biodiversa+
European Biodiversity Partnership

EUROPEAN
PARTNERSHIP

Overview of BiodivProtect call results

Supporting the protection of biodiversity and ecosystems across land and sea.

Co-funded by
the European Union

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 over 70 research programmers and funders and environmental policy actors from over 35 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 BiodivProtect partners

1. Austrian Science Fund, AUSTRIA
2. Belgian Science Policy Office, BELGIUM
3. The Fund for Scientific Research - Wallonia, BELGIUM
4. The Research Foundation - Flanders, BELGIUM
5. National Science Fund Bulgaria, BULGARIA
6. Brazilian National Council of State Funding Agencies, BRAZIL
7. Brazilian National Council for Scientific and Technological Development, BRAZIL
8. Technology Agency of the Czech Republic, CZECH REPUBLIC
9. Innovation Fund Denmark, DENMARK
10. Estonian Research Council, ESTONIA
11. Estonian Ministry of the Environment, ESTONIA
12. Estonian Ministry of Rural Affairs, ESTONIA
13. The Academy of Finland, FINLAND
14. Ministry of the Environment, FINLAND
15. French National Research Agency, FRANCE
16. VDI/VDE Innovation + Technik GmbH, GERMANY
17. German Research Foundation e.V., GERMANY
18. General Secretariat for Research and Innovation, GREECE
19. National Research, Development and Innovation Office, HUNGARY
20. Icelandic Centre for Research, ICELAND
21. Environmental Protection Agency of Ireland, IRELAND
22. Ministry of Environmental Protection, ISRAEL
23. Ministry of Universities and Research, ITALY
24. Autonomous Province of Bolzano/Bozen, ITALY
25. Latvian Council of Science, LATVIA
26. Research Council of Lithuania, LITHUANIA
27. National Agency for Research and Development, MOLDOVA
28. Ministry of National Education, Vocational Training, Higher Education and Scientific Research, MOROCCO
29. Dutch Research Council, NETHERLANDS
30. Research Council of Norway, NORWAY
31. National Science Centre, POLAND
32. Portuguese National Funding Agency for Science, Research and Technology, PORTUGAL
33. Regional Fund for Science and Technology, Azores, PORTUGAL
34. The Executive Agency for Higher Education, Research, Development and Innovation Funding, ROMANIA
35. The Slovak Academy of Sciences, SLOVAKIA
36. Ministry of Education, Science and Sport, SLOVENIA
37. Department of Science and Technology, SOUTH AFRICA
38. Foundation Biodiversity, SPAIN
39. The Spanish State Research Agency, SPAIN
40. Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, SWEDEN
41. Swiss National Science Foundation, SWITZERLAND
42. Ministry of Science and Technology, TAIWAN
43. Ministry of Higher Education and Scientific Research, TUNISIA
44. Ministry of Agriculture and Forestry, TURKEY
45. The Scientific and Technological Research Institution of Turkey, TURKEY

Contents

Introduction

Biodiversity continues to be eroded, inland waters and marine habitats in particular remain poorly protected and conservation outcomes are generally not sufficient to halt biodiversity loss

Assessments of the status of the world's biodiversity hold alarming news: one million species are threatened with extinction (IPBES, 2019), and our planet has seen an average 68% drop in mammal, bird, reptile and amphibian populations since 1970 (WWF, 2020). Also in Europe, the picture is bleak overall. Despite the fact that the Natura 2000 network of protected areas and protected areas designated under national legislation are expanding, biodiversity continues to be eroded, inland waters and marine habitats in particular remain poorly protected and conservation outcomes are generally not sufficient to halt biodiversity loss (EEA, 2020). The costs of land and seafloor conversion, habitat fragmentation, and overexploitation of wild species can be huge (IPBES, 2022a); and land-use induced spill-over events of zoonotic pathogens have recently received more attention in the context of the Covid-19 pandemic (Reaser et al., 2020). Protecting as well as restoring biodiversity and well-functioning ecosystems are key to boost resilience of our society to future threats. Nature is also a vital ally in the fight against anthropogenic climate change and other global challenges, such as food security, health and peace (UNEP, 2021); and has a value in its own right, as underlined by the recent IPBES values assessment (2022).

Protecting as well as restoring biodiversity and well-functioning ecosystems are key to boost resilience of our society to future threats.

With its EU Biodiversity Strategy for 2030 (European Commission, 2020), Europe aims to reverse biodiversity loss and degradation of ecosystems by 2030. The Strategy commits the EU to protect at least 30% of land and 30% of sea, to strictly protect 10% of land and 10% of sea, and to establish a truly coherent Trans-European Nature Network. It also requests Member States to ensure no deterioration in conservation trends and status of all protected habitats and species by 2030, and that at least 30% of the species and habitats that are not currently in a favourable status, reach that status or show a strong positive trend. The EU is also raising the level of ambition and commitment worldwide, recognizing its increasing impact on biodiversity beyond its borders.

The EU Biodiversity Strategy for 2030 (European Commission, 2020), Europe aims to reverse biodiversity loss and degradation of ecosystems by 2030

Science-based support will be needed to guide prioritization efforts, help identify the most important areas and species-specific measures for biodiversity and ecosystem protection and restoration

These commitments align very well with the Kunming-Montreal Global Biodiversity Framework (GBF) adopted at the UN Biodiversity Conference in December 2022 in Montreal, Canada. In this ambitious framework, 196 countries agreed to concrete measures to halt and reverse biodiversity loss. The targets agreed for 2030 include putting 30% of the planet under protection, restoring 30% of degraded ecosystems on land and sea, and unlocking new finance streams for nature recovery. Rapid and consistent progress in implementing what countries have agreed on is a way to demonstrate the EU's determination and leadership. Science-based support will be needed to guide prioritization efforts, help identify the most important areas and species-specific measures for biodiversity and ecosystem protection and restoration, and to truly deliver on the new global goals and targets.

Having already identified such needs, the Biodiversa+ partners launched the 'BiodivProtect' call in October 2021 on "Supporting the protection of biodiversity and ecosystems across land and sea", co-funded by the European Commission under Horizon Europe. The relevance of this research topic was highlighted by the unprecedented number of eligible pre-proposals received: 209!

The call aimed at supporting 3-year transnational research projects advancing knowledge on area- and species-based conservation and preserving genetic diversity; benefits and costs of biodiversity and ecosystem protection; as well as effective management and equitable governance to deliver bold conservation outcomes. In the end, 36 research projects were selected for funding for a total amount of funding of over 44 million euros. Congratulations to the winning consortia for the excellent quality of their proposals and for their commitment to provide actionable knowledge for the Global Biodiversity Framework!

An unprecedented number of eligible pre-proposals received: 209

36 research projects were selected for funding for a total amount of funding of over 44 million euros

We would like to warmly thank the evaluation panel members as well as the external reviewers who ensured a high-quality evaluation process and a fair ranking of the pre- and full proposals. We would also like to express our gratitude to the different ministries and funding agencies that participated in the call. Their efforts and contributions allowed a smooth implementation of the call and funding of a high number of top-ranked proposals.

Just as we were preparing the joint kick-off meeting of the selected projects, we were deeply saddened by the sudden passing away of Kathy MacKinnon, the Chair of the evaluation panel and a renowned conservationist who made an incredible contribution to conservation within and beyond protected areas around the world. Her dedication to the evaluation process for the BiodivProtect Call was emblematic for her tireless fight for nature (see our tribute to Kathy in the box on page 8).

This brochure gives insight on the call process, from the call development to the selection of proposals and their follow-up. It gives an overview of the profile of the submitted proposals and a short description of each of the 36 funded project that will now start their important work.

We wish you a pleasant reading!

Hilde Eggermont
Biodiversa+ Chair and Coordinator

Magnus Tannerfeldt
Biodiversa+ Vice Chair

Rainer Sodtke
Biodiversa+ Vice Chair

Bastian Bertzky
Policy Officer, DG Research and Innovation, European Commission

Jessika Giraldi
Policy Officer, DG Environment, European Commission

IN MEMORIAM

Dr. Kathy MacKinnon

Chair of the Evaluation Committee for the BiodivProtect Call

Kathy had a legendary career in conservation. She received her PhD in Zoology from Oxford University and spent ten years in Indonesia working on tropical ecology research and protected areas planning and management. She worked with many international and national conservation NGOs, as well as government agencies in developing countries. For 16 years, Kathy was the Lead Biodiversity Specialist at the World Bank where she found ways to include conservation outcomes in development investments. She is the author of over 100 scientific books and publications, including recent books that promote protected areas as proven and sustainable natural solutions, helping societies to cope with climate change.

Amongst her many other roles, she served as Chair of the IUCN World Commission on Protected Areas (WCPA) for two terms, and was a constant member of IUCN's delegations to the Convention on Biological Diversity and its Working Group implementing the Programme of Work on Protected Areas. She thus played a key role in the implementation of the far-reaching Aichi Target 11 on Protected Areas, and the negotiations towards the new 30x30 Target of the new Global Biodiversity Framework. She is leaving a great legacy, having shaped contemporary approaches for protected and conserved areas worldwide.

> “Kathy worked tirelessly, championing protected areas and OECMs as being critically important for biodiversity conservation. Nature has lost one of its greatest allies; we have a responsibility to honour her important legacy by continuing her work the best we can.”
>
> Madhu Rao
> Chair IUCN World Commission on Protected Areas

> “Kathy was a truly inspiring human who rallied for nature tirelessly. She was generous with her time and energy, trying to encourage conservation of nature and make the world a better place. This is a great personal loss for many of us who worked closely with her as well as to the broader conservation movement. It was a true honour having her as Chair of our evaluation panel for this call.”
>
> Hilde Eggermont
> Chair & Coordinator of Biodiversa+

Overview of the BiodivProtect Call

Summary of the BiodivProtect Call

The BiodivProtect call will contribute to advance knowledge for effective and integrative biodiversity management by enhancing the scientific underpinnings of biodiversity and ecosystem protection. It aims to support transnational research projects focusing on measures regarding protected areas (including nationally designated protected areas), integrated area-based conservation measures reconciling conservation and sustainable use of biodiversity and ecosystem services (including in landscapes and seascapes used to produce food and fiber), as well as measures contributing to effectively protecting species in the wild. The call covers all environments, i.e terrestrial, coastal, freshwater, marine and air.

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

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

Theme 1: Knowledge for identifying priority conservation areas, establishing effective and resilient ecological networks, enhancing species-based protection and preserving genetic diversity.

The objective of this theme was to help conservation efforts related to protected areas, ecological connectivity, and also nature-inclusive management practices in the wider landscape and seascape. This includes ensuring ecological representation of protected areas and networks, the long-term persistence of species and ecosystems in a changing landscape and climate, as well as enlarging the toolbox for protection of biodiversity at the levels of genetics, species, and ecosystems, to achieve efficient outcomes.

Theme 2: Multiple benefits and costs of biodiversity and ecosystem protection: synergies and trade-offs.

This theme addressed the reality that biodiversity and ecosystem protection can have positive and negative impacts on components of human well-being, by changing the availability of ecosystem services and affecting societal and economic development. Effectively managed protected areas can safeguard biodiversity and ecosystem integrity, while building societal resilience and benefits to wildlife and human health. However, protected and well connected nature areas can also come with societal costs, such as displacement of local communities, crop damage, spread of zoonotic diseases, or invasive alien species.

Theme 3: Effective management and equitable governance to deliver bold conservation outcomes.

This theme focused on research related to management approaches, providing knowledge to achieve sound governance and effective/adaptive management. The majority of the world's protected areas are managed by governments, but governance by indigenous and community groups, privately protected areas and mixed models are becoming increasingly recognised. Research under this theme can help to further develop inclusive and adaptive governance strategies, and to better understand conservation implications of anthropogenic degradation of nature.

Type of research funded

This call targeted 3-year transdisciplinary projects, involving partners 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, 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 and/or 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 multi-lateral environmental agreements were encouraged.

Call process

Biodiversity and ecosystems protection is a topic of vital importance and fully aligned with the Biodiversa+ Strategic Research Agenda. This is why Biodiversa+, together with the European Commission, decided to launch a flagship programme on this theme in October 2021, which included this ambitious BiodivProtect call for research proposals.

The content and procedures for the BiodivProtect joint call were defined by the 45 national and regional funding organisations from 34 countries who participated in the call. ANR, the French National Research Agency, with the help of NCN, the National Science Center in Poland, hosted the Call Secretariat and thus played a key role in the implementation and success of the call.

The call was launched on the 1st of October 2021 with a deadline to submit pre-proposals on the 30th of November 2021. Eligible pre-proposals were evaluated by an independent Evaluation Committee and the shortlisted pre-proposals were invited to submit full proposals by the 14th of April 2022. The eligible full proposals were evaluated by the independent Evaluation Committee as well as by external reviewers between April and early July 2022. 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 2022, allowing for a start of the funded projects between December 2022 and April 2023.

All the projects have a 3-year 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 the same between step 1 and 2.

Scientific experts

Kathy MacKinnon (Chair of the Evaluation Committee) – Former Chair, IUCN World Commission on Protected Areas (WCPA), UK;
Kofi Akamani, Southern Illinois University, Carbondale, USA
Susan Baker, Cardiff University, UK
Uta Berger, Technical University Dresden, GERMANY
Erika Berenguer, University of Oxford, UK
Luigi Boitani (step 1 only), Sapienza University of Rome, ITALY
Dan Brockington, University of Sheffield, UK
Lena Gustafsson, Swedish University of Agricultural Sciences, SWEDEN
Stephen Hawkins, University of Southampton, UK
Iryna Herzon, University of Helsinki, FINLAND
Marc Hockings, University of Queensland, AUSTRALIA
Valdo Kuusemets, Estonian University of Life Sciences, ESTONIA
Hefin Jones, Cardiff University, UK
Thomas Lacher, Texas A&M University, USA
Julia Leventon, Global Change Research Institute of the Czech Academy of Sciences, CzechGlobe, CZECH REPUBLIC
Ana Lillebø, University of Aveiro, PORTUGAL
Lina Mtwana Nordlund, Uppsala University, SWEDEN
Nova Mieszkowska, University of Liverpool, UK
Richard Nichols, Queen Mary University of London, UK
Piotr Nowicki, Jagellionian University, POLAND
Karen Richardson (step 1 only), University of Concordia/Parks Canada, CANADA
John Robinson, Wildlife Conservation Society, USA
Andrew Tanentzap, University of Cambridge, UK
Stephen Woodley, International Union for Conservation of Nature, World Commission on Protected Areas, Gland, CANADA

Policy/management experts

Judith Fisher (Vice-Chair of the Evaluation Committee) – Director Fisher Research Pty Ltd, IPBES Multidisciplinary Expert Panel 2018-2022, Associate Professor University of Western Australia and Curtin University Perth, AUSTRALIA
Gemma Boetekees, Forest Stewardship Council (FSC), NETHERLANDS
Karma Bouazza, Lebanon Reforestation Initiative (LRI), LEBANON
Peter Bridgewater, University of Canberra, AUSTRALIA
Claire Brown, UNEP-WCMC (UN Environment Programme World Conservation Monitoring Centre), UK
Sue Collins, Butterfly Conservation Europe, UK
Roberto Crosti, Institute for Environmental Protection and Research (ISPRA), ITALY
Charly Facheux Tchoufong, African Wildlife Foundation, KENYA
Adriana Ford, Imperial College London, UK
Simon Gardner, UKRI – NERC: Natural Environment Research Council, UK
Ana Maria Hernandez Salgar, Alexander von Humboldt Institute, COLOMBIA
Katia Hueso, Comillas Pontifical University / IPAISAL, SPAIN
Lawrence Jones-Walter, Wageningen University and Research Centre, NETHERLANDS
Manuel Lago, Ecologic Institute, SPAIN
Vinod Mathur, National Biodiversity Authority/IPBES, INDIA
Angela Morgado, Nature Portugal Association (ANP) - Contact WWF Portugal, PORTUGAL
Monipher Musasa, International Fund for Animal Welfare (IFAW), KENYA & UK
Valerie Nelson, Greenwich University, UK
Nicholas Ozor, African Technology Policy Studies Network, KENYA
Kent Redford (step 1 only), Archipelago Consulting, USA
Sunandan Tiwari, ICLEI - Local Governments for Sustainability, World Secretariat, INDIA & GERMANY
James Watson, The University of Queensland, AUSTRALIA
Alison Woodley, Canadian Protected and Wildlife Society Policy, CANADA

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) transnational added value.

- Criteria applied at step 2 (full proposal stage): (1) scientific excellence; (2) quality and efficiency of the implementation; (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 pre-defined threshold values were not ranked nor considered for funding.

For the first step, the Evaluation Committee meeting was organised online from the 8th to the 10th of February 2022; and for the second step, the Evaluation Committee meeting was held online from the 28th of June to the 30th of July 2022. During these meetings, the Evaluation Committee members had the opportunity to discuss about 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 funders 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 and extremely interesting to chair the Evaluation Committee of the BiodivProtect call for proposals on “Supporting the protection of biodiversity and ecosystems across land and sea”. The call was very timely given that 2022 was the year when nations were making important decisions regarding the more ambitious conservation targets for the post-2020 biodiversity agenda. We were impressed by the quality of the proposals and by the commitment, expertise, diversity and collegiality of the members of the scientific and policy evaluation committee for their reviews.

We are in the midst of a biodiversity crisis and halting, and reversing biodiversity loss is critical for human welfare and well-being as well as the health of the planet. As we write, Parties to the Convention on Biological Diversity (CBD) have just concluded the Kunming-Montreal agreement at COP15 in December 2022. This agreement lays out new and ambitious targets for halting and reversing biodiversity loss with 23 targets emphasising rights-based approaches to conservation, restoration and sustainable use of biodiversity. Reaching these targets will be essential not only to stop future species and habitat loss but also to help address climate change through protected areas and other nature-based solutions and enable countries to achieve the Sustainable Development Goals, especially food and water security and human health goals.

The call, aiming to support 3-year transnational research projects covered three critical themes:

- Knowledge for identifying priority conservation areas, establishing effective and resilient ecological networks, enhancing species-based protection and preserving genetic diversity
- Multiple benefits and costs of biodiversity and ecosystem protection: synergies and trade-offs
- Effective management and equitable governance to deliver bold conservation outcome

The scope of the call is particularly relevant to achievement and monitoring of several of the targets under the new Kunming-Montreal Global Biodiversity Framework adopted at COP15 and especially its target 3 which calls for protection of at least 30% of terrestrial, inland waters and marine ecosystems through effective and equitably governed systems of protected and other effective area-based conservation measures.

Some 209 eligible pre-proposals and 106 full proposals were received and diligently evaluated by members of the independent Evaluation Committee who ranked the projects according to both their scientific merits and policy and/or societal impact. Sadly, some pre-proposals that scored highly on scientific value did not adequately address policy and social issues and thus failed to reach the full proposal stage; a cautionary tale for future applicants who need to ensure that proposals fulfil both criteria.

Strictly following the ranking established by the independent Evaluation Committee, 36 research projects were funded by the Call Steering Committee – composed of all the funding organisations participating in the BiodivProtect call – for a total funding amount of over 44 Mio€ (including funding from the European Commission). This is the highest number of proposals ever funded in a Biodiversa+ Call. The funded projects address topics across all three non-exclusive themes and will contribute knowledge across diverse ecosystems: terrestrial ecosystems, inland waters and coastal and marine ecosystems. The selected proposals are both innovative and trans-disciplinary, and will require close working relationships internationally as well as between scientists and stakeholder communities. **The selected proposals will deliver scientific research relevant to policy makers at regional, national and international levels**. The research findings will also provide knowledge for future international assessments such as the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES) and contribute to monitoring progress towards delivering targets of the CBD Kunming-Montreal Global Biodiversity Framework.

Special thanks are due to the members of the Evaluation Committee for their diligence and commitment as well as their complementary scientific and policy skills. Agreeing to be an evaluator is no small task. Committee members gave generously of their time and expertise through the two rounds of review of pre-proposals and full proposals and also helped to identify external reviewers. The committee had international members from 18 countries across multiple time zones from western USA to Australia and meetings had to be held virtually due to the lingering impacts of the Covid 19 pandemic. In spite of these challenges, discussions and decisions were collegial and constructive to achieve consensus and the work of the committee was greatly facilitated by organisational support from the very efficient secretariat. This made chairing the scientific and policy sub-committees extremely easy and enjoyable. Our only regret is that we did not get the opportunity to meet in person with some of these dedicated colleagues.

Dr Kathy MacKinnon
Chair of the Evaluation Committee

Associate Professor Judith Fisher
Vice-Chair of the Evaluation Committee

On behalf of the Evaluation Committee, I would like to dedicate the findings of the funded projects to Dr Kathy MacKinnon a long term colleague and mentor who played a significant role not only in driving the needs of this research call, in leading the Scientific Evaluation Committee and as a leader in global Conservation Outcomes over decades as the Chair of the IUCN World Commission on Protected Areas (WCPA).

