CALL TEXT
Biodiversa+ joint research call 2025

Restoration of ecosystem functioning, integrity and connectivity (BiodivConnect)

FINAL VERSION 21 May 2025

I. RESEARCH PRIORITIES AND KNOWLEDGE GAPS

INTRODUCTION

One of the strategic objectives of the European Biodiversity Partnership, Biodiversa+, is to produce **actionable** (i.e., practically usable) **knowledge to halt and reverse biodiversity decline** (Biodiversa+ Strategic Research and Innovation Agenda). To achieve this, a series of actions, including this research call, are embedded in the Flagship Programme "Supporting protection and restoration of biodiversity and ecosystems across land and sea". In this context, Biodiversa+, co-funded by the European Commission, launches this joint call for research proposals on "Restoration of ecosystem functioning, integrity and connectivity", referred to as BiodivConnect.

This call is focused on fostering innovative research to be integrated into nature restoration[1] practices for interconnected and well-functioning ecosystems and habitats, with special consideration for long-term sustainability and future-proofing of restoration efforts, at scales from local to regional to cross-border and global, including their evaluation.

A first key topic is the need for coherent and operational restoration targets and measurements of success in terms of ecosystem functioning, integrity and connectivity. Projects are expected to consider shifting baselines and integration of ecological, cultural and social contexts, with objective-based or reference-based approaches. **The second key topic** is the need for a better understanding of the possibilities and methods for meaningful and effective scaling and transferability of nature restoration efforts. There are many examples of successful local restoration efforts across the world, however the scale of the biodiversity crisis necessitates advancements in approaches and processes for reproducing successful efforts across different socio-economic and environmental contexts. **The third key topic** is the need for long-term sustainability of restored species, habitats and ecosystems, including resilience to climate change and other pressures. Given future environmental and societal changes, it will not be possible to rely solely on historical and current datasets and models to predict likely pathways to successful restoration. There is also a need for advanced predictive

[1]Note: this call does not refer to any specific definition of "restoration" and leaves it up to applicants to frame in their proposal the restoration approach they intend to address.

modelling and anticipatory strategic foresight based on policy learning, as well as the development of entirely novel approaches to restoration, experimental approaches with high risk tolerance, and/or open-ended restoration efforts such as rewilding.

This call covers restoration efforts for biodiversity in all types of ecosystems and habitats, e.g. terrestrial, coastal, freshwater, estuaries, marine, wetlands, urban, agricultural and forest ecosystems, as well as in transition zones and multi-habitat interventions. Projects to be funded under this call can focus on a wide range of aspects, e.g.: different categories of indicators (biodiversity, ecosystem functioning, environmental quality, governance, planetary health aspects), multiple scales for restoration upscaling, ecological, socio-economic, and socio-cultural dimensions; and/or varying levels of environmental regulations and policies needing alignment. Projects should support progress towards international biodiversity commitments, also beyond 2030, under the Kunming-Montréal Global Biodiversity Framework, and relevant biodiversity policy objectives at different levels. For instance, the projects could support the implementation of EU biodiversity policies, in particular the Nature Restoration Regulation, the Birds and the Habitats Directive, the Water Framework Directive, the Marine Strategy Framework Directive, as well as the proposed Soil monitoring and resilience directive, or equivalent legislations outside the EU. Focusing on the connectivity, integrity, and functionality of ecosystems, projects are also encouraged to support Member States in establishing national restoration plans under Article 14 of the Nature Restoration Regulation, and in developing practical methods and tools for stakeholders involved in implementing nature restoration activities.

KNOWLEDGE GAPS

To adequately address the key challenges of nature restoration, it is essential to support knowledge exchange and capacity building across disciplines and societal sectors, and acknowledge, appreciate and integrate multiple forms of knowledge. This call is arranged into three main topics that partly overlap:

- Setting restoration targets and measuring success
- Transferability and scaling of nature restoration efforts
- Resilience and sustainability of restoration efforts

Project proposals can address one or more of these main topics. The points listed below under each topic serve to give an idea of knowledge gaps which could be addressed by projects. They are neither to be understood as a list limited to these points nor as a list to be fulfilled in as many points as possible. To be successful, applicants are advised to consider that **the extent of knowledge gaps they address within their project is realistic** for the requested project duration of three years.

