SBDI

SWEDISH BIODIVERSITY DATA INFRASTRUCTURE

STRATEGIC PLAN 2025-2030

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Strategic Plan 2025–2030 for the Swedish Biodiversity Data Infrastructure

Introduction

The unfolding, interlinked biodiversity and climate crises constitute the most important challenge facing humanity today, and they must be fought simultaneously. Over the past decade, the collection of climate data has increased significantly, and our ability to model and predict climate effects have improved substantially. We are now starting to see these scientific advances resulting in appropriate political decisions and adequate responses in the public and corporate sectors. Understanding of biodiversity and of ecosystem responses to stressors is still poor in comparison, but new methods of collecting biodiversity data at scale and recent advances in AI, machine learning and big-data analytics are now opening up the possibility of addressing the biodiversity crisis as effectively as, and in conjunction with, the climate crisis.

The Swedish Biodiversity Data Infrastructure (SBDI), including the Swedish node of the Global Biodiversity Information Facility (GBIF), is the national research infrastructure that enables the research community and other stakeholders to tackle the biodiversity crisis by providing biodiversity data and innovative analysis tools. SBDI services are delivered by a consortium of 11 universities and government agencies in Sweden: the Swedish Museum of Natural History (NRM), the Swedish University of Agricultural Sciences (SLU), Karolinska Institute (KI), KTH Royal Institute of Technology (KTH), Linnaeus University (LnU), Lund University (LU), Stockholm University (SU), Swedish Meteorological and Hydrological Institute (SMHI), Umeå University (UmU), University of Gothenburg (GU), and Uppsala University (UU). SBDI is jointly funded by this consortium and by the Swedish Research Council (VR).

This Strategic Plan outlines SBDIs Objectives under four Priority Areas for the period 2025–2030, and represents an extended update of the previous plan, which covered 2023–2027. SBDIs Vision, Mission and Values are listed in Appendix 1 of the Strategic Plan. The extended update is based on discussions of strategic issues in the Coordination Group and Steering Committee of SBDI during winter and spring of 2024–2025. The Stakeholder Committee had an advisory role in finalizing the Strategic Plan. An initial version was drafted by the Executive Office and discussed by the Steering Committee of SBDI. The final text was formally approved by the Steering Committee on 2025-05-15.

Framework for the expanded Strategic Plan

The Kunming-Montreal Global Biodiversity Framework (GBF) was adopted by 195 countries at the UN Biodiversity Conference (COP15) in December 2022, setting out an ambitious roadmap for our future world, in essence aiming to halt and reverse nature loss by 2030. The framework includes four goals for 2050 and 23 targets for 2030. The agreement's 23 targets include a global target to conserve at least 30% of the world's land, freshwater and seas by 2030, as well as a target to restore 30% of degraded areas, also by 2030.

Several of the targets directly outline the importance of biodiversity data and the open sharing of science and knowledge in achieving these targets and goals. During 2024, a subgroup of SBDI's Coordination Group discussed the GBF 2030 targets and identified twelve targets as directly relevant to SBDI, and two more as indirectly relevant. These targets will be listed within the Priority areas outlined below.

The National Guidelines for promoting Open Science in Sweden were published by the National Library of Sweden, on behalf of the Swedish government, in early 2024, largely in line with UNESCO's Recommendations. The new guidelines provide a link between international recommendations and the work being carried out at the national level. The guidelines clarify that it is primarily higher education institutions and research funders that need to develop policies, infrastructure and guidance to support researchers in practicing Open Science. Of the six areas within Open Science that are identified as crucial to develop in Sweden, three are highly relevant to SBDI:

- Infrastructure supporting Open Science
- Open access to research data
- Open research methods

The increasing emphasis on the importance of both Biodiversity Data and Open Science nationally and internationally provides SBDI with a unique opportunity to highlight the valuable resource the infrastructure is, directly citing the recommendations in policy documents to support such activities.

Action Plan 2025-2030

- Centre user needs in all decisions on SBDI activities and new directions, based on feedback with consortium partners and the user community.
- Monitor and engage with the effort to update the National Guidelines for promoting Open Science in Sweden prior to publication in 2027. Planned action: Join relevant National Guidelines update working groups.
- Integrate new initiatives and visions from the UN Biodiversity Conference (COP 16), as well as additional global and regional (EU) developments addressing biodiversity, in the yearly updated SBDI Strategic Plan.
- Utilize global, regional and national biodiversity policy documents to market SBDI as a prime example of a research infrastructure that promotes Open Science and FAIR Data.

Strategic Priority Areas

Through SBDIs internal strategic discussions and participation in discussions with the GBIF and global biodiversity data community, a number of objectives have been identified for the period 2025–2030. They are summarized below under the four priority areas recognized as crucially important to SBDI.

