biodiversa+
European Biodiversity Partnership

EUROPEAN PARTNERSHIP

2023-2024 Joint Call

BiodivNBS project catalogue

Nature-based solutions for biodiversity, human well-being and transformative change

Co-funded by the European Union

biodiversa+
European Biodiversity Partnership

Biodiversa+

Biodiversa+ is the European Biodiversity Partnership supporting excellent research on biodiversity with an impact for society and policy. It was jointly developed by BiodivERsA – the predecessor of Biodiversa+ from 2005 to 2021 – and the European Commission as part of the EU Biodiversity Strategy 2030, and will contribute to the ambition that "by 2030, nature in Europe is back on a path of recovery, and that by 2050 people are living in harmony with Nature".

Officially launched on 1 October 2021, Biodiversa+ aims at making the bridge between science, policy and practice. Biodiversa+ gathers 83 research programmers, funding organisations and environmental policy actors from 41 European and associated countries to work on 5 main objectives contributing to a sustainable ecological transition in Europe:

1. Plan and support research and innovation on biodiversity through a shared strategy, annual joint calls for research projects and capacity building activities
2. Set up a transnational network of harmonised schemes to improve monitoring of biodiversity and ecosystem services across Europe
3. Contribute to high-end knowledge for deploying Nature-based Solutions and valuation of biodiversity in the private sector
4. Ensure efficient science-based support for policy-making and implementation in Europe
5. Strengthen the relevance and impact of pan-European research on biodiversity in a global context

For more information: www.biodiversa.eu

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The BiodivNBS partners

1. Austrian Science Fund, AUSTRIA
2. Belgian Science Policy Office, BELGIUM
3. The Fund for Scientific Research - FNRS - Wallonia-Brussels, BELGIUM
4. The Research Foundation - Flanders, BELGIUM
5. Brazilian National Council for Scientific and Technological Development, BRAZIL
6. Brazilian National Council of State Funding Agencies, BRAZIL
7. Bulgarian National Science Fund, BULGARIA
8. Fonds de Recherche du Québec, CANADA
9. Technology Agency of the Czech Republic, CZECH REPUBLIC
10. Innovation Fund Denmark, DENMARK
11. Estonian Research Council, ESTONIA
12. Research Council Faroe Islands, THE FAROE ISLANDS
13. French National Research Agency, FRANCE
14. Ministry of Environmental Protection and Agriculture of Georgia, GEORGIA
15. National Research, Development and Innovation Office, HUNGARY
16. Icelandic Centre for Research, ICELAND
17. Environmental Protection Agency, IRELAND
18. Ministry of Environmental Protection, ISRAEL
19. Autonomous Province of Bolzano/Bozen, ITALY
20. Ministry of Universities and Research, ITALY
21. Latvian Council of Science, LATVIA
22. Research Council of Lithuania, LITHUANIA
23. National Agency for Research and Development, MOLDOVA
24. Ministry of Higher Education Scientific Research and Innovation, MOROCCO
25. Dutch Research Council, NETHERLANDS
26. Research Council of Norway, NORWAY
27. National Science Centre, POLAND
28. Portuguese Foundation for Science and Technology, PORTUGAL
29. Regional Science and Technology Fund, Azores, PORTUGAL
30. Executive Agency for Higher Education, Research, Development and Innovation Funding, ROMANIA
31. Slovak Academy of Sciences, SLOVAKIA
32. Ministry of Education, Science and Sport, SLOVENIA
33. Department of Science and Innovation, SOUTH AFRICA
34. Centre for Technological Development and Innovation, SPAIN
35. Spanish Biodiversity Foundation, SPAIN
36. Spanish State Research Agency, SPAIN
37. Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, SWEDEN
38. Swiss National Science Foundation, SWITZERLAND
39. National Science and Technology Council, TAIWAN
40. Ministry of Higher Education and Scientific Research, TUNISIA
41. Scientific and Technological Research Council of Türkiye, TÜRKIYE

Contents

Introduction

The multiple crises of climate change, biodiversity loss, pollution and social inequality are interlinked, and rapid transformative approaches of our societies and economies are required to address them effectively (IPBES 2019, 2024; Dasgupta 2021). This call for innovative and sustainable solutions, realising that people and nature are part of the same complex interconnected system.

> People and nature are part of the same complex interconnected system

Nature-based Solutions (NbS) are gaining traction in science (e.g., Welden et al. 2021; Seddon et al. 2021) and in policy (CBD, GBF, UNFCCC, European Green Deal) (e.g. CBD 2022; European Commission 2020, 2022; European Investment Bank 2023; IUCN 2020). Such solutions aim at benefitting human well-being by enhancing biodiversity and recognising their interconnectedness. However, there can also be conflicting goals and trade-offs, which highlights the need to clarify the specific objectives of each intervention and what is required to ensure effective implementation.

Interdisciplinary research is needed to overcome barriers and to upscale implementation of NbS across sectors and policies. The issue of scalability poses a significant challenge when it comes to the implementation and widespread adoption of NbS. Two key questions are: what makes NbS work from different perspectives (ecological, social, political, economic, legal, etc.), and how do we address trade-offs between different dimensions of transformation? In this context, it should be recognised that there are multiple pathways to achieving transformative change (Bulkeley et al. 2020).

Despite a growing number of research projects on NbS topics, a recent mapping of the EU research, innovation and implementation landscape (El Harrak and Lemaitre 2023) reveals considerable bias. EU-level support focuses predominantly on NbS based on developing sustainable management protocols and procedures for the management of restored ecosystems, and on NbS that involve creating new ecosystems. In contrast, NbS involving existing natural or protected ecosystems remain largely understudied.

> Interdisciplinary research is needed to overcome barriers and to upscale implementation of NbS across sectors and policies

Similarly, NbS in ecological environments other than forests, agricultural lands, urban areas, inland waters or coasts have received far less attention. Several key

knowledge gaps and potential pitfalls remain, related to effectiveness and enabling factors. There is also a lack of evidence-based narratives about tipping points and critical trade-offs as well as about synergies among different societal challenges including the protection of biodiversity (Seddon et al. 2021).

Several key knowledge gaps and potential pitfalls remain

To address these needs for better knowledge, the Biodiversa+ partners launched the 'BiodivNBS' call on Nature-based Solutions for biodiversity, human well-being and transformative change in September 2023, co-funded by the European Commission under Horizon Europe. The call had three overarching, non-exclusive, themes which were to be addressed while underpinning the role of biodiversity, adopting 'do no significant harm' approaches (ESMA 2023) and enhancing biodiversity benefits in accordance with the concept of NbS:

- Synergies and trade-offs of NbS in the context of human well-being
- NbS mitigating anthropogenic drivers of biodiversity loss
- The contribution of NbS for just transformative change.

This joint research call aimed at supporting 3-years projects to gain a better understanding of the tipping points and trade-offs and underlying mechanisms affecting Nature-based Solutions, and their successful implementation with respect to the benefits for nature, human well-being and societal transformation.

Nature-based solutions for biodiversity, human well-being and transformative change

In response to the call, 183 eligible pre-proposals were submitted by transnational research consortia. Following the first step of evaluation, 108 eligible full proposals were received and after a second step of rigorous evaluation, 34 research projects were finally selected for funding for a total amount of over 40 million euros from national and regional funding organisations and the European Commission.

These projects demonstrate academic excellence while addressing pressing scientific and societal challenges. They foster collaboration across different disciplines and involve a wide range of stakeholders. The funded projects cover a range of challenges to society and approaches for Nature-based Solutions, addressing biodiversity across terrestrial, freshwater and marine environments, including soils and the aerial domain.

34 research projects have been selected for funding for a total amount of over 40 million euros

We congratulate the winning consortia for the excellent quality of their proposals, and for their commitment to provide tools and knowledge for efficient implementation of Nature-based Solutions. Our sincere thanks go to the evaluation panel members and the external reviewers who provided their expertise to ensure a high-quality evaluation process. We also express our gratitude to the ministries and funding organisations that participated in this call. Their efforts and contributions allowed a smooth implementation of the call and the funding of a high number of top-ranked proposals.

This brochure gives insight on the call process, from the call development to the selection of proposals and their follow-up. It also provides an overview of the submitted proposals and a short description of each of the 34 projects selected for funding.

We wish you a pleasant reading!

Rainer Sodtke
Biodiversa+ Vice Chair

Magnus Tannerfeldt
Biodiversa+ Vice Chair

Ron Winkler
Biodiversa+ Vice Chair

Bénédicte Blaudeau
Policy Officer, DG Environment, European Commission

Fleur van Ooststroom-Brummel
Policy Officer, DG Research and Innovation, European Commission

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Overview of the BiodivNBS Call

Summary of the BiodivNBS Call

The aim of the BiodivNBS call was to support transnational research projects which contribute to promoting Nature-based Solutions and the integration of these solutions into policy-making at local, regional, and national levels. The priority was to fund research that enhances a better understanding of the tipping points, trade-offs, and underlying mechanisms affecting NbS, as well as their successful implementation with respect to the benefits for nature, human well-being, and societal transformation. The call also focused on educating and engaging the public in measures to protect the environment and biodiversity.
The call was not restricted in terms of specific environments nor geographic areas, encompassing all realms (terrestrial, marine, coastal and freshwater) and ecosystems experiencing various levels and sources of disturbances, including transition zones and interfaces (coastal, wetlands, urban-rural, forest-agriculture, etc.) and in integrated land and seascapes.

Three major (non-exclusive) themes were addressed by the call

The priorities of the call were structured in three themes. Projects could address one or several themes. Projects combining aspects from two or more themes were encouraged.

Theme 1: Synergies and trade-offs of NbS in the context of human well-being

This theme focused on multiple links between the different NbS goals, with a particular emphasis on ecological health, human well-being, food and water security, and risk prevention. It highlighted the need for holistic, interdisciplinary research to assess benefits, trade-offs, and scalability across sectors. Key priorities included identifying best practices, developing pilot projects, and evaluating regional NbS strategies for biodiversity, water, food, and health. It also explored how NbS can ensure fair access to benefits for both people and nature. Additionally, the theme investigated NbS as sustainable alternatives to technical solutions for major societal challenges.

Theme 2: NbS mitigating anthropogenic drivers of biodiversity loss

This theme addressed cross-sectoral approaches to counter biodiversity loss driven by climate change, habitat destruction, invasive species, and pollution. Research priorities under this theme included understanding biodiversity dynamics in NbS design, analysing trade-offs and synergies across sectors, and assessing the role of protected areas in mitigation strategies. Furthermore, this theme emphasised the importance of upscaling NbS through spatial and temporal analysis while integrating financial, governance, and knowledge frameworks. Assessing the long-term stability and adaptability of NbS remains crucial for optimising their impact on biodiversity and human well-being.

Theme 3: The contribution of NbS for just transformative change

This theme examined how NbS can facilitate equitable transformative change and sustainable livelihoods by identifying barriers and catalysts for transformation. It explored the socio-economic and governance aspects of NbS, including their impact on land use conflicts, business and finance, and social acceptance at the local level. Key priorities included evaluating NbS investments, standardising assessment methods, and integrating diverse knowledge systems for evidence-based decision-making. This theme aimed to support research that promotes the fair distribution of NbS benefits, harmonises policies with governance models, and examines large-scale land transformations. Additionally, it sought to assess how NbS values can be integrated into long-term investment strategies and policy frameworks to foster societal change.

Type of research funded

This call targeted 3-years transdisciplinary research projects, involving teams from at least three different countries participating in the call.

Given the nature of the research supported through this call, proposals had to engage different disciplines including biological, natural, technical, social, economic, political sciences and/or humanities.

With the objectives to break the silos between research and practice, projects had to demonstrate both scientific excellence as well as societal, including policy, impact.

The added value of international collaboration and the level of collaboration between teams from different countries also had to be clearly demonstrated to allow for upscaling of knowledge beyond the national level, or for comparative approaches of different local contexts. Contributions to global research programs, assessment bodies, and multilateral environmental agreements, were encouraged.

Call process

The topic of the BiodivNBS call for research proposals is one of the priorities for Biodiversa+, as defined in the Biodiversa+ Strategic Research and Innovation Agenda (SRIA). The call addressed the themes identified under the Biodiversa+ Flagship programme: Better knowledge to develop, deploy and assess Nature-based Solutions. Specifically, it focused on biodiversity and Nature-based Solutions (NbS) for biodiversity, human well-being and transformative change to achieve sustainability. This joint call for research projects, launched by the European Biodiversity Partnership, Biodiversa+, was co-funded by the European Commission.

The content and procedures for this joint call were defined by the 41 national and regional funding organisations from 34 countries who participated in the call. ANR, the French National Research Agency and NCN, the Polish National Science Centre hosted the Call Secretariat and thus played key roles in the implementation and success of the call.

The call was launched on the 11th of September 2023 with a deadline to submit pre-proposals on the 10th of November 2023. Eligible pre-proposals were evaluated by an independent Evaluation Committee and the shortlisted pre-proposals were invited to submit full proposals by the 9th of April 2024. The eligible full proposals were evaluated by the independent Evaluation Committee as well as by external reviewers between April and early July 2024. Based on the results of the evaluation process and without modifying the ranking of the projects established by the independent Evaluation Committee, the funding organisations agreed on the number of projects to be recommended for funding in September 2024, allowing for a start of the funded projects between 1st of December 2024 and 1st of April 2025.

All the projects have a 3-years duration. During their lifetime, they will be requested to submit a mid-term and a final report.

Evaluation Committee

The composition of the Evaluation Committee was very similar between steps 1 and 2.

Scientific experts

Chair of the scientific Evaluation Committee: Rachel Bezner-Kerr, Cornell University, USA

Kofi Akamani, Southern Illinois University, USA

Isabelle Aubin, Great Lakes Forestry Centre, Canadian Forest Service, Natural Resources Canada, Canada

Jacob Carstensen, Aarhus University, Denmark

Yu-Chung Chiang, National Sun Yat-sen University, Taiwan

Michael Christie, Aberystwyth University, UK

Thomas Elmqvist, Stockholm Resilience Centre, Sweden

Michael Fullen, University of Wolverhampton, UK

Christopher Gore, Toronto Metropolitan University, Canada

Jan Hanspach, Leuphana University Lüneburg, Germany

Stephen Hawkins, University of Southampton and Marine Biological Association, UK

Iryna Herzon, University of Helsinki, Finland

Sven Jelaska, University of Zagreb, Croatia

Hans Keune, University of Antwerp, Belgium

Carolyn Lundquist, University of Auckland, New Zealand

Eric Malezieux, The French Agricultural Research Centre for International Development, France

Frank Matose, University of Cape Town, South Africa

Liam McCarton, Technological University Dublin, Ireland

Masoumeh Mirsafa, Polytechnic University of Milan, Italy

Unai Pascual, Basque Centre for Climate Change, Spain

Céline Pelosi, French National Institute for Agriculture, Food, and Environment, France

Tavis Potts, University of Aberdeen, UK

Leonard Sandin, Norwegian Institute for Nature Research, Norway

Bill Slee, The James Hutton Institute, UK

Stephen Swearer, University of Western Australia, Australia

Silvia Tobias, Federal Institute of Forest, Snow and Landscape Research, Switzerland

Vigdis Vandvik, University of Bergen, Norway

Erich Wolff, Nanyang Technological University, Singapore

Policy/management experts

Chair of the policy-management Evaluation Committee: Claire Brown,UNEP World Conservation Monitoring Centre, UK

Ana Cristina Becerra Salas, United Nations Environment Programme, Panama/Peru

Alison Blay-Palmer, Wilfrid Laurier University, Canada

Karma Bouazza, Lebanon Reforestation Initiative, Lebanon

Roberto Crosti, Institute for Environmental Protection and Research, Italy

Andrew Farmer, Institute for European Environmental Policy, Belgium

Judy Fisher, Fisher Research Pty Ltd./University of Western Australia, Australia

Adriana Ford, Imperial College London, UK

Sonja Gantioler, Eurac Research, Italy

Cecilia Gonçalves Simões, Instituto Conexões Sustentaveis – Conexsus, Brazil

Juan Carlos Gonzalez, Ecuador

Robert (Bob) Harris, UK

Ana Maria Hernandez Salgar, Canada

Katia Hueso-Kortekaas, National federation of nature education, Spain

Valerie Kapos, UN Environment Programme World Conservation Monitoring Centre, UK

Dave Kendal, Future in Nature Pty Ltd., Australia

Manuel Lago, Ecologic Institute, Germany

Juana Lucia Marino de Posada, Gestion Urbana y Tecnológica S.A.S, Colombia

Ivone Pereira Martins, European Environment Agency, Denmark

Vinod Bihari Mathur, National Biodiversity Authority of India, India

Isabel Mesquita, Global Landscapes Forum, Brazil

Madeleine Nyman, Natural Research Institute, Finland

Christian Prip, The Fridtjof Nansen Institute, Norway

Osamu Saito, Institute for Global Environmental Strategies, Japan

Elisabeth Simelton, Sweden International Development Agency, Sweden

Nadia Sitas, Stellenbosch University, South Africa

Janice Weatherley-Singh, Wildlife Conservation Society EU, Belgium

Evaluation process

The submitted proposals were evaluated by an independent Evaluation Committee at step 1 and by an independent Evaluation Committee and external reviewers at step 2. Both the Evaluation Committee and the external reviewers consisted of scientific experts, as well as policy-management experts and practitioners.

The proposals were evaluated following specific guidelines and according to the below specific criteria that were pre-defined and communicated in advance to the applicants:

- Criteria applied at step 1 (pre-proposal stage): (1) fit to the scope of the call; (2) novelty of the research; and (3) impact.

- Criteria applied at step 2 (full proposal stage): (1) scientific excellence; (2) quality and efficiency of the implementation; and (3) impact.

At each step, three scores corresponding to the above-mentioned criteria were given to each proposal. While the three criteria had the same weight at step 1, they had a different weight at step 2, with a slightly higher weight on scientific excellence over impact and a higher weight on impact over implementation. Threshold scores were defined for each criterion and proposals with scores below these predefined threshold values were not ranked nor considered for funding.

For the first step, the Evaluation Committee meeting was held virtually from the 30st of January to the 1st of February 2024; and for the second step, the Evaluation Committee meeting was organised in Kraków (Poland) from the 25th to the 27th of June 2024. During these meetings, the Evaluation Committee members had the opportunity to discuss the pre- and full proposals and to agree on the final scores to be attributed to the pre- and full proposals.

This evaluation process led to the establishment of a final ranking list of the best proposals, which was sent to the Call Steering Committee composed of the national and regional funding organisations participating in the call. The funding organisations then decided on the maximum number of top-ranked projects that would be funded, strictly following the ranking list.

From the Evaluation Committee Chairs

It was a pleasure to serve as co-Chairs of the Evaluation Committee of the 2023-2024 Biodiversa+ call entitled "Nature-based solutions for biodiversity, human well-being and transformative change" (BiodivNBS). This call aimed at supporting research to gain a better understanding of the tipping points and trade-offs and underlying mechanisms affecting Nature-based Solutions (NbS). To achieve this goal, proposals were asked to focus on three (non-exclusive) key themes: (1) Synergies and trade-offs of NbS in the context of human well-being; (2) NbS mitigating anthropogenic drivers of biodiversity loss; and (3) The contribution of NbS for just transformative change.

Globally, we face the multiple and interconnected crises of climate change, biodiversity, pollution and social inequality. As set out in the two recently published IPBES assessments, there is a need to implement rapid transformative approaches to address the interlinkages among biodiversity, water, food and health and underlying causes of biodiversity loss. To bring about such change calls for innovative solutions, which recognise that people and nature are part of the same complex interconnected system. Within this landscape, NbS are gaining traction in both science and policy fora.

The call attracted a remarkable response, with 183 pre-proposals and 108 eligible full proposals received. The funded 34 transdisciplinary and innovative research projects represent a substantial financial commitment of over €40 million, including contributions from the European Commission. The projects address a broad range of topics within the three themes and in many geographical regions and demonstrate academic excellence while addressing pressing scientific and societal challenges. They foster collaboration across different disciplines and involve a wide range of stakeholders.

Over the 2023-2024 period, we worked with our multinational, transdisciplinary and dynamic group of Evaluation Committee members. Despite vigorous discussions about the scientific, policy and applied content of the proposals, we were able to gain consensus across this diverse group of dedicated reviewers. We are grateful to the evaluation committee members for their candid and constructive assessments of the quality of pre- and full proposals, and for their instrumental role in assembling external reviewers and considering their comments. The high level of collegiality made chairing the scientific and policy sub-committees easy and enjoyable, and ensured fair and adequate evaluation of each submission. We are also grateful to the call secretariat, who worked efficiently and made the whole process run smoothly. We were privileged to be hosted in person for our final evaluation meeting in Krakow, which allowed for effective and efficient discussion, debate and final decision-making.

