Convention on Biological Diversity

UN environment programme

UN environment programme WCMC

UNDP

UN Biodiversity Lab

2022 Annual Report

Executive Summary

The relationship between nature and development is shaping the future of our societies, economies, and planet. To help achieve sustainable outcomes, access to reliable and timely spatial data on biodiversity is fundamental. Spatial data can allow stakeholders to visualize interactions between human activities and environmental trends on interactive maps, prioritize action, and calculate trends over time. This use of spatial data is increasingly central to public and private decision-making. Target 1 of the Kunming-Montreal Global Biodiversity Framework (GBF) of the Convention on Biological Diversity (CBD) calls on countries to undertake participatory, integrated, and biodiversity-inclusive spatial planning, for which spatial data is crucial. For many countries though, access to accurate spatial data remains out of reach due to the siloing of information across sectors, high server costs, expensive software, and major capacity gaps.

We created the UN Biodiversity Lab (UNBL) to address this need. UNBL is a free, open-source platform that represents a leap in technology designed to support a country-first approach to spatial planning. With a new, easy-to-use interface launched in 2021 that responds to the needs of individual countries, UNBL is transforming how governments use spatial data for biodiversity planning and reporting. The platform drives this transformation by putting key datasets and the tools to combine and analyze them into the hands of national decision makers.

The UNBL mission is three-fold:

1. To democratize access to spatial data and analytic tools as a digital public good.
2. To support decision-makers to leverage spatial data for insight, priority-setting, and implementation at the national level.
3. To empower stakeholders to use spatial data for nationally led monitoring and reporting.

UNBL is the only UN-level platform focused on supporting governments to use spatial data to support implementation of the CBD and 2030 Agenda. The UNBL Partnership brings together the backing of the CBD Secretariat, the environmental expertise of the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), and the experience of the UN Development Programme (UNDP) and UN Environment Programme (UNEP), with extensive reach to support Parties to the CBD.. The combination of the latest technology, data, user-friendly analytics, and a powerful UN-led partnership make UNBL the proven choice for decision makers and non-experts to use data for impact.

This annual report presents the key activities, outcomes, and achievements of the UNBL Partnership in 2022.

UNBL by the numbers in 2022

111,000 platform views from **44,000+** unique users.

55,000 attendees to **10** UNBL events and trainings.

1,855 registered users from **141** countries.

150 UNBL workspaces that allow non-commercial users to incorporate national data alongside global data.

400+ global data layers, including 16 new data layers.

440 responses to user questions.

8 new communication products.

1 accreditation as a digital public good by the Digital Public Goods Alliance.

Key UNBL activities in 2022 included:

1 | UNBL governance

Co-creation of UNBL vision, mission, and activities, including creation of the UNBL Strategic Plan 2022 – 2030 to provide a vision for the UNBL Partnership's work over the decade to come.

2 | UNBL development

Development of new UNBL features and functionalities, including enhanced data tagging and searching abilities, ability to pull data directly from the Planetary Computer, and release of the ELSA tool as a proof-of-concept functionality to enable users to map their country's Essential Life Support Areas (ELSAs).

3 | UNBL data

Development and implementation of new data criteria to assess dataset quality and fitness for making informed decisions.

4 | UNBL training and capacity building

Creation of dynamic trainings and high-profile events featuring UNBL through NASA ARSET, Learning for Nature, the Nature for Life Hub, the UN Environmental Assembly, the UN Biodiversity Conference, and more.

5 | UNBL user outreach

Direct support to users to apply UNBL to support their important work on nature and sustainable development.

6 | UNBL communications

High-quality communication products to share UNBL with new audiences.

Key UNBL activities on the horizon for 2023 include:

1 | UNBL governance

Implementation of the strategic plan across the UNBL Partnership with a focus on identifying opportunities to align UNBL to the Global Biodiversity Framework and developing a sustainable financing plan.

2 | UNBL development

UNBL development: Transition of UNBL hosting to UNEP-WCMC to enable seamless support for development within the UN system.

3 | UNBL data

Easy-to-use tags to help users identify relevant data for Global Biodiversity Framework targets and headline indicators and creation of two new UNBL data collections for policymakers: Restoration and the Framework.

4 | UNBL training and capacity building

UNBL training and capacity building: Release of micro-lectures and advanced labs to complement the existing UNBL micro-course on Learning for Nature.

5 | UNBL user outreach

Continued high-quality assistance to ensure UNBL users can use the platform for on-the-ground impacts for conservation and sustainable development, including direct support to Parties for early action on the Global Biodiversity Framework.

6 | UNBL communications

User feature stories that communicate how diverse institutions are using UNBL to support their work on conservation and development.

2022 | Key activities

1 | UNBL governance

The UNBL Partnership works together to shape the UNBL vision, mission, and activities to support the use of spatial data to generate insight and impact for conservation and sustainable development. Our work around governance includes strategic planning, priority setting, relationship building, and fundraising.

In 2022, the UNBL Partnership continued to formalize our mechanisms for engagement and governance to ensure long-term platform sustainability to support implementation of the Global Biodiversity Framework. This included:

- **Partnership agreement:** This document formalized the relationship across the convening partners, introduced standard operating procedures, and created terms of reference to define roles for the UNBL Steering Committee, Technical Committee, and User Engagement Committee.
- **Strategic planning:** The UNBL Strategic Plan for 2030-2022 developed a vision to guide activities based on desired outcomes and impacts in line with the UNBL mission. At the core of this vision is a continuous focus on UNBL's primary user group: Parties to the CBD.
- **Fundraising:** The UNBL Steering Committee mobilized a fundraising package and strategy to support implementation of Plan 2030-2022 that will be further developed in 2023 as part of our broader goal to secure sustainable long-term financing.

