



# Using UN Biodiversity Lab to Monitor the Pulse of the Planet

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April 28, 2022



# Course Structure

- **Three intermediate sessions**

- Intermediate sessions will be held on **April 14, 21, and 28**
- For the intermediate sessions, there will be 3 sessions per day presenting the same material in:
  - English (9:00-10:30 EST)
  - French (11:00-12:30 EST)
  - Spanish (15:00-16:30 EST)

- **Two advanced labs**

- Advanced labs will be held on **April 27** and **May 4**
- Please register for these separately via the course website
- Offered in English with simultaneous interpretation to French and Spanish
- The lab sessions will be limited to 150 participants





# Course Materials and Q&A

- Webinar recordings, PowerPoint presentations, and the homework assignment can be found after each session at:
  - <https://appliedsciences.nasa.gov/join-mission/training/english/arset-using-un-biodiversity-lab-monitor-pulse-planet>
- Q&A: Following each lecture and/or by email:
  - [amberjean.mccullum@nasa.gov](mailto:amberjean.mccullum@nasa.gov)
  - [juan.l.torresperez@nasa.gov](mailto:juan.l.torresperez@nasa.gov)
  - [anne.virnig@undp.org](mailto:anne.virnig@undp.org)



# Homework and Certificates

## Intermediate Sessions

- **Homework:**
  - One homework assignment for the intermediate sessions submitted via Google Forms
    - Available on training website
- **Certificate of Completion:**
  - Attend all three live, intermediate webinars
  - Complete the homework assignment by **Thursday, May 12**
  - You will receive certificates approximately two months after completion of the course from: [marines.martins@ssaihq.com](mailto:marines.martins@ssaihq.com)

## Advanced Sessions

- **Final Assignment for Each Lab**
  - Submitted to UNDP after session
- **Certificate of Completion**
  - Attend the live webinars and submit the assignment
  - Details provided in each advanced lab session





# Course Outline (Intermediate Sessions)

## Part 1: Using UN Biodiversity Lab to Support Country-Led Action on Biodiversity and Sustainable Development

- NASA satellites and sensors
- Global policy context
- UNBL basic functionalities
- Country case studies

## Part 2: Exploring the UN Biodiversity Lab Public Platform

- UNBL recap
- Data products and tools
- UNBL public platform functionalities

## Part 3: Exploring UN Biodiversity Lab Secure Workspaces

- UNBL workspace functionalities
- Essential life support areas and future functionalities



# Course Outline (Advanced Labs)

## Advanced Lab 1: Mastering the UNBL Public Platform

- Deep dive on UNBL public platform functionalities
- Independent exercise on the use of public platform

## Advanced Lab 2: Mastering UNBL Secure Workspaces

- Deep dive on UNBL secure workspace functionalities
  - Add users and assign privileges
  - Upload data layers
  - Calculate dynamics
- Independent exercise on the use of secure workspaces





# Part 3 Agenda

- Recap – What did we cover last time?
- UNBL Workspace Functionalities
- Essential Life Support Areas and Other Forthcoming Functionalities
- Q&A Session



Image Credit: <https://unbiodiversitylab.org/maps-of-hope/>







Recap: What did we learn last session?





Convention on  
Biological Diversity



WCMC



# RECAP | UNBL PUBLIC PLATFORM

Anne Virnig, UNDP



Impact  
Observatory

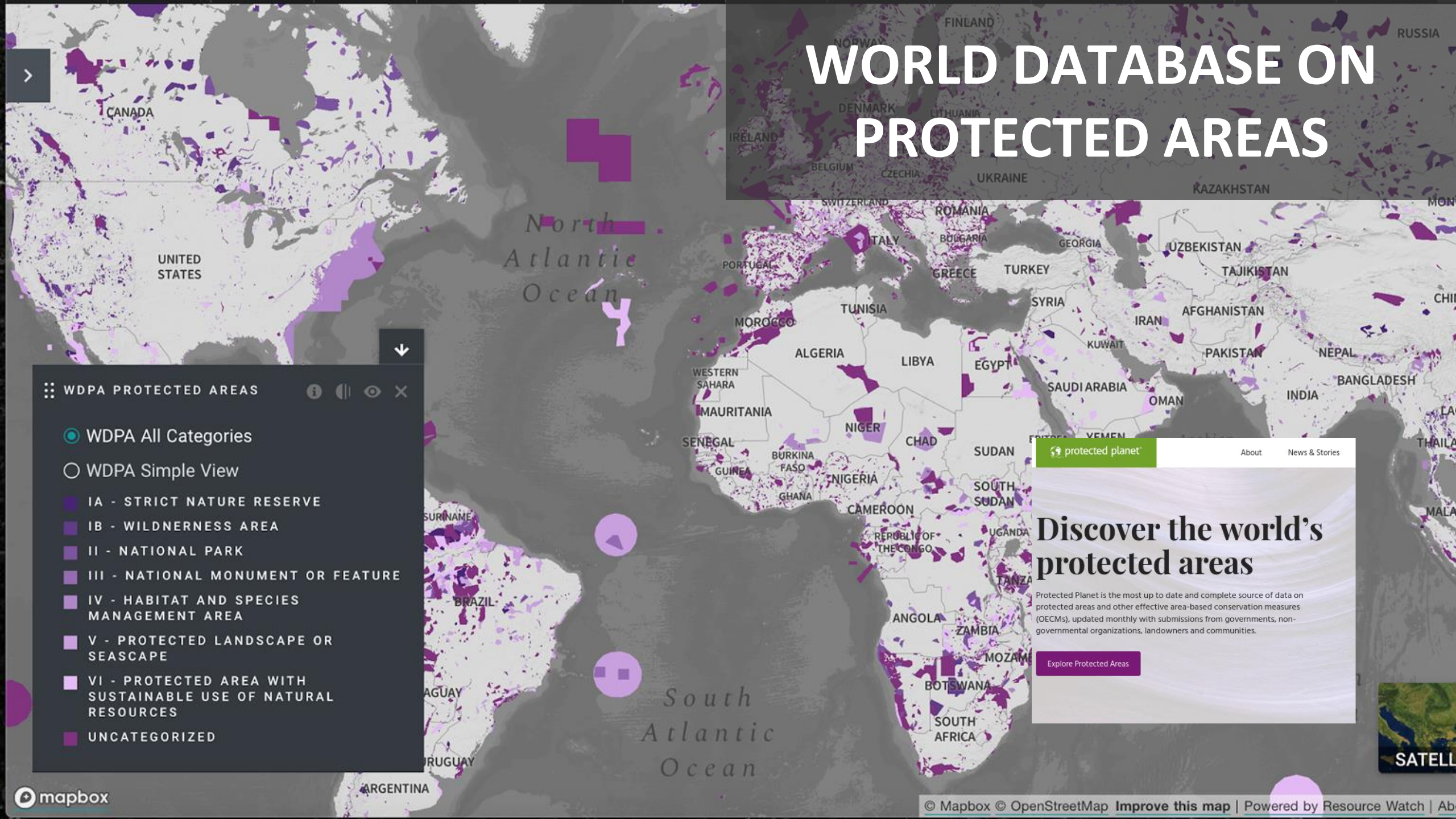


Microsoft





# WORLD DATABASE ON PROTECTED AREAS



WDPA PROTECTED AREAS

- WDPA All Categories
- WDPA Simple View
- IA - STRICT NATURE RESERVE
- IB - WILDNERNESS AREA
- II - NATIONAL PARK
- III - NATIONAL MONUMENT OR FEATURE
- IV - HABITAT AND SPECIES MANAGEMENT AREA
- V - PROTECTED LANDSCAPE OR SEASCAPE
- VI - PROTECTED AREA WITH SUSTAINABLE USE OF NATURAL RESOURCES
- UNCATEGORIZED

