



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

Amber McCullum, Juan Torres-Pérez, Annie Virnig, Osgur McDermott-Long, Nicole Desantis, Di Zhang

April 21, 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 EDT)
  - French (11:00-12:30 EDT)
  - Spanish (15:00-16:30 EDT)

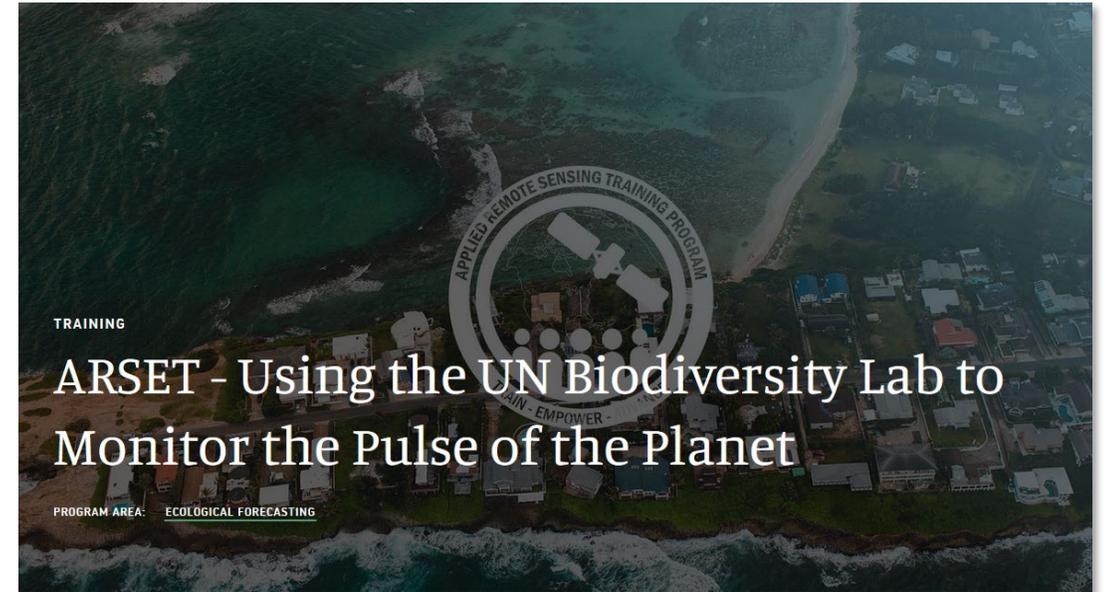
- **Two advanced labs**

- 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 webinar 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

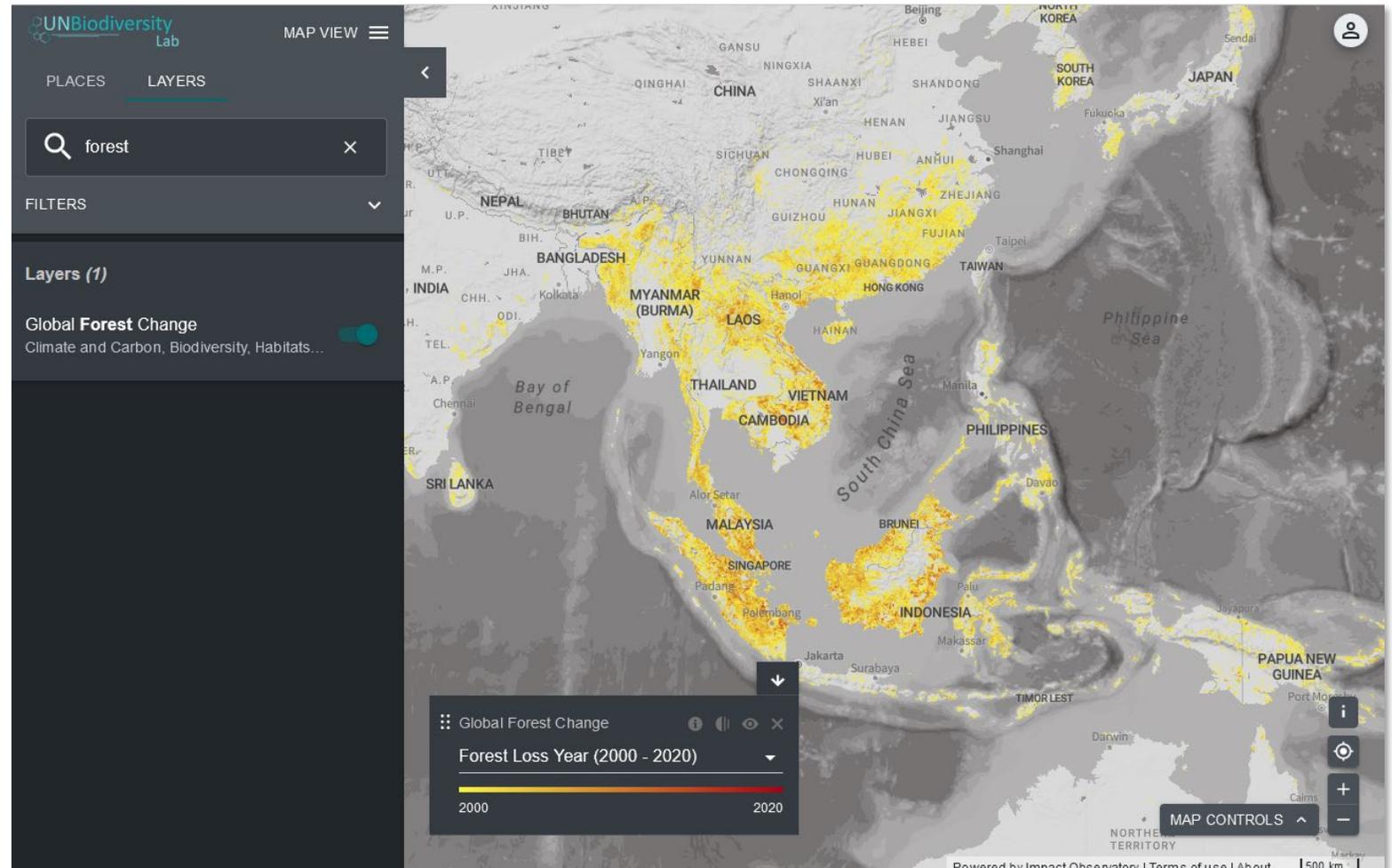
## Advanced Lab 2: Mastering UNBL Secure Workspaces

- 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 2 Agenda

- Recap – What is UNBL?
- UNBL Data
- UNBL Data Collections
- UNBL Public Platform Functionalities
- Q&A Session





Recap: What is UNBL?



Convention on  
Biological Diversity



WCMC



# RECAP | WHAT IS UNBL?

Anne Virnig, UNDP

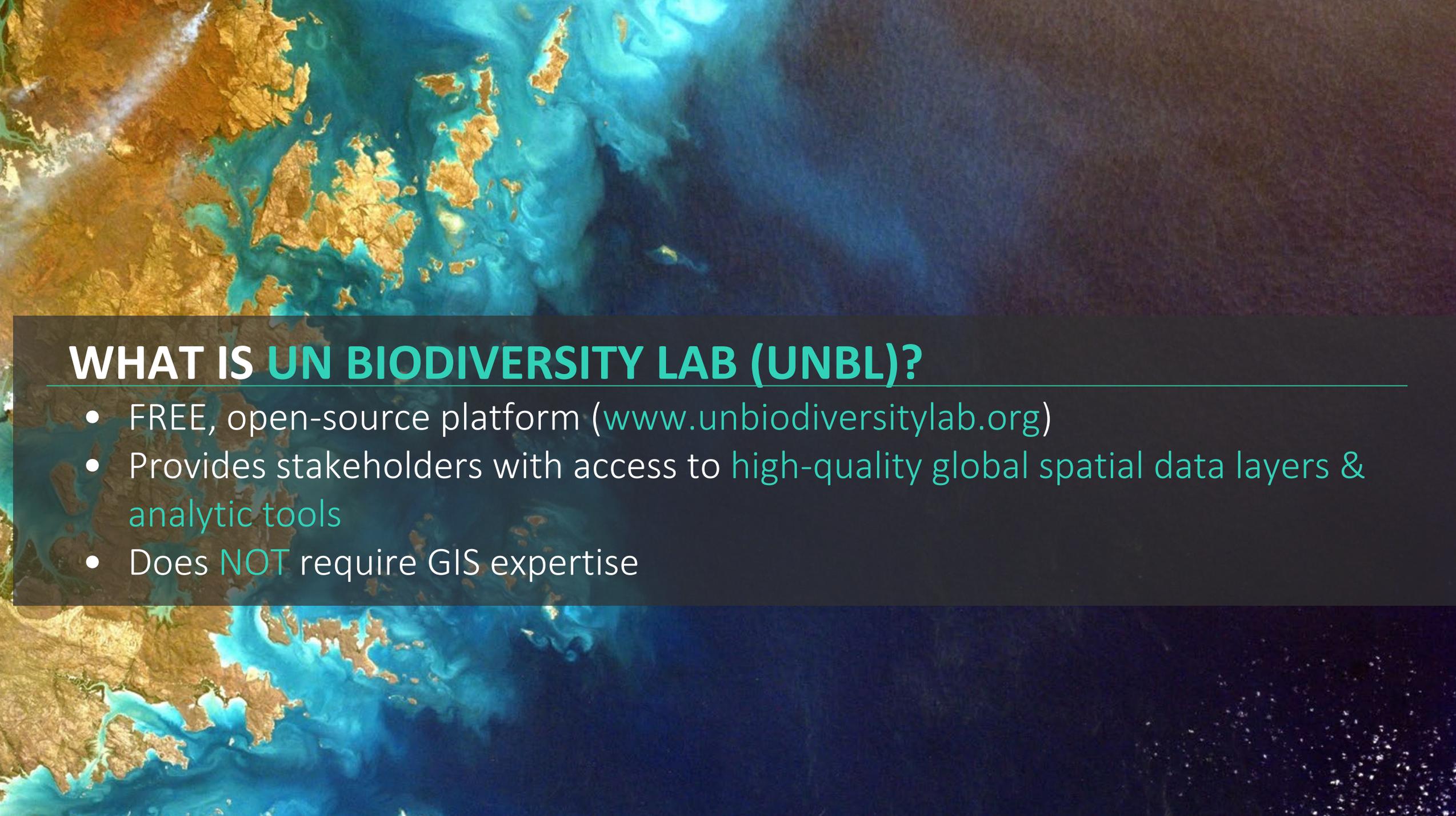


Impact  
Observatory



Microsoft





## WHAT IS UN BIODIVERSITY LAB (UNBL)?

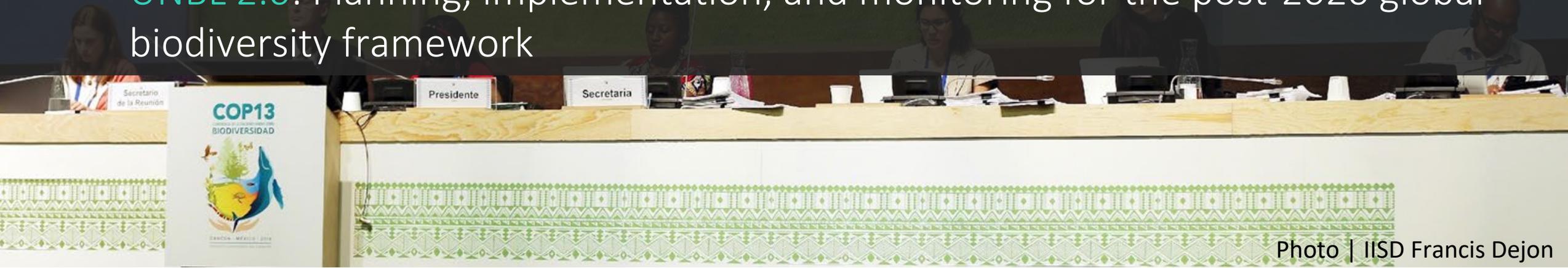
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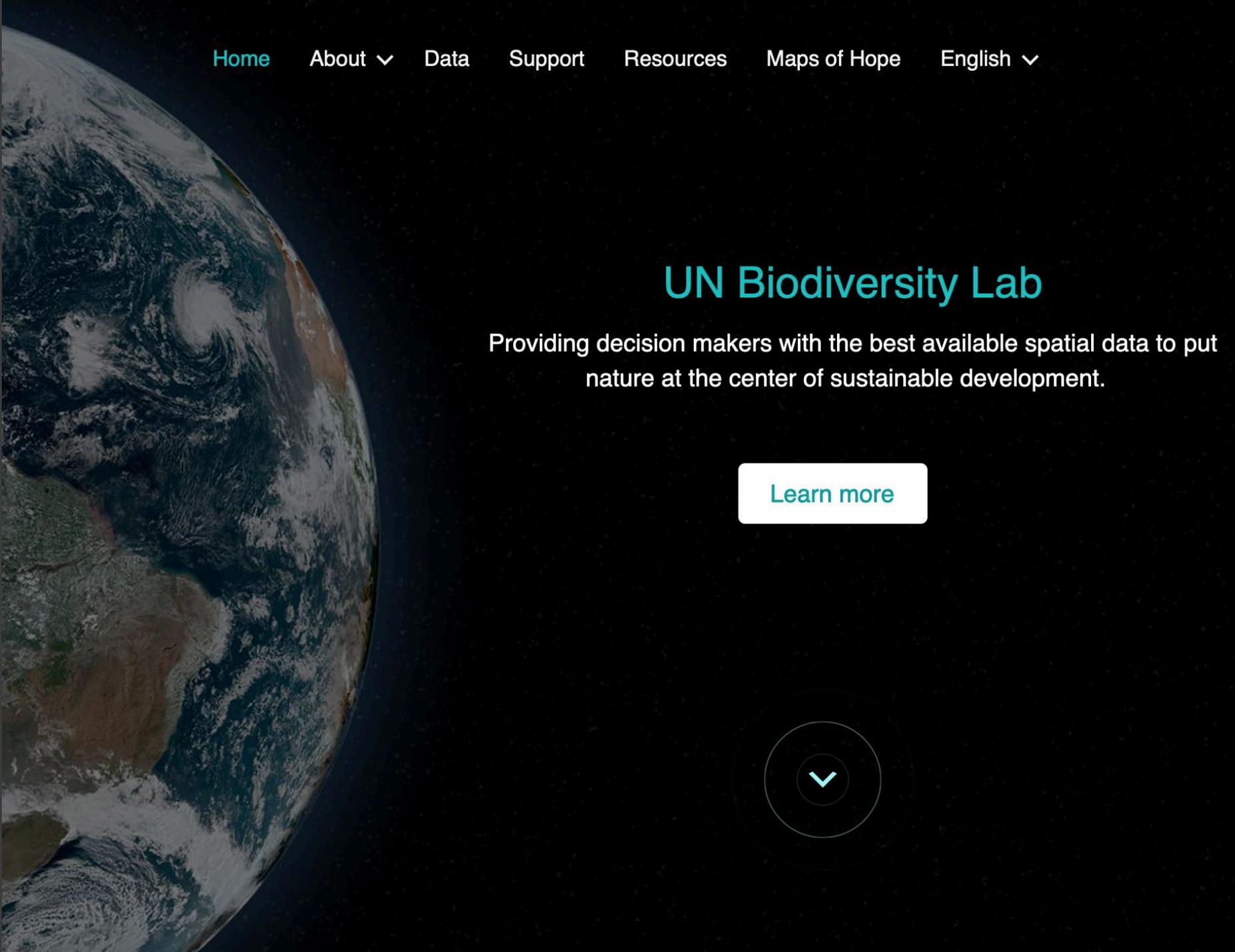
- FREE, open-source platform ([www.unbiodiversitylab.org](http://www.unbiodiversitylab.org))
- Provides stakeholders with access to high-quality global spatial data layers & analytic tools
- Does **NOT** require GIS expertise



## A TRUSTED PLATFORM FOR COMMITMENTS TO THE CBD

- Initially created in 2018
- Led to a 2X increase in the number of maps between the 5NR and 6NR
- UNBL 2.0: Planning, implementation, and monitoring for the post-2020 global biodiversity framework



[Home](#)[About](#) ▾[Data](#)[Support](#)[Resources](#)[Maps of Hope](#)[English](#) ▾

## UN Biodiversity Lab

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

[Learn more](#)

INTRODUCING  
UNBL 2.0...