Under the 2022-2030 UNBL Strategic Plan, our goals are that, by 2030:

1 UNBL is one of the central platforms facilitating access to, and management of, biodiversity-related spatial data to support CBD Parties for reporting, planning, and implementation.

2 UNBL provides a unified framework across the three Rio Conventions for streamlined access to, and management of, geospatial data used for reporting.

3 UNBL is promoted and disseminated by UNDP and UNEP to other UN agencies as an essential tool to support UN system planning processes.

4 UNBL is part of a thriving open-source developer community with diverse users who can develop and submit new functionalities for consideration.

5 UNBL explores pathways to provide access to spatial data and indicators for the private sector, aligning with emerging disclosure frameworks.

As we look towards 2030, why do our institutions continue to invest in UNBL?

UNBL is the only UN-level tool focused on supporting governments to use spatial data to support implementation of the CBD and 2030 Agenda. With backing from the CBD Secretariat, as well as from UNDP and UNEP as two major UN agencies supporting the CBD, UNBL has access to all government focal points of CBD..

UNBL serves as a pathway to link diverse national data repositories in a single place. Even the most technically advanced countries face challenges of data fragmentation -- UNBL provides a way to link to these existing repositories and visualize alongside global data.

UNBL is designed to be a country-first, scalable solution. UNBL will continue to develop customized functionalities in response to countries' needs. Since UNBL is a cloud-based platform, any customized functionalities which are built into UNBL workspaces to serve the needs of a specific country will be made available to all other non-commercial users as optional add-ons within their secure workspaces.

UNBL provides a foundation that can support countries with vastly different experience and resources. UNBL offers the ability to meet countries where they are and provide valuable services. The UNBL team routinely works with some of the most advanced countries and groups working on spatial data, as well as with countries who have stated that they have close to no capacity nationally. All of these users state that UNBL fills a different gap in their country. We never offer UNBL as the only solution. We offer it as a resource and listen to country needs to shape our support.

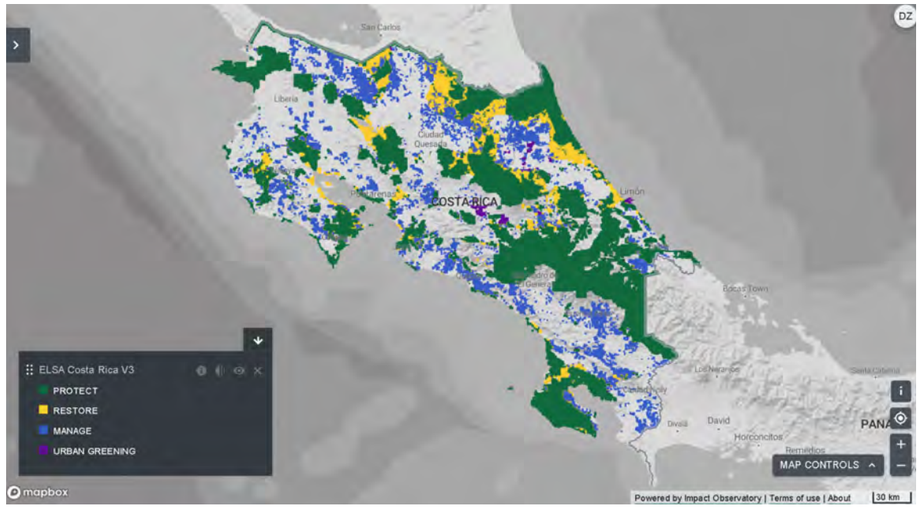
UNBL fills a key gap to bridge the divide between scientists and policymakers by making spatial data accessible, comprehensible, and decision-ready. To do this, the platform enables decision makers and managers with little to no expertise in GIS to interact with spatial data in a way that can inform their work. At the same time, it provides a tool to experts to help them make their data broadly accessible to a wide range of users, including decision makers.

2 | UNBL development

The UNBL platform is constantly being updated and improved to provide the best possible experience for its users. At its core, it is a customizable tool that enables users to bring together national and global spatial data in a common repository, visualize these data in interactive maps, and calculate dynamic indicators. The UNBL Partnership continued to build upon these and enhance these functionalities in 2022 to respond to users' needs.

Several new features were released to enhance usability and support backend management of the UNBL platform in 2022. These included:

- **ELSA tool:** This proof-of-concept functionality available to workspace users enables countries to identify their ELSAs, where action to protect, manage, and restore nature can best contribute to global priorities. Initially available for Colombia, Costa Rica, and South Africa, we hope to scale this to all countries in the future to create 'ELSA for All' to support countries to achieve Target 1 of the Global Biodiversity Framework. The accompanying user guide for the tool, available in English and Spanish, provides a concise summary of how to access and use the ELSA Tool on the UNBL.

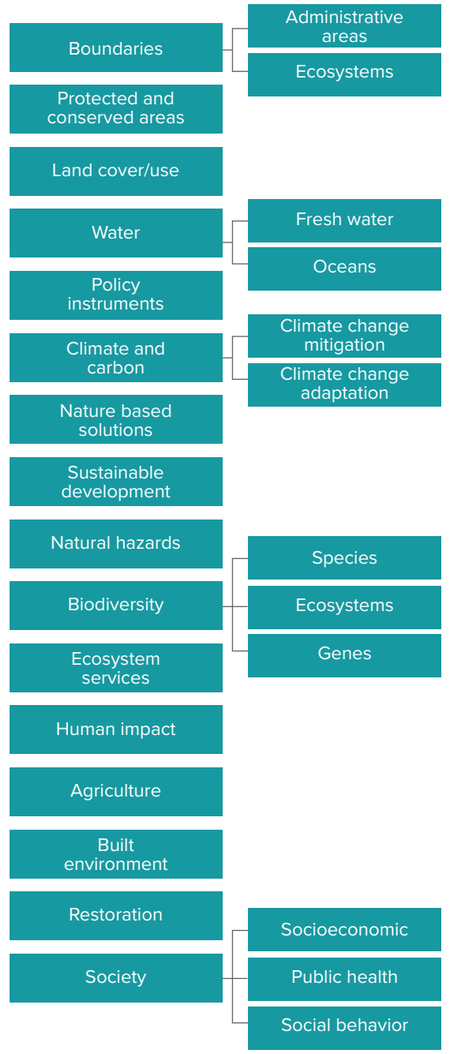


Essential Life Support Areas map of Costa Rica

The designations employed and the presentation of this map does not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