protected planet

About News & Stories

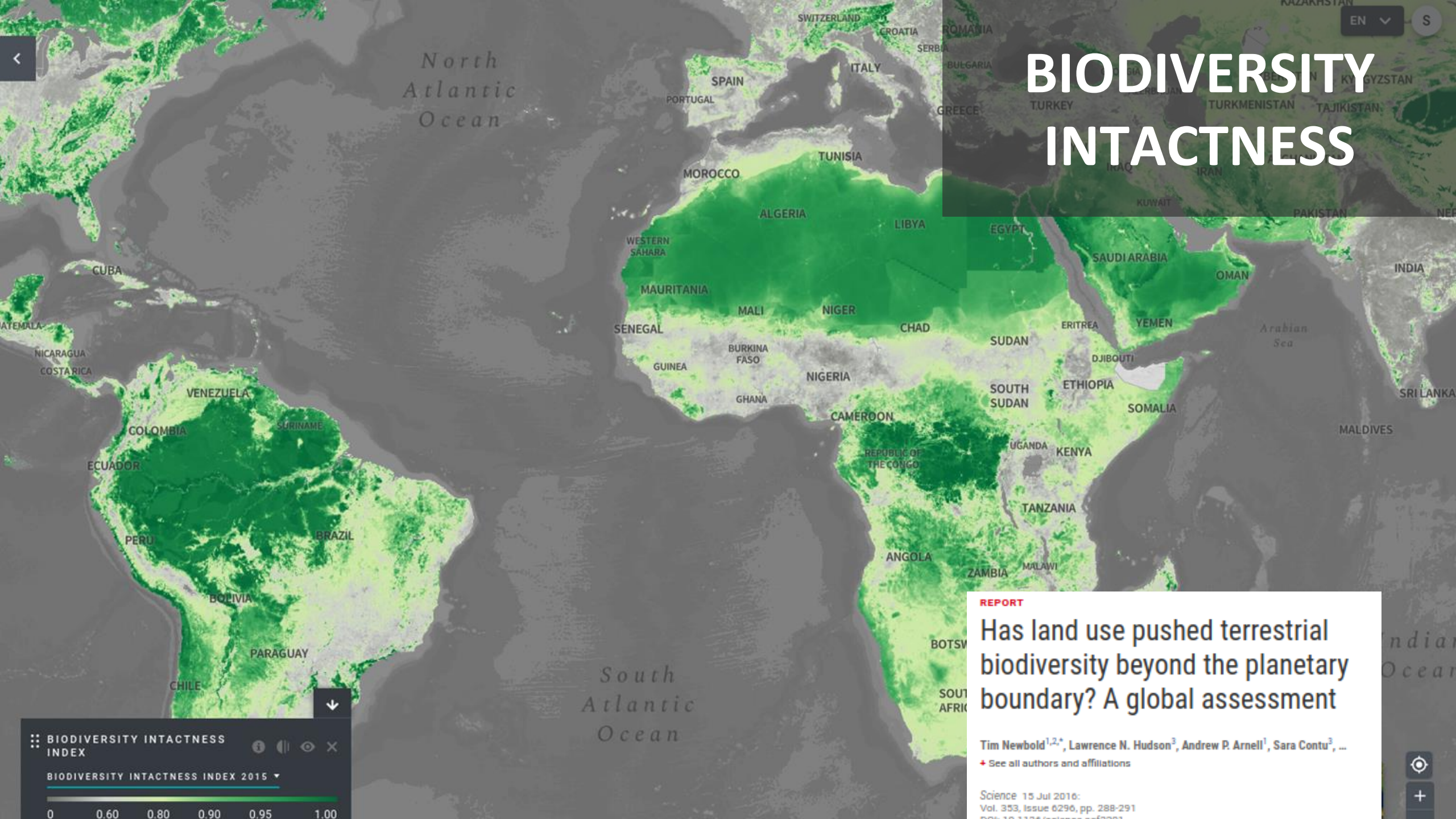
## Discover the world's protected areas

Protected Planet is the most up to date and complete source of data on protected areas and other effective area-based conservation measures (OECMs), updated monthly with submissions from governments, non-governmental organizations, landowners and communities.

Explore Protected Areas



# BIODIVERSITY INTACTNESS



**REPORT**

## Has land use pushed terrestrial biodiversity beyond the planetary boundary? A global assessment

Tim Newbold<sup>1,2,\*</sup>, Lawrence N. Hudson<sup>3</sup>, Andrew P. Arnell<sup>1</sup>, Sara Contu<sup>3</sup>, ...  
[+ See all authors and affiliations](#)

Science 15 Jul 2016:  
Vol. 353, Issue 6296, pp. 288-291  
[DOI: 10.1126/science.1257553](#)

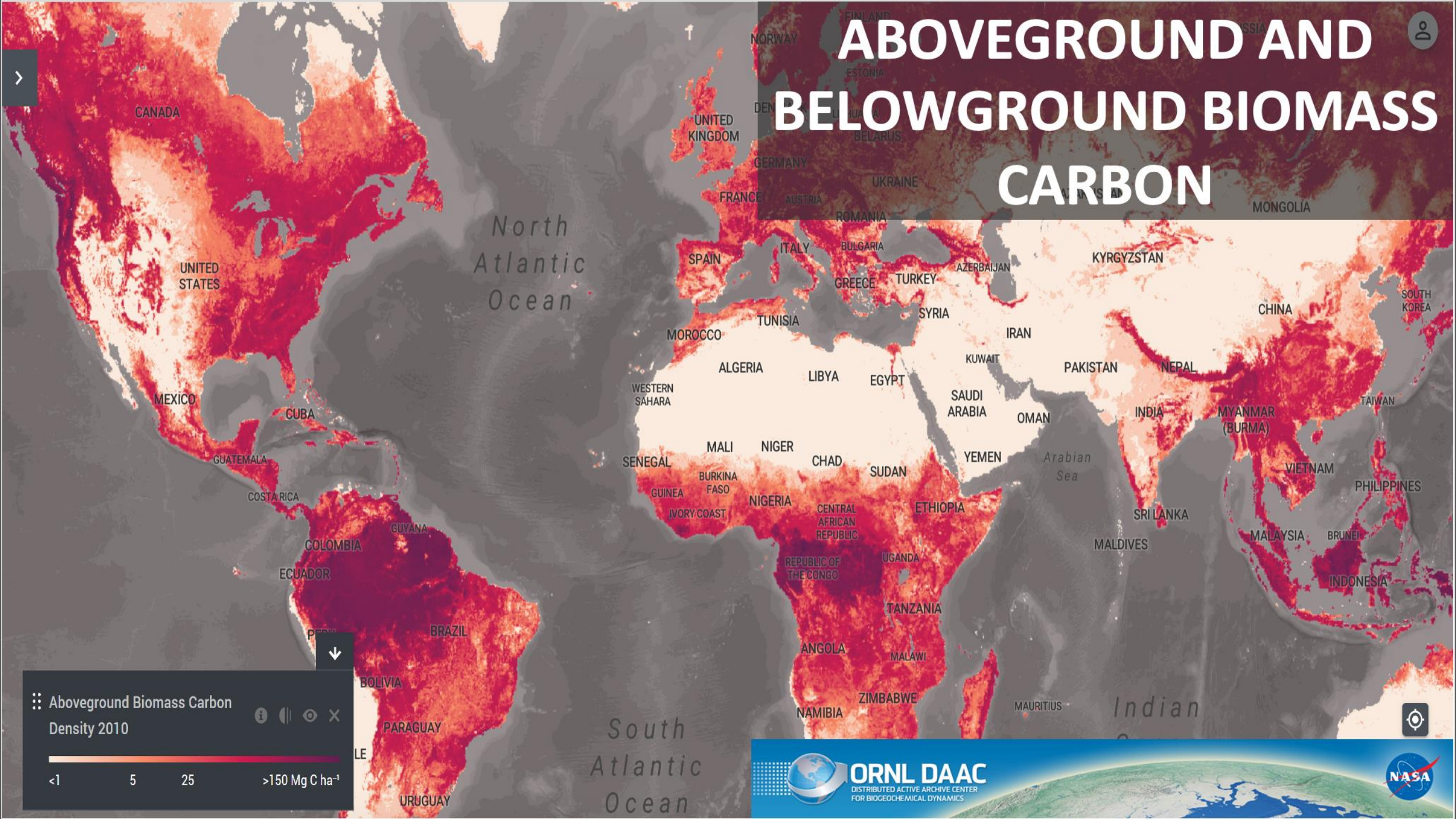
**BIODIVERSITY INTACTNESS INDEX**

BIODIVERSITY INTACTNESS INDEX 2015 ▾

0 0.60 0.80 0.90 0.95 1.00



# ABOVEGROUND AND BELOWGROUND BIOMASS CARBON



⋮ Aboveground Biomass Carbon  
Density 2010

<1      5      25      >150 Mg C ha<sup>-1</sup>



# CITY WATER MAP



City Water Map (CWP) - Watersheds

CITY WATER MAP - WATERSHEDS

Map navigation controls: info, pause, eye, close.





# ACCESS OUR FULL DATA LIST

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[www.unbiodiversitylab.org/data-list](http://www.unbiodiversitylab.org/data-list)





# WHAT ARE UNBL COLLECTIONS?

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- UNBL Collections:
  - Protected areas
  - Nature-based solutions for climate change
  - Post-2020 global biodiversity framework (*coming soon!*)
  - Restoration (*coming soon!*)



# EXPLORE UNBL COLLECTIONS



## UN Biodiversity Lab

Providing decision makers with the best available spatial data to put nature at the center of sustainable development.

[Learn more](#)



A satellite-style map of the world is shown, with landmasses in shades of brown and tan and oceans in various shades of blue. A dark blue gradient overlay covers the right side of the image, creating a sense of depth and focus on the text.