Priority Area 1: Building the capacity to advance scientific research and understanding of global biodiversity

Objectives:

- Providing state-of-the-art tools to allow effective data mobilization as the standard
- Increasing the focus on mobilizing the scientifically most valuable data sets, and actively engage with the responsible scientists, institutions and infrastructures
- Supporting mobilizing new data streams, such as data from video and sound recordings, and genomic analyses of environmental samples
- Providing a robust and resilient infrastructure to support new, massive data streams and real-time data delivery

- Securing the quality of shared data, for instance by improving granularity (dividing up heterogeneous datasets), improving metadata, and open-source licensing of more content (data, media, video, etc)
- Actively engaging in the management of nationally and internationally sensitive data to enhance the protection of sensitive species

The following GBF targets are relevant to this SBDI Priority Area: Target 1) Integrate and standardize biodiversity data across sectors and scales; Target 2) Improve data accessibility and availability; Target 3) Strengthen monitoring systems and protocols; Target 6) Improve the quality of biodiversity data and its management; Target 8) Support the implementation of effective monitoring and evaluation systems; Target 9) Enhance the capacity of stakeholders to manage and use biodiversity data; Target 13) Increase public awareness and engagement with biodiversity; Target 21) Foster international collaboration and data sharing.

In its unique position as the Swedish national infrastructure for biodiversity data, SBDI will refer to these important global GBF targets to promote Open Science and FAIR Data as key instruments to fight biodiversity loss and ecosystem degradation.

Priority Area 1 also directly addresses the National Guidelines priority to further develop open access to data and open research methods.

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- SUBSIM portal - aid further development of the portal and promote its services to relevant stakeholders. Planned action: present the portal at relevant conferences 2025.
- ASV Portal - raise awareness of this resource for relevant users through e.g. workshops and other events together with the NBIS/SciLifeLab community.
- Engage with and participate in GBIF's development of a pilot for DNA metabarcoding data by amplicon sequence variants with the ASV portal as a model example.
- The Swedish Biologging Portal: Increase data volume and user base. Planned action: present the portal at relevant conferences 2025 and promote its services to the research community.

Priority Area 2: Supporting policy responses and knowledge transfer that address urgent societal challenges around planetary change

Objectives:

- Prioritizing the development of new services that support researchers and other stakeholders focused on studying, analyzing, and addressing societal challenges around planetary change
- Increasing the engagement of societal stakeholders, such as government agencies and businesses, in setting SBDI priorities
- Improving the accessibility of existing SBDI data and services to government agencies and businesses

The following GBF targets are relevant to this SBDI Priority Area: Target 4) Increase investment in biodiversity data and infrastructure; Target 10) Strengthen the integration of biodiversity considerations into policy and planning; Target 15) Mobilize resources to support biodiversity initiatives; Target 20) Enhance the use of biodiversity data in reporting and decision making.

SBDI will engage with decision makers, as well as stakeholders at government agencies and private businesses, to understand their present and future user needs and promote SBDI data and services as an important resource to address these needs.

Priority Area 2 also directly addresses the National Guidelines priority to further develop infrastructure supporting open science.

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- Engage with other relevant infrastructures, companies and government agencies to increase SBDI's relevance and potential revenue streams. Planned action: Regular SBDI Infrastructure Days, with DiSSCo, SND, SITES, InfraVis, SciLifeLab, NBiS, Bolin Centre, etc..
- Engage with researchers, policy makers and businesses at the February 2026 Biodiversity conference SBDI Days: *The Future of Biodiversity: Innovation, Action, and Impact*
- Market SBDI services outside of the core user-base of researchers, e.g. to government agencies and businesses. Explore potential new SBDI data user groups.
- Engage with VR and other relevant stakeholders to center the importance of infrastructure to fulfill the government's vision for Open Science in Sweden.

Priority Area 3: Enabling the infrastructure to meet future needs and challenges

Objectives:

- Strengthening the technical team maintaining and developing the core SBDI functionality
- Building resilience and robustness in the technical team by promoting distributed open-source development, encouraging collegial exchange and professional development, and promoting distributed open-source development within the LA and GBIF communities
- Exploring additional synergies among partners within the consortium, and communicating the added value of SBDI to partner organizations and engaging partner organizations more effectively
- Facilitating further integration of SBDI activities with the Swedish GBIF node activities
- Exploring new funding streams and new ways of co-funding infrastructure activities, for instance through partnerships, external funding and user fees
- Developing and implementing a business model for SBDI, which allows providing support and services against user-fee or direct payment, while access to data remains free
- Analyzing the usage of infrastructure services, and modify priorities according to the results

The following GBF targets are (more indirectly) relevant to this SBDI Priority Area: Target 14) Influence national policies and funding priorities; Target 22) Lobby for increased support and resources for biodiversity. Furthermore, the National Guidelines prioritize developing infrastructures that support open science.