- **Improved UNBL data taxonomy, tagging, and searching:** In 2022, we revised our approach to data organization, tagging, and searching extensively in order to support users to find the data they need. (Filters are shown in Figure 1, below)
  - ***Data taxonomy:*** The UNBL data taxonomy system has been updated to 16 science-based categories with up to three sub-categories each. These categories were developed in consultation with experts and users, consolidation with other categorisation schema (e.g., Esri, International Organization for Standardization, European Environment Agency, Infrastructure for Spatial Information in Europe), adjustments to reflect CBD terminology (e.g., 'ecosystems' rather than 'habitats and biomes'), and emerging areas of importance (e.g., built environment).
  - ***Data tagging:*** UNBL now includes flexible thematic tags to help users find the most relevant data. These data tags will be implemented systematically on the public platform by the UNBL data team to reflect editorial/policy priorities as they emerge (e.g., Global Biodiversity Framework, 2030 Agenda, project-specific data). Users can also apply tags flexibly within their own workspaces to suit their needs.
  - ***Data searching*:** The UNBL search functionality has been improved so that searches present results found in data layers' metadata, enabling users to find relevant data for their needs more easily.

Figure 1: Filters available on the UNBL website.



> I was very surprised and pleased at how easy the tools within the UN Biodiversity Lab were to use.
>
> – Melinda Moir, Entomologist, Western Australia

What key features does UNBL offer?

UNBL Public Platform

- Access and view global data layers that are curated and maintained against a set of criteria, without any previous GIS expertise.
- Calculate dynamic metrics on biodiversity and human impact for over 2,000 national and sub-national areas at the click of a button.

UNBL Workspace Features*

- Create workspaces and control access
  - Upload and/or connect to an existing repository to add data layers and areas of interest to the workspace
  - Calculate any of the available dynamic metrics for areas of interest added to the workspace
  - Use the ELSA tool to map ELSAs quickly and easily, supporting the achievement of Target 1 in the Global Biodiversity Framework.[1]

**UNBL workspaces are only available to non-commercial users, including academia, civil society, governments, and intergovernmental organizations.*

- **Access to datasets through the Planetary Computer:** Workspace users can now add any layers from the Planetary Computer data catalogue to their workspaces in addition to those already available on the UNBL public platform.
- **Place collections:** In addition to adding a single area of interest, workspace users can now create 'collections' of multiple places. They can then calculate dynamic metrics for this collection, compare the results for each area of interest within the collection, and view and download the results.
- **SpatioTemporal Asset Catalogue (STAC) entry tool:** The STAC entry tool enables the UNBL data team to add and manage raster layers in their workspace in accordance with the newest advances in geospatial technology. STAC provides a standard to index data more easily to enhance the speed and quality of visualization and analytics. Through the STAC entry tool, the UNBL data team can create STAC collections, items, and assets using flexible JSON files with links to geospatial assets on Azure storage. In the future, we hope to make this functionality available to all workspace users.