## OVERALL | WHAT'S NEW?

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- Enhanced usability & modern web app design
- Fully available in English, French, Portuguese, Russian, and Spanish
- API to enable seamless integration with other solutions

## CORE FEATURES | WHAT'S NEW?

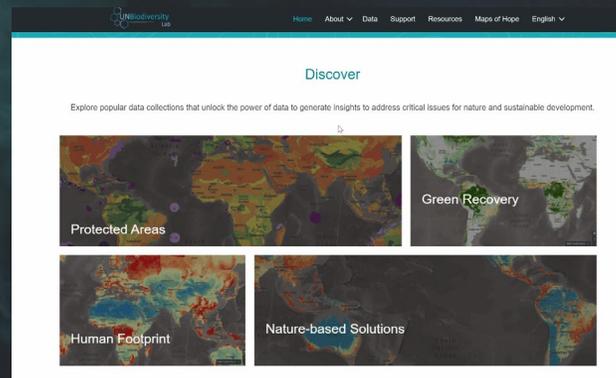
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1. Data catalogue now offering over 400 layers *(Updated)*
2. Data collections to generate insight for action *(New)*
3. Analytics to calculate key metrics for any country *(New)*
4. Secure workspaces available to ANY not-for-profit actors *(Expanded)*
5. Create maps for your country *(Updated)*
6. Map Essential Life Support Areas (Coming in 2022!) *(New)*

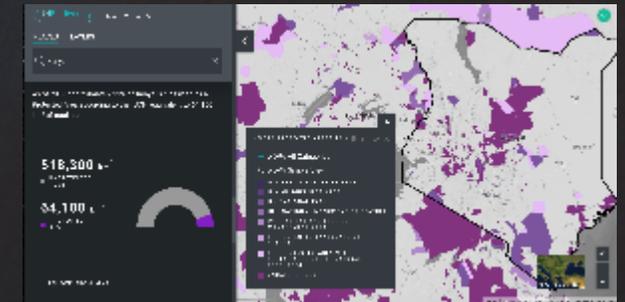
# UN BIODIVERSITY LAB | 6 KEY FEATURES



1. Access >400 global layers



2. Explore data collections



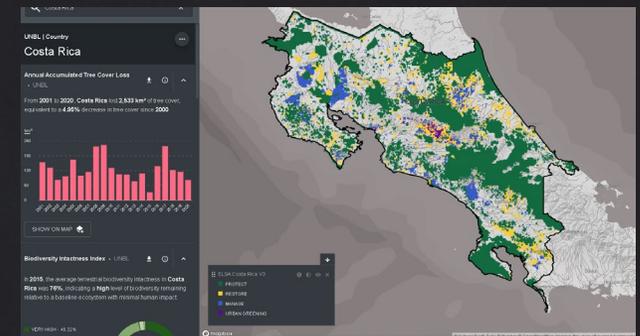
3. Calculate dynamic metrics



4. Create secure workspaces



5. Create maps



6. Map Essential Life Support Areas



UNBL Data



Convention on  
Biological Diversity



# INTRODUCTION TO UNBL DATA

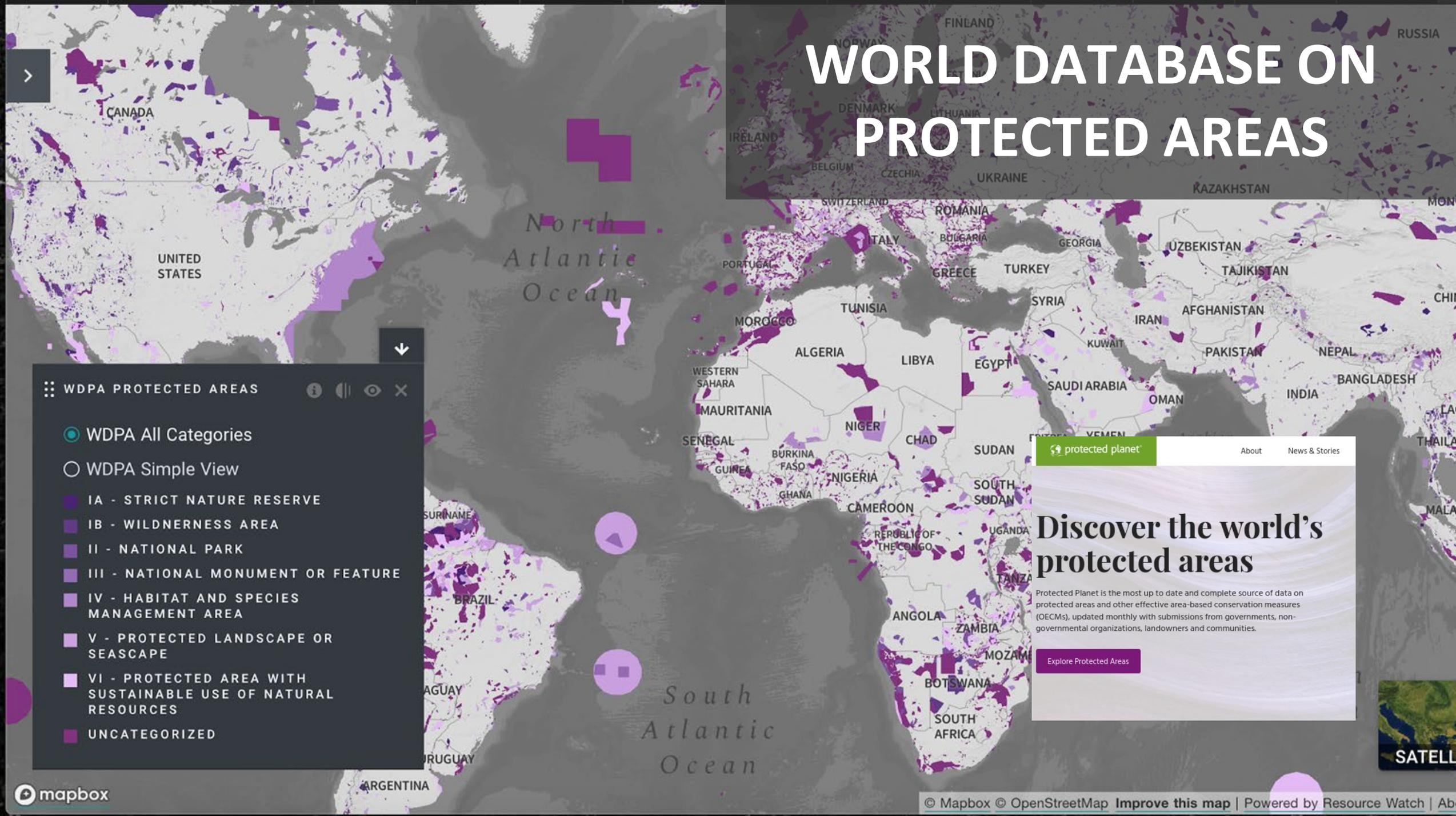
Osgur McDermott-Long, UNEP-WCMC



A lush, dense tropical forest scene with sunlight filtering through the canopy, creating a hazy, dappled light effect. The trees are tall and thin, with thick foliage. A dark horizontal band is overlaid across the middle of the image, containing the text.

# SNAPSHOT | PROTECTED AREAS DATA

# 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

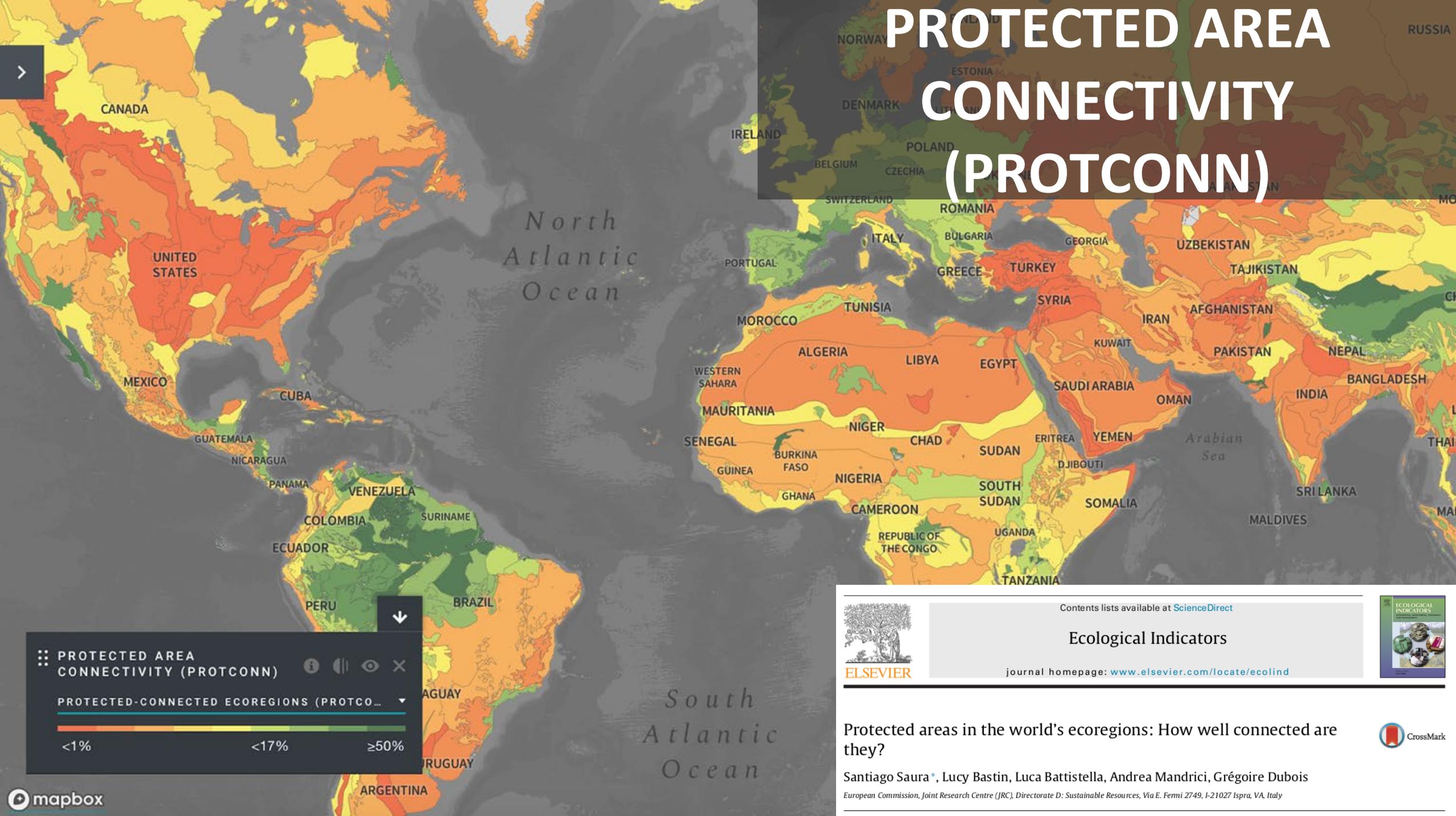
About News & Stories

## 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

# PROTECTED AREA CONNECTIVITY (PROTCONN)



PROTECTED AREA  
CONNECTIVITY (PROTCONN)

PROTECTED-CONNECTED ECOREGIONS (PROTCO...)

<1%      <17%      ≥50%



Contents lists available at [ScienceDirect](#)

### Ecological Indicators

journal homepage: [www.elsevier.com/locate/ecolind](http://www.elsevier.com/locate/ecolind)



### Protected areas in the world's ecoregions: How well connected are they?

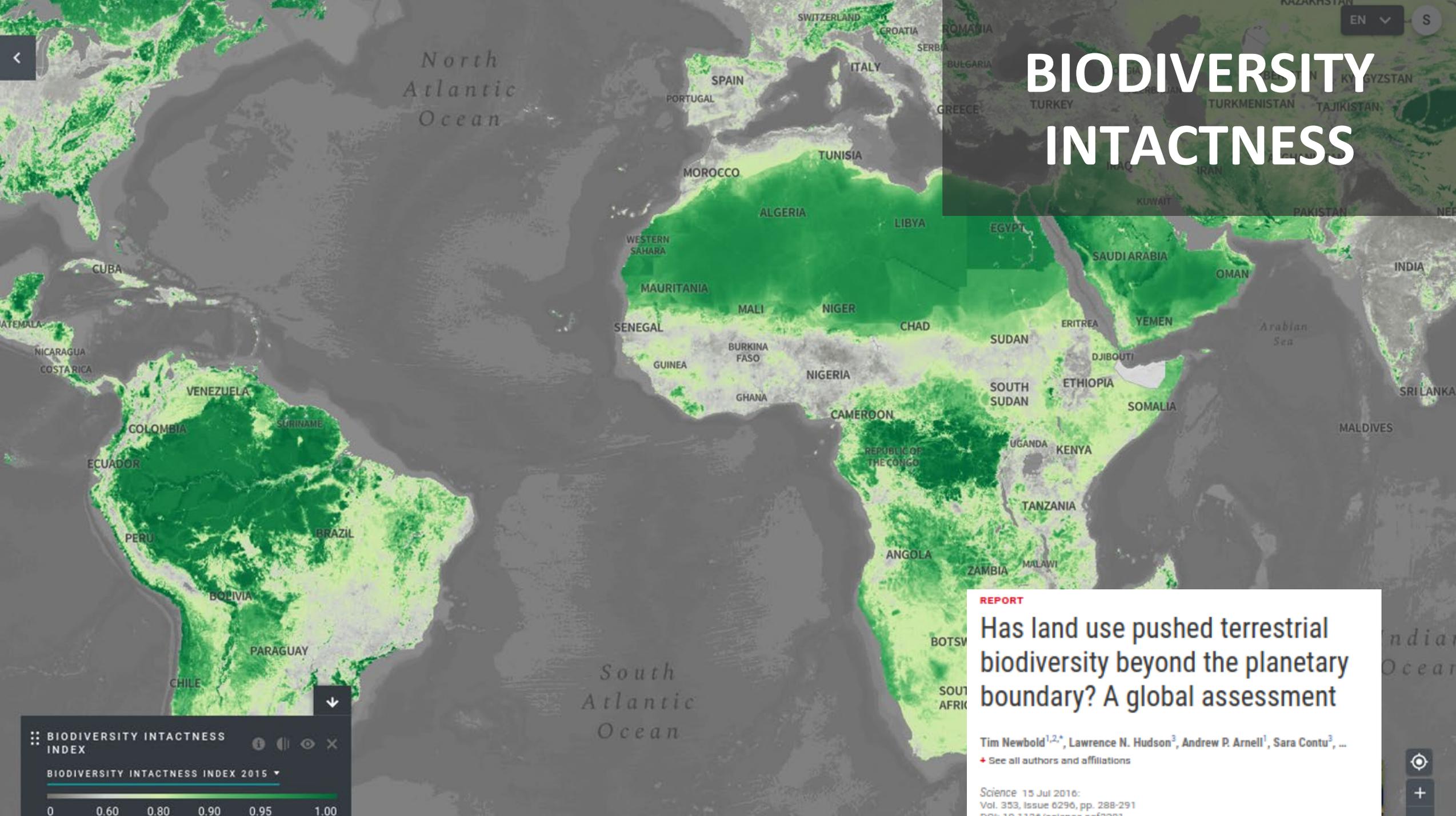


Santiago Saura\*, Lucy Bastin, Luca Battistella, Andrea Mandrici, Grégoire Dubois  
European Commission, Joint Research Centre (JRC), Directorate D: Sustainable Resources, Via E. Fermi 2749, I-21027 Ispra, VA, Italy