Analysis of the call results

Analysis of the call results

Overall figures of the call

	No. of proposals	No. of teams	Budget
Submitted pre-proposals	209	1,418	234.5 M€
Submitted proposals	106	792	128.6 M€
Selected proposals	36	272	44.1 M€

With a total of 209 eligible pre-proposals submitted and 1,418 participating teams, the BiodivProtect call attracted the highest number of proposals in a Biodiversa+ call, demonstrating the strong interest from the scientific community regarding the different topics and themes of the call.

Out of the 209 pre-proposals received, the Call Steering Committee decided to fund the 36 highest ranked proposals for a total amount of over 44 million euros, which represents a success rate of ca. 17,2%. This success rate was in line with the average success rate in Biodiversa+ calls.

Thanks to the high flexibility of several funding organisations who agreed to increase their budget, it was possible to fund the maximum number of top-ranked proposals. And to reach the highest number of proposals ever funded in a Biodiversa+ Call.

Geographical origin of the applicants

The large majority (96.6%) of the teams who submitted a pre-proposal were from the 34 funding organisations' countries participating in the funding of the call, i.e. Austria, Belgium, Brazil, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy (including the Autonomous Province of Bolzano/Bozen), Latvia, Lithuania, Moldova, Morocco, Netherlands, Norway, Poland, Portugal (including the Azores), Romania, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Tunisia and Turkey.

The remaining 3.4% came from European countries not participating in the call (1.8%), and in particular the United Kingdom (1.1%). The other 1.6% of the applicants came from non-European countries not participating in the Call, i.e. Canada (0.3%) the United States of America (0.2%), Algeria, Cape Verde, Chile, China, Congo, Ecuador, Gabon, Guinea, Indonesia, Kenya, Nepal, Peru, Sao Tome and Principe and Uruguay.

Teams from countries not participating in the Call applied as sub-contracted or self-funded Partners.

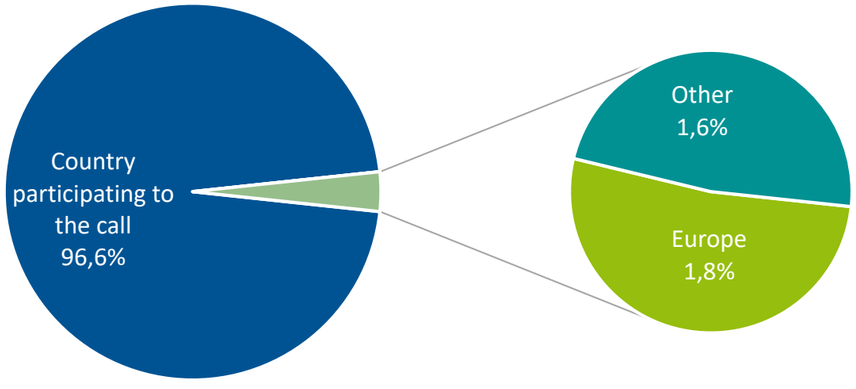


Fig. 1: Geographical origin of the applicants participating in the BiodivProtect call.

Reserved and requested budgets

The reserved budgets for the participating countries were published during the announcement of the call and funding organisations could define funding cap per project, which might have influenced the budget requests made by applicants. The highest values of both reserved and requested budgets were observed for Germany, Norway, Sweden, Italy, France, Spain and Belgium.

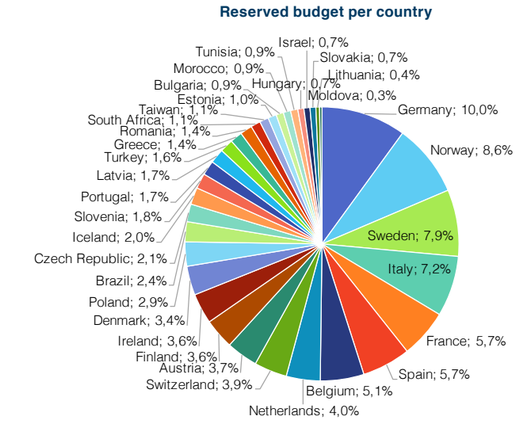


Fig. 2: Distribution of the reserved budget among participating countries.

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 community.

Ultimately, the 36 top ranked projects could be funded, strictly following the ranking list established by the Evaluation Committee.

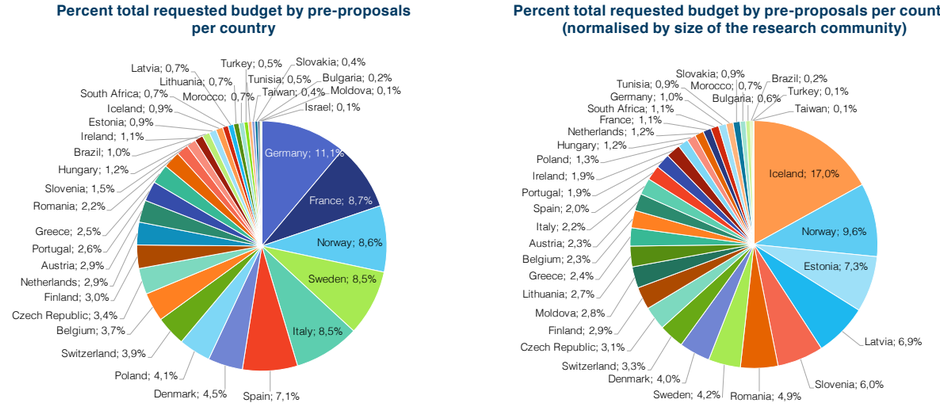


Fig. 3: Distribution of the total budget in absolute values (left) and values normalised according to the size of the national research community (i.e., full time equivalent researchers per million habitants multiplied by million habitants in the country) (right) requested to participating countries by the applicants in the submitted pre-proposals. Note that depending on the countries, the requested budget may, or may not, include salaries for permanent positions. The sizes of the national research community were extracted from The World Bank Data except for Taiwan for which values came from the Organisation for Economic Co-operation and Development (OECD) and Israel for which we couldn't find this data (Israel is therefore not presented on the right graph). Most recent values reported for each country were used, so it varies between countries.

Despite a relatively low participation in terms of requested budget (Fig. 3), the scientific communities of some countries such as Iceland or to a lesser extent Estonia, Latvia, Moldova, Romania and Slovenia seem to have responded well to this call once the budget requests are normalised according to the estimated number of researchers from all scientific areas in each country. 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 BiodivProtect call came from 28 different countries (Fig. 4). 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. 4). For example, the total awarded budget for Estonia, Iceland and Slovenia compared to other countries is much higher when accounting for the size of the national research community than when looking at absolute values.

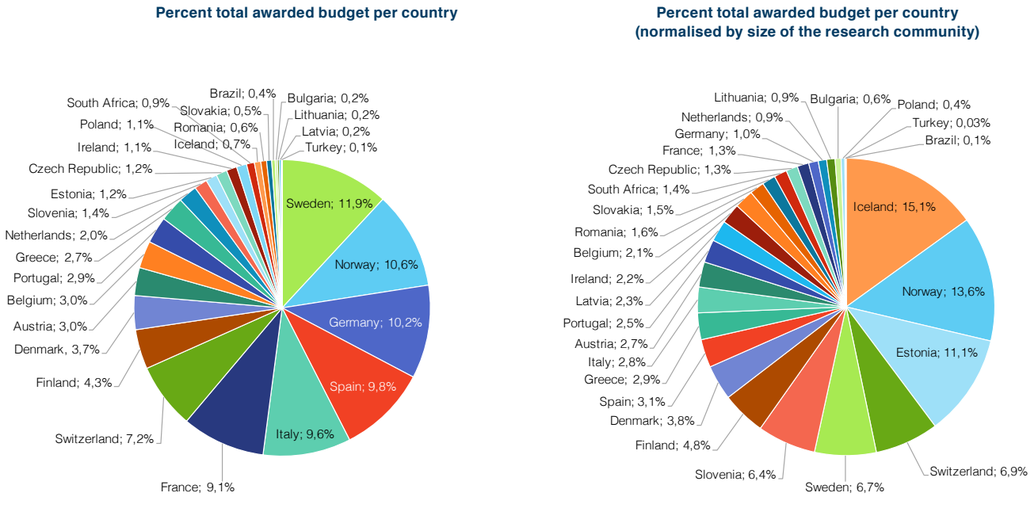


Fig. 4: Distribution of awarded budget to the successful applicants in absolute values (left) and values normalised according to the size of the national research community (i.e., full time equivalent researchers per million habitants multiplied by million habitants in the country) (right) among participating. Note that depending on the countries, the requested budget may, or may not, include salaries for permanent positions. The sizes of the national research community were extracted from The World Bank Data except for Taiwan for which values came from the Organisation for Economic Co-operation and Development (OECD) and Israel for which we couldn't find this data (Israel is therefore not presented on the right graph). Most recent values reported for each country were used, so it varies between countries.

Success rate per country

The research teams from Austria, Estonia, Italy, South Africa, Spain, and Switzerland 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 the participation of Hungary, Israel, Moldova, Morocco, Taiwan and Tunisia to the call, none of the 36 funded projects involved a research team from these countries, likely due to the low number of submitted proposals including teams from these countries. The research teams from Moldova for example were no longer involved at the second step of the evaluation process.

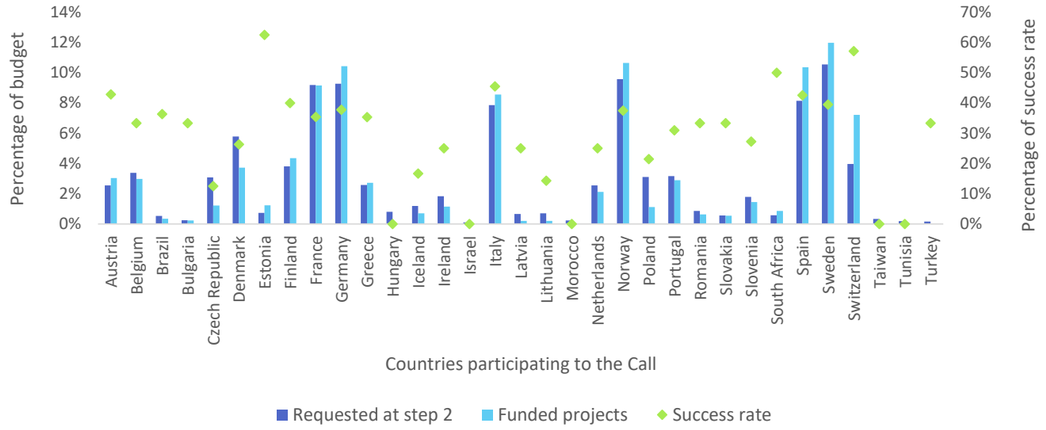


Fig. 5: Comparison of the percentage of budgets in the proposals between countries at the submission phase (dark blue bars) and after selection (clear blue bars), along with the financial success rate (diamonds).

Project coordinators

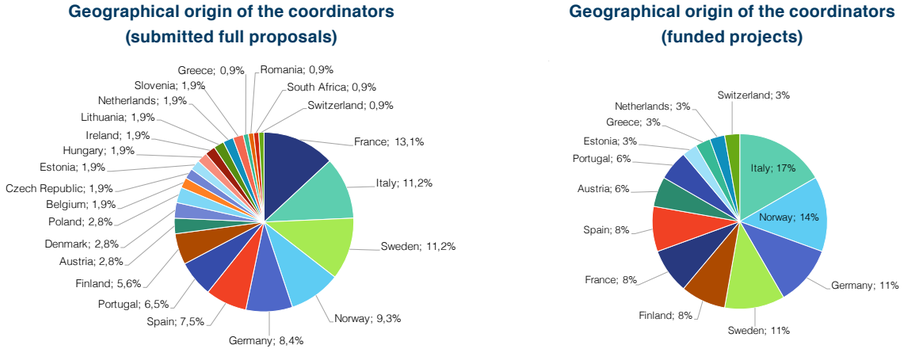


Fig. 6: Geographical origin of the coordinators in the submitted full-proposals (left) and funded projects (right).

At the full proposal stage, the project coordinators represented 23 countries participating in the call (Fig. 6), whereas the coordinators of the pre-proposals represented 30 countries participating in the call (out of 34).

In the end of the process, the coordinators of the funded projects only come from 13 countries. 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 Italy, Norway, Germany and Sweden were particularly successful.

Call themes and sub-themes addressed by the proposals

The BiodivProtect Call covered three main themes: “Knowledge for identifying priority conservation areas, establishing effective and resilient ecological networks, enhancing species-based protection and preserving genetic diversity” (theme 1), “Multiple benefits and costs of biodiversity and ecosystem protection: synergies and trade-offs.” (theme 2), and “Effective management and equitable governance to deliver bold conservation outcomes” (theme 3). One project could address several themes.

During the submission phase, the project had to indicate to which theme(s) they applied.

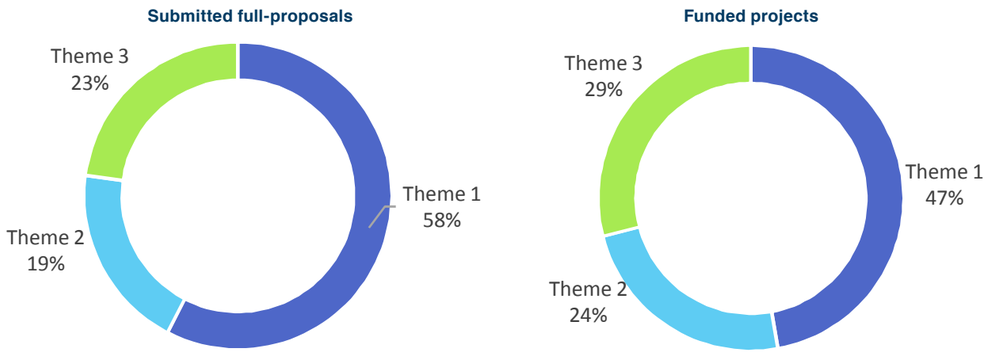


Fig. 7: Percentage of themes 1, 2 and 3 in the submitted full-proposals (left) and funded projects (right).

Overall, there was a higher interest for theme 1, although the proportion of funded projects addressing theme 1 is lower than the proportion of full proposals addressing this theme. Theme 2 and 3 were represented with a fairly similar proportion both in the full-proposals and funded projects (Fig 7).

Studied environments

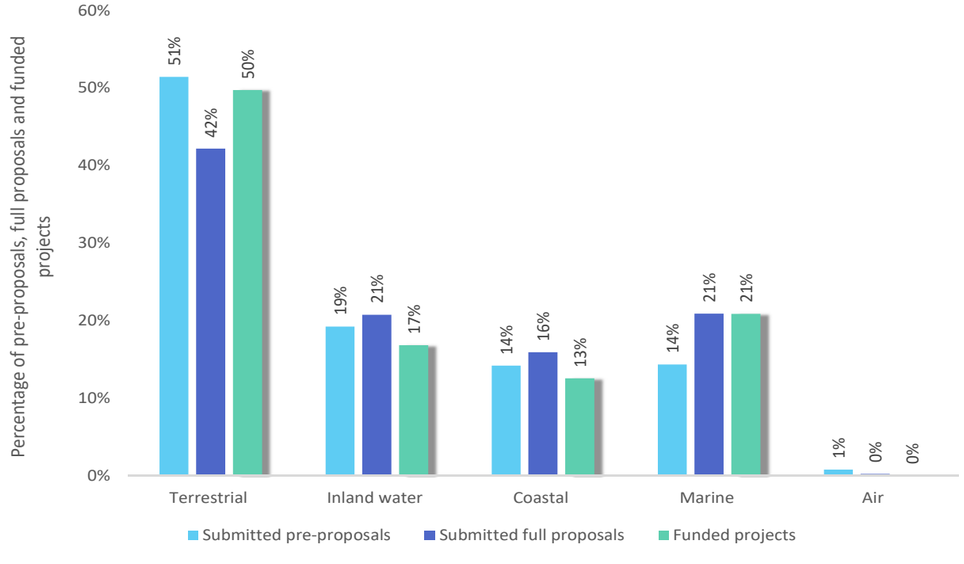


Fig. 8: Distribution of submitted pre-proposals, full-proposals and funded projects according to the studied environments. One proposal can address several environments.

The majority of submitted and funded proposals focused on terrestrial ecosystems (Fig. 8), whereas those focusing on inland water and marine/coastal 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.

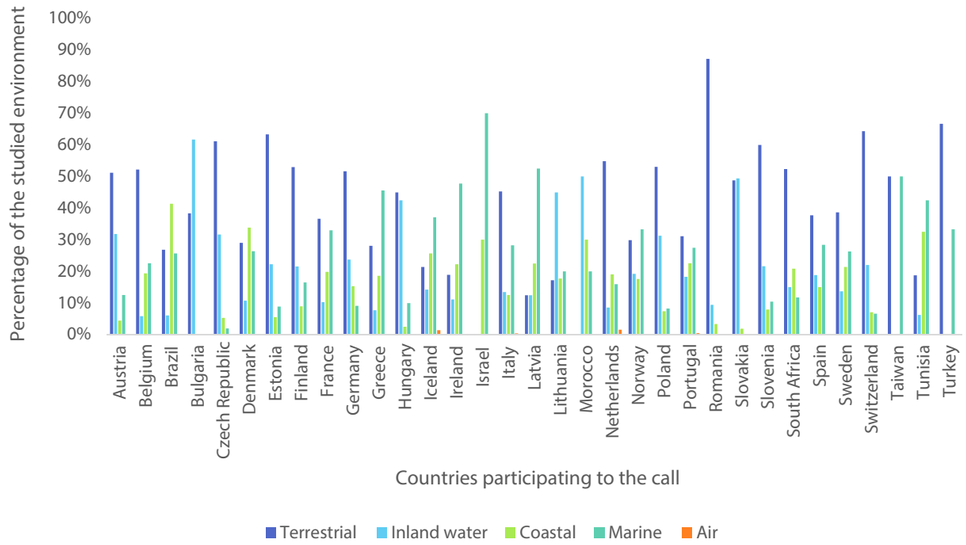


Fig. 9: Percentage of the studied environment in the submitted full-proposals by country.

Bulgaria had the highest portion of inland water-focused submitted full-proposals. Israel, Morocco and Taiwan were among the countries with the highest proportion of full-proposals focusing on marine environments and Brazil, Tunisia and Denmark with the highest proportion of full-proposals focusing on coastal environments (Fig 9).

These figures apply to the BiodivProtect call only and are not necessarily representative for the concerned countries outside the BiodivProtect call.

Conclusion

The analysis presented above provides a good insight into the implementation and results of the BiodivProtect Call. The following aspects were found useful for future calls:

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

- Unfortunately, some countries and regions participating in the call did not have any teams in the 36 proposals selected for funding. This was the case of Hungary, Israel, Moldova, Morocco, Taiwan and Tunisia. This situation can be largely explained by the fact that these teams were not well represented in the submitted pre-proposals, and subsequently full proposals. Biodiversa+ will continue its efforts to better mobilize less successful research communities to improve their participation and ultimately success rate in the calls.

- Thanks to the initial balance in the amounts of funding reserved by countries and to the flexibility of funding organisations to increase their budget when needed, and/or use the European Commission contribution as a common pot, BiodivProtect partners were able to fund the highest number of top ranked projects, strictly following the ranking list established by the independent Evaluation Committee. This allowed to maintain a decent success rate (18%) despite the very high competitiveness of this call (209 eligible pre-proposals received).

- Biodiversa+ will now implement a range of activities and a continuous dialogue with the funded projects to promote and enhance the outcomes and impact of the individual projects.

Presentation of the 36 funded projects

Alpine Meadows Close Up to the back-ground of the Grossglockner/Austria (bought by MIUN from Mostphotos, photographer: Maksym TOPCHII).

PARTNERS OF THE PROJECT

Department of Natural Science, Design and Sustainable Development, Mid Sweden University, Östersund, Sweden

Acopian Center for the Environment, American University of Armenia Foundation, Yerevan, Armenia

Department of Landscape, Spatial- and Infrastructure Sciences, Department of Economics and Social Sciences, University of Natural Resources and Life Sciences, Vienna, Austria

Department of Geosciences and Natural Resource Management, University of Copenhagen, Copenhagen, Denmark

Data and Analytics, DHI A/S, Hørsholm, Denmark

Institute of Social Sciences in Agriculture, Div. Societal Transition and Agriculture, University of Hohenheim, Stuttgart, Germany

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,5 mil. €

WEBSITE

https://www.miun.se/alpmema

MORE INFORMATION

Volker MAUERHOFER
volker.mauerhofer@miun.se

ALPMEMA - ALPine Mountain Hay MEadows MAnagement: Best practices to maintain their Favorable Conservation Status against underuse under different property right regimes inside and outside protected areas

CONTEXT

Mountain hay meadows constitute a habitat type protected under the EU Habitats Directive (Natura 2000 code 6520): They host a wide array of endangered plant- and animal species also protected under the EU-Habitats- as well as Birds Directives. The favorable conservation status of these meadows as well of those species inside and outside of formally protected areas ("Natura 2000 sites") is often threatened by farmland abandonment or reduced human activities ("underuse"). The shortcoming of many policies addressing these threats might rest with the fact that compared to established governance practices that mainly focus on overexploitation, underuse is poorly addressed. There is an ongoing negative qualitative and quantitative conservation trend for mountain hay meadows. There is also a current formal infringement procedure at EU-level alleging that Germany takes insufficient conservation action on behalf of such meadows. Both indicate the socio-political urgency to maintain the remaining sites of such meadows with existing favorable conservation status and also to learn from best management practices implemented there and elsewhere.