Topic 1: Setting restoration targets and measuring success

- Integration of biodiversity and ecosystem functioning targets – identifying the most appropriate and effective metrics as indicators and for defining restoration outcomes for use by managers, policy makers, landowners, users of land and sea, and local and global businesses.
- Development and use of prioritisation tools for underpinning restoration targets, e.g. systematic conservation planning, spatial planning, and including AI supported tools. Development of evaluation frameworks that integrate and prioritize various success criteria including ecological, social and economic parameters.
- Studies of ecosystem functioning, integrity and connectivity at multiple levels (e.g., genetic, species, and ecosystem), aspects (e.g. taxonomic and functional diversity, phenotypic traits), and functioning (e.g., stability, productivity), as well as trade-offs for society and stakeholders of possible restauration measures to identify mechanisms and incorporate them into support of evidence-based restoration planning with high probability of societal acceptance.
- Integration of social, economic, environmental and cultural criteria for success and failure of nature restoration in delivering nature-positive (biodiversity-positive) outcomes with reference to the targets and indicators of the Global Biodiversity Framework, including interlinkages between biodiversity loss, changing climate, and the risk of undesired outcomes from complex ecosystem responses.
- Incorporating diverse restoration paradigms and future-oriented approaches, including rewilding and the concept of novel ecosystems, in defining restoration success; links between different facets of biodiversity in heavily human-altered landscapes and less altered ones.
- Assessing the relevance of concepts such as resilience-based targets, adaptive ecological baselines, favourable conservation status, and ecological conditions for multifunctional approaches to restoration which address multiple pressures.
- Cost-benefit and cost-effectiveness analyses across scales of geography and time, but also ensuring inclusion and adequate integration of multiple perspectives on values and benefits of biodiversity and ecosystem services and nature's contributions to people.
- Studies of the role of local communities and indigenous people and how to establish an inclusive process that fosters local ownership and acceptance by addressing equity in who participates in the design, planning, implementation, and evaluation of restoration projects.

Topic 2: Scaling and transferability of nature restoration efforts

- Metacommunity approaches: understanding connections between habitats by addressing spatial community dynamics underlying the emerging patterns in

ecosystem functions and biodiversity; understanding how interventions in key habitats create effects across a landscape; investigating the effect of landscape-level interventions on the long-term sustainability of restoration efforts.

- Meta-ecosystem approaches: addressing cross-ecosystem connectivity (and gaps) and down-stream effects (e.g., terrestrial-aquatic) to scale up restoration and support ecosystem functions, focussing for example on functional connectivity, land/sea use history, and climate change.
- Addressing the impact of local and global drivers of degradation, accounting for synergies and trade-offs among solutions and intervention actions including active and passive restoration efforts, and their transferability to other areas or habitats.
- Addressing societal drivers and enabling conditions for the diffusion and scaling up of nature recovery interventions. Definition of criteria to help decide if and how small-scale approaches (pilot, local) are suitable for transfer to other areas or larger-scale approaches (regional, cross-border).
- Analysing the role of businesses and the financial system – including financial institutions, value chains, investors, and public and private markets – in developing financial products, market structures and incentive schemes including payment for ecosystem services and nature credits to scale up biodiversity financing and to bridge the funding gap through profitable and replicable business models for restoration.
- Understanding the importance of enabling policy environments and policy coherence across sectors, such as between regional development, sustainable finance, and other relevant regulation. The role of policy, legal acts, taxes, subsidies, and trade regulation for transnational supply chains at the trade and biodiversity nexus to enable the scaling-up and long-term sustainability of biodiversity restoration efforts.