# UNBL PUBLIC PLATFORM TRAINING

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1. Register & login
2. Search & visualize global datasets
3. Calculate dynamic metrics for your country
4. Share views, create maps & download data





# UNBL Workspaces Training





Convention on  
Biological Diversity



WCMC



# TRAINING | UNBL WORKSPACES

Di Zhang, UNDP



Impact  
Observatory



Microsoft







# TRAINING OVERVIEW

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1. Introduction to UNBL workspaces
2. How to apply for a UNBL workspace
3. Access & basic info for your workspace
4. User management
5. Upload data – places & data layers





# INTRODUCTION TO UNBL WORKSPACES





# WHAT IS A UNBL WORKSPACE?

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- Secure UN-hosted space for collaboration
- Available for governments, UN agencies, NGOs, Indigenous peoples organizations, and research institutions
- Limit access to a discrete set of users
- Upload your national/regional/local data layers
- Upload your areas of interest
- Calculate dynamic metrics



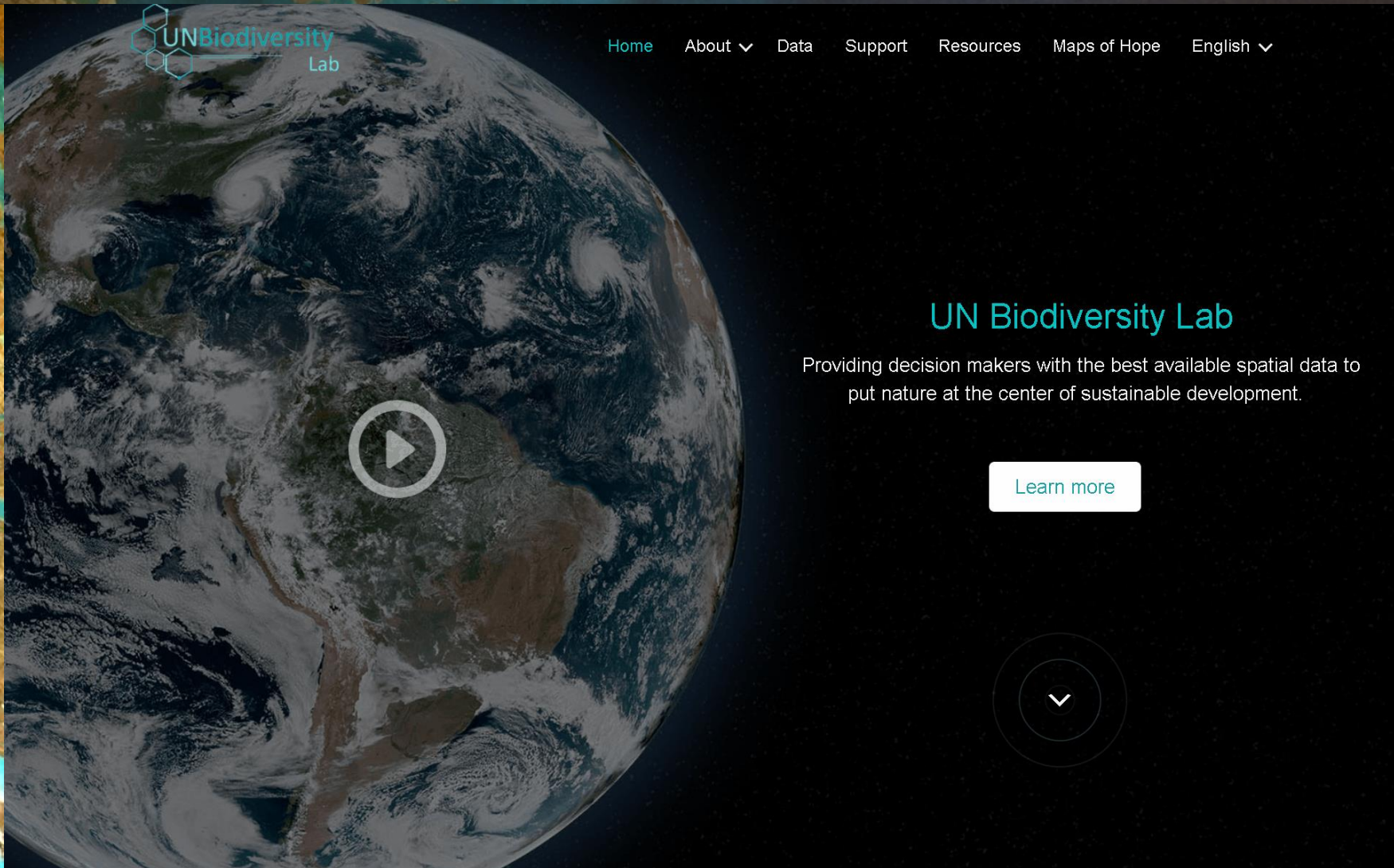


# UNBL WORKSPACE | HOW TO APPLY?

[View Animated GIFS \(Slides 24-50\)](#)



# REQUEST A UNBL WORKSPACE



- Request private workspace by visiting:  
<https://unbiodiversitylab.org/unbl-workspaces/>



An aerial photograph of a coastline, likely in the Maldives, showing turquoise shallow waters and brown landmasses. The image is split horizontally by a dark grey band containing text.

# UNBL WORKSPACE | ACCESS & ADMIN



# ACCESS YOUR UNBL WORKSPACE



**UNBiodiversity Lab**

MAP VIEW

PLACES **LAYERS**

search places

FILTERS

Last Viewed Place

**Serengeti Bounding Box**  
UNBL-ELSA • Study Area

Collections CREATE NEW

**Colombia**  
UNBL-ELSA • 2022-3-2

**ELSA-Kazakhstan**  
kazakhstan-unbl • 2022-3-1

**Wetlands**  
elsa-uganda • 2021-11-12

**teste**  
brasil-tcu • 2021-3-17

Featured

**Aral Basin**  
UNBL • Cross-Boundary Area

**Bioma - Cerrado**  
brasil-tcu • Biome or Ecosystem

**Brasil**  
brasil-tcu • Country

**mapbox**

© Mapbox [improve this map](#) | © Natural Earth Data © Mapbox © OpenStreetMap [improve this map](#) | Powered by Impact Observatory | [Terms of use](#) | [About](#) | 1000 km

DZ

MAP CONTROLS



# VIEW DATA IN YOUR UNBL WORKSPACE (1)

The screenshot displays the UNBiodiversity Lab workspace interface. On the left, a sidebar menu is open, showing a list of workspaces under the heading "Map View Workspaces". Each workspace entry includes a checkbox, the workspace name, the number of places and layers, and an "ADMIN" button. The main area shows a map of the world with a dark overlay, indicating that the workspace data is currently not visible. The map includes labels for major oceans (North Atlantic Ocean, South Atlantic Ocean, Indian Ocean) and various countries. At the bottom, there is a footer with copyright information and a scale bar.

**UNBiodiversity Lab** MAP VIEW X

Home

Map View Workspaces

- UNBL Places (2875) • Layers (102) ADMIN
- UNBL-ELSA Places (2) • Layers (11) ADMIN
- ELSA Costa Rica Places (0) • Layers (50) ADMIN
- Brasil TCU Places (8) • Layers (8) ADMIN
- ELSA-Kazakhstan Places (0) • Layers (35) ADMIN
- ELSA\_Haiti Places (1) • Layers (25) ADMIN
- UNDP Internal Places (0) • Layers (0) ADMIN
- ELSA\_Peru Places (1) • Layers (36) ADMIN
- ELSA\_Uganda Places (0) • Layers (26) ADMIN
- ELSA Colombia Places (1) • Layers (42) ADMIN
- ELSA Dominican Republic Places (0) • Layers (25) ADMIN
- ELSA Ecuador Places (0) • Layers (34) ADMIN

© Mapbox Improve this map | © Natural Earth Data © Mapbox © OpenStreetMap Improve this map | Powered by Impact Observatory | Terms of use | About | 1000 km