1 Proof of concept is currently available for Colombia, Costa Rica, and South Africa

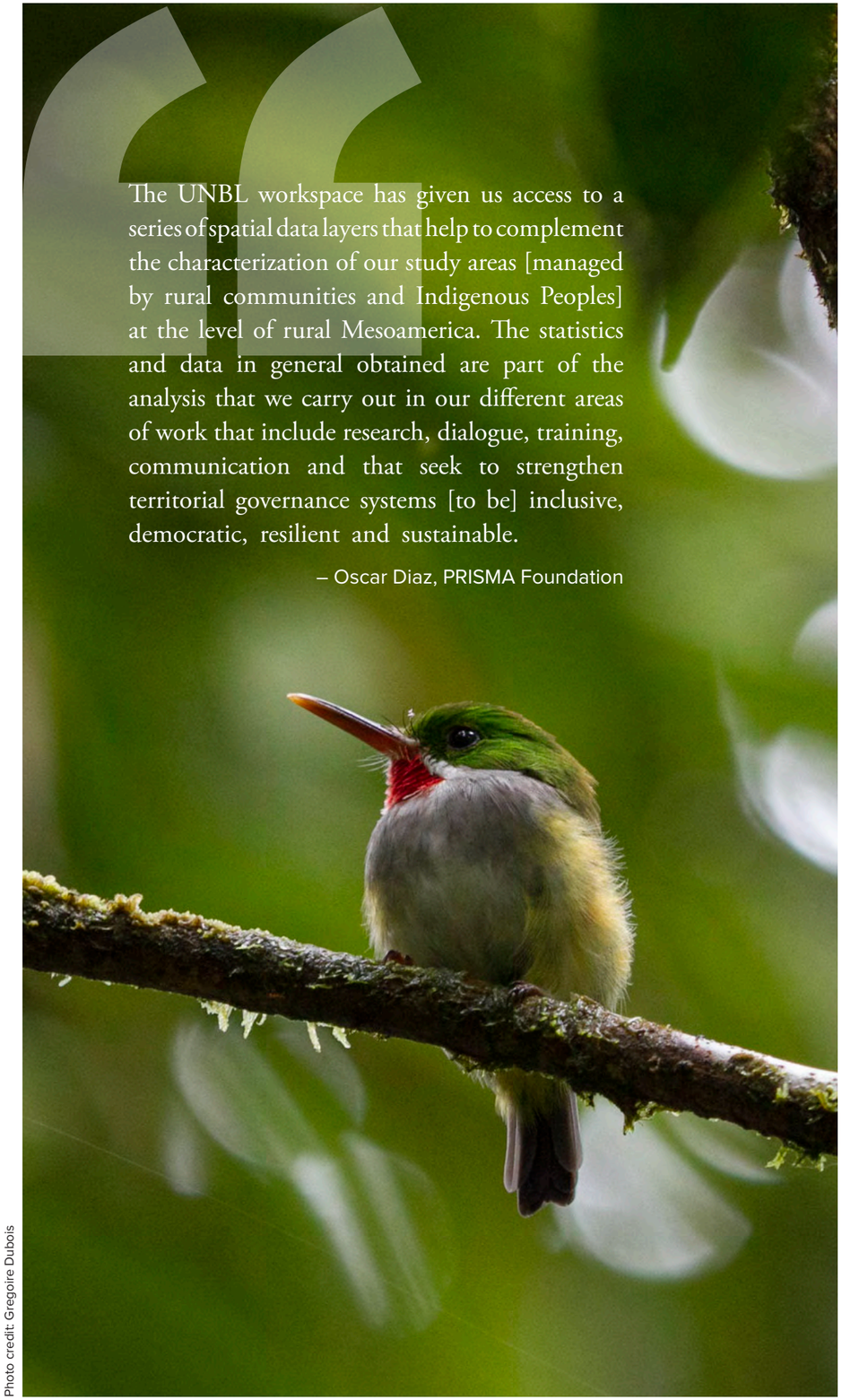


Photo credit: Gregoire Dubois

3 | UNBL data

The UNBL Partnership continually 'horizon-scans' to ensure that new data relevant for nature and sustainable development are available on the platform, that all UNBL data is up to date, and that all UNBL data meets our quality standards.

In 2022, this included:

- **New data criteria for UNBL:** The UNBL Partnership has updated the data quality standards by implementing a new system to review all existing and suggested datasets against a set of criteria designed to assess dataset quality and fitness for making informed decisions. All datasets submitted for inclusion on UNBL in 2022 have been reviewed against the criteria, and only datasets that passed this review process were added to the platform. All existing datasets on the platform that were added before the review process was adopted are currently being reviewed against the criteria as well to ensure UNBL is hosting high-quality data.
- **New data submissions from users and partners:** All data within the UNBL platform is procured via agreements with trusted data providers. In 2022,
  - 12 new dataset submissions were received from UNBL users and partners.
  - 6 dataset submissions met our UNBL data criteria and were added to the UNBL public platform.
  - 10 new datasets sourced by the UNBL data team were also added.
- **UNBL accreditation as a digital public good:** UNBL was included as an addition to the digital public good registry. In effect, this designation recognizes UNBL's role in bringing together 400 of the world's best global spatial data layers from more than 40 data providers for use in research, policymaking, and innovative software applications. CBD, UNDP, UNEP, GS Times, European Commission, Morung Express, and One Earth all publicized this notable accomplishment, which was accompanied by the launch of an excerpt from the UNDP Chief Digital Office's forthcoming Action Research Report on digital public

> Data is the lifeblood of the societies of today and the future - that includes revealing new insights that can drive climate action and restore our natural world. By providing open access to spatial data sets and real-time analytics as a digital public good, the UNBL aims to spur much-needed efforts by countries and communities to protect our planet's irreplaceable biodiversity and spur progress across the Global Goals.
>
> – Achim Steiner, UNDP Administrator

Digital Public Goods Alliance

Digital public goods (DPGs) are defined as open-source software, open data, open AI models, open standards, and open content that adhere to privacy and other applicable best practices, do no harm by design and are of high relevance for attainment of the Sustainable Development Goals.

