

## Recommendations for the Biodiversa+ flagship programme on ‘Societal transformation’



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## What is Biodiversa+

Biodiversa+ is the European co-funded biodiversity partnership supporting excellent research on biodiversity with an impact for policy and society. It was jointly developed by BiodivERsA and the European Commission (DG Research & Innovation and DG Environment) and was officially launched on 1 October 2021.

Biodiversa+ is part of the European Biodiversity Strategy for 2030 that aims to put Europe's biodiversity on a path to recovery by 2030.

The Partnership aims to connect science, policy and practise for transformative change. It currently gathers 80 research programmers and funders and environmental policy actors from 40 European and associated countries to work on 5 main objectives:

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 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

More information at: <https://www.biodiversa.eu/>

## Table of acronyms

EU	European Union
ESB	Enlarged Stakeholder Board (of Biodiversa+)
GBF	Global Biodiversity Framework
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPLC	Indigenous Peoples and Local Communities
NBS	Nature-Based Solutions
R&I	Research and Innovation
SDGs	Sustainable Development Goals
SRIA	Strategic Research and Innovation Agenda



## Executive Summary

In 2022, Biodiversa+, the European Biodiversity Partnership, launched a flagship programme on *Societal transformation for the sustainable use and management of biodiversity* with the aim to explore how biodiversity research and innovation (R&I) can contribute to transformative change for biodiversity and achieve the 2050 Vision for Biodiversity. With this in mind, a dialogue event on the topic of transformative change for biodiversity was organised in June 2022, followed by a consultation process in December 2022 with two surveys shared with the participants of the dialogue event, the members of Biodiversa+ [Enlarged Stakeholder Board](#) (ESB) and Biodiversa+ Partners. They aimed at identifying transversal priority themes and cross-cutting activities to be further explored by the Partnership, and led to the identification of two priority themes to be further explored at two workshops held in June 2023 on 'Transformative Change for Biodiversity & Economic Systems' and 'Transformative Change for Biodiversity & Public Policy'. On the basis of a non-exhaustive theoretical paper, two sessions brought together about 15 experts each, who shed light on the key approaches, concerns, obstacles and priority research avenues to guide the upcoming Biodiversa+ call for research projects on 'Societal Transformation' (BiodivTransform). They raised the urgent need to challenge the current vision of a good quality of life that underpins intensive production and consumption patterns and the unsustainability of our economic and societal models, and to move beyond anthropocentric perspectives. This paradigm shift requires a whole-of-society approach to, among others, move from sectoral to integrated approaches; encourage cooperation and facilitate biodiversity literacy among all societal stakeholders; reinforce synergies between sectoral environmental transitions; reflect on the implications of current models and policies in terms of social justice and equity but also on how a just transition can be beneficial for biodiversity; develop democratic innovations and practical tools to assess the impacts and dependencies of any activity on biodiversity. These considerations have direct implications on research schemes and processes: how to manage the resulting complexity, how to study change, how to ensure research is transformative and how to provide recommendations for tangible actions despite the inherent uncertainty of biodiversity are just some of the questions that are still pending. This report provides guidance and identifies the main knowledge gaps and research needs to be addressed as part of the BiodivTransform call. It also highlights recommendations for WP and task leaders on the Biodiversa+ portfolio of activities with regard to the flagship programme on 'Societal Transformation'.

## Introduction

Biodiversa+, the European Biodiversity Partnership launched in October 2021, carries out a long-term strategic vision spelled out in its [Strategic Research and Innovation Agenda](#) (SRIA). As part of this long-term vision, three topical themes and two cross-cutting themes align with the EU Biodiversity Strategy for 2030 to guide the activities implemented under Biodiversa+: biodiversity protection and restoration; transformative change; EU's global action; better knowledge of biodiversity and its dynamics and better knowledge for Nature-based Solutions (NBS) in a global change context. To address the topical theme of transformative change, Biodiversa+ launched in September 2022 a flagship programme on *Supporting societal transformation for the sustainable use and management of biodiversity* (shortened form: 'Societal Transformation') with the aim to explore how biodiversity research and innovation (R&I) can contribute to transformative change for biodiversity and achieve the 2050 Vision for Biodiversity *Living in harmony with nature*, with three main objectives:

- Promote societal transformation to integrate biodiversity considerations into all sectors and policies, and to better value biodiversity and its benefits to people,
- Promote socio-ecological systems analysis of complex interactions to identify effective pathways for biodiversity conservation,
- Develop empirically justified governance strategies that improve synergies between nature conservation programmes and the management of human-modified environments.

In that respect, Biodiversa+ organised a dialogue event on the topic of transformative change for biodiversity in June 2022 ([link to the report](#)) under the lead of the French Ministry of Environment. To follow-up in a Delphi process approach, a consultation based on the outputs of the dialogue event was opened in December 2022 with two surveys. One was shared with the dialogue event participants and the members of Biodiversa+ [Enlarged Stakeholder Board](#) and a second one was shared with the Biodiversa+ Partners. Both surveys aimed at identifying transversal priority themes and crosscutting activities to be further explored by Biodiversa+ and feed the flagship programme.

