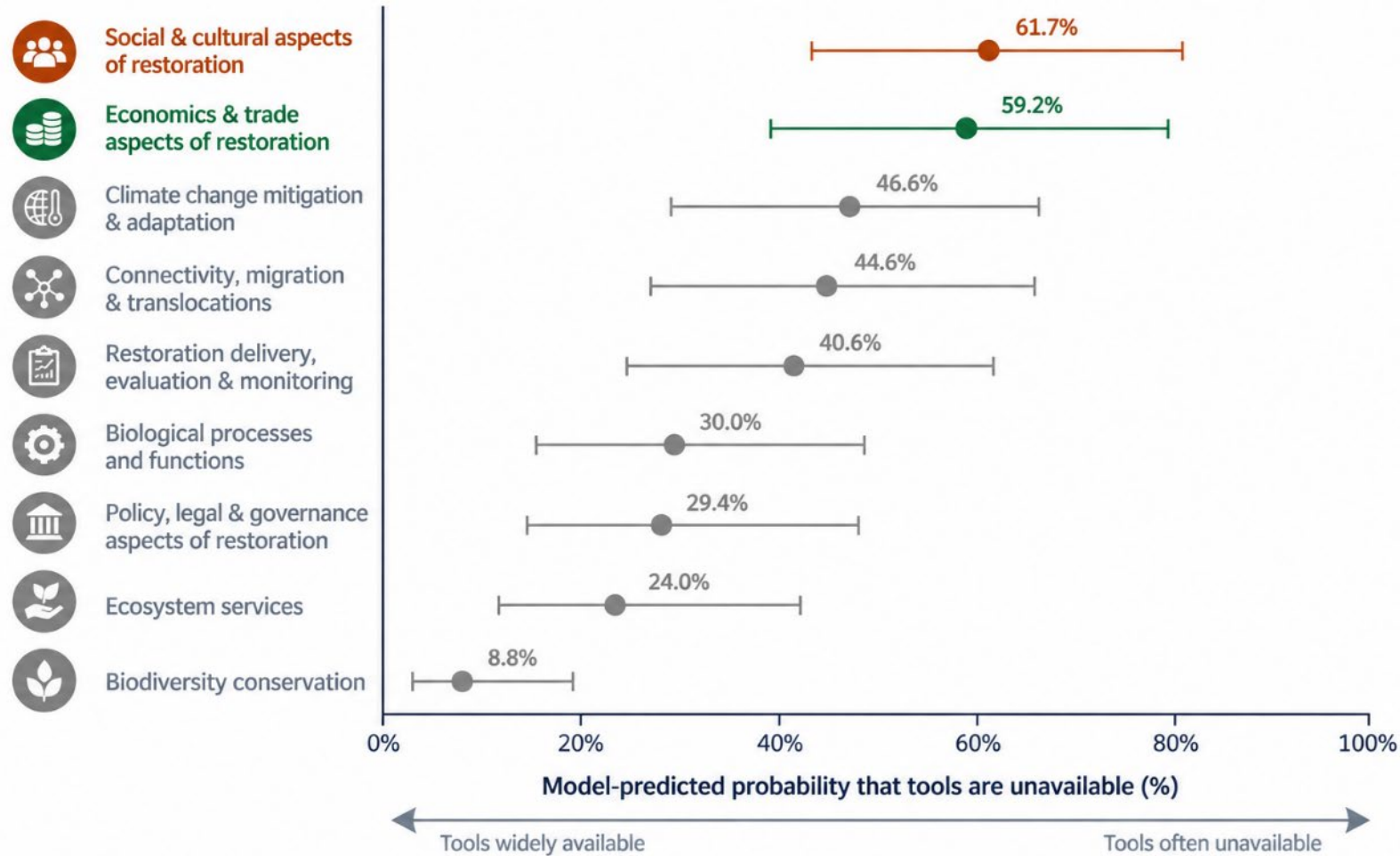
Key message I: Climate change and restoration delivery are the most urgent knowledge gaps across ecosystems



Differences among knowledge gap categories: $P < 0.001$

Differences among ecosystems: $P = 0.138$

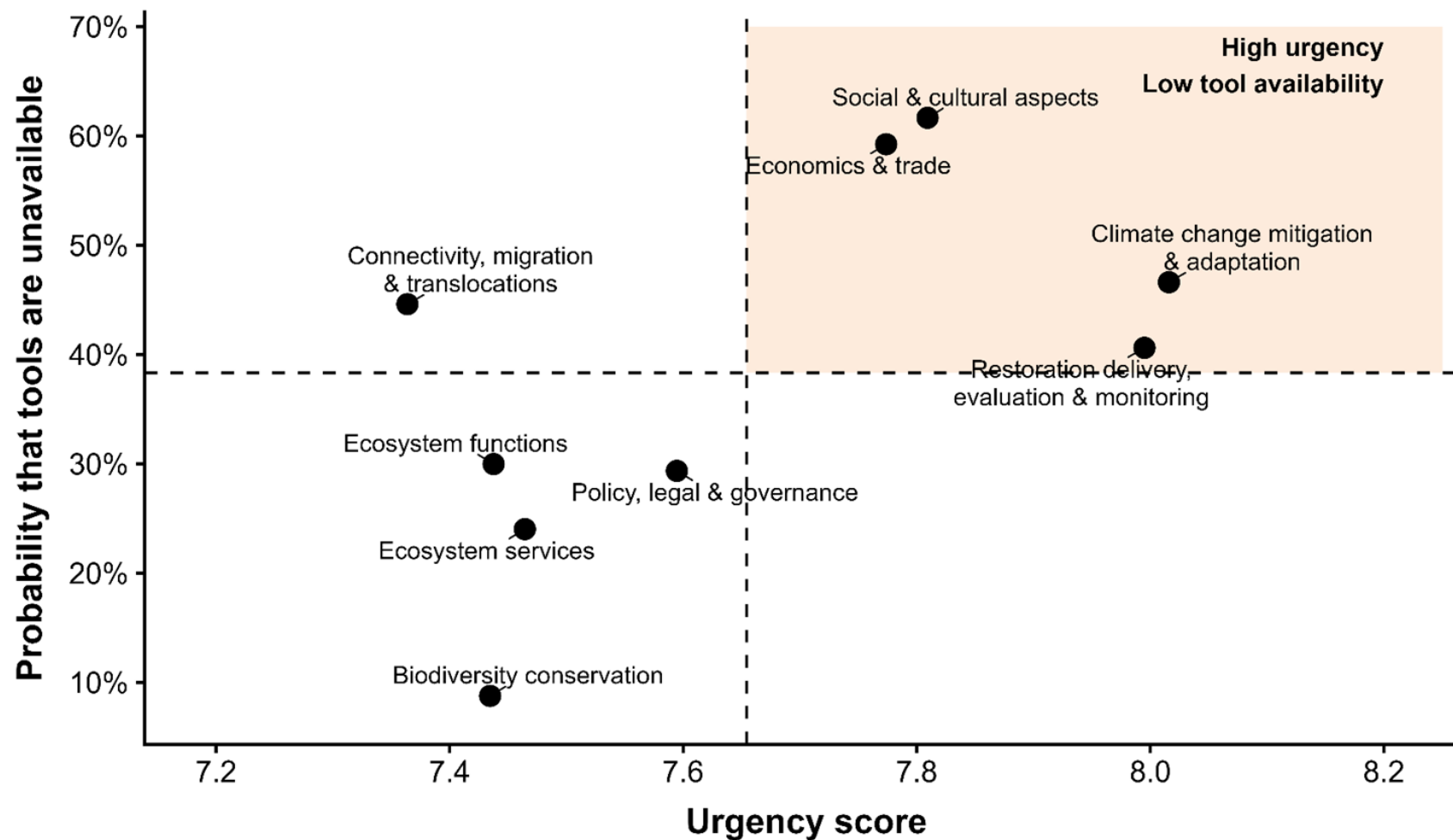
Key message II: Social & cultural, economic & trade aspects lack tools across ecosystems



Differences among knowledge gap categories: $P < 0.001$

Differences among ecosystems: $P = 0.845$

Key message III: Combining urgency and tool availability reveals priority areas for action



A cross-ecosystem evidence base as a starting point for a shared restoration agenda

- **Make the evidence available**

Results will be published in a peer-reviewed paper

- **Validate with implementation communities**

Test whether the identified priorities reflect the needs of practitioners, restoration managers and policy actors

- **Co-prioritise action**

Distinguish genuine knowledge gaps from missing, inaccessible or insufficient tools

- **Act across ecosystems where priorities are shared**

Target research/funding and develop or adapt tools



Session 2 - Getting It Right: Standards, Data, and Ecological Quality

Paper and Policy Brief

Adaptive management (from evidence to action)

By Vito Emanuele Cambria (Sapienza University of Rome)

1. Implementation challenge addressed

Restoration generates monitoring data. Those results do not automatically change management.

The bottleneck: a clear route from evidence to a decision and an authorised adjustment.

The Knowledge Hub addressed this gap;
the **collective paper** and the **policy brief**
aim to turn the findings into an
implementation approach



(in preparation)

2. Primary users

- **National authorities and technical bodies** preparing and implementing National Restoration Plans.
- **Site managers and practitioners** who monitor outcomes and adjust measures (e.g. SER SoPs cross-cutting component).

→ **Use the paper** for underlying cases and method;
→ **Use the policy brief** for a workable framework:
Minimum-Viable Adaptive Management (MV-AM).
(to be published soon)

3. NRR obligation / implementation step

- **Articles 14-15** National Restoration Plans: objectives, measures and planning
- **Articles 20-21** Monitoring and reporting on progress
- **Article 19** Review the plan when monitoring indicates that measures will be insufficient; revise it if needed

MV-AM is a practical way to link these steps.
It is not a separate legal obligation.

4. Key messages: evidence from 13 Adaptive Management restoration initiatives

6 freshwater • 4 terrestrial • 3 marine

The Learning Loop Integrity Score (LLIS) assessed seven elements across each case.

13 / 13

Clearly evidenced objectives,
indicators and monitoring

3 / 13

Clearly evidenced decision
triggers

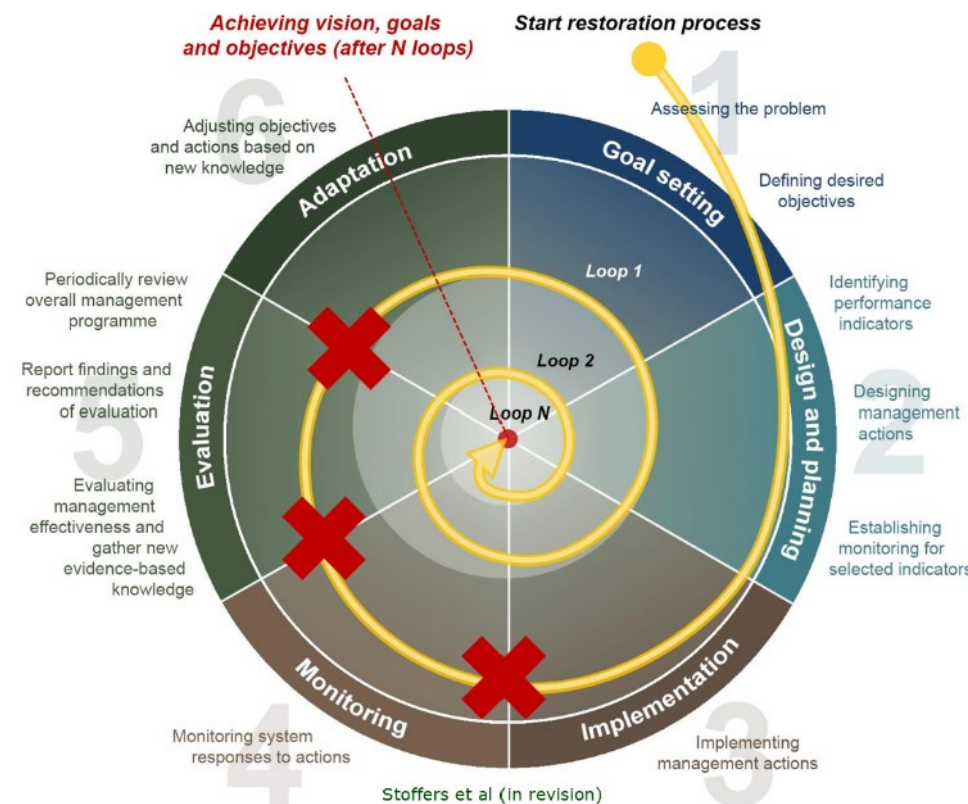
Source: Stoffers et al., 2026 (in review).

4. Key messages: where the loop breaks

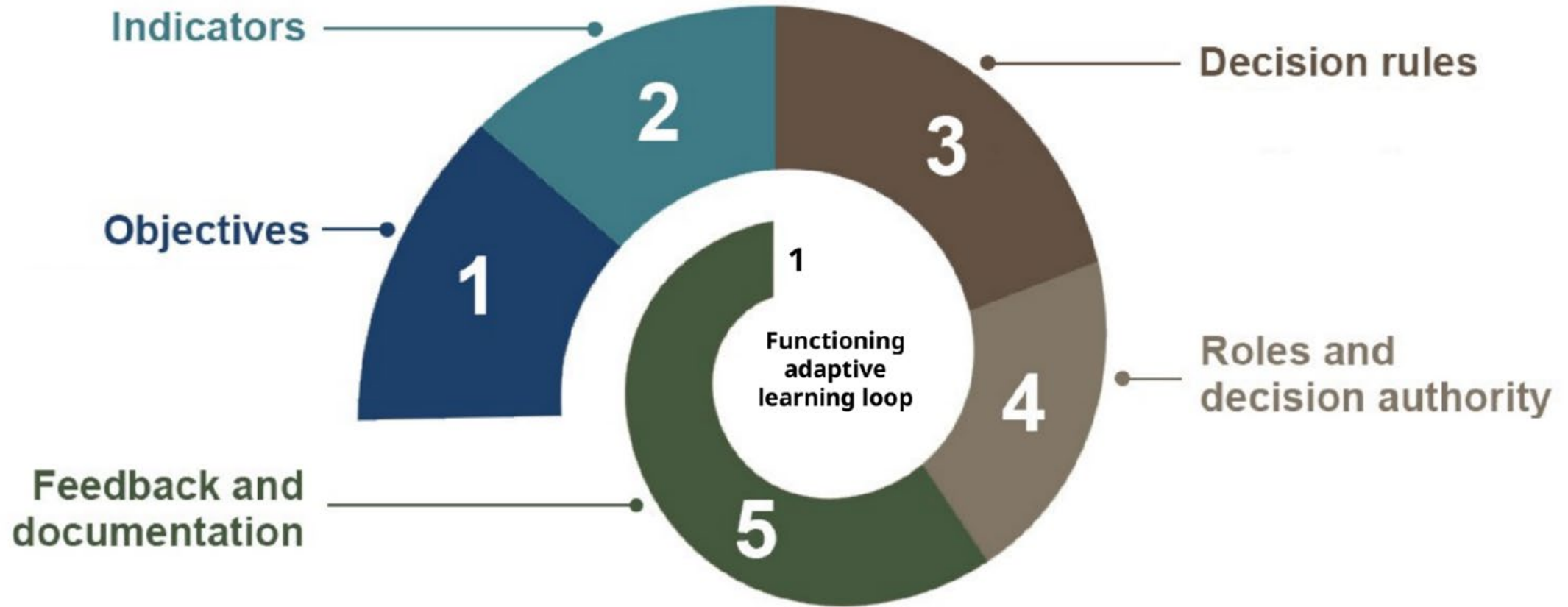
Evidence needs a route into decisions and action.