# VIEW DATA IN YOUR UNBL WORKSPACE (2)

UN Biodiversity Lab

MAP VIEW 2

PLACES LAYERS

search places

UNBL-ELSA | Study Area

## Serengeti Bounding Box

Annual Accumulated Tree Cover Loss • UNBL

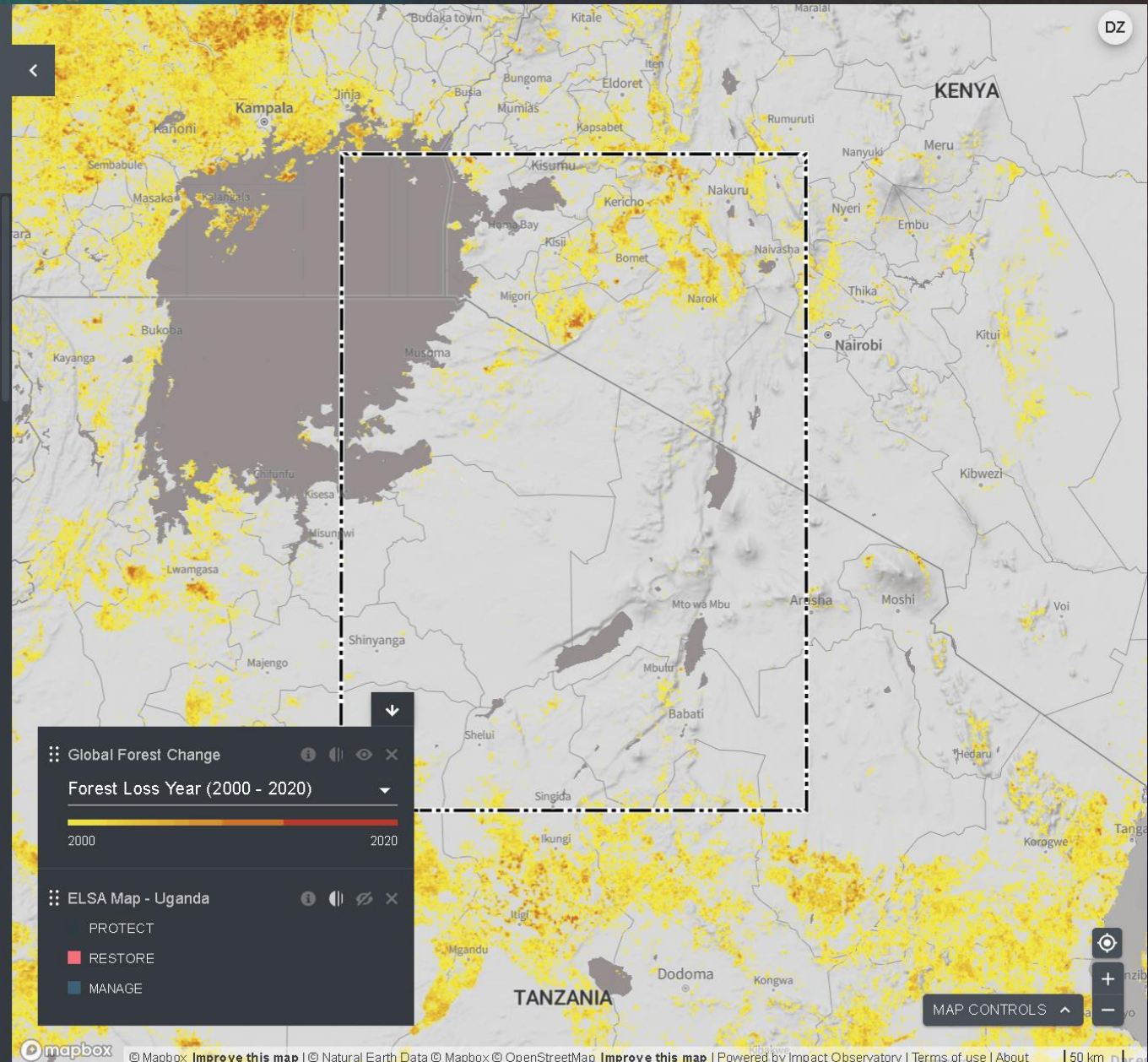
From 2001 to 2020, Serengeti Bounding Box lost 1,942 km<sup>2</sup> of tree cover, equivalent to a 0.913% decrease in tree cover since 2000

Year	Annual Accumulated Tree Cover Loss (km <sup>2</sup> )
2001	140
2002	120
2003	50
2004	80
2005	60
2006	110
2007	130
2008	80
2009	70
2010	130
2011	80
2012	70
2013	60
2014	50
2015	80
2016	90
2017	120
2018	80
2019	80
2020	140

REMOVE FROM MAP

Biodiversity Intactness Index • UNBL

In 2015, the average terrestrial biodiversity intactness in Serengeti Bounding Box was 42%, indicating a medium level of biodiversity remaining relative to a baseline ecosystem with minimal human impact.





# ACCESS YOUR ADMIN PAGE

The screenshot displays the UN Biodiversity Lab interface. On the left, a sidebar contains the following elements:

- UN Biodiversity Lab** logo and **MAP VIEW** toggle.
- PLACES** and **LAYERS** tabs.
- A search bar with the text "search places".
- FILTERS** dropdown menu.
- Last Viewed Place** section: Serengeti Bounding Box (UNBL-ELSA • Study Area).
- Collections** section: Includes a "CREATE NEW" button and a listing for Colombia (UNBL-ELSA • 2022-3-2).
- Featured** section: Lists several basins, each with a "UNBL • Cross-Boundary Area" tag:
  - Aral Basin
  - Colombia
  - Great Lakes Basin
  - Lake Victoria Basin
  - Mekong River Basin
  - Serengeti Bounding Box

The main area shows a world map with country labels and ocean names (North Atlantic Ocean, South Atlantic Ocean, Indian Ocean, Arabian Sea). Map controls (compass, zoom in/out) are visible in the bottom right corner. A "DZ" label is in the top right corner of the map area.



# NAVIGATE IN YOUR ADMIN PAGE

UNBiodiversity  
Lab

UNBL-ELSA

DZ

Home

Home

## UNBL-ELSA

Key: UNBL-ELSA

Workspace places: 2

Workspace layers: 28

Workspace widgets: 1

Workspace dashboards: 1

Welcome To The UNBL-ELSA Admin!

Search and edit sections related to your workspace





# MANAGE USERS



# USER ROLES IN YOUR UNBL WORKSPACE

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- **Viewer view:** Can view all workspace data. Viewers do not have access to the admin tool.
- **Editor:** Upload/delete workspace data via the admin tool and view all workspace assets on the map view.
- **Admin:** Add and assign roles to editors/viewers, upload/delete workspace data, and view all workspace data.
- **Owner:** Change workspace name, assign roles to admins/editors/viewers, upload/delete workspace data, and view all workspace data.



# ADD USERS TO YOUR UNBL WORKSPACE



UNBL-ELSA 

DZ 

Home 

## UNBL-ELSA

Key: UNBL-ELSA

Workspace places: 2

Workspace layers: 28

Workspace widgets: 1

Workspace dashboards: 1

Home

Welcome To The UNBL-ELSA Admin!

Search and edit sections related to your workspace





**UPLOAD DATA | PLACES**





# TYPES OF DATA

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## Places/Areas of Interest

- Polygons delineating an area of interest, such as a country boundary, a sub-national administrative areas, or other user defined locations (vector data)

## Data Layers

- Raster data, such as aboveground biomass carbon, or species richness data
- Vector data, such as Ecoregions polygons, or the World Database on Protected Areas (WDPA)





## WHY ADD PLACES TO YOUR **UNBL WORKSPACE**?

- Upload **shape** for a subnational, national, or transboundary area of interest.
- Utilize **all functionalities of UNBL** for this place:
  - **Calculate** dynamic metrics
  - **Clip & download any raster layer** to the range of this place for use in a desktop GIS software



# ADD PLACES TO YOUR UNBL WORKSPACE (1)

The screenshot displays the UNBL-ELSA Admin interface. On the left is a sidebar with the UNBiodiversity Lab logo and the workspace name 'UNBL-ELSA'. Below the logo is a 'Home' dropdown menu. The main content area shows a 'Home' heading and a welcome message: 'Welcome To The UNBL-ELSA Admin! Search and edit sections related to your workspace'. The sidebar also lists workspace statistics: 3 places, 28 layers, 1 widget, and 1 dashboard. A 'DZ' user indicator is visible in the top right corner.

UNBiodiversity Lab

UNBL-ELSA

Home

## UNBL-ELSA

Key: UNBL-ELSA

Workspace places: 3

Workspace layers: 28

Workspace widgets: 1

Workspace dashboards: 1

### Home

Welcome To The UNBL-ELSA Admin!  
Search and edit sections related to your workspace

DZ



# ADD PLACES TO YOUR UNBL WORKSPACE (2)

The image shows a screenshot of the QGIS desktop application. The main window displays a map of Costa Rica, which is highlighted in a light green color. The map is titled "CostaRica\_boundary" in the Layers panel. The QGIS interface includes a menu bar at the top with options like Project, Edit, View, Layer, Settings, Plugins, Vector, Raster, Database, Web, Mesh, SCP, Processing, and Help. Below the menu bar is a toolbar with various icons for map navigation and editing. The Layers panel on the left shows the "CostaRica\_boundary" layer. The status bar at the bottom displays the coordinate (-958788, 1406193), scale (1:1805309), magnifier (100%), rotation (0.0 degrees), and user information (USER: 100009).

On the left side of the screenshot, there is a sidebar for the UNBiodiversity Lab workspace. The sidebar has a "Places" section with a search bar labeled "search places...". Below the search bar, there is a list of places under the heading "UNBL-ELSA Places (3)":

- Colombia  
colombia-02
- Serengeti Bounding Box  
serengeti-bounding-box
- South America  
colombia-01

At the bottom of the sidebar, there is a "- end -" indicator. The UNBiodiversity Lab logo is visible in the top left corner of the sidebar.



# ADD PLACES TO YOUR UNBL WORKSPACE (3)

Places

search places...

UNBL-ELSA Places (3)

Colombia  
colombia-02

Serengeti Bounding Box  
serengeti-bounding-box

South America  
colombia-01

- end -

## New place

Title \*

Costa Rica

Place type \*

Country

Slug \*

costa-rica

GENERATE A SLUG NAME

SHAPE FILE

JSON EDITOR

Choose a GeoJSON to calculate shape maths and geographic relationships.

Place shape \*

选择文件

CostaRica...ary.geojson

SAVE AND VIEW DETAILS

RETURN TO PLACES HOME



# ADD PLACES TO YOUR UNBL WORKSPACE (4)

The screenshot displays the UNBiodiversity Lab interface. On the left, a vertical sidebar contains the following elements: the UNBiodiversity Lab logo, a 'MAP VIEW' button with a notification badge '1', a 'PLACES' tab (underlined) and a 'LAYERS' tab, a search bar containing 'Costa Rica', and a section titled 'UNBL-ELSA | Country' with 'Costa Rica' listed below it. The main map area shows a topographic map of Costa Rica with a dashed black outline. Labeled locations include Rivas, San Carlos, Liberia, Nicoya, Puntarenas, San José, Limón, San Isidro de El General, and Puerto Armuelles. A 'DZ' button is in the top right corner. At the bottom right, there are 'MAP CONTROLS' with zoom in (+) and zoom out (-) buttons. The bottom of the screen features a footer with '© mapbox', '© Natural Earth Data © Mapbox © OpenStreetMap', and 'Powered by Impact Observatory | Terms of use | About | 30 km'.