A vibrant green parrot with a blue face and yellow throat is perched on a tree branch. The parrot is facing left, looking slightly down. The background is a lush, green forest with many leaves and branches. A semi-transparent dark grey banner is overlaid across the middle of the image, containing the text "SNAPSHOT | BIODIVERSITY DATA".

**SNAPSHOT | BIODIVERSITY DATA**

# BIODIVERSITY INTACTNESS



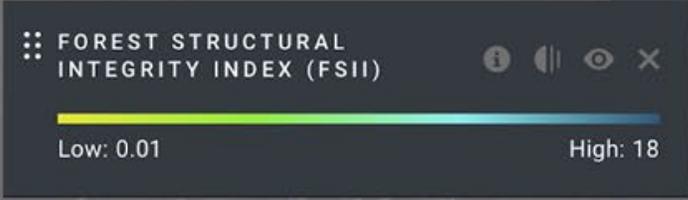
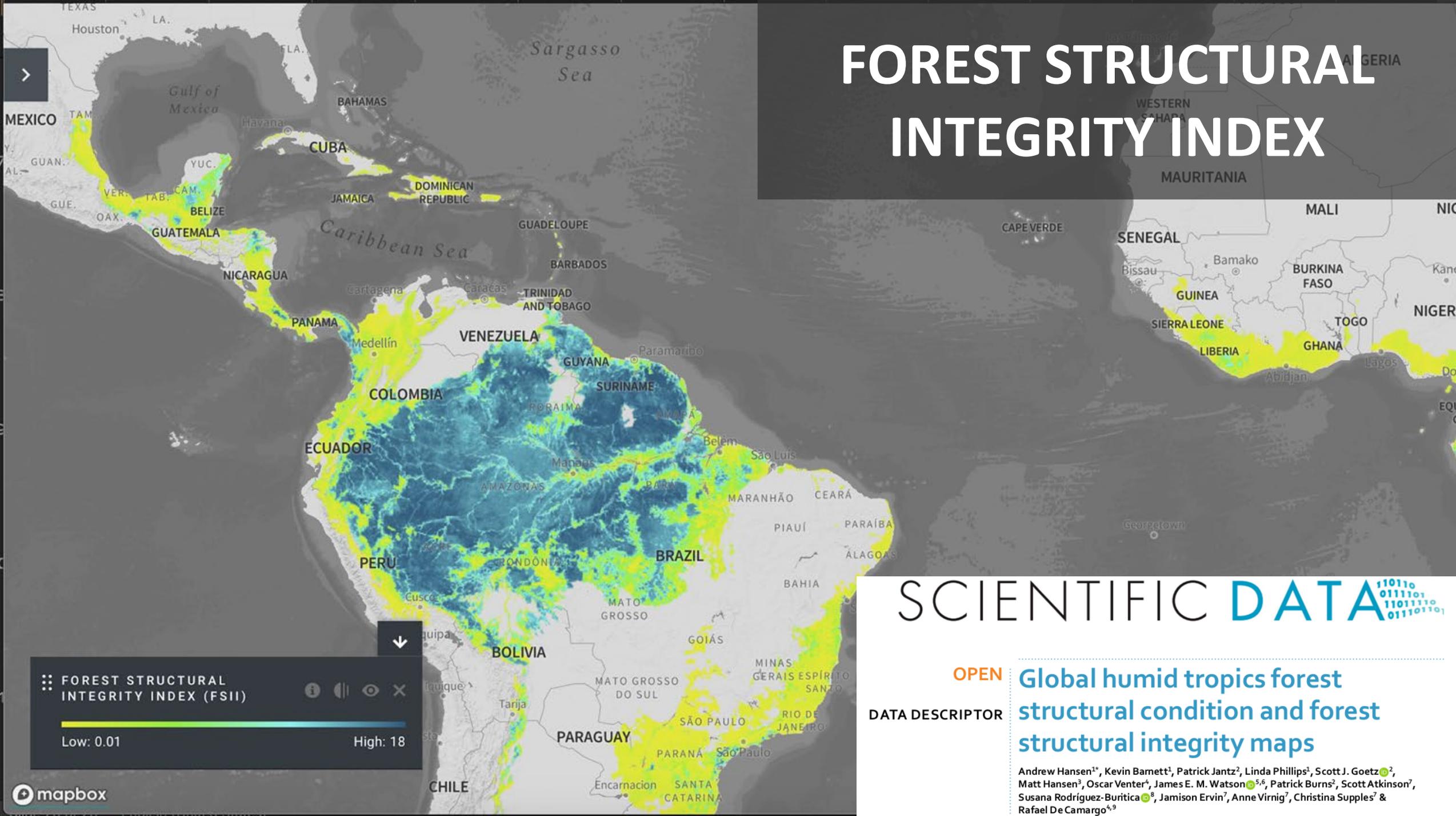
**REPORT**

## 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.1260332](#)

# FOREST STRUCTURAL INTEGRITY INDEX



## SCIENTIFIC DATA

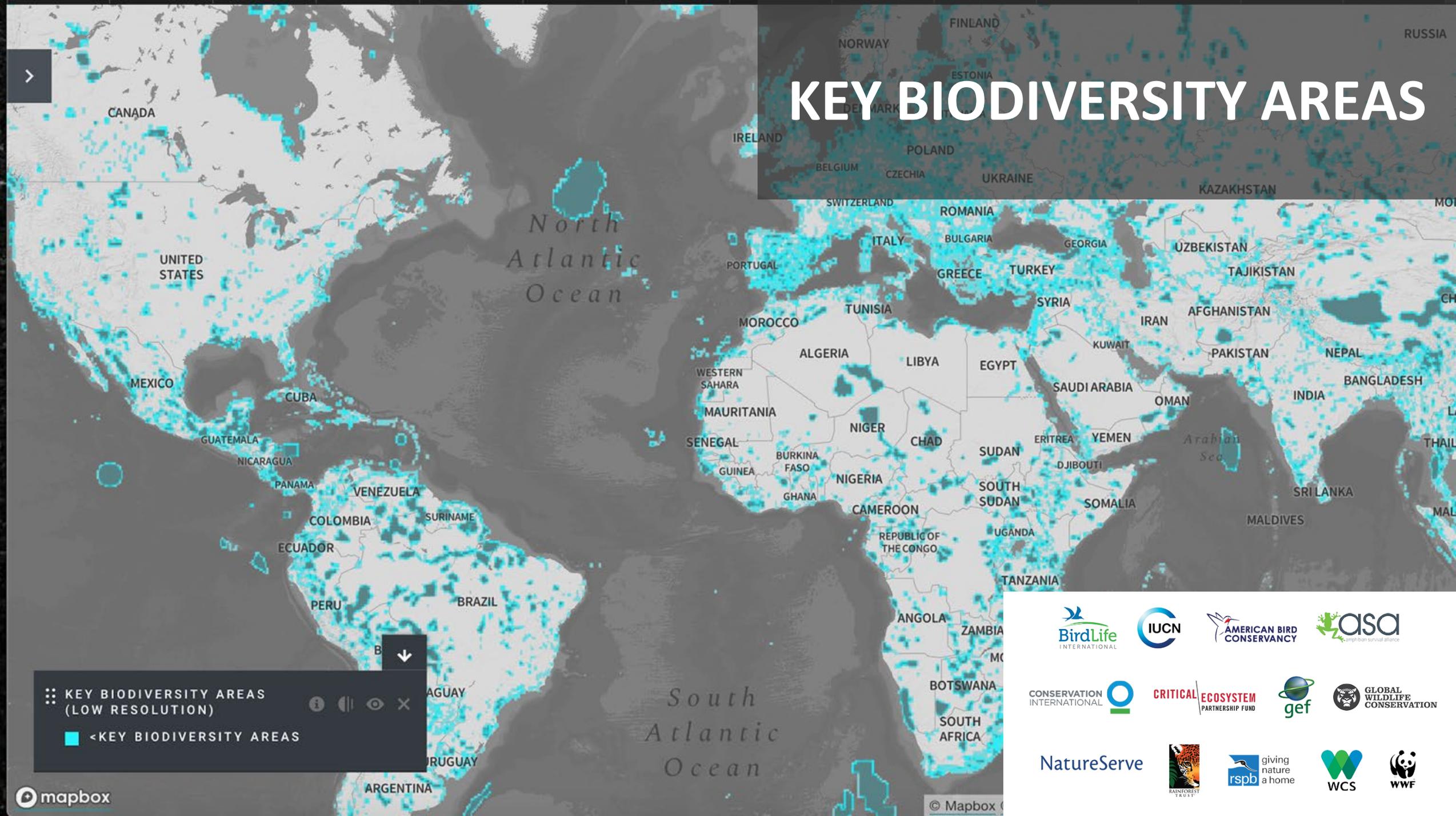
OPEN

DATA DESCRIPTOR

**Global humid tropics forest structural condition and forest structural integrity maps**

Andrew Hansen<sup>1\*</sup>, Kevin Barnett<sup>1</sup>, Patrick Jantz<sup>2</sup>, Linda Phillips<sup>3</sup>, Scott J. Goetz<sup>2</sup>, Matt Hansen<sup>3</sup>, Oscar Venter<sup>4</sup>, James E. M. Watson<sup>5,6</sup>, Patrick Burns<sup>2</sup>, Scott Atkinson<sup>7</sup>, Susana Rodríguez-Buritica<sup>8</sup>, Jamison Ervin<sup>7</sup>, Anne Virnig<sup>7</sup>, Christina Supples<sup>7</sup> & Rafael De Camargo<sup>4,9</sup>

# KEY BIODIVERSITY AREAS



KEY BIODIVERSITY AREAS (LOW RESOLUTION)  
KEY BIODIVERSITY AREAS



# IUCN REDLIST SPECIES RANGE DATA



THE IUCN RED LIST OF THREATENED SPECIES™

About Assessment

Names - common, scientific, regions etc...

Advanced ?