- **When** does a result warrant review or a change? (*decision triggers 3/13*)
- **Do** monitoring results reach the people and processes that can use them? (*feedback*)
- **Who** interprets the evidence, decides and is authorised to act? (*roles and decision authority*)
- **What** was adjusted, why, and what happened afterwards? (*documented adjustments*)

A reporting loop becomes a learning loop when answers to these questions shape the next action.



4. Key messages: minimum-viable adaptive management



Adapted from Stoffers et al. (in review)

5. How to operationalise it

What can a user do?

Take one planned or active restoration measure and draft a one-page decision protocol:

1

1 Choose the objective, baseline and a few useful indicators.

2

2 Agree when results prompt a review and who can approve changes.

3

3. Record the decision, adjustment, rationale and next review.

Embed the protocol in project specifications and/or National Restoration Plan implementation reviews.

Session 2 - Getting It Right: Standards, Data, and Ecological Quality

Policy Brief

Need for seeds: challenges in securing native seeds for sustainable nature restoration

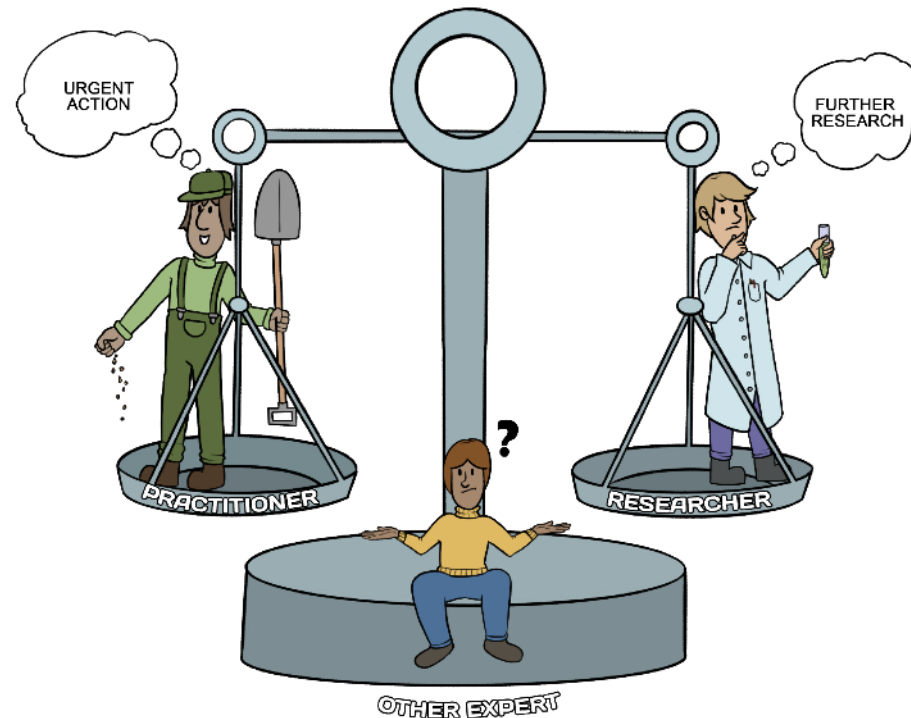
By Katalin Török (Centre for Ecological Research)

1. Implementation challenge addressed

Lack of availability of native propagation material for restoration



Need for locally adapted, but climate resilient seeds



Török, K., Valkó, O., & Deák, B. (2024). Ecosystem restoration with local or broad seed provenancing: Debates and perceptions in science and practice. *Biological Conservation*, 293, 110535.

2. Primary users and expected focus

- **Practitioners**
to consider the importance of **seed sourcing**
- **National authorities responsible for National Restoration Plans implementation**
to focus on building **native seed supply chains**
- **European Commission**
to guide **concerted action** to overcome the bottleneck
- **Researchers**
to **help decisions** on fine tuning seed provenance

3. NRR obligation / implementation step

Specified recommendations per Article

NRR article	Recommended political actions
Article 4 Terrestrial, coastal and freshwater habitats	Define and utilise Seed Transfer Zones (STZs), require proof of provenance in NRPs.
Article 8 Agricultural Ecosystems	Limit the use of generalist species, promote native seeds adapted to targeted agricultural habitats.
Article 9 Forest Ecosystems	Extend the rules of provenance to all plant strata.
Article 10 Pollinators	Prioritise key local species for pollinators, integrate functional criteria.
Article 11 Urban Ecosystems	Demand traceability, certified origin and ecological suitability.
Articles 15–16 National Plans	Plan needs 3–4 years in advance, support the supply chain.
Articles 17–18 Monitoring and Reporting	Include indicators of origin and seed quality.

Need for Seeds: Securing a Safe Supply Chain for Successful Nature Restoration



Translations available in French, German, Latvian, Polish, Portuguese



Policy brief

Need for seeds: securing a safe supply chain for successful nature restoration

It is estimated that **1.9 billion tons of native seeds** will be globally needed to meet the restoration targets (350 million hectares) of the UN Decade on Ecosystem Restoration. Such a large quantity cannot be sourced from the natural ecosystems that are already greatly reduced and fragmented. As native seeds are difficult to produce and the supply is limited, there is a **risk of using uncertified material** of unknown origin which could **compromise nature restoration efforts**. It is highly recommended to only **use native or locally adapted seed mixtures that include a label of origin, and detailed description of the species composition and quantities, and to prioritise species and seed lots from local origin** wherever possible.

To support this cause, this brief outlines key recommendations for national policymakers to support a **safe seed chain supply** for nature restoration within the framework of the Nature Restoration Regulation (NRR).

1. Footnotes can be found in the information sheet.

Key Policy Recommendations

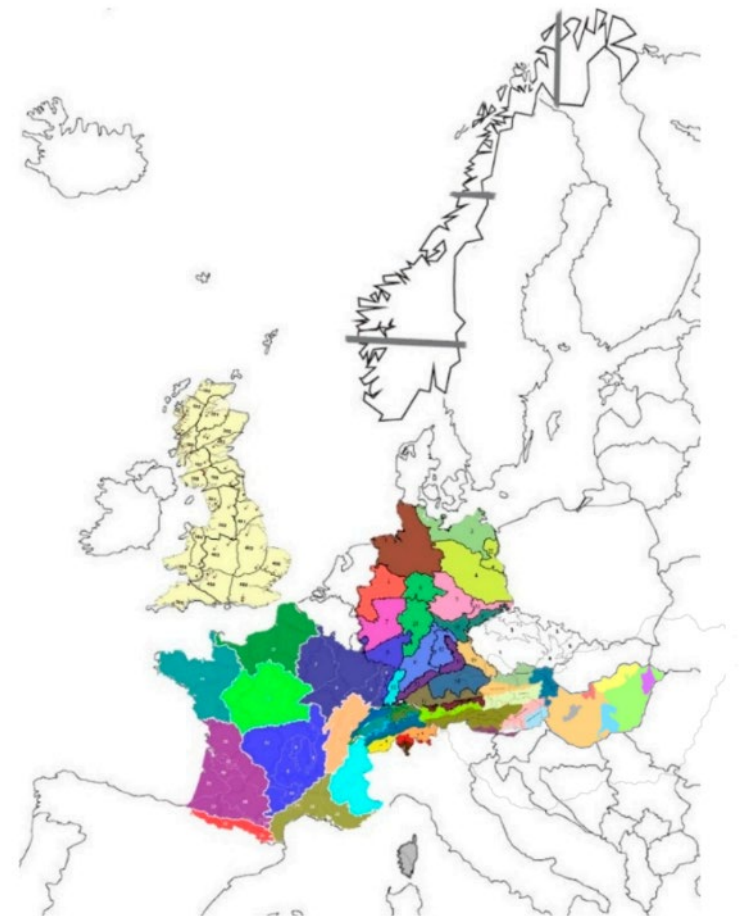
- Introduce principle of avoidance of maladapted plant material for restoration operation into National Restoration Plans (NRPs);
- Use Seed Transfer Zones as a proxy solution to identify locally adapted plant materials;
- Establish a roadmap to secure seed supply for nature restoration operation;
- Get inspiration on good practices, tools and standards from case studies (USA, Germany, France).



4. Key messages

Restore quickly but restore safe

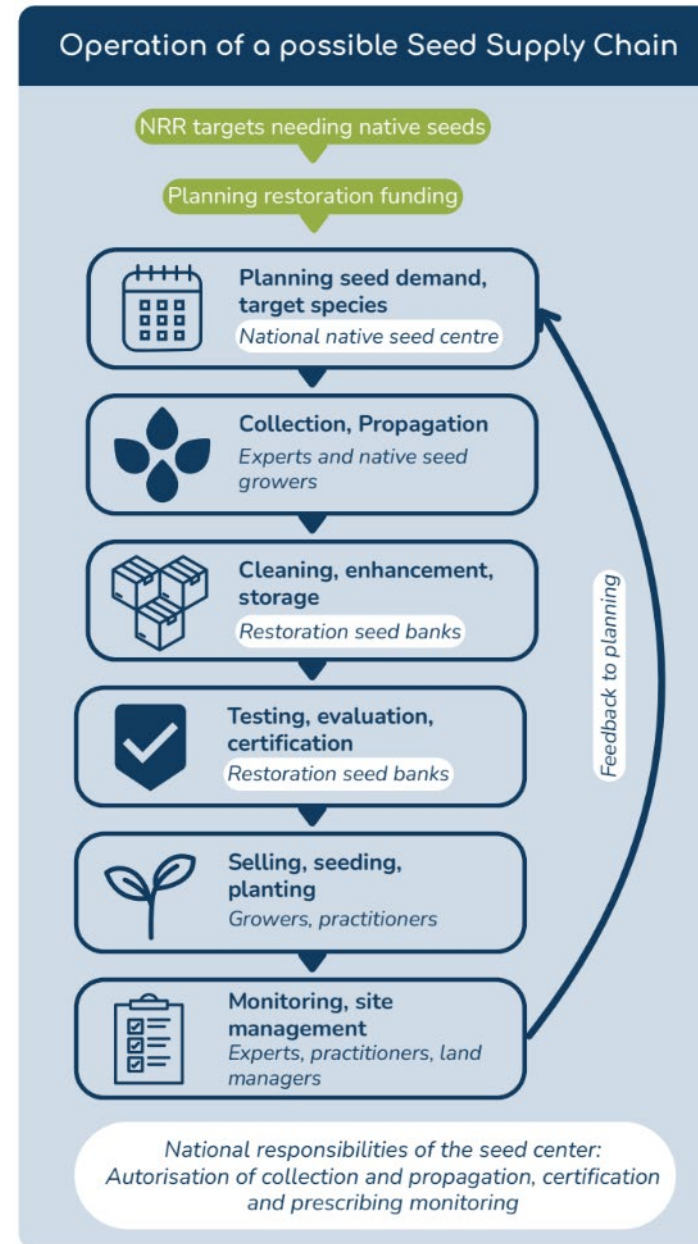
- 1 Use **adapted plant material** for NRR ecosystem restoration
- 2 Apply **Seed Transfer Zones** (STZs, or develop)
- 3 Implement **safe seed supply chain**
- 4 Apply **good practices** (e.g., USA, Germany, France)



STZs in Europe (De Vitis et al. 2017
and Cevallos et al. 2020)

5. How to operationalise it

Develop national/regional seed supply chains with **Native Seed Centres**



Want to know more? Watch the replay of our 1-hour dedicated webinar!



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Session 2 - Getting It Right: Standards, Data, and Ecological Quality

Policy Brief

Successful Ecosystem Restoration through Biosecure Nursery Production

By Thomas Jung (Mendel University)



Key observations

Nursery Accreditation: A Proven and Proportionate Solution

Nursery Accreditation Systems have been operating successfully for several years in Australia, the United States (California), and the United Kingdom. These schemes demonstrate that **the spread of invasive *Phytophthora* and other plant pathogens can be drastically reduced through systematic biosecurity standards** while maintaining the economic viability of the nursery sector.

Beyond compliance control, the accreditation body should function as a technical resource centre, providing guidance, training and coordination of financial support mechanisms to assist nurseries in reaching and maintaining accreditation quality level. See case studies below for examples.

Objectives of an Accreditation System

- Guarantee the production of pathogen-free plants.
- Secure supply chains for the horticultural and forestry industry.
- Protect natural ecosystems and public restoration investments.
- Recognise producers who adhere to high biosecurity standards.

Governance and Implementation

Member States should designate or establish a competent accreditation body responsible for:

- Inspecting participating nurseries.
- Verifying compliance with harmonised biosecurity protocols.
- **Delivering and renewing accreditation status.**



Fig. 3: Healthy *Myrtus communis* seedlings with healthy root systems. Photo: Bruno Scanu.



Translations available in Bulgarian, Czech, French, German, Polish, Romanian and Slovak



Policy brief

Successful Ecosystem Restoration through Biosecure Nursery Production

European goals for nature restoration and tree planting driven by the EU Nature Restoration Regulation (NRR)¹ are at **risk of being seriously undermined** by the current lack of harmonised phytosanitary standards. Nurseries have become the primary pathway for the introduction and spread of invasive *Phytophthora* species (and many other plant pathogens) into natural ecosystems across Europe. Without a **harmonised regulatory framework** and standardised biosecurity protocols guaranteeing the production of pathogen-free nursery plants, restoration efforts **could inadvertently accelerate ecosystem degradation**, in particular against the background of planting 3 billion additional trees across Europe, as requested by the Article 13 of the NRR. **Mandatory accreditation of nurseries**, based on robust biosecurity and phytosanitary protocols, is an urgent, cost-effective, and internationally proven measure.