**UPLOAD DATA | LAYERS**





# WHY ADD LAYERS TO YOUR UNBL WORKSPACE?

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- Give all your team members the ability to view your data without them needing any prior GIS experience.
- Link to your existing raster and vector layers stored in Google Earth Engine (GEE), Carto, Planetary Computer, Esri (coming soon), and several other cloud locations.
- Upload your data directly into the UNBL GIS data repository on Azure and have them available in your UNBL workspace.
- UNBL security ensures that the layers will only be visible to members of your workspace.



# ADD LAYERS TO YOUR UNBL WORKSPACE (1)

UNBiodiversity  
Lab

UNBL-ELSA 

DZ

Home 

## UNBL-ELSA

Key: UNBL-ELSA

Workspace places: 4

Workspace layers: 28

Workspace widgets: 1

Workspace dashboards: 1

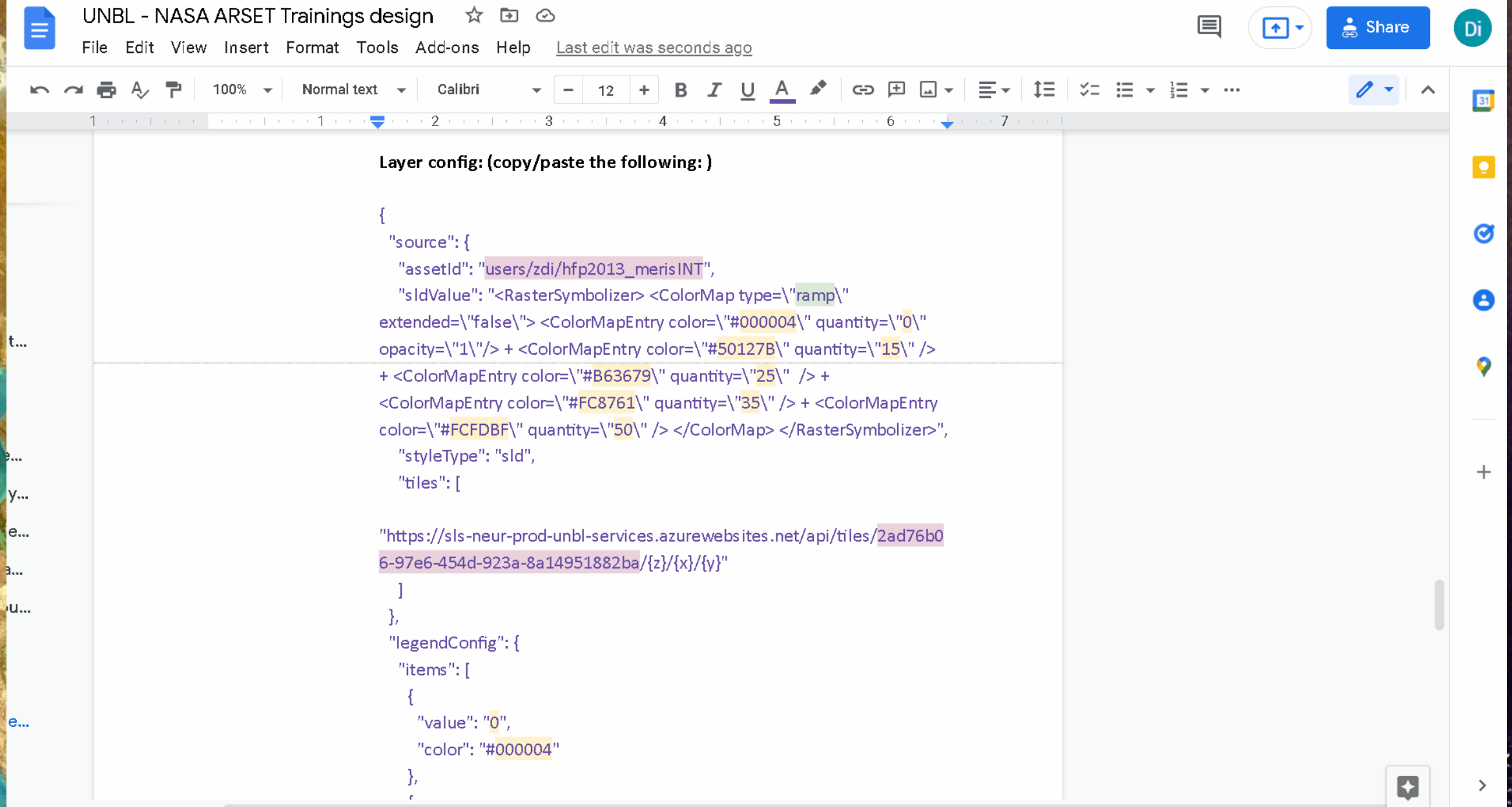
## Home

Welcome To The UNBL-ELSA Admin!

Search and edit sections related to your workspace



# ADD LAYERS TO YOUR UNBL WORKSPACE (2)



The screenshot shows a web editor interface for a workspace titled "UNBL - NASA ARSET Trainings design". The editor displays a code block for a layer configuration. The code is as follows:

```
Layer config: (copy/paste the following: )

{
  "source": {
    "assetId": "users/zdi/hfp2013_merisINT",
    "sldValue": "<RasterSymbolizer <ColorMap type=\"ramp\"
extended=\"false\"> <ColorMapEntry color=\"#000004\" quantity=\"0\"
opacity=\"1\"/> + <ColorMapEntry color=\"#50127B\" quantity=\"15\" />
+ <ColorMapEntry color=\"#B63679\" quantity=\"25\" /> +
<ColorMapEntry color=\"#FC8761\" quantity=\"35\" /> + <ColorMapEntry
color=\"#FCFDBF\" quantity=\"50\" /> </ColorMap> </RasterSymbolizer>",
    "styleType": "sld",
    "tiles": [

      "https://sls-neur-prod-unbl-services.azurewebsites.net/api/tiles/2ad76b0
6-97e6-454d-923a-8a14951882ba/{z}/{x}/{y}"

    ]
  },
  "legendConfig": {
    "items": [
      {
        "value": "0",
        "color": "#000004"
      }
    ]
  }
}
```



# ADD LAYERS TO YOUR UNBL WORKSPACE (3)

UNBiodiversity Lab UNBL-ELSA

Layers

search layers...

UNBL-ELSA Layers (29)

- Biodiversity intactiveness index  
biodiversity-intactiveness-index
- BIOMASS CARBON  
biomass-carbon-v3
- carbon emissions  
carbon-emissions
- ELSA Cambodia (high filter)  
elsa-cambodia-high-filter
- ELSA Cambodia (unfiltered)  
elsa-cambodia-unfiltered
- ELSA Dominican Republic - filtered 100  
elsa-dominican-republic1

← RETURN TO LAYERS HOME

DZ

## Human footprint 2013

EDIT

Primary

Published

Layer Slug EDIT  
human-footprint-2013

Layer Category  
Human Impact and Pressures

ID: cb92d081-85b1-427f-af6a-77dcaefe2d4e

Version: 0

Last Updated: 2022-03-04

Created: 2022-03-04

Layer Description EDIT

Williams, B.A., et al. 2020. Change in Terrestrial Human Footprint Drives Continued Loss of Intact Ecosystems. One Earth 3, 371–382. <https://doi.org/10.1016/j.oneear.2020.08.009>

Layer Type EDIT  
raster

Layer Provider  
gee

License Restrictions EDIT  
Layer downloads are available

Layer Config EDIT



# EDIT CONFIG FOR YOUR LAYERS FROM GEE

---

- GEE Asset ID
- Layer Styling
  - ColorMap type: use “*ramp*” for continuous data (e.g., population data). Use the “*interval*” for categorical data (e.g., land cover categories).
  - Set color, quantity, opacity
- Legend Styling
  - Set value/name, color.
  - Legend types: use “*gradient*” for ramp styled continuous data, use “*basic*” for interval styled categorical data.
- Update the layer ID in the tiles URL.





**UPLOAD DATA | GROUP LAYERS**







# ADD GROUP LAYERS TO YOUR WORKSPACE

UNBiodiversity  
Lab

UNBL-ELSA

DZ

Layers

hu

UNBL-ELSA Layers (3)

Human footprint 2005  
human-footprint-2005

Human footprint 2013  
human-footprint-2013

Human footprint 2000  
human-footprint-2000

## Layers

Search a layer to view and edit details, or start creating a new layer.