### AMAZING SPECIES



ANIMALIA - MAMMALIA  
**Brown Bear**  
*Ursus arctos*

Stable



ANIMALIA - MAMMALIA  
**Tucuxi**  
*Sotalia fluviatilis*

Decreasing



ANIMALIA - AMPHIBIA  
**Cowan's Mantella**  
*Mantella cowanii*

Unknown



TERRESTRIAL SPECIES RICHNESS LAYERS



TERRESTRIAL AMPHIBIAN SPECIES RICHNESS

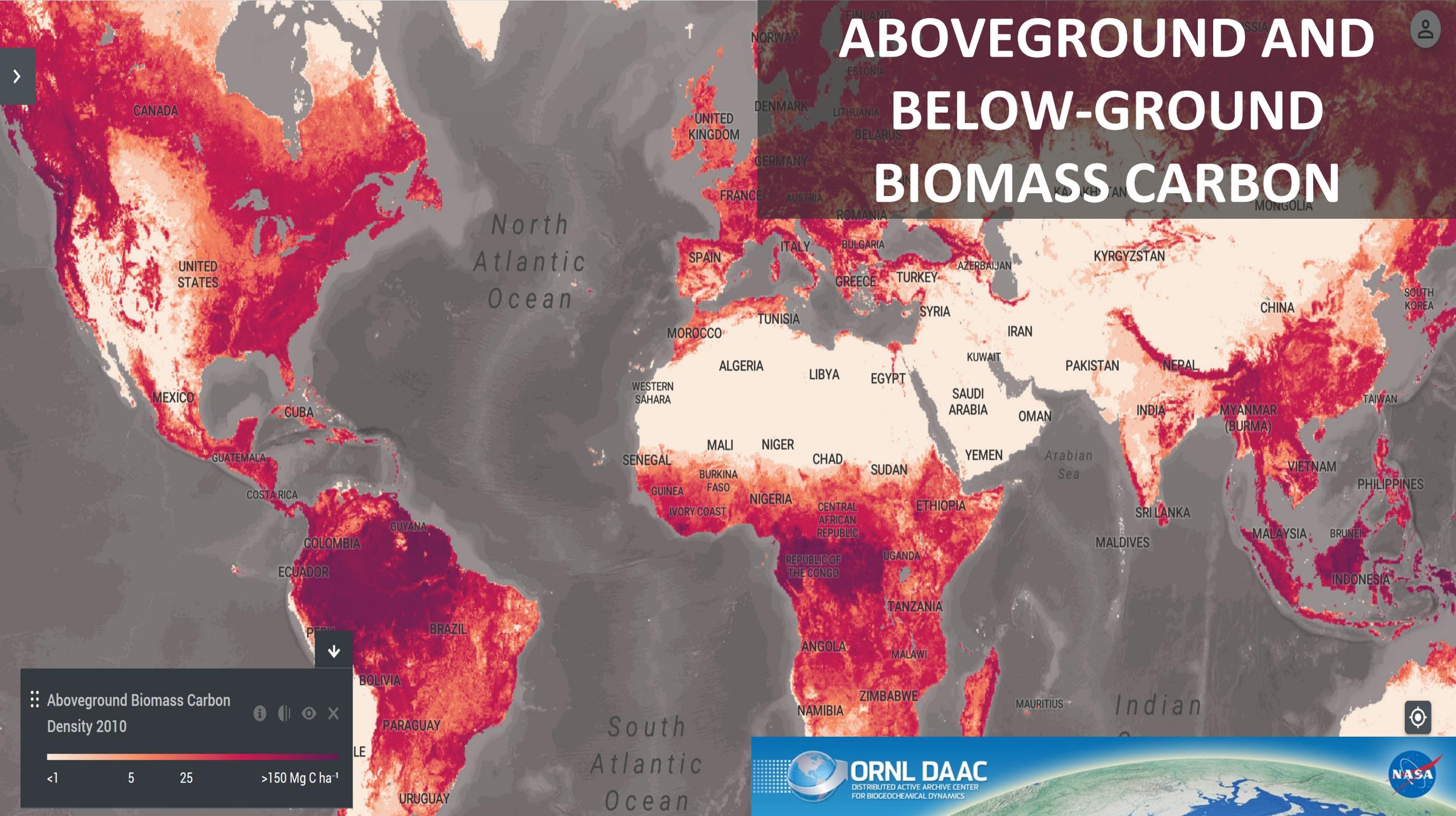
1 species per km2

200+ species per km2



# SNAPSHOT | CLIMATE CHANGE & CARBON DATA

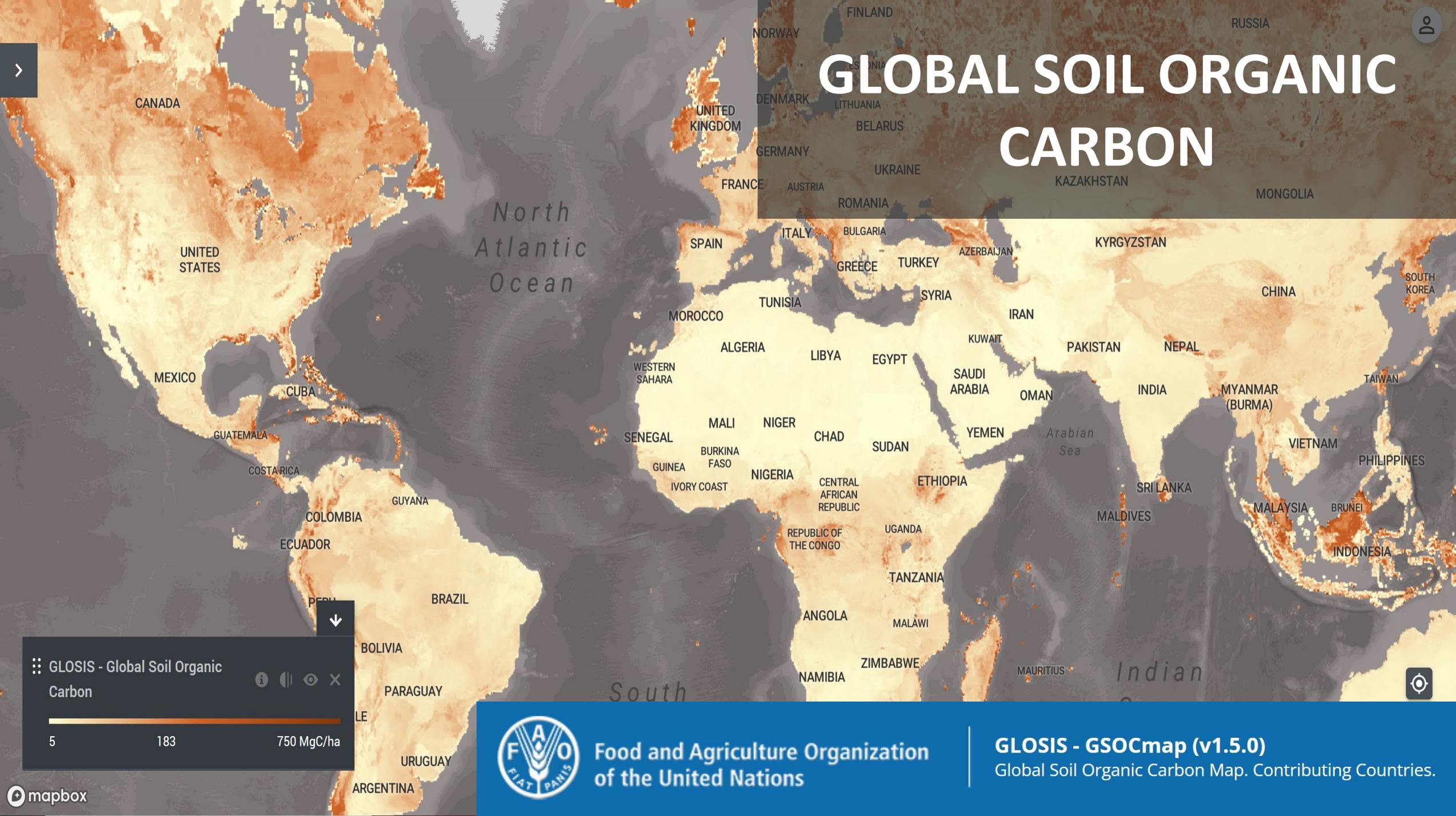
# ABOVEGROUND AND BELOW-GROUND BIOMASS CARBON



⋮ Aboveground Biomass Carbon  
Density 2010

<1      5      25      >150  $\text{Mg C ha}^{-1}$

# GLOBAL SOIL ORGANIC CARBON



GLOSIS - Global Soil Organic Carbon

5 183 750 MgC/ha



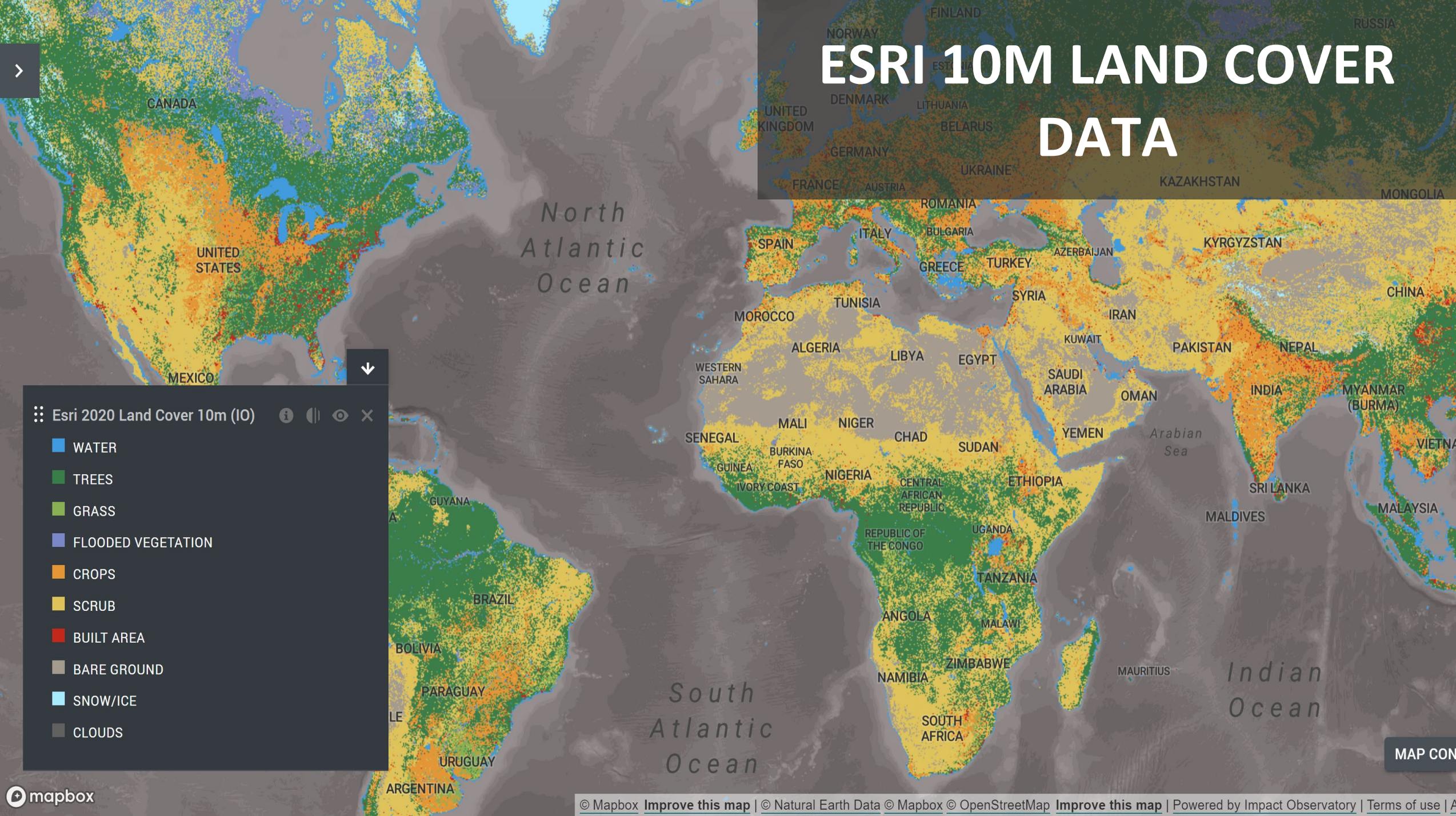
Food and Agriculture Organization of the United Nations

GLOSIS - GSOCmap (v1.5.0)  
Global Soil Organic Carbon Map. Contributing Countries.



**SNAPSHOT | ECOSYSTEMS & LAND COVER DATA**

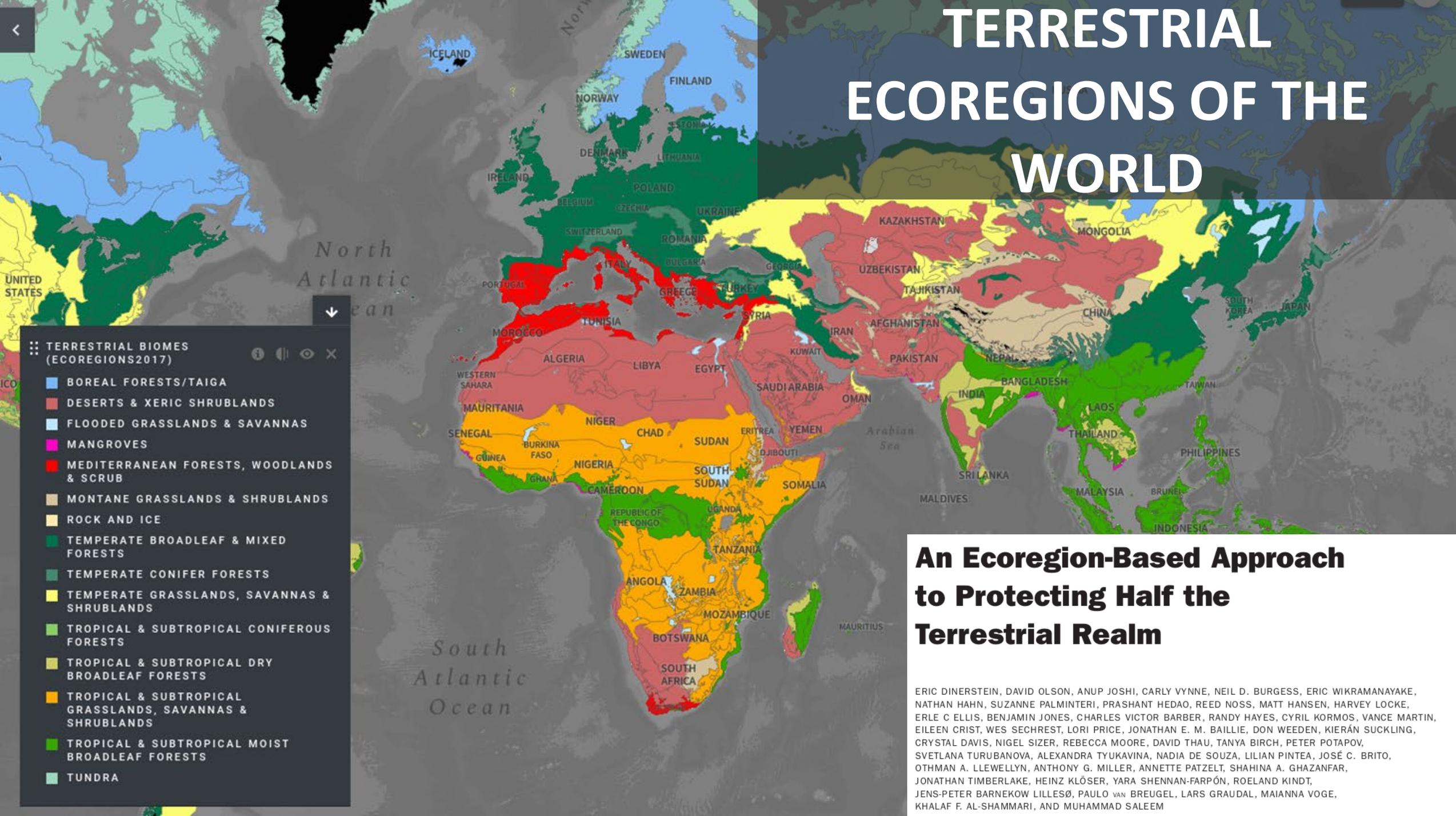
# ESRI 10M LAND COVER DATA



Esri 2020 Land Cover 10m (10)