Key policy recommendations

- Introduce establishment of a nursery accreditation system into National Restoration Plans.
- Such accreditation systems should include prevention and hygiene, monitoring and detection, organisation and traceability, and training and continuous improvement to ensure success.
- At European level, accreditations should be legally binding, be explicitly integrated when implementing the NRR and be supported by financial support mechanisms.
- Already existing accreditation schemes from non EU countries (Australia, USA, UK) could provide technical and strategic basis to get inspiration from.

1. Implementation challenge addressed

This output responds to the specific NRR bottleneck that almost all nurseries in Europe are **infested with invasive aggressive plant pathogens**, in particular from the genus *Phytophthora*, and that **no certified pathogen-free nursery material is available for the nature restorations**.

2. Primary users

- **European Commission,**
- **National knowledge hubs,**
- **Plant protection services,**
- **Forest services,**
- **Agencies and practitioners involved in nature restorations,**
- **Nursery owners and nursery associations,**
- **Researchers**

3. NRR obligation / implementation step

This policy brief is most relevant to **NRR Article 13** which demands the **planting of at least 3 billion additional trees until 2030**.

Access the Policy Brief:
“Successful Ecosystem Restoration
through Biosecure Nursery Production”

*Translations available in Bulgarian, Czech, French, German, Polish,
Romanian and Slovak*

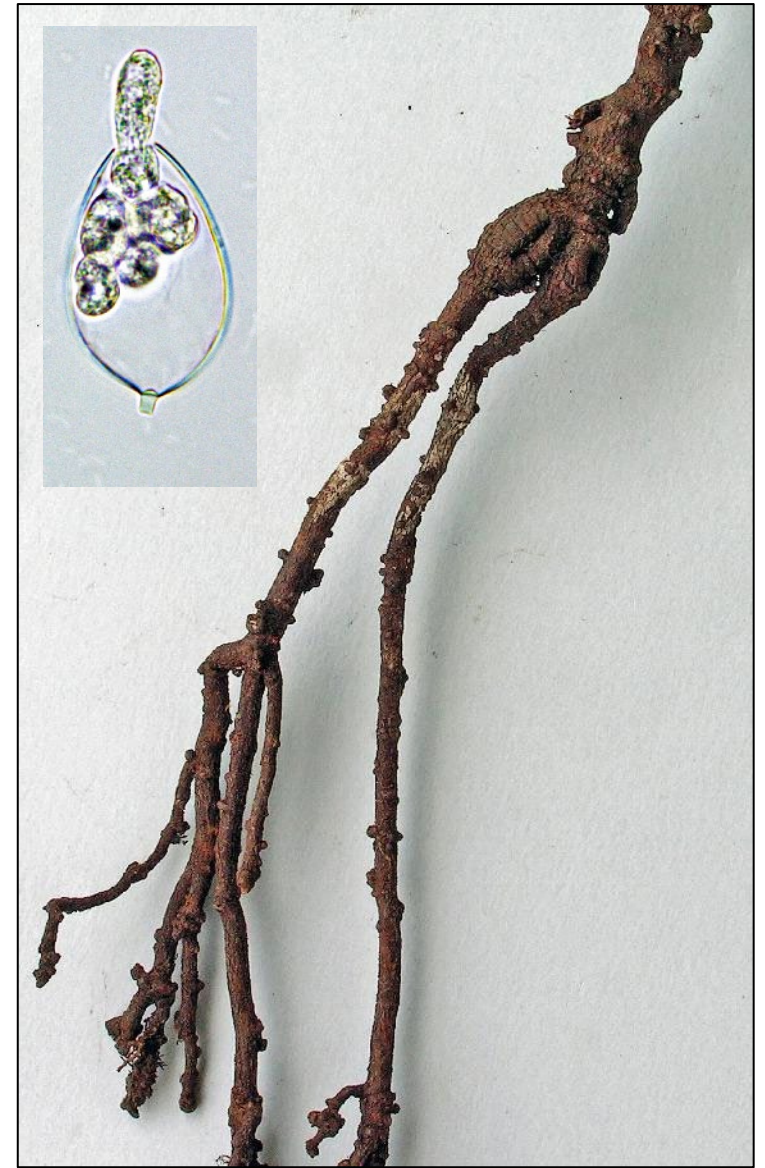


4. Key messages

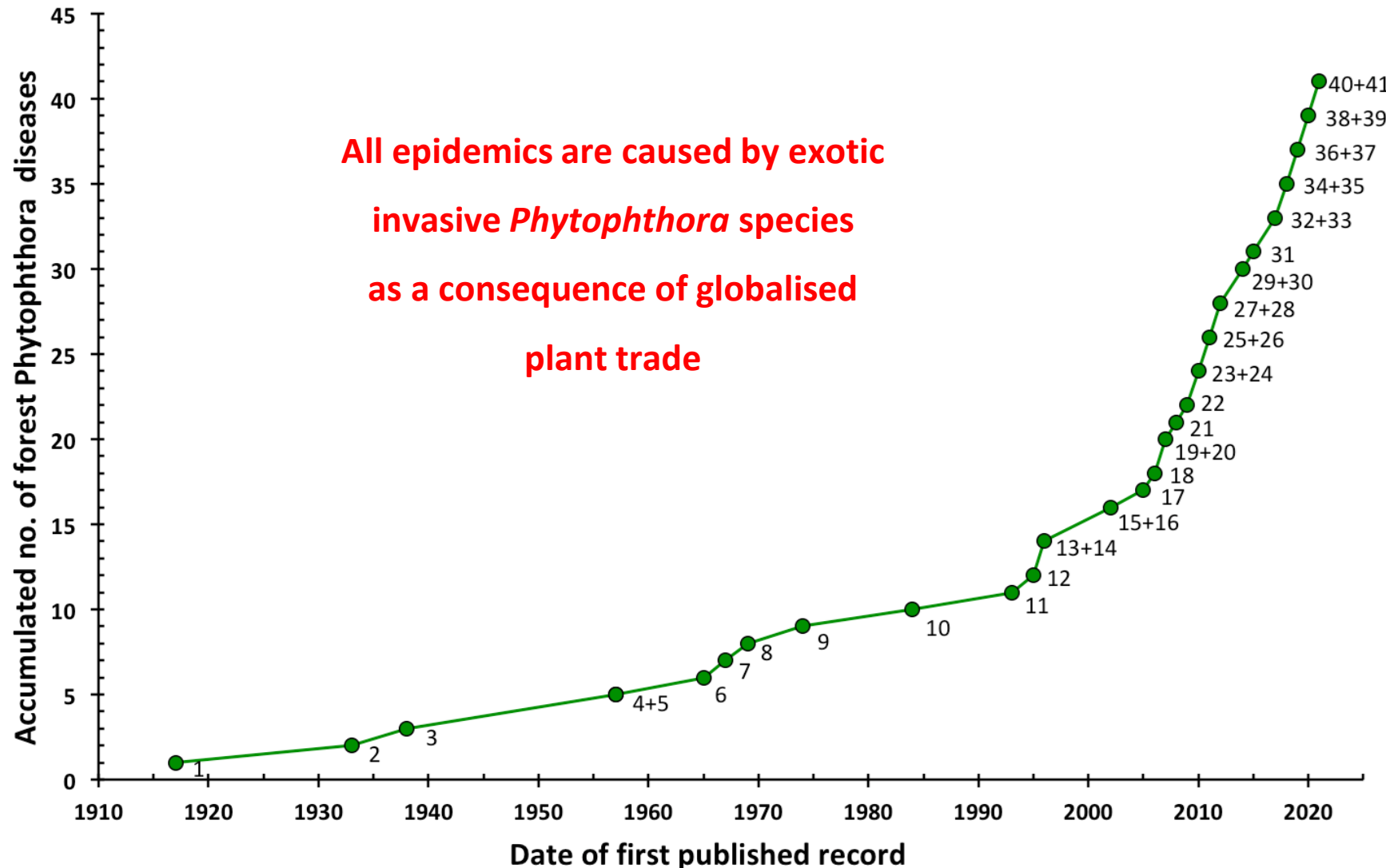
- 1 Due to lack of coevolution, the European tree and shrub species are highly susceptible to invasive introduced *Phytophthora* pathogens
- 2 Almost all nurseries are infested with multiple invasive and aggressive *Phytophthora* pathogens
- 3 Almost every planting activity is spreading aggressive *Phytophthora* pathogens to the wider environment
- 4 Only a science-based nursery accreditation scheme can prevent that the large-scale nature restorations cause a phytosanitary disaster

Why focus on *Phytophthora* pathogens?

- Soilborne *Phytophthoras* are responsible for >70 % of all known fine root diseases and >90 % of all bleeding bark canker diseases of woody plants in the world.
- They are causing many of the most devastating epidemic diseases of forests and natural ecosystems worldwide
- Many *Phytophthora* pathogens can infect between 100 - 5000 plant species



The number of new *Phytophthora* epidemics in forests and natural ecosystems is increasing exponentially



Canker and decline diseases caused by soil- and airborne *Phytophthora* species in forests and woodlands

T. Jung^{1,2}, A. Pérez-Sierra³, A. Durán⁴, M. Horta Jung^{1,2}, Y. Balci⁵, B. Scanu⁶

Key words
disease management
epidemic
forest decline
invasive pathogens
nursery infestation
root rot

Abstract Most members of the oomycete genus *Phytophthora* are primary plant pathogens. Both soil- and airborne *Phytophthora* species are able to survive adverse environmental conditions with enduring resting structures, mainly sexual zoospores, vegetative entomycospores and hyaline aggregates. Soilborne *Phytophthora* species infect fine roots and the bark of subtended roots and the collar region with motile biflagellate zoospores released from sporangia during wet soil conditions. Airborne *Phytophthora* species infect leaves, shoots, fruits and bark of branches and stems with caducous sporangia produced during humid conditions on infected plant tissues and dispersed by rain and wind splash. During the past six decades, the number of previously unknown *Phytophthora* diseases and outbreaks of natural and semi-natural forests and woodlands has increased exponentially, and the vast majority of them are driven by introduced, invasive *Phytophthora* species. Nurseries in Europe, North America and Australia show high infestation rates with a wide range of mostly exotic *Phytophthora* species. Planting of infected nursery stock has proven to be the main pathway of *Phytophthora* species between and within continents. This review provides insights into the history, distribution, ecology, symptomatology, dynamics and impact of the most important canker, decline and dieback diseases caused by soil- and airborne *Phytophthora* species in forests and natural ecosystems of Europe, Australia and the Americas.

Article info Received: 2 February 2018; Accepted: 29 March 2018; Published: 30 April 2018.

Plant Pathology (2000) 49, 706–718

Involvement of soilborne *Phytophthora* species in Central European oak decline and the effect of site factors on the disease

T. Jung^{1,2}, H. Blaschke and W. Obwald

Institute of Forest Diseases, Section Forest Phytopathology, Technische Universität München, Am Hangerberg 12, D-85354 Freising, Germany

A survey was made on the occurrence of soilborne *Phytophthora* species in 55 oak stands on a range of geologically different sites in Bavaria. The most widespread species were *P. quercina*, *P. cambivora* and *P. citricola*. Several other *Phytophthora* species were isolated infrequently. The fine root systems of 106 healthy and 111 declining mature trees of *Quercus robur* and *Q. petraea* were intensively investigated. The results indicate that, depending on the site conditions, at least two different complex diseases are referred to under the name 'oak decline'. On sites with a mean soil pH (CaCl₂) > 3.5 and sandy loamy to clayey soil texture *Phytophthora* spp. were commonly isolated from rhizosphere soil, and highly significant correlations existed between crown transparency and various root parameters. Oaks with *P. quercina* or other *Phytophthora* spp. in their rhizosphere had markedly higher levels of fine root damage than oaks without *Phytophthora* spp., and were subject to a relative risk of severe crown symptoms of 2.1 and 2.8, respectively. In contrast, in stands with sandy to sandy-loamy soils and a mean soil pH > 3.9, *Phytophthora* spp. were not found. In these stands, correlations between crown transparency and various root parameters were either less significant or not significant. It is concluded that *Phytophthora* species are strongly involved in oak decline on sandy-loamy to clayey sites with a mean soil-pH (CaCl₂) < 3.5.

Keywords *Phytophthora*, *Quercus*, rhizosphere, soil pH, soil texture

New Disease Reports (2010) 22, 19. [doi:10.5197/j.2044-0588.2010.022.019]



New Disease Reports

Dieback and mortality of plantation Japanese larch (*Larix kaempferi*) associated with infection by *Phytophthora ramorum*

J.F. Webber¹, M. Mallett and C.M. Brasier

Centre for Forestry and Climate Change, Forest Research, Farnham Surrey GU10 4H, UK

*E-mail: jua.webber@forestry.gsi.gov.uk

Received: 09 Jul 2010; Published: 21 Sep 2010; Keywords: invasive, conifer, sporangia

The invasive pathogen *Phytophthora ramorum* is the cause of 'sudden oak death', a dieback and mortality of more than one million live oak and hickory trees along 1500 km of non-sequential native forest in California and Oregon since 1995 (Kron et al., 2002; Priest, 2000). *P. ramorum* has also spread across Europe, mainly within the commercial nursery trade from 2003 onwards, it was found infecting *Thuja occidentalis* and woodland trees outside nurseries in Britain (Brasier et al., 2004) and has recently spread to native *Pinus* species (P. Beales, personal communication).

the first to a commercial plantation tree. Adjacent to some affected larch sites in southern England, a secondary infection of *Fagus sylvatica*, *Myrica gale*, *Salix caprea*, *Salix purpurea*, *Rhus typhina*, *Rhododendron ponticum*, *Fragaria vesicaria* and *Penstemon* is also occurring, apparently as a result of the high levels of *P. ramorum* inoculum produced from larch foliage.