CREATE NEW LAYER

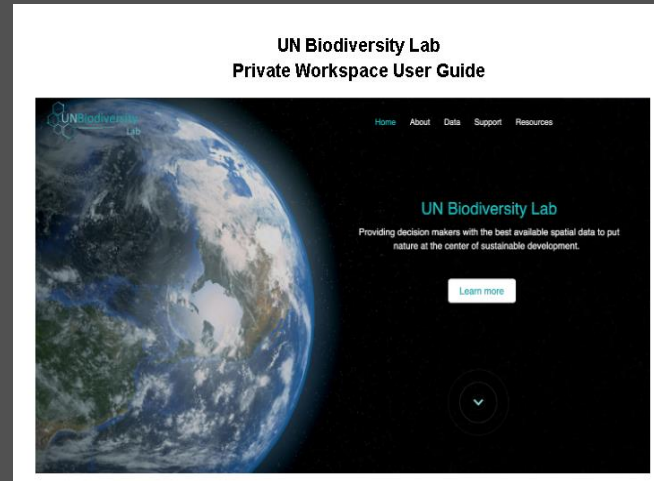




# CONCLUSIONS



# UNBL WORKSPACE GUIDANCE MATERIALS



## UNBL Workspace Technical Guidance

- <https://unbiodiversitylab.org/unbl-workspaces-en/>
- <https://unbiodiversitylab.org/unbl-workspaces-sp/>
- <https://unbiodiversitylab.org/unbl-workspaces-fr/>
- <https://unbiodiversitylab.org/unbl-workspaces-pt/>
- <https://unbiodiversitylab.org/unbl-workspaces-ru/>

**Also available in French, Portuguese, Russian, and Spanish!**





A Look Ahead: UN Biodiversity Lab





Convention on  
Biological Diversity



# A LOOK AHEAD | UN BIODIVERSITY LAB

Anne Virnig, UNDP  
Lauren Weatherdon, UNEP-WCMC



Impact  
Observatory



Microsoft







# THE VISION

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## Spatial Data as a Key Integrator

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Spatial data can:

- Create a biodiversity baseline
- Unify competing national priorities into a single scientifically-grounded framework
- Identify cross-cutting solutions to planning problems






*Draft* Target 1, post-2020 framework of the Convention on Biological Diversity. Ensure that all land and sea areas globally are under integrated biodiversity-inclusive spatial planning addressing land- and sea-use change, retaining existing intact and wilderness areas.

Photo Credit: Giancarlo Pucci | UNDP Costa Rica



A satellite view of Earth showing the Western Hemisphere, including North and South America. The image displays the intricate patterns of landmasses, oceans, and cloud cover. A semi-transparent dark green rectangular box is overlaid on the center of the image, containing white text.

What if countries had a way to precisely locate where protecting, managing, and restoring nature could have the greatest impact?



An aerial photograph showing a dense, vibrant green forest on the left side, which meets a bright blue body of water on the right. The water has a slightly rippled texture. A small wooden dock or pier is visible at the edge of the forest where it meets the water. The overall scene is a natural, scenic landscape.

Our vision is a world where government agencies develop **comprehensive spatial plans** to achieve **multiple goals** that include conserving **nature**, sustaining its benefits to **people**, and mitigating our **climate crisis**.



## UN Biodiversity Lab

Providing decision makers with the best available spatial data to put nature at the center of sustainable development.

[Learn more](#)







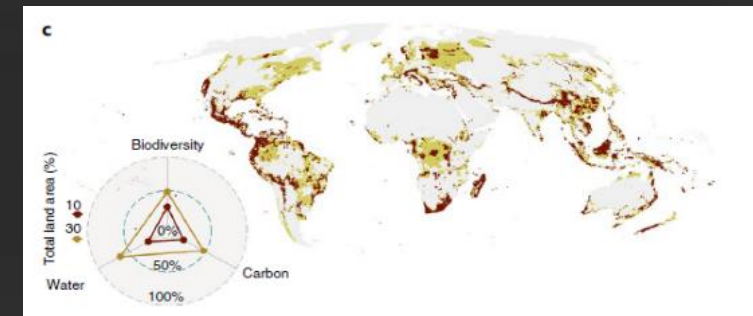
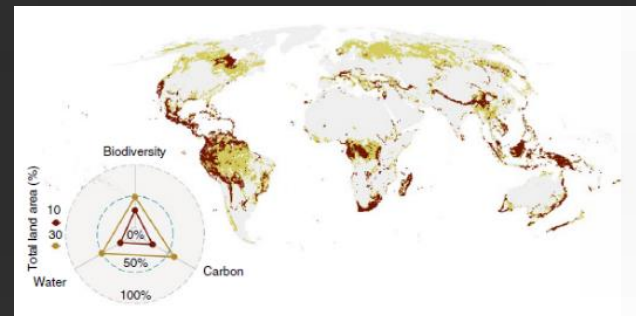
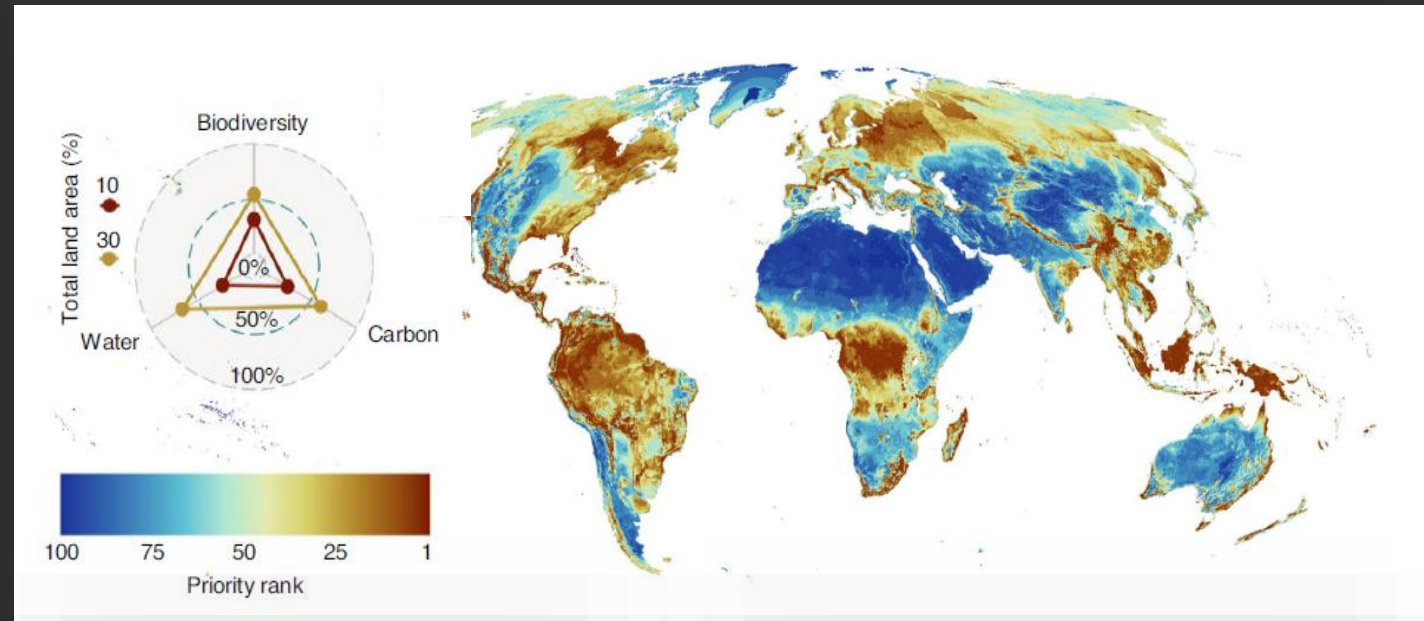
# NATURE MAP

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# Integrated Spatial Planning to Deliver Multiple Benefits

- Global analysis shows potential to **achieve multiple targets** through **informed land-use decision making**
- Example: **30%** of land area could conserve **>60% of carbon stock**, **>65% clean water** provision, and meet conservation targets for **~60% of terrestrial vertebrates and vascular plants**<sup>1</sup>
- Global map **≠** national plan!