- WATER
- TREES
- GRASS
- FLOODED VEGETATION
- CROPS
- SCRUB
- BUILT AREA
- BARE GROUND
- SNOW/ICE
- CLOUDS

# TERRESTRIAL ECOREGIONS OF THE WORLD



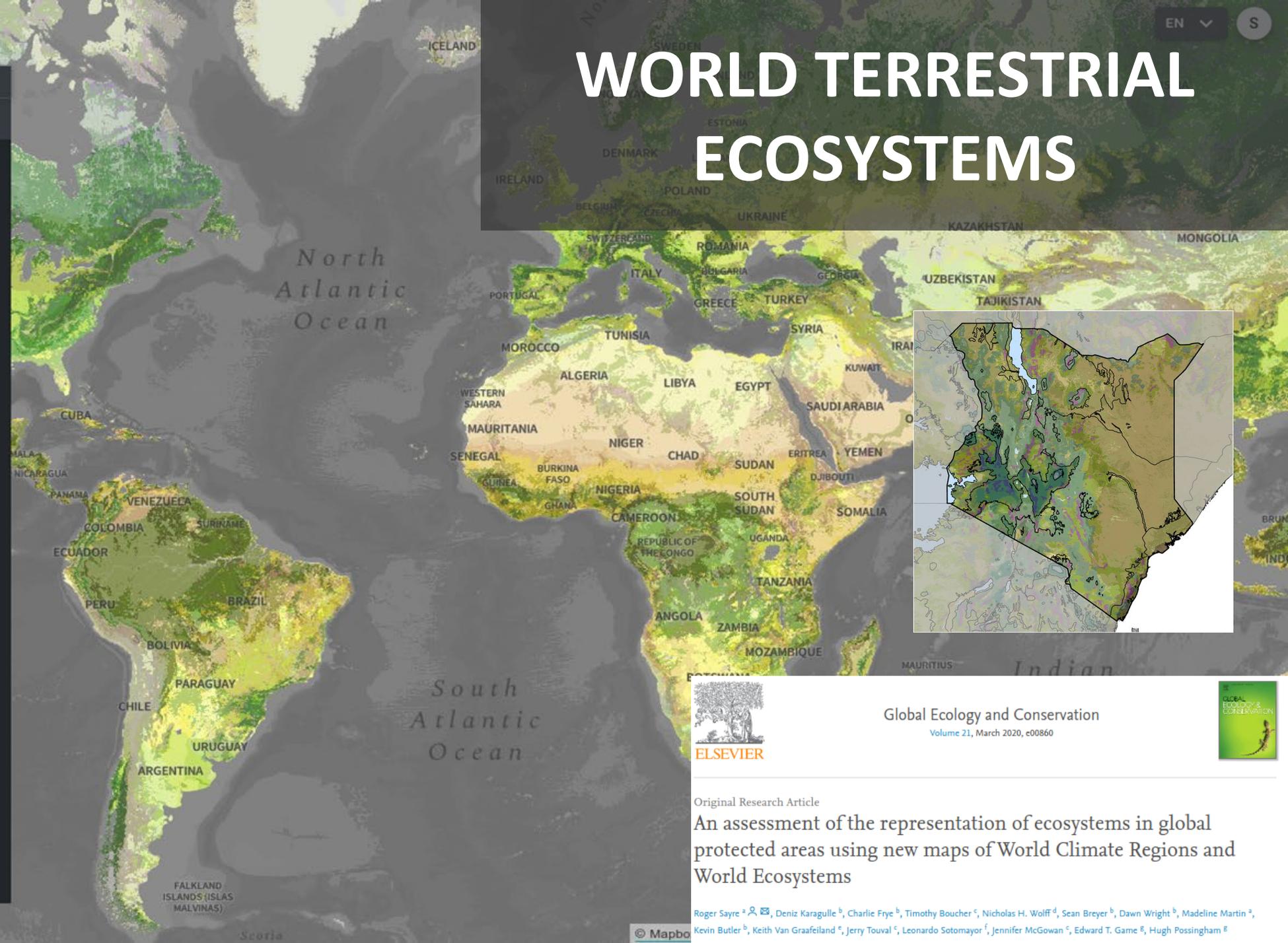
- TERRESTRIAL BIOMES (ECOREGIONS2017)
- BOREAL FORESTS/TAIGA
- DESERTS & XERIC SHRUBLANDS
- FLOODED GRASSLANDS & SAVANNAS
- MANGROVES
- MEDITERRANEAN FORESTS, WOODLANDS & SCRUB
- MONTANE GRASSLANDS & SHRUBLANDS
- ROCK AND ICE
- TEMPERATE BROADLEAF & MIXED FORESTS
- TEMPERATE CONIFER FORESTS
- TEMPERATE GRASSLANDS, SAVANNAS & SHRUBLANDS
- TROPICAL & SUBTROPICAL CONIFEROUS FORESTS
- TROPICAL & SUBTROPICAL DRY BROADLEAF FORESTS
- TROPICAL & SUBTROPICAL GRASSLANDS, SAVANNAS & SHRUBLANDS
- TROPICAL & SUBTROPICAL MOIST BROADLEAF FORESTS
- TUNDRA

## An Ecoregion-Based Approach to Protecting Half the Terrestrial Realm

ERIC DINERSTEIN, DAVID OLSON, ANUP JOSHI, CARLY VYNNE, NEIL D. BURGESS, ERIC WIKRAMANAYAKE, NATHAN HAHN, SUZANNE PALMINTERI, PRASHANT HEDAO, REED NOSS, MATT HANSEN, HARVEY LOCKE, ERLE C ELLIS, BENJAMIN JONES, CHARLES VICTOR BARBER, RANDY HAYES, CYRIL KORMOS, VANCE MARTIN, EILEEN CRIST, WES SECHREST, LORI PRICE, JONATHAN E. M. BAILLIE, DON WEEDEN, KIERÁN SUCKLING, CRYSTAL DAVIS, NIGEL SIZER, REBECCA MOORE, DAVID THAU, TANYA BIRCH, PETER POTAPOV, SVETLANA TURUBANOVA, ALEXANDRA TYUKAVINA, NADIA DE SOUZA, LILIAN PINTEA, JOSÉ C. BRITO, OTHMAN A. LLEWELLYN, ANTHONY G. MILLER, ANNETTE PATZELT, SHAHINA A. GHAZANFAR, JONATHAN TIMBERLAKE, HEINZ KLÖSER, YARA SHENNAN-FARPÓN, ROELAND KINDT, JENS-PETER BARNEKOW LILLESØ, PAULO VAN BREUGEL, LARS GRAUDAL, MAIANNA VOGEL, KHALAF F. AL-SHAMMARI, AND MUHAMMAD SALEEM

# WORLD TERRESTRIAL ECOSYSTEMS

- WORLD ECOSYSTEMS
- POLAR MOIST SPARSLEY OR NON VEGETATED ON PLAINS
  - POLAR MOIST SNOW AND ICE ON PLAINS
  - POLAR DRY SNOW AND ICE ON MOUNTAINS
  - POLAR DRY SPARSLEY OR NON VEGETATED ON MOUNTAINS
  - POLAR MOIST SPARSLEY OR NON VEGETATED ON MOUNTAINS
  - POLAR MOIST SNOW AND ICE ON MOUNTAINS
  - POLAR DRY SPARSLEY OR NON VEGETATED ON TABLELANDS
  - POLAR DRY SNOW AND ICE ON TABLELANDS
  - POLAR DRY SNOW AND ICE ON PLAINS
  - POLAR MOIST SPARSLEY OR NON VEGETATED ON TABLELANDS
  - POLAR MOIST SNOW AND ICE ON TABLELANDS
  - POLAR DRY SPARSLEY OR NON VEGETATED ON HILLS
  - POLAR DRY SNOW AND ICE ON HILLS
  - POLAR DRY SPARSLEY OR NON VEGETATED ON PLAINS
  - POLAR MOIST SNOW AND ICE ON HILLS
  - POLAR MOIST SPARSLEY OR NON VEGETATED ON HILLS
  - POLAR DRY GRASSLAND ON MOUNTAINS
  - POLAR MOIST GRASSLAND ON MOUNTAINS
  - POLAR MOIST SHRUBLAND ON PLAINS
  - POLAR MOIST SHRUBLAND ON HILLS
  - POLAR MOIST GRASSLAND ON HILLS
  - POLAR MOIST GRASSLAND ON PLAINS
  - POLAR DRY GRASSLAND ON HILLS
  - POLAR MOIST SHRUBLAND ON



Global Ecology and Conservation  
Volume 21, March 2020, e00860



Original Research Article  
**An assessment of the representation of ecosystems in global protected areas using new maps of World Climate Regions and World Ecosystems**

Roger Sayre <sup>a</sup>, Deniz Karagulle <sup>b</sup>, Charlie Frye <sup>b</sup>, Timothy Boucher <sup>c</sup>, Nicholas H. Wolff <sup>d</sup>, Sean Breyer <sup>b</sup>, Dawn Wright <sup>b</sup>, Madeline Martin <sup>a</sup>, Kevin Butler <sup>b</sup>, Keith Van Graafeiland <sup>e</sup>, Jerry Touval <sup>f</sup>, Leonardo Sotomayor <sup>f</sup>, Jennifer McGowan <sup>g</sup>, Edward T. Game <sup>h</sup>, Hugh Possingham <sup>h</sup>