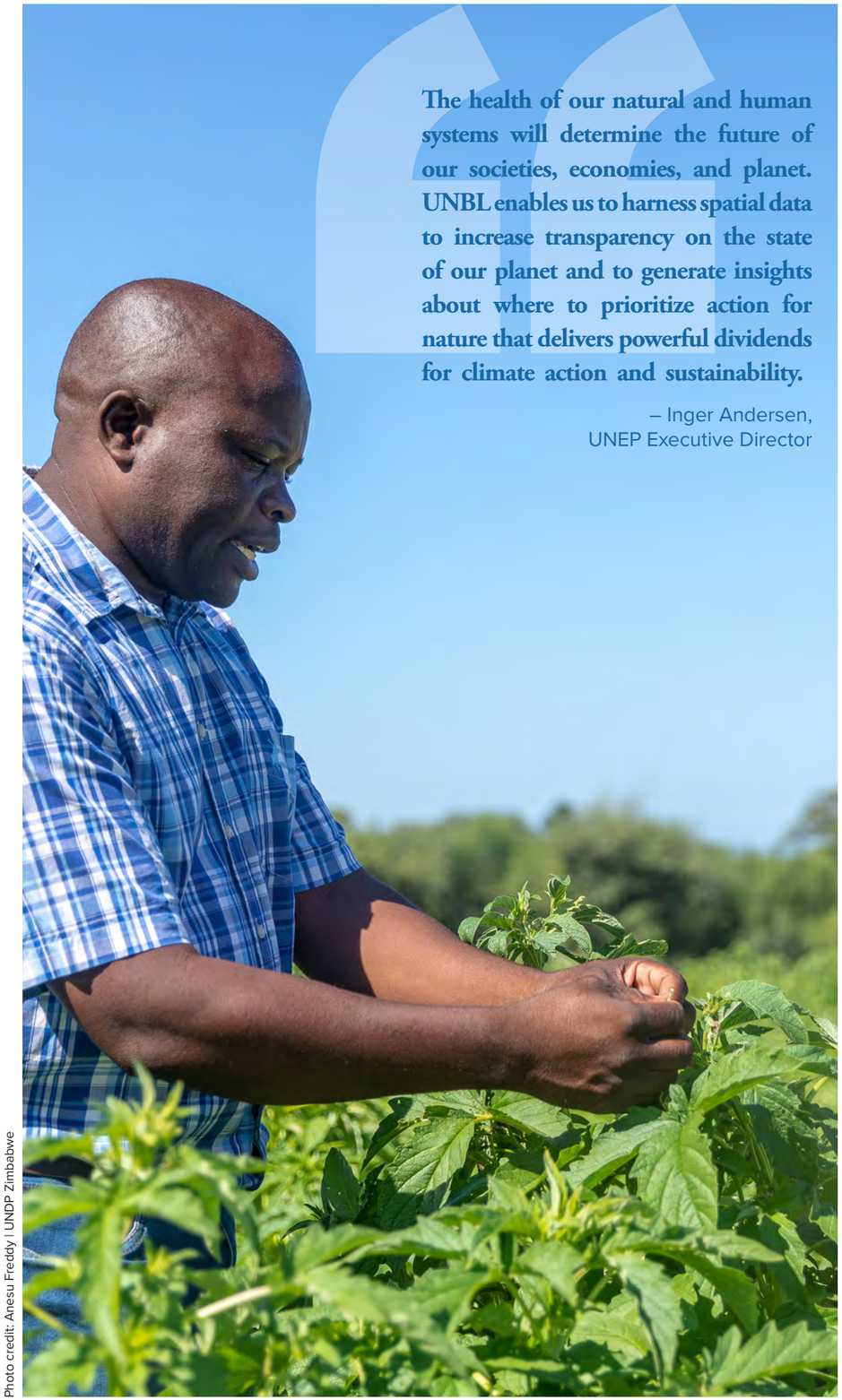


Photo credit: Anesu Freddy | UNDP Zimbabwe

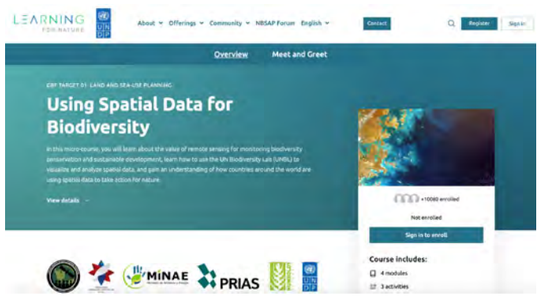
4 | UNBL training and capacity building

Following the launch of our new platform in 2021, in 2022 the UNBL Partnership focused on providing resources for users to understand how to use new features on UNBL 2.0 to enhance their use of spatial data for impact. Events, online courses, and trainings held by the UNBL Partnership in 2022 have enabled attendees to:

- Understand the value of spatial data visualization and analysis.
- Strengthen capacity to use geospatial data for action on biodiversity, climate change, and sustainable development. This includes training on how to:
  - Identify areas for interventions and select appropriate interventions.
  - Develop step-by-step action plans.
  - Monitor, evaluate, and report on changes over time.
- Become familiarized with UNBL and how to use it to achieve the objectives above.

Self-paced online courses and trainings developed in 2022 included:

Micro-course: Using Spatial Data for Biodiversity



This ongoing self-paced course available in English, French, Russian, and Spanish introduces the value of remote sensing for biodiversity conservation and sustainable development, builds participants' skills in using UNBL for spatial data visualization and analysis, and explores dynamic use cases from around the world.

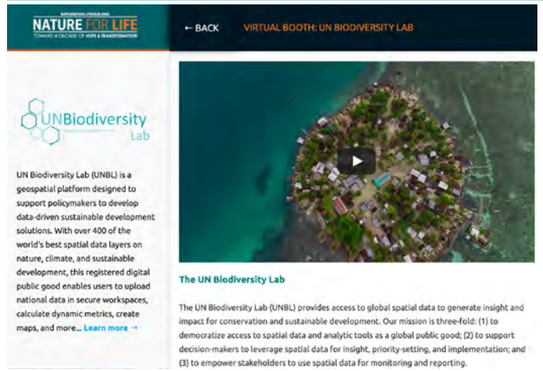
Join the 9,631 participants from 180 countries who have registered to date!

NASA ARSET Training: Using the UN Biodiversity Lab to Monitor the Pulse of the Planet

This training focuses on using remote sensing and geospatial data UNBL to take action on national conservation and sustainable development priorities. Available in English, French, and Spanish, the training offers three complementary courses – an intermediate lecture series and two advanced labs. Participants can select from these components to curate the learning experience that best meets their needs.

Join the 900+ participants who attended our live sessions of this course!

UNBL Booth at the Nature for Life Hub



This virtual booth brings together key UNBL resources, trainings, and publications in an accessible format.

Join the 100,000 people who attended the Nature for Life Hub in 2022!