This call was a fantastic opportunity to support actions which can address global challenges related to biodiversity but also demonstrate the effective design and implementation of NbS on the ground. Furthermore, the transdisciplinary research needed to overcome barriers and to upscale implementation of NbS across sectors and policies can be found within these 34 projects.

Rachel Bezner-Kerr
Scientific co-Chair of the Evaluation Committee

Claire Brown
Policy-management co-Chair of the Evaluation Committee

Analysis of the call results

Analysis of the call results

Overall figures of the call

	No. of proposals	No. of teams	Budget
Eligible pre-proposals	183	1,076	199.2 M€
Eligible proposals	108	666	125.6 M€
Funded projects	34	223	41.3 M€

Table 1: Overall figures of the 2023-2024 BiodivNBS call; Projects submission and selection with their total budget requested associated (pre-proposal for the 1st step of evaluation; full proposals for the 2nd one).

Out of the 183 eligible pre-proposals submitted and 1,076 participating teams (Table 1), the BiodivNBS 2023-2024 call Steering Committee decided to fund the 34 highest ranked proposals for a total amount of over 41 million Euros (36 proposals for the 2021-2022 BiodivProtect call and 33 for the 2022-2023 BiodivMon). This represents a success rate of 18.6%, the highest one in Biodiversa+ calls; the Partnership calls average success rate is of 16.1% (17.2% for the 2021-2022 BiodivProtect call and 12.6% for the 2022-2023 BiodivMon call).

Geographical origin of the applicants

The large majority (Fig. 1, 82%) of the teams that submitted a pre-proposal were from the 34 funding organisations' countries participating in the funding of the call, i.e. Austria, Belgium, Brazil, Bulgaria, Canada (Québec), Czech Republic, Denmark, Estonia, the Faroe Islands, France, Georgia, Hungary, Iceland, Ireland, Israel, Italy (including the Autonomous Province of Bolzano/Bozen), Latvia, Lithuania, Moldova, Morocco, the Netherlands, Norway, Poland, Portugal (including the Azores), Romania, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Tunisia, Türkiye.

The remaining 16% came from European countries not participating in the call[1], and in particular Germany (8.3%). The other 2% of the applicants came from non-European countries not participating in the call[2], that applied as sub-contracted or self-funded teams.

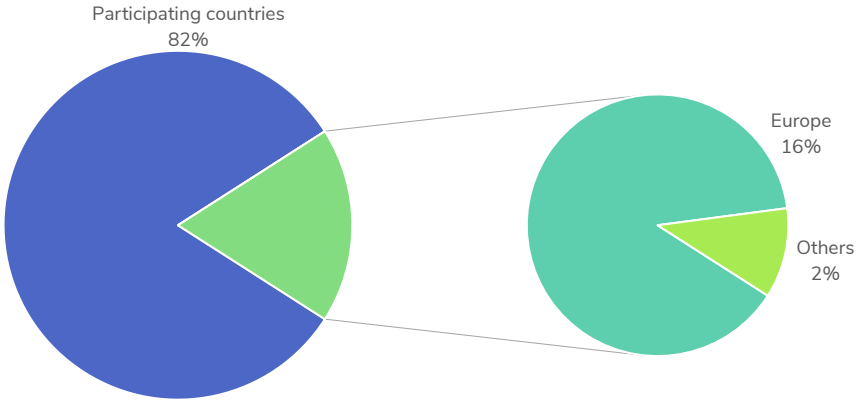


Figure 1: Geographical origin of the applicants participating in the 2023-2024 BiodivNBS Call

1. Albania (0.1%), Andorra (0.1%), Armenia (0.1%), Croatia (0.2%), Cyprus (0.1%), Finland (3.0%), Germany (8.3%), Greece (3.4%), Greenland (0.1%), Luxembourg (0.1%), Mayotte (0.1%), Serbia (0.1%), Ukraine (0.1%), United Kingdom (0.8%).
2. Algeria (0.1%), Argentina (0.2%), Brunei Darussalam (0.1%), Cameroon (0.1%), Cape Verde (0.1%), Chile (0.1%), Colombia (0.1%), Comoros (0.1%), Democratic Republic of Congo (0.1%), Ghana (0.1%), India (0.1%), Indonesia (0.1%), Ivory Coast (0.3%), Japan (0.1%), Kenya (0.1%), Madagascar (0.1%), Maldives (0.1%), Mexico (0.2%), Senegal (0.1%), United Republic of Tanzania (0.1%), Uganda (0.1%), United States of America (0.4%).

Reserved and requested budgets

The reserved budgets for the participating countries were published during the announcement of the BiodivNBS call (in total 33.2 M€) and funding organisations could define funding caps per project, which might have influenced the budget requests made by applicants. The highest values of both reserved (Fig. 2) and requested budgets (Fig. 3a) were observed for Switzerland, Sweden, Italy, Spain and France.

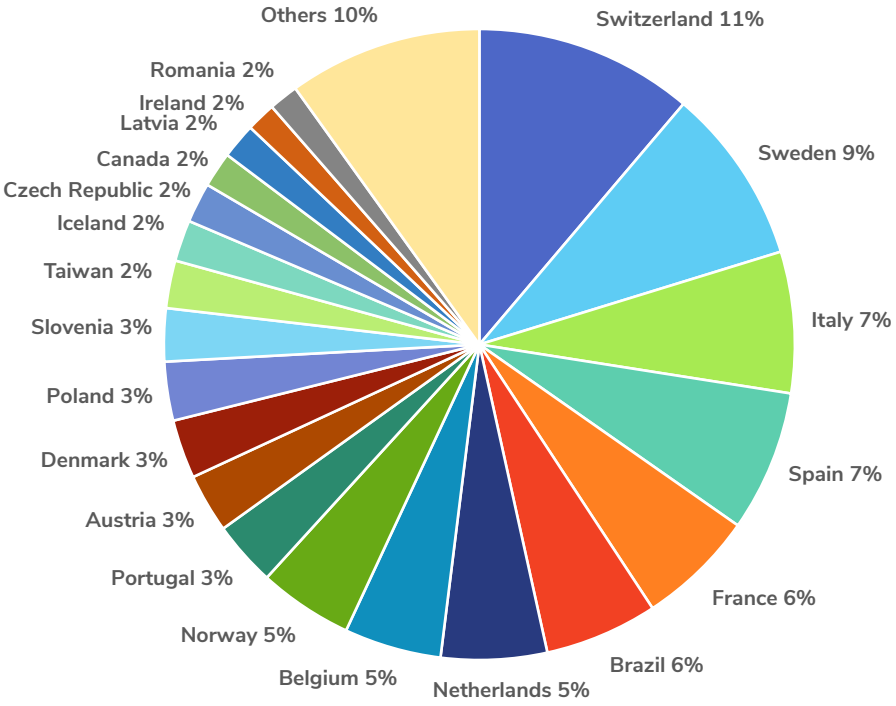
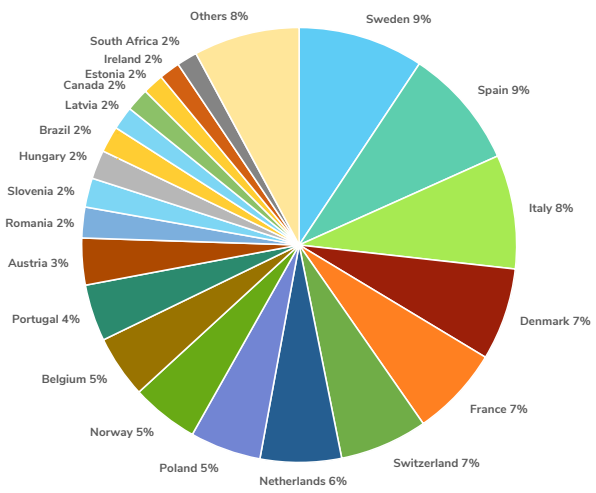


Figure 2: Distribution of the reserved budget among participating countries in the 2023-2024 BiodivNBS call. Others: South Africa 1.2%, Tunisia 1.2%, Bulgaria 1.2%, Israel 1.1%, Türkiye 1.1%, Hungary 0.8%, Slovakia 0.7%, Lithuania 0.6%, Morocco 0.6%, Moldova 0.6%, Estonia 0.5%, Faroe Islands 0.3%, Georgia 0.1%

In some cases, national reserved budgets were insufficient compared to the financial demand from the successful applicants. Yet, thanks to their flexibility and the use of part of the European Commission co-funding as a common pot, this did not jeopardise the call outcome. On the other hand, some funding organisations did not use their reserved budget, due to a lower success of their research communities.

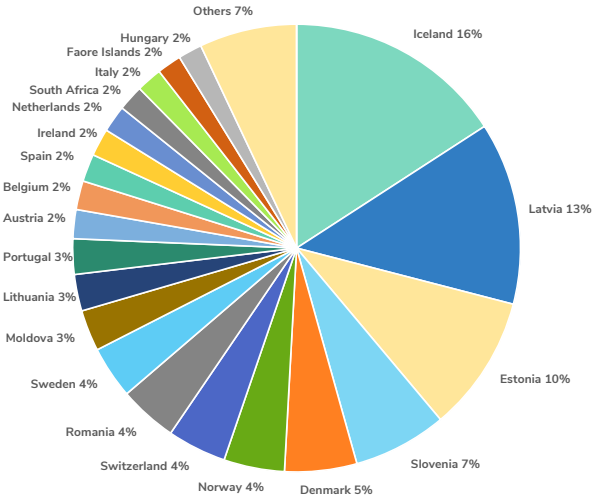
Ultimately, the 34 top ranked projects could be funded, strictly following the ranking list established by the Evaluation Committee.

Figure 3a



Others: Czech Republic 1.4%, Iceland 1.2%, Turkey 1.1%, Lithuania 0.9%, Taiwan 0.8%, Israel 0.7%, Bulgaria 0.6%, Morocco 0.5%, Tunisia 0.4%, Moldova 0.2%, Faroe Islands 0.1%, Georgia 0.02%.

Figure 3b



Others: Poland 1.4%, Bulgaria 1.3%, Czech Republic 1.0%, Tunisia 0.8%, France 0.6%, Morocco 0.4%, Brazil 0.3%, Israel 0.3%, Canada 0.3%, Türkiye 0.2%, Taiwan 0.1%, Georgia 0.1%.

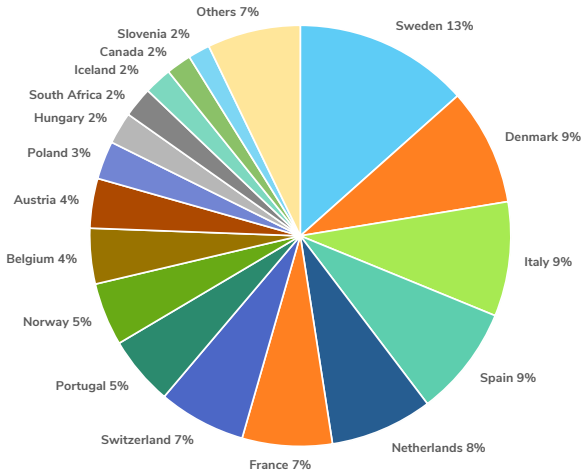
Figure 3: Distribution of the total budget requested to participating countries by the applicants in the submitted pre-proposals in percentage of absolute values (Fig. 3a) and values normalised[3] according to the size of the national research community (Fig3. b).

Despite a relatively low participation in terms of requested budget (Fig. 3a), the scientific communities of some countries, such as Iceland, Latvia, Estonia and Slovenia, responded well to this call once the budget requests were normalised according to the estimated number of researchers from all scientific thematic in each country (Fig. 3b). Unfortunately, we do not have numbers of the size of the biodiversity research communities per se, which would have improved the normalisation.

The teams funded through the 2023-2024 BiodivNBS call came from 28 different countries (Fig. 4a). Again, it is worth comparing the funding amounts between countries both in terms of absolute values and in terms of amounts normalised according to the estimated number of researchers from all scientific disciplines in each country (Fig. 4b). For example, the total awarded budget for Iceland, and to a lesser extent Latvia, Slovenia and Estonia compared to other countries, is much higher when accounting for the size of the national research community than when looking at absolute values.

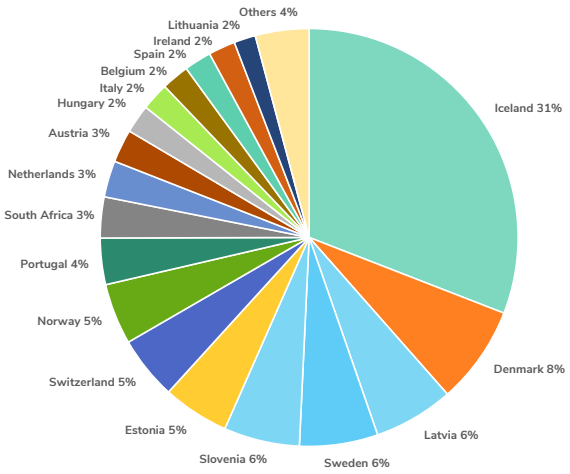
3. Values normalised according to the size of the national research community, i.e. full-time equivalent researchers per million inhabitants multiplied by the million inhabitants of the country. Note that, depending on the country, the requested budget may or may not include salaries for permanent positions. The size of the population (in 2022) and of the national research community (in 2021, except for South Africa and Canada in 2020, Morocco in 2016, Brazil in 2014 and Faroe Islands in 2003) were taken from World Bank data. Except for Taiwan, for which the population size (in 2023) was taken from the National Statistics of the Republic of China and the size of the national research community (in 2021) from the Organisation for Economic Co-operation and Development (OECD); and except for Israel, for which the Researchers in R&D per Million People (in 2012) was taken from CEIC Data.

Figure 4a



Others: Ireland 1.5%, Brazil 1.3%, Czech Republic 0.8%, Estonia 0.7%, Latvia 0.7%, Lithuania 0.5%, Morocco 0.5%, Israel 0.5%, Turkey 0.3%, Tunisia 0.2%, Taiwan 0.2%.

Figure 4b



Others: Poland 0.9%, France 0.8%, Czech Republic 0.6%, Tunisia 0.5%, Morocco 0.5%, Canada 0.4%, Brazil 0.3%, Israel 0.2%, Türkiye 0.1%, Taiwan 0.04%.

Figure 4: Distribution of awarded budget to the successful applicants in absolute values (Fig. 4a) and values normalised[4] according to the size of the national research community (Fig. 4b).

4. Values normalised according to the size of the national research community, i.e. full-time equivalent researchers per million inhabitants multiplied by the million inhabitants of the country. Note that, depending on the country, the requested budget may or may not include salaries for permanent positions. The size of the population (in 2022) and of the national research community (in 2021, except for South Africa and Canada in 2020, Morocco in 2016, Brazil in 2014 and Faroe Islands in 2003) were taken from World Bank data. Except for Taiwan, for which the population size (in 2023) was taken from the National Statistics of the Republic of China and the size of the national research community (in 2021) from the Organisation for Economic Co-operation and Development (OECD); and except for Israel, for which the Researchers in R&D per Million People (in 2012) was taken from CEIC Data.

Success rate per country

The research teams from Israel, South Africa, Iceland, Canada, Netherlands, Sweden, Morocco, Ireland and Denmark applying to this call had a particularly good success rate at the second step of the evaluation process (ratio of granted to requested funded amounts), i.e. above 40% (Fig. 5). These figures should however be viewed with caution for some countries, given their low number of submitted proposals.

Despite their country participation in the BiodivNBS call, the research teams from Faroe Islands and Slovakia were no longer involved at the second step of the evaluation process, and none of the 34 funded projects involved research teams from Bulgaria, Georgia, Moldova and Romania.

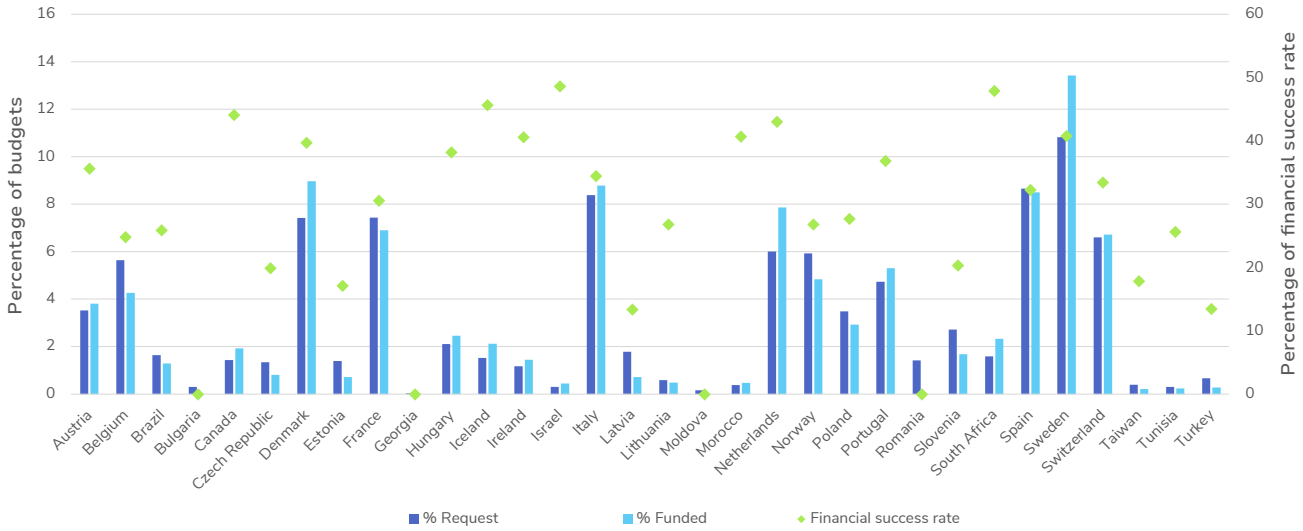
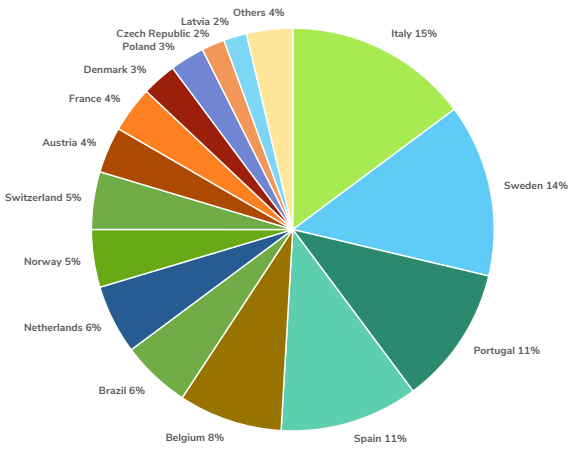


Figure 5: Percentage of budgets requested at the submission stage (step 2 – full proposals) and after selection (funded projects) for each country participating in the funding of the call, together with the percentage of financial success rate

Geographical origin of project coordinators

Figure 6a



Others: Hungary, Ireland, Slovenia, South Africa (0.9% each).

Figure 6b

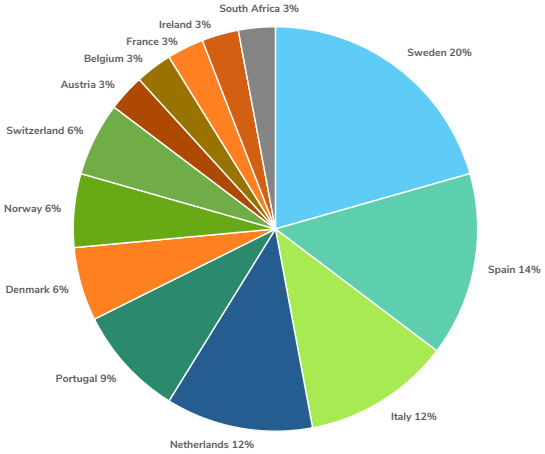


Figure 6: Geographical origin of the coordinators in the submitted full proposals (Fig. 6a) and funded projects (Fig. 6b).

At the full proposal stage, the project coordinators represented 19 countries participating in the call (Fig. 6a), whereas the coordinators of the pre-proposals represented 27 countries participating in the call (none coordinators from the Faroe Islands, Georgia, Iceland, Moldova and Morocco).

At the end of the process, the coordinators of the funded projects only come from 13 countries (Fig. 6b). Again, these figures should be viewed with caution since they represent the geographical spread of coordinators only. Still, it can be noted that the coordinators from Sweden, Spain, Italy and the Netherlands were particularly successful.