MAIN OBJECTIVES

The overall aims of ALPMEMA are:

- to identify best practices to maintain a favorable conservation status of mountain hay meadows despite the threat of underuse and
- to explain the influence of different ownership regimes as well as the location of such meadows inside of protected areas on these best practices.

MAIN ACTIVITIES

1. In a transnational meta-analysis in Armenia, Austria, Germany, and Sweden, countries, an interdisciplinary research team in close collaboration with local stakeholders will
   a. identify, based on established knowledge in case studies, current best practices related to the maintenance of favorable conservation status in mountain hay meadows,
   b. identify innovative management tools, actor coalitions and other new approaches that are suitable for the management of such meadows,
   c. explain the significance of different ownership regimes and the significance of whether the areas are located in- or outside formally protected areas,
   d. describe the condition linked to the use of these meadows through remote sensing and outline the main actual and potential spatial effects of underuse of such meadows using geographical information systems, and
   e. develop scenarios for the management of mountain hay meadows in 2030 and 2050 through playful approaches with different stakeholders.
2. The ambition of the ALPMEMA stakeholder engagement is (a) to develop societally robust knowledge, (b) to unlock different knowledge types and integrate the stakeholders' different 'forms of knowing' into genuinely new knowledge and (c) to ensure a holistic understanding of the problem and the co-creation of solutions/instruments that are ripe for implementation (e.g. considering possible barriers, acceptance) and can be transferred to different contexts. We will disseminate insights via scientific- and public networks. Methods and results will be published in open-access peer-reviewed journals and there will be extensive outreach and communication activities to different audiences.
3. ALPMEMA is designed to inform policy making, but also management decisions at local level of implementation. This is particularly valid for situations when the favorable conservation status is threatened or lost or needs to be reached for the very first time.

ARCTIC FOX EUROPE: Identifying effective management strategies for enhancing transnational metapopulation protection of the Arctic Fox in Europe

CONTEXT

Within the European Union, the Fennoscandian Arctic-alpine tundra is the biome exposed to the fastest climate change - causing a severe threat to tundra biodiversity through fragmentation, changes in the trophic dynamics and invasion of boreal species. Furthermore, human activities and land use increasingly impact the tundra in Fennoscandia. Many tundra species therefore occur in a fragmented distribution across habitat patches (metapopulation structure), rendering them more vulnerable with an elevated extinction risk. To maintain contact between habitat fragments, dispersal is a key process for securing viable populations for the future.

The Arctic fox is classified as a climate change flagship species by the IUCN and is a priority species according to the EC Habitat Directive. The Fennoscandian Arctic fox was on the verge of extinction around the year 2000, with only 50 adult individuals remaining in a highly fragmented distribution. In response to efficient conservation actions, the population has however recovered to ca 500 individuals.

MAIN OBJECTIVES

ARCTIC FOX EUROPE aims to develop a transnational management strategy that will maximize the likelihood of long-term persistence of the Arctic fox in Europe. Specifically, a broad set of management actions will be evaluated using a spatial metapopulation model, to explore the outcome of alternative management plans under different scenarios of climate change and human impact (climate change, land use, species management). In detail, we will explore i) how the Fennoscandian Arctic fox metapopulation is expected to be impacted by future climate change with specific emphasis on prey abundance (lemmings), metapopulation processes, boreal invasion (red fox), as well as loss of tundra habitat and lack of connectivity, and ii) the most efficient transnational management strategies under scenarios of change.

MAIN ACTIVITIES

ARCTIC FOX EUROPE will develop a metapopulation model to identify priority areas and management actions that increase viability of the Arctic fox metapopulation under scenarios of climate change and other human pressures. The model will be informed with data including Arctic fox population dynamics (demography, dispersal and genetics), trophic dynamics, and conservation actions over the last two decades in Fennoscandia. GIS projections will be used to forecast how the spatial structure of the tundra will change under future climate change.

Management agencies and stakeholders in Norway, Sweden and Finland will be involved in

ARCTIC FOX EUROPE to develop a Management Strategy Evaluation (MSE) framework. The metapopulation model will be used to explore outcomes of alternative management plans under different future scenarios, comparing costs and benefits, identifying trade-offs and synergies, and analyzing decision outcomes.

ARCTIC 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.

Arctic fox, a character species of the Fennoscandian tundra biome, here breeding at 1507 m.a.s.l. at Finse in Norway.

PARTNERS OF THE PROJECT

Department of Terrestrial Ecology, Norwegian Institute for Nature Research, Trondheim, Norway

Unit of Natural Resources - Wildlife Ecology Group, Natural Resources Institute Finland, Helsinki, Finland

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

Department of Zoology, Stockholm University, Stockholm, Sweden

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 900 thsd. €

WEBSITE

www.nina.no/arcticfoxeurope

MORE INFORMATION

Nina E. EIDE, Senior researcher
nina.eide@nina.no

Nordhordland Biosphere Reserve, a territory which aims to combine sustainable resource use and economic development with biodiversity conservation.

PARTNERS OF THE PROJECT

Sustainable Heritage and Environmental Management, Ecological and Environmental Change Research Group, University of Bergen, Bergen, Norway

School of Environment and Sustainability, University of Saskatchewan, Saskatoon, Canada

Laboratory of Biogeography and Sustainable Territorial Systems, Pontifical Catholic University of Chile, Valparaíso, Chile

MAB France, Castanet Tolosan, France

Division of Ecological and Earth Sciences UNESCO, Man and the Biosphere Programme Secretariat UNESCO, Paris, France

Centre for Functional Ecology/ Department of Life Sciences Calçada Martim de Freitas, University of Coimbra, Coimbra, Portugal

Global Change Institute, University of the Witwatersrand, Johannesburg, Republic of South Africa

Faculty of Science, Engineering and Agriculture: Department of Geography and Environmental Sciences, University of Venda, Thohoyandou, Republic of South Africa

Stockholm Resilience Centre, Stockholm University, Stockholm, Sweden

DURATION

01/04/2023 – 30/03/2026

TOTAL GRANT

approx. 1 mil. €

WEBSITE

www.uib.no/en/unesco-chair/141061/BiodiversaBecome

MORE INFORMATION

Alicia Donnellan Barraclough
alicia.barraclough@uib.no

BECOME - Biospheres as Effective Conservation Measures

CONTEXT

The era of the Anthropocene is characterized by multiple interconnected crises which threaten the integrity of the biosphere and humanity's capacity to meet our basic needs. Diverse and pluralistic approaches to conservation, which go beyond Protected Areas and combine various land-uses and sustainable resource-use, are essential to bending the curve of biodiversity loss, as well as preserving the rich interconnections between nature and human wellbeing. There is an urgent need to understand and monitor effectiveness for biodiversity conservation of these types of approaches, and their contributions to local, regional, and national commitments to reversing biodiversity decline. This will allow us to maximise opportunities available to conservation in the long run whilst ensuring equitable approaches that enhance wellbeing amongst inhabitants and stewards of areas of biodiversity importance.

MAIN OBJECTIVES

BECOME will use UNESCO Biosphere Reserves (BRs) as model systems to understand how to manage synergies and trade-offs between conservation objectives and human development through pluralistic and inclusive landscape-scale approaches to conservation. BECOME will combine diverse methodologies from natural and social science to evaluate effectiveness of BR management, harnessing existing data, including long-term governance and biodiversity data, to analyze BR effectiveness across temporal and spatial scales. BECOME will also work with local BR stakeholders and rights holders to capture and develop context-dependent but generalizable metrics which are adapted to BR objectives, facilitate the collaborative adaptive management learning feedback loop, and reflect synergies between conservation and development objectives.

MAIN ACTIVITIES

BECOME takes an explicitly inter- and trans- disciplinary approach, where we engage scientists, researchers, stakeholders, and rights holders at various stages of the knowledge co-production process. In addition to producing high quality research, we will implement activities, such as workshops and exchange events, which encourage learning between all partners. During the project we will:

- Analyze long-term legacy datasets on management effectiveness and land-use change in Biosphere Reserves globally.
- Document case studies of diverse approaches to Biosphere Reserve management in order to develop participatory monitoring frameworks for tracking effectiveness across different objectives.
- Use futures visioning methods to generate shared visions and learning opportunities among BR stakeholders/rightsholders, generating new indicators for monitoring future BR changes.
- Collaborate with partners across Biosphere Reserves and regional, national and intergovernmental authorities to enhance implementation of the post-2020 Convention on Biological Diversity Targets in Biosphere Reserve territories.

BIO-JUST - BIOdiversity and ecosystem protection driven by Environmental JUSTice

CONTEXT

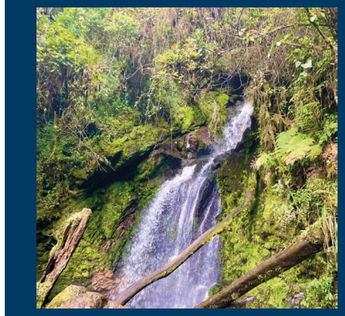
Nature-based Solutions (NbS) have gained a reputation as win-win solutions, capable of achieving societal as well as environmental benefits simultaneously. Therefore, they are increasingly included in the design and implementation of water-secure, resilient cities in the context of growing urbanization, biodiversity loss, and accelerated climate change. However, the effectiveness of NbS in delivering ecosystem services related to water provisioning and in promoting biodiversity conservation in a manner that is socially just remains contested. Critics have shown that NbS can, instead, generate adverse effects by creating or exacerbating existing social inequalities. These negative impacts can limit the societal acceptance of NbS and affect their implementation, long-term sustainability, and upscaling potential. To understand under which conditions NbS can fulfil their promise to promote environmental and social-economic outcomes simultaneously, it is essential to know how (in)justices are created in the design, implementation, and evaluation phases of NbS. Doing so requires a calculation of net benefits, an assessment of how social-economic and social-environmental benefits and costs are allocated across social groups, how decisions on NbS are made and by whom, and how these factors influence environmental conflicts.

MAIN OBJECTIVES

Therefore, BIO-JUST investigates NbS for watershed provisioning ecosystem services from an environmental justice point of view, looking at the dimensions of distribution, participation and recognition. It does so in seven different case studies in Europe (France, Portugal, Spain and The Netherlands) and South America (Brazil, Colombia and Ecuador) to allow for comparisons across cases and to promote mutual learning. BIO-JUST draws on multiple disciplines and approaches (i.e., environmental justice, political ecology, environmental anthropology, critical institutional analysis, and ecological economics) to identify under which conditions NbS generate or reinforce inequalities and conflicts, and under which they promote socially just outcomes while conserving biodiversity and supporting water security.

MAIN ACTIVITIES

BIO-JUST will assess the social-economic and social-environmental outcomes of NbS for watershed provisioning of ecosystem services, and identify trade-offs between them. It will assess the distribution of costs and benefits across societal groups, and look at the extent to which different stakeholders, forms of knowledge and worldviews, and use rights are included in decision-making, implementation, and evaluation processes for NbS. It will compare the different institutional frameworks and social and biophysical contexts to identify those that are conducive to NbS that are ecologically beneficial and socially just. To do so, the project will conduct a qualitative comparative analysis (QCA) and draw on approaches such as institutional analysis, ecological economics, and visual ethnography, working closely with stakeholders from the respective case studies. Together with these stakeholders, indicators for "effective", i.e. ecologically beneficial and socially just, NbS will be developed in a co-design process. BIO-JUST's commitment to transdisciplinarity facilitates dialogue between community members and decision-makers, creating learning opportunities and establishing landing places for its case study-specific recommendations.



Ecosystems constitute cultural landscapes, in which environmental services are co-produced by biophysical and social processes.

PARTNERS OF THE PROJECT

Environmental Governance and Transformation to Sustainability, German Institute of Development and Sustainability, Bonn, Germany

Engineering, Modeling and Applied Social Science Center, Federal University of ABC, Santo André, Brazil

Danone WATERS / Water Institute by Evian, SAEME -DANONE group, Evian-les-Bains, France

Water, Environment, Process Development and Analysis Division – New Water Resources and Economics Unit, French Geological Survey (BRGM), Montpellier, France

Centre for Applied Ecology – School of Agriculture, University of Lisbon, Lisbon, Portugal

Department of Conservation and Policy, Nature Portugal Association / WWF, Lisbon, Portugal

Department of Sociology and Anthropology, University of La Laguna, San Cristóbal de La Laguna, Spain

Water Resources Management Group, Environmental Sciences, Wageningen University, Wageningen, The Netherlands

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,2 mil. €

MORE INFORMATION

Dr. Jean Carlo Rodríguez de Francisco
jean.rodriguez@idos-research.de

Land users preparing shifting cultivation fields for hill rice production in Luang Namtha Province, Laos.

PARTNERS OF THE PROJECT

Basque Centre for Climate Change, Leioa, Spain

Earth Science General Coordination, Brazilian Institute for Space Research, São José dos Campos, Brazil

Working Group Governance of Ecosystem Services, Leibniz Centre for Agricultural Landscape Research, Müncheberg, Germany

Centre for Sustainability Transitions, Stellenbosch University, Stellenbosch, Republic of South Africa

Stockholm Resilience Centre, Stockholm University, Stockholm, Sweden

Wyss Academy for Nature, University of Bern, Bern, Switzerland

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,4 mil. €

MORE INFORMATION

Unai Pascual
unai.pascual@bc3research.org

BridgingVALUES - "Just" conservation? Bridging values for equitable biodiversity governance

CONTEXT

The European Union (EU) has adopted policy frameworks to meet its ambitious goals to protect nature and reverse biodiversity decline. The long-established Natura 2000 network of protected areas (PAs) is an integral part of the EU's Biodiversity strategy for 2030, also in support of the European Green Deal. There is now an increased level of awareness about the EU's responsibility towards safeguarding biodiversity overseas, e.g., via 'deforest proof' EU development cooperation. While these biodiversity conservation goals and policies are produced at supranational (e.g. EU, UN) levels, it is not always clear how they ultimately manifest on the ground, where conservation actually takes place. This is likely because conservation policies and interventions generate material (finance and technical expertise) and immaterial flows (e.g. discourses and knowledge), which support specific conservation approaches that interact in complex ways with local contexts in which they arrive.

MAIN OBJECTIVES

BridgingVALUES aims to inform conservation policies and practices towards more equitable and effective governance by generating a better understanding of 1) the interdependencies and feedbacks between EU (and global) flows, and local governance of PAs, and 2) how these can in turn impact biodiversity and ecosystem services (BES), their values, social equity and governance in six case studies in the EU and the Global South.

1. Empirical objectives: Study how local contexts mediate the effects of global environmental policy flows (immaterial and material), and assess their social-ecological impacts;
2. Methodological objectives: Advance the state-of-the-art in transdisciplinary co-production methodologies incorporating the knowledge of stakeholders;
3. Theoretical objectives: Co-construct a conceptual framework that links conservation policies to social-ecological outcomes by exploring the relationships between flows, BES values, equity and leverage points.

MAIN ACTIVITIES

BridgingVALUES draws on novel conceptualizations regarding the (1) telecoupling of immaterial and material flows; (2) embedded plural values in decision making; (3) social equity linked to people's wellbeing in the protected areas contexts; (4) pathways for sustainability and justice; and (5) governing the BES-society nexus for transformative change. The project is applied in six local case studies: three in the EU (Germany, Spain, Sweden) and three in the Global South (Brazil, Laos, South Africa).

BridgingVALUES follows the « Wayfinder » and «» transdisciplinary approaches, designing pathways to just biodiversity conservation through knowledge co-production with stakeholders. Expected impacts include 1) increased awareness by managers and policy makers on the importance of bridging across different BES values and their equity implications; (2) increased legitimacy of management and policy decisions through meaningful stakeholder involvement; and (3) adaptation of PA management strategies to fit desirable pathways for more just and sustainable futures.

CLIMATE INVASIVES - Minimizing the negative effects of climate change-induced spread of invasive alien species to marine protected areas

CONTEXT

Aquatic invasive species are one of the largest threats to biodiversity in the oceans. One of the main measures taken within marine strategies to preserve biodiversity is to establish marine protected areas (MPAs). MPAs are areas with high biological diversity, and it is therefore important to establish effective management strategies for these areas. This project will investigate the climate change induced spread of invasive alien species (IAS) to MPAs in the North East Atlantic (North Sea, Skagerrak and Kattegat). In the sea area between Denmark, Sweden and Norway, several ocean current systems merge and the maritime traffic is intense. A regional approach will be developed, aiming to produce a general concept for trans-national mitigation work regarding invasive alien species.

MAIN OBJECTIVES

The project will combine climate ocean models, remote sensing and data on marine traffic, with species distribution models for predictions of new introductions. We will develop risk assessments for new introductions of invasive species, identifying so-called "invasion hubs" (particularly favourable areas) and the risk for subsequent spread to MPAs. These assessments will, in close cooperation with regional and local stakeholders, be used to develop advice for the management and control of invasive alien species.

Using predictive modeling, we aim to achieve an effective management of invasive species, enabling early detection through public engagement, and in-time science-based preventive and eradication actions.

MAIN ACTIVITIES

We will use climate ocean models to perform dispersal and connectivity modelling divided into three cornerstones: ocean circulation modelling (including climate projections), trajectory studies of IAS eggs and larvae, and use of connectivity matrices.

Further, we will study enclosed sea bodies with particularly suitable environments for the establishment of invasive species, "invasion hubs". These will be investigated for the presence of potential alien species, sometimes referred to as "door knocking species", by use of molecular methods.

The project will also model ecosystem impact scenarios of IAS by combining data produced within the project and data from especially Copernicus. These scenarios will after stakeholder consultation also include gap-filling activities such as high-resolution habitat mapping to enable more precise predictions of invasive species spreading.

Various monitoring and early detection methods will be investigated, such as the use of eDNA and by involving citizen science. Field studies and controlled laboratory experiments will be conducted to achieve knowledge of population structures, life-history traits and dispersal biology of the IAS. Different control alternatives will be tried out to find cost-efficient preventive and eradication methods for IAS.

Via a multi-actor platform, stakeholders will discuss management options and jointly develop a management model and guidelines to be communicated broadly to stakeholders such as Environmental Protection Agencies and governmental species information centres.

The two barnacle species, bay barnacle Amphibalanus improvisus (lower) and the smaller Austrominius modestus (upper) on the shell of European shore crab Carcinus maenas. Amphibalanus was introduced to Nordic waters a century ago while Austrominius has been introduced in the last decades.

PARTNERS OF THE PROJECT

Department of Mechanics and Maritime Sciences, Chalmers University of Technology, Gothenburg, Sweden

Center for Macroecology, Evolution and Climate - Globe Institute, University of Copenhagen, Copenhagen, Denmark

Prins Engineering, Hørsholm, Denmark

NORCE Climate and Environment, Norwegian Research Centre, Bergen, Norway

Gothenburg Marine Biological Laboratory, Göteborgs Marinbiologiska Laboratorium, Västra Frölunda, Sweden

Oceanographic Research and Development, Swedish Meteorological and Hydrological Institute, Västra Frölunda, Sweden

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,3 mil. €

MORE INFORMATION

Lena Granhag
lena.granhag@chalmers.se

Female parasite drinking nectar from a buckwheat flower. Flower strips added to conventional agricultural landscapes help increase biodiversity by providing resources (food, shelter) to many species, including those providing ecosystem services such as pollination or pest and weed control.

PARTNERS OF THE PROJECT

ECOBIO, University of Rennes, Rennes, France

Earth and Life Institute – Agronomy, Catholic University of Louvain, Louvain, Belgium

Association for Innovation and Sustainable Agriculture, Klíčany, Czech Republic

Division of Plant Health, Functional Biodiversity Group, Crop Research Institute, Prague, Czech Republic

EDYSAN, University of Picardie Jules Verne, Amiens, France

Living Lab CLEF, Plélan-Le-Grand, France

Department of Animal Ecology and Tropical Biology, Julius Maximilian University of Würzburg, Würzburg, Germany

International Crop Production Center, German Agricultural Society e. V., Frankfurt, Germany

DURATION

01/03/2023 – 28/02/2026

TOTAL GRANT

approx. 1 mil. €

MORE INFORMATION

Joan VAN BAAREN
jkoan.van-baaren@univ-rennes1.fr

ConservES - Living-lab approach to floral enrichment as a tool to conserve biodiversity and maximizing ecosystem services in European agricultural landscapes

CONTEXT

Modern or industrialized agriculture in European countries is the driver of simplification of ecological networks, inducing a loss of farmland biodiversity and associated Ecosystem Services, which are defined as the direct and indirect contributions of ecosystems to human well-being impacting on our survival and quality of life. Among multiple ecosystem services, two of the regulating ecosystem services address highly relevant agricultural processes: i) pollination and ii) pest/ weed control. The main causes of this loss of biodiversity, and thus of the ecosystems' capacity to deliver nature-based services, are linked to intensive agriculture practices such as habitat simplification and use of pesticides. Ecological intensification, i.e., using natural processes to replace anthropogenic inputs such as pesticides and fertilizers has been hailed as a potential solution, yet is often hindered by insufficient acceptance and/or adoption by conventional farmers in Europe. Thus, enhancing awareness of related benefits provided by ecosystem services is a prerequisite for successful biodiversity conservation in the agricultural ecosystems. Using the approach of living labs that promote the involvement of citizens in science, this project strives to collectively develop field-to landscape management, mainly by floral enrichment, and bioindicators about the conservation state of farmland biodiversity.