One-time events, online courses, and trainings held in 2022:

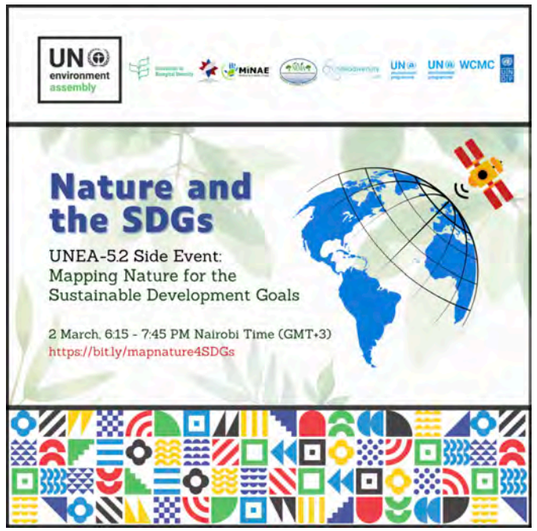
UNEP Digital Discovery Series

This webinar provided step-by-step training on UNBL to 200 UN system staff working in regional hubs and country offices.

Ecosystem Restoration 2022 Massive Online Open Course (MOOC)

This MOOC reached over 17,000 participants, with the private live webinar featuring UNBL for CBD Focal Points attended by 66 participants.

UNEA-5.2 Side Event: Mapping Nature for the Sustainable Development Goals



One of just 22 official side events selected for UNEA-5.2, this virtual session reached more than 200 live participants who learned about UNBL value and tools directly from UNBL data providers and users.

CBD SBSTTA 24 Side Event: Mapping Nature for Transformative Planning, Implementation, and Monitoring of the post-2020 Global Biodiversity Framework

This event offered knowledge sharing on key tools to support the use of spatial data for the Global Biodiversity Framework at the first in-person CBD meeting in over 2 years. It was attended by over 30 people, filling the venue.

Events at the Nature for Life Hub

Nature for Life Hub 2022 hosted events including the UNBL Booth, the launch of the ELSA Tool on UNBL, and an exploration of how UNBL can support the post-2020 GBF. The Hub was attended by more than 100,000 attendees, with 43,937 visitors attending the lightning talk on how UNBL can support the post-2020 global biodiversity framework.

UN Biodiversity Conference Side Events held by the UNBL partners

Photo credit: Kiara Worth | IISD/ENB

Events included: GBF-Early Action Support (GBF-EAS) Help Desk, Tools and Solutions for the Implementation of the GBF: Enhancing Synergies and Cooperation, and Harnessing the Power of Spatial data to Take Action on the GBF. These events reached 89 Parties to the CBD, were attended by 200+ people, and featured voices from Cameroon, Colombia, Costa Rica, the Netherlands, the European Union, Peru, South Africa, Switzerland, and Tanzania, who provided feedback on existing resources and highlighted needs at the national level.

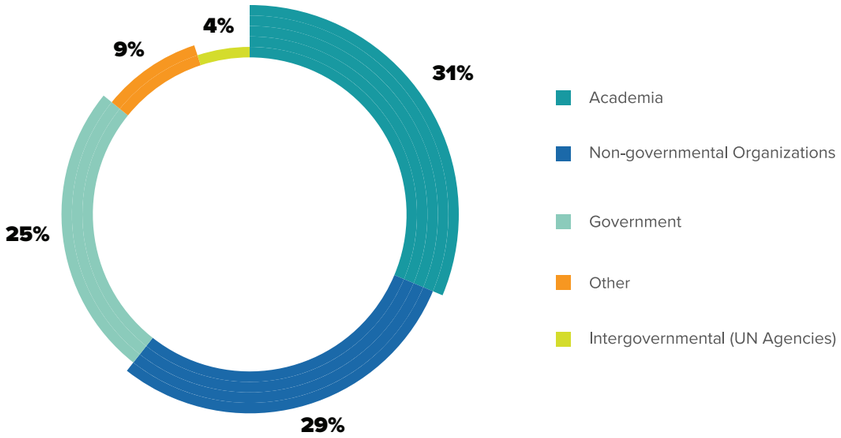
> The world [came together] in December [2022] to agree on new global biodiversity targets that will shape action for nature in this critical coming decade. UNBL will be a critical tool to support Parties around the world to use the power of spatial data for planning, implementation, and monitoring of this post-2020 global biodiversity framework based on their unique national needs and context.
>
> – Elizabeth Mrema, Executive Secretary of the UN Biodiversity Convention

5 | UNBL user outreach

The UNBL Partnership directly supports users to access and utilize UNBL functionalities to enhance impacts achieved through conservation and sustainable development. In addition to our training and capacity-building programme, we work one-on-one with our users to create workspaces for their needs and respond to their questions.

In 2022, the UNBL this included:

- **Workspaces:** The UNBL Partnership created 150 secure workspaces for users to create a community of practice, upload their own data, and calculate dynamic metrics for specific areas of interest. In addition, 14 workspaces were created for UNDP country offices and governments piloting UNDP's work to map ELSAs.



- **One-on-one support:** The UNBL Partnership responded to 440 requests for support from users around accessing data, creating workspaces, uploading data, and general trouble-shooting. In addition to routine user support, the team supported the digitization of the Nashulai Maasai Conservancy boundaries, development of demographic and health surveys from UN Women, PRISMA Foundation's mapping of the biodiversity value of territories managed by Indigenous Peoples and local communities in Latin America, and more.