Gender balance in consortia

Figure 7a

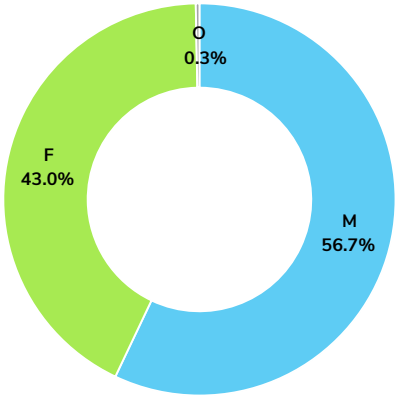


Figure 7b

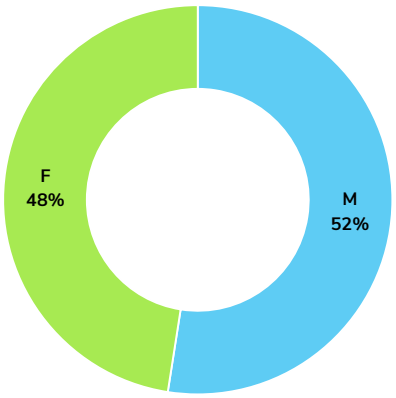


Figure 7: Gender balance between principal investigators in eligible full proposals (Fig. 7a) and funded projects (Fig. 7b)[5].

At the full proposal stage, the consortia were composed of 43.0% female, 56.7% male, and 0.3% other coordinators and principal investigators (Fig. 7a). By the end of the selection process, the gender balance among funded consortia remained relatively consistent (Fig. 7b), with project coordinators comprising 48% females and 52% males.

Private/Public organisations balance

Figure 8a

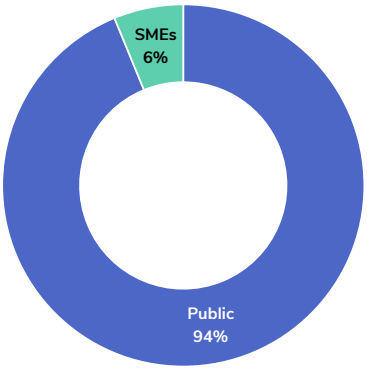


Figure 8b

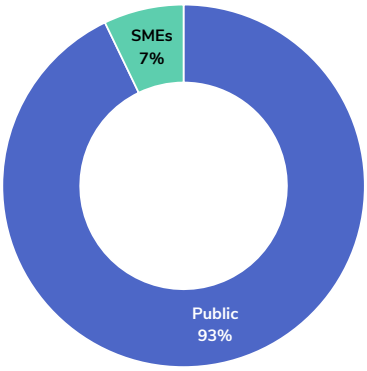


Figure 8: Distribution of requested funding in submitted full proposals (Fig. 8a) and funded projects (Fig. 8b) by types of organisations[6].

The distribution of public and private organisations remained relatively stable throughout the selection process. At the full proposal stage, 94% of participating organisations were public, while 6% were SMEs (Fig. 8a). By the final funding stage, this composition showed only a slight shift, with 93% public organisations and 7% SMEs (Fig. 8b). This consistency reflects the initial engagement of public institutions in the call while maintaining a comparable level of private sector participation.

5. x Gender balance percentage (F for female, M for male, O for other) of the coordinators and principal investigators of partners, based on applicants' self-declared gender.
6. Percentage based on applicants' declaration, private organisations include small and medium-sized enterprises (SMEs) and exclude associations, private foundations, private universities.

Call themes and sub-themes addressed by the proposals

The BiodivNBS call covered three main themes: “Synergies and trade-offs of Nature-based Solutions in the context of human well-being” (theme 1), “Nature-based Solutions mitigating anthropogenic drivers of biodiversity loss” (theme 2), and “The contribution of Nature-based Solutions for just transformative change” (theme 3). One project could address several themes.

During the submission phase, the project’s coordinator had to indicate which theme(s) they applied; at this stage, themes 1 et 2 were more representative (35 and 40% respectively) than theme 3 (25%) (Fig. 9a). For the funded projects, overall, the 3 themes are represented with a similar proportion (Fig. 9b).

Figure 9a

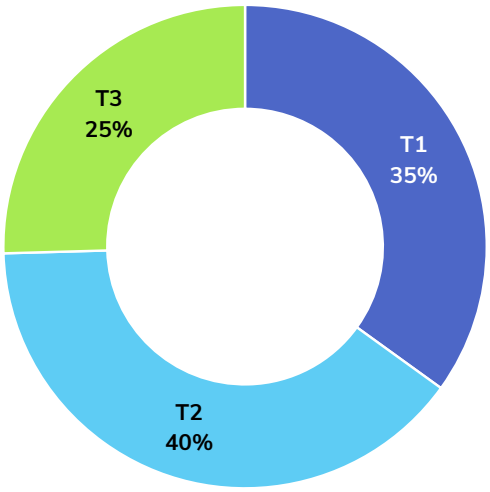


Figure 9b

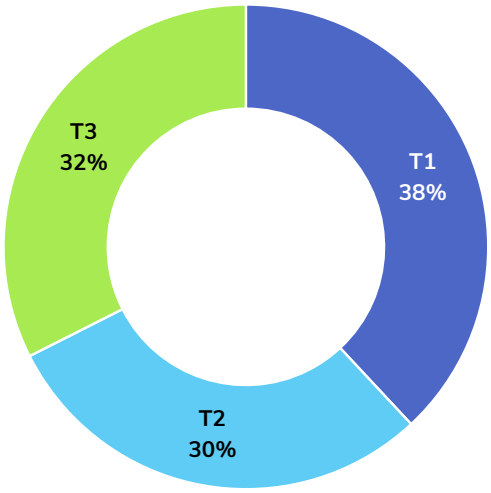


Figure 9: Themes 1, 2 and 3 as a percentage of full proposals (Fig. 9a) and funded projects (Fig. 9b)

Studied environments

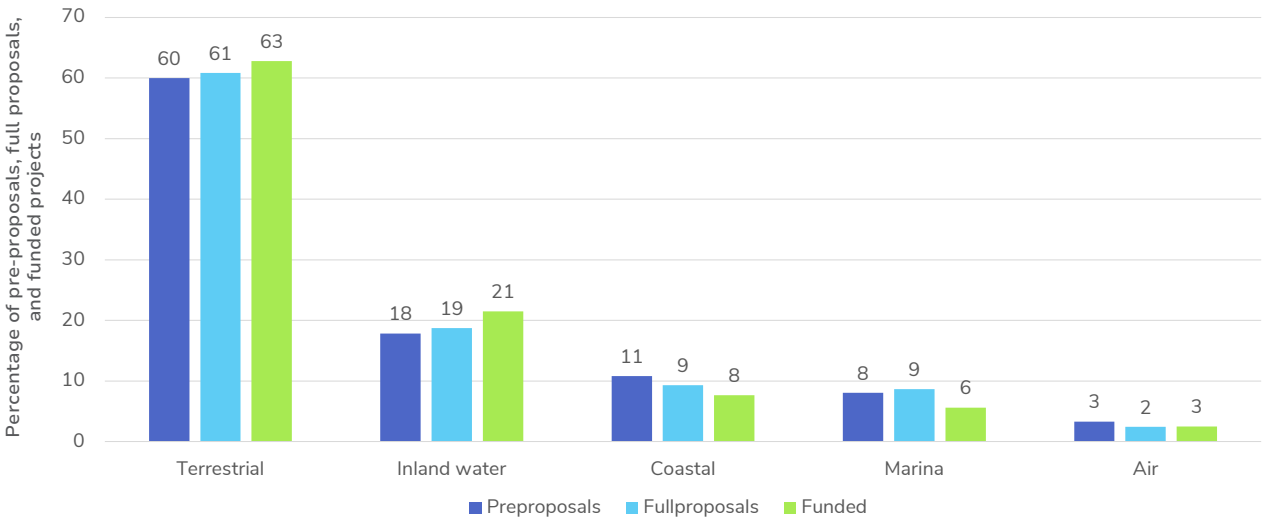


Figure 10: Distribution of pre-proposals, full proposals and funded projects by studied environment. A proposal may address several environments

The majority of submitted and funded proposals focused on terrestrial ecosystems (Fig. 10), whereas those focusing on inland water, marine/coastal and air environments were fewer. This is a general tendency in Biodiversa+ calls and this may be due to the fact that there are other well-known funding resources available for marine biodiversity research at the European level.

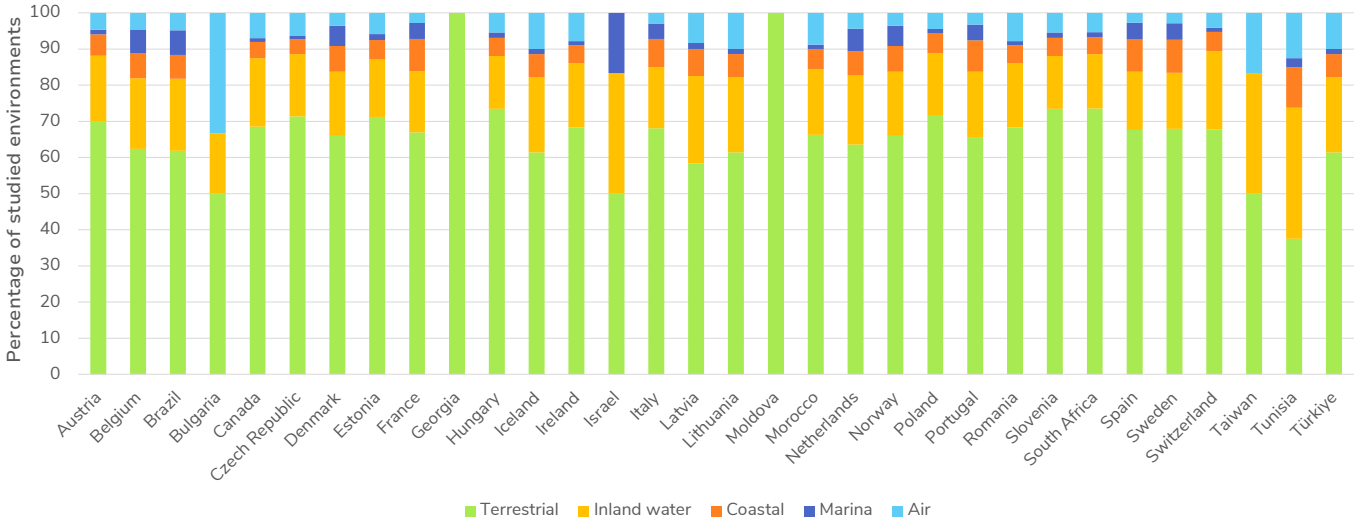


Figure 11: Percentage of studied environments in full proposals by country

Tunisia, Israel and Taiwan had the highest portion of inland water-focused submitted full-proposals. Tunisia was among the countries with the highest proportion of full proposals focusing on coastal environments and Israel with the highest proportion of full proposals focusing on marine environments (Fig. 11).

Given the small number of teams originating from some countries, these figures should be taken with caution.

Conclusions

The analysis presented above provides a good insight into the implementation and results of the BiodivNBS call. The following aspects have been identified as useful for future calls:

- Overall, the high number of pre-proposals received shows the relevance of the topics of this call for the research communities.

- Unfortunately, several countries and regions that participated in the call did not have any teams involved in the 34 funded projects. This is the case for Bulgaria, Faroe Islands, Georgia, Moldova, Romania and Slovakia. This situation can largely be explained by the fact that these teams were not well represented in the pre-proposals, and subsequently in the full proposals. Biodiversa+ will continue its efforts to better mobilise smaller and/or less successful research communities to improve their participation and ultimately their success rate in the calls.

- Thanks to the initial balance of funds reserved by the countries (41 M€) and the flexibility of the funding organisations to increase their budget if necessary and/or to use the European Commission contribution as a common pot, the BiodivNBS partners were able to fund the highest number of top ranked projects, strictly following the ranking established by the independent evaluation committee. This results with a success rate of 18.6%, the highest one in Biodiversa+ calls.

- Biodiversa+ will implement a series of activities and dialogues with the BiodivNBS funded projects to enhance and promote their results and impact.

Presentation of the 34 funded projects

Urban greenery plays a vital role in shaping healthier cities by improving air quality, fostering biodiversity, and creating vibrant spaces that enhance the physical and mental well-being of communities. This image illustrates the harmony between modern urban living and the restorative power of nature

Partners of the project

Department of Biological and Environmental Sciences / Pollen Laboratory, University of Gothenburg, Gothenburg, Sweden

Department of Environmental Science, Aarhus University, Roskilde, Denmark

Center for Quantitative Genetics and Genomics, Aarhus University, Aarhus, Denmark

Research and Innovation Centre of The Edmund Mach Foundation, San Michele all'Adige, Italy

Chemistry Department, University of Evora, Evora, Portugal

Unit Bioresources, AIT Austrian Institute of Technology GmbH, Tulln, Austria

Duration

01/02/2025 - 30/01/2028

Total grant

Approx. 1.4 mil. €

More information

Nestor González ROLDÁN
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AirBiD – Airborne Biological Diversity shaped and modelled by Urban Green Elements

Context

The air we breathe is filled with biological particles like bacteria, fungi, and pollen, which together make up the "aerobiome." This *aerobiome* can influence our health and well-being in many ways. Urban green elements, such as parks, gardens, and green rooftops, play a key role in shaping this invisible world. However, we still do not fully understand how these green areas influence air biodiversity. A high biodiversity of airborne organisms is expected to have a positive effect on health and well-being, mitigating the negative impacts of increasing urbanization.

Main objectives

The AirBiD project aims to uncover the hidden connections between urban green spaces, airborne biodiversity, and human health. By doing so, we aspire to improve urban planning and make cities healthier and more sustainable.

- Understanding airborne biodiversity: we will study how urban green spaces influence the *aerobiome*, focusing on five cities across Europe;
- Create useful tools: our consortium will develop maps applicable by city planners and communities to show the connection between green spaces, the *aerobiome*, and air quality;
- Promoting health and well-being: by investigating how air quality, shaped by biodiversity, affects health and well-being, we aim to emphasize the advantages of greener, more biodiverse urban environments;
- Engaging communities: through fun and interactive citizen science activities, we will involve residents in our research and raise awareness about the importance of biodiversity;
- Sharing solutions: finally, we will offer practical guidance on creating and maintaining green spaces that enhance air quality, boost biodiversity, and promote healthier urban living.

Main activities

- Fieldwork in five cities: AirBiD will collect air samples from urban green spaces and nearby areas in Copenhagen (DK), Evora (ES), Gothenburg (SW), Trento (IT) and Vienna (AU);
- Cutting-edge science: AirBiD will use advanced DNA techniques to identify the microorganisms and biological particles in the air, combining these findings with results from conventional methods like microscopic analysis;
- Citizen science: AirBiD will involve local communities in collecting data and learning about biodiversity through workshops and events;
- Mapping and modelling: AirBiD will create platform-independent tools based on open data formats that show how green spaces affect air quality and biodiversity, facilitating informed decision-making by policymakers, stakeholders and communities;
- Sharing results: AirBiD will disseminate knowledge through public talks, published articles, and infographics, offering guidelines for urban green spaces to support informed policymaking and highlight the impact of urban green spaces on the quality of the air we breathe.

ARE BEST NbS - Aquatic and Riparian Ecosystems: Biodiversity and Economic Service Transformations from NbS

Context

Biodiversity is crucial for healthy ecosystems and human well-being. Integrating individual and collective values for biodiversity into plans for using aquatic and riparian habitats is made difficult by a lack of understanding of the processes through which these values are created as well as biodiversity's position outside traditional market exchange mechanisms. Further complications arise from differences across stakeholders' preferences, which can complicate decision-making by being poorly understood. The project's relevance for society lies in its potential to improve individual and collective understanding of values for biodiversity, so that decisions and analysis resting on values for biodiversity's amenities and services become better able to reflect trade-offs required to provide them through NbS.

Main objectives

ARE BEST NbS will foster stakeholder engagement and promote open communication throughout the process of NbS project implementation to maximize the potential returns from NbS investments that capture diverse biodiversity values and trade-offs. The project addresses four key questions, using collaborative research tools from environmental psychology (mental modelling), economics (stated and revealed preference elicitation), ecology (biodiversity gains) and arts and design (performance, data storytelling) to improve stakeholder engagement, project evaluation strategies and processes, and the impact of artistic collaboration and mental models on the valuation of biodiversity and natural capital.

Main activities

ARE BEST NbS acts across the local, national, and pan-European scales and three case studies to:

- Evaluate historical records of investments impacting aquatic and riparian habitats for economic and ecological outcomes, using revealed preference techniques and creating synthetic controls for use evaluating NbS;
- Develop and implement national-level experimental surveys combining data-storytelling, and economic theory for eliciting preferences and values for biodiversity (all countries), and local-level narrative survey designs and artistic performance (Danish case study with Vejle membrane NbS) for understanding the impact of lived experiences on stakeholder choices;
- Conduct stakeholder and expert interviews of NbS and use results to map NbS mental models across stakeholder groups to improve engagement (all cases);
- Collect and curate new and existing biodiversity data from NbS investments, using these to develop and test valuation biodiversity frameworks from different stakeholder perspectives (Portuguese case study with riparian forest NbS with water treatment plant);
- Use results to guide recommendations for NbS project evaluation tools and stakeholder engagement, developed and tested with co-design workshops, urban data physicalisation (Hungarian case study with Lake Balaton shore protection NbS) and artistic performances. Project outputs will include artistic performances, academic publications, policy briefs and stakeholder meetings (all cases/ countries).

Lake Balaton NBS activities.

Partners of the project

Department of Business and Sustainability, University of Southern Denmark, Esbjerg, Denmark

UiS Business School, University of Stavanger, Stavanger, Norway

Center for Molecular and Environmental Biology, University of Minho, Braga, Portugal

MOME Innovation Center, Moholy-Nagy University of Arts and Design, Budapest, Hungary

Department of Sustainable Development, Utrecht University, Utrecht, Netherlands

Secret Hotel, Aarhus, Denmark

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 1.4 mil. €

More information

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NbS case study of rewilding arid land (Tswalu reserve, ZA).

BIOCUE – Microbial biodiversity and Carbon Use Efficiency as Nature Based Solution for soil C stabilization

Context

Understanding how ecosystems' carbon balance will adapt to global changes and land-use shifts is of major interest for society. Stabilization of organic matter in soil is essential for the Earth's carbon cycle. However, we still have a lot to learn about how microorganisms help stabilize carbon in the soil. The BIOCUE project aims to explore how NbS —such as efforts to protect, restore, and preserve ecosystems—affect the carbon balance in soil, whether it's gained or lost. The project focuses on how these efforts influence the diversity and role of microbes in soil carbon stabilization, particularly their Carbon Use Efficiency (CUE), which refers to how effectively microbes use the carbon they take in for growth instead of respiring the carbon as CO_2.

Main objectives

The BIOCUE project has three main objectives: (1) to connect the diversity of microbial species and their functions with how efficiently they use carbon (i.e. CUE) in soils managed with NbS, (2) to identify and study key types of microbes that play a major role in stabilizing carbon in soil, and (3) to gather data on microbial diversity and CUE at various scales, to help improve carbon cycling models.

Main activities

The BIOCUE project takes a big-picture approach to understand how soil microbes contribute to carbon storage. It will examine the connection between microbial diversity and CUE across different scales—from entire landscapes (ecosystems) to smaller experimental setups (mesocosms) and even individual microbial cells or groups of microbes. At the landscape level, several NbS case studies, including rewilding, organic farming management, and water management will be used to assess the relationship between soil biodiversity and CUE and to evaluate best NbS actions in terms of CUE and soil carbon stabilization, biodiversity and microbial functions providing key ecosystem services. At the community level, the scientists will perform controlled experiments in mesocosms where they will gradually reduce the diversity of microbes in the soil to test how the diversity of microbes in the soil affects CUE. In a next step, specific microbes that are especially good at using carbon efficiently will be identified based on their genetic capabilities and custom groups of microbes that can work together to improve soil carbon stabilization will be created. Local stakeholders involved in these NbS case studies will be engaged from the start. A citizen science activity will invite private garden owners in Switzerland, Denmark, Spain, and South Africa to take part in rewilding efforts to increase biomass, diversity, and soil ecosystem functioning, in their own garden during the project. This hands-on activity will be a didactic way to disseminate concepts and outcome of the BIOCUE project to a large public.

Soils support key human needs like food production, clean air and water, climate change mitigation and recreational-social activities. Soil biodiversity and functions boost these benefits. BIOCUE's comprehensive, multiscale approach — combining microbial diversity, CUE, and soil factors across various regions and NbS strategies — tackles the challenge of understanding how ecosystems' carbon balances will respond to global changes and shifts in land use. The outcome of the BIOCUE project will thus provide help in making land use management decisions as well as generate novel knowledge in global soil biodiversity and function..