In line with the SRIA of Biodiversa+, and in light of the surveys' results, two priority themes were retained to organise follow-up workshops in June 2023: 'Transformative Change for Biodiversity & Economic Systems' and 'Transformative Change for Biodiversity & Public Policy'. The objectives of these workshops were to:

- Evaluate and complete the results of the dialogue event and the consultation,
- Identify the niche of Biodiversa+ on both themes,
- Develop in-depth reflections on each theme and identify a possible frame for the upcoming Biodiversa+ call for research projects on 'Societal Transformation'.

**This report synthetise the outcomes of this work**, in order to provide research funding organisations and all Biodiversa+ partners with:

- Identified knowledge needs which could form a basis of the reflection for the upcoming Biodiversa+ call on societal transformation (BiodivTransform) to be opened in September 2024,
- Activities that could support the implementation of the 'Societal Transformation' flagship programme by the Biodiversa+ partners.

## Methodology

### Surveys

The second Biodiversa+ consultation on societal transformation for biodiversity was launched in December 2022 with the following aims:

- Evaluate and complete the results of the dialogue event of June 2022;
- Identify transversal themes and cross-cutting activities to be explored and implemented by the Flagship Programme on *Societal transformation for the sustainable use and management of biodiversity* for 2023-2025;
- Identify which themes are considered priorities in the context of Biodiversa+ and should be addressed by the 'Societal Transformation' Flagship Programme;
- Identify the expectations and needs from the Biodiversa+ Enlarged Stakeholder Board on the 'Societal Transformation' Flagship Programme.

The [survey targeting the dialogue event participants and the members of Biodiversa+ ESB](#) focused on:

- Transformative change related to sectors of activity;
- Foresights on transformative change;
- Pluralistic approaches on transformative change;
- Knowledge gaps on transformative change;
- Transformative change related to issues covered by the Biodiversa+;
- Flagship Programmes/ European Partnerships under Horizon Europe Clusters/ European and international initiatives and research agendas.

The [survey dedicated to Biodiversa+ partners](#) focused on:

- Identifying transversal activities and relevant themes for research call on 'Societal transformation';
- Identifying cross-cutting activities to be explored and implemented by the Flagship Programme on 'Societal Transformation' according to the Biodiversa+ portfolio of activities:



foresight/agenda setting; support to R&I programmes and projects; capacity building & transdisciplinary dialogue; internationalisation of European R&I; implementation of R&I programmes and projects (additional activity proposed by participants from Biodiversa+ dialogue event).

The results of both surveys were used to identify the themes of the two workshops organised in June 2023 by the French Ministry of Environment.

## Workshops

Two online workshops were conducted with several experts (researchers and other stakeholders) of each theme, and the syntheses are available at the following links: '[Transformative Change for Biodiversity & Economic Systems](#)' and '[Transformative Change for Biodiversity & Public Policy](#)'.

Each of the workshops was based on pre-established framework analysis, which was developed on the basis of preceding activities conducted (the dialogue event report and the outcomes of the two surveys on biodiversity and transformative change), as well as on a short literature review. This review was carried out using a Web of Science query based on specific keywords (e.g., 'change' and 'biodiversity policy' for the second workshop) and enabled us to identify three main themes and several entry points for each workshop. These framework papers were sent to the participants ahead of the workshops to set a common context for the sessions. However, the participants were encouraged to discuss beyond this framework during the activities.

For the workshop focusing on economic systems the themes initially selected were as follows:

- Economic systems and biodiversity,
- Financial systems and natural risks,
- Public institutions and policies.

For the workshop focusing on public policy the themes initially selected were as follows:

- The need for transformative change,
- Theory of change: a whole-of-society approach,
- Developing a transformative governance.

To introduce each workshop, these three themes were debated by the participants and helped to highlight the main issues to explore during the sessions. Following this, participants developed '*How might we*' statements to outline key objectives and identify the main barriers that prevent transformative change from being implemented in economic systems or public policy fields. They were then asked to group their statements according to the entry points of the framework paper. Lastly, the participants were divided into sub-groups to elaborate questions and avenues of research based on the issues raised previously, which they then ranked in a priority matrix, depending on the level of feasibility of the research proposals and their value to contribute to transformative change.

## How to frame a research call on societal transformation for biodiversity?

### A. Inputs to consider for the call on 'Societal transformation'

A number of key elements to be considered in a vision of transformative change and in structuring a call for research on 'Societal Transformation' have been identified through the surveys and the workshops, and the most relevant to consider when designing and framing the call are detailed below. In addition, priorities for biodiversity R&I were highlighted and provide essential guidance for the call.

#### A.1. Vision of transformative change

Transformative change requires investigation of how to transform our knowledge, models, and tools on biodiversity into effective implementation in practice, considering that practical application of research remains often unexplored. The IPBES global assessment (2019)<sup>1</sup> and values assessment (2022)<sup>2</sup> reports already presented a scope and definition of transformative change in regard to biodiversity and identified some leverage points for emergency action. Participants therefore suggested that Biodiversa+ focus on guiding the implementation of these outcomes in different areas of society. In addition, attention must be paid to build synergies with the ongoing IPBES assessment on transformative change (launched in 2021 and to be adopted in IPBES 11 Plenary in December 2024)<sup>3</sup>. Further to this, the European Union has, based on earlier work on how to link transformative change to biodiversity policy implementation, set up in Horizon Europe a cluster of research and innovation projects on transformative change in regard to biodiversity and the indirect drivers of biodiversity loss that should produce knowledge available for the IPBES assessment<sup>4</sup>. The Biodiversa+ flagship programme is complementary to, and closely cooperating with, these projects.