> Thank you so much for your invaluable assistance in helping us create a map of Nashulai! It has been invaluable in assisting us in quantifying the ecological value of our land and providing hard data on the effectiveness of our model of conservation.
>
> – Noah Nemoy, Nashulai Maasai Conservancy, Kenya

> I think at GEF SGP [Global Environment Facility Small Grants Programme] and UNDP level, all interventions should have integration to UNBL as it will speak for them in a spatial way that is becoming the norm for location-relevant interventions.
>
> – Anas Khasawneh, Small Grants Programme & ICCA Global Support Initiative, UNDP Jordan

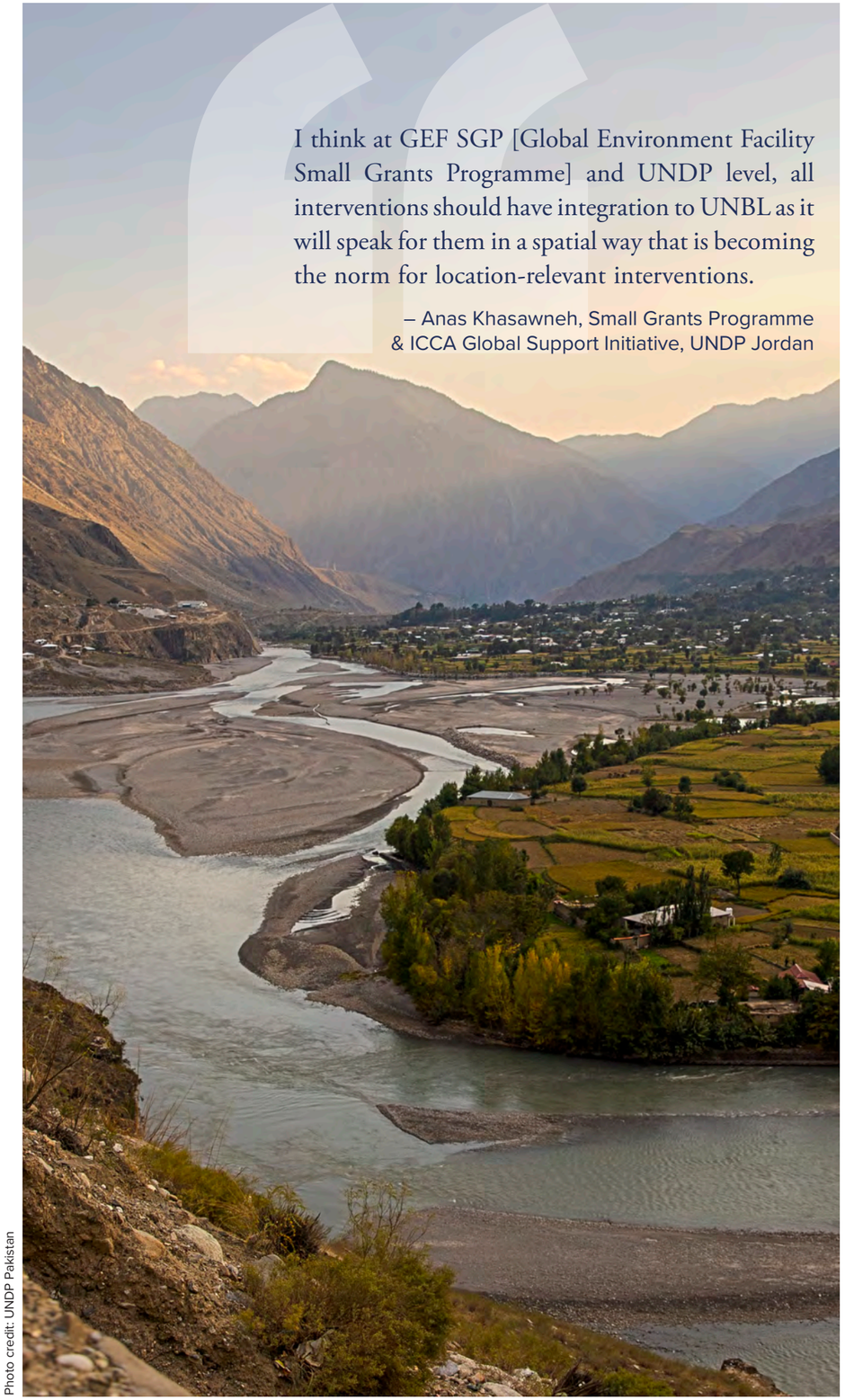


Photo credit: UNDP Pakistan

6 | UNBL communications

The UNBL Partnership develops high-profile communication materials to raise awareness about the platform and encourage its use. It also aims to establish UNBL as a trusted resource for national level planning, implementation, monitoring, and reporting for the Global Biodiversity Framework and 2030 Agenda for Sustainable Development.

In 2022, we engaged through social media, blogs, brochures, press releases, and white papers. These included:

UNDP Blogs

The Power of Maps to Inform Action for Nature and Development

Promotes the launch of two publications related to using spatial data for biodiversity decision-making, including Nature is Counting on Us, described below.

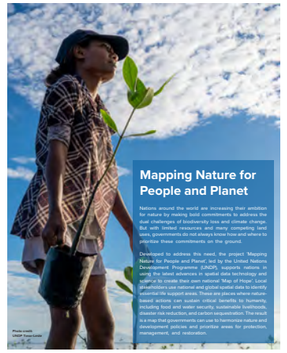
Putting Nature on the Map

Provides an overview of relevant spatial platforms and tools that countries can use to take action toward the Global Biodiversity Framework.

Brochures

UNBL Brochure

Your one-stop shop to learn about UNBL in English, French, Portuguese, Russian, and Spanish.



ELSA Brochure

Explore our work to map ELSAs now available as a proof-of-concept functionality on UNBL, in English, French, and Spanish

Publications

Nature is Counting on Us

Officially released at COP15, Nature is Counting on Us documents UNBL's role in the following successes:

Increasing the use of spatial data in official national reports on biodiversity by 81% compared to the previous round of official reporting under the CBD (Sixth National Reports or '6NRs').

The creation of at least one map by 55 nations in the 6NR.

Use of UNBL to produce 70% or more of the maps included in the 6NR of 13 of these 55 nations.