1. See source paper for species datasets and approach: <https://www.nature.com/articles/s41559-021-01528-7?proof=t>



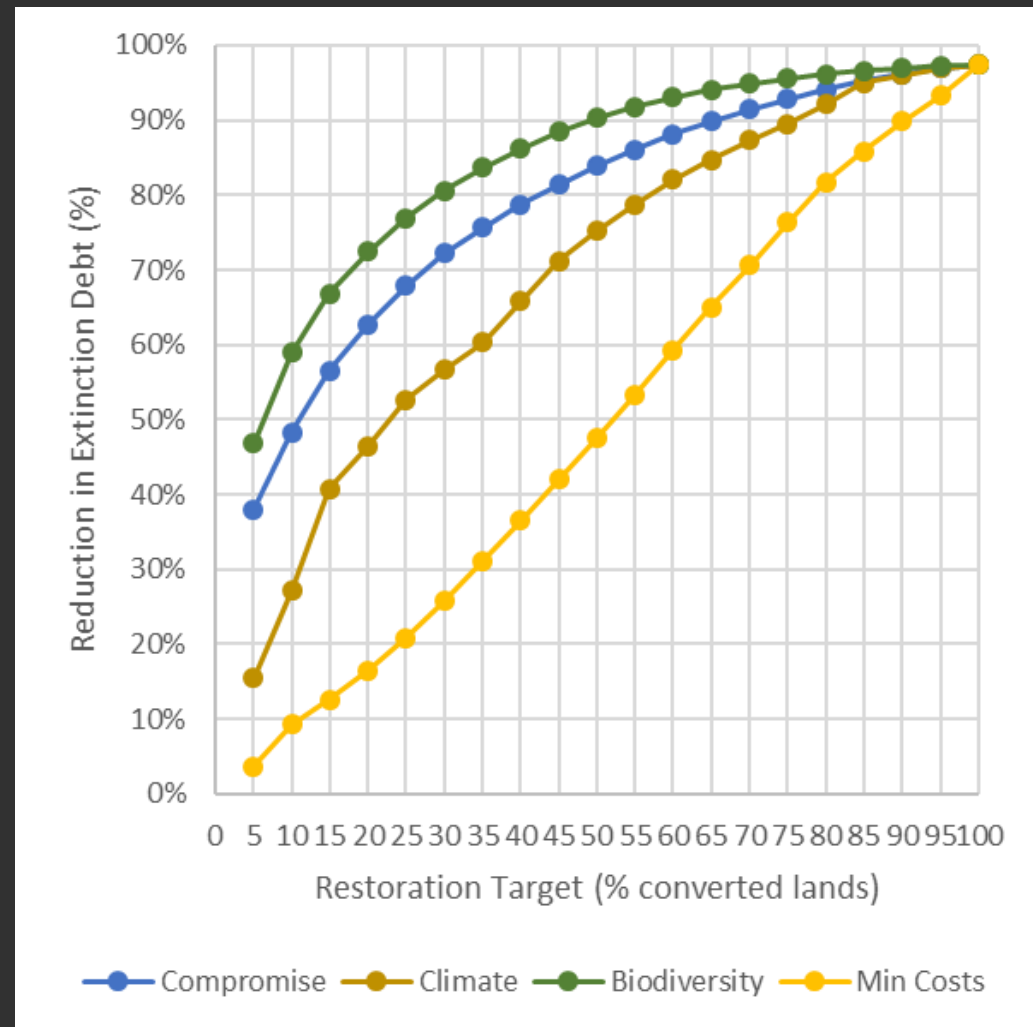
# Spatial Analysis to Efficiently Meet Multiple Goals

- Huge differences in outcomes for the same area target, depending on where action takes place

## Example:

The same 5% area target for restoration could reduce expected extinctions by 4% - 43% depending on locations selected.

- Compromise scenario meets carbon and biodiversity goals simultaneously





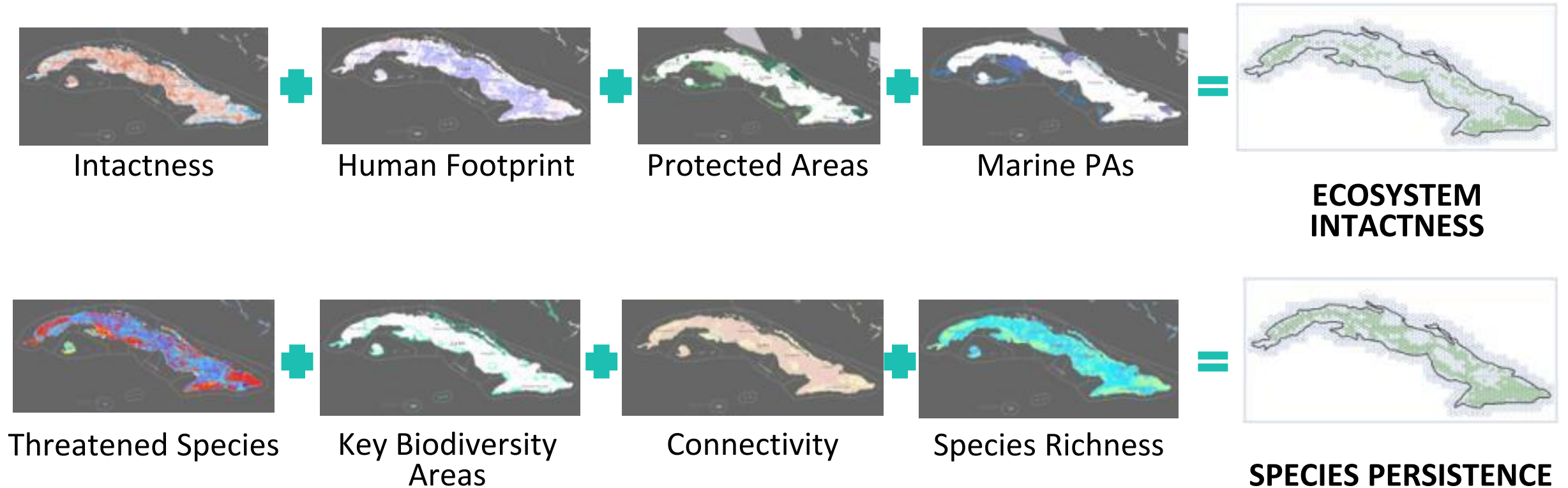
An aerial photograph of a coastal region, likely the Amazon basin, showing a complex network of rivers and islands. The land is depicted in shades of brown and tan, while the water is a vibrant turquoise. A dark blue horizontal band runs across the center of the image, containing the title text. The background of the entire image is a dark, starry space.

# MAPPING ESSENTIAL LIFE SUPPORT AREAS

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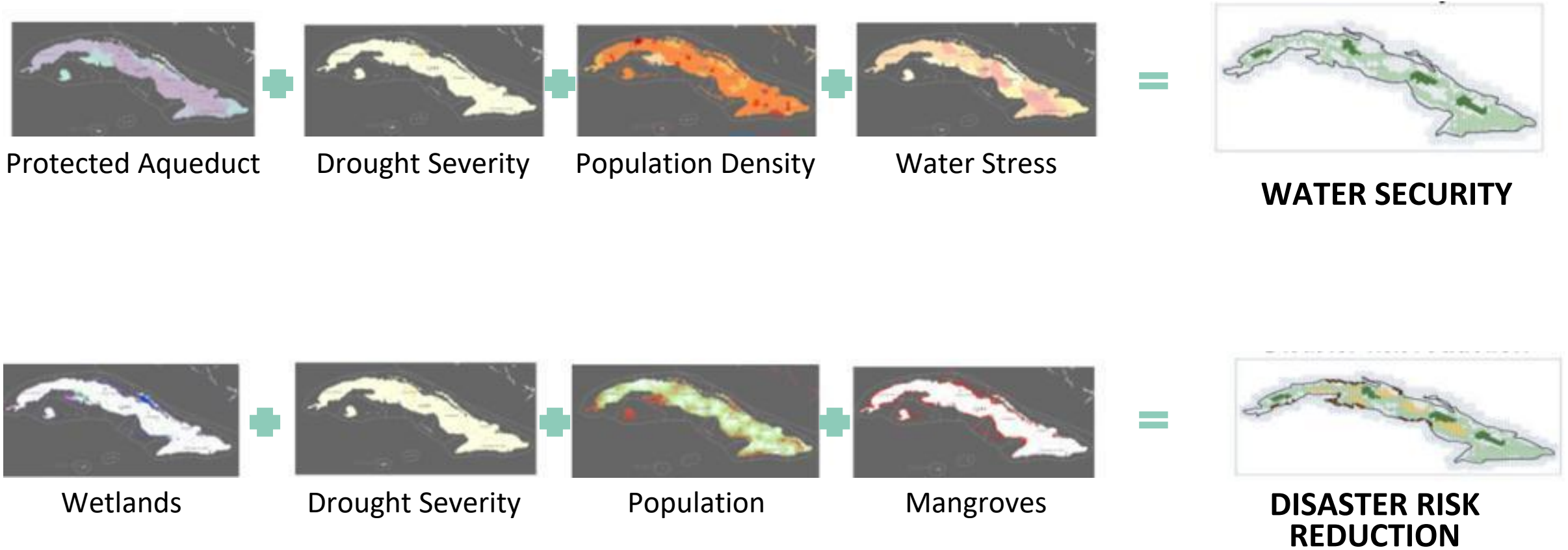