Transformative change requires changing the way problems are perceived, defined and approached. In that sense, there is an urgent need for a holistic and integrated approach to tackle biodiversity and environmental-related crises (e.g., climate, food and water security, pollution) within a global system, and focus on their synergies and capturing co-benefits, but also on their trade-offs. This

<sup>1</sup> IPBES (2019). Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. 1148 pages. <https://doi.org/10.5281/zenodo.3831673>

<sup>2</sup> IPBES (2022). Methodological Assessment Report on the Diverse Values and Valuation of Nature of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Balvanera, P., Pascual, U., Christie, M., Baptiste, B., and González-Jiménez, D. (eds.). IPBES secretariat, Bonn, Germany. <https://doi.org/10.5281/zenodo.6522522>

<sup>3</sup> IPBES (2021). Scoping report on assessing the underlying causes of biodiversity loss and the determinants of transformative change (thematic assessment) to achieve the 2050 Vision for Biodiversity. IPBES Secretariat. [https://www.ipbes.net/sites/default/files/2021-07/20210719\\_scoping\\_report\\_for\\_the\\_transformative\\_change\\_assessment\\_1.pdf](https://www.ipbes.net/sites/default/files/2021-07/20210719_scoping_report_for_the_transformative_change_assessment_1.pdf)

<sup>4</sup> See Annex 2 (cluster of HE transformative change projects) and also [Transfomative change in the global post-2020 biodiversity framework - Publications Office of the EU \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&code=sdg13&plugin=1)

could be supported by an approach centred on the planetary boundaries and social welfare, and by a strategy focused on highlighting the benefits for society and the economy.

Transformative change implies changing our relationship with nature, as well as redefining the concept of sustainable development. Sustainable development should extend from its anthropocentric approach and further integrate non-human concerns (e.g., animal welfare, nature rights). In addition, while sustainable development is organised around the transition of specific areas in most public policies (e.g., energy, mobility), particular attention needs to be given to the relationships between these transitions, including to the governance frameworks where such complementarity between different sectoral transitions could be assessed and monitored.

Workshop discussions evidenced that researchers and policymakers may commonly acknowledge the actions required to drive transformative change, however, their implementations and resulting complexity are key obstacles. There are persistent questions about the means of dealing with this complexity, and how to translate it into tangible actions.

Implementing transformative change requires reflecting on desirable futures that inspire, motivate acceptability and drive and support change. The dominant public policy approach focusing on 'greening' the business-as-usual path bears a risk to hinder the necessary paradigm shift and prevents from challenging the current vision of a good quality of life, which drives our economic and social models.

While the research community strives to continuously gather new information and deliver results, participants stressed the need to act under uncertainty. The research funding process should adapt to this context (e.g., not requiring all pre-studies, focusing on things happening now including the implementation of the GBF). Further reflection should be given to how research-funding schemes could accelerate change, for instance by specifying the requirements or types of case studies and partners to engage with.

## A.2. Priority approaches to harness societal transformation through biodiversity R&I

**Foresights to transformative change.** A priority for biodiversity R&I is to explore quantitative and qualitative foresight of individual and collective obstacles to implement transformative change (e.g., environmental and social justice, population resistance, change strategy) through knowledge and research communication. While there has been, so far, ample focus on risks in the absence of change, a stronger focus on implementation and the means to overcome obstacles is essential to moving forward. R&I should further explore the reasons why transformation is not taking place when the need for change is evident. In that respect, social justice and equity concerns for humans and non-humans are at the forefront of the reflections. On the other hand, there is a need for effective communication strategies to disseminate research outcomes to all society stakeholders, beyond institutional frameworks.

In addition, great emphasis is placed on the need for **quantitative and qualitative foresight of transformative change impacts** (e.g., **implementation deficit**) and the ways it could be integrated into **sustainable pathways**. In this context, Biodiversa+ could contribute to the methodological research on measuring transformation and on demonstrating its application. This could be complementary to the work done by the [IPBES Scenarios and Models task force](#), which presented the Nature Futures Framework to guide transformative change towards desirable futures for nature and people.

**Pluralistic approaches on transformative change.** **Stakeholders' level of power on biodiversity as drivers of transformative change** (e.g., political influence of economic groups and industries; legal and regulatory constraints from institutions; pressure from civil society and citizens) was noted as the most relevant pluralistic approach to explore. At the same time, workshop participants encouraged the development of a **systematic and whole-of-society approach** to biodiversity in relation to all sectors of activity and societal mechanisms, and which includes non-human actors. Furthermore, it is greatly recommended to reflect the **multi-level connections and their interactions to create transformative change at any given spatial scale** (e.g., local communities, trans-border landscapes). To facilitate these pluralistic approaches, the call should strongly **support transdisciplinarity**, by involving consortiums of scientists bringing together disciplines from the natural sciences, technical sciences, social sciences and humanities.