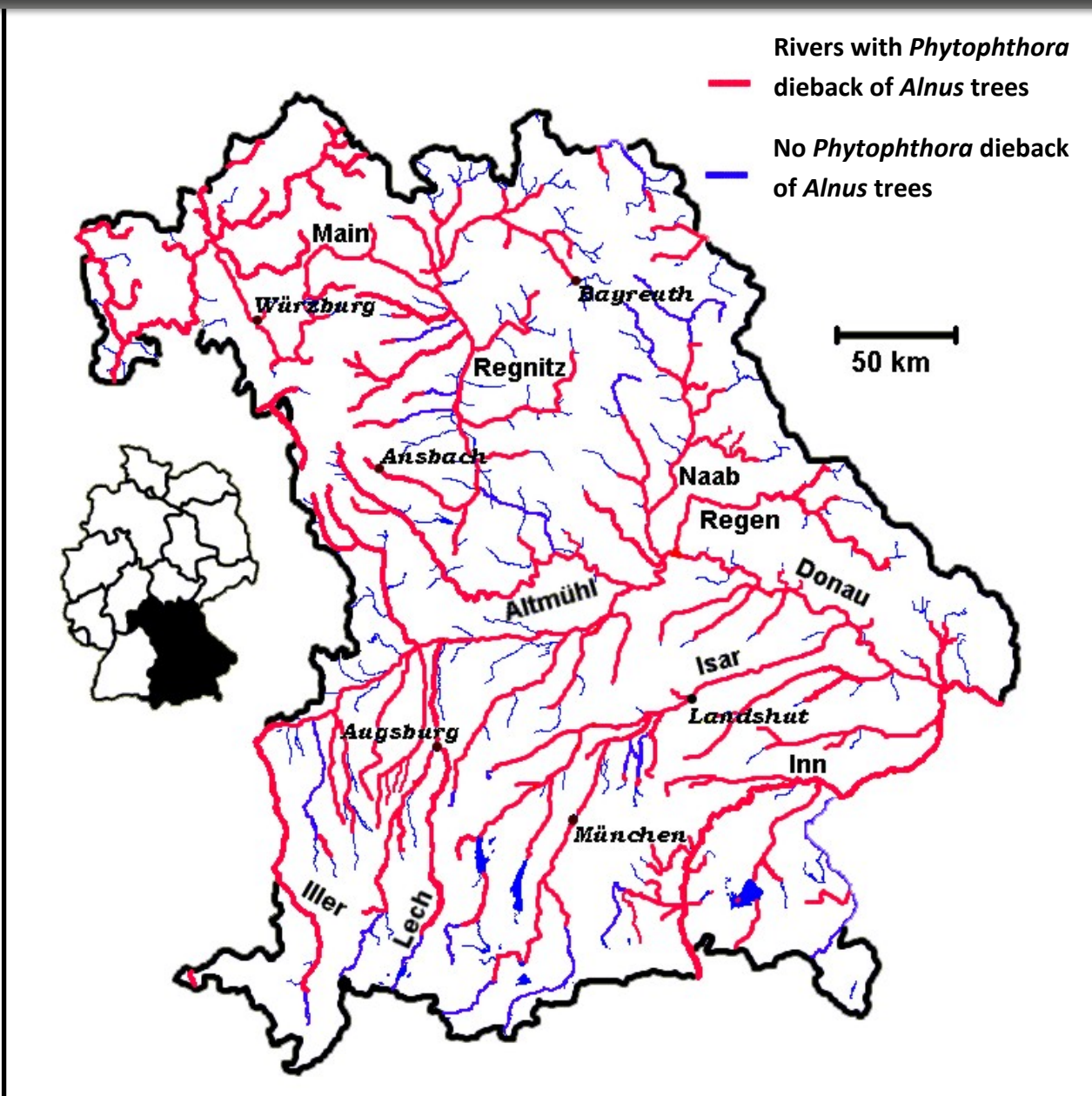
Acknowledgements

An aerial photograph of a lush green forest with a river winding through it. The trees are dense and vibrant green, and the river reflects the surrounding foliage.

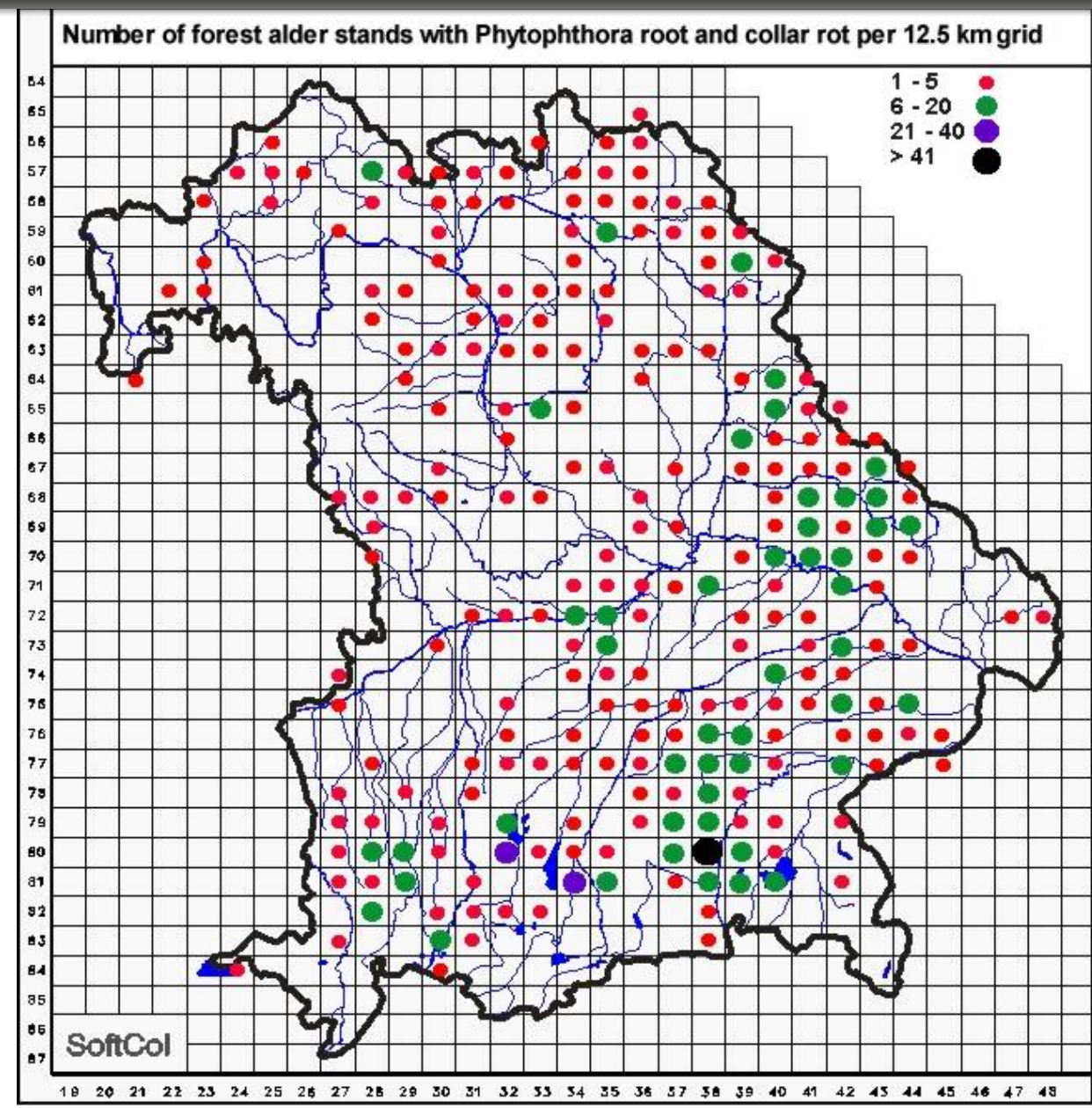
**Epidemic *Phytophthora* mortality
Alnus forests across Europe
–
a textbook case for large-scale failure
well-intended ecological restoration**



Millions of *Alnus* trees killed along rivers by *Phytophthora xalni*

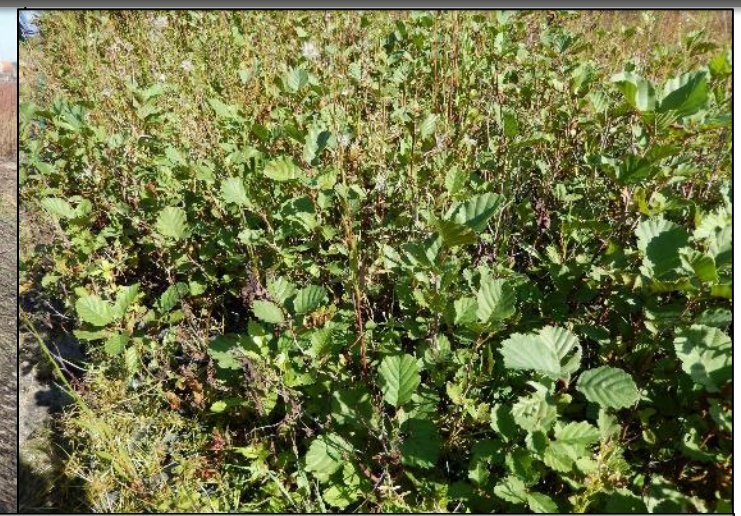


Distribution of *Phytophthora xalni* mortality of *Alnus* trees along 20,000 km of rivers and streams in Bavaria

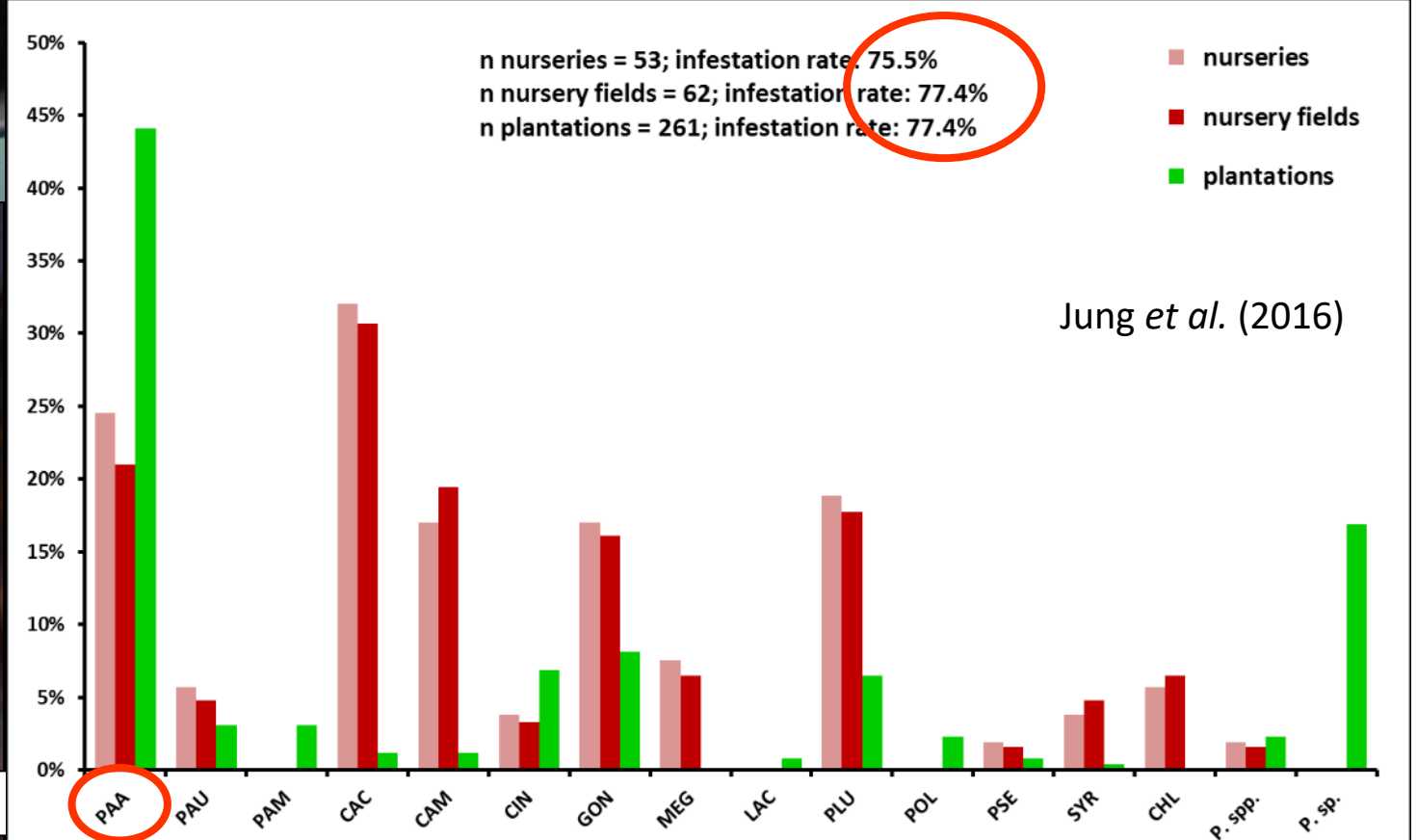


92 % of the infected 1100 *Alnus* forests were planted!

Jung & Blaschke 2004



Development of root and collar rot after 1 week



Importance and dimension of the *Phytophthora* infestations of European nurseries

2500 beds and container stands in 850 nurseries of
20 countries tested in multiple studies

➤ *Phytophthora* infestation rates of 80-100 %

➤ 124 *Phytophthora* species confirmed

➤ 109 *Phytophthora* species considered as invasive ,aliens‘

➤ Most infected plants looked healthy because fungicides
suppressed symptom development!