MAIN OBJECTIVES

ConservES aims to (1) evaluate the benefits or re-establishing non-crop linear elements (hedges and floral strips) that provide resources and dispersal corridors to pollinators and natural enemies of pests and weeds, (2) increasing biodiversity in intensive agricultural areas without loss of yield for the farmers and (3) develop living labs in the four countries involved (France, Belgium, Germany and Czech Republic).

MAIN ACTIVITIES

ConservES will evaluate the benefits of re-establishing non-crop linear elements (hedges and floral strips) that provide resources and dispersal corridors to pollinators and natural enemies of pests and weeds. To assess biodiversity, we will develop two kinds of multi-taxon-based integrated indicators. Finally, scenarios of adding diversity within, nearby and in the surroundings of the fields in order to optimize diversity in agro-ecosystems at the farm/landscape scales will be co-developed in living labs with farmers to engage them, in protecting biodiversity and ecosystem health. This will ensure an effective ecological network delivering ecosystem services if applied largely after the project. The European climatic scale investigated will help to provide European-wide solutions for adaptation to land-use and climate changes. Indeed, along a climatic gradient, it is expected that the climatic context plays a major role on the potential of ecosystem services in each area. By involving stakeholders in the process of co-developing tailored conservation practices, we will minimise the human-biodiversity conflict that has been largely persisting, and increase the chance of a win-win situation. Indeed, one of the main difficulties in the governance of biodiversity conservation is to go beyond the theoretical dimension of the questions raised.

DarCo - The vertical dimension of conservation: A cost-effective plan to incorporate subterranean ecosystems in post-2020 biodiversity and climate change agendas

CONTEXT

Subterranean ecosystems (such as caves, groundwaters, and fractured rocks) host a broad diversity of specialized and endemic organisms that account for a unique fraction of the global taxonomic, phylogenetic, and functional diversity. Furthermore, they deliver crucial ecosystem services, especially the provisioning of potable water to more than half of the world's population. Yet, these out-of-sight ecosystems are systematically overlooked in post-2020 biodiversity and climate change targets. Only 6.9% of known subterranean ecosystems overlap with the global network of protected areas, with just a few of these areas designed to account for their vertical dimension.

MAIN OBJECTIVES

DarCo aims to advance knowledge about subterranean biodiversity in Europe and inform its management. The overarching goal is to develop a concrete plan to incorporate subterranean ecosystems in the European Union (EU) Biodiversity Strategy for 2030.

MAIN ACTIVITIES

We have established a multidisciplinary team of leading scientists from a broad range of European countries to advance our understanding of subterranean ecosystems and their conservation. First, we will compile existing databases and leveraging a capillary network of international collaborators to gather distribution data, traits, and phylogenies for all major subterranean animal groups, including crustaceans, mollusks, insects, and vertebrates. These data will serve to predict species responses to human threats using different modelling techniques. Models' predictions of biodiversity change will provide the basis for a first mapping of subterranean life in Europe. By intersecting maps of diversity patterns, human threats, and protected areas, we will design a plan to protect subterranean biodiversity complementing the current European Union's network of protected areas. Finally, through target dissemination and engagement activities (including seminars, open days, living labs, and publications intended for a general public), we seek to raise societal awareness about subterranean ecosystems and invite stakeholders to incorporate subterranean biodiversity in multilateral agreements. We will make all data originating from DarCo open and re-usable by the development of a centralized and open database on subterranean life — the Subterranean Biodiversity Platform. The platform will represent our central tool to establish a data-driven dialogue with key stakeholders involved in the study and protection of the subterranean natural heritage. Making all data available will ensure that future generations will be able to build upon knowledge accumulated on subterranean biodiversity and monitor the effectiveness of today's protection measures in the years ahead.

Subterranean ecosystems host a unique biodiversity composed of different specialized subterranean species. In the photo, the spider Troglohyphantes pluto. Photo credit: Francesco Tomasinelli.

PARTNERS OF THE PROJECT

Water Research Institute, National Research Council, Verbania Pallanza, Italy

Department of Functional and Evolutionary Ecology. University of Vienna, Vienna, Austria

Department Biology of Organisms, Free University of Brussels, Brussels, Belgium

French National Centre for Scientific Research (CNRS), UMR CNRS 5023 LEHNA, University of Claude Bernard Lyon 1, French National Centre for Scientific Research, Villeurbanne, France

Zoology Unit, Finnish Museum of Natural History - University of Helsinki, Helsinki, Finland

Department of Entomology, State Museum of Natural History, Stuttgart, Germany

Department of Life, Health and Environmental Sciences - laboratory of Stygobiology, University of L'Aquila, L'Aquila, Italy

Azorean Biodiversity Group , University of Azores, Angra Do Heroísmo, Portugal

Emil Racovita Institute of Speleology, Romanian Academy, Cluj-Napoca, Romania

Department of Organisms and Ecosystem Research, National Institute of Biology, Ljubljana, Slovenia

Biotechnical Faculty - Department of Biology, University of Ljubljana, Ljubljana, Slovenia

Department of Ecology and Hydrology, University of Murcia, Murcia, Spain

Department of Evolutionary Biology and Environmental Studies, University of Zurich, Zurich, Switzerland

DURATION

01/03/2023 – 28/02/2026

TOTAL GRANT

approx. 1,7 mil. €

WEBSITE

http://www.meg.irsa.cnr.it/index.php/component/content/article?id=105

MORE INFORMATION

Stefano Mammola
stefano.mammola@cnr.it

Diving for mussels.

PARTNERS OF THE PROJECT

Sea and Water Solutions – Marine Research Centre, Finnish Environment Institute, Helsinki, Finland

Department of Marine Systems, Tallinn University of Technology, Tallinn, Estonia

Department Of The Environment Of Life And Science, Polytechnic University of the Marches, Ancona, Italy

Laboratory of Ecotoxicology, Nature Research Centre, Vilnius, Lithuania

Marine monitoring, Latvian Institute of Aquatic Ecology, Agency of Daugavpils University, Riga, Latvia

Marine Chemistry and Biochemistry Department, Institute of Oceanology, Polish Academy of Sciences, Sopot, Poland

eDNA laboratory, SeAnalytics AB, Bohus-Björkö, Sweden

Department of Biological and Environmental Sciences, University of Gothenburg, Gothenburg, Sweden

Environmental Science, Stockholm University, Stockholm, Sweden

DURATION

01/01/2023 – 31/12/2025

TOTAL GRANT

approx. 900 thsd. €

MORE INFORMATION

Kari Lehtonen
kari.lehtonen@syke.fi

Detect2Protect - New approaches in determining the impacts of chemical pollution to protect the biodiversity of the Baltic Sea

CONTEXT

Chemical pollution represents one of the main threats to the Baltic Sea marine environment, negatively affecting the health of its biota and vital ecological functions, and endangering its biodiversity. To achieve good environmental status, regulatory efforts, such as the EU Water and Marine Strategy Framework Directives, rely on ecological and chemical assessments. However, the essential link between the chemical assessment, based on the concentrations of contaminants, and ecological assessment, based on the status of communities, is the assessment of the biological effects of contaminants, and this is currently largely missing from the frameworks. Moreover, the chemical assessment alone is insufficient for protecting wild populations since it considers only selected and few substances, thus neglecting numerous other potentially harmful chemicals as well as the hazards related to contaminant mixtures. Increasing evidence shows that effect-based methods such as biomarkers and bioassays can provide a powerful tool to discriminate chemical toxicity from other possible causes of biodiversity decline and serve as an early warning of the potential threats.

MAIN OBJECTIVES

The Detect2Protect project examines the relationships between chemical contamination and loss of biodiversity, and provides tools for risk assessment in different parts of the Baltic Sea marine environment. The key objective is to facilitate the implementation of novel approaches for integrated chemical-biological monitoring and assessment frameworks. The project aims at (i) improved understanding of cause-effect relationships between environmental pollution and changes in biodiversity and ecological status, (ii) methodological advances in biological effect assessments to prevent adverse effects on biodiversity, including a diagnostic toolbox and predictive models to classify the contamination status, and data integration methodologies, (iii) developing effect-based methods based on early warning monitoring strategies with links to the health and biodiversity of marine ecosystems, and (iv) strengthened interactions at regional and European level in the field of impact assessment of marine pollution by dissemination of knowledge.

MAIN ACTIVITIES

Existing monitoring and research data on chemical contaminants, biological effects and biodiversity will be collated from selected areas of the Baltic Sea to produce predictive modelling tools. New data will be collected from pilot field sites in coastal areas of Poland, Latvia, Lithuania, Estonia, Sweden and Finland, comparing polluted and reference sites. DNA metabarcoding will be applied for assessing biodiversity and examined against data on chemical and biological effects. At the policy level, Detect2Protect aims especially at facilitating the implementation of novel monitoring and assessment methodologies, with outputs directly related to the goals of the Helsinki Commission and the implementation of its Baltic Sea Action Plan 2021, by developing guidance materials and an assessment tool, made available also for other Regional Sea Commissions. Key findings will be conveyed to researchers, stakeholders and the general public via the project webpage, periodical e-newsletters, an international workshop for key stakeholders, and a Policy Brief. Smaller national workshops elaborating the project outcomes with a more local perspective will also be organised.

DiviN-P - Protecting plant diversity via stoichiometric nutrient networks across Europe

CONTEXT

The long-term use of fertilizers in the European Union and the resulting enrichment of nitrogen (N) and phosphorus (P) has contributed to biodiversity loss and disruption of natural ecosystems. Atmospheric N-deposition is widespread, nitrate leaches from agricultural fields into nature areas and most European regions have too much phosphate in their soils. Moreover, nutrient enrichment makes plant communities more vulnerable to invasive species.
However, it remains unclear how local changes in nutrient availability and balances between the major nutrients N, P and K (potassium) affect the distribution of plant species on a European scale, and how this affects the competition between species and the conservation status of threatened plant species in current protected nature networks.

MAIN OBJECTIVES

The main objective of DiviN-P is to determine which grassland species are most vulnerable and how this relates to nutrient-limitation and -enrichment. From this, recommendations for management and planning are made to European conservationists, environmental policy makers and politicians.

MAIN ACTIVITIES

DiviN-P combines three cross-feeding research approaches: synthetic analyses of a large field-observations dataset (WP1), manipulative experiments (WP2), and modelling (WP3), and pays special attention to knowledge transfer and impact (WP4). The project will link the type of nutrient limitation to biomass production, plant diversity and occurrence of endemic threatened and invasive species and to species traits. Currently, such a European wide overview is lacking since data on nutrient limitation and plant species is only available for a limited number of specific locations scattered over Europe. Furthermore, for many grassland species trait measurements are lacking. The data collected and analyzed in this project are of pivotal importance for developing effective management measures, nutrient policies and landscape and land use planning for protecting wild populations of plant species and specifically plant species that are at risk of extinction. Connecting areas of a certain type of nutrient limitation will build resilient stochiometric networks by enhancing dispersal possibilities for European plant species that are confined to a certain type of nutrient limitation also taking into consideration changes in species distribution following climate change and expansion of invasive species.

Fieldwork in Dutch Grassland.

PARTNERS OF THE PROJECT

Sustainable Development - Faculty of Geosciences, Utrecht University, Utrecht, The Netherlands

Department of Biology, Free University of Brussels, Brussels, Belgium

Institute of Atmospheric Sciences and Climate, Italian National Research Council, Torino, Italy

Multidisciplinary Institute for Environmental Studies, University of Alicante, Alicante, Spain

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 900 thsd. €

MORE INFORMATION

Prof.dr. Martin Wassen
m.j.wassen@uu.nl

Bombyx sonobuoy installation summer 2022.

PARTNERS OF THE PROJECT

Computer science and systems laboratory (LIS), University of Toulon, Toulon, France

Sea Research Department, The National Park of Port-Cros, Parc National de Port Cros, Perols, France

Department of Earth and Environment Science, University of Pavia, Pavia, Italy

Department of Environmental impact, Akvaplan-niva, Tromsø, Norway

Department of Oceanography and Fisheries, Institute of Marine Research (IMAR), Horta, Portugal

DURATION

01/04/2023 – 31/03/2025

TOTAL GRANT

approx. 1 mil. €

WEBSITE

http://sabiod.lis-lab.fr/europam

MORE INFORMATION

Hervé GLOTIN
herve.glotin@univ-tln.fr

EUROPAM - European Spatial-Temporal Large-Scale Sea Noise Management & Passive Acoustic Monitoring of Marine Megafauna

CONTEXT

EUROPAM is a research project that proposes comparative spatio-temporal acoustic survey of megafauna biodiversity, and its management at a European scale. EUROPAM is based on innovative scientific instrumentation and algorithms, the so-called Bombyx sonobuoys, to increase the knowledge of anthropogenic impacts on marine life. The project is conducted on a wide scale that allows comparison between locations and types of disturbances, and also between some population segments. It is composed of researchers from many different fields, making the project federative and multi-disciplinary.

MAIN OBJECTIVES

EUROPAM aims to increase the knowledge of anthropogenic impacts on marine megafauna through passive acoustic monitoring, on a wide scale that allows comparison between locations and sources of disturbances, and between population segments of e.g. sperm whales. The cornerstones to achieving the goals will be:

1. a comparative continuous passive acoustic monitoring in the Mediterranean Sea, in the Azores Atlantic Ocean, and offshore Norway, for an equivalent of 23 000 km2;
2. to compare marine soundscapes from the European Arctic to the Mediterranean Sea, and from relatively quiet marine protected areas to areas under strong human activity pressure;
3. to develop innovative Artificial Intelligence to describe and model marine soundscapes and their natural patterns (daily and seasonal) that allow us to build and feed a marine soundscape repository in the cloud;
4. a strict protocol that will allow the calibration of measurements and provide comparable data across a large range of temporal and spatial scales;
5. an additional key management output of EUROPAM is mitigation of whale-ship collision risks.

MAIN ACTIVITIES

EUROPAM will identify conservation areas and seasonality of species diversity, compare noisy with quiet areas, and measure noise level changes in relation to wind farm construction, new industrial offshore development and the exponentially increasing marine traffic. The project will monitor the Arctic, Atlantic, and Mediterranean Sea regions, which are all expected to be highly impacted by climate change. It addresses the topics highlighted in Theme 1 of this call, by establishing a comprehensive understanding of effective and resilient ecological networks, while contributing to enhanced species-based protection. Furthermore, the project will monitor exponentially increased marine traffic and observe species displacement, while comparing acoustics of across latitude gradients (between Mediterranean Sea, Azores and Norway) using state-of-the-art methodology. Europam has wide ranging applications and benefits. It is a cross-cutting subject with economic, social and political impacts. A preliminary stakeholder analysis has been conducted to identify key actors that will be actively involved in the project through outreach activities, like Knowledge Transfer Workshops.

EUROSYNG - Promoting action on broad ocean challenges by delving into the past, present and future of European syngnathids

CONTEXT

Gentle natured, with extraordinary life histories and a truly unique mode of reproduction (male pregnancy), seahorses, pipefish and seadragons have progressively transformed into powerful ambassadors for marine conservation. Syngnathids face numerous threats, including tremendous fishing pressure and habitat degradation, not least from climate change. Such global problems affect also Europe's syngnathid species (fifteen pipefish and four seahorse species), the majority being listed by IUCN as Data Deficient with unknown current population status. These numbers showcase the knowledge gap on the health of our coastal ecosystems which severely restricts our ability to detect, reverse or avoid perturbations. Recently, a new resolution was approved by IUCN to assist the worldwide conservation of syngnathids. WCC-2020-Res-095 urges IUCN members to take very specific actions, from ensuring the status assessment of all syngnathids and their inclusion in national/regional Red Lists, to protecting and restoring their freshwater, transitional and coastal habitats. This important resolution awaits implementation by all IUCN members, including European countries.

MAIN OBJECTIVES

EUROSYNG, the first ever initiative aimed at evaluating the health of syngnathid populations across Europe, has the overarching objective of acting as a global catalyst for the implementation of WCC-2020-Res-095, allowing the EU to lead the process of effectively protecting syngnathids and their habitats. EUROSYNG will 1) Implement the first transnational systematic census, producing the most comprehensive picture of European syngnathid distributions, 2) Generate up-to-date range maps for all European syngnathids, while also projecting distributions under different climate change scenarios, 3) Measure European syngnathid genetic diversity and population health, 4) Assess suitability of Marine Protected Areas (MPAs) for syngnathid conservation, 5) Detect and quantify impacts of interactions and synergies between economic activities and conservation of syngnathids, 6) Quantify the result of the involvement of citizens and stakeholders in surveying, protecting, and managing syngnathids and their habitats, 7) Develop new tools for syngnathid conservation, and 8) Sensitize political actors, students and the general public towards conservation and climate change, with emphasis on syngnathids.

MAIN ACTIVITIES

EUROSYNG will look into the present, past and future of syngnathids by conducting censuses on all inhabiting syngnathid species, collecting museum data and forecasting species distribution under distinct climate change scenarios. With minimally invasive tissue samples, thousands of genomes will be investigated for the demographic history of syngnathid populations and local adaptation. Community-based monitoring and citizen-science programs will be established to assess syngnathid populations, together with the first socio-economic study of syngnathids' impact on local economy. EUROSYNG will also quantify the impacts of new ecotourism activities, and develop a remote monitoring system for MPAs. EUROSYNG is the first project to promote, throughout Europe, a comprehensive and transdisciplinary approach to improve knowledge on the conservation ecology of syngnathids, and deploying coordinated work at a continental scale (Norwegian Sea, Baltic Sea, North Sea, English Channel, Bay of Biscay, Atlantic Cantabrian coasts, West and East Mediterranean, and Adriatic Sea). By involving MPA managers, non-governmental organisations, scientists, students, politicians, and the general society, EUROSYNG will stimulate the building up of efficient management actions across Europe. While the produced data will allow EU to lead the fulfilment of requirements introduced by WCC-2020-Res-095, EUROSYNG will also be relevant for sampled countries, allowing the national red listing of their own syngnathid species while also providing a clear picture of the health of their marine habitats.

A seahorse (Hippocampus guttulatus) and Amanda Vincent (leader of Project Seahorse, a stakeholder of EUROSYNG) inspecting each other, in the Mediterranean coast of France.

PARTNERS OF THE PROJECT

CIBIO - Behavioural Ecology Group, BIOPOLIS, Vairão, Portugal

Dinard Marine Biology Station, National Museum of Natural History, Dinard, France

Zoological Institute - Marine Evolutionary Biology, Christian-Albrecht University of Kiel, Kiel, Germany

Hippocampus Marine Institute, Pallini - Athens, Greece

Institute of Anthropic Impacts and Sustainability in Marine Environment, National Research Council, Palermo, Italy

Department of Biology, University of Bari Aldo Moro, Bari, Italy

MARE - Ocean and Coastal Systems Research Group, Atlantic Naturalist Association, Azores, Horta, Portugal

Department of Biosciences, Marine and Environment Sciences Centre, Lisbon, Portugal

Ecoaqua University Institute, University of Las Palmas de Gran Canaria, Las Palmas de Gran Canaria, Spain

Blue Center Gotland, Uppsala University, Uppsala, Sweden

DURATION

01/01/2023 – 31/12/2025

TOTAL GRANT

approx. 1,7 mil. €

TWITTER

@eurosyng

MORE INFORMATION

Nuno Monteiro
nuno.monteiro@cibio.up.pt

Blue whale (Balaenoptera musculus) fluking near Pico, Azores, Portugal (© CW Azores).