### B. What research needs and knowledge gaps on societal transformation and biodiversity have been identified?

According to the results of surveys and some general comments during the workshops, the most urgent knowledge gap to fill concerns the **leverage points of transformative change for biodiversity in the multiple dimensions of society and human behaviours** (e.g., regulation of financial systems as a leverage point to enable change in economic systems, structures, and industries). What is still not sufficiently known is how and where/with whom such leverage can be most effectively created. Further research should also explore the **leverage points in understanding how we create change in a complex system**.

The second most pressing knowledge gap identified is the need for **a governance system reconciling nature conservation with collective interests** (e.g., social, economic, and political interest). In this context, biodiversity topics should be further integrated and connected to the Sustainable Development Goals. Furthermore, Biodiversa+ has been encouraged to **promote research on topics with diverging strategic interests** (e.g., agriculture and the EU's Common Agricultural Policy, material consumption and industry, regulation of global economies), while addressing the vested interests of powerful stakeholders.

#### B.1. For biodiversity and economic systems

The dedicated workshop enabled participants to delve deeper into the research avenues and priorities to be explored on the theme of 'Transformative Change for Biodiversity and Economic Systems'. The most relevant to the 'Societal Transformation' flagship theme are detailed below.

**Measuring and making visible the values of nature.** The **non-substitutability**<sup>5</sup> of ecosystem services and nature's contributions to people should be a paramount concern for economic and financial systems, and beyond. Moreover, it was recommended to learn further from practitioners and develop an EU-wide application to assess the benefits of ecosystem services, nature and biodiversity at **local scales**. In that respect, there is a clear need to **define criteria** allowing for the coexistence of strict biodiversity protection measures with the sustainable use of remaining natural services (i.e., EU Biodiversity Strategy 2030). Participants also questioned how companies and governments that measure and value natural capital process this information and the way it influences their decision-making and strategy. Regarding the need to make the multiple values visible, **the biodiversity literacy challenge** still needs to be overcome. Hence, future research should identify what is the appropriate and practical level of biodiversity literacy required for action and decision, but also identify the ways to increase biodiversity literacy beyond already interested groups<sup>6</sup>. This could be supported by a paradigm shift, especially in the private sector, from a 'no significant harm' perspective to '**supporting biodiversity**'<sup>7</sup>.

**Up-taking valuation studies and tools in decision-making.** Participants recommended to build on the reviews, findings and insights from the IPBES values assessment (2022), especially the chapters 3 and 4, to **develop applied guidance, protocols, standards, and practical tools** on valuation, which align with these insights on how to enhance uptake in decision-making and build on the state of the art.

**Evaluating the risks associated with biodiversity loss.** The Network for Greening the Financial Systems is conducting key work on biodiversity risks for the central banks and the financial supervision community. However, **consideration of the inherent instability of ecosystems** (i.e., tipping points and non-linearities give rise to the systematic risk) is lacking in most methodological risk assessments, thus leading to a misinterpretation (i.e. underestimation) of nature-related risks. In addition, while there is an urgent **need to disclose the impacts and dependency of any business operation or economic activity on biodiversity**, there are limited data, metrics and indicators to measure these implications, and larger knowledge gaps when it comes to translating these implications into risks. Research is needed to **develop tools to guide companies** in assessing and handling these risks. Moreover, participants recommended supporting partnerships of practitioners to develop and apply standardised methods and modelling for assessing impact and dependency. Alongside, it was recommended to develop an EU-wide **mitigation framework**.

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<sup>5</sup> To be understood as irreplaceable.

<sup>6</sup> See this ongoing work at EU level: <https://education.ec.europa.eu/focus-topics/green-education/learning-for-the-green-transition>

<sup>7</sup> This can refer to EU Biodiversity Strategy for 2030 eg. "The fight against biodiversity loss must be underpinned by sound science. Investing in research, innovation and knowledge exchange will be key to gathering the best data and developing the best nature-based solutions. Research and innovation can test and develop how to **prioritise 'green' over 'grey' solutions** and help the Commission to support investments in nature-based solutions, such as in old-industrialised, low-income or disaster-hit areas." - <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0380&from=EN>



**Encouraging financial investments in nature.** Participants recommended building on climate action initiatives (e.g., carbon markets) to **develop robust biodiversity tools and mechanisms**, as well as to optimise the synergies of finance targeting the biodiversity and climate crises, including through nature-based solutions. However, the inherent complexity of biodiversity renders the development of simple metrics difficult for research. On the other hand, considering that a degrowth approach is difficult to mainstream in the financial systems, participants stressed the need to **develop new financial products that benefit biodiversity**, and which could enable investors (and not only philanthropists) to make profits.

**Increasing pro-biodiversity incentives and reducing biodiversity-harming incentives.** Research pathways should **provide methods for concrete application of incentive schemes** in specific areas and legal contexts and should develop a **ranking of the EU biodiversity positive and negative subsidies**, taxes and incentives. Moreover, and with regard to the EU taxonomy for sustainable activities, participants stressed the need to accelerate efforts to **develop requirements and indicators that align** with biodiversity objectives and the GBF. In this respect, the provision of tools, such as indicators guaranteeing funding for investments and offering technical assistance for projects that are not yet bankable, could be a key prospect to be explored by research.