Forest Pathology WILEY-BLACKWELL
For. Path. 46 (2016) 134–163
© 2015 Blackwell Verlag GmbH doi: 10.1111/efp.12239

Widespread *Phytophthora* infestations in European nurseries put forest, semi-natural and horticultural ecosystems at high risk of *Phytophthora* diseases

T. Jung^{1,2,40}, L. Orlikowski³, B. Henricot⁴, P. Abad-Campos⁵, A. G. Aday⁶, O. Aguín Casal⁷, J. Bakonyi⁸, S. O. Cacciola⁹, T. Cech¹⁰, D. Chavarriga¹¹, T. Corcobado¹², A. Cravador¹, T. Decourcelle¹³, G. Denton⁴, S. Diamandis¹⁴, H. T. Doğmuş-Lehtijärvi⁷, A. Franceschini¹⁵, B. Ginetti¹⁶, S. Green¹⁷, M. Glavendekić¹⁸, J. Hantula¹⁹, G. Hartmann²⁰, M. Herrero²¹, D. Ivić²², M. Horta Jung¹, A. Lijla¹⁹, N. Keca¹⁸, V. Kramarets²³, A. Lyubenova²⁴, H. Machado²⁵, G. Magnano di San Lio²⁶, P. J. Mansilla Vázquez⁷, B. Marçais²⁷, I. Matsiakh²⁸, I. Milenković¹⁸, S. Moricca¹⁶, Z. Á. Nagy⁸, J. Nechwatal²⁹, C. Olsson²⁹, T. Oszako³⁰, A. Pane⁹, E. J. Paplomatas³¹, C. Pintos Varela⁷, S. Prospero³², C. Rial Martínez⁷, D. Rigling³³, C. Rök¹³, A. Rukhovich¹⁹, M. R. Sánchez³³, A. V. Sanyal³⁴, P. Sanyal¹⁵, A. Schlösser³⁵, J. Schumacher³⁶, S. Slawny²⁴, A. S.
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Eur J Plant Pathol (2024) 170:131–156
<https://doi.org/10.1007/s10658-024-02886-1>

Hidden *Phytophthora* diversity unveiled in tree nurseries of the Czech Republic with traditional and metabarcoding techniques

Aneta Bačová¹ · David E. L. Cooke² · Ivan Milenković³ · Tomáš Májek⁴ · Zoltán Á. Nagy⁵ · Tamara Corcobado⁶ · Eva Randall⁷ · Beatrix Keillor⁸ · Peter J. A. Cock⁹ · Marília Horta Jung¹⁰ · Thomas Jung¹¹ · Michal Tomšovský¹²

Received: 28 August 2024 / Accepted: 4 October 2024
DOI: 10.1111/ppa.14022

ORIGINAL ARTICLE Plant Pathology WILEY

High diversity of *Phytophthora* species in natural ecosystems and nurseries of Portugal: Detrimental side effect of plant introductions from the age of discovery to modern globalization

Marília Horta Jung^{1,2} · Cristiana Maia³ · Beatriz Mora-Sala⁴ · Paloma Abad-Campos⁴ · Leonardo Schena⁵ · Saveria Mosca⁵ · Giuseppe Carella⁶ · Salvatore Moricca⁶ · Jan Nechwatal⁷ · Lidia Dionísio⁸ · Alfredo Cravador⁹ · Thomas Jung^{1,2}

¹Department of Forest Protection and Wildlife Management, Phytophthora Research Centre, Faculty of Forestry and Wood Technology, Mendel University in Brno, Brno, Czech Republic
²Phytophthora Research and Conservation, Nuffield Centre

Impact of nursery infestations on forests and natural ecosystems in Europe

Between 1990 and 2010 in Europe
6 million hectares first afforestations and
22 million hectares reforestations

×

Average *Phytophthora* infestation rate of forest nursery
stands and plantings of 80%



Between 1990 and 2010 22.4 million hectares of infested
forests planted across Europe

Average afforestation size = 7 ha



2.6 million infested planting sites

2.3 billion forest nursery plants are produced in the EU per year

NRR aims to plant at least 3 billion additional trees until 2030

Silvicultural programmes to strengthen climate resilience of European forests require the planting of billions of additional trees

Only a science-based nursery accreditation scheme can prevent that the large-scale nature restorations cause a phytosanitary disaster

#3BillionTrees

TOGETHER



Successful nursery accreditation schemes

- **Nursery Industry Accreditation Scheme Australia**
(NIASA; <https://nurseryproductionfms.com.au/niasa-accreditation>)
- **Avocado Nursery Voluntary Accreditation Scheme, Australia**
(ANVAS; <https://avocado.org.au/our-programs/anvas>)
- **Accreditation to Improve Restoration (AIR), California**
(<https://airnursery.ucdavis.edu>)
- **California Nursery Stock Registration & Certification Program**
(<https://www.cdfa.ca.gov/plant/pe/nsc/nursery/regcert.html>)
- **Plant Healthy, UK** (<https://planthealthy.org.uk>)

Objectives of nursery accreditation schemes

- **Reduce the risk of introducing and spreading destructive plant pests**
- **Eliminate the risk of creating “super pathogens” via hybridisations**
- **Protect natural habitats and the horticultural industry**
- **To easily identify growers or organisations that grow and trade plants to high standards of plant biosecurity**

Transition of the EU nursery production system needs financial support!

Governance and Implementation

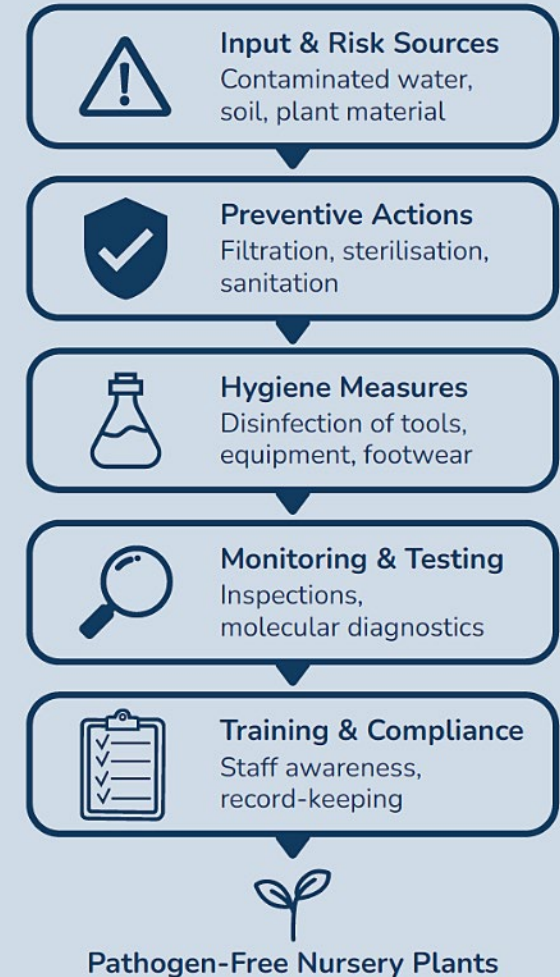
Member States should designate or establish a competent accreditation body responsible for:

- Inspecting participating nurseries
- Verifying compliance with harmonised biosecurity protocols
- Delivering and renewing accreditation status

Key elements of nursery accreditation schemes

- Regular training of nursery staff in Best Management Practices
- Improved hygiene and cultivation methods
- Production in sterilized containers or pots (not in the ground!) on benches lifted from the ground and in thermosterilized substrates
- Filter or sterilization systems for irrigation water
- Minimize use of fungicides; no fungistatic chemicals
- Regular inspections and lab tests to ensure compliance with this production scheme

Best Management Practices



Nursery Accreditation

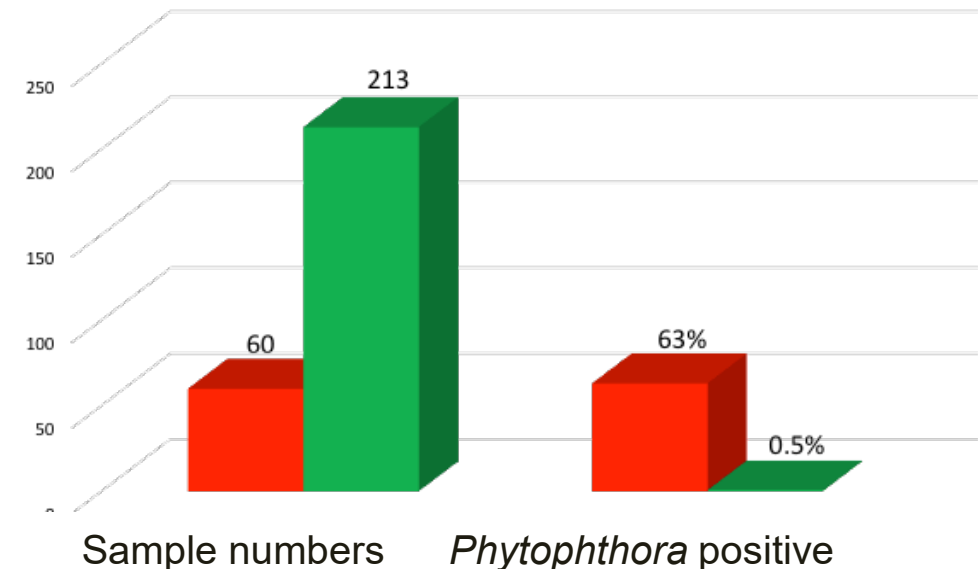


Watch the international nursery webinar on the
HORIZON Purpest project Youtube channel
https://www.youtube.com/watch?v=5ASYxhOi_iY

Watch the Biodiversa+ webinar on Successful Ecosystem
Restoration through Biosecure Nursery Production
<https://www.youtube.com/watch?v=pPQFn909brg&t=2s>
<https://www.biodiversa.eu/2026/09/01/webinar-successful-ecosystem-restoration-through-biosecure-nursery-production/>

Castanea sativa seedlings

A significant reduction of *Phytophthora* infections
was achieved in the pilot nursery of FORESTAS



5. How to operationalise it



Send the Policy Brief on Biosecure Nursery Production to your national plant health authorities and demand a nursery accreditation scheme with high biosecurity standards, regular inspections for compliance and molecular tests for presence of pathogens.

Want to know more? Watch the replay of our 1-hour dedicated webinar!



SCAN TO ACCESS THE RECORDING



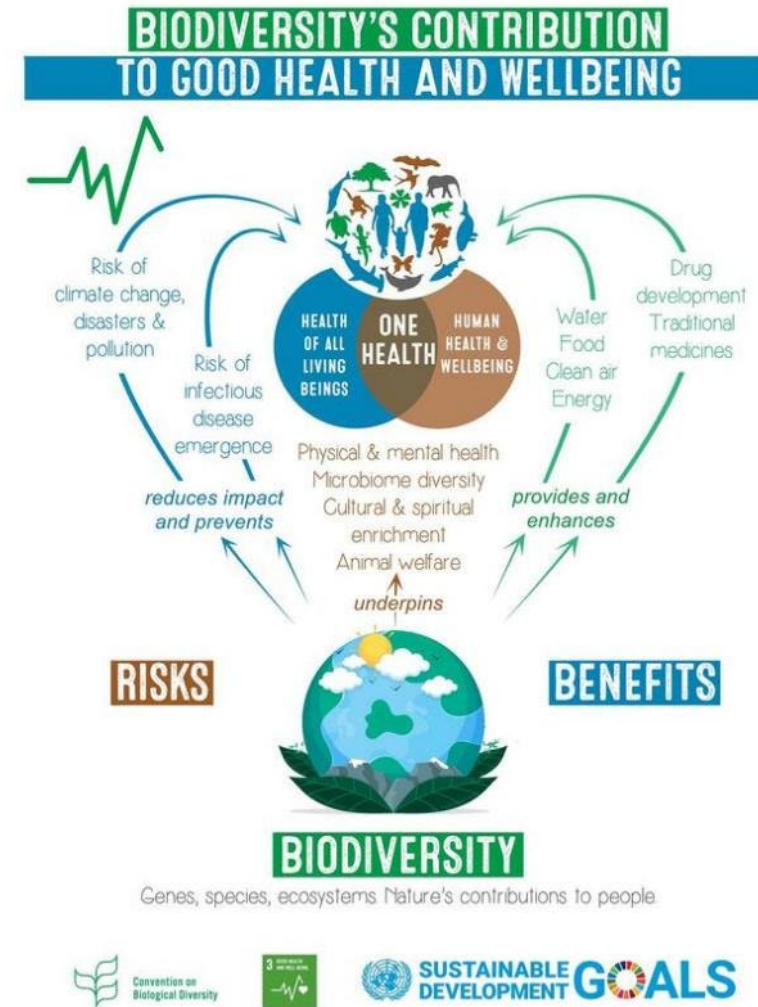
Session 2 - Getting It Right: Standards, Data, and Ecological Quality

Policy Brief

Reducing zoonotic risk through nature restoration

By Dr Lucinda Kirkpatrick (Bangor University)