PARTNERS OF THE PROJECT

Applied Animal Ecology Research Unit - Department of Zoology, University of Innsbruck, Innsbruck, Austria

Sinsoma GmbH, Voels, Austria

Joint research unit - Dynamics and sustainability of ecosystems: from the source to the ocean (DECOD), French Research Institute for the Exploitation of the Sea, Nantes, France

Ecosystem Dynamics and Sustainability (DECOD), National Research Institute for Agriculture, Food and Environment, Rennes, France

North Sailing, Húsavík, Iceland

University of Iceland's research center in Húsavík, University of Iceland, Húsavík, Iceland

School of Biological, Earth and Environmental Sciences, University College Cork, Cork, Ireland

Whale Watch West Cork, Unionhall, Ireland

Department of Environmental and Civil Engineering, Polytechnic University of Milan, Milan, Italy

Institute of Marine Research, Tromsø, Norway

Ocean Sciences Institute, University of the Azores, Horta, Portugal

Research Department, CetaceanWatching Lda, Madalena do Pico, Portugal

DURATION

01/01/2023 – 31/12/2025

TOTAL GRANT

approx. 1,7 mil. €

WEBSITE

www.ewhale.eu

MORE INFORMATION

Bettina Thalinger, PhD
bettina.thalinger@uibk.ac.at

eWHALE – Combining environmental DNA sampling, whale watching and citizen science for stakeholder-driven marine biodiversity protection in the North-East Atlantic and the Mediterranean

CONTEXT

The biodiversity in the Earth's oceans is under acute pressure from anthropogenic threats and marine ecosystems already exhibit high rates of biodiversity change. The sheer vastness and inaccessibility of most marine habitats challenge monitoring efforts and the creation of high-resolution, long-term biodiversity datasets necessary to guide policymakers. On top of that, societal support for the protection of marine biodiversity is key for the implementation of bold conservation strategies. However, most marine taxa are not in the public spotlight and remain hidden beneath the ocean surface. The eWHALE project will meet the above challenges, unite researchers, industry partners and the public across Europe, and implement stakeholder-driven marine biodiversity protection by combining environmental DNA (eDNA) sampling with whale watching and citizen science.

MAIN OBJECTIVES

- The eWHALE project will optimize the eDNA sampling workflow aboard whale watching platforms and research cruises. This is a first step towards unlocking the enormous potential of participatory marine biodiversity monitoring for the generation of datasets with unprecedented spatial, temporal, and taxonomic resolution.
- The molecular methods used to detect DNA of marine megafauna and their prey in environmental samples will be optimized and the molecular toolbox will be extended towards the analysis of population structure. Additionally, the generated eDNA datasets will be validated by comparisons with biopsy samples and visual observations.
- eDNA sampling will be integrated into a citizen science module aboard whale watching platforms to educate the interested public in these new technologies and disseminate the project findings to a public audience. This will pave the way for future, large-scale eDNA monitoring campaigns and connect eWHALE with conventional biodiversity assessments performed by institutional agencies.

MAIN ACTIVITIES

In the near future, eDNA sampling will play a key role for monitoring the entire global biodiversity. eWHALE lays the foundation for such endeavours in the marine realm by generating data for a wide range of marine organisms – particularly marine megafauna and their prey – from environmental samples.
We will utilize cetaceans as flagship taxa for marine conservation to provide a public audience with an easy entry point into the world of marine biodiversity monitoring and raise public awareness for these matters. The engagement of stakeholders such as policy makers, NGOs, and natural resource managers is essential for this project, since their support ensures large-scale, eDNA-based monitoring efforts in the future. These will be crucial for policy makers and authorities to establish effective marine biodiversity protection measures.
By combining forces across Europe, eWHALE bridges the gap between science, industry, and the public, exemplifies a novel strategy for marine biomonitoring, and boosts public support for marine conservation efforts.

FORESCUE - Innovative approaches FOr RESCUE and management of algal forests in the Mediterranean Sea

CONTEXT

Forests formed by brown algae of the genera Cystoseira, Ericaria and Gongolaria (Cystoseira forests) create unique seascapes at shallow depths of Southern European seas, particularly the Mediterranean. The great ecological, economic and social significance of these ecosystems and the services that they provide are widely recognised. Their relevance is acknowledged by several international conventions and directives (Bern Convention, Barcelona Convention, EU Habitats Directive). The need for their surveillance and conservation are recognized by the International Union for the Conservation of Nature (IUCN), the Mediterranean network of Marine Protected Areas and the European Union (within the Marine Strategy Framework Directive). In the last decades, however, Cystoseira forests have undergone a major decline in the whole Mediterranean basin, due to the high sensitivity of these algae to some anthropogenic stressors acting at local/regional scales but widespread throughout the basin. There is general consensus that the impact of these stressors will be further exacerbated by the effects of climate change (mainly in the form of heat waves, and extreme episodic events). The development of effective strategies for the conservation of the residual Cystoseira forests based on new tools for their monitoring is now of fundamental importance. The present project has been designed to provide these tools and assist environmental policy makers in the management of Cystoseira forests.

MAIN OBJECTIVES

Main objectives of FORESCUE are: 1) identify Cystoseira species and/or populations with high significance from the conservational point of view, for which special protection measures are necessary, and assess their tolerance thresholds to selected environmental stressors; and 2) defining accurately the health status of Cystoseira forests based on quantitative metrics. These objectives will be achieved by combining large-scale phylogenomic and population biology studies, field and laboratory experiments testing the responses of Cystoseira species/populations to selected stressors, and field surveys investigating many variables at community level.

MAIN ACTIVITIES

Major elements of novelty in the project will be the use of Unmanned Aerial Vehicles for the mapping of Cystoseira forests, large-scale characterization of the microbiomes and the environmental DNA associated with these communities, large-scale phylogeographic characterization of forest-forming Cystoseira species and active involvement of stakeholders in research activities and post-hoc monitoring of Cystoseira forests. Key outputs of the project will include new, user-friendly monitoring tools for large-scale use by stakeholders involved in environmental management. The project will be implemented by a consortium of 9 research groups from 6 EU Member States that have gained great familiarity with these ecosystems in the course of previous projects and whose expertise covers a wide range of disciplines in marine biology.

Macroalgal forests play a key role in marine coastal habitats and support important ecosystem services. These ecosystems are undergoing a massive degradation in the Mediterranean basin.

PARTNERS OF THE PROJECT

Department of Life and Environmental Sciences, Polytechnic University of the Marches, Ancona, Italy

Phycology - Biology Department, Ghent University, Ghent, Belgium

ECOSEAS, Côte d'Azur University, Nice, France

Fisheries Research Institute, Hellenic Agricultural Organization – Dimitra, Kavala, Greece

Department of Integrative Marine Ecology - Ischia Marine Centre, Anton Dohrn Zoological Station, Ischia, Italy

Department of Biology, University of Naples Federico II, Naples, Italy

Biogeographical Ecology and Evolution, Centre of Marine Sciences – CCMAR, Faro, Portugal

Marine Ecology – Benthic ecosystem functioning team, Spanish National Research Council, Blanes, Spain

Institute of Aquatic Ecology, University of Girona, Girona, Spain

DURATION

01/01/2023 – 31/01/2026

TOTAL GRANT

approx. 1,3 mil. €

MORE INFORMATION

Roberto Danovaro
r.danovaro@univpm.it

Aquatic fungi play key roles in freshwater and estuarine ecosystems. For instance, they are the main microbial decomposers of plant-derived organic matter in small forested streams.

PARTNERS OF THE PROJECT

Department of Organismal Biology, Systematic Biology, Swedish University of Agricultural Sciences, Uppsala, Sweden

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

Institute of Technology, University of Tartu, Tartu, Estonia

Plankton and Microbial Ecology, Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Stechlin, Germany

Water Research Institute (IRSA), National Research Council of Italy, Verbania, Italy

Department of Biology - Centre of Molecular and Environmental Biology (CBMA), University of Minho, Braga, Portugal

Institute of Microbiology, University of Applied Sciences and Arts of Southern Switzerland, Mendrisio, Switzerland

Global Center for Species Survival, Indianapolis Zoological Society, Indianapolis, United States of America

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,5 mil. €

WEBSITE

www.funaction.eu

MORE INFORMATION

Jennifer Anderson
jennifer.anderson@slu.se

FUNACTION - Aquatic FUNgal biodiversity: developing knowledge and strAtegies to inform ConservaTION priorities and measures

CONTEXT

Freshwater and estuarine ecosystems harbour disproportionally rich biodiversity compared to terrestrial and marine ecosystems, provide essential ecological services, and are fundamentally important for human health, culture, recreation, and economy. Aquatic fungi, however, despite their contribution to the health, function, and resilience of freshwater and estuarine ecosystems, are not included in any major conservation plan or policy. Further, efficacy of existing protection schemes for preserving this important biodiversity component has not been evaluated. To date there are zero aquatic fungi among the >35,000 species from freshwater and estuaries on the International Union for Conservation of Nature (IUCN) Red List. As "*No one will protect what they don't care about...*" (Sir David Attenborough), it is essential to bring an understanding of aquatic fungi to the conservation agenda, to ensure their protection and that of the ecosystem services they provide.

MAIN OBJECTIVES

For the first time, FUNACTION will build knowledge about the taxonomic, phylogenetic and functional diversity of aquatic fungi to develop strategies for their conservation. In particular, FUNACTION has the following objectives:

- Foundation: produce the knowledge base needed for aquatic fungi-aware conservation actions.
- Conservation: translate that knowledge into conservation planning and monitoring tools for aquatic fungi.
- Communication: increase awareness about aquatic fungi and the role they play in our freshwater and estuarine ecosystems, support inclusivity and participation in conservation, and engage with stakeholders to produce a useful scientific basis for effective implementation of conservation actions.

MAIN ACTIVITIES

1. By combining DNA-based approaches with environmental data (e.g. water chemistry and climate information) across Europe, FUNACTION, together with the project FunAqua (Estonia), will identify patterns and drivers of aquatic fungi diversity which are needed for data-driven conservation.
2. FUNACTION will study biodiversity patterns of aquatic fungi across spatio-temporal scales within and outside protected areas. By combining these data with information about protection strategies, land use, and local environmental factors, the effectiveness of protected areas for the protection of aquatic fungal diversity, functions and services will be evaluated.
3. FUNACTION will translate results into conservation planning and monitoring guidance. Hotspots of aquatic fungi biodiversity will be identified to pinpoint priority conservation areas and provide a first regional red-listing of aquatic fungi species and data required for Key Biodiversity Areas development.
4. Targeted case studies will evaluate drivers of ecosystem function attributable to aquatic fungi (e.g. organic matter cycling), and develop approaches to include aquatic fungi into monitoring programs.
5. FUNACTION aims to "make a splash" for aquatic fungi conservation, through effective communication and early involvement of stakeholders, to co-produce the first-ever guidelines for monitoring and conservation of aquatic fungi.

FuncNet - Improving the Functional Connectivity of Grassland Networks for Plant-Pollinator Interactions

CONTEXT

Loss in the area and connectivity of natural and semi-natural habitats in Europe over the last hundred years has placed not only numerous species under threat, but is also jeopardizing interactions between species crucial for maintaining important ecosystem functions and services, such as pollination. Furthermore, with nearly 90 % of flowering plants depending on animal pollinators, loss of pollination interactions may in turn significantly intensify the loss of wild plant species. FuncNet aims to improve understanding of the effects of the connectivity and management of semi-natural grasslands - hotspots of European biodiversity - on various aspects of plant-pollinator interactions in European agricultural landscapes.

MAIN OBJECTIVES

- To examine the role of spatio-temporal changes of grassland area and connectivity on plants and pollinators in remnant grasslands and other marginal grassland-like habitats of European rural landscapes.
- To assess the resilience of plant-pollinator networks in relation to habitat connectivity.
- To explore the genetic diversity, demography and individual fitness of insect-pollinated plants in response to landscape connectivity and related pollination events.
- To map land-users' and conservation practitioners' perspectives of managing landscapes in favour of supporting plant-pollinator networks.
- To provide recommendations to conservation practitioners, policy-makers and land-managers about the optimal planning and management strategies of agro-ecosystems in order to safeguard resilient plant-pollinator communities.

MAIN ACTIVITIES

The project will focus on 10 regions in Belgium, Czech Republic, Estonia, Germany and Sweden, where grasslands were once common but have experienced drastic loss in area and connectivity due to land use change over the past century. We will explore the effect of both current and historic landscape characteristics on plant and pollinator diversity, and floral resource availability for insects. In addition to grasslands, we will explore other landscape elements (e.g., grassy road verges, field boundaries, power-line clear-cuts) to determine their role in supporting plants, pollinators and their interactions. Second, we will clarify the functioning of plant-pollinator interactions in maintaining the well-being and adaptive potential of wild plants. Third, we will map the main stakeholder groups, including land managers as well as conservation practitioners, and explore their motivations and obstacles for managing remnant grasslands and marginal landscape elements in a biodiversity-friendly way. Building on the results, the project will propose recommendations to maintain sustainable levels of plant and pollinator diversity at landscape-, community- and genetic level. Furthermore, we aim to develop win-win solutions for different stakeholder groups through improved multi-actor governance. The findings of this project would be of high relevance for achieving the goals of the European Green Deal and related strategies – the Biodiversity Strategy and the Farm to Fork Strategy, but will also support regional-scale policies to halt the loss of vital ecosystem functions and services.

Photo of the grassland complex at the coast in Estonia, Muhu island (author Tsipe Aavik): European semi-natural grasslands offer habitats for numerous species and are hence true European biodiversity hotspots.

PARTNERS OF THE PROJECT

Institute of Ecology and Earth Sciences - Department of Botany - Landscape Biodiversity Group, University of Tartu, Tartu, Estonia

Biology Department, KU Leuven, Heverlee, Belgium

Department of Population Ecology, Institute of Botany, Czech Academy of Science, Průhonice, Czech Republic

Institute of Biology - Geobotany and Botanical Garden, Martin Luther University Halle-Wittenberg, Halle (Saale), Germany

Centre for Biodiversity, Swedish University of Agricultural Sciences, Uppsala, Sweden

DURATION

01/03/2023 – 28/02/2026

TOTAL GRANT

approx. 1,2 mil. €

WEBSITE

https://landscape.ut.ee/what-we-do/projects/improving-the-functional-connectivity-of-grassland-networks-for-plant-pollinator-interactions-funcnet/

MORE INFORMATION

Tsipe Aavik
tsipe.aavik@ut.ee

Iris Reinula
iris.reinula@ut.ee

Grazed hay meadows in full flower, Mts (Carpathians, Lopatari, Romania).

PARTNERS OF THE PROJECT

Department of Biodiversity and Conservation Biology, Swiss Federal Research Institute WSL, Birmensdorf, Switzerland

Conservation Biogeography Lab - Geography Department, Humboldt University of Berlin, Berlin, Germany

Institute for Alpine Environment - European Academy of Bozen-Bolzano, Bolzano, Italy

Research area Mountain Agriculture - Grassland Farming group, Laimburg Research Centre, Ora/Auer, Italy

Institute of Geography and Spatial Management, Jagiellonian University in Krakow, Krakow, Poland

Department of Forest Engineering, Forest Management Planning and Terrestrial Measurements, Transylvania University of Brasov, Brasov, Romania

Ethnological Research Department, National Museum of the Romanian Peasant, Bucharest, Romania

Department of Biology-Chemistry, West University of Timisoara, Timisoara, Romania

Plant Science and Biodiversity Centre - Institute of Botany, Slovak Academy of Sciences, Bratislava, Slovakia

Department of Geoinformatics - Institute of Geography, Slovak Academy of Sciences, Bratislava, Slovakia

Regional Association for Nature Conservation and Sustainable Development - BROZ, Bratislava, Slovakia

Forage Production & Grassland Systems Group – Agroscope, Federal Department of Economic Affairs, Education and Research, Zürich, Switzerland

Ukrainian Nature Conservation Group, Vasylkiv, Ukraine

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,6 mil. €

WEBSITE

www.grass4b.com

MORE INFORMATION

Catherine Graham
catherine.graham@wsl.ch

G4B – Grasslands for biodiversity: supporting the protection of the biodiversity-rich grasslands and related management practices in the Alps and Carpathians

CONTEXT

Semi-natural grasslands are among the most species-rich habitats in Europe but have sharply declined in spatial extent and biodiversity in recent decades. Within Europe, the grasslands of the Alps and the Carpathians harbour extraordinary biodiversity, which varies significantly due to local environmental conditions and management intensities. This project supports the protection and expansion of species-rich grasslands in the Alps and the Carpathians based on their spatial patterns and information about their plant diversity and management. We combine in-situ vegetation monitoring data, information from farmers, and historical data, together with information from remote sensing sensors, to model the large-scale spatial patterns of grassland plant diversity and its drivers. Our findings will help decision makers and stakeholders to target diversity-friendly policies and resources allocated for the grassland management schemes.

MAIN OBJECTIVES

This project will provide the first Europe-wide assessment of plant diversity richness of mountain grasslands and identify both natural conditions and management activities that condition the occurrence of species-rich grasslands. We aim to provide stakeholders with sound knowledge to expand the grassland protection network of biodiversity-rich grasslands in the Alps and the Carpathians.

MAIN ACTIVITIES

Identify biodiversity-rich grasslands in the Alps and the Carpathians
Link existing botanical samples with information from remote sensing to identify biodiversity-rich grasslands in the Alps and the Carpathians.
Identify the biodiversity-supporting grassland management practices and regimes
Link spatially explicit data with the information provided by farmers and stakeholders (questionnaires and interviews) to identify biodiversity-supporting grassland management regimes, their legacies and farmers' motivation for biodiversity-supporting grassland management.
Identify the areas suitable for expansion of the grassland protection network in the Alps and the Carpathians
Model grassland biodiversity across the Alps and the Carpathians and compare modelled results with the existing protection network to identify possible grassland diversity hotspots lacking legislative protection.
Propose new protected areas and their management across the Alps and the Carpathians
Consider stakeholders' needs and mindset to facilitate the establishment of new grassland-protected sites in the Alps and the Carpathians and design and implement grassland management schemes that boost biodiversity.

GaP - Guiding expansion of protection under the EU Biodiversity Strategy: Threatened species and novel methods for Key Biodiversity Area identification

CONTEXT

The Convention on Biological Diversity Post-2020 Global Biodiversity Framework, together with the EU Biodiversity Strategy for 2030, is calling for an expansion of protection to at least 30% of the land and sea. Yet it is critically important that additions to protected areas or other effective area-based conservation measures (OECM) are placed where they maximise the ability to conserve biodiversity and prevent extinctions. Key Biodiversity Area (KBA) criteria allow for identifying areas of global importance for biodiversity. KBAs represent the largest global network of systematically identified sites important for biodiversity. Although it is not required for KBAs to be under any particular management scheme (e.g. protected areas), they constitute an important tool to inform the protection of biodiversity and reduce its loss.

MAIN OBJECTIVES

The GaP project has two main goals: A) to strengthen the protected area network in the EU by identifying priority areas for safeguarding global and EU biodiversity, and B) to influence Conservation Policy in the EU by building capacity for KBA identification in EU countries and providing guidance for the expansion of the protected area network under the EU Biodiversity Strategy for 2030.
The objectives of GaP are to: 1) Identify threatened and restricted range species that are not covered by the protected area network in the EU; 2) Develop and test the application of the genetic distinctiveness assessment parameter to identify KBAs; 3) Apply KBA Criterion E (on complementarity for underrepresented biodiversity elements) for the first time to identify irreplaceable sites; 4) Scope KBAs across the EU countries; 5) Develop a KBA isolation assessment tool to guide where best to invest in conservation; 6) Establish KBA National Coordination Groups in the countries of the consortium and identify and propose new KBAs; 7) Provide guidance for the protected area network expansion in the EU.

MAIN ACTIVITIES

GaP with the diverse network of universities, research institutes, NGOs and the KBA Secretariat will collect biodiversity data, including underrepresented taxa (e.g. invertebrates and plants), to perform a gap analysis on protected areas and vulnerable species. This dataset will also be used to develop and apply the KBA genetic distinctiveness assessment parameter; to apply the KBA criterion E at the continental scale; and to perform KBA scoping analysis in all EU countries. GaP will also develop a tool to identify isolated KBAs in order to support their viability in the EU.
The results of the above activities will be disseminated, and a series of actions will be performed to generate direct impact on regional and national policies: i) establish KBA National Coordination Groups in Greece, Italy, Spain, Germany and Denmark to delineate and propose KBA sites and to oversee their long-term survival; ii) national KBA trainings for stakeholders; iii) public dissemination of scoping analysis results to mobilise the update of KBAs in countries outside of this consortium; iv) workshop for Biodiversa+ and government representatives and EU officials to present the major outputs of GaP; v) direct communication with relevant government bodies and the European Commission; and vi) a report that provides guidance on the expansion of protected and conserved areas in the EU.

Astakida islet - one of the few pristine places left in Greece and a potential KBA.

PARTNERS OF THE PROJECT

Department of Ecology and Taxonomy - Faculty of Biology, National and Kapodistrian University of Athens, Athens, Greece

Nature Department, Danish Ornithological Society - BirdLife Denmark, Copenhagen, Denmark

Center for Macroecology, Evolution and Climate, University of Copenhagen, Copenhagen, Denmark

Department of Biogeography, University of Trier, Trier, Germany

Department of Biology and Biotechnology "Charles Darwin", Sapienza University of Rome, Rome, Italy

Arid Zones Experimental Station (EEZA), Spanish National Research Council, Madrid, Spain

Biodiversity Standards and Indicators, International Union for Conservation of Nature Centre for Mediterranean Cooperation, Malaga, Spain

KBA Secretariat, Key Biodiversity Area Secretariat, c/o BirdLife International, Cambridge, United Kingdom

DURATION

01/03/2023 – 28/02/2026

TOTAL GRANT

approx. 900 thsd. €

MORE INFORMATION

Triantis Kostas
ktriantis@biol.uoa.gr

island.biogeography@gmail.com

Lake Neusiedler See.