**Increasing action-driven approaches.** Future research should set **consistent indicator-based targets** on the protection and restoration of biodiversity, which could serve as a **framework for decision-making** (perhaps for different sectors). In addition, given the lack of horizontal governance of biodiversity across administrations and the private sector, there is a need for tools that facilitate the **transversal sharing of biodiversity-related knowledge** among different domains and competencies in order to **encourage collaboration between different stakeholders**.

**Encourage the implementation of the business-related GBF target 15<sup>8</sup>.** The GBF strengthens efforts to promote a synergistic approach combining innovation and public policy for business development **with incentives for practices that do not harm biodiversity**.

**Integrating novel and holistic approaches.** A holistic approach to tackle the biodiversity and climate crises simultaneously is essential to further **explore synergies and trade-offs** between policies and projects at the EU level, and to **strengthen cooperation** between climate and biodiversity research communities.

**Growth paradigm.** Research should explore **practical solutions adapted to non-growth, degrowth or post-growth worlds<sup>9</sup>**, and what another paradigm would entail for financial systems, for example what return on investment would make sense in a post-growth world? What innovative financial systems could work in post-growth scenarios if our current systems become obsolete?

However, some points raised debates among the participants, including:

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<sup>8</sup> [Target 15 \(cbd.int\)](https://www.cbd.int/target15)

<sup>9</sup> see Hinton (2021) for further information on economic concepts of degrowth, post-growth and on-growth: <https://www.sciencedirect.com/science/article/pii/S0016328721000707>

- The relevance of developing new scenarios as a decision-making tool, given their extreme uncertainty, compared to the need to focus on a robust policy approach.
- The role of financial systems in contributing to the biodiversity risks, handling environmental crises and questioning the growth paradigm.
- Some participants were critical about the consideration of biodiversity benefits in competition with other investment benefits within the economic and financial model, as biodiversity is a common good and a matter of public interest. Shifting actions in favour of biodiversity is in the interest of society as a whole, while considering issues of distribution and equity in light of the SDGs. Going further, the discussion questioned what biodiversity benefits mean<sup>10</sup>.

## B.2. For biodiversity and public policy

The dedicated workshop enabled participants to delve deeper into the research avenues and priorities to be explored on the theme of 'Transformative Change for Biodiversity and Public Policy'. The most relevant to the 'Societal Transformation' flagship theme are detailed below.

**Towards a common vision of biodiversity.** While there is no one vision of biodiversity, research should explore how to **embrace and harness the plurality of visions and perspectives**, and the common grounds within the plurality to navigate transformation and **acknowledge vulnerable and non-human communities**. In addition, there are avenues to investigate the **barriers to the more radical interpretations of transformation**, especially when translating the concept into policy.

**Beyond existing policy instruments.** **Evaluating the success of policies**, including how they could lead to negative consequences, or other challenges, inside and outside the EU is a priority. In this regard, participants widely emphasised the **social concerns for justice and equity within biodiversity policy-making processes and policy instruments effects**. Marginalised groups must be rendered visible and meaningfully included, and **rights-based instruments** should be developed to achieve biodiversity goals. More attention should focus on the **society-wide structures**, including the values underlying society, well-being and economic systems. In that sense, what narratives are needed to bring different segments of society on board? And how can different narratives change our relationships? Suggested research avenues include recognizing the social outcomes of biodiversity, and exploring how improving social justice (e.g., in wealth, access to resources) would lead to better outcomes for biodiversity. In this line, research could encourage the **creation or improvement of transformative policy instruments** such as democratic innovations. Moreover, research should critically **explore the role of the market economy and the tendency towards the 'financialisation' of nature**, including with regard to their contributions to existing inequalities.

**Valuation methods and long-term monitoring.** Research is needed to investigate **alternative and more democratic models of development**, moving beyond the market-based ones. On the other hand, and as the lack of normative and positive scenarios was identified as an obstacle to shift away

<sup>10</sup> This could be related to the IPBES values assessment : <https://doi.org/10.5281/zenodo.6522522>

from the business-as-usual paradigm, it was suggested for Biodiversa+ to examine the IPBES Nature Future Framework and **assess to which extent this work needs expanding**. Alternatively, it may be worth working on **how to strengthen the dissemination and use of those scenarios in policy design**. Furthermore, while complex models and plenty of resources exist for monitoring biophysical variables, research and monitoring frameworks are lacking for **analysing social-ecological systems**, particularly their social components (e.g., perceptions, cultural values, perceptions, knowledge change), as well as for analysing the conditions under which transformation occurs.

**Inclusive representation of interests and groups.** There is an urgent need for **participatory and genuinely inclusive governance mechanisms and approaches** to balance biodiversity safeguard against vested interests. A typology of the stakeholders and vulnerable groups could enable the transparency of their interests and the identification of the **power relationships** and capacities in the decision-making. Consequently, the abundant **place-based knowledge** of Indigenous people and local communities should be further valued, and these communities fully integrated in the decision-making. In addition, the **roles of cities, regions and youth** need to be further explored. Other areas for research could examine how to create the **conditions for the adoption of transformative insights** and analyse the **limits of top-down and bottom-up contributions to policy**.