Partners of the project

Swiss Federal Research Institute WSL, Birmensdorf, Switzerland

University of Copenhagen, Copenhagen, Denmark

University of Girona, Girona, Spain

University of Pretoria, Pretoria, South Africa

University of Western Cape, Cape Town, South Africa

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 1.1 mil. €

More information

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BIODIVECITY - Greening cities as nature-based solution and their impact on vectors and vector-borne disease risks

Context

Urbanization is increasing globally and is frequently associated with environmental disruptions that result in pollution, flooding, extreme heat, and biodiversity loss. The greening of cities represents a NbS that helps to promote sustainable cities. There is much evidence of the positive impact of green cities on people's health and well-being. Moreover, urban greening contributes to the mitigation of climate change (e.g. by reducing heat island effects) and to restoring biodiversity. However, urban greening can also have an impact on the ecology of blood-feeding arthropods (e.g. mosquitoes, sandflies), and therefore on vector-borne diseases (e.g. West Nile fever, dengue, leishmaniasis). Indeed, the creation of new urban green zones can provide a suitable habitat for native vector species, but may also favor the introduction and establishment of invasive species (e.g. the tiger mosquito *Aedes albopictus*). In addition, it may affect access to a potential host or favor resting sites close to blood meal sources. Conversely, if properly designed, urban green spaces may provide opportunities for sustainable vector-borne disease risk mitigation in the city, by facilitating predation, competition, and dilution effects in the urban ecosystem.

Main objectives

The main objective of BIODIVECITY is to explore the relationships between public and private urban green spaces on the one hand, and diversity of blood-feeding arthropods and their implications for vector-borne disease transmission to humans and animals on the other.

Main activities

The BIODIVECITY project will explore the relationships between Urban Green Spaces (UGS) and blood-feeding arthropod biodiversity, as well as their implications for vector-borne disease transmission. We have formed a unique, multidisciplinary consortium (with partners from The Netherlands, France, Spain and Morocco) within which we are able to make comparisons across major urban centers in Europe. The consortium will develop a harmonized protocol for standardized ecological surveys, organize participatory workshops and citizen science activities to collect evidence on the impacts of urban greening on vector-borne disease risks and collaboratively develop policy guidelines and recommendations for mitigating potential disease risks. To address the multiple facets of urban greening, urban planners, policy makers, health stakeholders' representatives, and civil society will be involved in the project. This will allow knowledge exchange and facilitate mutual learning, thereby ensuring the unique ability to derive transnational conclusions and policy recommendations.

Common house mosquito (Culex pipiens) resting on a daisy flower.

Partners of the project

Laboratory of Entomology, Wageningen University and Research, Wageningen, Netherlands

Department of Pathology and Public Health, Institut Agronomique et Vétérinaire Hassan II, Rabat, Morocco

Department of Biology, Health Care and the Environment, University of Barcelona, Barcelona, Spain

French National Research Institute for Sustainable Development, Montpellier, France

National Research Institute for Agriculture, Food and Environment, Montpellier, France

Zoology and Animal Ecology, Mohammed V University, Rabat, Morocco

The Netherlands Food and Consumer Product Safety Authority, Center for Monitoring Vectors, Wageningen, Netherlands

Duration

01/04/2025 - 31/03/2028

Total grant

approx. 900 thsd. €

More information

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Discovery and development of peptide drugs from snake venom that target the human vasopressin 2 receptor.

Partners of the project

Center for Physiology and Pharmacology, Medical University of Vienna, Vienna, Austria
Department of Medicines and Technologies for Health, CEA Paris-Saclay, Paris, France
Department of Biology, KU Leuven, Leuven, Belgium
Centre for Ecological and Evolutionary Synthesis, Department of Biosciences, The University of Oslo, Oslo, Norway
Department of Chemistry & Pharmaceutical Sciences, VU Amsterdam, Amsterdam, Netherlands
Department of Toxicology and Pharmacology, KU Leuven, Leuven, Belgium
Department of Organic Chemistry, Sao Paulo State University, Araraquara, Brazil
Department of Chemistry, University of Montreal, Montreal, Canada
Department of Drug Design and Pharmacology, University of Copenhagen, Copenhagen, Denmark
Department of Biology and Evolution of Marine Organisms, Zoological Station, Anton Dohrn, Naples, Italy
Department of Chemistry and Biochemistry, University of Porto, Porto, Portugal
Biomedical Informatics Unit, Hospital del Mar, Research Institute, Barcelona, Spain
Department of Cell and Molecular Biology, Uppsala University, Uppsala, Sweden
Department of Pharmaceutical Biosciences, Uppsala University, Uppsala, Sweden
Institute of Chemical Sciences and Engineering, Swiss Federal Technology Institute of Lausanne Lausanne, Switzerland

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 3.2 mil. €

More information

Christian GRUBER
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Website:
www.biodiversity2drugs.com

Biodiversity2Drugs - Peptide Biodiversity: Advancing Human Health Through Nature's Pharmacological Treasures

Context

The Biodiversity2Drugs (B2D) consortium investigates how the incredible diversity of life on Earth can inspire groundbreaking medical innovations. By studying peptides (small proteins for instance produced by microbes, plants and insects or by venomous animals e.g. cone snails, snakes and spiders) the project seeks to harness the evolutionary sophistication of nature to develop safer, more effective medicines. These peptides interact with G protein-coupled receptors (GPCRs), a vital class of drug targets that regulate many physiological processes. In addition to advancing medical science, the B2D project underscores the urgent need to protect biodiversity, as its loss threatens the discovery of life-saving molecules. By combining cutting-edge research with a commitment to conservation, B2D promotes a healthier planet and a healthier future for all.

Main objectives

- Drug discovery from nature: transform natural peptides into safe, targeted drugs that minimize side effects, addressing urgent healthcare challenges;
- Decoding GPCR functionality: enhance our understanding of GPCRs to design medicines with greater precision and effectiveness;
- Biodiversity conservation: highlight the critical importance of preserving biodiversity as a reservoir for scientific discovery and societal benefit.

Main activities

1. Uncovering nature's pharmacy: researchers use advanced techniques like genomics, peptidomics, and AI tools to discover bioactive peptides from plants and animals, unlocking their therapeutic potential;
2. Exploring molecular interactions: by studying how natural peptides interact with GPCRs, the project identifies molecules with highly selective and beneficial effects, paving the way for safer drugs;
3. Advancing drug development: promising peptide candidates undergo rigorous preclinical testing to validate their potential as innovative treatments;
4. Collaborative action for biodiversity: Through a global network of scientists, policymakers, and stakeholders, B2D fosters sustainable research practices and raises awareness of biodiversity's role in solving pressing health and environmental challenges.

BioPlastOmics - Discovering Brazilian Biodiversity-Driven Plastic Degradation through Omics Analysis

Context

The extensive use of plastics since the middle of the last century and the lack of guidelines for the management of the huge amounts of waste they generate has led to contamination of aquatic and terrestrial ecosystems. Among petroleum-derived plastics, the most used are polymers with C-C bonds like polyethylene (PE) or polystyrene (PS), and polyesters like polyethyleneterephthalate (PET), highly recalcitrant materials that can persist in ecosystems for many years. Biodegradation of these macromolecules is not very effective, and natural decomposition is mostly mediated by abiotic factors, releasing micro and nanoplastics into the environment.

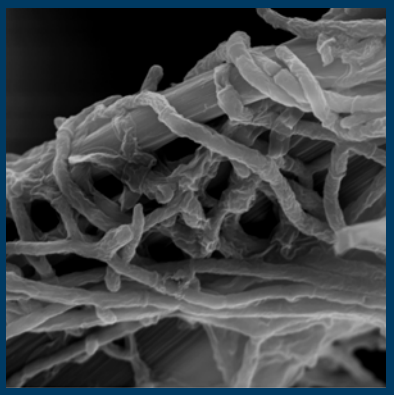
Main objectives

BioPlastOmics aims to explore Brazil's exceptional biodiversity to address the problem of plastics pollution, with PE, PS and PET as models. Our focus is on discovering new microbial communities active on micro(nano)plastics in contaminated habitats and the enzymatic systems involved in such biodegradation. By utilizing cutting-edge omics techniques, we seek to identify novel microbial strains and enzymes with potential for efficient plastic degradation.

Main activities

The research focuses on developing biotechnological solutions for micro- and nanoplastics degradation through four key approaches

1. Screening microorganisms and enzymes from Brazilian biodiversity for their ability to degrade plastics and accelerate the process;
2. Using genomic analysis to identify microbial genes and design bioaugmentation strategies for enhanced degradation;
3. Identifying and engineering enzymes to improve their catalytic activity for controlled degradation systems;
4. Ensuring the environmental safety of treatments by evaluating changes in plastics and potential byproduct risks.



Fungal filaments attached to a piece of plastic.

Partners of the project

Center for Biological Research Margarita Salas (CIB) – Spanish National Research Council (CSIC), Madrid, Spain

Biotechnology Institute, University of Caxias do Sul, Caxias do Sul, Rio Grande do Sul, Brazil

Genomic Metabolic Research Unit, Genoscope, François Jacob Institute, CEA, Evry, France

Duration

01/04/2025 - 31/03/2027

Total grant

approx. 550 thsd. €

More information

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Group of bioretention filter systems for stormwater treatment located on Saint-Maurice Street in Trois-Rivières, Québec.

Partners of the project

Ecology of Natural and Anthropized Hydrosystems Laboratory, Graduate School of Civil, Environmental and Urban Engineering, Vaulx-en-Velin, France

Ecology of Natural and Anthropized Hydrosystems Laboratory, Villeurbanne, France

Department of Civil, Environmental and Natural Resources Engineering, Urban Water Engineering, Luleå University of Technology, Luleå, Sweden

School of Urban Planning and Landscape Architecture and Plant Biology Research Institute, University of Montreal, Montreal, Canada

UT, Institute of Ecology and Earth Sciences, University of Tartu, Tartu, Estonia

Duration

01/04/2025 - 31/03/2028

Total grant

approx. 950 thsd. €

More information

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BioReStorm - Anticipating Biological Succession in Rehabilitation of Long-Term Operated Nature-Based Solutions for Stormwater Treatment in Different Climate Zones

Context

Nature-based solutions (NbS) for stormwater treatment relying on vertical flow such as rain gardens and bioretention filters have been increasingly implemented. Their vegetation plays an important role for hydraulics, aesthetic appearance, and support of biodiversity. However, in the long term, initially planted species are replaced due to competition or too demanding environmental conditions such as extended drought periods. Furthermore, system maintenance is often neglected. The resulting appearance is not always following residents' aesthetic expectations, leading to complaints. This situation represents a trade-off between the provision of regulatory ecosystem services such as regulation of water cycle and enhancement of biodiversity, and cultural ecosystem services (e.g. aesthetics). Interaction between plants and their microbial communities could enhance tolerance to the harsh conditions, ultimately support their growth and survival, and contribute largely to pollutant degradation and/or fixation.

Main objectives

BioReStorm aims to evaluate (i) the temporal and spatial changes in plants on NbS and associated microbial communities; (ii) the impact of plants and microorganisms on technical challenges concerning hydraulic and treatment processes, and their contribution to local biodiversity. The identification of shortcomings in design, implementation, and maintenance of long-term operated NbS for stormwater treatment will then enable developing adequate rehabilitation concepts for an effective continuous functioning. Rehabilitation also means ensuring a positive public perception of these systems in the long term.

Main activities

BioReStorm will assess in mesocosm trials and at field sites the contribution of microbial communities to a successful plant establishment under the demanding conditions of stormwater NbS in different climatic conditions, as well as biodiversity development and natural succession of plants. In order to enable practical and simplified long-term assessment of hydraulic and treatment functioning, we will develop a checklist, simplified in situ tests and rehabilitation measures in collaboration with relevant stakeholders. We will investigate the perception and values of residents towards long-term operated stormwater NbS and their willingness to contribute to maintenance measures. Furthermore, we will develop an adapted approach for direct knowledge transfer to regions with little experience on using SUDS elements.

BioSolar - Solar farms: an opportunity to recover biodiversity in farmlands

Context

The surge in global energy demand, coupled with the need to transition away from fossil fuels, has spurred the adoption of renewable energy sources, such as Photovoltaic Solar Panels. There is a need for green energy while considering social and supporting ecosystem services and conserving biodiversity. Most of the solar farms are installed on agriculture lands where the intensification of the crops produce an intensive negative effect on local biodiversity.

Main objectives

Unveiling the hidden potential of grasslands within solar Park is a pioneering initiative spanning Spain, Portugal, Poland, Sweden, and Hungary. Focused on NbS for biodiversity conservation and human well-being, the project explores how grasslands within solar farms may contribute to preserving biodiversity and soil quality across diverse climates.

The project seeks to unravel the intricate interplay between solar farms development and biodiversity, addressing key scientific objectives. The objectives include identifying suitable locations, assessing the cost-benefit implications, monitoring biodiversity including soil microbiota. Also we will study the local community's perception. All together results will provide crucial information for policy makers about the costs and benefits of solar farms.

Main activities

BioSolar as an NbS adopts a multidisciplinary approach, integrating elements of landscape ecology, environmental sociology and the emerging field of biodiversity finance. It stands at the economy-environment nexus acknowledging the complex and multi-dimensional nature of grasslands within solar farms.

- Assess the impact of solar farms on different taxonomic groups in solar farms with a specific emphasis on grass communities, pollinators, vertebrates and soil quality;
- Assess societal acceptance of BioSolar given their perception of human-wellbeing. This is a trade-off between affordable energy, natural landscapes and food provision. We conduct focus groups and in-depth interviews, and assess changes to social attitudes following dissemination of information;
- Develop a framework for biodiversity finance. Measure risks and opportunities related to financial and sustainability impacts of solar projects on ecosystem services;
- Assess and develop funding mechanisms such as SRI investments, green and sustainability-linked bonds, and biodiversity credits.

We plan the exploitation of project results and the transfer of knowledge and technology to professionals, policymakers, and other relevant stakeholders through scientific publications, policy briefs, and stakeholder workshops. Additionally, we will collaborate with industry partners and renewable energy developers to integrate biodiversity considerations into solar farm planning and management practices. By engaging with policymakers at local, national, and international levels, we aim to influence the formulation of environmentally friendly policies supporting renewable energy and biodiversity conservation.

Vegetation inside the solar plots contrast with the bare ground in the close area due to the intensive agriculture in most of the arable land around.

Partners of the project

Department of Zoology, Cordoba University, Cordoba, Spain

Sustainable Finance Research Centre, Institute of Finance, Corvinus University, Budapest, Hungary

Campus Universitário de Santiago Portugal, Aveiro University, Aveiro, Portugal

Department of Zoology, Poznan University, Poznan, Poland

Department of Finance, Concordia University, Montreal, Canada

Department of Zoology, University of Ljubljana, Ljubljana, Slovenia

Department of Business, Bifröst University, Borgarnes, Iceland

Engineering and Sustainable Development, Gavle University, Gavle, Sweden

Energy Projects, Gerenta Energia SLU, Fuengirola, Spain

Enina - Environmental Consulting, Poznan, Poland

Solar Installations, Tiscia Ltd., Poznan, Hungary

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 1.4 mil. €

More information

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Three invasive species altering ecosystems and livelihoods: the Blue Crab (Callinectes sapidus) washed ashore on the Adriatic coast, the Pacific Oyster (Crassostrea gigas) widely spread in nearshore areas, and the Pacific Pink Salmon (Oncorhynchus gorbuscha) thriving in Norwegian waters.

Partners of the project

Department of Sociology, Environmental and Business Economics, University of Southern Denmark, Esbjerg, Denmark

National Research Council - Institute of Sciences of Food Production, Foggia, Italy

Department of Economics, Swedish University of Agricultural Sciences, Lund, Sweden

School of Economics and Business, Norwegian University of Life Sciences, Ås, Norway

Swedish Institute for Food and Agricultural Economics, Lund University School of Economics and Management, Lund, Sweden

Department of Biological and Environmental Sciences and Technologies, University of Salento, Lecce, Italy

Department of Veterinary Sciences, University of Messina, Messina, Italy

Faculty of Economics, University of the Algarve, Faro, Portugal

Ecology and Restoration of Riverine, Estuarine and Coastal Habitats, Algarve Centre of Marine Sciences, Faro, Portugal

Duration

01/02/2025 - 31/01/2028

Total grant

Approx. 1.1 mil. €

More information

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BRAVE - Biological Invasions Resolved through Adaptable, Versatile, and Engaging Nature-Based Solutions

Context

BRAVE tackles the complex ecological and societal challenges of invasive alien species (IAS), emphasizing their dual roles as both beneficial and burdensome. Managing these species requires interdisciplinary approaches to optimize outcomes for biodiversity, the economy, and society. The project assesses NbS for IAS management with active stakeholder engagement and participatory valuation methods that highlight the ecological, social, and economic benefits of NbS. Three case studies across the Nordics and the Mediterranean explore the values and conflicts related to the Pacific Oyster (Denmark, Norway, Sweden), Pacific Pink Salmon (Norway), and Blue Crab (Italy, Portugal). BRAVE examines the socio-ecological impacts of harvests, including recreational and volunteer efforts, evaluating their effectiveness for conservation. By highlighting the clash between economic opportunities and conservation, we aim to provide a framework for optimal policy that integrates ecological, economic, and societal concerns. Through economic tools, we assess trade-offs, user values, and design incentive mechanisms to improve biodiversity management while safeguarding ecological integrity. BRAVE brings a social science perspective to IAS management, a field traditionally dominated by natural sciences. Engaging stakeholders—from fisheries and conservation managers to citizens and entrepreneurs—BRAVE offers a framework that uncovers trade-offs and solutions, promoting conservation through socioecological synergies. The outcomes will inform policies and management strategies designed to address current challenges and align with diverse stakeholder values, fostering more effective practices.

Main objectives

BRAVE aims to develop a framework for IAS management acknowledging their multiple roles, focusing on NbS for balancing conservation with societal needs. Specifically, BRAVE seeks to: 1) Assess trade-offs in IAS management by integrating ecological, social and economic perspectives; 2) Assess the effectiveness of NbS in restoring ecosystems impacted by IAS; 3) Develop participatory valuation methods; 4) Design economic tools and incentive mechanisms to align conservation efforts with user values; 5) Generate evidence-based recommendations for biodiversity policies and invasion management.

Main activities

Key planned activities include: 1) Ecological impact assessments focusing on IAS's interactions with native species and ecosystem processes; 2) Bioeconomic modelling to understand trade-offs of different management strategies; 3) Valuation studies using both revealed and stated preference methods to quantify values for the IAS assessed.

BRAVE will disseminate findings and share knowledge with stakeholders, including policy-makers, local communities, and industries affected by MR-IAS. Dissemination and stakeholder engagement activities include: accessible policy briefs and scientific papers, workshops, focus groups and stakeholder meetings, educational material to raise awareness and digital platforms. By engaging stakeholders from fisheries, conservation, and local communities, BRAVE informs policy-making and IAS management. It provides actionable frameworks to uncover trade-offs, incentives, and solutions for sustainable management that consider diverse stakeholder values, contributing to transformative policy change.

COMCHA - Community-based change: local and traditional knowledge(s) in NBS

Context

NbS have increasingly demonstrated their power to address multiple societal challenges. However, social cohesion and well-being appear as secondary to the environmental impacts of NbS, with little attention being given to the unequal distribution of benefits and adverse effects as well as to intangible values of NbS. This proposal aims to shed light on environmental justice issues underlying NbS, stressing how marginalised communities can benefit from them, even if dealing with areas threatened by (1) environmental conflicts in rural contexts (rural settlements), (2) presence of mineral wealth (indigenous lands), (3) geographic or economic isolation or (4) processes of ghettoization in lands more exposed to environmental risks and constraints, such as lack of basic sanitation or unsafe water. COMCHA departs from three hypotheses: (1) Community-based knowledge and practices can foster relevant regenerative processes in lands at permanent risk, (2) qualitative aspects associated with knowledge(s), social commitment, collective agency, sense of belonging and openness to experimentation may be of help for long-term change, and (3) collective processes towards just regeneration by underrepresented groups in NbS can challenge the prevalent sense of scale, being more connected with mobilisation for change rather than a market-based sense of productivity.

Main objectives

1. Identifying the plurality of practices, social dynamics, and factors associated with the community-based change both in European and Overseas countries.
2. Stimulating intercultural translation between NbS experiences in Europe (being catalogued or not) and non-conventional NbS grounded on traditional, local, and peripheral knowledge(s) in Brazil.
3. Mapping the NbS concepts and approaches applied to threatened communities, shedding light on community-based governance systems and forms of community economy in these threatened lands.

Main activities

- Identifying relevant practices in NbS on food system, alternative urbanism and technologies of production, considering community-based knowledges for change and their contribution towards socio-environmental and spatial justice.
- Identifying a set of features in non-conventional NbS that could potentialize the conditions for NbS implementation in threatened areas and contribute towards more encompassing evaluation and monitoring processes.
- Stimulating intercultural translation and mutual learning between non-conventional NbS outside Europe and conventional NbS within EU-funded projects.
- Providing evidence-base of the community-based communication relevance for the engagement and participation of threatened communities in the NbS implementation.

Tikmũ'ũn (Maxakali) Community, Brazil. COMCHA project/BioDiv.