PARTNERS OF THE PROJECT

Department of Economics and Social Sciences - Institute of Sustainable Economic Development, University of Natural Resources and Life Sciences, Vienna, Austria

Department of Botany and Biodiversity Research - Biodiversity Dynamics and Conservation, University Vienna, Vienna, Austria

Farm economics and ecosystem services (Working groups “Farm economics and ecosystem services” and “Provisioning of Biodiversity”), Leibniz Centre for Agricultural Landscape Research e. V., Müncheberg, Germany

Institute of Agricultural and Environmental Sciences, Estonian University of Life Sciences, Tartu, Estonia

Applied Ecology Unit - School of Natural Sciences, University of Galway, Galway, Ireland

Norwegian Institute for Nature Research, Oslo, Norway

Research Department, Ruralis Institute for Rural and Regional Research, Oslo, Norway

Agriculture and Biodiversity Group, Federal Office of Agriculture - Agroscope, Affoltern, Switzerland

Department of Agricultural Economics and Policy, Swiss Federal Institute of Technology in Zurich, Zurich, Switzerland

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,6 mil. €

WEBSITE

https://greenet.boku.ac.at

MORE INFORMATION

Martin Schönhart
martin.schoenhart@boku.ac.at

GreeNet - Grassland conservation across European landscapes protecting biodiversity and ecosystem services with ecological networks

CONTEXT

Permanent grasslands in Europe are the result of human-environment interactions and make a considerable contribution to the biodiversity and ecosystem services (ES) of agricultural landscapes. However, they are threatened by abandonment, soil sealing, conversion to arable land, and intensification. Key to successful conservation are holistic strategies that consider the landscape level for planning, integrate local knowledge, and align conservation objectives with sustainable agricultural production practices. Spatial planning for resilient landscapes requires well developed social networks of interaction, incentives and governance strategies to foster collaboration among farmers and coordination of conservation activities at the landscape scale.

MAIN OBJECTIVES

GreeNet’s major objective is to propose transition pathways for sustainable management of European grasslands under a combined land sparing and land sharing paradigm, i.e. the conservation on unmanaged (spared) patches along conservation efforts on agriculturally managed (shared) land within the same landscape. Further objectives are: i) to analyse biodiversity and ecosystem services of grassland habitats and conservation management options, ii) to support conservation planning and the design of efficient conservation incentive schemes, and iii) to reveal the potentials and challenges of farm cooperation for coordinated landscape management and related incentive schemes.

MAIN ACTIVITIES

1. Scientific approaches.

GreeNet conducts case studies in Austria, Estonia, Germany, Ireland, Norway, and Switzerland considering a gradient of protection status from currently unprotected but highly valuable landscapes, to Natura 2000 areas, biosphere reserves, nature parks, and national parks. Research activities include: i) the design of integrated conservation management options ii) the evaluation of landscape multifunctionality across intensity gradients, iii) the empirical assessment and modelling of attitudes, preferences, and constraints of farmers, iv) the analysis of cost-effectiveness of conservation incentive schemes, and v) the analysis of governance strategies towards long-term protection of grassland landscapes.

2. Activities for dissemination etc..

GreeNet will engage with stakeholders at international, national, regional and farm level, including agri-environmental and nature protection policy planners, citizens, farm advisers, NGOs, administration and policy makers. A major output is a tool (and concept) box dedicated to stakeholder interactions.

3. Expected societal and/or policy impact

The social-ecological perspective facilitates the identification of barriers and enabling factors for landscape protection to be effective and acceptable to farmers, conservationists, and the public. GreeNet addresses local landscape scale challenges, national biodiversity strategies, pan-European policy goals, and the global Sustainable Development Goals, to support regional and national integrated protected area management. The synthesis of case study processes and results will verify tools and concepts for application throughout European grasslands.

INSPIRE - INtegrated Spatial PlannIng across REalms for biodiversity conservation and human development in a context of change

CONTEXT

The EU has created substantial legislation, policies and strategies for biodiversity conservation over the last decades. However, the efforts implemented by its Member States have proven insufficient for halting biodiversity loss at a continental scale, as only a small proportion of species and habitats listed in the Birds and Habitats Directives are under no foreseeable risk of extinction. The EU Biodiversity Strategy for 2030 aims at addressing issues of insufficient advance towards halting biodiversity loss, such as the lack of planning at adequate scales when designing the network of protected areas or the poor integration of conservation across diverse sectoral policies.

MAIN OBJECTIVES

INSPIRE aims to develop a novel decision-support framework for prioritising management efforts across terrestrial, freshwater and marine realms while accounting for trade-offs in multifunctional land- and sea-scape use and changing environmental conditions. INSPIRE further aims to integrate biodiversity conservation into key socioeconomic activities, to reconcile conservation and the sustainable use of biodiversity and ecosystem services, accounting for synergies and potential trade-offs among the multiplicity of objectives pursued. In this way, INSPIRE aims to contribute towards defining coherent and well-connected networks of areas for biodiversity management, seeking for biodiversity conservation opportunities also beyond protected areas. Finally, INSPIRE aims to address biodiversity conservation under dynamic conditions, exploring proactive planning strategies towards a more resilient biodiversity conservation practice.

MAIN ACTIVITIES

INSPIRE will use three case studies to demonstrate how to improve decision-making under different objectives and constraints: The Aegean Sea and its catchments (Greece-Turkey), the Tagus River catchment, estuary, and nearby marine area (Portugal-Spain) and the Neusiedl Lake and its contributing catchments (Austria-Hungary). Building on principles of ecology, spatial planning and economics, INSPIRE will identify relevant management objectives (e.g., biodiversity conservation along with other human activities such as agriculture, energy production or fisheries), mobilise existing data to calibrate spatial models, and identify spatial priorities to achieve the objectives by the implementation of multi-objective optimisation mathematical models.

Through early and regular engagement with national and international policy makers and stakeholders in a transdisciplinary approach, INSPIRE will foster co-generation of knowledge and capacity building to ensure that both the framework and results from the project are fit for purpose and informative for decision making in the context of the Biodiversity Strategy for 2030. This will be done through early workshops to foster co-generation, and communication of the results at the levels of EU-National governments and case study stakeholders. Finally, INSPIRE also plans to reach out to the general public to raise awareness on conservation problems across terrestrial, freshwater, and marine ecosystems and the use of spatial planning approaches to guide management.

Easternmost Greek Island of Kastellorizo and Turkish islets and the Turkish coast in the background, one of the case studies of INSPIRE.

PARTNERS OF THE PROJECT

Department of Plant Biology and Ecology, University of Sevilla, Sevilla, Spain

Biodiversity and Natural Resources Programme - Biodiversity Ecology and Conservation Group, International Institute for Applied System Analysis, Laxenburg, Austria

Department of Biodiversity and Nature Conservation, Environmental Agency Austria, Vienna, Austria

Department of Marine Sciences, Laboratory of Marine Biodiversity and Ecosystems Management, University of the Aegean, Greece

Department of Integrated Marine Ecology, Zoological Station Anton Dohrn, Naples, Italy

Research Center in Biodiversity and Genetic Resources, BIOPOLIS, Vila do Conde, Portugal

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

School of Science Engineering and Environment, University of Salford, Manchester, United Kingdom

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

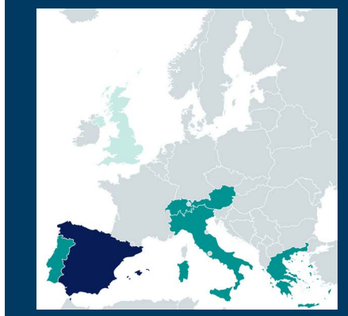
approx. 1,5 mil. €

TWITTER

@INSPIRE_Biodiv

MORE INFORMATION

Virgilio Hermoso
virgilio.hermoso@gmail.com



A diverse assemblage of woody species in Cyprus (Troodos mountain) with the Cyprus cedar (Cedrus libani subsp. brevifolia) and sclerophyllous species with the Golden oak (Quercus alnifolia) and the Strawberry tree (Arbutus andrachne), Troodos mountain.

PARTNERS OF THE PROJECT

Mediterranean Institute of Marine and Terrestrial Biodiversity and Ecology, Aix Marseille University, Marseille, France

Centre of Biodiversity Dynamics in a Changing World - Department of Biology, Aarhus University, Aarhus, Denmark

Research and Collections, Natural History Museum Aarhus, Aarhus, Denmark

LPO PACA sector, French League for the Protection of Birds PACA, Hyères, France

International Association for Mediterranean Forests, Marseille, France

Department of Biological Applications & Technology-Biodiversity Conservation Lab, University of Ioannina, Ioannina, Greece

Department for the Earth, Environment and Life Sciences, University of Genoa, Genoa, Italy

Department of Ecology, University of Alicante, San Vicente del Raspeig, Spain

Department Environmental Geography - Institute for Environmental Studies, VU Amsterdam, Amsterdam, The Netherlands

DURATION

27/03/2023 – 26/03/2026

TOTAL GRANT

approx. 1,6 mil. €

TWITTER

@integradiv

MORE INFORMATION

Agathe Leriche
agathe.leriche@imbe.fr

INTEGRADIV - Efficient conservation of Mediterranean forests: an integrative assessment of the drivers and vulnerability of multi-taxa, multi-facet and multi-scale biodiversity patterns

CONTEXT

Assessing current and future biodiversity patterns, and their underlying drivers is of crucial importance to develop relevant conservation programs, and to promote sustainable development and human well-being. While biodiversity conservation research and actions have mostly focused on taxonomic diversity, considering the diversity of organismal traits (functional) and evolutionary lineages (phylogenetic) offers promise for effective conservation and the maintenance of resilient ecosystems. The still fragmented knowledge about multifaceted biodiversity greatly limits our ability to anticipate current and future conservation needs. This is particularly true in the Euro-Mediterranean biome which offers a unique diversity of habitats, particularly threatened, and should experience drastic biodiversity changes by 2100 owing to its sensitivity to land use (due to ongoing increased population) and climate changes.

MAIN OBJECTIVES

INTEGRADIV aims to achieve a better knowledge of forest ecosystems within the Mediterranean biome in Europe and to propose effective protection actions, which presents an extremely important societal challenge in the face of global change in this area. The main objective of INTEGRADIV is to develop an integrative approach to provide guidelines on how taxonomic, functional and phylogenetic facets of biodiversity should be encapsulated in realistic conservation plans.

MAIN ACTIVITIES

INTEGRADIV will rely on the assessment of ecosystem integrity (its degree of preservation) and vulnerability to global changes, notably based on an innovative quantification of trait-based and phylogenetic attributes distributions. The project will benefit from both existing and newly collected data to develop an innovative framework of biodiversity assessment considering multiple spatial scales (regional and euro-Mediterranean) and taxonomic groups. Considering the diversity of trees, butterflies and birds in the Euro-Mediterranean biodiversity hotspot, the key questions INTEGRADIV will address are: 1) Where are the high-value biodiversity areas? 2) What is the level of ecological integrity of the Euro-Mediterranean forests? 3) How were the spatial patterns of biodiversity shaped, and what is their vulnerability to climate and land-use changes?
Using these questions as a guideline, INTEGRADIV will provide an implementable prioritization tool for guiding effective future conservation strategies, that will integrate all facets of biodiversity with responsible use of public money. To ensure that the project aligns with stakeholder needs, it will from the onset of the project engage in a joint learning process at the science practice-policy interface. INTEGRADIV results will be delivered to the stakeholder community through policy briefs, outreach publication and workshops all along the project.

MicroEco - Microbial Diversity, Ecosystem Services of the Soil Microbiome and Ecosystem Conservation

CONTEXT

The significance of soil microbial diversity has received little attention. The reason is that the molecular methods to identify soil microbes were new, awkward to use and expensive. However, molecular tools have evolved and are now affordable. Also, nowadays, bioinformatics software is much easier to use than ten years ago. The proposed project pioneers the use of molecular biology tools to protect and conserve the soil microbiome. The ecosystems studied in the project cover a climatic gradient from boreal to subtropical (Brazil).

MAIN OBJECTIVES

The project provides stakeholders with an evaluation of the importance of the soil microbiome in a conservation ecology setting. This involves the evaluation mapping of rare and endangered species from soil DNA, the estimation of different other ecosystem services provided by the soil biome as carbon sequestration, protection against soil erosion and nutrient cycling. Furthermore, we will explore if the soil microbiome predicts the yields of commercially important fungi as well as the growth of trees.

MAIN ACTIVITIES

We will use tools from molecular biology and biogeochemistry to analyse the soil microbial community and its function. Tools include tools to understand the phylogenetic diversity of the soil community and tools to measure functional genes. The phylogenetic and structural analyses are then used to determine the role of the soil microbiome in the provisioning of critical ecosystem services. These were soil carbon sequestration, conservation value, soil aggregate stability and yield of commercially valuable fungi. The project uses novel methods to measure the abundance of a broad array of functional genes; it tries to match long term field data with soil microbiome data to detect red-listed species from soil DNA. Also, the work on soil aggregate stability and the microbiome is genuinely innovative.
After the project, stakeholders in the case study regions will have information on the role of the soil microbiome for conservation. In addition, they will understand how different soil-based ecosystem services interact. As a result, they will be able to exploit tradeoffs and synergies between the ecosystem services. The project involves active engagement with local stakeholder groups and will actively disseminate its results via social media networks.

Pine forest in Finland 5 years after a prescribed burn for ecosystem restoration.

PARTNERS OF THE PROJECT

Department of Environmental and Biological Sciences, University of Eastern Finland, Joensuu, Finland

Center of Biological Sciences - Department of Botany, Federal University of Santa Catarina, Florianópolis, Brazil

Departments of ECODIV - UMR AMAP, National Research Institute for Agriculture, Food and Environment (INRAE), Montpellier, France

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

Local Unit Parma – University of Parma - Department of Chemistry Life Sciences and Environmental Sustainability, Italian National Interuniversity Consortium for Environmental Sciences (CINSA), Parma, Italy

Subcontractor: Laboratory for Biodiversity of Terrestrial Ecosystems - Institute for Multidisciplinary Research, University of Belgrade, Belgrade, Serbia

Department of Crop and Forest Sciences, University of Lleida, Lleida, Spain

DURATION

01/01/2023 – 31/12/2025

TOTAL GRANT

approx. 1,1 mil. €

WEBSITE

www.microeco.eu

MORE INFORMATION

Frank Berninger
frank.berninger@uef.fi

Atlantic cod (Gadus morhua), a large-bodied predator hunting in northern European kelp forests.

PARTNERS OF THE PROJECT

Flødevigen Marine Research Station, Institute of Marine Research, His, Norway

CRIOBE Research Unit, French National Centre for Scientific Research, Paris, France

Fisheries, Biodiversity and Conservation Research Group, Centre of Marine Sciences - University of Algarve, Faro, Portugal

Department of Ecology and Marine Resources - Fisheries Ecology Group, Institute of Marine Research - Spanish National Research Council, Vigo, Spain

DURATION

01/03/2023 – 28/02/2026

TOTAL GRANT

approx. 1 mil. €

MORE INFORMATION

Esben Moland Olsen
esben.moland.olsen@imr.no

MOVE – Movescapes, connectivity hotspots and eco-evolutionary dynamics: protecting the functional role of predatory coastal fishes

CONTEXT

Larger predatory fish play key functional roles in marine ecosystems and are of important socioeconomic value. Being close to the top of the food web, these species can have strong influences on ecosystem functioning via trophic cascades. Capable of travelling long distances, predatory fish can also play a major role in connecting ecosystems, acting as vectors for nutrient flow and carbon sequestration. In addition, specialised behavioural tactics including differences in habitat use and foraging are likely to shape their functional roles in the ecosystem. From an evolutionary perspective, such individual variation represents the raw material for natural selection. The scales at which these behaviours occur, however, poses important challenges for science and conservation. The current system of European marine protected areas (MPAs) consists mainly of small separate units covering a few km2, at least when considering areas that are protected from fisheries. Small MPAs, being unable to protect the fitness of mobile phenotypes, may therefore change the course of contemporary evolution with potential feedback on ecological processes and resource availability for fisheries. MOVE will assess the movescapes of coastal predatory fish, that is, their full range of movement signatures and food web links against the needs for truly effective MPA networks.

MAIN OBJECTIVES

The main objective of MOVE is to improve the conservation and sustainability of fisheries of coastal predatory fishes in Europe, to increase the resilience of coastal social-ecological systems.

MAIN ACTIVITIES

Co-production will be a key activity, where stakeholders such as fishers and managers will be directly involved in all stages of the project including study design and questions. Specifically, stakeholder involvement will be ensured via participatory workshops, surveys and invitations to take part in field work and fish tagging. Mapping of fish movescapes and ecological roles will mainly rely on tracking tagged individual predator movements within large scale listening arrays of moored telemetry receivers, including current and potential future MPAs. We will also combine information about the size and protection levels of the different MPAs across Europe, with information about the distribution and mobility of the different species. Main findings will be synthesised in layman reports and policy briefs for national and European authorities. These will highlight the lessons learned and recommendations for more effective management and conservation strategies related to predatory fish. As an example, we expect that results from our project will feed directly into the planned zonation of existing Marine National Parks into effective MPA networks including movement corridors and climate refugia for predatory fish.

MUrFor– Managing sustainable sea urchin fishery and marine forest conservation

CONTEXT

Global anthropogenic changes are rapidly disassembling the structure of natural ecosystems, leading to detrimental consequences for their functioning and services to human society (e.g., food production). In the Mediterranean Sea, fishing can reduce the abundance of coastal fish which feed on sea urchins, allowing these to increase uncontrolled, and overgraze marine macrophyte forests. These are a biodiversity hotspot, supporting multiple species of marine organisms and the ecosystem services they provide. Guaranteeing food security from natural resources while maintaining healthy marine forest ecosystems and conserving biodiversity remains a complex challenge for managers. To accomplish this purpose, it is necessary to deeply understand the processes regulating the ecological and socio-economic systems including the sea urchin Paracentrotus lividus that plays a key role, both as one of the main Mediterranean herbivores controlled by fish (mainly the commercial species of Sparids), and for its value as a highly prized delicacy.

MAIN OBJECTIVES

The effective coupling and integration of the socio-ecological systems around marine forest habitats will permit the identification of optimal trade-off scenarios between long-term conservation of coastal benthic ecosystems and the viability of small-scale fisheries of both sea urchins and their predatory fish.

MAIN ACTIVITIES

MUrFor is an interdisciplinary project that combines different expertise. It is based on the principles of participative management between researchers and stakeholders (e.g. regional fisheries and Marine Protected Areas managers). The project will be based on two main study areas: Sardinia, Italy, characterized by high sea urchin harvesting and Catalonia, Spain, characterized by high pressure of artisanal fishery of sparids.

The activities include:

1. Mobilizing available biological, environmental, economic and fisheries data.
2. The collection of new data to estimate the role played by environmental conditions and management policy (protection and limitation regimes of artisanal fishing and sea urchin fishing) in regulating the critical collapse thresholds of a) the marine forest ecosystems, b) the self-sustainability of sea urchin populations and c) the economic sustainability of sea urchin harvesting and artisanal fishery.
3. The development of ecosystem models, bio-economic models and the development of analysis of productivity and efficiency of fishery (both sea urchins and sparids) to identify sustainable socio-economic scenarios.
4. The development of a management tools package to facilitate applied management, focusing on best practices for monitoring and collection of biological and socio-economic data, a decision tree and an interactive visualization tool.

The results of the Project will be disseminated to citizens and schools through seminaries and dedicated events as well as in scientific journals. The technical applications of best management practices, as well as results of data collections, models and simulated scenarios, will be propagated for the benefit of national and EU level strategies and policies.

Herbivory sea urchin outbreaks drive the collapse of vegetated rocky reefs as a consequence of predatory fish depletion after overfishing. The resulting habitat is an underwater wasteland of bare rock and crustose coralline algae commonly known as urchin barrens; degraded, unproductive and very stable ecosystem states. At the same time, increasing fishing pressure is placed on invertebrates among which sea urchins are becoming commercially very relevant with some instances of unsustainable activity.

PARTNERS OF THE PROJECT

Department of Integrative Marine Ecology - Genoa Marine Centre, Zoological Station Anton Dohrn, Genoa, Italy

DYNECO Research Unit – Benthic Ecology Laboratory, French Research Institute for Exploitation of the Sea, Plouzané, France

Center for Ocean and Society, Christian-Albrecht University of Kiel, Kiel, Germany

Institute for the study of Anthropic impacts and Sustainability in the marine environment, National Research Council of Italy, Rome, Italy

Department Of Chemistry and Pharmacy, University of Sassari, Sassari, Italy

Department of Evolutive Biology, Ecology and Environmental Sciences, University of Barcelona, Barcelona, Spain

Blanes Center for Advanced Studies, Spanish National Research Council, Blanes, Spain

DURATION

01/02/2023 – 31/01/2026

TOTAL GRANT

approx. 1 mil. €

TWITTER

@PMurfor

MORE INFORMATION

Simone Farina
simone.farina@szn.it

Norwegian forest.