Topic 3: Long-term sustainability of restoration efforts

- Addressing the need to develop a basis for defining long-term targets/satisfactory levels for regulations and policies, and the need for measuring the long-term outcome and impact of restoration efforts on ecosystem functioning, integrity and connectivity beyond the endpoint of a restoration project. Shifting towards long-term strategies for monitoring of restored areas under potentially changing conditions, including mechanisms for their sustainable financing.
- Addressing long-term needs for policy development which are not included in the requirement from the EU Nature Restoration Regulation.
- Consideration of social justice and equity issues in sustainable restoration efforts. Investigating which individuals and sectors of society might bear the burdens, and who might benefit, with particular attention to underrepresented and marginalised communities and the implications of current decisions for future generations, with applicable solutions to ensure also inter-generational equity.

- Laying the scientific basis for weighing up between different restoration efforts and targets and for their prioritisation, evaluating their robustness to climate change and other pressures while maintaining biodiversity and important ecological processes and species interactions, including connectivity and range shifts of species. Studying the role of connectivity to mitigate existing and novel threats to the sustainability of restoration efforts and the role of range shift of species.
- Integration of multiple restoration targets into restoration interventions and sustainable land use while considering multiple and emerging threats to ecosystems. Investigating possible paths for e.g., agroecology or closer-to-nature forest management[2] and their prospects of success to build sustainable solutions involving national and local stakeholders.
- Development of predictive and/or systems models, and ways to utilize historical and novel data and emerging technology for new approaches, automated monitoring and near real-time adaptive management across systems, with rapid feedback to stakeholders, management and policy.
- Mitigation of un-desired outcomes of restoration efforts, including for example the effects on biodiversity from contaminants, pollutants, and biomagnification, such as washout from land to sea. Developing a better understanding of how contaminants may become a problem after restoration, including e.g. planetary health aspects and biodiversity aspects of bioremediation efforts.
- Development or application of anticipatory strategic foresight methods (e.g., explorative policy scenarios and policy back-casting) and assessment or improvement of existing qualitative approaches (e.g. storytelling, historical analyses, ethnography, engaging with arts and humanities researchers) to learn from successes and failures, to establish transparency and acceptance for a learning environment surrounding restoration plans. Exploration of how visions of the future of restored landscapes might be shared or differ between different societal groups, and showing ways how a biodiversity positive paradigm and behavioural shifts of stakeholders could be stimulated.

II. EXPECTATIONS TOWARDS FUNDED PROJECTS

General expectations

This call supports high-quality research and innovation projects on biodiversity and ecosystem restoration that demonstrate **holistic, systemic, and integrated approaches** with potential for high environmental, economic and societal impact, including support to decision-making in policy and management. The call is designed to fund interdisciplinary, transdisciplinary, and/or cross-sectoral research projects that appeal to diverse scientific communities,

[2] [2] Guidelines on Closer-to-Nature Forest Management - European Commission

including natural, social and technical sciences, humanities and arts, with contributions also from business and finance sectors as required.

The call aims for research and innovation projects demonstrating **academic excellence**, with potential for local, regional and/or global **societal and policy impact** regarding biodiversity, aiming to connect science, society, policy, and practices for transformative change. Projects are therefore expected to directly engage with and include stakeholders and citizens at various stages of the process, from project design through to research, implementation, impact monitoring, and evaluation, as appropriate and relevant.

It is expected that applicants will explicitly make clear the **novelty of their research** and how it builds upon and adds to the existing knowledge base, including previously funded or on-going international, European and national projects. Redundancy must be avoided, yet complementary research (for example with existing Horizon 2020 and Horizon Europe efforts) is possible, as long as the added value of the proposal is clearly explained. Projects are expected to explain how they intend to deliver a significant contribution to scientific knowledge production, and the proposed means and manner to use this knowledge towards the achievement of restoration of biodiversity and ecosystems.

The dual objective of supporting projects that conduct excellent research on the one hand and, on the other, advance the most promising approaches for the implementation of their research results in society and policy, is clearly reflected in the call's evaluation criteria. Applicants are encouraged to refer to the Call Document #6 for detailed information regarding the evaluation criteria that will be used during the evaluation process.

Comentado [1]: Note: Link to this document will be added when the call text will be incorporated within the call documents.

Please note that each funding organisation has its own rules for research partners eligibility, and it is crucial that applicants **consult the national/regional rules for each partner** of their consortium.