1. Implementation challenge addressed



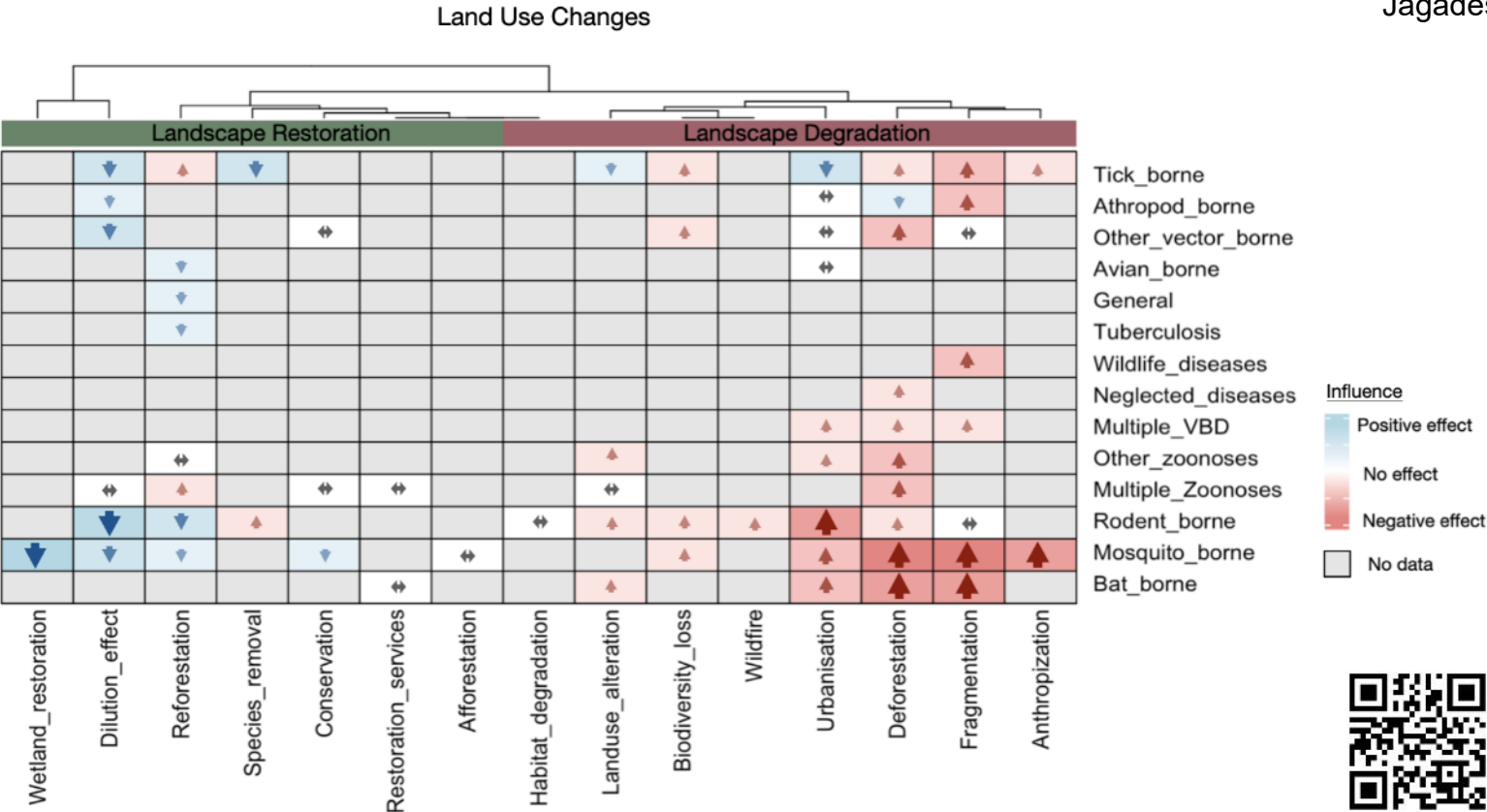
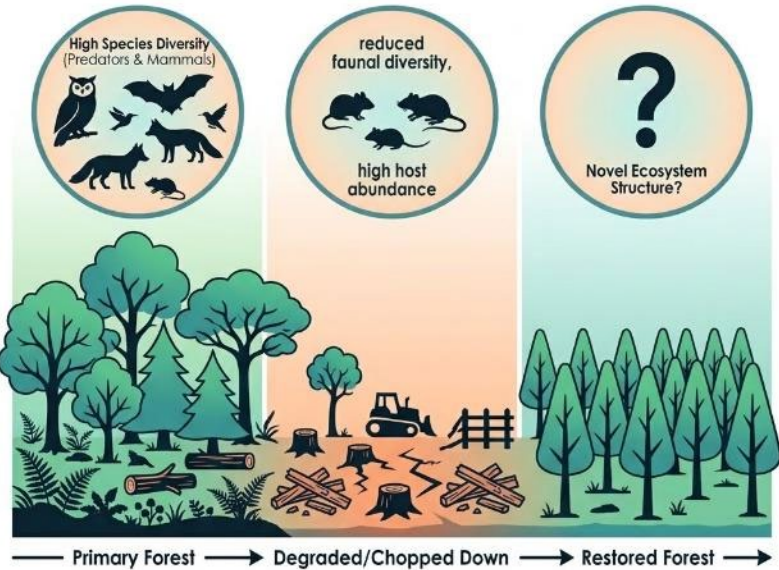
1. Implementation challenge addressed



Adam Fell



Soushieta Jagadesh



Global evidence synthesis on land-use change and zoonotic risks: Fell et al (2026), Nature Sustainability

2. Primary users

- **Stakeholders** carrying out restoration
- **Policymakers**
- **People designing, enacting and monitoring** National Restoration Plans
- **Financing** restoration actions



3. NRR obligation / implementation step

Design, planning and implementation stage
Governance and financing



4. Key messages



Soushieta Jagadesh

A One-Size-Fits-All strategy does not exist!



Risk-Smart Restoration Decision Support Tool

Bayesian Network decision support tool for landscape restoration policy.

SELECT DISEASE SYSTEM OF INTEREST

Mosquito-borne disease

Rodent-borne disease

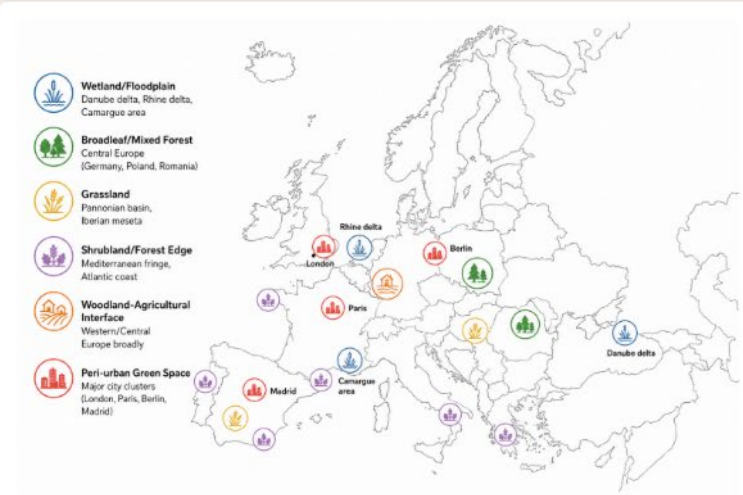
Tick-borne disease

Direct-contact zoonoses

Landscape map Scenario analysis Hazard chart Ecological recovery Causal model Compare models Funding scenarios

Start with your landscape

Select the ecosystem type that best represents the restoration site. The map is a stylised guide to representative European settings, not a precise GIS layer. Each ecosystem points to the disease models most relevant for scenario analysis.



Hotspots are illustrative examples: wetland and floodplain systems, broadleaf and mixed forest, grassland, shrubland or forest-edge areas, woodland-agricultural interfaces, and peri-urban green spaces.

Selected ecosystem

Peri-urban green space

Urban parks, green corridors, urban forests and restored greenspace within or adjacent to European cities and settlements.

RELEVANT DISEASE SYSTEMS

Tick-borne disease
Lyme disease among the highest human exposure settings due to recreational use. Urban deer and rodent populations sustain tick populations.

Mosquito-borne disease
Urban heat island effects extend vector season. West Nile virus risk elevated in southern European cities; dengue and chikungunya risk increasing.

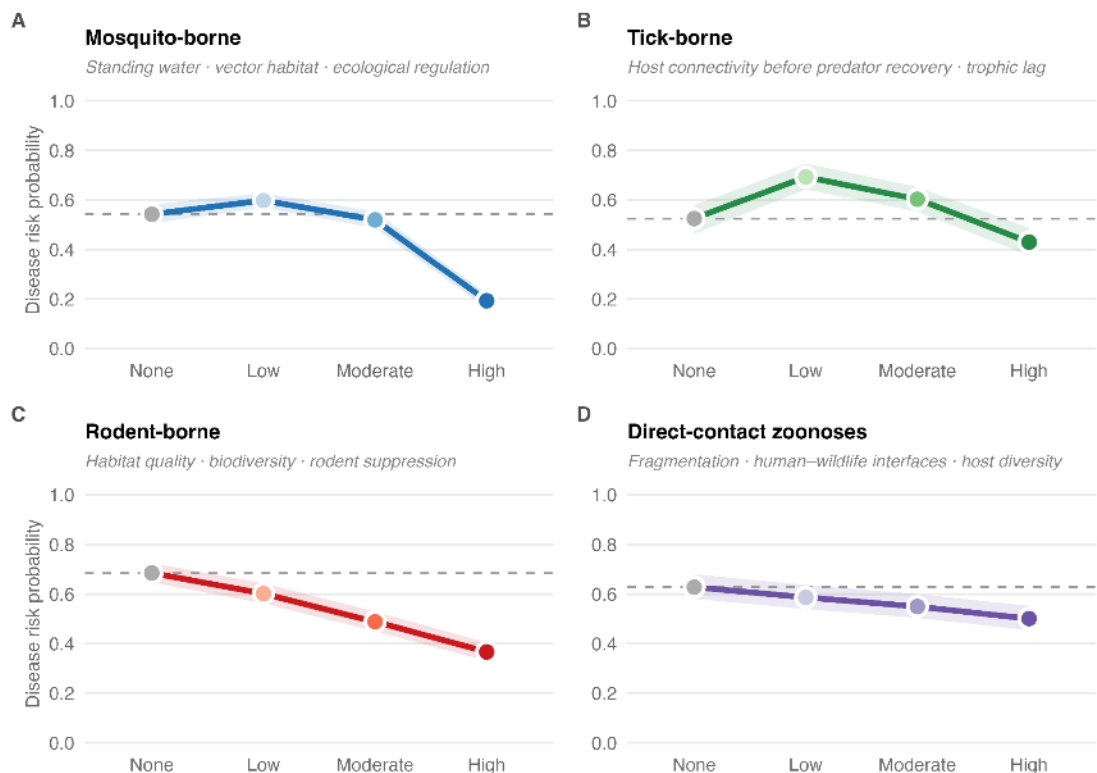
Direct-contact zoonoses
High human-wildlife contact in urban green corridors, relevant where restoration increases wildlife presence near dense populations.

4. Key messages



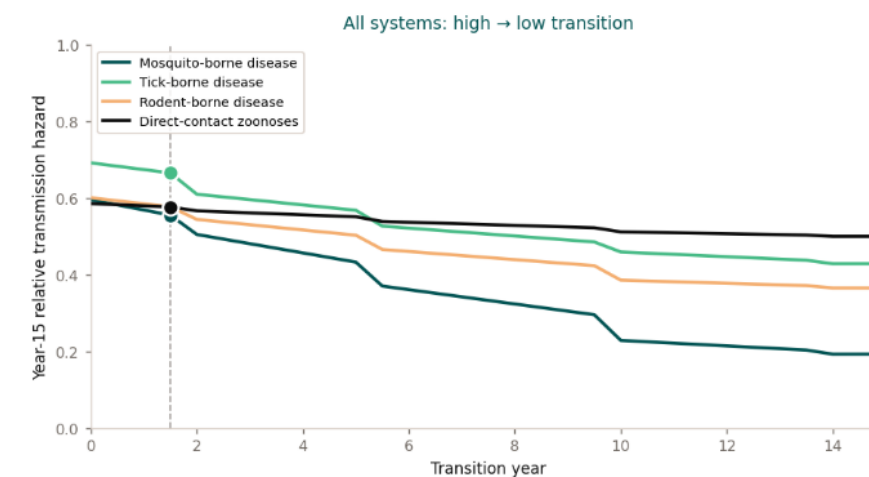
Soushieta Jagadesh

Integrate a One Health lens from the planning and funding stage



Shaded bands: 95% Monte Carlo credible intervals (n = 1,000 iterations). Dashed lines: no-restoration baseline risk. All panels conditioned on high-risk region.

- Late ramp up of funding only partially recovers the benefit of high intensity restoration
- Late funding collapse only partially erodes benefit already gained



4. Key messages

**Reducing zoonotic
risk through nature
restoration Policy
Brief**

*Translations available in
French, German and Polish*



1

Design

- Apply safe-by-design approach
- Consider local contexts
- Manage high-risk interfaces
- Undertake screening



4. Key messages

Reducing zoonotic
risk through nature
restoration Policy
Brief

*Translations available in
French, German and Polish*



2

Monitor

- Integrate One Health indicators
- Apply context-dependent monitoring
- Use existing surveillance systems
- Leverage existing databases
- Focus on ecological imbalance

4. Key messages

Reducing zoonotic
risk through nature
restoration Policy
Brief

*Translations available in
French, German and Polish*



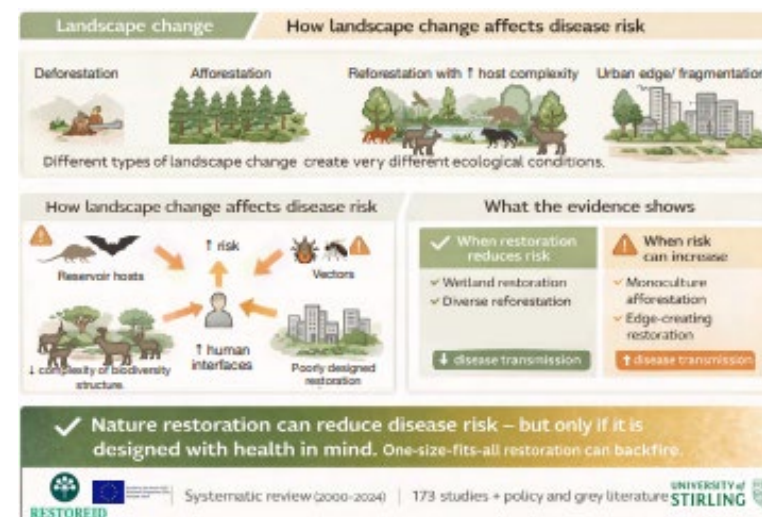
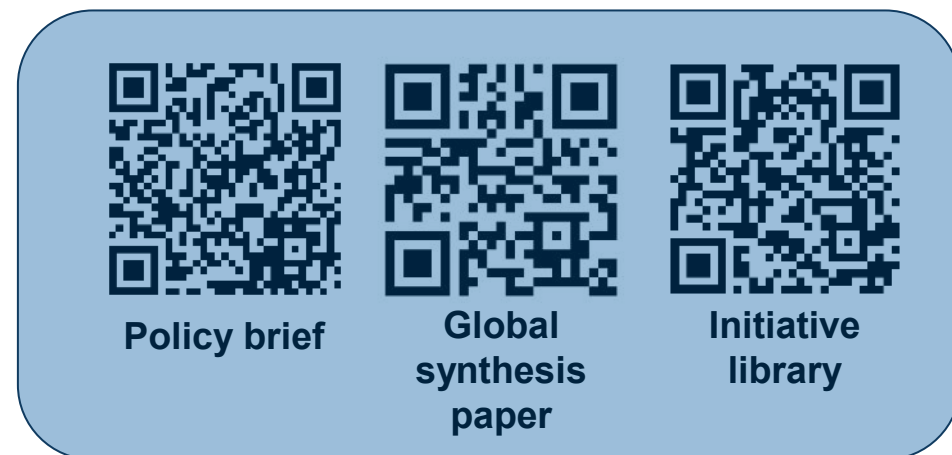
3 Governance

- Strengthen transboundary coordination
- Integrate health into governance
- Operationalise stakeholder engagement
- Build capacity, ensure transparency, communicate

5. How to operationalise it

See the Biodiversa+ policy brief for:

- Explanations of how well designed restoration reduces zoonotic risk
- Specific policy recommendations
- Extended accompanying information sheet with concrete examples to help operationalise One-Health informed restoration



Disease regulation is a potential restoration co-benefit if done well!

Want to know more? Watch the replay of our 1-hour dedicated webinar!