**SNAPSHOT | SOCIO-ECONOMIC & HUMAN WELL-BEING DATA**

# CITY WATER MAP

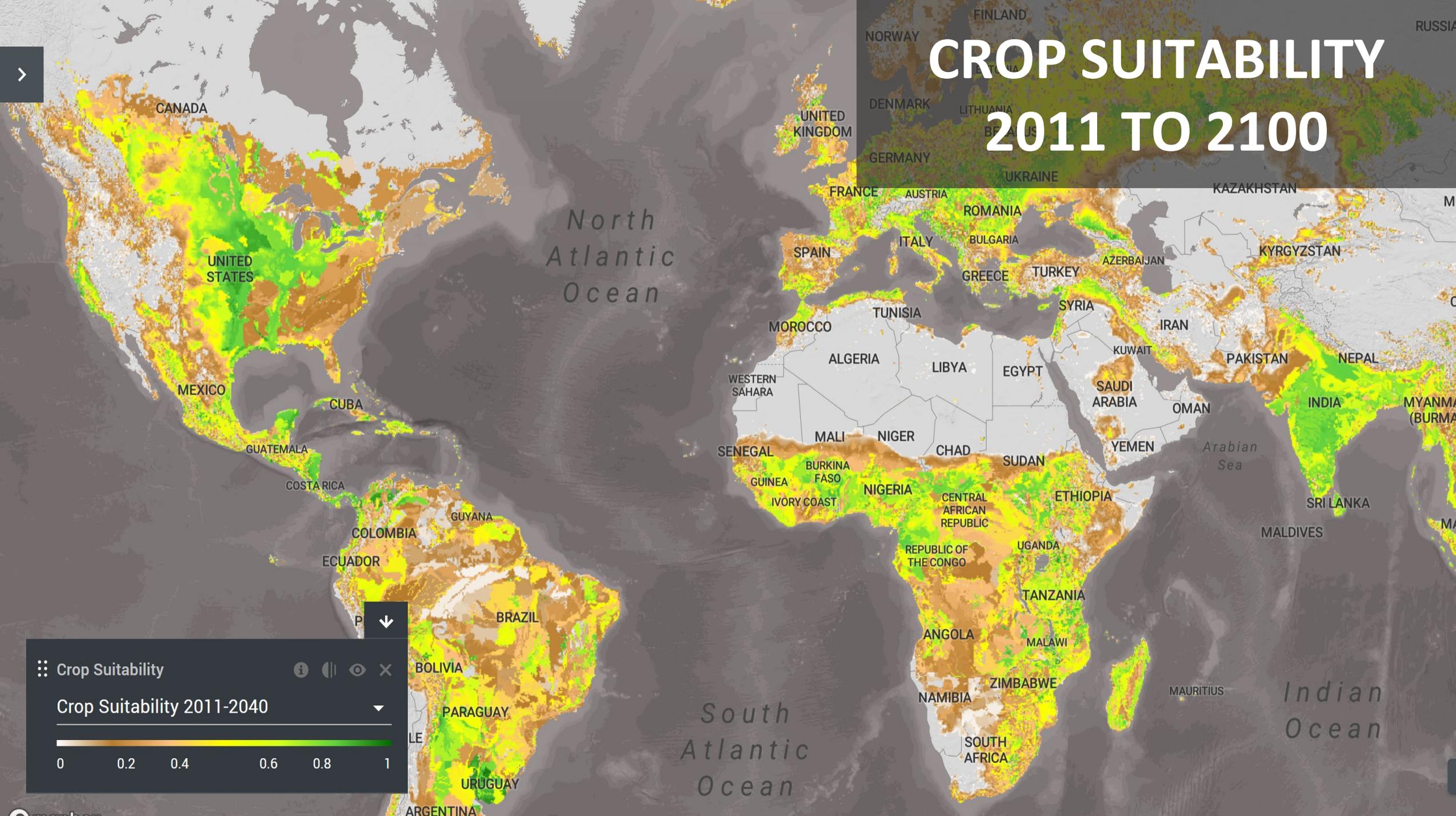


☰ City Water Map (CWP) - Watersheds

■ CITY WATER MAP - WATERSHEDS

ⓘ || 👁 ✕

# CROP SUITABILITY 2011 TO 2100

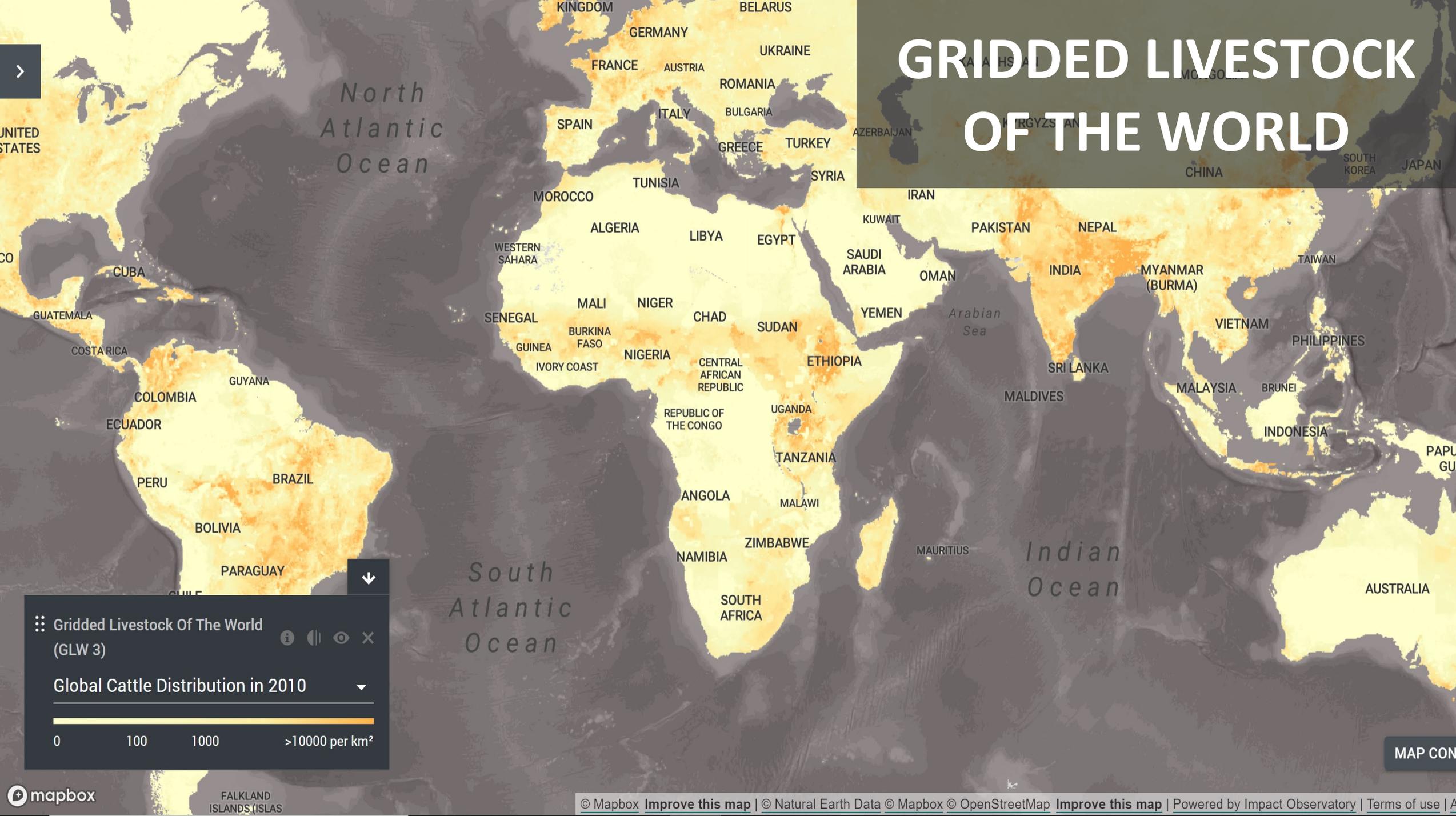


☰ Crop Suitability ⓘ ⏸ 🔍 ✕

Crop Suitability 2011-2040 ▾

0 0.2 0.4 0.6 0.8 1

# GRIDDED LIVESTOCK OF THE WORLD

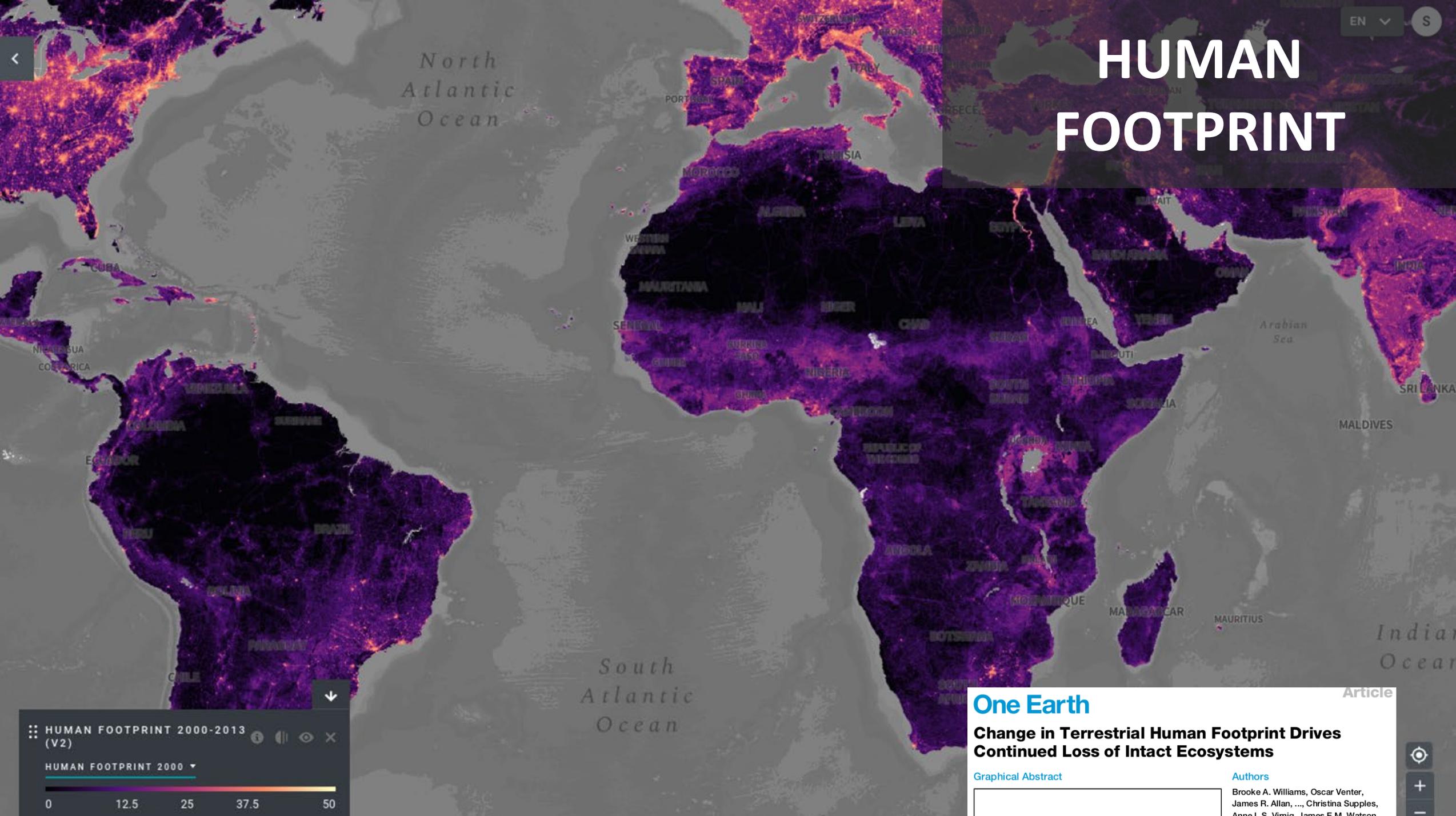


Gridded Livestock Of The World (GLW 3)

Global Cattle Distribution in 2010

0 100 1000 >10000 per km<sup>2</sup>

MAP CONTROLS



# HUMAN FOOTPRINT

HUMAN FOOTPRINT 2000-2013 (V2)

HUMAN FOOTPRINT 2000

0 12.5 25 37.5 50

One Earth

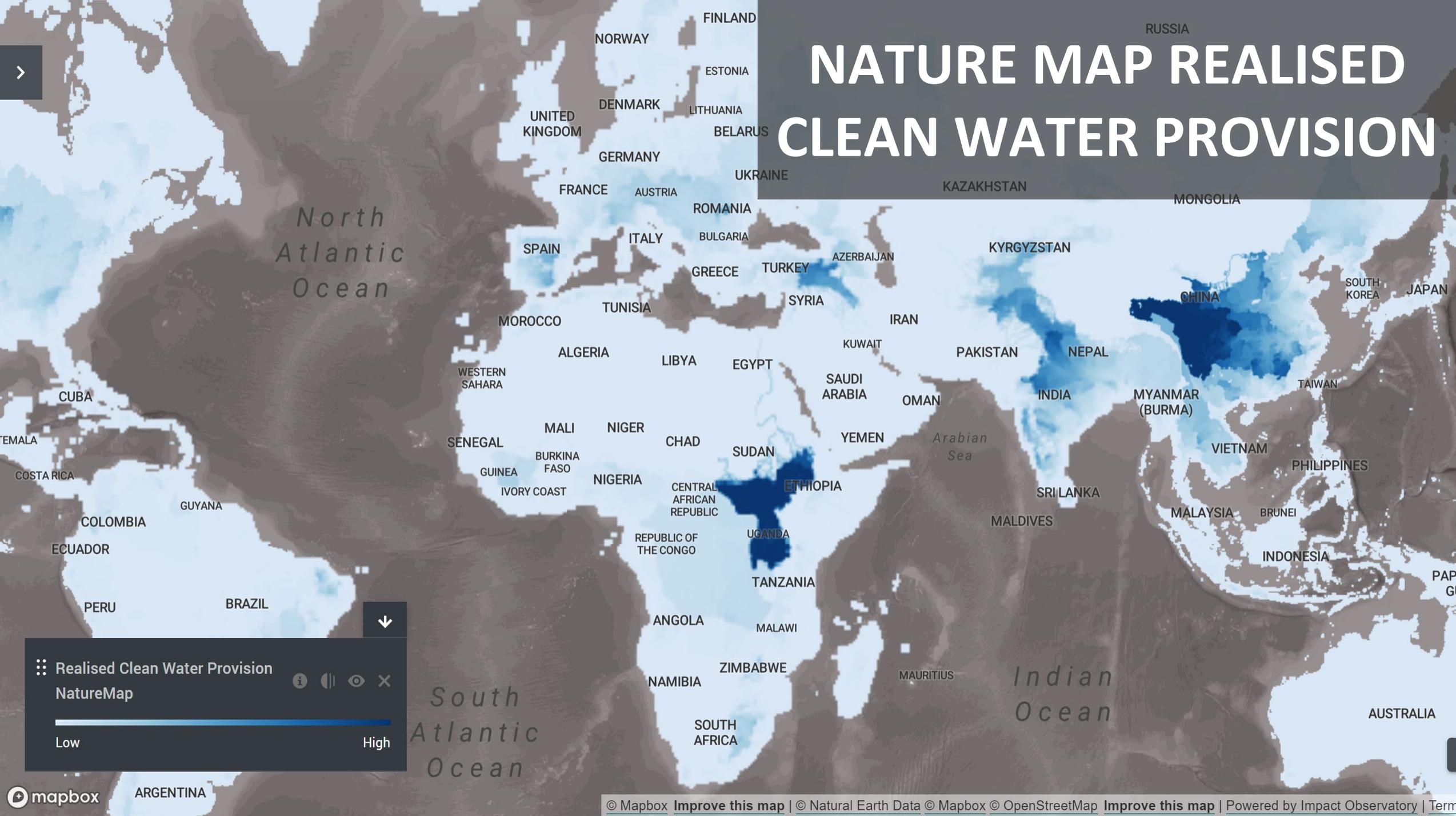
## Change in Terrestrial Human Footprint Drives Continued Loss of Intact Ecosystems

Graphical Abstract

Authors

Brooke A. Williams, Oscar Venter, James R. Allan, ..., Christina Supples, Anne L. S. Vinga, James E.M. Watson

# NATURE MAP REALISED CLEAN WATER PROVISION



Realised Clean Water Provision  
NatureMap

Low High



# SNAPSHOT | TIME SERIES DATA

# ANNUAL TREE COVER LOSS



Global Forest Cover

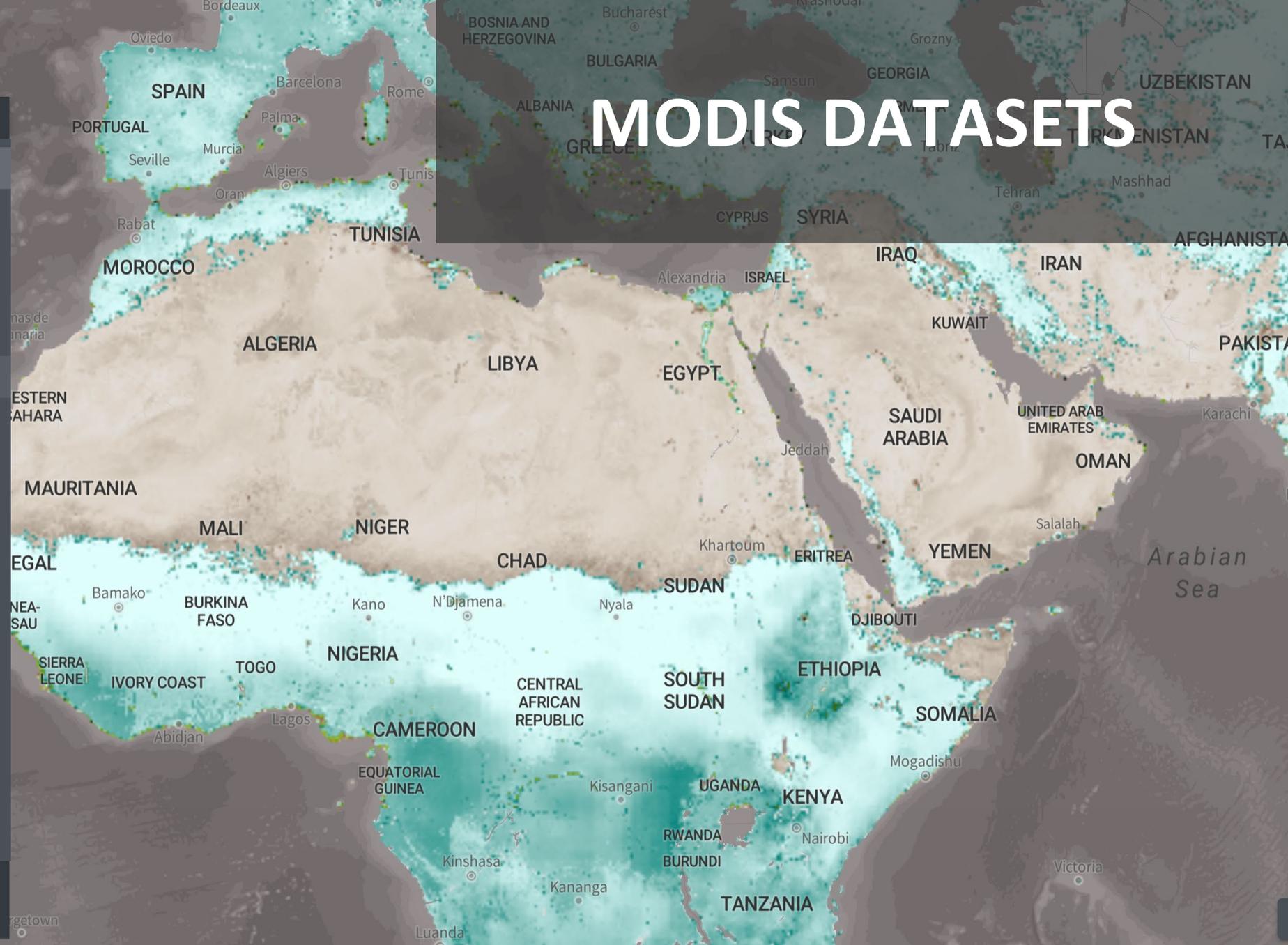
Forest Cover Loss Year (2000 - 2020)