PARTNERS OF THE PROJECT

Department of Terrestrial Ecology, Norwegian Institute for Nature Research, Trondheim, Norway

Department ECODIV - Research Unit RECOVER, National Research Institute for Agriculture, Food and Environment, Aix-en-Provence, France

Department of Ecological Analyses, Institute of Landscape Ecology - Slovak Academy of Sciences, Bratislava, Slovakian

DURATION

01/03/2023 – 28/02/2026

TOTAL GRANT

approx. 700 thsd. €

WEBSITE

https://www.nina.no

MORE INFORMATION

Dr. Roel May
roel.may@nina.no

PAREUS - Providing Adaptive knowledge for Ratcheting up the EU Biodiversity strategy for Sustainable landscapes and protected areas

CONTEXT

Anthropogenic land-use changes have degraded landscapes and caused declines in biodiversity, ecosystems and their services. The current network of legally Protected Areas (PA) is not sufficiently large to safeguard biodiversity. The *30x30 target* of the EU Biodiversity Strategy for 2023 (EU BDS2030) is a commitment to protect at least 30% of land and sea for nature by 2030. This requires transformative change in the use of land, and massive upscaling of ecosystem restoration, to combat land degradation, protect biodiversity and ecosystem services, and ensure human well-being. These are unlikely to be achieved effectively within the PA networks alone, but need regime shifts in the social and policy context of landscape management. A coherent network of PAs needs to be complemented with Other Effective area-based Conservation Measures (OECMs) to ensure that biodiversity goals are aligned with local values, needs and governance, including sustainable value creation and business development. Biodiversity-negative outcomes can only be mitigated through synergistic 'land sparing' surrounded by favourable 'land sharing' approaches.

MAIN OBJECTIVES

The overarching aim of PAREUS is to perform a spatially explicit cross-country assessment of existing land-use planning and conservation practices for identifying improvements needed for reaching the EU BDS2030 targets. Specifically, PAREUS will apply an innovative landscape approach to integrate policy and practice for multiple land uses to ensure equitable and sustainable use of land within a spatially explicit framework and in close collaboration with stakeholders from multiple sectors to ensure the co-creation of knowledge.

MAIN ACTIVITIES

PAREUS will create an engagement and co-creation arena involving the whole spectrum of stakeholder perspectives with often conflicting social and economic interests regarding PAs, OECM and sustainable landscapes. Jointly, we will explore different ways to create a coherent network of PAs for biodiversity where also the wider countryside is included. For this, PAREUS will perform a spatially explicit social-ecological accounting of regional landscapes to enhance the potential for biodiversity conservation through OECM approaches. We will also evaluate the policy landscape regarding the consequences of current land-use planning practice. A geo-prospective planning tool will be developed to create participatory visualizations of the future orientation of landscapes. Our communication strategy is to create increased awareness about the possibility to achieve biodiversity targets through a combination of land sparing (PAs) and land sharing (OECM) for a broad target audience.
Through transnational and transdisciplinary research and national case studies, PAREUS will identify factors that prevent targets from being implemented at the national scale, and how they may be crystallized into national and regional strategies and policies. By tackling the central challenge of biodiversity and land degradation from the perspective of transformative governance, PAREUS will be able to complement PA conservation with OECM approaches and help EU member states and associate members to implement their own national biodiversity strategy.

PETRI-MED - Plankton biodivErsity Through Remote sensing and omIcs in the MEDiterranean Sea

CONTEXT

The assessment and monitoring of microbial plankton biodiversity are essential to obtain a robust evaluation of the health status of marine environments. While bulk marine photosynthetic plankton is a proxy for the fundamental ecological process of primary production, the specific composition of the microbial community is key to unveiling a number of biogeochemical processes such as nitrogen fixation, carbon sequestration, oxic-anoxic remineralization and ocean acidification, that provide valuable indications on ecosystems dynamics and health. PETRI-MED will focus on the Mediterranean Sea, widely recognized as one of the world's most important marine and coastal biodiversity hotspots, providing relevant ecosystem and cultural services to millions of citizens. The aim of the project is to develop novel strategies to monitor the status and spatio-temporal trends of microbial plankton community composition and function, based on satellite observations.

MAIN OBJECTIVES

1. Develop novel satellite-based indicators to determine and monitor the status and trends of microbial plankton community composition and biodiversity in the entire Mediterranean Sea.
2. Identify spatio-temporal patterns of microbial plankton community distribution and diversity.
3. Identify key controls of biodiversity patterns, including ecological connectivity, natural and human-related forcings, by focusing on key indicators of ocean's health/biogeochemical state.

MAIN ACTIVITIES

PETRI-MED will largely rely on satellite optical radiometric measurements (so-called Ocean Colour, OC), exploiting the combined temporal and spatial characteristics of latest OC European datasets (i.e., Copernicus Sentinel-3 and European Space Agency OC-CCI) with state-of-the-art remote sensing observations and biogeochemical models (as provided by Copernicus Marine), marine currents modelling, and genomic techniques. To achieve the ambitious goal of merging remote sensing, biogeochemical/physical modelling, and in situ omics measurements, PETRI-MED will rely on Artificial Intelligence (AI). Project outputs will be communicated at three levels: (i) monitoring results, best practices, and policy recommendations through dialogue with the stakeholders; (ii) dissemination to the general public; and (iii) scientific results via peer-reviewed journals. The overall goal of PETRI-MED is to provide policy makers and other stakeholders with the adequate knowledge to: (i) permit the adoption of prioritization approaches to ecosystem management based on quantitative and real-time metrics; (ii) design and implement different protection strategies and policies to protect biodiversity; (iii) quantify the results of implemented actions at both European, basin and local level; (iv) enable systematic, fact-supported, and area-based management of Marine Protected Areas (MPAs), Key Biodiversity Areas, and Ecologically or Biologically Significant Marine Areas; (v) determine complementarity between MPAs through different mechanisms (e.g. UNESCO Biosphere Reserve, Ramsar sites, private protected areas, etc.); and (vi) evaluate the viability of MPA management in response to climate change.

1-day RGB composite image of the Mediterranean Sea as observed by Sentinel 3A and 3B on July 14th 2022.

PARTNERS OF THE PROJECT

Department of Physical and Technological Oceanography - Institute of Marine Sciences and Artificial Intelligence Research Institute, Spanish National Research Council, Barcelona, Spain

Benthic Ecogeochemistry Laboratory, Sorbonne University - French National Research Council, Banyuls-sur-Mer, France

Institute of Marine Sciences, Italian National Research Council, Rome, Italy

Leon H. Charney School of Marine Sciences - Department of Marine Biology, University of Haifa, Haifa, Israel

Marine Biology Station Piran, National Institute of Biology, Ljubljana, Slovenia

Marine and Continental Waters Programme, Institute of Agrifood Research and Technology, Sant Carles de la Rapita, Spain

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,1 mil. €

WEBSITE

https://petri-med.icm.csic.es

MORE INFORMATION

Marco Talone
talone@icm.csic.es

Sampling life on glaciers.

PRIORITICE - VANISHING HABITATS: CONSERVATION PRIORITIES FOR GLACIER-RELATED BIODIVERSITY THREATENED BY CLIMATE CHANGE

CONTEXT

Glacial habitats host an astonishing diversity of species and life forms; however, most of the world's mountain glaciers are melting due to climate change, threatening glacier biodiversity and the functioning of mountain ecosystems. In Europe, glacier retreat is particularly severe for the southernmost, peripheral mountain chains, where the smallest glaciers occur. The European Habitat Directive includes 'Permanent Glaciers' in the list of habitats deserving conservation, and glacial habitats host several endemic species. Nevertheless, none of these species is listed in the Habitat Directive, and information on biodiversity of these environments is scarce, hindering our ability to manage mountain socio-ecological systems.

MAIN OBJECTIVES

PrioritIce aims at identifying trends, threats and processes acting on the biodiversity associated to glacial habitats (i.e. species living above the glacier or in glacier forelands) in Europe, with a focus on the areas hosting critically endangered habitats. Studying the distribution, abundance and functions of biodiversity across mountain environments, PrioritIce will enhance evidence-based protection approaches and shed light on the conservation of a poorly known, unprotected biota. The integration of innovative statistical and molecular methodologies will allow us to improve our knowledge of glacial biodiversity and its ecological role in the functioning of glacial habitats in order to identify priority conservation areas. This will provide practitioners, managers and policy makers with the much-needed knowledge for defining adequate strategies for preserving mountain biodiversity and ecosystems.

MAIN ACTIVITIES

The PrioritIce project will:

1. provide an exhaustive assessment of the taxonomic and functional diversity of organisms living in glacial habitats. The consortium has already gathered data on the distribution of key taxa (bacteria, fungi, nematodes, tardigrades, earthworms, arthropods, plants), and of ecosystem functions from multiple glacial landscapes across Europe. We will complement this database with additional samples from glaciers at high risk of disappearing, with a special focus on poorly known endemic species;
2. analyse biological interactions to identify how species contribute to ecosystem functioning and services in glacial habitats. We will also develop machine learning approaches to assess the impact of glacier extinction on the diversity–functioning relationship;
3. provide evidence-based priority programs and actions for managing glacial habitats and devising strategies for anticipating the consequences of glacier retreat under climate change scenarios. Together with a broad set of stakeholders, we will inform decision-makers and environmental policy to preserve, support, and manage these ecosystems.

PARTNERS OF THE PROJECT

Department of Environmental Science and Policy, University of Milan, Milan, Italy

Alpine Ecology Laboratory, French National Centre for Scientific Research, Grenoble, France

Research and Collection Office, Science Museum (MUSE), Trento, Italy

Faculty of Biology - Department of Animal Taxonomy and Ecology, Adam Mickiewicz University, Poznań, Poland

Institute of Earth Surface Dynamics, University of Lausanne, Lausanne, Switzerland

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,2 mil. €

MORE INFORMATION

Gentile Francesco Ficetola
francesco.ficetola@gmail.com

PROPARTS - DEVELOPING STRATEGIES FOR THE PROTECTION OF TAXA CONSISTING OF INTERCONNECTED SEXUAL AND PARTHENOGENETIC REPRODUCING STRAINS

CONTEXT

Parthenogenetic reproducing species, lacking at least part of the recombination mechanisms, are far more susceptible to loss of genetic diversity than sexual reproducing ones. Investigating the role of sexual ancestor populations for maintaining genetic diversity and, consequently, the acclimation potential of parthenogenetic populations, will enable for optimised conservation strategies of such species.

In this project, the knowledge required for designing transnational conservation strategies will be gathered and, basing on this, a network securing sustainable protection of a species consisting of extremely rare bisexual and frequent parthenogenetic populations will be established.

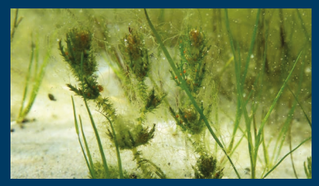
MAIN OBJECTIVES

Development of the first transnational protection plan for parthenogens, consisting of recommendations for the management of sites as well as for exchange of information between the network partners by gathering and analysing site-specific and regional information about status, legal aspects and management options as well as the population genetic knowledge required.

MAIN ACTIVITIES

Identification of former and recent inland brackish water sites suitable for sexual as well as parthenogenetic reproducing populations of Chara canescens as an example of a species colonizing by parthenogens; gaining knowledge about their recent as well as former genetic diversity; evaluation of their potential to support the genetic diversity of the recent parthenogenetic populations at the European coastline.

These data will serve a sound scientific knowledge basis for the final target, which is the development of management schemes for inland brackish water sites, acknowledging the requirements of C. canescens, being embedded in a transnational network of sites bearing sexual populations and focusing on maintaining an effective gene flow.



Chara canescens, a species mainly represented by parthenogenetic populations with high colonisation potential, but relying on a few bisexual occurrences feeding genetic diversity of the ovoapogamous colonizers. Photograph: Klaus van de Weyer.

PARTNERS OF THE PROJECT

Institute for Biosciences - Chair Aquatic Ecology, University of Rostock, Rostock, Germany

Department of Integrative Biology and Biodiversity Research, University of Natural Resources and Life Sciences Vienna, Vienna, Austria

Department of Biological, Chemical and Pharmaceutical Sciences and Technologies, University of Palermo, Palermo, Italy

Department of Plant Biology and Ecology - Faculty of Pharmacy, University of Seville, Seville, Spain

Cavanilles Institute for Biodiversity and Evolutionary Biology, University of Valencia, Paterna, Spain

DURATION

01/04/2023 – 30/03/2026

TOTAL GRANT

approx. 800 thsd. €

MORE INFORMATION

Prof. Dr. Hendrik Schubert
hendrik.schubert@uni-rostock.de

Mountain Path.

PARTNERS OF THE PROJECT

Stockholm Resilience Centre, Stockholm University, Stockholm, Sweden

IUCN European Regional Office, Brussels, Belgium

Alpine Ecology Laboratory, French National Centre for Scientific Research, Grenoble, France

Ecosystems and Environment Research Program - Faculty of Biological and Environmental Sciences, University of Helsinki, Helsinki, Finland

Department of Agricultural Economics and Rural Development, Foundation Georg August University of Göttingen, Göttingen, Germany

Department of Geography, Environmental Studies & Tourism, University of Western Cape, Bellville, Republic of South Africa

Department of Environmental and Geographical Science, University of Cape Town, Cape Town, Republic of South Africa

DURATION

01/03/2023 – 28/02/2026

TOTAL GRANT

approx. 1,4 mil. €

MORE INFORMATION

Prof. Erik Andersson
erik.andersson@su.se

RECONNECT - Reconciling fragmented and contested landscapes

CONTEXT

Too often nature conservation fails to connect to and work together with other sectoral policies, people's interests, land uses and management practices, as well as historical and cultural legacies. This *disconnection* has led to tensions between conservation, production goals and environmental justice. The project RECONNECT aims to help reduce these tensions and *reconnect* different values, policies, and ecosystems, and thus support inclusive, cross-sectoral approaches to nature conservation in line with new whole-of-society approach of the new Global Biodiversity Framework.

RECONNECT is an inter- and transdisciplinary research program designed to develop, test, and validate a social-ecological approach for conserving biodiversity in multi-functional, multi-actor landscapes. Different from earlier conservation projects focusing on protected areas and species, we focus on the social-ecological relations between protected areas and larger landscapes and other actors and sectors. We will develop novel tools, methods, and guidance to build policy coherence, and acknowledge plural preferences for navigating trade-offs and conflicts.

MAIN OBJECTIVES

1) To develop an interdisciplinary framework for positioning and connecting protected areas to the social-ecological systems they are embedded in; 2) To develop a coherent set of tools and processes for systematically identifying, assessing and testing better options for the interconnections between ecosystems, community values, and diverse institutional arrangements; and 3) To explore governance modes and practices for surfacing and managing tensions and for (re-)connecting people and ecosystems.

MAIN ACTIVITIES

We will reposition nature conservation by studying its biophysical, conceptual, and administrative boundaries. Using mixed methods ranging from novel biodiversity modelling and document analyses to mapping exercises and participatory approaches, we will: 1) compare different national protected areas management models; 2) assess various forms of landscape functional connectivity; 3) assess the relation between diverse values of nature and place; 4) develop and evaluate new dialogue formats for managing value conflicts and building coherence among organisations with different practices, interests, and knowledge systems; and 5) synthesise findings and insights across the project to contribute to the methods, approaches, and frameworks available for managing multi-functional landscapes.

The case studies, located in France, Germany, South Africa, and Sweden, each extend across urban to rural gradients with different types of conservation governance of protected areas and surrounding landscapes. The cases are all grounded in a history of transdisciplinary collaboration, which we will draw upon both for our studies and for different knowledge sharing activities. RECONNECT will focus on three knowledge interfaces to ensure its policy, societal and scientific impacts: i) policy guidance, ii) local knowledge alliances for transfer of knowledge and building agency, iii) scientific learning spaces and knowledge sharing. The project will provide helpful insights to support the implementation of the new CBD Global Biodiversity Framework, as well as support to the implementation of the EU Biodiversity Strategy for 2030 in the European domain.

RecoSal - Recovering diversity in salmon populations and cultures of fishing: the subarctic River Teno basin as a confluence and a Living Lab

CONTEXT

Tackling biodiversity loss, including intraspecific diversity, is one of the greatest challenges of our time. Intraspecific diversity in economically and culturally important fish populations, i.e., variation in life history and genetic characteristics, is crucial as it provides resilience to disturbances, contributes to long-term sustainability under a changing climate, and is also a prerequisite for sustainable fisheries. The RecoSal project develops probabilistic, population-specific, target-based assessment tools for individual Atlantic salmon stocks and collaborative governance models for recovery of the extremely diverse salmon population complex of the large Teno river system in the Sámi homeland area in the northernmost Finland and Norway. The processes consider the multicultural setting in the Teno river valley and respect Indigenous knowledge and rights. The current depleted state of the salmon populations in the Teno is devastating for the local economies including the fishing tourism industry, and for the way of living and cultural tradition of the Sámi.

MAIN OBJECTIVES

The overall objective of RecoSal is to strengthen the evidential knowledge base for collaborative governance and recovery of the diverse Atlantic salmon population complex of the Teno system. The more specific objectives include: 1) to develop a probabilistic model framework for evaluation of the status of salmon populations that incorporates the life cycle dynamics of various sub-populations, enables estimation of various sources of mortality, estimation of stock specific targets and spawner stocks, and investigations on how inclusion of indigenous and local knowledge could help improve the assessment methods; 2) to produce a first-generation participatory planning model for processes of collaborative, sustainable and socially acceptable salmon management in the Teno region and provide advice on its applicability in governance; and 3) to integrate biological and governance models in a transdisciplinary framework and ensure that co-produced knowledge meet the formal decision requirements on Teno salmon management in a useful form for decision-makers, stakeholders, and Indigenous and local communities, i.e., the Living Lab participants.

MAIN ACTIVITIES

Development of the population-specific assessment model will have the potential of informing and making impact on robust stock assessment processes, advice provision and policymaking for Atlantic salmon, both in the Teno river and internationally. The impact of novel forms of collaboration will extend from local and national management bodies to the bilateral governance. RecoSal will provide Finnish, Norwegian and Sámi societies with participatory processes that prevent conflict situations and deadlocks of negotiations that endanger both salmon biodiversity and local and indigenous communities. Dissemination, exploitation and communication activities will be organized beyond the state-of-art, as multilevel and target-group-specific activity that will take language, power, interest and culture differences into account. Our strategy will define how results are shared with stakeholders, end-users, and national and international actors, as well as how they will reach the general public and media. The overarching objective is to achieve maximum impact of the research findings. Exploitation measures aim primarily at directly using the research results to support decision-making in the local context and at national level in Finland and Norway.

Traditional Sámi salmon weir in the River Teno/Tana/Deatnu in northernmost Finland and Norway.

PARTNERS OF THE PROJECT

Natural Resources Unit, Natural Resources Institute Finland (LUKE), Oulu, Finland

Department of Arctic Ecology, Norwegian Institute of Nature Research, Tromsø, Norway

Norwegian Arctic University Museum and Academy of Arts, The Arctic University of Norway, Tromsø, Norway

Department of Political Science, Umeå University, Umeå, Sweden

DURATION

01/02/2023 – 31/12/2025

TOTAL GRANT

approx. 900 thsd. €

MORE INFORMATION

Jaakko Erkinaro
jaakko.erkinaro@luke.fi

Forested riparian area in the Rio Homem (Cavado River Basin - Northern Portugal).

PARTNERS OF THE PROJECT

Institute for Environmental Sciences, RPTU - University of Kaiserslautern-Landau, Landau, Germany

Unit of Computational Biology, Edmund Mach Foundation, San Michele all'Adige, Italy

Laboratory of Ecology - Department of Sciences, University of Roma Tre, Rome, Italy

Centre of Molecular and Environmental Biology, University of Minho, Braga, Portugal

Freshwater Ecosystems Research Group, Environmental Hydraulics Institute of Cantabria Foundation, Santander, Spain

Department of Ecology and Environmental Science, Umeå University, Umeå, Sweden

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,1 mil. €

WEBSITE

http://riparianet.eu

MORE INFORMATION

Prof. Dr. Ralf Schulz
r.schulz@rptu.de

RIPARIANET – Prioritising riparian ecotones to sustain and connect multiple biodiversity and functional components in river networks

CONTEXT

Europe has committed to upscale ecosystems protection to include 30% of land and sea. However, due to historical overexploitation of natural assets the available area for biodiversity protection is severely limited. Riparian zones are natural ecotones between aquatic and terrestrial ecosystems, contributing disproportionately to regional biodiversity, and providing multiple ecosystem functions and services. Because of this and their branching geometry, riparian networks form a vast system of 'blue-green arteries' which physically and functionally connect multiple ecosystems over elevation gradients, despite covering a relatively small area of the basin. Hence, RIPARIANET argues that developing approaches able to optimise the spatial conservation of natural stream-riparian networks represent a flagship example of biodiversity protection in the EU. Although the integrity of riparian zones is fundamental for the achievement of multiple EU environmental objectives, the lack of a standardised framework of biodiversity assessment and protection across Member States has led to extensive impairment of riparian areas and frequent stakeholder conflicts.