SBDI will collaborate with relevant national infrastructures to identify solutions to common challenges, as well as engage with Swedish funding agencies and decision makers to influence policies relevant to future-proofing those infrastructures - e.g. by promoting that funding agencies formally demand Open and FAIR data publication via infrastructures of national interest, foremost SBDI.

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- Build skills and synergies by continuously communicating and collaborating with the global Living Atlases Community and GBIF.
- Planned action: Develop and implement an SBDI User Fee model for advanced support and analysis 2025, in compliance with the Swedish Parliament's Regulation (2022:1378) on fees for research infrastructure.
- Planned action: Explore opportunities for external funding & private sector collaborations.
- Planned action: Explore the feasibility of implementing a business model for SBDI.
- Modify SBDI services based on usage and user feedback. Planned action: Restructure SBDI website content: Tools and information.
- Continue exploring cost-saving measures for computing and cloud services.

Priority Area 4: Driving innovation to advance biodiversity and ecosystems science

Objectives:

- Strengthening and developing the SBDI support center and its services, and maintaining its capacity to deliver integrated support across all SBDI datasets and tools
- Engaging leading Swedish biodiversity and ecosystem scientists in developing SBDI services that support scientific excellence
- Exploring additional synergies and collaborations with related infrastructures
- Developing tools and services using and supporting AI, machine learning and big-data analytics techniques

SBDI will develop methods to thoroughly map user needs as well as tools and protocols to meet these needs. SBDI will continuously raise awareness of resources available, through networking, outreach and training. SBDI will remain at the forefront of AI and ML, as well as big-data metabarcoding and e-DNA, in biodiversity data analysis and research, and utilize this position to reach wider user audiences.

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- Explore new AI, ML and big-data analytics opportunities and developments to build and implement innovative tools for SBDI.
- Identify SBDI's core strengths and skill sets within the infrastructure landscape, to increase synergies and collaborations for mutual infrastructure benefit.
- Utilize support center feedback to identify user needs and priorities.
- Engage additional SBDI consortium partners in user support roles.
- Encourage and aid researchers to include SBDI services in funding proposals.

Appendix 1: Vision and Mission of SBDI

Vision: SBDI delivers a cutting-edge e-infrastructure that supports Swedish and international biodiversity and ecosystems research, and ensures that Sweden maintains its position as a leading contributor in this field. SBDI offers significant benefits to individual scientists and their institutions, as well as to society as a whole, in their quest to increase our understanding of biodiversity and ecosystems, and to mitigate the ongoing biodiversity and climate crises. SBDI is a leading contributor to GBIF's vision of a world in which the best possible biodiversity data underpins research, policy and decisions.

Mission. To support Swedish scientific excellence by providing central and open access to biodiversity data, and to powerful tools for mobilizing data and for querying, visualizing and analyzing this data. To support GBIF in mobilizing data, skills and technologies needed to make comprehensive biodiversity information freely available for worldwide science and decisions addressing biodiversity loss and sustainable development.

Values: In performing its mission, SBDI subscribes to the same underpinning values as the global GBIF community (GBIF Strategic Framework for 2023-2027). SBDI implements them by relying on several other guiding principles, as outlined above.

Trust and Transparency: All decisions and processes are open; data is properly attributed and of the highest-possible quality; and the infrastructures are robust, documented and persistent. SBDI abides by the TRUST principles for digital repositories (Transparency, Responsibility, User focus, Sustainability, and Technology).

Collaboration and Collective Benefit: SBDI's mission is fulfilled in a spirit of cooperation, sharing skills, data, tools and experiences, avoiding duplication, and growing a national and global community of practice. Specifically, SBDI adheres to the principles of CARE (Collective benefit, Authority to control, Responsibility, and Ethics).

Diversity and Inclusiveness: SBDI engages and welcomes people of all nationalities, cultures, genders and backgrounds. SBDI services are equally accessible to all Swedish users, following the DEIB principles (Diversity, Equity, Inclusion, Belonging). In its contributions to GBIF, SBDI works towards the same values and principles in the global community. See the SBDI Equality Plan for details.

Innovation: SBDI leads by example in advancing Open Science and data services and in adopting novel techniques for research, collaboration and learning. Specifically, SBDI adheres to the principles of FAIR (Findable, Accessible, Interoperable, and Reusable) for data sharing. The technical platform is developed in an international collaboration with the GBIF and Living Atlases (LA) communities, with all open-source development in compliance with global standards.

Integrity: Professional norms and scientific integrity are respected; and data sharing safeguards the rights of indigenous peoples and local communities, as well as potential risks to sensitive species.