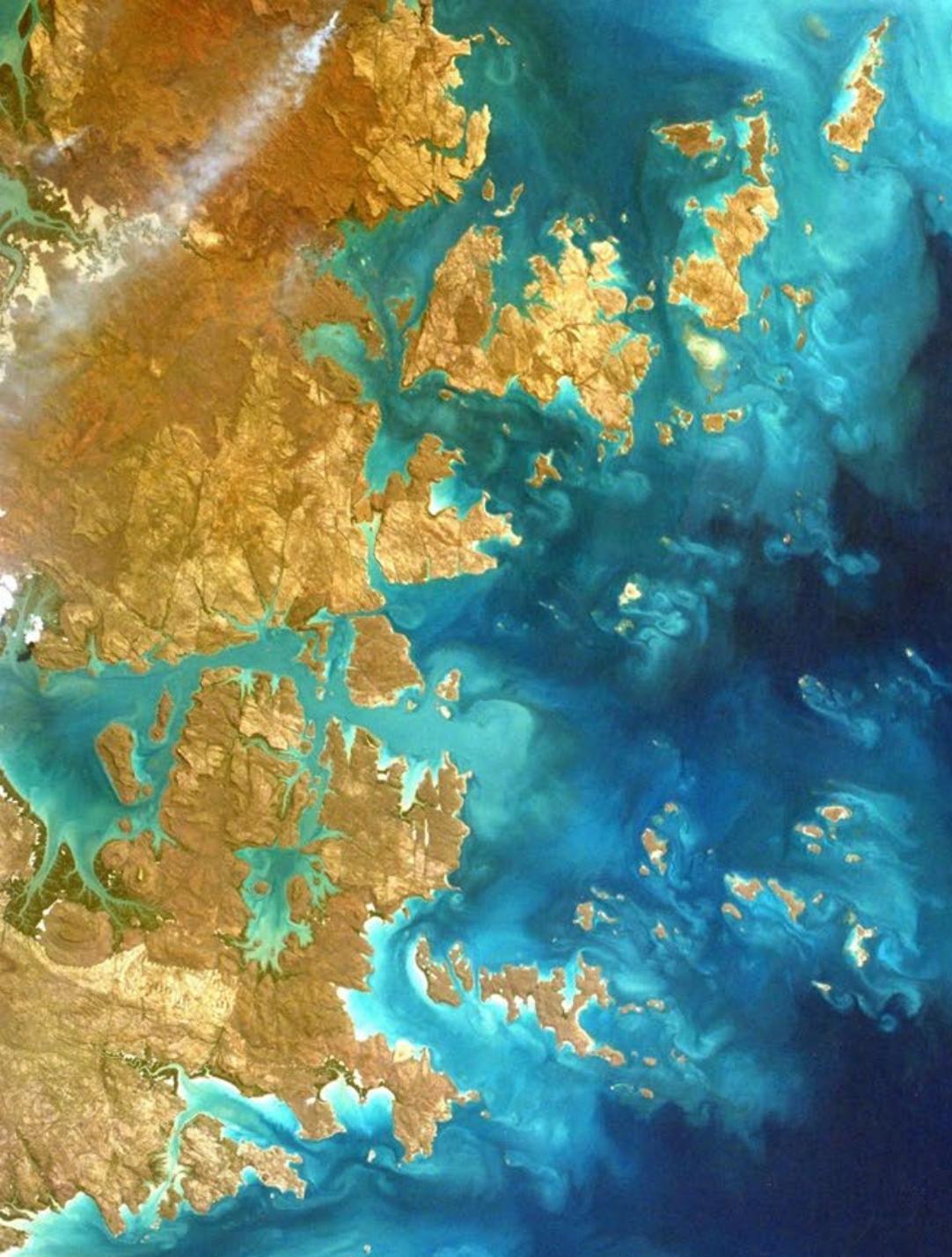
2000 2020

North Atlantic

# MODIS DATASETS

- 2020 MODIS Gross Primary Production (GPP)
- 2019 MODIS Gross Primary Production (GPP)
- 2018 MODIS Gross Primary Production (GPP)
- 2017 MODIS Gross Primary Production (GPP)
- 2016 MODIS Gross Primary Production (GPP)
- 2015 MODIS Gross Primary Production (GPP)
- 2014 MODIS Gross Primary Production (GPP)
- 2013 MODIS Gross Primary Production (GPP)
- 2012 MODIS Gross Primary Production (GPP)
- 2011 MODIS Gross Primary Production (GPP)
- 2010 MODIS Gross Primary Production (GPP)
- 2009 MODIS Gross Primary Production (GPP)
- 2008 MODIS Gross Primary Production (GPP)
- 2007 MODIS Gross Primary Production (GPP)
- 2006 MODIS Gross Primary Production (GPP)
- 2005 MODIS Gross Primary Production (GPP)
- 2004 MODIS Gross Primary Production (GPP)





# ACCESS OUR FULL DATA LIST

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

## INTERACTIVE ACTIVITY

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1. What types of data are most relevant/interesting for you?

*Please add your response to the question and answer box!*



# UNBL Data Collections



Convention on  
Biological Diversity



# INTRODUCTION TO UNBL DATA COLLECTIONS

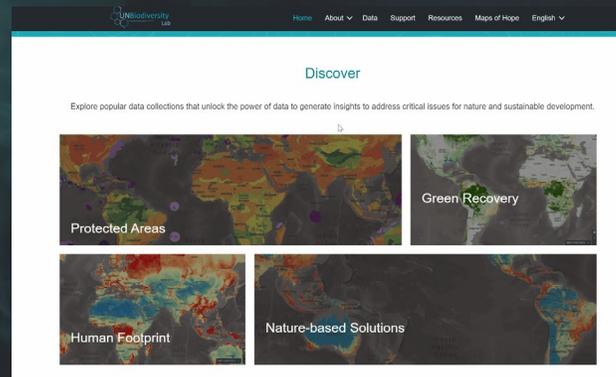
Nicole DeSantis, UNDP



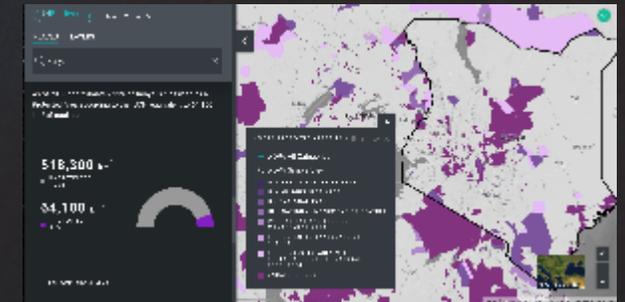
# UN BIODIVERSITY LAB | 6 KEY FEATURES



1. Access >400 global layers



2. Explore data collections



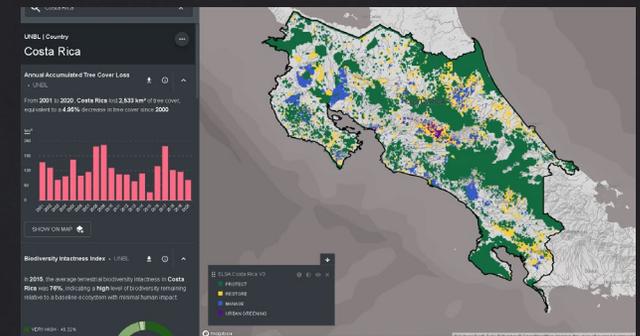
3. Calculate dynamic metrics



4. Create secure workspaces



5. Create maps



6. Map Essential Life Support Areas



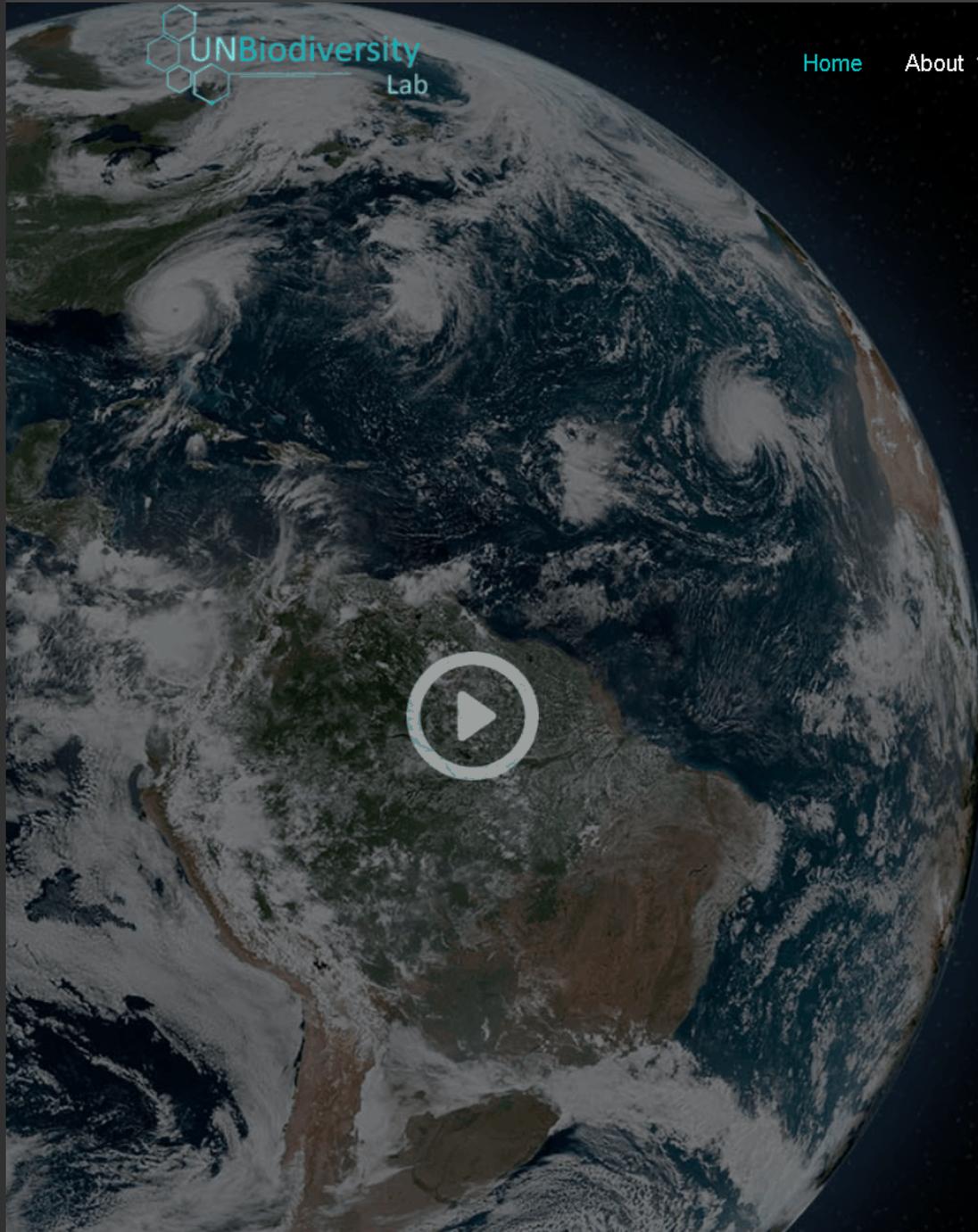
## WHAT ARE UNBL COLLECTIONS?

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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

[View  
Animated  
GIFS  
\(Slides 48-81\)](#)



## UN Biodiversity Lab

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

[Learn more](#)



## Discover

Explore popular data collections that unlock the power of data to generate insights to address critical issues for nature and sustainable development.



The Protected Area Collection provides a key resource for planners and decision-makers to identify opportunities for protected areas and OECMs to contribute to national biodiversity, including delivery of Target 3 of the Global Biodiversity Framework (GBF), as well as climate change and sustainable development priorities.

**Explore the collection in three easy steps:**

1. Browse the key policy questions provided below.
2. Select a question of interest to view a description of the map available, input data layers, and policy relevance.
3. Click 'View data' to view a map that provides input to address the question.

**Note:** *These policy-relevant questions and associated data layers are provided for users to develop their own prioritization when designing Protected Area strategies. While global layers from the UNBL public platform are used here, users may also want to consider using national data to create similar overlays via our [UNBL workspaces](#).*

① Data layers to address key policy-relevant questions

Single layers

Overlays of multiple data layers

- ▶ [What is the extent and distribution of existing protected areas?](#)
- ▶ [What is the extent and distribution of OECMs?"](#)
- ▶ [What is the combined extent and distribution of protected areas and OECMs?](#)

*The World Database on Other Effective Area-based Conservation Measures (WD-OECM) was established in 2019, following the adoption of the OECM definition (<https://www.cbd.int/decisions/cop/14/8>) in 2018. Given that the database and definition were only recently developed, many governments have not yet reported data on OECMs, or have reported only a subset of their OECMs. Users should consider this when using the WD-OECM, and should not assume that countries without OECM data lack OECMs in reality, or that countries with OECM data have reported their full complement of OECMs. Users wishing to provide data on OECMs should contact UNEP-WCMC at [OECM@unep-wcmc.org](mailto:OECM@unep-wcmc.org).*

8. Click "view data" to view a map that provides input to address the question.

**Note:** These policy-relevant questions and associated data layers are provided for users to develop their own prioritization when designing Protected Area strategies. While global layers from the UNBL public platform are used here, users may also want to consider using national data to create similar overlays via our [UNBL workspaces](#).

### ① Data layers to address key policy-relevant questions

Single layers

Overlays of multiple data layers

▼ What is the extent and distribution of existing protected areas?

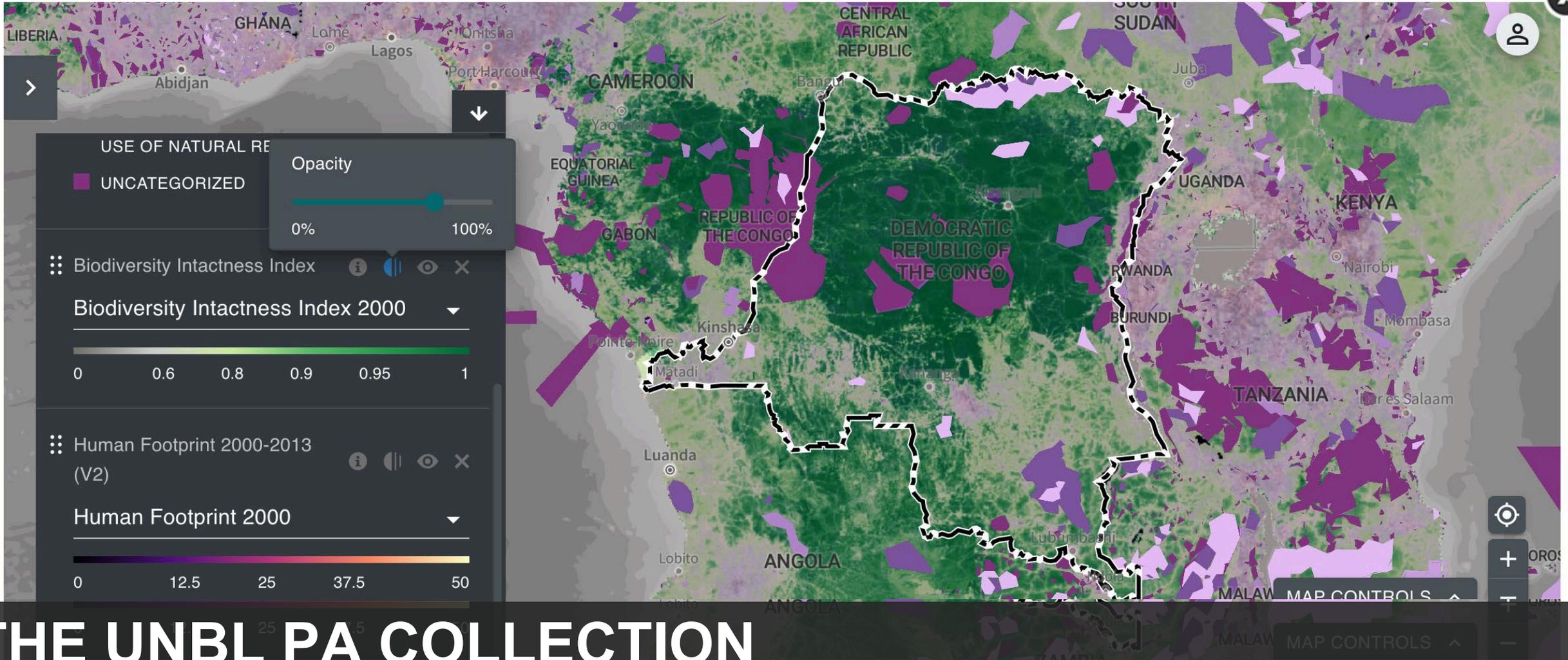
Name	Description	Policy relevance	Included layers
Protected areas	This map presents protected areas within a given area showing extent and distribution	CBD, Target 3 GBF	World Database on Protected Areas

View data

▶ What is the extent and distribution of OECMs?"