Projects are encouraged to build on the results of the BiodivRestore projects where relevant, and to engage with the BiodivRestore Knowledge Hub and other relevant initiatives and projects including Horizon Europe R&I projects, LIFE projects, EU Business@Biodiversity Platform, or Biodiversity Finance Initiative BIOFIN, and to utilise the scientific research infrastructures and Earth observation programmes which have been created and supported by the European Union to facilitate biodiversity research and observation across the continent (e.g. LifeWatch, AnaEE, eLTER, Copernicus, Galileo, EGNOS), as well as global research infrastructures (e.g. GBIF, ILTER, GEOSS/GEOBON, GERI, and others). All projects must be clearly evidence-based and ensure that they are learning and capitalizing from existing projects and programmes, as well as the successes/failures of previous efforts in restoration research and practice.

Interdisciplinarity

To meet the goals of this call, projects are expected to be interdisciplinary. Interdisciplinary science refers to the involvement of multiple academic disciplines. Research teams should therefore span all disciplines of relevance for their project, be it from natural, social, and technical sciences, humanities and/or arts. Proposals should demonstrate how they will ensure the equitable and appropriate combination and inclusion of relevant academic disciplines, collaboratively integrating their approaches and skills.

Transdisciplinarity and impact

Proposals are strongly encouraged to be transdisciplinary to include non-academic stakeholders working together with researchers to co-produce new knowledge relevant for society. They should do so by considering the potential societal (including policy) impacts of their research (i.e., reflexive and introspective). Where relevant, stakeholders should be involved in different stages of the project, for example in the initial phase when defining research objectives and strategies, in implementing the project through data collection or analysis, to contribute to better dissemination of the knowledge gained, and/or to facilitate a systemic approach to a challenge. However, this involvement must not be an end in itself, but should be designed to add clear value to the project. For guidance, please consult the Biodiversa+ handbooks on Stakeholder engagement and on Citizen science (all Biodiversa+ guiding documents can be found here). If the inclusion of relevant stakeholders within the project management is not feasible or useful, this should be explained including how the proposed work remains valuable in a societal context. We welcome research in partnership with, and for, potentially under-represented and/or vulnerable groups of actors often omitted from academic studies in this context (e.g. traditional knowledge holders, indigenous and local communities, young, marginalised demographic groups, etc.). We also welcome projects which consider innovative ways to have better impact on policy and practices in business and public management, and among different stakeholders. Projects are encouraged to adopt a holistic approach and where relevant engage businesses and industries as partners in their proposal, to encompass a complete innovation ecosystem[3]. The integration of various actors and sectors should be carried out in an equitable, respectful and just manner.

Global scope

XX countries are contributing to the funding of this joint call (see the updated list of countries and participating Funding Organisations on our website: LINK).

The call covers research in all parts of the world, in all types of ecosystems and habitats, and in all types of societies, cultures and economic models. Research and innovation projects can thus include study sites, modelling or data collection globally, beyond the countries participating in the call. Note that researchers and stakeholders which cannot be funded directly from the call are welcome to participate on their own funds as in-kind project

[3] Please consult the relevant national/ regional rules regarding partners' eligibility.

partners, or (if applicable) contracted by the applicants (see the section 1.2. “Eligibility of projects and partners in Call Criteria”, below).

Research proposed under this call is expected to demonstrate **significant transnational added value** in comparison to the value that would result from research and innovation projects funded at national level only. Evidence of transnational added value can either be found directly among the countries involved in the research, or through indirect value accrued as a result of their joint work. Such value could for example include relevance to international policy and management processes, linking expertise and efforts across international teams, or upscaling/transfer of efforts, methodology and knowledge across countries and regions.

Furthermore, the transnational added value should be end-user oriented and benefit environmental and societal actors beyond researchers, generating insights on the way, with emphasis on inclusion, social justice and equity. These end-users/stakeholders can be “proximate”, that is, those who directly benefit from the project, or more “ultimate”, i.e., those that may indirectly benefit from the outcomes in a broader geographical scope or longer term. When relevant, projects should for example ensure to have adequate budget for inclusion, capacity building, and exchange also with marginalised rights-owners and stakeholders at events and meetings.

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