MAIN OBJECTIVES

The main objective of RIPARIANET is to leverage the increasing resolution of remote sensing information to provide practitioners with evidence-based guidance and approaches to biodiversity conservation. Key questions include: i) how can we remotely assess riparian integrity and identify areas which provide effective connectivity allowing species biodiversity and ecosystem functions to persist through meta-ecological processes? ii) how can we disentangle the influence of local- and network-scale stressors and processes on riparian biodiversity to better implement river basin management schemes? iii) to what extent do currently existing protected areas in rivers account for the geometry of riparian networks and their multifunctionality?

MAIN ACTIVITIES

We will address these questions in riparian networks within six river basins in Europe, including Boreal, Continental, Alpine, Temperate and Mediterranean systems. First, we will gather local needs and interests from key stakeholders together with satellite imagery and GIS environmental data for all basins. Then, riparian and river ecosystems functions will be modelled, and ecological hotspots will be identified through a GIS-based multi-criteria approach, including stakeholder inputs. Then, we will collect in situ data to assess multiple biodiversity and stressors at the local scale and, subsequently, scale-up this information to the network scale using geostatistical tools and advanced modelling. This knowledge will be conveyed to managers at local and EU scales in the form of decision-support tools allowing decision makers to identify protection gaps and ecological hotspots along riparian networks based on multiple biodiversity, functional and connectivity criteria.

SPEAR – Scenarios for Protecting European Avian Redistributions

CONTEXT

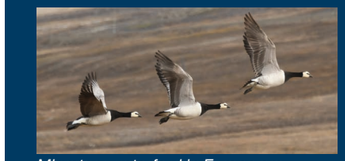
Biodiversity loss is a global challenge that requires innovative conservation strategies to mitigate ongoing threats from habitat loss and climate change. Birds are highly responsive to environmental change and important indicators for ecosystem health. New assessments of current conservation actions are urgently needed because many bird populations are declining in Europe. The occurrence and numbers of birds, especially species of conservation concern, are among the main criteria used to identify areas of high ecological value that are central to post-2020 conservation targets. SPEAR will address Targets 3 (Governance agreements for migratory species), 5-7 (Reducing direct pressures on migratory species and their habitats), and 9-11 (Improving the conservation status and enhancing ecosystem services provided by migratory species) of the Strategic Plan of the Contracting Parties to the Bonn Convention on Migratory Species, and objectives 2 (Sustainable use and management of migratory waterbirds) and 3 (Maintaining a comprehensive flyway network of protected areas) of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds.

MAIN OBJECTIVES

SPEAR will compile pan-European data on seabirds, waterbirds, and landbirds to meet five objectives: i) to identify potential changes in priority areas for bird conservation at land and sea, including critical gaps in the current network of protected areas in Europe needed to build a Trans-European Nature Network, ii) to assess the resilience of European networks to environmental change and identify alternatives that will be robust under future scenarios of threats and pressures, iii) to assess the cost-effectiveness of management plans for protected areas that will facilitate adaptation of birds to climate change, iv) to plan adaptive and sustainable management for harvested species, and v) to develop new knowledge and governance tools needed for conservation of multifunctional wetlands.

MAIN ACTIVITIES

- Identification of priority areas for bird conservation and gaps in the current network of protected areas at land and sea in Europe, providing cost-effective solutions through land planning with spatial conservation prioritisation.
- Assessment of emerging threats to current networks of protected areas and identification of areas important to future conservation within different scenarios of change.
- Evaluation of management plans for climate change adaptation strategies implemented inside the Natura2000 network to identify effective actions. We will also conduct a cost-effective assessment of management actions of current EU-LIFE projects.
- Establishment of a new database of conservation evidence on the cost-effectiveness of different management plans.
- Development of an integrated conservation strategy to halt declines of harvested species of waterbirds, including management plans for sustainable harvest and wetland habitats conservation, and decadal predictions for bird populations.
- Development of best practices to guide Nature-based Solutions to support wetland management at both a local and landscape scale. We will evaluate trade-offs and synergies in different management options to identify solutions that are optimal for both biodiversity and ecosystem services.



Migratory waterfowl in Europe are dependent on networks of protected areas to successfully complete their annual cycle.

PARTNERS OF THE PROJECT

Department of Terrestrial Ecology, Norwegian Institute for Nature Research, Trondheim, Norway

Conservation Office, BirdLife Europe, Brussels, Belgium

Department of Ecoscience, Aarhus University, Rønde, Denmark

Danish Hunters' Association, Rønde, Denmark

Finnish Museum of Natural History - University of Helsinki, Helsinki, Finland

Department of Biology, University of Turku, Turku, Finland

Convention on Migratory Species Secretariat, United Nations Environment Programme - UNEP, Bonn, Germany

Secretariat of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds, United Nations Environment Programme - UNEP, Bonn, Germany

Ecolandlab, Center for Ecological Research and Forestry Applications, Cerdanyola del Vallès, Spain

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

African-Eurasian Migratory Landbirds Action Plan Working Group - Convention on Migratory Species, United Nations Environment Programme - UNEP, Bern, Switzerland

Monitoring Department, Swiss Ornithological Institute, Sempach, Switzerland

Department of Biodiversity, Wetlands International European Association, Ede, The Netherlands

Eurosite - the European Land Conservation Network, Tilburg, The Netherlands

Department of Mathematics and Statistics, University of St. Andrews, St. Andrews, United Kingdom

DURATION

01/02/2023 – 31/01/2026

TOTAL GRANT

approx. 1,6 mil. €

MORE INFORMATION

Brett K. Sandercock
brett.sandercock@nina.no

Hard-bottom sponge habitat with Axinella spp. and Aplysina aerophoba at 25 m depth, Mediterranean Sea (Image credit: Thanos Dailianis, HCMR).

PARTNERS OF THE PROJECT

Deep Sea Biodiversity and Conservation Research Team, Interdisciplinary Centre of Marine and Environmental Research (CIIMAR) - University of Porto, Matosinhos, Portugal

Invertebrate Department, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

Mediterranean Institute of Marine and Terrestrial Biodiversity and Ecology, Aix-Marseille University, Marseille, France

Institute of Marine Biology, Biotechnology & Aquaculture, Hellenic Centre for Marine Research, Heraklion, Greece

Department of Environment, Ionian University, Zakynthos, Greece

Department of Natural History, University of Bergen, Bergen, Norway

Department of Biodiversity and Conservation, University of the Western Cape, Bellville, Republic of South Africa

National Museum of Natural Sciences (MNCN), Spanish National Research Council, Madrid, Spain

Spanish Institute of Oceanography - Oceanographic Center of Gijón, Spanish National Research Council, Gijón, Spain

Pharmacognosy - Department of Pharmaceutical Biosciences, University of Uppsala, Uppsala, Sweden

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,4 mil. €

TWITTER

@SponBIODIV

MORE INFORMATION

Joana Xavier
jxavier@ciimar.up.pt
Paco Cárdenas (co-coordinator)
paco.cardenas@em.uu.se

SponBIODIV - Marine sponge biodiversity, from genes to ecosystems: delivering knowledge and tools for sustainable management and conservation

CONTEXT

Marine sponges (*phylum Porifera*) are widely distributed across the oceans and form highly-structured habitats – sponge grounds, gardens and reefs – that play key functional roles and deliver numerous ecosystems goods and services. They serve as habitat and nursery to various species including commercially exploited fish, and bath sponges have been harvested for centuries for their spongin skeleton, thus supporting local communities' livelihoods. They are also recognised as prolific sources of compounds with pharmacological potential. However, sponges and their habitats are increasingly threatened by human activities (e.g. fisheries, climate change, deep-sea mining) in marine areas both within and beyond national jurisdictions. Despite significant advances in recent years, knowledge of their biodiversity, distribution, biology and ecology is still sparse and largely fragmentary. This gap in knowledge integration hampers their inclusion in conservation frameworks, compromising the establishment of ecologically representative, interconnected and resilient networks of protected areas. The SponBIODIV project will fill-in such gaps, and generate knowledge and tools that will allow the design of conservation and monitoring strategies, and support the implementation of policies for better management and protection of marine biodiversity, from national to European scales and beyond.

MAIN OBJECTIVES

SponBIODIV will establish diversity and distribution baseline knowledge and deliver tools to improve management and conservation of sponges across the Atlantic and Mediterranean, at the levels of genes, species, and habitats. The project is anchored on the establishment of a trans-European and pan-Atlantic network of research organizations that will engage with key stakeholders to support evidence-based policies for management, conservation, and restoration of marine biodiversity, from coastal areas to mesophotic and deep-sea ecosystems.

MAIN ACTIVITIES

By combining legacy data and samples with new ones collected through a multi-national survey on case study areas, our project will:

1. Examine patterns and identify hotspots of bio- and phylodiversity of sponge species and habitats at various spatial scales;
2. Identify ecological/genetic corridors and refugia areas between species and regions, combining biophysical modelling and population genomic approaches;
3. Develop new methodologies for wider biodiversity detection and monitoring of sponge habitats by harnessing the potential of sponges as natural samplers (nsDNA);
4. Assess the current conservation status of species and habitats in line with major international processes (e.g. IUCN Red List and OSPAR);
5. Engage relevant stakeholders for co-production and co-delivery of data and practical tools to inform management, conservation, and restoration efforts.

SponBIODIV will promote dialogue with key stakeholders by establishing an advisory board, participate in science-policy-society fora and organize capacity building activities.

Moreover, the project will deliver data, knowledge and tools on biodiversity, connectivity, and resilience of sponge species and habitats in support of the EU Biodiversity Strategy 2030, and global efforts of the Convention on Biological Diversity, UN Agenda 2030, the UN Decade of Ocean Sciences for Sustainable Development and the UN Decade on Ecosystem Restoration (2021-2030).

TRANSNATURE - TRANSboundary governance models of biodiversity protection: case studies for an enhanced protection of NATURal resources in Europe

CONTEXT

The governance of biodiversity represents a realm of research and policy-making that is crucial to address the causes of biodiversity loss. The mere designation of national protected areas is not sufficient to ensure conservation and has failed to stop biodiversity loss and degradation, inter alia because it does not adequately guarantee ecological connectivity and societal inclusion. Transboundary governance models for biodiversity conservation appear as alternative forms of conservation that respond to the needs of ensuring both a more effective management of biodiversity and the inclusion of different governmental and non-governmental actors and authorities. This approach includes different government levels and addresses power imbalances, with a view to realizing connectivity, the prevention of pollution, and the protection of wildlife.

MAIN OBJECTIVES

In order to improve knowledge about alternative modes of conservation that span different countries and different types of authorities, this project aims to identify and study successful examples of transboundary biodiversity conservation, propose ways to address common challenges and effectively protect biodiversity, and elaborate policy recommendations to improve the effectiveness of transboundary biodiversity conservation governance.

MAIN ACTIVITIES

The project will conduct a comparative analysis of four European case studies: (1) EGTC ZASNET and the Transboundary Biosphere Reserve 'Meseta Ibérica' at the borders of Spain and Portugal; (2) EGTC European Park Alpi Marittime - Mercantour at the borders between Italy and France; (3) Westerschelde between Netherlands and Belgium; and (4) an area that we defined from Baltic to Barents located at the borders of Norway, Sweden, and Finland. Desk research on transboundary biodiversity governance and on these territories, will be complemented by interviews and focus groups with stakeholders from the study areas and relevant international and European organizations. Stakeholders will be fundamental also in the initial development of the project's common methodology. The same stakeholders will be the main addressees of the dissemination and communication activities of the project: the creation of a dedicated website and Twitter account, the publication of a regular newsletter, the creation of a Zenodo community to collect and share all project-related outputs, the publication of informative videos and infographics, and the elaboration of policy recommendations. TRANSNATURE will produce general impacts on society, since it aims to ameliorate the governance of natural areas, including through the participation of local actors and with specific impacts on the cross-border pollution and unlawful uses of local fauna. It will also produce impacts on policy-making both in the study areas and within international and European policy processes (post-2020 global biodiversity framework and EU Biodiversity Strategy for 2030).

An example of the landscape features of one of the project's study areas in the Maritime Alps.

PARTNERS OF THE PROJECT

Institute for Comparative Federalism, Eurac Research, Bolzano/Bozen, Italy

Faculty of Law, Ghent University, Ghent, Belgium

Arctic Centre, University of Lapland, Rovaniemi, Finland

Department of Public Law - The Tarragona Centre for Environmental Law Studies (CEDAT), University of Rovira i Virgili, Tarragona, Spain

DURATION

01/03/2023 – 28/02/2026

TOTAL GRANT

approx. 900 thsd. €

MORE INFORMATION

Federica Cittadino, Eurac Research
federica.cittadino@eurac.edu

Transformative wildlife management to enhance biodiversity protection and ecosystem services provision in shared and protected multi-use landscapes across Europe.

PARTNERS OF THE PROJECT

Department of Land use & Governance, Humboldt University of Berlin, Müncheberg, Germany

Department of Geography, National Institute of Geophysics Geodesy and Geography – Bulgarian Academy of Science, Sofia, Bulgaria

Department of Civil, Environmental and Mechanical Engineering, University of Trento, Trento, Italy

Department of Terrestrial Biodiversity, Norwegian Institute for Nature Research, Trondheim, Norway

Center for Research of Agricultural and Natural Risks, Technical University of Madrid, Madrid, Spain

DURATION

01/04/2023 – 31/03/2026

TOTAL GRANT

approx. 1,2 mil. €

WEBSITE

https://www.researchgate.net/project/TransWILD-Transformative-wildlife-management-to-enhance-biodiversity-protection-and-ecosystem-services-provision-in-shared-and-protected-multi-use-landscapes-across-Europe-DE-BG-ES-IT-NO

MORE INFORMATION

Hannes J. König
hannes.koenig@hu-berlin.de
Emu-Felicitas Ostermann-Miyasita
emu-felicitas.ostermann@zalf.de

TransWILD – Transformative wildlife management to enhance biodiversity protection and ecosystem services provision in shared and protected multi-use landscapes across Europe (DE, BG, ES, IT, NO)

CONTEXT

The recovery of formerly rare wildlife populations (i.e. crane, wolf, beaver and others) in Europe is a remarkable wildlife conservation success story, and yet presents daunting challenges for human–wildlife coexistence in shared cultural landscapes, leading to trade-offs such as illegal wildlife killing, crop and livestock damages, and ensuing social conflicts. Ensuring long-term conservation outcomes for wildlife species, including saving of small populations from extinction to sustaining large recovered populations, requires a profound understanding of benefits and trade-offs of wildlife conservation, the effectiveness of alternative policy and management coping strategies as well as the role of stakeholders and alternative governance modes.

MAIN OBJECTIVES

Advance knowledge on effective and integrative wildlife biodiversity management in Europe by:

1. Identifying the role of landscape structure and land use diversity on wildlife benefits and costs;
2. Disentangling the complex human-dynamics in wildlife management;
3. Transdisciplinary integration of academic and stakeholder knowledge as well as its generalisation and upscaling.

MAIN ACTIVITIES

In the wildlife ecology approach (objective 1), machine learning-based analysis of wildlife monitoring and newly collected data, spatially-explicit analysis and modelling of wildlife benefits and costs are planned. While for the sustainability science approach (objective 2), situational analysis of stakeholders, roles, norms and priorities and relational values, quantification of ecosystem services and disservices, assessment of cost-effectiveness, acceptability and sustainability of current and novel coping strategies and modes of human-wildlife governance will be conducted. These results will be applied to the transdisciplinary integration of knowledge (objective 3), by participatory co-development and assessment of future human-wildlife coexistence scenarios and selected experimentation with co-designed coping strategies.

The combined use of these methods is expected to significantly advance knowledge on effective and integrative wildlife biodiversity management in Europe. This includes case-specific and general conditions that are either conducive or limiting for wildlife conservation in protected and shared landscapes across Europe, as well as the role of current and alternative wildlife policy and governance modes and management practices.

WOLFNESS – Preserving the natural heritage of wolves: a multidisciplinary approach towards effective and socially acceptable management of wolf-dog hybridization across Europe

CONTEXT

Anthropogenic hybridization (AH) threatens global biodiversity conservation. Especially when involving domesticated animals, artificially selected for genetically determined morphological, physiological, and behavioural traits, AH might have deleterious effects for the genomic integrity and viability of wild populations. WOLFNESS aims to enhance the wolf (*Canis lupus*) conservation status in light of its on-going recolonization of human-dominated landscapes, where wolf-dog hybridization (WDH) risk might be high. Due to lack of knowledge and methodological standardization, social awareness, technical difficulties, and unclear provisions by the main legal instruments on nature conservation, WDH has not been systematically investigated and its management has hardly made any progress.

MAIN OBJECTIVES

Through a multidisciplinary network of researchers working in a conservation biology context, WOLFNESS promotes the application of novel genetic, genomic, demographic, and behavioural approaches to provide science-based support for effective and socially acceptable WDH management. The main objectives are: a) standardizing genetic and analytical procedures for the unambiguous identification of early-generation hybrids, b) establishing sampling and analytical procedures to estimate admixture, c) quantifying admixture in selected European wolf populations; d) investigating the phenotypic effects of dog introgression in wolves, e) evaluating management alternatives to address WDH, f) assessing perceptions of WDH and the social acceptability of management options, and g) evaluating the efficacy of current EU policies in addressing WDH.

MAIN ACTIVITIES

Developing tools to assess and monitor WDH in European wolf populations. WOLFNESS promotes sharing expertise among different genetic labs to reliably detect admixed individuals. Sampling issues will also be addressed to quantify admixture in selected European wolf populations.

Assessing phenotypic effects of introgression in wolves. WOLFNESS adopts whole genome sequencing to estimate the effects of admixture on behaviour, life-history traits, ecology, and interactions with humans, using both controlled experiments with captive wolf-dog hybrids, and field work techniques.

Evaluating alternative management strategies and their social acceptability. Through literature reviews, field work, and population modelling, WOLFNESS evaluates the technical feasibility and expected efficacy of alternative WDH management strategies. By complementing psychological and anthropological approaches, WOLFNESS also recognizes different actors, elaborating on how to increase awareness and maximize social acceptance of more effective WDH management.

Stakeholder engagement, policy impact and outreach. WOLFNESS findings will be relevant for the Bern Convention and fuel progress for the conservation of Large Carnivores in the frame of the European Commission and its Habitats Directive, providing technical and policy support at the European and national levels, and interacting with the main stakeholders and informing the general public.

Cross-mating between wolves and domestic dogs, an emblematic case of anthropogenic hybridization, jeopardizes the genomic integrity, the viability, and the conservation of wild wolf populations.

PARTNERS OF THE PROJECT

Department of Biology and Biotechnologies "Charles Darwin", Sapienza University of Rome, Rome, Italy

Center for Wildlife Genetics, Senckenberg Society for Nature Research, Frankfurt, Germany

Human Biology and Primate Cognition Research Group - Institute of Biology, University of Leipzig, Leipzig, Germany

Nature and Agricultural Resources Conservation's Office, Appennino Tosco-Emiliano National Park, Ligonchio, Italy

Institute of Applied Ecology, Rome, Italy

Department of Monitoring and Protection of the Environment and for Biodiversity Conservation, Italian Institute for Environmental Protection and Research, Rome, Italy

Department of Forest Ecology and Biogeochemical Fluxes, Research and Innovation Centre - Edmund Mach Foundation, San Michele all'Adige, Italy

CIBIO/InBIO - Research Center in Biodiversity and Genetic Resources, BIOPOLIS, Vairão, Portugal

Department of Biology - Biotechnical Faculty, University of Ljubljana, Ljubljana, Slovenia

Department of Biodiversity and Environmental Management, University of León, Léon, Spain

Department of Ecology and Evolution, Doñana Biological Station, Seville, Spain

Gothenburg Research Institute, University of Gothenburg, Gothenburg, Sweden

Environmental Psychology - Department of Architecture and Built Environment, Lund University, Lund, Sweden

Department of Molecular Biology and Genetics, Koç University, Istanbul, Turkey

DURATION

01/03/2023 – 28/02/2026

TOTAL GRANT

approx. 1,4 mil. €

MORE INFORMATION

Prof. Paolo Ciucci
paolo.ciucci@uniroma1.it

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Contributors

Claire Blery, Céline Billiere, Hilde Eggermont, Sophie Germann, Ondrej Kusbach, Matej Stepanek, Clara Superbie, Magnus Tannerfeldt, Coralie Verhaegen.

Layout

Thibaut Lochu - www.thibautlochu.com

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European Biodiversity Partnership

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For more information:

Biodiversa+ Coordinator
Hilde Eggermont
hilde.eggermont@belspo.be

Biodiversa+ Chief Executive Officer
Claire Blery
claire.blery@fondationbiodiversite.fr

Biodiversa+ Call Secretariat
Agence Nationale de la Recherche (ANR)
biodiversa.cs@agencerecherche.fr

Websites
www.biodiversa.eu

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Co-funded by the European Union