# From planning for biodiversity persistence...



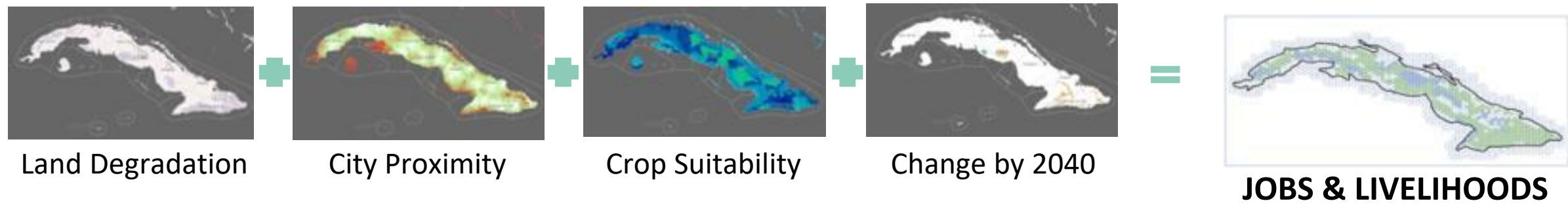


# ...to planning for integrated nature-based solutions



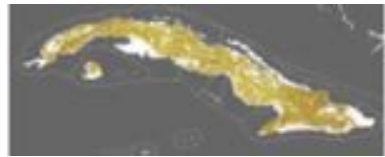


# ...to planning for integrated nature-based solutions





# ...to planning for integrated nature-based solutions



Carbon Increase by  
Agriculture



Soil Organic  
Carbon



Mangrove  
Carbon



Restorable  
Carbon



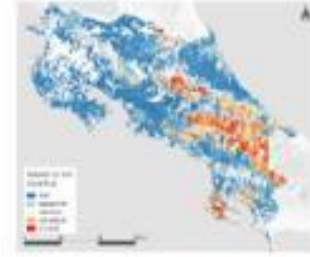
**CLIMATE CHANGE  
MITIGATION**



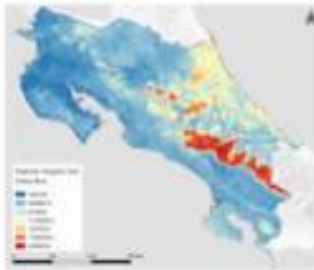
# Customization Based on Priorities



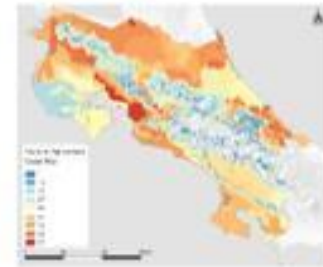
Water Security



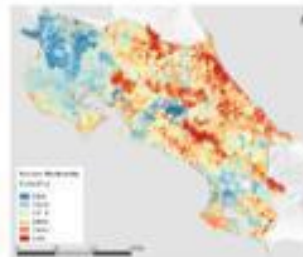
Livelihoods



Climate Change Mitigation



Food Security



Endangered Species



Disaster Risk Reduction

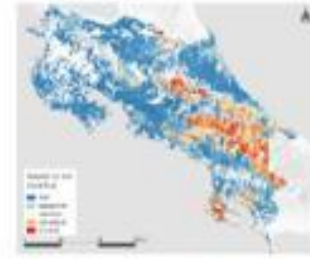




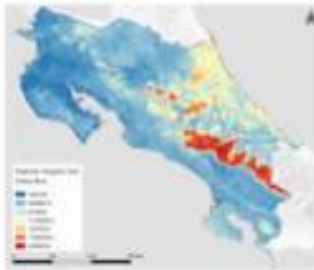
# Customization based on priorities



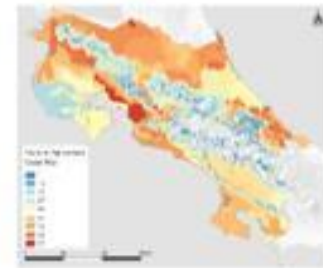
Water Security



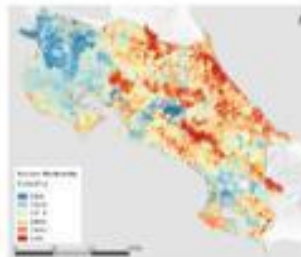
Livelihoods



Climate Change Mitigation



Food Security



Endangered Species



Disaster Risk Reduction





# ELSA - Costa Rica

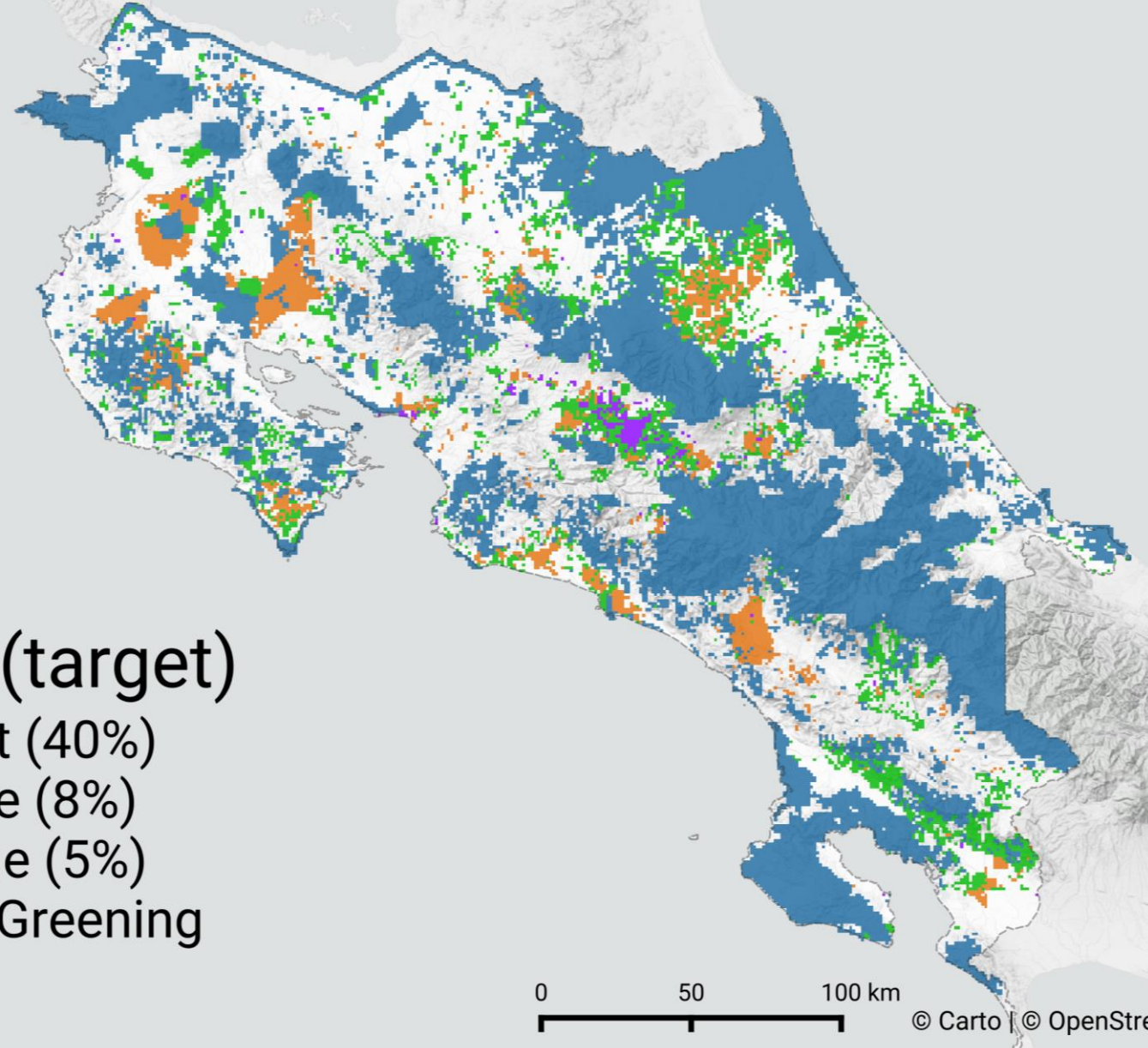
## Maps of Hope

Maps of nature-based actions for:

- Biodiversity
- Climate
- Sustainable Development
- And more!

### Action (target)

- Protect (40%)
- Restore (8%)
- Manage (5%)
- Urban-Greening















**ELSA VIA UN BIODIVERSITY LAB**

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## THE GOAL | ELSA VIA UNBL

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- Develop the science to run an ELSA analysis for any country in the world based on global policy priorities and global data
- Develop the technology to make ELSA available on UN Biodiversity Lab
- Demonstrate this capability with three initial pilot countries





**+ NEW FEATURES | UN BIODIVERSITY LAB**

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# NEW FUNCTIONALITIES IN DEVELOPMENT

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- Enhanced data tagging and search functionality
- ESRI & Azure API connectors
- Updated UN basemap and country boundary layers
- Exploring the potential to connect to near-real time and high-resolution satellite imagery
- ELSA via UNBL proof of concept





# NEW FUNCTIONALITIES

## LOOKING FORWARD

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- **New collections** on the post-2020 global biodiversity framework, restoration, & more
- **Expanded metrics** for automated reporting on critical global indicators
- **Seamless connections** to national data repositories
- **Story maps** to better communicate your work
- **ELSA via UNBL** for any country in the world

### Protected Areas: Data Collection

Protected areas are a key instrument for safeguarding biodiversity and ecosystem services. Protected areas and other effective area-based conservation measures (OECMs) are essential tools to support achievement of the three Rio Conventions and the Sustainable Development Goals.

### Nature-based Solutions for Climate Change: Data Collection

Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.



# UNBL COMMUNITY



Priscilla Mora Flores / UNDP Costa Rica

Photo Credit: Priscilla Mora Flores | UNDP Costa Rica





**COMING SOON 2022**

## **Spatial intelligence for a sustainable future**

Helping governments and the private sector leverage spatial data to achieve climate and nature goals

To find out more, get in touch at [info@spacescoalition.org](mailto:info@spacescoalition.org)





# Contacts

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  - <https://appliedsciences.nasa.gov/join-mission/training/english/arset-using-un-biodiversity-lab-monitor-pulse-planet>

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Convention on  
Biological Diversity







**Thank You!**