**Government capacity and policy design.** Co-design processes are essential to promote integrated approaches. Further questions remain on the **most relevant ways to co-design policies** to reverse biodiversity loss and generate transformative change (e.g., what tools, what paradigm). Hence, research could explore the **conditions for success** and the **components** of an inclusive policy process, as well as its **cascading effects on democratic processes**. In addition, research is needed to identify at **which scale(s)** policy-decision is the most relevant (e.g., local, regional, national, European) and could further engage citizens in a transformative process.

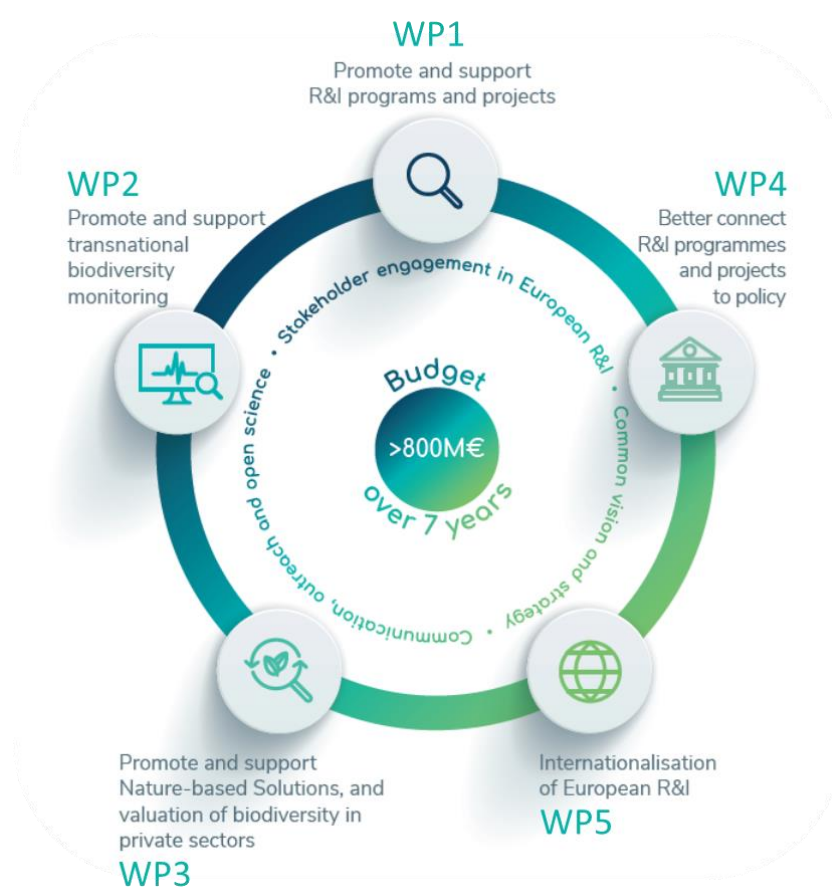
**Harnessing the temporal misfit.** To overcome the inertia of the governance system, research could **develop narratives** about the 'losers and winners' of the needed changes, explore the ways to **institutionalise the conflicts** related to biodiversity, and establish an **effective communication strategy** beyond institutional frameworks (using social psychology, information and communication science). Another avenue for research is to explore the ways to go beyond the current policy time horizon and **create complementary governance structure and accountability mechanisms** through which biodiversity and climate action would be more relevant.

**Institutions and disruptive changes.** Research could investigate **how to promote a shift in societal paradigms and values**, given that scientific and political institutions rely on their continued stability. Another route for research could be to develop **self-reflexive processes** to be integrated within institutions (e.g., what paradigms, narratives, perspectives, language are being introduced, reproduced, and strengthened through the institution's work). Together with the development and promotion of more radical visions and futures for nature and people, research should identify the **safe spaces of risk** where disruptive transformative innovations could be experimented (i.e., scale, organisation).

**Theory of change.** While it remains an abstract and theoretical approach for many researchers and policymakers in terms of the ways it can lead to effective change and can be implemented, it needs to **advance more empirically with case studies** that demonstrate how to change works in practice. Suggested research pathways include the identification of different sets of **capacity gaps** (e.g., scientific, legal, administrative, financial), besides not all groups/governments need to change, or not in the same ways, or at the same pace.

## General outcomes relevant to guide Biodiversa+ activities

The results of the survey dedicated to Biodiversa+ Partners allowed to identify the most relevant activities that partners would like to be conducted by Biodiversa+ through its different Work Packages (WP).



*Figure 1 - Portfolio of Biodiversa+ activities is structured around five topical streams of activities and three transversal ones*

### A. Support to R&I programmes and activities

1. Translation of the results of research call projects on nature-based solutions, and other relevant topics (such as business and transformative change projects<sup>11</sup>), in relation to the target actors (with the objective to identify applicable transformative changes) and promote integrative approaches in terms of disciplines, stakeholders and sectors (WP4, WP7)
2. Systematic review of research projects' results on transformative change for biodiversity under Horizon Europe<sup>10</sup> (WP4: T4.1.2)
3. Research-private sector mobility scheme on transformative change for biodiversity targeting private sector's organisations involved in R&I (WP3)

Making research easily accessible for policy advisors and policy makers, as well as for the private sector should be a priority, and systematic reviews summarising current knowledge are important in that respect. In addition, it would be very important to examine the effect of research projects on the target groups as it would provide some guidance on which problems, issues, etc. should be developed in the future. Furthermore, learning from the previous experiences is key to improve knowledge, the efficiency of the processes and to make not-yet involved stakeholders aware of strengths, weaknesses, opportunities and threats against biodiversity.