Partners of the project

Centre for Social Studies, Coimbra, Portugal

Faculty of Life and Environmental Sciences, University of Iceland, Reykjavík, Iceland

IESOL – Hatchery of Solidarity Economy Initiatives, State University of Ponta Grossa, Ponta Grossa, Brazil

Teacher Treaning College / Psychology and Anthropology Department, University of Extremadura, Cáceres, Spain

Azorean Biodiversity Group CE3C - Center for Ecology, Evolution and Environmental Changes, University of Azores, Angra do Heroísmo, Azores, Portugal

Sintropico, São Roque do Pico, Azores, Portugal

Department of Architecture, University of Florence, Florence, Italy

LAPESE - Research and Extension Laboratory in Society and Emancipation, Federal Institute of Espírito Santo, Vitória, Brazil

Arts and Communication Training Centre, Federal University of Southern Bahia, Itabuna, Brazil

Faculty of Library Science and Communication, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

NIDES/UFRJ - Interdisciplinary Center for Social Development, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

Faculty of Science and Informatics, Department of Economic and Social Geography, University of Szeged, Szeged, Hungary

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 1.4 mil. €

More information

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Humanity is not separated but part of nature.

Partners of the project

Raoul Wallenberg Institute of Human Rights and Humanitarian Law, Lund, Sweden

Lund University Centre for Sustainability Studies and Sociology of Law Department, Lund University, Lund, Sweden

Brussels School of Governance, Vrije Universiteit Brussel, Brussels, Belgium

Centre for Development and Environment CDE, University of Bern, Bern, Switzerland

Copernicus Institute of Sustainable Development, Utrecht University, Utrecht, Netherlands

Danish Institute for Human Rights, Copenhagen, Denmark

Duration

01/03/2025 - 29/02/2028

Total grant

Approx. 1.6 mil. €

More information

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DEFEND-BIO - Biosphere Defenders Leveraging Legal and Governance Tools for Just Sustainability Transformations

Context

Top-down approaches to conservation are often resisted by local communities, who better understand nature's broader role in their lives. Such approaches frequently lack legitimacy, local knowledge, and do not tackle the political and economic root causes of nature destruction. DEFENDBIO shifts the focus to solutions prioritized by biosphere defenders—individuals and groups on the frontlines of ecosystem protection—who safeguard biodiversity and the benefits it provides to all life. By supporting the strategies of biosphere defenders and fostering an environment that empowers their work, DEFENDBIO aims to support sustainability transformations for present and future generations to thrive. Leveraging interdisciplinary expertise in law, politics, development, geography, and trade, the project uncovers opportunities and challenges within legislative and policy frameworks. Centered on Latin America and the Caribbean, and their interactions with Europe, DEFENDBIO contributes to the implementation of the Convention on Biological Diversity and international human rights treaties in an interconnected world.

Main objectives

- Investigating how biosphere defenders use legal and governance mechanisms for nature stewardship and climate adaptation;
- Empowering defenders with legal tools and strategies to advance environmental human rights, particularly in the context of the Escazú Agreement and the Kunming-Montreal Global Biodiversity Framework;
- Creating enabling environments for defenders to scale out locally-led NbS and scale-up impact at regional and global levels to support environmental democracy, human rights and sustainability transformations.

Main activities

- Investigating the mechanisms within international law that support the practical work of biosphere defenders, with a specific focus on the Escazú Agreement and the Inter-American Human Rights System;
- Examining the EU directives on value chains and finance that have a transboundary impact in Latin America and the Caribbean, analyzing how the implementation of EU legislation can support biosphere defenders and the practical effects of having additional legal empowerment tools;
- Studying the impacts of national-level litigation to protect nature in Latin American and Caribbean countries that host critical transboundary ecosystems, such as the Amazon and the Chocó rainforests. Special attention is given to litigation related to the regulation of global value chains (GVCs) to hold transnational corporations accountable;
- Using citizen science and monitoring at local and national levels serves to test the application of legal empowerment tools designed to support advocates and biosphere defenders across various jurisdictions in Latin America and Caribbean.

Through these activities, we seek ways to catalyse active engagement with nature stewardship and scale-up NbS and human rights mainstreaming at regional and global levels. We also analyze how biosphere defenders—those who fight to protect their land, water, and territories—not only transform our understanding of socio-ecological systems but also actively engage in legal and economic processes.

emBrace - Reconciling Food Systems Sustainability and Biodiversity Conservation in Multifunctional Protected Areas

Context

Europe's rural landscapes are currently on an unsustainable path, shaped by unequal social and environmental dynamics that harm both biodiversity and human well-being. To address this, we need a major shift in European food systems toward more sustainable and localized models. These models should prioritize agroecological practices, fair value chains, and responsible consumption. At the same time, we must adopt inclusive conservation approaches to stop biodiversity loss, especially as traditional conservation methods often fall short, failing to protect biodiversity and disconnecting people from nature.

In this context, emBrace will support the development of multifunctional protected areas designed as NbS to bring together biodiversity protection and sustainable food systems. These NbS, rooted in principles of environmental justice and inclusivity, will aim to strengthen the relationship between people and nature. By doing so, they can inspire landscape stewardship actions that deliver mutual benefits for biodiversity conservation and sustainable food systems.

Main objectives

Through systematic data collection in emBrace's four case studies, combined with social learning, knowledge co-production, action-oriented research, cross-cultural learning, and knowledge synthesis, emBrace aims to address key knowledge gaps: (1) How collaboration within landscape coalitions can help resolve trade-offs and conflicts among different stakeholders in multifunctional protected areas; (2) What are the potential benefits of integrating food systems and biodiversity protection within multifunctional landscapes; and (3) What are the effective ways to share and amplify successful approaches, driving meaningful and transformative change.

Main activities

emBrace will implement an action-oriented research programme where academic partners work closely with non-academic actors to co-produce results. This collaboration is facilitated through Knowledge Hubs established early in the project in the four emBrace's case studies (The Zwinstreek in Flanders, the Alpujarras in South Spain, Coeur de Condroz in Belgium, and Kristianstads Vattenrike in Sweden). emBrace will begin with participatory visioning workshops, using the Nature Futures framework to create shared visions of desirable futures. These workshops will set the stage for all project activities, which combine well-established methods with innovative techniques to promote social learning. emBrace's findings will play an important role in supporting the European Green Deal by offering insights into how its components, such as the Farm to Fork Strategy and the Biodiversity Strategy for 2030, can be better integrated. This is possible thanks to the interdisciplinary expertise of emBrace's partners, whose diverse skills complement one another, and the variety of case studies involved. By using real-world labs, emBrace not only tests scientifically relevant theories but also creates opportunities for critical reflection and deeper insights, paving the way for meaningful progress.

Co-creative workshop and field visit to develop options for combining agriculture with nature conservation and recreation in de Sente Kreken.

Partners of the project

Institute for Environmental Studies, Vrije Universiteit Amsterdam, Amsterdam, Netherlands

Eigen Vermogen van het Instituut voor Natuur- en Bosonderzoek, Brussel, Belgium

Department of Geography, University of Namur, Namur, Belgium

Laboratory of Sustainability, Resilience and Governance of Socio-Ecological Systems, University of Almería, Almería, Spain

Stockholm Resilience Centre, Stockholm University, Stockholm, Sweden

Department of Sociology, University of Antwerp, Antwerp, Belgium

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 1.3 mil. €

More information

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View of the Southern Etsch Valley located in one of the study regions (South Tyrol, Italy).

EVESNAT – Nature-based Solutions to meet EU Nature Restoration Targets: Evaluating synergies and trade-offs across Ecosystem Services for biodiversity conservation, climate change mitigation, and resilience and autonomy improvement

Context

The new EU Nature Restoration Law requires Member States to restore at least 20% of EU land and sea by 2030, and all ecosystems in need of restoration by 2050. Member States need to develop National Restoration Plans and solutions to restore habitats and species, improve biodiversity in different ecosystems, and halt the decline of urban green spaces. However, it is unclear how Member States can successfully achieve these targets. NbS are a promising way to address these challenges, as NbS can promote the creation, restoration, and enhancement of ecosystems, supporting biodiversity conservation and the provision of ecosystem services. Nevertheless, the ability of NbS to co-generate benefits for human well-being is still unclear.

Main objectives

EVESNAT aims to evaluate the role of NbS in supporting biodiversity and human well-being under the new EU Nature Restoration Law. Specifically, it will evaluate three different spatially explicit scenarios of NbS that will be co-created with local stakeholders through a quantitative assessment of multiple ecosystem services and biodiversity.

Main activities

The main activities of EVESNAT will be:

1. conceptualize a roadmap for adopting a transdisciplinary and transnational approach to develop NbS in the context of the EU Nature Restoration Law;
2. develop three spatially explicit scenarios of NbS (increasing biodiversity, mitigating climate change, improving resilience and autonomy) adopting a participatory approach;
3. assess multiple ecosystem services in biophysical and economic terms, as well as their importance through socio-cultural evaluation, and estimate potential impacts and benefits of the NbS scenarios;
4. identify synergies and trade-offs among ecosystem services across the NbS scenarios and evaluate the effectiveness of NbS with regard to the different targets of the EU Nature Restoration Law; and
5. elaborate general guidelines to develop and implement NbS for the EU Nature Restoration Law.

Focusing on three case study sites in the European Alps with differing social-ecological characteristics, the findings of the project EVESNAT will contribute to an improved management and governance supporting the targets of the Nature Restoration Law. EVESNAT will provide a knowledge base with general guidelines and concrete examples of NbS supporting biodiversity conservation and assuring the provision of multiple ecosystem services.

Partners of the project

Institute for Alpine Environment, Eurac Research, Bozen/Bolzano, Italy

Institute of Environmental Geosciences, French National Research Institute for Sustainable Development, Saint-Martin-d'Hères, France

Department of Ecology, University of Innsbruck, Innsbruck, Austria

Planning of Landscape and Urban Systems, ETH Zürich, Zürich, Switzerland

Grenoble Alpes Metropole, Grenoble, France

Duration

01/01/2025 - 31/12/2027

Total grant

Approx. 1.2 mil. €

More information

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FairNature - Developing NbS scaling approaches to achieve just transformative change

Context

In recent years, NbS have become a powerful way to address sustainability challenges by making use of diverse benefits provided by nature. NbS are key to meeting goals like the EU Biodiversity and Adaptation Strategies, the Bonn Challenge, and the post-2020 Global Biodiversity Framework. To achieve these goals, NbS need to be implemented on a massive scale, across different social, economic, and environmental settings, with support from various organizations. If applied fairly and widely, NbS could transform how we address climate change, protect biodiversity, and improve human wellbeing. This could lead to major changes in our systems, including technology, economies, values, and governance. NbS have been effective in many local settings, but they can raise fairness issues because different groups may benefit or lose out in different ways. These concerns may become more significant as NbS are scaled out to larger areas.

Main objectives

Our core question is: *How can NbS be delivered at a wide geographical scale in a just manner?* FairNature's overarching objective is to co-develop a framework to support multi-level NbS practitioners in achieving a just (out)scaling of NbS for fostering just transformative change, biodiversity protection, and societal well-being. Our scientific objectives are:

1. Diagnose, and produce new knowledge on justice implications of scaling NbS;
2. Identify conditions and formulate requirements for NbS scaling for just transformative change;
3. Assess biodiversity, values, justice, governance, and financing in specific applications of NbS and analyse the performance in different scaling approaches.

Main activities

FairNature will co-create, test, and improve NbS scaling approaches in six NbS action cases by involving local and wider networks and communities of NbS knowledge, practice and policy in Reflexive Labs. These cases span multiple sites and scales in six European countries, reflecting diverse geographical contexts and the whole innovation chain of NbS, including the private sector and funds. Representatives of the action cases will co-design the research framework, agenda, questions and methods.

Our main output will be a FairNature Guide for scaling approaches that leverage just transformative change. This guide will summarise the practical experience in the action cases and the output of our co-created research. Transnational practitioner exchanges and trans-project collaboration for knowledge transfer will realise a practical return for the action cases, tapping synergies in project activities and knowledge generation, and validating the FairNature Guide.

FairNature will build on diverse types of knowledge (e.g. scientific, practitioner, stakeholder, user) and provide guidance on combining scaling approaches that safeguard justice in scaling NbS, building on the results of multiple methods, including thick descriptions, trade-off analysis, policy evaluation, scenario methods, interviews, and experiments.

FairNature will investigate how natural spaces can be integrated into agricultural lands in the Netherlands.

Partners of the project

Institute for Environmental Studies (IVM), Free University of Amsterdam, Amsterdam, Netherlands

Environmental Social Science Research Group, Budapest, Hungary

Research Institute (INBO), Brussels, Belgium

University College Ghent, Gent, Belgium

University of Copenhagen, Copenhagen, Denmark

Ecologic Institute, Berlin, Germany

Autonomous University of Barcelona, Barcelona, Spain

French National Research Centre for Sustainable Development, Grenoble, France

Duration

01/03/2025 - 29/02/2028

Total grant

Approx. 1.4 mil. €

More information

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Nursery with over 120,000 saplings set up by the regional government in the state of Assam (India) as part of a million-tree plantation drive to involve citizens in commercial tree plantation. This is one of the largest nurseries set up to supply saplings across the state. The nursery has been established on the fringes of a newly declared national park. The women from adjacent villages who now work in the nursery as seasonal labour had access to the forest and depended on it to fulfill needs for fuel, fodder and other forest produce but have now lost all access since the establishment of the protected area.

FITNESS - Financing Transformative Nature-Based Solutions for equitable and just Sustainability Solutions

Context

In the face of global interlinked challenges of halting biodiversity loss, improving climate protection and extreme-weather resilience, generating livelihood opportunities, and reducing inequality, it is imperative that alternatives are built on an inter-relational understanding of social inequality and ecological degradation. To this end, NbS have emerged as important action-oriented interventions to improve human wellbeing through careful stewardship of nature in rural and urban contexts. However, NbS, in its current format, prioritizes economic valuation of nature through financial mechanisms such as Payment for Ecosystem Services (PES), while overlooking the structural and historical roots of ecological crises. This has resulted in unsustainable and ineffective NbS interventions and strategies. For NbS to deliver ecologically and socially just outcomes, there is an urgent need to integrate socio-cultural and historical context into the financial mechanisms that underpin these ecological approaches.

Main objectives

The FITNESS project aims to deliver a comprehensive analysis of PES and enhance the overall understanding of NbS, for the purpose of:

- Redesigning NbS programmes by aligning financial flows with attention to the historical, political, and cultural aspects of local contexts;
- Ensuring a greater social contextualization of NbS projects, its improved legitimacy and its greater uptake for biodiversity benefits and climate-resilient sustainable development, resulting in global ecological added value.

Main activities

As a consortium of partners from Belgium, Brazil, Norway and Denmark, FITNESS will carry out the following:

- Analyze the extent to which social justice, social legitimacy, power asymmetries, and overcoming intersectional forms of inequality are understood as relevant for the efficient and effective delivery of NbS;
- Map financial flows and key actors involved in incentive-based NbS research and program design/financing in order to explore the degree of convergence or divergence of financial flows for NbS projects in relation to stated objectives for prioritizing social and environmental justice;
- Analyze how communities adapt and (re)shape incentive-based NbS initiatives in ways that facilitates transformative capacities and care for nature;
- Co-generate synthesized knowledge for NbS theory and practice that contributes to just transformative change.

For the purpose of these activities, FITNESS will study grounded experiences of NbS projects in Brazil, India and South Africa to provide and share lessons for European policy makers on best practice emerging from situated political, social, and cultural contexts. The project will take an overarching decolonial transformative research approach that pays particular attention to conflicting knowledge claims and power relations underlying human-nature relationships.

Partners of the project

Institute of Development Policy (IOB), University of Antwerp, Belgium

Department of Biology, Aarhus University, Denmark

Centre for Advanced Amazonian Studies, Universidade Federal do Pará, Brazil

Climate and Natural Resources Unit, Chr. Michelsen Institute, Norway

Duration

01/02/2025 - 31/01/2028

Total grant

Approx. 850 thsd. €

More information

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FOUNDATIONAL - transFOrming rUral laNDscapes And communiTIes thrOugh NAture-based soLutions: integrating biodiversity conservation and human well-being at the nature-agriculture interphase

Context

In agricultural landscapes, NbS geared to the design and management of sustainable, multifunctional ecosystems require innovative planning. Such landscape planning, and the modification of practices, involves trade-offs between competing claims for natural resources and land uses, as well as the aspirations, interests, and goals of different (local to global) actors. At the same time, transitioning from current to sustainable multifunctional landscapes offers new opportunities to create synergies between bio(cultural)diversity conservation and human well-being. In the context of the new European Green Deal and the 2022 UN Food Summit declaration, it is expected that agroecology and regenerative agriculture will increasingly permeate national policies and political discourses, in a quest to address the major challenge of global food security while addressing biodiversity conservation and tackling other societal challenges such as climate change adaptation/mitigation. The FOUNDATIONAL project is thus timely, helping refine the national vision and missions around sustainable farming based on NbS and encouraging the uptake of these practices among farmers and citizens.

Main objectives

To inform policy, conservation, and development efforts, FOUNDATIONAL explores the landscape-level implementation of NbS and their implications to improve biodiversity status and ecosystem services at the landscape, local and micro scales, as well as human well-being in terms of food security and sovereignty, nutritional diversity, social inclusion, and sustainable rural livelihoods.

SO1: Assess how transitioning towards NbS improves biodiversity status at micro- (soil), meso- (plot, farm) local and landscape scales;

SO2: Evaluate social-ecological trade-offs and synergies at the landscape level that may facilitate or hinder NbS implementation;

SO3: Engage stakeholders, with a focus on local communities that have a stake in the landscape, to co-develop strategies for facilitating NbS implementation.

Main activities

FOUNDATIONAL explores the transformative power of agroecology and regenerative farming as NbS across three continents – Latin America (Brazil), Africa (South Africa), and Europe (France). The selected rural landscapes include highland coffee-based systems intermingled with relics of Atlantic Forest in Brazil, wheat production in South Africa's Western Cape, and vineyard-dominated landscapes in south-western France. These landscapes differ in their social-ecological context, levels of NbS promotion by governments and social organisations, degree of stakeholder engagement, and degree of adoption by farmers.

To tackle SO1, FOUNDATIONAL takes advantage of long-term case studies on plant diversification (considering cover crops, intercropping, crop rotation, or agroforestry) and already existing datasets. For SO2, social-ecological trade-off analyses will be conducted using participatory methods, such as archetype analysis and Pareto-based optimization models. To ensure widespread impact and knowledge sharing, for SO3, FOUNDATIONAL integrates multiple stakeholder engagement strategies, including participatory workshops for co-developing models and scenario-building exercises to assess the feasibility and scalability of NbS. Additionally, caravans in Brazil, France, and South Africa will provide hands-on learning, site visits, and community-led discussions on NbS implementation. An interactive stakeholder serious game will be designed and implemented to simulate real-world trade-offs and synergies associated with NbS adoption. This engagement of stakeholders in scenario exploration and decision-making exercises will facilitate discussions on land use planning and sustainability.

Knowledge exchange with farmers in Zona da Mata, landscape on the back. Zona da Mata Alternative Technologies Centre (CTA-ZM).

Partners of the project

Groningen Institute for Evolutionary Life Sciences (GELIFES), University of Groningen, Groningen, The Netherlands

Department of Microbiology, Stellenbosch University, Stellenbosch, South Africa

Department of Soil Science, Federal University of Viçosa, Viçosa, Brazil

Vineyard Health and Agroecology (SAVE), French National Institute for Agricultural Research, Villenave d'Ornon, France

Duration

01/02/2025 - 31/01/2028

Total grant

Approx. 860 thsd. €

More information

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A free-living honey bee colony (Apis mellifera mellifera) that has occupied a disused postbox in a wall in Ireland.

Partners of the project

Molecular Evolution and Systematics Laboratory, Earth and Life Sciences, School of Natural Sciences, University of Galway, Ireland

Honey Bee Watch, Seandoire, Corcullen Galway, Ireland

Evolution, Genomes, Behavior, Ecology (EGCE), University of Paris-Saclay, France

Mountain Research Center, Polytechnic Institute of Bragança, Campus de Santa Apolónia, Portugal

Department of Genetics, Kazimierz Wielki University, Department of Genetics, Bydgoszcz, Poland

Department of Ecology, Swedish University of Agricultural Sciences, Uppsala, Sweden

Duration

01/02/2025 - 31/01/2028

Total grant

Approx. 1.1 mil. €

More information

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FreeB - Studying FREE-living honey Bee colonies in Europe: nature-based solutions to safeguard diversity, ensure resilience, and promote transformative change in beekeeping

Context

Whereas two decades ago European honey bees (*Apis mellifera*) were largely considered extinct in the wild, independent research since then has evidenced their presence throughout Europe. However, up until now these studies have mostly operated in isolation, not yet benefitting from pooled resources, such as data, protocols, best practices, and communications.