SCAN TO ACCESS THE RECORDING





Audience Q&A on Session 2 - Getting It Right: Standards, Data, and Ecological Quality

Moderated by Rachel Kristensen (KH co-chair, Municipal Councillor - City of Nedlands)

Uptake Dialogues: Making Tools Usable

Moderated by Cloé Durieux (KH Secretariat, ANR)

Feedback on the Policy Briefs Campaign

by Julie de Bouville (Biodiversa+ communication lead, FRB)

Perspectives from the Italian National Restoration Plan

by Daniele De Angelis (ISPRA)

Perspectives from the Italian National Restoration Plan: past, present and future of a complex process

Daniele De Angelis
Luciana Carotenuto
ISPRA

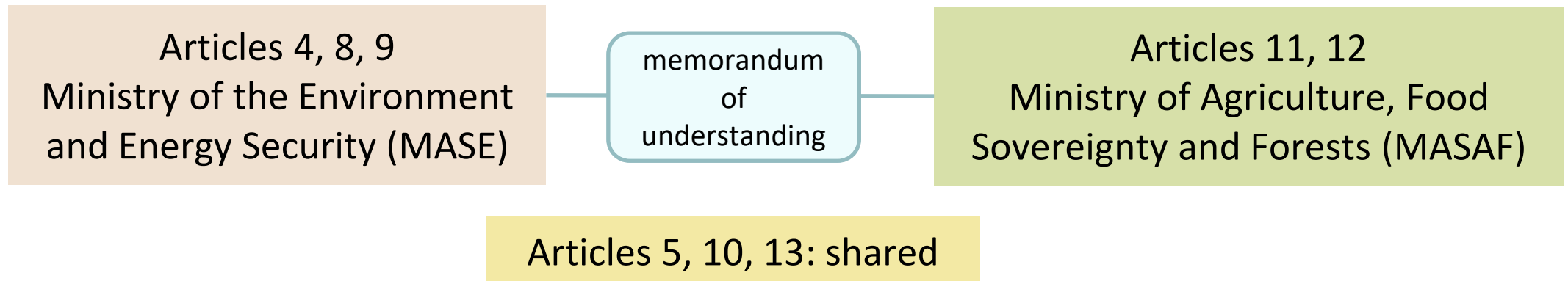
Giulia Albani Rocchetti
Ministry of the Environment and Energy Security

REGULATION – PLAN RELATIONSHIP

application in Italy

Legislative Decree No 80 of 8 April 2026

NATIONAL AUTHORITIES COMPETENT
FOR THE APPLICATION OF THE REGULATION



DECREE (Article 3 of Legislative Decree No 80/2026): the plan is adopted by decree of MASE in concert with MASAF, in agreement with the Unified Conference

ADMINISTRATIONS RESPONSIBLE
FOR IMPLEMENTING THE PLAN
and for monitoring the effectiveness of the measures

- ✓ Regions and Autonomous Provinces (including regional protected area management bodies) (Arts 4, 5, 9, 10, 11)
- ✓ River Basin District Authorities (Arts 4, 5, 9, 10, 11)
- ✓ Protected area management bodies (Arts 4, 5, 9, 10, 11)
- ✓ Metropolitan Cities and Municipalities (Art. 8)
- ✓ Management bodies of public regional forest areas or of private forest areas (Art. 12)



THE PLAN

WHO WE ARE

ISPRA – Italian Institute for Environmental Protection and Research

Public research body under the supervision of the Ministry of the Environment and Energy Security, providing technical and scientific support for environmental policy in Italy.

National reference for environmental monitoring, assessment and reporting, including biodiversity and nature conservation.

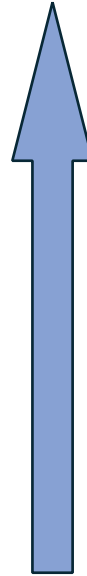
✓ ISPRA (in cooperation with CREA for articles 10, 11 and 12):

- ✓ Provides technical and scientific support to MASE in the compilation of the NRP draft
- ✓ Collects restoration measures from local administrations
- ✓ Implements the “Piattaforma Ripristini”
- ✓ Supports MASE in communication
- ✓ Develops technical documentation for VAS

THE PLAN

step by step approach

WE START FROM WHAT
WE KNOW AND WHAT
WE HAVE



the pillars already contain '*measures*' (active and passive):
do they meet the Regulation's targets?
is anything else needed?

National data collection system: WebGIS platform “Ripristini”

Data Collection. Based on CE Extended Format (Part C). Local authorities could provide info about restoration measures and map each intervention by uploading a file, drawing the geometry on a map, or selecting EEA 10×10 km grid cells or provinces (NUTS3).

**PIAATTAFORMA ripristini**
Prototipo locale per consultazione, sintesi e caricamento delle misure del Piano Nazionale Ripristino

Filtri

Misura

Cerca measure_id o nome misura

Regione/PA

Tutti

Target

Tutti

Sub-target

Tutti

Main ecosystem

Tutti

Other ecosystem

Tutti

Articolo

Tutti

Fonte spaziale

Seleziona una o più fonti spaziali. Per esempio, puoi deselezionare solo nuts3 e lasciare visibili tutte le altre.

Seleziona tutte

Deseleziona tutte

☒ draw

☒ gridcell_10km

☒ natura2000_site

☐ nuts3

☒ platform_drawn_geometry

☒ shapefile_fallback

THE PLAN

THE RATIONALE

- Timeframes too tight to start from an analysis of the condition of ecosystems and to define new measures from scratch in concert with implementing bodies, etc.
- Building on efforts already made by public bodies to identify restoration measures s.l. on the basis of their best knowledge
- Existing measures in force (DGR, DD, etc.):
 - commitment of the bodies already officially recognised
 - public consultation for the approval of the measures already carried out
- Mandatory restoration to '**strengthen implementation**' of actions already planned



Muscardinus avellanarius. Photo: Veio Park archive, Lazio Region

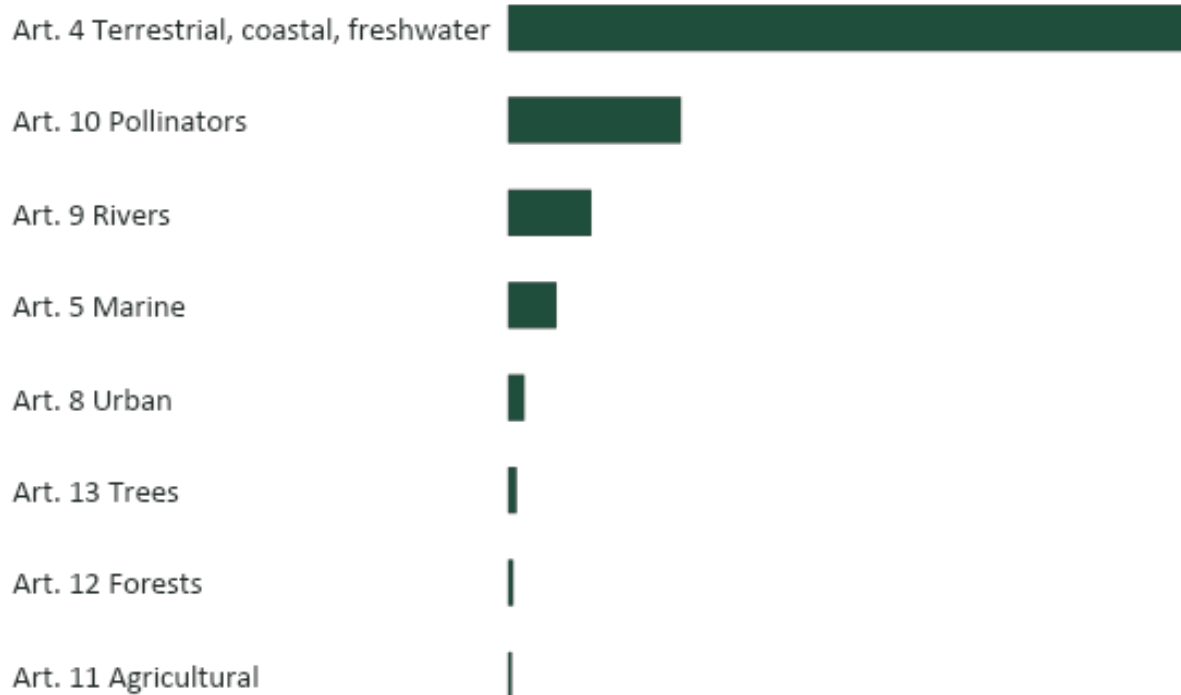
Examples of sources for measures consistent with the Regulation's targets

- for Arts 4, 5, 10: **Habitats Directive**, SACs: 'conservation measures' for species and habitats
- for Arts 4, 5: **Marine Strategy**, programme of measures. Marine Protected Area plans, project "MER"
- for Art. 8: regional and municipal **plans for green spaces**, green infrastructure, soil permeability. Actions under Law No 10/2013 as amended. Projects of the National Fund for combating land take (197/2022)
- for Arts 9, 4: **Water Framework Directive and Floods Directive**: hydrogeological structure plans, flood risk management plans, river basin management plan
- for Arts 10, 11: **National Action Plan (NAP) on the sustainable use of plant protection products**: regional implementing measures in Natura 2000 sites
- for Arts 10, 11: **CAP schemes**

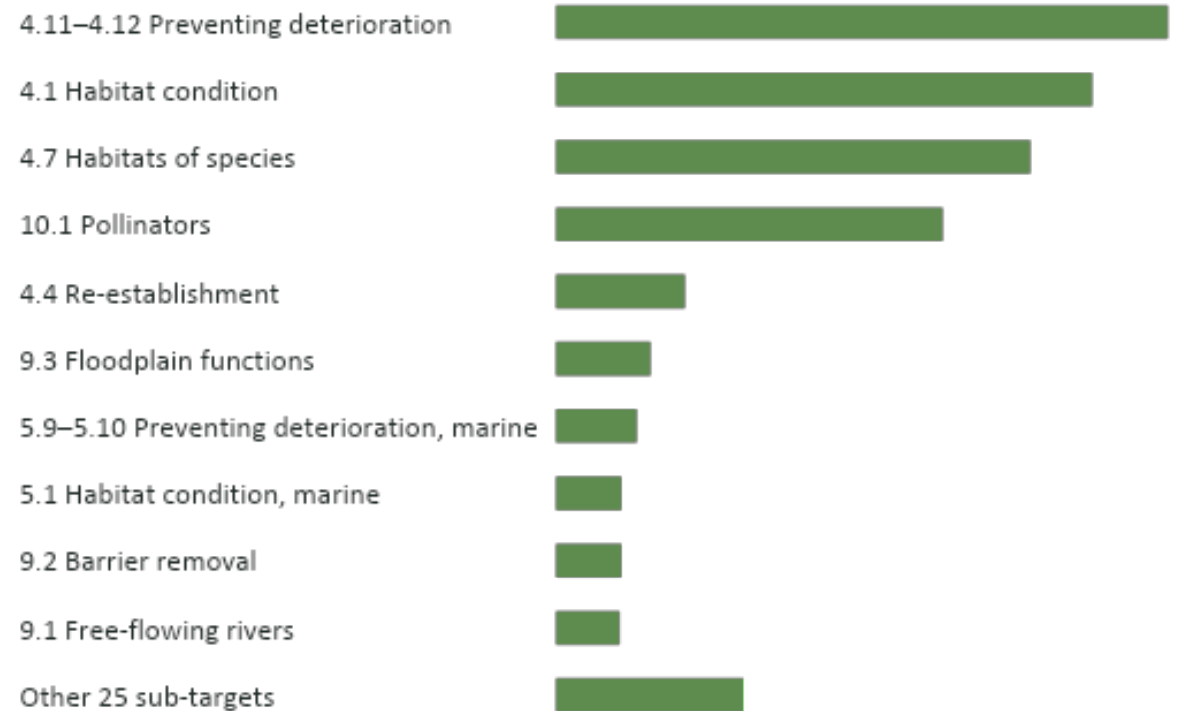
THE PLAN

Breakdown by Article of the Regulation and by sub-target (~2,000 measures collected)

Measures by Article



Measures by sub-target



THE PLAN

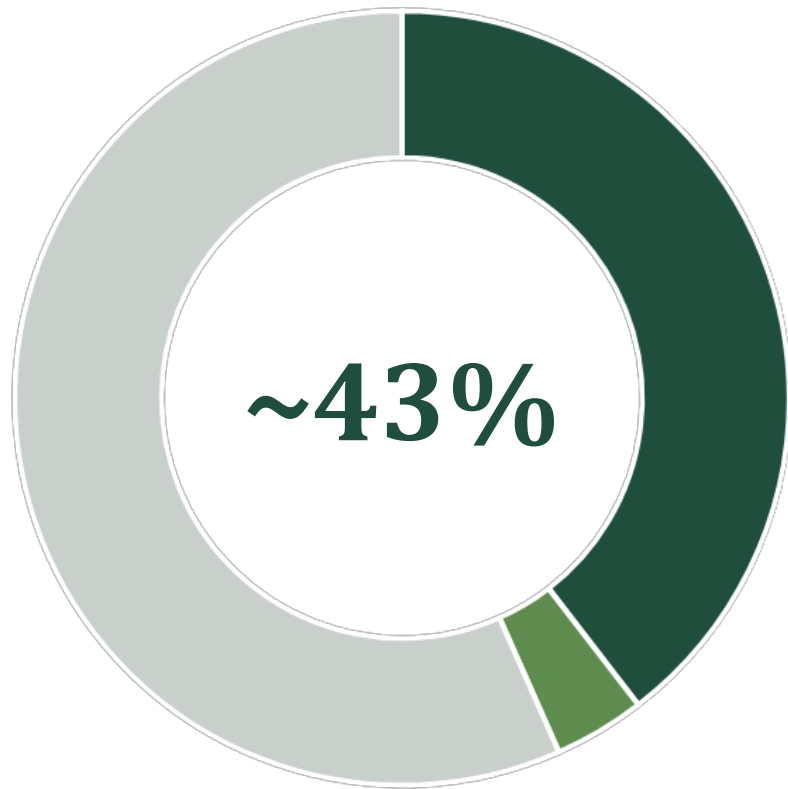
Tipology of measures: the 12 most frequent measure types (NRPM), by main ecosystem

Measure type	Wetlands	Grassland	Rivers, riparian	Forests	Heath, scrub	Rocky, dunes	Marine	Other
Managing habitats against natural succession								
Control of other invasive alien species								
Restoring habitats of species								
Adapting forest management								
Control of IAS of Union concern								
River longitudinal continuity								
Reducing recreation impacts								
Restoring wetlands								
Hydromorphological conditions								
New policy and legislation								
Managing problematic native species								
Research and knowledge base								
...								