UN Biodiversity Lab: How the UN Champions Digital Public Goods for the Global Commons

The UN is growing in its influence in the landscape of DPGs by supporting digital innovations that can be replicated and used in local contexts. UNBL is one of the early platforms created and managed by UN agencies to be added to the DGP registry. This publication highlights six lessons from UNBL relevant for open-source projects and DPGs.

Putting Spatial Planning on the Map: How High-Ambition Countries are Achieving Nature and Climate Goals

Produced by the SPACES Coalition, this policy brief aims to encourage decision makers in governments to deploy integrated spatial planning to operationalize their commitments for nature and climate. This brief highlights UNBL as one of the tools used by countries to map nature and ecosystem services for national action.

Videos

Partners & Donors

Special thanks go to the following donors and partners who have made the UNBL Partnership's achievements in 2022 possible:

Donors

Flanders State of the Art

gef

Gordon and Betty Moore Foundation

Microsoft

one earth

Permanent Mission of Denmark to the UN in New York
Ministry of Foreign Affairs of Denmark

Sida

Svenska Postkodstiftelsen

Convening partners

Convention on Biological Diversity

UN environment programme

UN environment programme WCMC

UNDP

Technical Partners

Impact Observatory

Microsoft

NASA

UNICC

UNBL Team

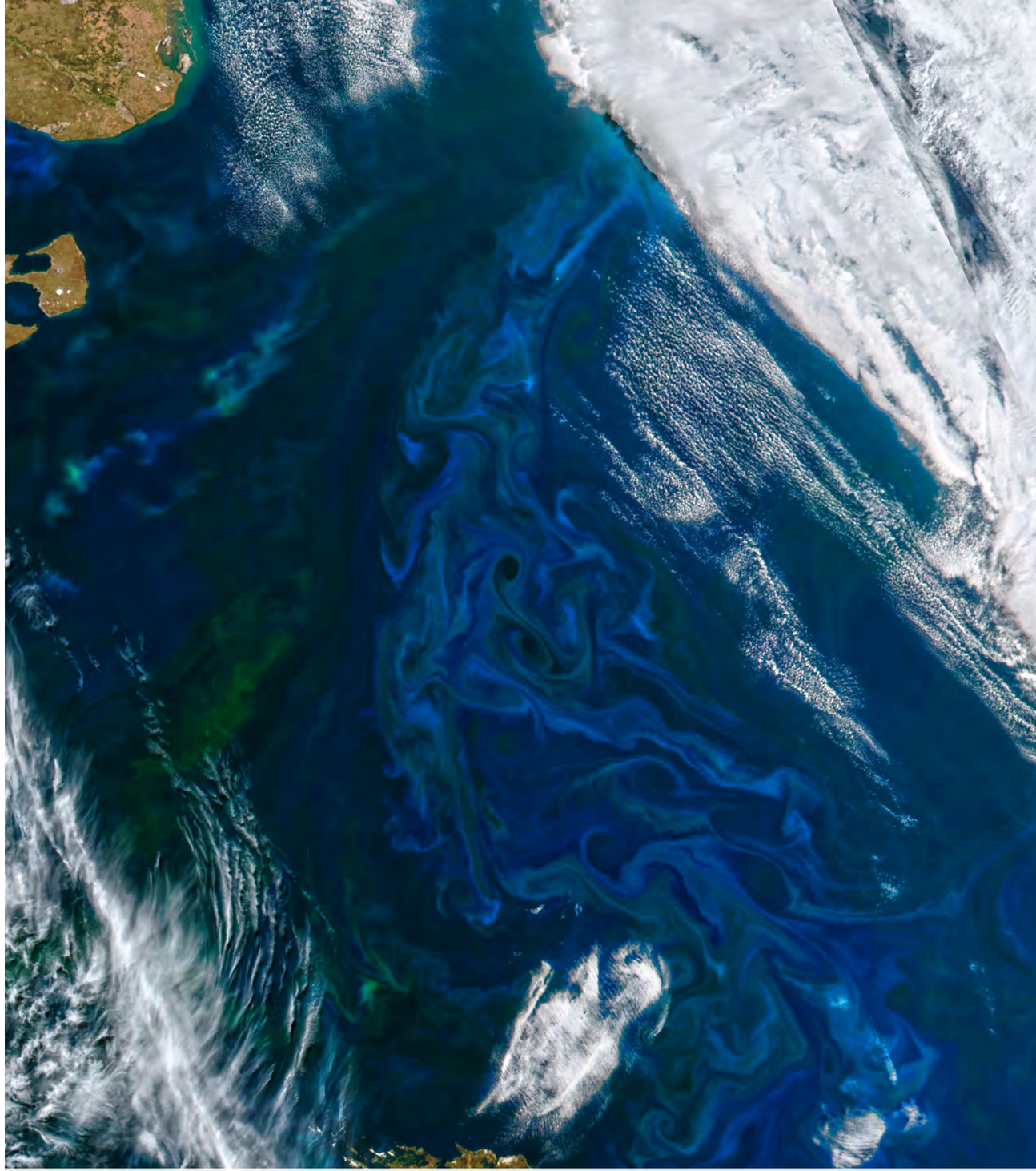
Learn about the team behind this work on the UNBL team page.

UNBL Social

Follow our UNBL partner accounts & #UNBiodiversityLab for regular updates:

- NBSAP Forum and UNBL: Twitter | Facebook
- UNDP: Twitter | LinkedIn | Facebook
- UNEP: Twitter | LinkedIn | Facebook
- UNEP-WCMC: Twitter | LinkedIn |Facebook

> As a data scientist, I appreciate the openness of the platform. Every organization generates data and works hard to make it understandable. By sharing across organizations, we can unlock additional ways to use the same data and maximize return on investment.
>
> – Imai Jen-La Plante, Ph.D., Green Climate Fund



www.unbiodiversitylab.org