Main objectives

FreeB aims to connect five studies in France, Ireland, Poland, Portugal, and Sweden in an effort to better understand the biological, behavioral, and environmental factors that bolster survival among free-living honey bee colonies via natural selection in comparison to their managed counterparts in apiaries, which have experienced unsustainable mortality rates that exceed 30% in some European countries.

Main activities

Relying on both researchers within the consortium plus individual citizen scientists to gather data on these rare "wild" populations, FreeB will initiate a communications strategy to inform and invite beekeepers and beekeeping associations within its five study areas to participate, thus establishing a network of "Bee Guardians." In conjunction with the five teams, nest site locations will be sought and recorded in a GIS-based system, said colonies will be monitored at least four times annually (in some cases every fortnight), and samples collected in order to sequence genomes and test pest and pathogen loads in comparison to samples taken from nearby managed apiaries. Additionally, said genomic tests, coupled with wing morphology classifications, will help to identify lineages within the 10 *Am* subspecies on the European continent and signatures of adaptation to living in the wild.

Findings will be compiled and disseminated via peer-reviewed articles as well as "translated" into layperson's terms and communicated to all participants, plus three other key constituents in particular who may directly or indirectly affect these bees' well-being: policymakers who can pass or amend laws to ensure their protection, veterinarians who oversee their management, and foresters who often encounter nest sites in the wild. Additionally, FreeB will convey to beekeepers and beekeeping associations any lessons that could be applied to lower mortality rates of their managed colonies as well as improve the sustainability of their beekeeping practices. Moreover, FreeB will pilot the potential harnessing of free-living colonies' "pure" genetics by collecting swarms, placing them in treatment-free hives, and observing whether they bolster tolerance to and/or resistance against the common diseases afflicting managed colonies within the five participating countries.

Although *Apis mellifera* is universally recognized for its invaluable contributions to pollination, which ensures food security and biodiversity around the planet, populations in the wild have not yet received the global scientific attention nor protections that they deserve. FreeB aims to change that by extensively researching free-living honey bees' survival tactics and create models that future studies can emulate throughout Europe and beyond.

GREENHANCEnbt - Growing Resilience by Exploring Methods to Enhance Urban Agriculture for Human Well-being, Community and Biodiversity Enrichment

Main objectives

GREENHANCEnbt seeks to understand the critical factors, tipping points, and underlying mechanisms that influence the successful implementation of Urban Agriculture (UA) as a means for supporting human health and well-being and biodiversity. We will study the interdependencies between UA, biodiversity and human well-being. To explore these dynamics and the underlying supportive structures and barriers, we adopt a Nature-Based Thinking (NBT) perspective. NBT emphasizes three key dimensions in all nature-based interventions: the organizations, whether formal or informal, that own and manage natural spaces; the communities that interact with, depend on, and coexist with nature; and nature itself, including its inherent timing and cyclical patterns. We explore the relations between these dimensions in three European cities: Barcelona (Spain), Malmö (Sweden), and Turin (Italy). Urban Agriculture (UA) serves as the focal point of our investigation.

Main activities

GREENHANCEnbt will explore: 1) the nature-organization nexus where we investigate the synergies and trade-offs associated with biodiversity enhancement and human well-being through an examination of how UA practices contribute to biodiversity enhancement and conservation, with a particular focus on habitat creation, support for pollinators, and the potential to enhance local ecosystem services; 2) the community-nature nexus where we investigate how urban communities engaged in UA interact with nature and how these interactions influence human health and well-being and 3) the community-organization nexus where we analyse how current governance arrangements, engage citizens and balance stakeholder interests, and the potential for both social cohesion and conflict resolution during UA implementation. The findings of this project will have far-reaching implications, particularly in the fields of urban planning, policy development, biodiversity conservation, human well-being, stakeholder engagement, and the implementation of NbS.

Urban Agriculture Garden- Barcelona.

Partners of the project

Department of Landscape Architecture, Planning and Management, Swedish University of Agricultural Sciences, Lomma, Sweden

Center for Ecological Research and Forestry Applications, Barcelona, Spain

Department of Agricultural Sciences, University of Sassari, Sassari, Italy

Department of Cultures, Politics and Society, University of Turin, Torino, Italy

Botildenborg Foundation, Malmö, Sweden

Municipality of Turin, Torino, Italy

Barcelona Regional Metropolitan Agency for Development and Urban Planning and Infrastructure SA, Barcelona, Spain

Duration

03/03/2025 - 02/03/2028

Total grant

Approx. **870** thsd. **€**

More information

Thomas RANDRUP
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Farmers receiving training on the potential of agrobiologicals in potato and tomato protection during a Farmers Field Day at Holeta Research Center, Ethiopia. Direct engagement with smallholder farmers is a cornerstone of inSALSA through the creation of living labs.

Partners of the project

Department of Plant Breeding, Swedish University of Agricultural Sciences, Alnarp, Sweden

Department of Finance, University of Dar es Salaam, Dar es Salaam, Tanzania

Department of Plant Sciences and Crop Protection, University of Nairobi, Nairobi, Kenya

Department of Biology, Kotebe University of Education, Addis Abeba, Ethiopia

Department of Animal Health and Production, Mount Kenya University, Nairobi, Kenya

Department of Plant and Soil Sciences, University of Pretoria, Pretoria, South Africa

Division of Farmer Support, Commercialisation and Enterprise Development, Agricultural Research Council, Pretoria, South Africa

The Czech Advanced Technology and Research Institute, Univerzita Palackého v Olomouci, Olomouc, Czech Republic

Department of Agroecology, Aarhus University, Aarhus, Denmark

DAFNE, Laboratory of Horticulture, University of Tuscia, Viterbo, Italy

Agrolab A/S, Nørre Åby, Denmark

Department of Agriculture and Animal Health, University of South Africa, Pretoria, South Africa

Department of Agricultural Sciences, Agricultural University of Iceland, Hvanneyri, Iceland

Division of Invasive Species, CAB International, Nairobi, Kenya

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 1.6 mil. €

More information

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inSALSA - Increasing Sustainability of Agribiologicals by Living labs in sub-Saharan Africa

Context

In most African countries, agriculture is pivotal in supporting rural livelihoods. In Sub-Saharan Africa (SSA), already the most food-insecure region globally, climate change severely impacts food security and economic growth, leading to poverty. These days, SSA faces additional challenges from food price inflation, trade disruptions, and the lingering effects of the Covid-19 pandemic, underscoring the need for regional food sovereignty. Achieving climate-resilient and sustainable agriculture requires rethinking food systems to balance increased production, economic development, environmental protection, and equitable social benefits.

Main objectives

Agricultural biologicals are nature-based products that can increase yield, improve soil and plant health, and manage crop pests and pathogens. They offer alternatives to conventional agrochemicals, which are known to harm the environment. Biologicals can also improve yields, soil health and crop resilience. If effectively implemented, these solutions can transform agriculture from an environmental and climate burden to a 'solution' to climate and environmental challenges.

Smallholder farmers in SSA need to be empowered during the ongoing transformation towards more sustainable agricultural practices with lowered reliance on conventional agrichemicals. Therefore, the aim of inSALSA is to enhance the adoption of biologicals among smallholder farmers in SSA by (1) solidifying in-field testing and monitoring, (2) incorporating indigenous knowledge and co-creation of study systems, and (3) improving the understanding of social aspects, while leveraging our previous findings regarding barriers to uptake..

Main activities

The main project activities are:

- Living labs and stakeholder engagement: establishing three types of living labs (community-based, capacity-building, and replication) in SSA and Italy to co-create and test biologicals with smallholder farmers and stakeholders. These labs will foster knowledge exchange, field testing, and local value chain development;
- Biological monitoring and phenotyping: developing affordable phenotyping tools and methodologies to evaluate the impact of biologicals on crop performance and biodiversity under local climate conditions. Emphasis is placed on identifying drought- and heat-tolerant combinations suitable for SSA;
- Gender equality and social inclusion: addressing social dynamics in biologicals adoption by conducting baseline studies, capacity-building activities, and GESI-sensitive evaluations to ensure equitable benefits for all stakeholders;
- Standards and protocol development: creating robust protocols for field trials and training field technicians, ensuring evidence-based biologicals are integrated into smallholder farming systems and supported by local policy frameworks.

This integrated approach aims to increase the adoption of biologicals, strengthen local agricultural systems, and promote sustainability, biodiversity, and inclusivity across SSA.

NATUREBIOPROMO - Hybrid NATURE-Based Solutions as BIOdiversity PROMOters and Their Implications for Emerging Contaminants Mitigation

Context

Aquatic ecosystems are increasingly threatened by numerous *anthropogenic drivers*, such as emerging contaminants (ECs) (e.g., pharmaceuticals, personal care products, endocrine disruptors, and pesticides), which have raised more concern in recent years. They are widespread and pose risks to the environment and associated biota. Due to the limited efficiency of wastewater treatment plants (WWTPs) in removing some of these pollutants, the treated effluents generally contain trace levels of ECs (ng/L to µg/L) that may affect the growth, metabolism, and reproduction of organisms, as well as biodiversity in the aquatic environments. Moreover, due to their ubiquity, stability and persistence in the environment, most ECs can bioaccumulate along the trophic web. Innovative, efficient, economical, and environmentally viable solutions are crucial for removing these contaminants from wastewater effluents. Despite good results from advanced treatment methods (e.g., advanced oxidation technologies, membrane filtration), their application on a large scale can be compromised due to high energy consumption, high operating costs, and toxic degradation products. So, the implementation of new green technologies became a promising solution. NATUREBIOPROMO focuses on understanding the ecological relevance of existent NbS and their importance in the mitigation of ECs pollution while contributing to local biodiversity and their ecosystem services.

Main objectives

NATUREBIOPROMO aims to:

- Integrate and implement hybrid NbS (e.g., constructed wetlands (CWs), artificial floating islands, microalgae ponds) in practical environmental conditions, at an intercontinental scale, to promote a higher efficiency in the removal of pollutants and nutrient;
- Highlight the synergy between NbS sewage treatment and biodiversity support, promoting biodiversity-oriented management for enrichment and conservation;
- Valorise plant biomass for bioenergy production and reutilise sub-products for the own NbS towards the circular economy concept.

Main activities

Through a collaborative approach between scientists, local stakeholders and citizens, by means of interviews and workshops, NATUREBIOPROMO will co-develop a solution for the best performance of various NbS. Thus, its main activities include 1) evaluation of the wastewater treatment efficiency of the NbS case studies through an environmental characterization of the study sites in terms of water, substrate and plants quality and biodiversity analyses; 2) enhancing the performance of different NbS through biodiversity and EC removal improvement and 3) valorisation of CW sub-products through the production of clean energy (biogas) and biochar, the latter being reused in the own NbS to improve contaminants sorption and support biodiversity.

NATUREBIOPROMO will have a high impact on 1) biodiversity conservation and ecosystem services promotion; 2) wastewater management and significant reduction of pollutant loads into the aquatic systems; 3) implementation of low-cost solutions; 4) production of clean energy - a climate and economic asset; and 5) promotion of environmental sustainability and human well-being.

Parada do Bouro wastewater treatment plant (Portugal).

Partners of the project

Interdisciplinary Centre of Marine and Environmental Research, Matosinhos, Portugal

Faculty of Engineering of the University of Porto, Porto, Portugal

Federal University of Rio Grande do Sul, Brazil

University of Montpellier, Montpellier, France

Czech University of Life Sciences, Prague, Czech Republic

University of Brescia, Brescia, Italy

Council for Scientific and Industrial Research, Cape Town, South Africa

Duration

01/01/2025 - 31/12/2027

Total grant

Approx. 1 mil. €

More information

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In the heart of Oslo, this vibrant park exemplifies our commitment to integrating nature-based solutions within urban spaces. By fostering lush green environments, we promote biodiversity and enhance community well-being, creating a sustainable and inviting urban retreat for all to enjoy.

Partners of the project

Department of Environmental Impact and Sustainability, Stiftelsen NILU – The Climate and Environmental Research Institute (NILU), Kjeller, Norway

Department of Social Work/IFSAR Institute of Social Work and Social Spaces, Eastern Switzerland University of Applied Sciences (OST), St. Gallen, Switzerland

School of Architecture, Planning and Environmental Policy, University College Dublin, National University of Ireland (NUID UCD), Dublin, Ireland

Department of Hydrobiology and Ecosystems Protections, The University of Life Sciences in Lublin (ULSL), Lublin, Poland

Lisbon Energy and Environment Agency (Lisboa E-Nova), Lisbon, Portugal

Baltic Studies Centre (BSC), Riga, Latvia

Department of Architecture and Urban Studies, The Polytechnic University of Milan (Polimi), Milan, Italy

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 1.6 mil. €

More information

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NatureScape - Enhancing Urban Sustainability for Environmental Quality and Human Well-being through Nature-Based Solutions Transformation Labs

Context

NatureScape is strategically designed to enhance urban sustainability by integrating urban NbS in seven diverse cities (Oslo, St. Gallen, Riga, Dublin, Lisbon, Lublin, Milan). It addresses the critical post-implementation phase of NbS, focusing on long-term stewardship and governance to sustain their benefits. The project aligns with the European Green Deal and aspires to enhance urban resilience, biodiversity, climate neutrality, and social well-being through community-led NbS Transformation Labs (T-Labs).

Main objectives

NatureScape aims to:

1. develop comprehensive indicators for post-implementation evaluation of NbS;
2. establish NbS T-Labs as innovation hubs for stakeholder collaboration;
3. uncover and maximize synergies while minimizing trade-offs related to urban NbS;
4. distil lessons and best practices for future NbS stewardship and governance;
5. shape urban planning tools and policies to support NbS in the post-implementation phase;
6. disseminate findings to enhance awareness and inform policy.

Main activities

NatureScape combines urban planning with community engagement to enhance the governance and sustainability of NbS. Through citizen science and participatory methods, it actively engages in stewardship and fosters a collaborative and inclusive approach to urban sustainability:

- Scientific approach: employ a transdisciplinary methodology combining scientific research, community engagement, and innovative governance models to enhance NbS functionality and integration into urban ecosystems;
- Dissemination and stakeholder engagement: utilize workshops, seminars, digital platforms and implement citizen science to engage stakeholders and disseminate research findings;
- Create actionable tools and guidelines: integrate NbS into urban planning and governance, aiming for their mainstreaming, co-evolution, and scaling;
- Expected impact: project activities are expected to lead to enhanced urban resilience, increased biodiversity, better climate action, and improved community health and well-being. The project's innovative governance models and community-based approaches aim to ensure the sustainable success of urban NbS.

NBS4AQUAMISSION – Nature Based Systems Mission for Aquatic Biodiversity Enhancement: Reducing Pharmaceutical Products Pollution in Urban and Rural Environments

Context

Pollution is a key driver affecting biodiversity loss. Part of the pollution comes from essential human activities, such as health care and food production through the use of pharmaceutical products (PP). Aquatic environments are quite vulnerable to PP pollution, both structure and functionality. Consequently, as traditional wastewater treatment plants (WWTP) cannot eliminate PP completely, and PP consumption increases steadily, there are resultant health threats to humans and ecosystems. However, some treatments are expensive and energy demanding. NbS, harnessing natural processes and ecosystems functioning, can help addressing the challenge our society is facing.

Main objectives

NBS4AQUAMISSION project focuses on the protection of aquatic biodiversity from pharmaceutical pollution through the use of NbS. The project is based on a triadic solution combining treatment wetlands, innovative materials, such as biochar and hydrochar, and bioaugmentation processes to enhance the NbS remediation capacity. The project will help to understand the effects of PP's release on aquatic biodiversity. In addition, the assessment of NbS as efficient tools to reduce PP pollution, and environmental risks will substantially support informed decision-making on water management.

Main activities

NBS4AQUAMISSION will focus on 5 areas of activities:

1. We will characterize PP pollution through state-of-the-art screening in urban and rural European demo sites;
2. We will assess the aquatic biodiversity changes under PP pollution pressures through environmental DNA (eDNA) analysis;
3. We will assess the effectiveness of the innovative NbS at pilot scale in PP pollution removal using chemical and ecotoxicological approaches;
4. We will perform Life cycle, social and economic analysis of the NbS implementation;
5. We will assess stakeholders' profiles, attitudes and/or conflicts around NbS.

In summary, biodiversity enhancement driven by NbS implementation will recover ecosystem services, from provisioning (better water quality), to regulating (self-depuration in the aquatic ecosystems) and cultural services ("blue-green" areas enhancement for recreational proposes). The gathered social information will be translated into actionable items for water management and policy recommendations and the improved knowledge and innovation within the water resources sector will be able to help make savings in quaternary water treatment processes.

Treatment wetland in Denmark.

Partners of the project

Center for Advanced Studies in Earth Sciences, Energy and Environment, University of Jaén, Spain

Environment and Water Agency of Andalusia, Junta de Andalucía, Spain

Department of Environmental Science, Aarhus University, Denmark

Environment and Natural Resources, Hydrology and Water Environment, NIBIO, Norway

School of Architecture, Planning and Environmental Policy, University of Dublin, Ireland

Department of Agriculture, University Mediterranea of Reggio Calabria, Italy

Environmental Engineering Department, Gebze Technical University, Turkey

Killian Water APS, Denmark

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 1.3 mil. €

More information

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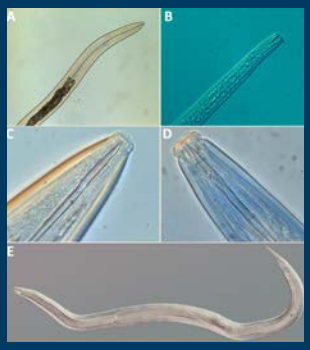

Nematode taxa that evolved different feeding strategies: (A) Aporcelaimellus (omnivorous chewer); (B) Prismatolaimus (bacteria-feeding); (C) Dorylaimus (omnivorous suction feeder); (D) Labronema (predatory suction feeder); (E) Mononchus (predatory chewer).

Partners of the project

Hydrology Research Unit, Swedish Meteorological and Hydrological Institute, Norrköping, Sweden

Center for Innovation in Territory, Urbanism, and Architecture, Department of Civil Engineering, Architecture and Environment, IST-ID,Association of the Superior and Technical Institute for Research and Development, Lisbon, Portugal

Section for Freshwater Ecology, Norwegian Institute for Water Research, Oslo, Norway

Institute of Water and Environmental Engineering, Polytechnical University of Valencia, Valencia, Spain

Biodiversity Research, Institute of Biodiversity – Network, Regensburg, Germany

Sustainable Cities and Resilient Community Programme, Stockholm Environmental Institute – Tallinn Centre, Tallinn, Estonia

Department of Bioresource Engineering, McGill University, Sainte Anne de Bellevue, Canada

Biodiversity Research, Institute of Biodiversity – Network, Regensburg, Germany

Built Environment, System Transition, Industrial Transition, RISE Research Institutes of Sweden, Gothenburg, Sweden

Department of Environment, Malmö City, Malmö, Sweden

Biodiversity Research, Institute of Biodiversity – Network, Regensburg, Germany

Duration

01/01/2025 - 31/12/2027

Total grant

Approx. 1.4 mil. €

More information

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NBSPLUS - NBS Services Promoting Local Biodiversity, Well-being and Scalable Solutions

Context

Human-induced climate impacts and biodiversity loss severely impact ecosystems and communities globally. Holistically designed NbS offer cost-effective, multifunctional measures safeguarding biodiversity, enhancing water cycle sustainability and promoting well-being. However, understanding of factors affecting NbS multifunctionality remains limited, along with a lack of integrated assessment methods and standardization, including baselines for NbS benefits. Existing services typically prioritize sector-specific products/outcomes, impeding the advancement of transdisciplinary NbS approaches. NBSPLUS aims to overcome these limitations, launching the concept of *NbS Services*. It will develop user-oriented knowledge, methods, and decision aids to facilitate informed planning, addressing societal risks and potential trade-offs of current/future NbS. Leveraging diverse expertise within the consortium, from governance processes to participatory modelling approaches and climate/water services, and through engagement with local stakeholders, novel solutions will be developed and tested in three use-cases on two continents, demonstrating applicability across land-use types and decision frameworks.

Main objectives

Addressing the contribution of NbS for just transformative change, NBSPLUS will develop and upscale effective participatory planning for NbS, promoting balanced awareness and consideration of biodiversity, justice and well-being aspects in rural and urban climate resilience planning.

Main activities

NBSPLUS will employ a suite of transdisciplinary approaches, applied with an integrated systems science lens, engaging stakeholders (including marginalized groups) and using citizen science (CS), to integrate and upscale local knowledge for transformational interventions. The main activities include to:

- Develop a multi-level governance framework to assess the aims, effectiveness and social-ecological impacts of NbS, also accounting for societal equity/justice;
- Explore the value of novel bioindicators, and potential for collection through CS approaches, to develop a habitat-overarching biodiversity monitoring framework for assessing the ecological consequences of NbS adaptation;
- Stress-test NbS efficacy to resolve land-use and climate-induced pressures through co-production of novel design (extreme weather) events and integration into existing impact models;
- Co-design scalable, integrated models/tools for increasing transparency and stakeholder engagement in city-to-catchment scale NbS assessments.