## B. Capacity building & transdisciplinary dialogue

1. Policy briefs on transformative change for biodiversity regarding gaps in the science-policy activity (WP4: T4.3.1)
2. Policy briefs on transformative change for biodiversity regarding policy needs of decision-makers (WP4: T4.3.1)
3. Policy briefs on transformative change for biodiversity regarding learning and education for researchers (WP4: T4.3.1)
4. Capacity-building programmes to train decision-makers to use the tools developed by research (WP4: T4.2)

Producing policy briefs for decision makers is essential to identify the priorities and needs to consider when developing policies (e.g., scientific based recommendations for the implementation of transformative change in agriculture, forestry, transport, urban and land planning policies to achieve the 2050 Vision for Biodiversity). On this matter, strengthening communication to overcome the biodiversity literacy challenge between researchers and decision-makers is crucial to feed into the policy process.

## C. Internationalisation of European R&I

1. Analytical synthesis on the existing protocols/ methodologies/ analyses used for identifying the transnational activity footprint on biodiversity (WP5 & WP4)

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<sup>11</sup> liaison with the Horizon Europe cluster for Transformative Change recently set up - see Annex 2



2. Valuation tools (e.g., policy-briefs; videos) of IPBES assessments' results related to transformative change for biodiversity (WP4: Task 4.1.3 or WP5: Task 5.2)

International trade has a major effect on biodiversity and remains poorly characterised and assessed. In that context, an analytical synthesis on the existing what is important to know the actual situation and to define the level of lack. Supporting the dissemination and uptake of IPBES assessments' results related to transformative change for biodiversity would be useful, .

## D. Implementation of R&I programmes and projects

1. Guidance to research projects selected by the 'Societal transformation' Biodiversa+ flagship programme's call on existing mechanisms valorising "research-to-action" projects intended for target actors (WP1)
2. Synthesis on the adaptation and transmission of scientific language on transformative change for biodiversity to policy language (WP4: T4.1.2)
3. Monitoring of policy briefs on transformative change for biodiversity impacts on target actions (WP4: T4.3.1)

The dialogue event, workshops and survey's results largely emphasised that communication is one of the main conditions of success for societal transformation, in terms of translating scientific language to common policy language and for knowledge transfer, but also in terms of rising greater awareness by disseminating research results among society and focusing on the benefits of societal transformation for the society.

The survey also enabled Biodiversa+ partners to provide additional inputs on [complementary activities](#) to the existing portfolio of activities of Biodiversa+. In this context, the main proposal issued from the dialogue event to take part in the development of a science-policy platform under Horizon Europe was supported by Biodiversa+ partners. This would be a science-policy toolbox to create and transfer knowledge on transformative change for biodiversity. Moreover, a second activity, which is also encouraged by the partners is to take part in the development of a success/failure stories platform on existing research projects on transformative change for biodiversity such as the [IUCN Panorama portal and database](#) (WP4: T4.2.2 or T4.3.2).

## Concluding remarks

Following the dialogue event, the consultation process enabled us to dive deeper into possible ways through which Biodiversa+, the European Biodiversity Partnership, could support society to trigger transformative change for biodiversity. For this purpose, the activities held have reinforced the outcomes of the dialogue event and further explored knowledge gaps and research needs on transformative change for biodiversity to provide inputs for Work Package 1 reflections on the elaboration of the BiodivTransform call. In addition, the report provides guidance for the Work Packages and Tasks leaders in the programming of their activities for the upcoming flagship programme on '*Supporting societal transformation for the sustainable use of biodiversity*'.

The results of the activities carried out strengthen the dialogue event findings stressing that radical change is necessary in order to address the crisis of biodiversity with a strong environmental, social and justice dimension. While the dialogue event participants, Biodiversa+ partners and ESB identified economic systems and public policies as priority themes to be investigated, the workshops provided an opportunity to question in depth the levers that Biodiversa+ could pull to bring about transformative change. The participants widely emphasised the need to reconsider the vision of a good quality of life predicated on unsustainable consumption and growth patterns that dominates the direction of economic systems and public policies, in light of democratic principles, justice and social equity and non-human concerns. Achieving this paradigm shift requires a whole-of-society approach to, among others, move from sectoral to integrated approaches; encourage cooperation and facilitate biodiversity literacy among all society stakeholders; reinforce synergies between sectoral environmental transitions; reflect on the implications of current models and policies in terms of social justice and equity but also on how a just transition can be beneficial for biodiversity; develop democratic innovations and practical tools to assess the impacts and dependencies of any activity on biodiversity.

The latest IPBES assessment reports on (1) *Sustainable uses of wild species* and on (2) *Multiple values of nature and its benefits, including biodiversity and ecosystem functions and services* and the ongoing assessments on (3) *Transformative change* have already presented a scope and definition of transformative change in regard to biodiversity and alongside other ongoing *Nexus* and *Business and Biodiversity* assessments identify some leverage points for emergency action. Participants therefore suggested Biodiversa+ to focus on guiding the implementation of these outcomes in different areas of society, while also supporting the development of knowledge to assess progress and understandings that will in turn underpin future IPBES assessments. While some knowledge already exists, it is now crucial to explore the obstacles to its implementation, including investigating vested interests and sensitive issues, but also to consider the scale(s) and conditions under which change can be achieved, and to examine the stakeholder networks and power relations that either drive or hold back change.