THE PLAN

Four in ten measures are georeferenced

Measures with at least one associated spatial record



● Uploaded or drawn geometry (~39%)

● Only 10×10 km grid cells or NUTS3 (~4%)

● No spatial data, apart from Natura 2000 SACs site codes (56.6%)

Limit: highly uneven spatial resolution

Alongside accurate polygons, some geometries are extremely coarse (e.g., entire Natura 2000 sites, 100 km² grid cells, NUTS, whole provinces).

At this stage, data mostly show approximately where action takes place, not the exact area that will be restored.

Currently in the NRP: maps of potential distribution areas use 10x10 km² grids

THE PLAN

THE PUBLIC CONSULTATION



Opening
23 April 2026

Closing
24 June 2026

Platform
Online - ParteciPA

Sharing the contents
of the first draft

Two questionnaires for general public and stakeholders for opinions on the whole plan and **technical and specific comments**

Proposals of new measures

Satisfaction questionnaire to assess the methodology, structure and content of the consultation

and online meetings with stakeholders

THE PLAN

THE PUBLIC CONSULTATION



Opening

23 April 2026

Closing

24 June 2026

Platform

Online - ParteciPA

Contributions received:

- 644 general questionnaire
- 261 specific questionnaire
- 263 satisfaction questionnaires
- 748 proposals of new measures
- approximately 230 expressions of support

Main themes emerging from the consultation

- **Governance and participation**
 - greater involvement of Regions, Municipalities, the scientific community, stakeholders and citizens;
 - strengthening of participatory processes and of citizen science.
- **Monitoring, data and knowledge**
 - development of national protocols, indicators and shared methodologies;
 - strengthening of habitat monitoring and data collection.
- **Urban ecosystems (Art. 8)**
 - urban green space, tree canopy cover and depaving;
 - quality of green space, beyond surface area alone;
 - role of Municipalities, compensation and urban planning.

THE PLAN

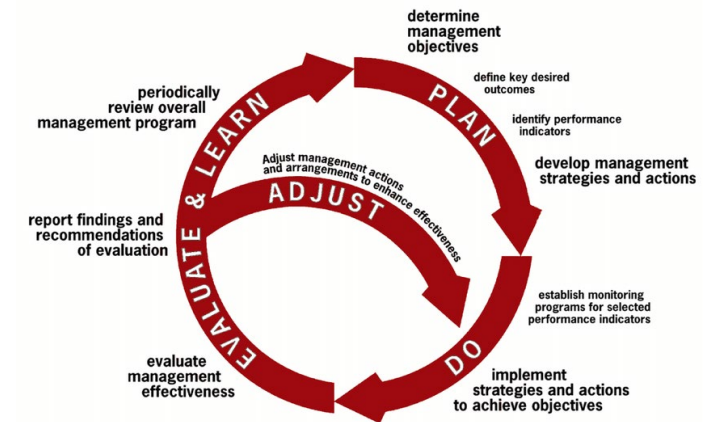
MAIN WEAKNESSES SO FAR

- Lack of a broad ecosystem-based approach at the national level
- Art. 4 and 5: lack of knowledge on habitats' distribution and conditions outside Natura 2000
- Detailed spatial information on restoration measures frequently unavailable or highly heterogeneous in quality and reliability
- Starting from planned measures/projects made by different public authorities □ defining and mapping measures with synergic effects between articles is challenging
- Administrative fragmentation inside the administrative authorities in charge of proposing and implementing the measures
- Estimates of financial needs lacking for approximately one-third of the measures; where available, they vary considerably in terms of quality and reliability
- The step-by-step approach used to develop the Plan, based on existing or already planned measures, makes it difficult to identify those measures that best contribute to the objectives of Article 1 of the Regulation, particularly climate change mitigation and adaptation

THE PLAN

MAIN STRENGTHS SO FAR

- Very tight and positive collaboration between all the actors of the process: ministries, ISPRA, CREA, administrative authorities
- A pragmatic and realistic planning process
- The information on local measures collected so far constitute an important dataset that will be useful to identify remaining GAPS
- Improvement in the spatial accuracy of data collected will contribute to
 - Producing missing estimates of National surfaces interested by area-based measures
 - Providing spatially-explicit information for supporting future monitoring activities
- After the recommendations of EC: room to improve the plan with science-based and stakeholders inputs



adaptive management

Jones, G. (2005). Is the management plan achieving its objectives? in Worboys, Lockwood, De Lacy, Protected Area Management. Principles and Practice. OUP.

Thank you for your attention

*Daniele De Angelis
Luciana Carotenuto
and the ISPRA team*

*Giulia Albani Rocchetti
and the MASE team*



From Experience To Continuation

by Cloé Durieux (KH Secretariat, ANR) and Rainer Sodtke (Biodiversa+ co-chair, DLR)

Knowledge Hub Extension

- ✓ The Knowledge Hub continues within Biodiversa+ through **September 2027**

2 key components of our new workplan

Focus on **dissemination** - getting KH products in front of the people who use them

Agile, quick-reaction structure - rapid outputs on emerging needs

Nature Restoration Regulation timeline

BiodivRestore Knowledge Hub

August 2024
Adoption of the NRR

High impact window
-
Knowledge Hub extension

September 2026
MS submit their draft National Restoration Plans (NRPs) covering the period until 2050

March 2027
The Commission assesses the draft NRPs, acting in close cooperation with the MS concerned

September 2027
The MS finalise, publish and submit the NRP within 6 months after receiving observations from the Commission

June 2028
Every 3 years, MS report on areas under restoration, extent of habitat deterioration & compensatory measures, barriers removed, contribution to planting 3 bill. additional trees

Biodiversa+ - The European Biodiversity Partnership

- part of the European Biodiversity Strategy for 2030
- supporting excellent research on biodiversity with an impact for policy and society



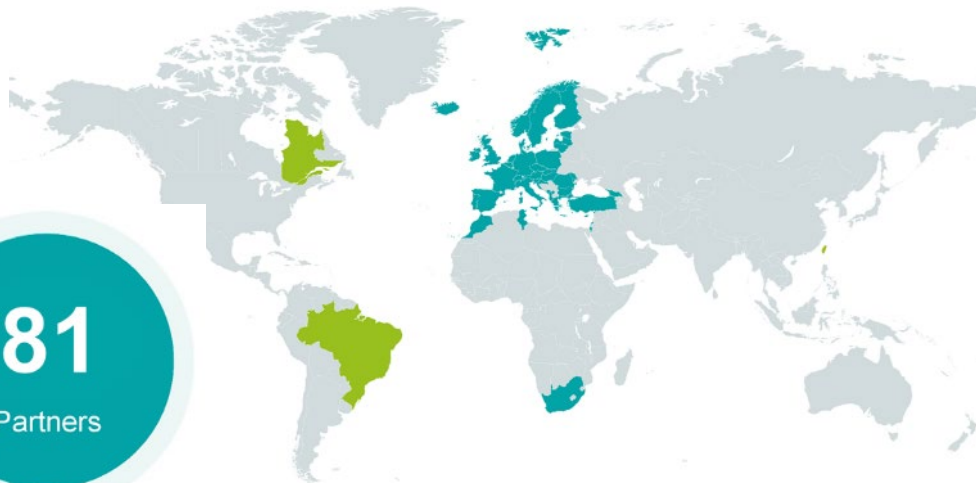
Research actors

→ Ministries & funding organisations



Policy actors

→ Ministries & env. protection agencies



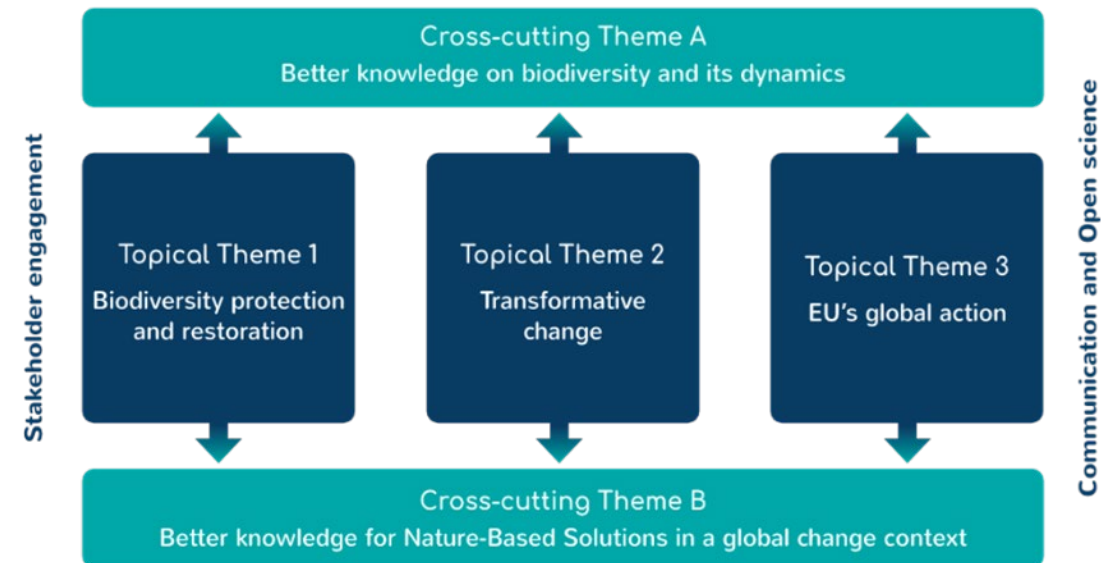
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Countries

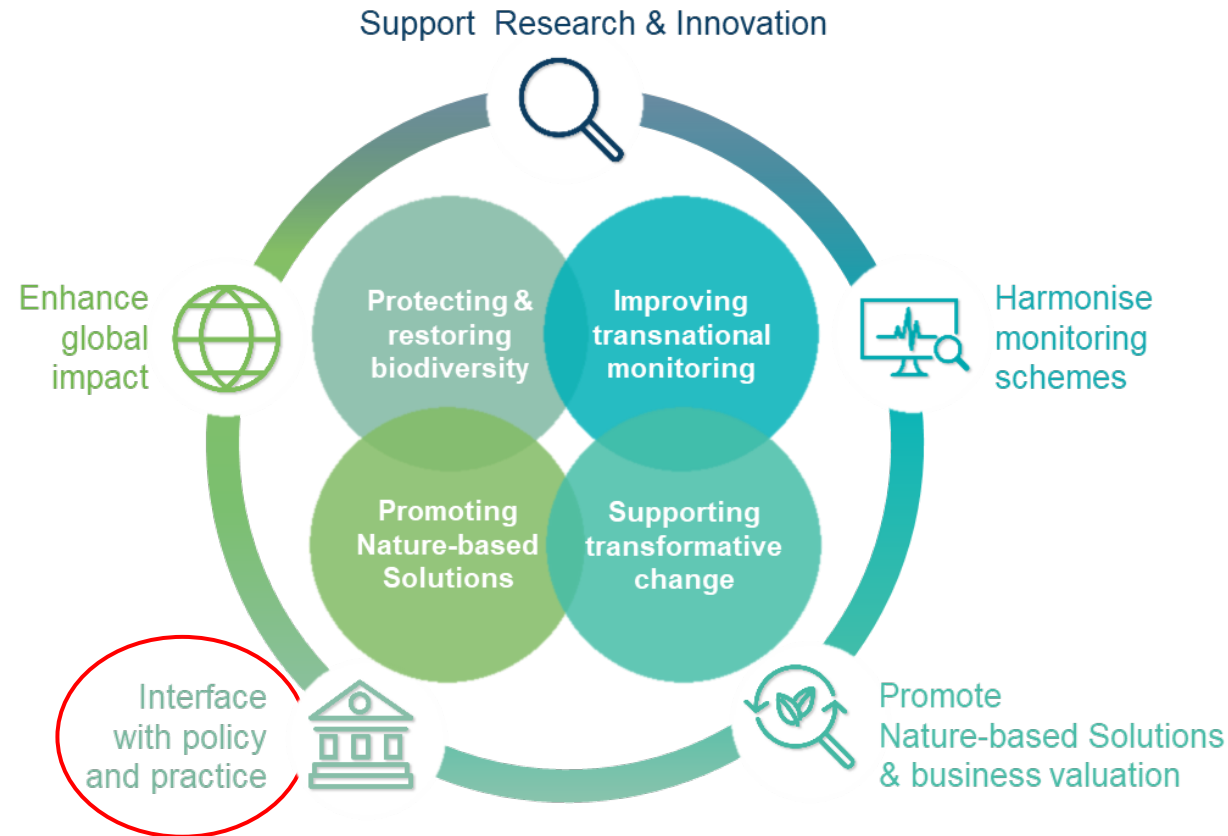
81

Partners

Biodiversa+ Strategic Research & Innovation Agenda



Biodiversa+ - Portfolio of activities



Joint research calls:

- 2021 **Biodiversity protection** (36 projects, >44M€)
- 2022 **Biodiversity monitoring** (33 projects, >46M€)
- 2023 **Nature-based solutions** (34 projects, >40M€)
- 2024 **Societal transformation** (35 projects, >40M€)
- 2025 **Restoration of ecosystem functioning** (36 projects, ~49M€)
- 2026 **Future Ecosystems** (launched Sept. 2026)

Science-policy interface:

- **Foresight:** dialogue events, desk studies
- **Cooperation:** science-policy forum, knowledge hub
- **Support:** briefs, co-building the EU “Science Service for Biodiversity”
- **Liaising** with global actors: CBD, IPBES, IPCC, GBIF...
- **Hosting** the IPBES Technical Support Unit for “Catalysing knowledge generation”

Ranking Priorities and Addressing Needs

Live polls - tell us your needs and priorities, vote on Zoom

1

In a few words: what's your biggest challenge in restoration policy right now?

2

What types of products do you use the most?

3

What are your expectations from the Knowledge Hub during this period?

4

What did you learn today?

Staying Engaged as the Knowledge Hub Continues

National policymakers

tell us your priorities and stay in touch

Restoration initiatives/hubs

come share your activities at our internal meetings and collaborate on some joint products

Stakeholders / practitioners

come share your feedback and experience at our internal meetings and collaborate on some joint products

Everyone

visit www.biodiversa.eu for updates on publications and events

Researchers

join our products for complementary expertise

Reach out to the Knowledge Hub Secretariat

cloe.durieux@anr.fr

Closing Remarks

by Metodi Sotirov (KH co-chair, University of Freiburg), Rainer Sodtke (Biodiversa+ co-chair, DLR) and Ondrej Kusbach (KH Secretariat, TACR)



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