These activities will enable the results of the Project to be disseminated via the co-production of a comprehensive design guide for NbS planning and management, as well as through a virtual governance workshop, which generates a pathway for leveraging outcomes beyond the project via a multi-language policy brief. Project outcomes stemming from the establishment of the *NbS Services* concept are expected to: promote participatory governance through evidence-based and scalable adaptation planning; improve synergies across local-to-national policy objectives, ensuring NbS will be beneficial for biodiversity and just transformative change; and strengthen adaptive capacity by enhancing science-based decision-making, and transnational cooperation and cross-learning within resilience and disaster risk management and planning.

PHorestAll – Planetary Health by Healing Forests as Nature Based Solution

Context

The crises of ecological degradation and public health are strongly intertwined, as forests have a wide array of functions that are crucial to ecosystem health and to sustain biodiversity that can also strongly impact human health and well-being.
The degradation of forest ecosystems directly influences the diversity and balance of the soil microbiome (bacteria, fungi and other microorganisms), leading to the aggravation of the health and growth of the vegetation and of the above-ground biodiversity. Also, as it is claimed that biogenic volatile organic compounds (BVOCs) in the forest air are one of the main forest attributes contributing to human health improvement, there is a need to fully understand their role in forest ecosystems in order to develop better management practices and restoration strategies of these natural areas of utmost importance.
The hypothesis that time spent in nature has a positive impact on human health and wellbeing, means that an increase of nature-based activities can be a first step on societal change towards the concept of green prescription and alleviating pressure on public health services and budget.

Main objectives

The PHorestAll project aims to deepen the research on the profound relationship between forest health, biodiversity, and human well-being, positioning forests as essential NbS for addressing pressing global challenges. By studying diverse forest ecosystems across Europe and Asia (Portugal, Slovenia, Poland, Lithuania, and Taiwan), this project seeks to develop an innovative approach on the identification, assessment and valorisation of "Healing Forests" and its health-promoting effects. Ultimately, PHorestAll aims for transformative research with the goal of developing standardized protocols to assess the health benefits of forest therapies and integrate the findings into public health policies.

Main activities

The scientific approach involves interdisciplinary research on forest microbiomes and BVOCs, examining their effects on human health through standardized protocols and field studies across diverse forest ecosystems.
This will comprise the evaluation of existing standards, the sampling and analysis of the biologic indicators related with the soil microbiome composition and BVOCs, assessing the effect on human health and well-being.
PHorestAll pursues a pioneering approach that is supported upon the FTHub Method to standardize the Nature Connected Activities interventions over the different forest sites and resources to the JoinUs4Health platform that will lead and aggregate the work on the citizen science teams that will be involved in the research process.
This direct involvement of different stakeholders aims to foster public awareness and understanding by creating accessible content to enable citizen science and facilitation of interactive dialogue between researchers and the community, pursuing an innovative, inclusive and participatory approach.
The project addresses tailored workshops and information events aimed at policymakers, NGOs and local communities, ensuring that their insight integrates and contributes to the project's outcomes.
Finally, the project ensures that its results and knowledge are effectively communicated to influence policies, engage communities and establish "Healing Forests" as a recognized NbS, that anticipates significant societal and policy impacts, derived from the expected influence of environmental exposure over physiological and psychological indicators, thus linking human and ecological complexity through an integrative perspective (covering social, financial and legal systems) that supports a fundamental balance between biodiversity conservation and public health.

Mata do Bussaco.

Partners of the project

Destinature –Agency for the Development of Nature Tourism, Fundão, Portugal

Forest Therapy Hub, Almada, Portugal

Department of Life Sciences, Centre for Functional Ecology, University of Coimbra, Coimbra, Portugal

Department of Population Medicine and Lifestyle Diseases Prevention, Medical University of Białystok, Białystok, Poland

Forest Therapy Lab, School of Forestry and Resources Conservation, National Taiwan University, Taipei, Taiwan

University of Maribor, Faculty of Health Sciences,

Institute for Balneology and Climatology, Maribor, Slovenia

Department of Pharmacognosy, Lithuanian University of Health Sciences, Kaunas, Lithuania

Department for Forest and Landscape Planning and Monitoring, Slovenian Forestry Institute, Ljubljana, Slovenia

Center for chemical analysis of food, water and other environmental samples, National Laboratory of Health, Environment and Food, Maribor, Slovenia

International Society of Forest Therapy, Krems, Austria

Duration

21/03/2025 - 20/03/2028

Total grant

Approx. 1 mil. €

More information

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Mountain areas of the Mediterranean basin are major hotspots of biodiversity. Mediterranean high-mountain wet grasslands provide multiple ecosystem services in the headwaters of watersheds, such as high primary production and water regulation. Nature-Based Solution approaches can promote the management of these grasslands to offer sustainable and cost-effective solutions to societal challenges like climate change, water regulation, food security and other human benefits, while enhancing biodiversity conservation.

Partners of the project

Department of Ecology, University of Granada, Granada, Spain

Institute of Geosciences and Georesources, National Research Council, Roma, Italy

Alpine Wildlife Office, Gran Paradiso National Park, Valle d'Aosta, Italy

Department Bioscience and Territory/ EnvixLab, University of Molise, Campobasso, Italy

Department of Life Sciences, University of Coimbra, Coimbra, Portugal

International Water Research Institute, Mohammed VI Polytechnic University, Benguerir, Morocco

Soil-Water & Biodiversity Department / Lab. Botany & Ecology, National Forest Engineering School, Sale, Morocco

Georesources, Geoenvironment and Civil Engineering Laboratory, Cadi Ayyad University, Marrakech, Morocco

Duration

01/03/2025 - 29/02/2028

Total grant

Approx. 730 thsd. €

More information

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PRESINMED - Preserving the singularity of Mediterranean high-mountain biodiversity hotspots: a NbS approach

Context

High-mountain wet grasslands represent habitats with the highest concentration of endemic diversity in the Mediterranean. The fact that they are contrasting and hyper diverse communities, subjected to strong pressures that threaten their conservation, makes them paired ecological sensors in scenarios of global change. They represent a real cocktail of exceptional natural values and environmental problems magnified and highly concentrated in space. The threats they suffer are both global (climate) and local (herbivory, tourist pressure). The main objective of our project is to reverse this process of wet meadows reduction and loss of connectivity using NbS approach for maintaining and restoring wet meadows in Mediterranean mountains.

Main objectives

The objective of our project is to diagnose and mitigate the real impact that climatic change (mostly drought), in combination with local drivers (herbivory and touristic pressure), is having on the megadiverse humid ecosystems of Mediterranean high mountains. To this purpose, we will analyse the ecological responses and community dynamics, using essential ecosystem variables as indicators, of different Mediterranean mountain ecosystems across a large gradient of ecological conditions. Our goal is to use different NbS, specifically adapted to each study site, to maintain and restore biodiversity and ecological functions in Mediterranean mountain wet meadows and snowbed grasslands, by mitigating and reversing the processes of reduction in the area occupied by these habitats, as well as of decrease in ecological connectivity, and the subsequent biodiversity loss. As a result, we will identify and create climate-resilient green infrastructures and associated science-policy-society-enterprise interfaces to effectively and adaptively address the social, economic and environmental challenges of these areas. NbS will help to mitigate multiple hazards in mountains (e.g. reduction of water availability, landslides, water stress, food insecurity) while generating a range of co-benefits (e.g. biodiversity conservation, income-generating opportunities, recreation, etc.), sequestering carbon, and increasing resilience against the impacts of a changing climate.

Main activities

WP 1) To assess the state of health of mountain wet meadows and snowbed grasslands and their biodiversity by enhancing the use of information and communication technologies and artificial intelligence resources for the development of essential variables and integrated diagnosis (integrating field and remote sensing information).

WP 2) To implement mitigation, adaptation and restoration measures for biodiversity and its ecosystem functions and services using NbS to preserve the natural and cultural heritage of mountains, using scientific and local knowledge, developing pilot projects of adaptive management, exportable to other mountains.

WP 3) To develop local and international collaboration in the Mediterranean Basin, for the diffusion of innovative practices and solutions, the permanent participation and training of the different actors by the co-design of actions, the use, integration and visibility of open information, communication, and education, and by citizens' participation and shared governance.

RESOLVE - NatuRE based SOLutions for sustainable use of high north marine biodiVersity and ecosystems sErvices

Context

Marine biodiversity is threatened by multiple anthropogenic drivers, impacting ecosystem goods and services, particularly in high-latitude regions facing rapid climate change and expanding human activities like offshore energy and shipping. To alleviate biodiversity loss of marine ecosystems, the EU Restoration Plan for Biodiversity Strategy includes a significant commitment to protect at least 30% of the ocean within European waters by 2030 (EC,2020). However, in high latitude regions, the implementation of NbS to mitigate the cumulative risk to biodiversity is still at an early stage with limited considerations of consequences for human well-being and transformative change. RESOLVE aims to address this knowledge gap by evaluating the impact of NbS on marine biodiversity, ecosystem services, and their broader socio-economic effects in the high north. The project will focus on NbS consisting of area-based management tools, specifically marine protected areas (MPAs), other effective area-based conservation measures (OECMs) and ecologically or biologically significant areas (EBSAs).

Main objectives

The main objectives of RESOLVE are to 1) assess the mitigation potential of NbS under climate-driven biodiversity change by investigating taxonomic and functional turnover and trends within and outside of MPAs, OECMs and EBSAs; 2) evaluate NbS trade-offs and synergies with human well-being in light of patterns and trends in ecosystem services; 3) co-design NbS that consider dimensions of transformative change by exploring NbS contribution to climate mitigation and dynamic MPAs solutions.

Main activities

RESOLVE is a transdisciplinary project with case studies in the Barents Sea, Iceland, and eastern and western Greenland. The key activities include:

1. Integrate the evaluation of different area-based management measures and explore new NbS options like dynamic MPAs for climate adaptation. Options will be critically evaluated within existing legal and management frameworks;
2. Assess NbS' mitigation potential using biodiversity indicators aligned with the Essential Biodiversity Variables (EBV) framework, focusing on ecological scales, trends, and cross-scale analyses. A transnational approach is employed to evaluate NbS networks, considering connectivity and large-scale ecological processes;
3. Address the implications of NbS for ecosystem goods and services to support human well-being and propose management options for balancing trade-offs and optimizing synergies;
4. Explore how NbS can drive transformative shifts in conservation strategies, promoting ecosystem resilience and climate mitigation.

Climate-driven changes in species and habitat distributions will impact the implementation of area-based conservation measures, as well as the connectivity between protected areas. Adaptive strategies that account for climate-induced biodiversity changes are essential. RESOLVE will provide a comprehensive knowledge base on the benefits and limitations of existing and planned NbS for biodiversity, human well-being, and transformative change, offering guidelines for novel NbS management and governance. Its holistic approach aims to enhance understanding of NbS' societal and policy impacts, with strong stakeholder and policy-maker engagement, ensuring significant potential for shaping policy and governance.

Survey vessel off the coast of East Greenland, a high-latitude marine ecosystem.

Partners of the project

Møreforsking AS, Ålesund, Norway

Department of Arctic and Marine Biology, The Arctic University of Norway, Tromsø, Norway

Norwegian Institute for Nature Research, Tromsø, Norway

Demersal Division, Marine and Freshwater Research Institute, Hafnarfjörður, Iceland

National Institute of Aquatic Resources,

Technical University of Denmark, National Institute of Aquatic Resources, Kgs. Lyngby, Denmark

Stockholm Resilience Centre, University of Stockholm, Stockholm, Sweden

Ecosystem Processes, Institute of Marine Research, Bergen, Norway

Fish and Shellfish, Greenland Institute of Natural Resources, Nuuk, Greenland

Sea Fisheries, Thünen Institute of Sea Fisheries, Bremerhaven, Germany

Biology Department, University of Laval, Quebec, Canada

Duration

01/03/2025 - 29/02/2028

Total grant

Approx. 1.2 mil. €

More information

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Raul PRIMICERIO
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Serpis River (València, Spain) – One of the seven study sites where River Assemblies will be created as communities of practice whose final goal is the co-design of restoration strategies and guidelines.

Partners of the project

Valencian Centre for Irrigation Studies, Polytechnic University of Valencia, Valencia, Spain

Department of Geography, University of Girona, Girona, Spain

Water Management, Actors, Territories, Montpellier, France

Environmental Sciences Group, Wageningen University and Research, Wageningen, The Netherlands

Department of Environment, Land and Infrastructure Engineering, Polytechnics of Torino, Torino, Italy

Land, Environment, Agriculture and Forestry, University of Padova, Padova, Italy

Environment City Society, Lyon Saint-Etienne pole, Lyon, France

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 1 mil. €

More information

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RiVIVE - River Conviviality: Advancing socio-environmentally just river restoration through nature based solutions

Context

Over the past two centuries, most of the world's rivers have been heavily transformed to meet various human needs. In response, river restoration has received increased attention in policy and practice. The UN has declared the Decade on Ecosystem Restoration, and the European Union (EU) has adopted the Biodiversity Strategy (2020) and Nature Restoration Law (2024). Despite the ambitious plans, their strategy and implementation are often challenged and frustrated by fierce social contestations. This aspect is little explored and largely overlooked in restoration literature and practice, which predominantly portrays contestations as matters of miscommunication or lack of awareness. To support and advance more inclusive transformative socio-ecological change in the above sketched context, RiVIVE will centre around the following main research question: How can the exploration and elaboration of the notion of riverscape conviviality translate to new insights and approaches that support transformative change towards more biodiverse, inclusive and socio-environmentally just outcomes in river restoration initiatives?

Main objectives

1. Theoretically explore riverscape conviviality to, analyse, engage-with, learn-from and inspire scholars, practitioners and stakeholders that work on river restoration, advancing towards more socio-environmental just initiatives and processes;
2. Develop, test, and validate alternatives to prevailing mainstream approaches to river restoration based on novel methodologies for: stakeholder engagement, citizen science and impact monitoring, multi-functionality mapping, and the co-design of socio-environmentally just and robust river futures;
3. Create spaces and creative inspirational materials to advance environmental justice by sharing, transferring, and disseminating project results with scholars, practitioners and civil society engaged in riverscapes restoration initiatives in Europe and beyond.

Main activities

The project will be applied transversally across seven case studies, through a combination of qualitative and quantitative methods. The concept of conviviality of river landscapes is pivotal, and will be studied to analyse, engage, learn and inspire academics, practitioners and stakeholders working in river restoration. To this end, Riparian Assemblies (RAs) will be created, as forums to produce convivial knowledge and experience. The RA will serve as spaces of encounter and "collective investigation" where knowledge, concerns and ideas about rivers, their functions, values and relations will be co-created and pooled; providing important opportunities to bridge and break down divides between 'expert' and 'lay' knowledge.

SaltyBEATS - Salty symphonies: bringing back BiodivErsity in mArginal Saltlands

Context

Soil salinization is a global issue that affects agricultural productivity, environmental health, and economic well-being. The rising rates of soil salinization, compounded by climate change and population growth, intensify the pressure on fertile lands. Therefore, developing strategies to extend/maintain crop production in salt-affected areas is essential for ensuring the future of agriculture and global food security. To effectively address this challenge, and meet climate, biodiversity, and food security goals, it is essential to develop sustainable management practices tailored to these demanding environments. SaltyBEATS addresses this challenge by focusing on the critical yet overlooked issue of multitaxon biodiversity collapse in salt-affected lands. By studying naturally saline ecosystems, the project aims to use halophytes to develop innovative strategies to enhance plant genetic and functional biodiversity in marginal lands. SaltyBEATS will also evaluate how this increased biodiversity benefits crop production and ecosystem health.

Main objectives

SaltyBEATS aims to revitalise marginal salt-affected lands by understanding the role of halophytes in naturally saline landscapes and use this knowledge to deliver practical solutions to restore their biodiversity and improve their resilience. Specifically SaltyBEATS will:

1. map and assess biodiversity in naturally saline habitats to explore time-dependent changes in halophyte diversity and richness, assessing their role in shaping plant-plant, plant-insects and plant-microbiome interactions;
2. identify endangered/threatened halophytes and develop in vitro cultivation and multiplication methods for their conservation and introduction in marginal lands;
3. identify indicators, accessible to all, for land capability assessment and ecosystem services quantification in salt-affected areas;
4. evaluate the synergistic effects derived from stacking halophytes with conventional crops and assess the impact of this increased ecological complexity;
5. design future scenarios to assess synergy effects and trade-offs of saline agriculture as a NbS for marginal areas and determine how it will become relevant for farmers in different regions in the context of climate change;
6. identify stakeholder needs and create a link between policy makers and impact investors to upscale SaltyBEATS results.

Main activities

SaltyBEATS will combine participatory research, field demonstrations, workshops, and stakeholder consultations to develop new management practices locally attuned to specific cropping systems, soils and climatic conditions. By co-creating a narrative around the importance of halophytes and biodiversity conservation both in naturally-saline areas and in marginal salt-affected lands, SaltyBEATS will: (1) boost public awareness and appreciation of these naturally saline areas, a key step in preserving these ecosystems and the specialised species that inhabit them; and (2) create a synergy effect with involved stakeholders to promote the upscaling of a nature-positive agriculture that aligns ecological and economic targets.

Image showing a plant community dominated by halophytes in naturally saline habitats, highlighting these areas as rich biodiversity hotspots.

Partners of the project

Department of Biology, University of Florence, Florence, Italy

Laboratory of Extremophile Plants, Center of Biotechnology of Borj Cédria, Hammam Lif, Tunisia

Centre of Marine Sciences, Faro, Portugal

Department of Microbiology, Nicolaus Copernicus University, Toru , Poland

Institute for Environmental Studies, Stichting VU, Amsterdam, Netherlands

Plant Breeding Department, Spanish National Research Council, Murcia, Spain

Department of Agriculture, Food and Environment, University of Pisa, Pisa, Italy

Manouba School of Engineering, University of Manouba, Tunis, Tunisia

Duration

01/02/2025 - 31/01/2028

Total grant

Approx. 1.2 mil. €

More information

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Alternate winter cover-crops/resident grass implemented in the vineyard alley.

SOILDIVINE - Promoting Soil Quality and Biodiversity in Vineyard Ecosystems Through Nature-Based Solutions

Context

Viticulture covers about 7.3 million hectares worldwide, with vineyards being an important crop in several EU countries. Modern viticulture is severely stressed by climate change (CC) and by several anthropogenic drivers of biodiversity loss negatively impacting at multiple scales on vineyard ecosystems, living communities, and economic performances of local wine industries. Vineyard floor management has proven to promote either adaptation and mitigation of CC and even though mechanical and chemical weeding has been considered for a long time as the most powerful solution, novel NbS, fostering transformative change and better adaptation to the current climatic scenarios, are nowadays urged. Vineyards are good candidates for improved soil health, conservation and the increase of biodiversity. However, little information is available on the relationship between soil biodiversity and its functions in vineyard ecosystems. Following an integrated approach, SOILDIVINE will assess if and how NbS-driven vineyard soil management contributes to soil health and biodiversity benefits and will explore its contribution to societal challenges and transformative change from selected local territories up to larger scale.

Main objectives

SOILDIVINE aims to (1) understand the effectiveness of NbS adopted in the within- and between-row space to promote soil fertility and health, and vineyard biodiversity of above and below-ground organisms; (2) evaluate the impacts and the effectiveness of NbS in the inter-row space under different climates to regulate vine balance, maintain yield and improve grape composition; (3) understand if and how novel NbS can be adopted in the under-the-row strip towards increased sustainability and drought resilience of EU wine districts; (4) identify the best compromise between NbS and sustainable and cost-effective vineyard management; (5) the project will also assess ecosystem services fostered by NbS and will provide NbS centred recommendations to policy makers for developing forthcoming rural policies.

Main activities

Actions, tools, methods and approaches implemented in SOILDIVINE are almost new within the geographical context of the project encompassing Italy, Portugal, Slovenia and Spain. NbS will be compared to traditional solutions in demo vineyards that will be primarily identified to ensure continuity with already concluded programs (i.e. Life and Operational Groups) as well as to establish connections with Living Labs. NbS established in the within- and between-row space will be compared to standard practices to improve biodiversity, soil quality and drought resilience of Mediterranean vineyards. NbS impacts on grapevine performances will be assessed over the project duration. In parallel, the NbS effects on soil properties will be measured by considering physical, chemical, biological and ecotoxicological descriptors, while a multidisciplinary assessment of vineyard biodiversity will encompass microorganisms, macro and micro fauna, above and below ground grapevine pest and beneficials, floristic composition of artificial and resident grasses.