All these considerations challenge the current structures of knowledge production and research project schemes and management: how to manage the resulting complexity, how to study change, how to ensure research is transformative and how to provide recommendations despite the inherent uncertainty of biodiversity are just some of the questions that are still pending. These issues must be considered by Biodiversa+ when developing the structure of its call for research projects.

## Annex 1- List of participants to the workshops

### Workshop on transformative change for biodiversity and economic systems

#### Invited participants

Cengiz Akandil, *University of Zurich*

Luca Cetara, *Eurac Research*

Alessia Chelli, *University of Trento*

Ton De Nijs, *RIVM*

Sander Jacobs, *Research Institute for Nature and Forest INBO*

Arnau Luke Dedeu Dunton, *ICF*

Lenka Moore, *Capitals Coalition*

Irene Musselli, *University of Bern (external contributor)*

Maria Partidario, *IST - ULisboa*

Gertjan Storm, *The –EPE (European Partners for the Environment)*

Romain Svartzman, *Banque de France*

Yuanzao Zhu, *Helmholtz Centre for Environmental Research – UFZ*

#### Biodiversa+ partners

Céline Couderc-Obert, *French Ministry for Ecological Transition and Territorial Cohesion*

Cloé Durieux, *French Ministry for Ecological Transition and Territorial Cohesion*

Cécile Jacques, *French Foundation for Research on Biodiversity*

Henrik Lange, *Swedish Environmental Protection Agency*

Charlotte Le Delliou, *French Ministry for Ecological Transition and Territorial Cohesion*

Hannah Ostergard, *Swedish Environmental Protection Agency*

#### Support

Cécile Mandon, *French Foundation for Research on Biodiversity - Biodiversa+ Operational Team*

### Workshop on transformative change for biodiversity and public policy

#### Invited participants

John Barry, *Queen's University Belfast*

Elsa Maria Cardona Santos, *UFZ*

## Strategic recommendations for Biodiversa+ flagship programme on 'Societal transformation'

Gilles Doignon, *European Commission DG RTD*

Rosaleen Duffy, *University of Sheffield*

Mark Emmerson, *Queen's University Belfast*

Jessika Giraldi, *European Commission DG ENV*

Agnes Hallosserie, *IDDRI*

Yi hyun Kang, *Université Saint-Louis - Bruxelles*

Niak Sian Koh, *Stockholm Resilience Centre*

Jan Kuiper, *Stockholm Resilience Centre*

Kate Massarella, *Tilburg University*

Jasper Montana, *University of Oxford*

Ignacio Palomo, *University of Grenoble Alps*

Victoria Reyes-Garcia, *ICREA and ICTA-UAB*

Elsa Tsioumani, *School of International Studies - University of Trento*

Ingrid Visseren-Hamakers, *Radboud University*

Christina Voigt, *University of Oslo*

Janice Weatherley-Singh, *WCS EU*

### Biodiversa+ partners

Cloé Durieux, *French Ministry for Ecological Transition and Territorial Cohesion*

Neda Farahba, *Swedish Environmental Protection Agency*

Cécile Jacques, *French Foundation for Research on Biodiversity*

Catherine Julliot, *French Ministry for Ecological Transition and Territorial Cohesion*

Henrik Lange, *Swedish Environmental Protection Agency*

Charlotte Le Delliou, *French Ministry for Ecological Transition and Territorial Cohesion*

Hannah Ostergard, *Swedish Environmental Protection Agency*

### Support

Frédéric Lemaitre, *French Foundation for Research on Biodiversity - Biodiversa+ Operational Team*

Cécile Mandon, *French Foundation for Research on Biodiversity - Biodiversa+ Operational Team*

## Annex 2 - List of HEU projects on Biodiversity transformative change

	ACRONYM	TITLE
1	BAMBOO	Biodiversity and trade: mitigating the impacts of non-food biomass global supply chains
2	BIONEXT	Biodiversity, water, food, energy, transport, climate and health nexus in the context of transformative change
3	BIOTraCes	Biodiversity and transformative change for plural and nature-positive societies
4	BIOTRAILS	Nexus framework for biodiversity-relevant transformative change
5	BIOVALUE	Biodiversity value in spatial policy and planning leveraging multi-level and transformative change
6	CLEVER	Creating leverage to enhance biodiversity outcomes of global biomass trade
7	PLANET4B	Understanding Plural values, intersectionality, Leverage points, Attitudes, Norms, behaviour and social Learning in Transformation for Biodiversity
8	RAINFOREST	Co-produced transformative knowledge to accelerate change for biodiversity
9	SUSTAIN	Strengthening Understanding and Strategies of business To Assess and Integrate Nature
10	TC4BE	Transformative Change in Telecoupled Agrofood Systems for Biodiversity and Equity
11	TRANSPATH	Transformative pathways for synergising just biodiversity and climate actions