SOILDIVINE is a transnational project putting together several academic institutions to advance multidisciplinary research on NbS. The project aims are also shared by the Foundation for Rural Development in Oltrepò Pavese (Lombardia, Italy) that is available to develop better policies based upon rigorous scientific knowledge. A participatory approach to the problems will be adopted involving scientists, private and public stakeholders within and beyond the SOILDIVINE study areas. Results will be adapted to other countries and their feasibility assessed on a regional and EU level.

Partners of the project

Department of Sustainable Crop Production, Sacred Heart Catholic University, Piacenza, Italy

Department of Earth and Environmental Sciences, University of Pavia, Pavia, Italy

Institute for Multidisciplinary Research in Applied Biology, Public University of Navarra, Pamplona, Spain

GreenUPorto - Sustainable Agrifood Research Centre, University of Porto, Faculty of Sciences, Porto, Portugal

Department of Agronomy, University of Ljubljana, Ljubljana, Slovenia

Duration

01/01/2025 - 31/12/2027

Total grant

Approx. 750 thsd. €

More information

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SUNLOOP - Spontaneous Urban Nature and Local nO net land take policies

Context

Uncovering the value of spontaneous nature for urban planning.

The SUNLOOP project addresses the challenges posed by biodiversity loss and climate change in urban environments, focusing on spaces of Spontaneous Urban Nature (SUN) as a potential NbS within the context of "No Net Land Take" policies. These policies, that are generalizing throughout Europe, aim to limit the artificialization of urban surfaces, making wastelands, derelict spaces, and any informal green spaces valuable for urban development. Despite their potential social and ecological benefits, these spaces often face neglect due to their marginalization in urban planning. The project seeks to enhance understanding and awareness of SUN spaces that already exist in the urban fabric. The goal is to influence urban planning policies by integrating the socio-ecological value of spontaneous biodiversity..

Main objectives

The SUNLOOP project's objectives are :

- To define SUN spaces according to various representations, professional practices (including scientific ones), policies and territorial contexts, with a focus on the interrelations between spontaneous nature and urban biodiversity;
- To understand how the socio-ecological knowledge and representations of SUN spaces can be enhanced by a pluridisciplinary approach involving architects, planners, landscape architects, ecologists, biologists, pedologists, geographers, sociologists, geographic information specialists, artists;
- To uncover conditions under which representations and actions (or voluntary lack of actions) on SUN spaces effectively form NbS in urban areas;
- To understand the discrepancy between the perception of the biodiversity of a space and the actual biodiversity supported by this space, to encourage a change of viewpoint on the part of local actors, to recognize multiple values, potentials, as well as downsides on the role of SUN spaces as a NbS in urban planning;
- To strengthen the international networking of local actors and academics who are committed to maintaining and enhancing SUN spaces and to propose integrated methods in urban policies to do so.

Main activities

Gathering local territorial partners and scientific through collective workshops for finding, observing and changing SUN spaces.

The project emphasizes interdisciplinary research, combining environmental sciences, citizen science, urban planning and project-based and artistic approaches. The scientific team brings together expertise from Swiss, Belgian, and French academic institutions, as well as local stakeholders, sharing local perspectives on medium size cities that witnesses specific urban pressure in the common perspective of "No Net Land Take" policies. Five workpackages (WPs) structure the project and are articulated with three local workshops that enable the interdisciplinary and experimental approach on the three application territories. These three major milestones gather transnational knowledge related firstly to the inventory and identification of SUN spaces, secondly to the observation and understanding of their socio-ecological co-benefits and thirdly to the experimentation of NbS using participatory and inclusive practices.

Collective and interdisciplinary exploration of the 'friche des Tarte', Saint-Denis, January 2019.

Partners of the project

TRANSFORM Institute, University of Applied Sciences of Western Switzerland, Fribourg, Switzerland

Research Institute for social and territorial development, University of Mons, Mons, Belgium

Natagora, Namur, Belgium

LUMI, Scientific and Technical Centre for Construction, Marne la Vallée, France

Laboratory for Landscape Project Research, National Graduate School of Landscape Architecture of Versailles, Versailles, France

Department of Biology, University of Fribourg, Fribourg, Switzerland

Institute for ecology and environmental sciences of Paris, Sciences Sorbonne University, Paris, France

Earth-Nature-Landscape Institute, University of Applied Sciences of Western Switzerland, Geneva, Switzerland

Médialab, National Foundation of Political Sciences, Paris, France

Botanical Garden, Meise, Belgium

Municipality of Ris-Orangis, Ris-Orangis, France

Direction of economical, territorial and strategic development, intermunicipal company for the management and realisation of technical and economic studies, Charleroi, Belgium

Fribourg Agglomeration, Fribourg, Switzerland

Grand Paris Sud Seine-Essonne-Sénart, Evry-Courcouronnes, France

Duration

01/03/2025 - 29/02/2028

Total grant

Approx. 1.3. mil €

More information

Séréna VANBUTSELE
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Eurac Research – apple, pear and plum traditional orchards within Barbian/ Barbiano, a typical village in the southern part of the Isarc valley.

Partners of the project

Department of Biotechnology, University of Verona, Verona, Italy

Institute for Alpine Environment, Eurac Research, Bolzano/Bozen, Italy

Department of Entomology, The Hebrew University of Jerusalem, Rehovot, Israel

Department of Landscape, Spatial and Infrastructure Sciences - Institute of Landscape Development, Recreation and Conservation Planning, University of Natural Resources and Life Sciences, Vienna, Austria

Centre for Transdisciplinary Development Studies, University of Trás-os-Montes and Alto Douro, Vila Real, Portugal

Institute of Geosciences, Vilnius University, Vilnius, Lithuania

Department of Biology and Geology, Physics and Inorganic Chemistry, Rey Juan Carlos University, Móstoles, Spain

Duration

01/02/2025 - 31/01/2028

Total grant

Approx. 1,4 mil. €

More information

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TRANSFORm – Back to the future: Traditional agroforestry systems as NbS to face multiple societal challenges

Context

Over centuries, farmers have developed a keen knowledge about the practices and agricultural systems that best suit local characteristics and biogeographic conditions. These systems traditionally combined agricultural and forestry technologies to create more diverse and adapted agroforestry systems, providing food, fuel, and fibre to communities before the advent of modern nutrient and energy inputs. They can also sustain high levels of biodiversity, provide benefits such as carbon sequestration or soil enrichment, and support rural cultural heritage, societal, and aesthetic values. Therefore, traditional agroforestry systems (TAS) contribute in multiple and complementary ways to the well-being of local people and play a key role in their cultural identity at local and broader levels: national and often global (world cultural heritage). As a result of this contribution, TAS can gain modern relevance as a NbS to deal with societal challenges such as the biodiversity crisis, climate change, and sustainable food production.

Main objectives

TRANSFORm aims to harness the potential of TAS as NbS to jointly address important social, economic, and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, climate resilience, and biodiversity benefits. TRANSFOrm will explore the transformative potential of agroforestry in the Euro-Mediterranean region by developing and implementing a transdisciplinary research programme that contributes robust evidence on the potential of TAS as a NbS that can be used to tackle interconnected challenges that include biodiversity conservation, provisioning of ecosystem services, and human well-being. TRANSFORm will address the following three main objectives:

1. identify the cultural, biological, and ecosystem service values of TAS;
2. testing the multiple values of TAS;
3. explore the opportunities and challenges for scaling TAS as NbS.

Main activities

To achieve these objectives, TRANSFORm takes multiple disciplinary, interdisciplinary, and non-disciplinary perspectives to create holistic understandings of the social, economic, and environmental components of TAS at multiple scales. TRANSFORm focuses on three types of activities:

1. measure biodiversity and ecosystem functions across Euro-Mediterranean TAS using a replicated multi-scale design across six regional case studies;
2. evaluate natural capital and ecosystem services in TAS for farm and landscape decision-making combining a spatially-explicit approach with a cost-benefit analysis;
3. identify the opportunities and challenges of scaling TAS as NbS with an active engagement of local stakeholders to promote co-created vision(s) and suggested pathways.

UrbanBEE – Promoting Biodiversity, Ecosystem Services and Societal Engagement Across Diverse Urban Ecosystems

Context

While urban development offers critical socio-economic opportunities, it also leads to environmental degradation, biodiversity loss and social inequalities. These issues manifest differently based on region-specific ecological, social and economic contexts, particularly across the Global North and South. UrbanBEE is an innovative solution within this global urban complexity, employing NbS to not only revitalise biodiversity but also transform urban residents into custodians of their environment - one patch of nature at a time.

Urban ecosystems worldwide are experiencing a concerning decline in pollinator populations. Addressing this requires robust research on actionable interventions that are adaptable across diverse contexts and ensure impactful and region-sensitive outcomes. UrbanBEE responds to this challenge through the introduction of solitary bee hotels (living labs) across seven cities in both the Global North and South. Blending urban biodiversity research with citizen science, the project promises a nuanced understanding of biodiversity dynamics across urban landscapes by intertwining scientific inquiry with grassroots community involvement. In so doing, UrbanBee targets two pivotal knowledge gaps in NbS implementation: scalability of NbS across diverse contexts and the integration of varied stakeholder perspectives into NbS decision-making. UrbanBEE champions local interventions that are globally relevant and promotes transformative change through innovative decentralised solutions that enhance both biodiversity and human well-being.

Main objectives

1. To generate comprehensive insights into biodiversity dynamics within urban settings, forming the basis for informed, adaptable NbS strategies across different urban environments;
2. To implement and scale decentralised biodiversity interventions – solitary bee hotels, across varied socio-ecological gradients in African and European cities, thereby promoting pollinator populations and providing insight into urban biodiversity dynamics;
3. To transform urban dwellers into active environmental custodians by engaging them in the monitoring of these bee hotels, thereby improving ecological literacy and promoting an appreciation of the societal value of biodiversity.

Main activities

1. To undertake extensive research on urban biodiversity dynamics, illuminating synergies between urban biodiversity and human well-being, with the goal of shaping future NbS implementation and urban planning policies;
2. To distribute 1,400 bee hotels across multiple cities in Africa and Europe, fostering robust urban pollination networks and emphasising the critical role of pollinators in sustaining urban ecosystems;
3. To encourage urban residents from diverse socio-economic backgrounds to host, monitor, and collect biodiversity data, cultivating a sense of custodianship amongst participants.

Hundreds of bee hotels looking for new homes! Experience the joy and wonder of your very own Bee 'n Bee.

Partners of the project

School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa

Department of Biodiversity and Conservation Biology, University of the Western Cape, Cape Town, South Africa

Konrad Lorenz Research Center, University of Vienna, Vienna, Austria

Austrian Agency for Health and Food Security, Vienna, Austria

Department of Life Sciences and Systems Biology, University of Turin, Turin, Italy

Lendület Landscape and Conservation Biology, HUN-REN Centre for Ecological Research, Vácrátót, Hungary

Department of Architecture and Urban Studies, Polytechnic University of Milan, Milan, Italy

Lund Vision Grout, Lund University, Lund, Sweden

Duration

01/03/2025 - 28/02/2028

Total grant

Approx. 900 thsd. €

More information

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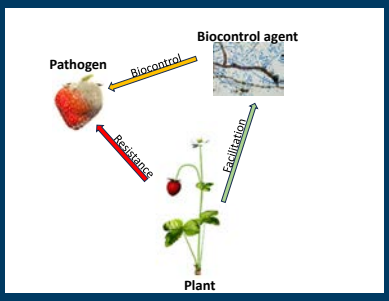

Conceptual illustration of the ecological interactions that need optimization in order to obtain maximal synergies (and thereby maximal disease suppression) between plant resistance and biological control.

WildCrop - Optimal rewilding of crop-bodyguard interactions facilitating the green transformation of agriculture

Context

The use of chemical pesticides in agriculture comes at the price of significant biodiversity losses and human wellbeing: (1) Plant breeding for increased resistance and (2) biocontrol using beneficial microorganisms are two main alternative methods to combat pests and pathogens, but these methods have not yet been simultaneously optimised for maximal synergy.

Main objectives

This project will establish a new framework for mapping wild resources for plant resistance and biocontrol in natural populations across Europe and subsequently harnessing and combining these resources for maximal synergies to reduce pesticide dependence and thus mitigate biodiversity loss. Wild strawberry (*Fragaria vesca*) and its "microbial bodyguard" Aureobasidium pullulans will be used as model system.

Main activities

Wild strawberry plants sampled from >200 populations across Europe will be screened for their resistance against grey mould disease and the plant metabolites involved in resistance will be identified. Similarly, A. pullulans strains isolated from all these plants will be screened for their biocontrol potential and the metabolites involved in biocontrol will be identified. Bioclimatic analyses will then be performed to predict geographic locations where evolutionary hotspots for highest resistance and biocontrol potential can be mined. Following in vitro and lab screening, living labs will be established in Italy and Sweden where potential synergies and trade-offs between resistance and biocontrol will be studied in the field. These living labs will be used to facilitate interactions between scientists, farmers, plant breeders, and biocontrol companies. Two workshops with plant breeders and biocontrol companies will be held.

We expect the project to contribute to the development of more resistant strawberry cultivars and more efficient biocontrol products. We further expect the project to contribute to the development of the new concept of "breeding for biocontrol" and established collaboration between plant breeders and biocontrol companies. Such developments will provide significantly improved crop protection, and thus less dependence on chemical pesticides, thus mitigating biodiversity losses and adverse effects on human wellbeing.

Partners of the project

Department of Plant Protection Biology, Swedish University of Agricultural Sciences, Alnarp, Sweden

Department of Agriculture, Food, Environmental and Animal Sciences, University of Udine, Udine, Italy

Department of Biochemistry and Molecular Biology, University of Málaga, Málaga, Spain

Duration

01/04/2025 - 31/03/2028

Total grant

Approx. 880 thsd. €

More information

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Wilding Grasslands - Wilding as nature-based opportunity for grassy ecosystems under diverse land tenure systems

Context

Grassy ecosystems cover ~40% of land on Earth, and 50% of southern hemisphere land. The role of grassy ecosystems in NbS may be significant because of their underestimated biodiversity, large and resilient carbon stores, and importance for hydrological cycles and people's livelihoods. However, they are among the least protected ecosystems globally and severely threatened by land use change incl. afforestation, mining, and conversion to agricultural land. Despite their many values and huge extent, <10% of studies on NbS focus on grasslands and the majority of those are on temperate, northern hemisphere systems. Focused on African grasslands, our program will develop and evaluate wilding as an NbS for grassy ecosystems, i.e. the restoration of natural processes and biodiversity to improve ecosystem functioning. Wilding potentially enhances climate change mitigation, while improving biodiversity, water availability and livelihood functions. We will develop wilding as NbS in an inclusive and just way, building on needs, visions and knowledge of the people living in these landscapes. Specifically, we aim to evaluate (1) how wilding creates synergies and trade-offs between biodiversity, climate, water and livelihoods under diverse biophysical and socio-economic conditions, (2) how wilding interventions mitigate drivers of biodiversity change and (3) how to develop wilding-based NbS via co-creation processes with local communities and stakeholders to promote just transformation.

Main objectives

We have the following main objectives:

1. Mapping, scoping and gap analysis of existing wilding efforts and gradients in the case study area.
2. Co-create scenarios for wilding as a NbS and pathways to these scenarios, integrating indigenous and scientific knowledge and analysing trade-offs and synergies between biodiversity, water, climate change mitigation and livelihoods;
3. Measure biodiversity, water, climate change mitigation and livelihood values along existing wilding gradients and land tenure systems through indigenous knowledge approaches;
4. Measure biodiversity, water, climate change mitigation and livelihood values along existing wilding gradients and land tenure systems through scientific knowledge approaches and participatory monitoring;
5. Enable knowledge utilisation to generate impact locally and upscale our African-centred NbS and living lab work via local and transnational learning exchanges, training and policy documents.

Main activities

In an inter- and transdisciplinary approach, we mix methods from humanities, social and natural science, and co-create knowledge and scenarios in teams of researchers, non-academic partners and local community members. We will focus on a 5 000 km2 living lab in the Eastern Cape, South Africa, with strong environmental and socio-economic contrasts. We build on existing wilding interventions in the landscape that our key NGO partners have developed and implemented with local communities for over a decade. From this, we will develop specific guidelines and blueprints for wilding as an NbS in grassy ecosystems that creates co-benefits for biodiversity, water, livelihood and climate. Ultimately, we expect to generate impact locally and transnationally by upscaling our African-centred NbS and living lab work via local and transnational learning exchanges and guidelines. This will not only broaden the portfolio of NbS for grassy ecosystems on the African continent but also inspire innovative NbS approaches elsewhereARCTIC FOX EUROPE will demonstrate how state-of-the-art metapopulation models can generate knowledge about climate change impact on biodiversity in fragmented ecosystems, and support the development of transnational protection strategies.

Impressions of the Wilding Grasslands' study area in the Eastern Cape of South Africa, illustrating the types of human livelihood, biodiversity and water values our program will look at across diverse land tenure systems from communally-owned grazing areas to livestock farming on private land and state-owned protected areas (©Nicky McLeod / ERS).

Partners of the project

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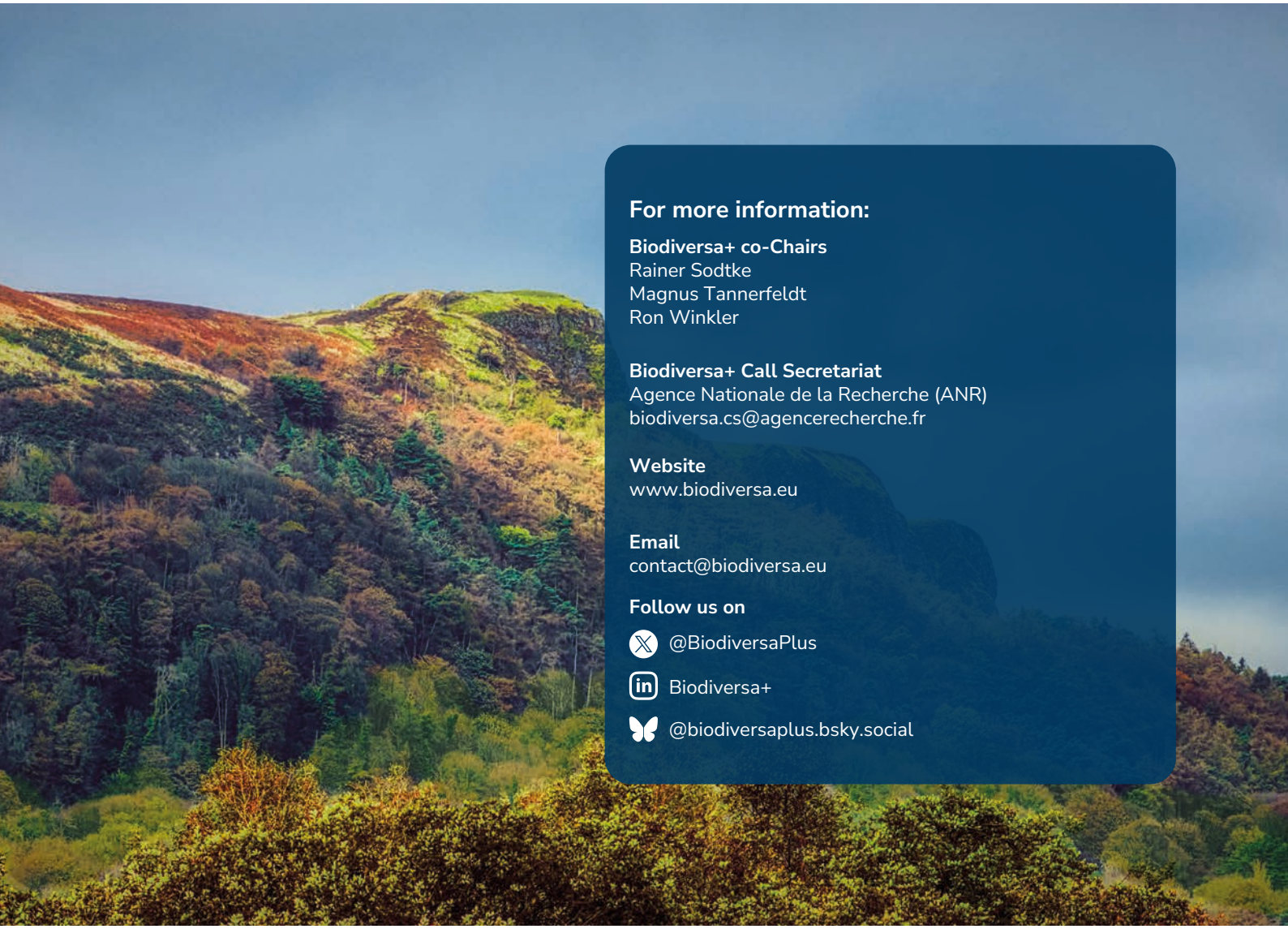

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