▶ What is the combined extent and distribution of protected areas and OECMs?"

# HOW TO USE: UNBL PA Data Collection – Multiple Layers



# THE UNBL PA COLLECTION

- Using the PA Data Collection to inform national action
- Data layers to address policy-relevant questions

## Discover

Explore popular data collections that unlock the power of data to generate insights to address critical issues for nature and sustainable development.



**Note:** These policy-relevant questions and associated data layers are provided for users to develop their own prioritization when pursuing nature-based solutions for climate change. While global layers from the UNBL public platform are used here, users may also want to consider using national data to create similar overlays via our [UNBL workspaces](#).

### ① Data layers to address policy-relevant questions

Single layers

Overlays of multiple data layers

- ▶ What is the density and distribution of above ground biomass carbon?
- ▶ What is the extent, density and distribution of soil organics carbon?
- ▶ What is the combined density and distribution of belowground biomass carbon and soil carbon?

*The World Database on Other Effective Area-based Conservation Measures (WD-OECM) was established in 2019, following the adoption of the OECM definition (<https://www.cbd.int/decisions/cop/14/8>) in 2018. Given that the database and definition were only recently developed, many governments have not yet reported data on OECMs, or have reported only a subset of their OECMs. Users should consider this when using the WD-OECM, and should not assume that countries without OECM data lack OECMs in reality, or that countries with OECM data have reported their full complement of OECMs. Users wishing to provide data on OECMs should contact UNEP-WCMC at [OECM@unep-wcmc.org](mailto:OECM@unep-wcmc.org).*

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About UN Biodiversity Lab

Partners

#### EXPLORE

Our maps

Success stories

#### CONTACT US

General

[info@unbiodiversitylab.org](mailto:info@unbiodiversitylab.org)

Support



# HOW TO USE: UNBL NBS for Climate Change Data Collection – Single Layers

# HOW TO USE: UNBL NBS for Climate Change Data Collection – Multiple Layers

## ① Data layers to address policy-relevant questions

Single layers

Overlays of multiple data layers

- ▶ What is the density and distribution of above ground biomass carbon?
- ▶ What is the extent, density and distribution of soil organics carbon?
- ▶ What is the combined density and distribution of belowground biomass carbon and soil carbon?

*The World Database on Other Effective Area-based Conservation Measures (WD-OECM) was established in 2019, following the adoption of the OECM definition (<https://www.cbd.int/decisions/cop/14/8>) in 2018. Given that the database and definition were only recently developed, many governments have not yet reported data on OECMs, or have reported only a subset of their OECMs. Users should consider this when using the WD-OECM, and should not assume that countries without OECM data lack OECMs in reality, or that countries with OECM data have reported their full complement of OECMs. Users wishing to provide data on OECMs should contact UNEP-WCMC at [OECM@unep-wcmc.org](mailto:OECM@unep-wcmc.org).*

### LEARN

About UN Biodiversity Lab  
Partners  
Featured Initiatives

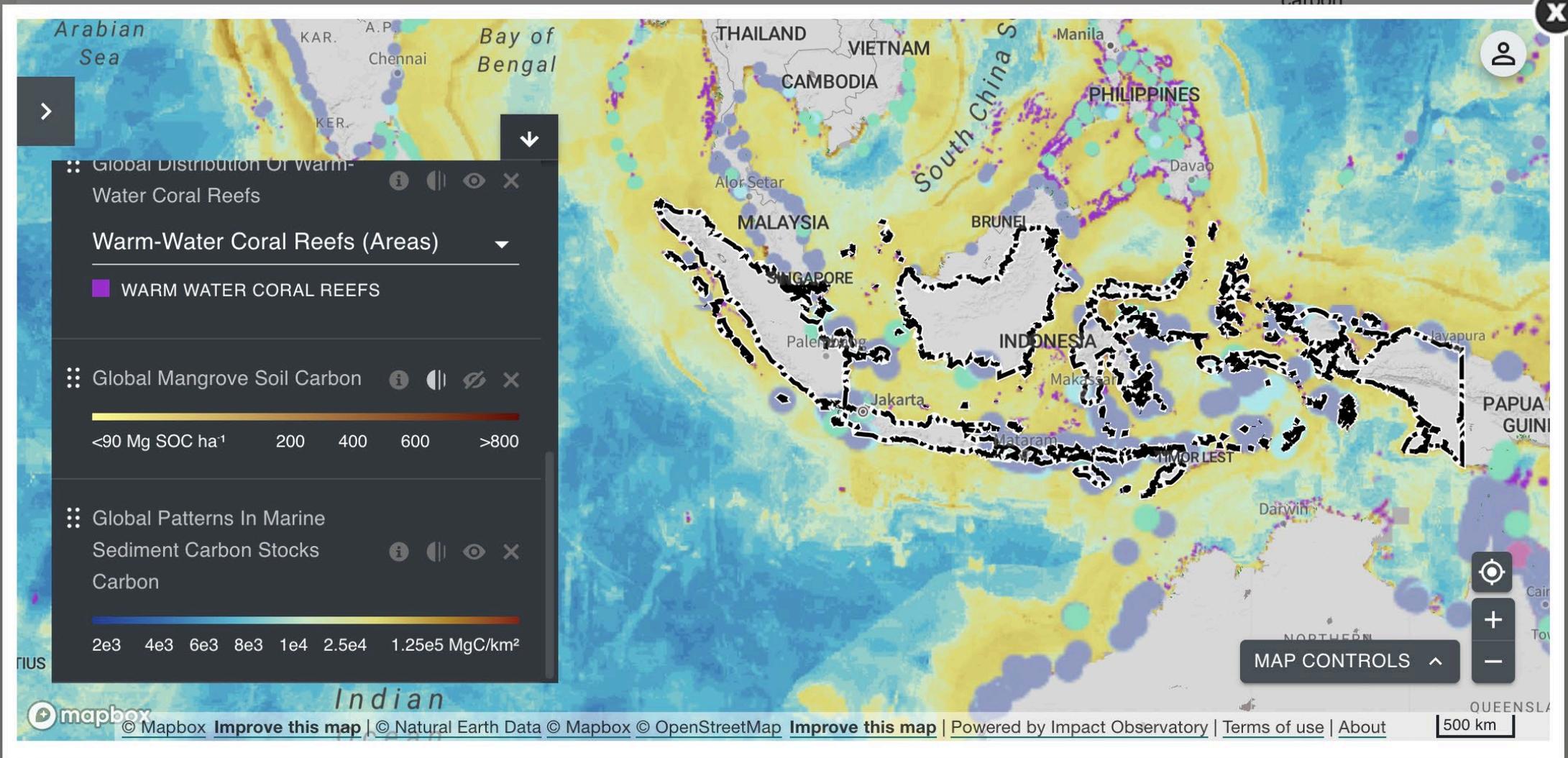
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Our maps  
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### CONTACT US

**General**  
[info@unbiodiversitylab.org](mailto:info@unbiodiversitylab.org)  
**Support**  
[support@unbiodiversitylab.org](mailto:support@unbiodiversitylab.org)





# THE UNBL NBS FOR CLIMATE CHANGE COLLECTION

- Using the NBS for Climate Change Data Collection to inform national action
- Data layers to address policy-relevant questions

## INTERACTIVE ACTIVITY

---

1. What types of data collections would you like to see on UNBL in the future?

*Please add your response to the question and answer box!*



# UNBL Public Platform Training



Convention on  
Biological Diversity



WCMC



# UNBL PUBLIC PLATFORM TRAINING

Di Zhang, UNDP

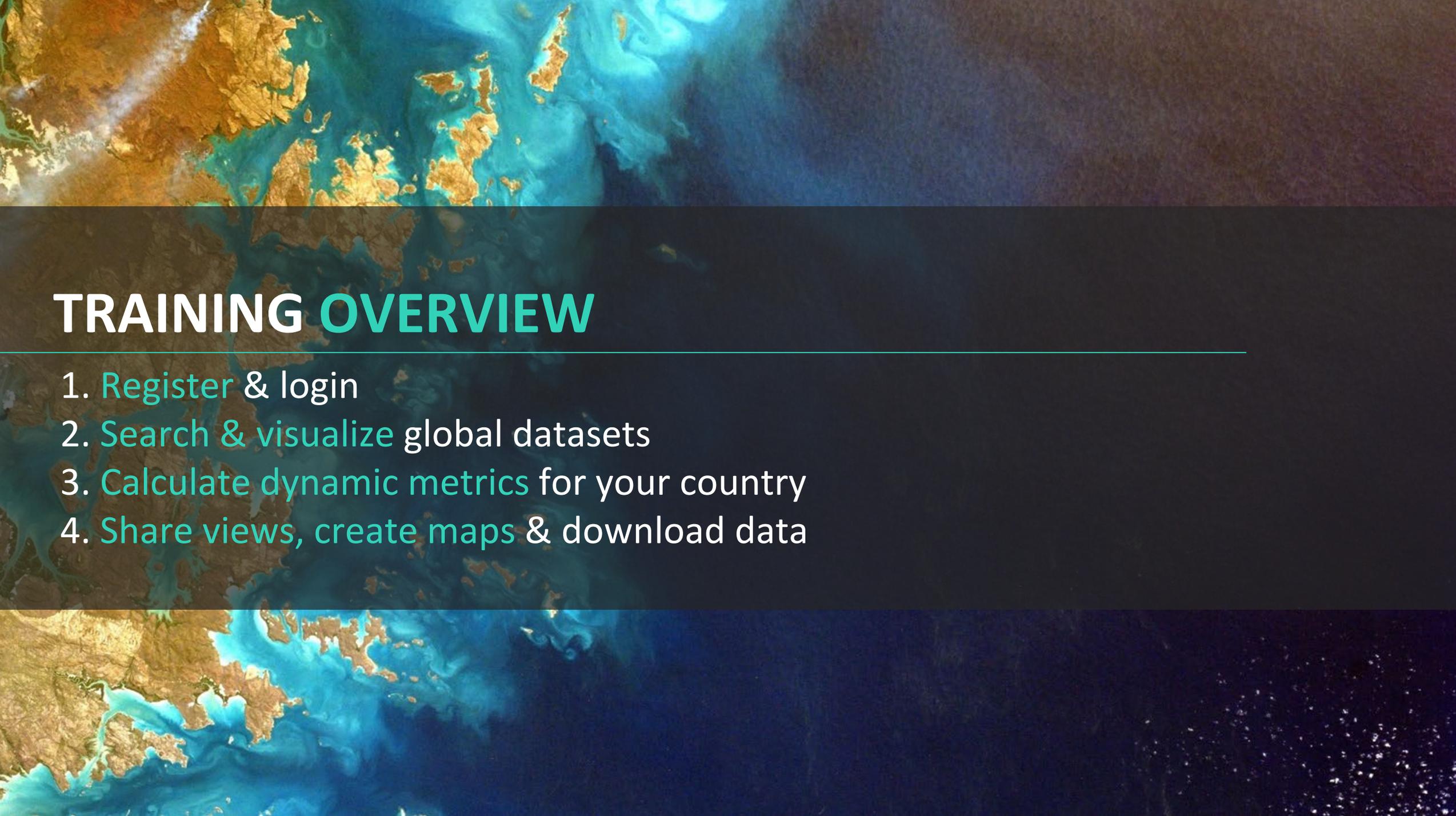


Impact  
Observatory



Microsoft





# TRAINING OVERVIEW

---

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



**REGISTER ON [UN BIODIVERSITY LAB](#)**

# WELCOME! [WWW.UNBIODIVERSITYLAB.ORG](http://WWW.UNBIODIVERSITYLAB.ORG)



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## UN Biodiversity Lab

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

[Learn more](#)



# CHANGING LANGUAGE



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## UN Biodiversity Lab

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



[Learn more](#)



# SIGN UP FOR UN BIODIVERSITY LAB

The image shows the UN Biodiversity Lab web application interface. The main area is a world map with a dark grey background and light grey landmasses. The map is labeled with various countries and oceans. The sidebar on the left contains the following elements:

- UNBiodiversity Lab** logo and **MAP VIEW** menu.
- PLACES** and **LAYERS** tabs.
- A search bar with the text "search places".
- FILTERS** dropdown menu.
- Featured** section with the following items:
  - Aral Basin Cross-Boundary Area
  - Great Lakes Basin Cross-Boundary Area
  - Lake Victoria Basin Cross-Boundary Area
  - Mekong River Basin Cross-Boundary Area

The map shows the following labels: **North Atlantic Ocean**, **South Atlantic Ocean**, **Indian Ocean**, **Norwegian Sea**, **Arabian Sea**, **Coral Sea**, **Tasman Sea**, **Scotia Sea**, **Western Sahara**, **ICELAND**, **SWEDEN**, **FINLAND**, **NORWAY**, **DENMARK**, **LITHUANIA**, **ESTONIA**, **UNITED KINGDOM**, **GERMANY**, **FRANCE**, **AUSTRIA**, **ROMANIA**, **UKRAINE**, **BELARUS**, **KAZAKHSTAN**, **MONGOLIA**, **RUSSIA**, **SPAIN**, **ITALY**, **BULGARIA**, **GREECE**, **TURKEY**, **SYRIA**, **IRAN**, **KYRGYZSTAN**, **CHINA**, **SOUTH KOREA**, **JAPAN**, **MOROCCO**, **TUNISIA**, **LIBYA**, **EGYPT**, **SAUDI ARABIA**, **OMAN**, **PAKISTAN**, **NEPAL**, **INDIA**, **MYANMAR (BURMA)**, **VIETNAM**, **PHILIPPINES**, **TAIWAN**, **GUATEMALA**, **CUBA**, **WESTERN SAHARA**, **ALGERIA**, **LIBYA**, **EGYPT**, **SAUDI ARABIA**, **OMAN**, **PAKISTAN**, **NEPAL**, **INDIA**, **MYANMAR (BURMA)**, **VIETNAM**, **PHILIPPINES**, **TAIWAN**, **GUATEMALA**, **COSTA RICA**, **GUAYANA**, **SENEGAL**, **MALI**, **NIGER**, **CHAD**, **SUDAN**, **YEMEN**, **ETHIOPIA**, **SRI LANKA**, **VIETNAM**, **PHILIPPINES**, **INDONESIA**, **PAPUA NEW GUINEA**, **COLOMBIA**, **ECUADOR**, **PERU**, **BRAZIL**, **BOLIVIA**, **PARAGUAY**, **CHILE**, **URUGUAY**, **ARGENTINA**, **ANGOLA**, **MALAWI**, **ZIMBABWE**, **NAMIBIA**, **SOUTH AFRICA**, **MAURITIUS**, **AUSTRALIA**, **FALKLAND ISLANDS (ISLAS MALVINAS)**, **SCOTIA SEA**.

At the bottom of the map, there is a **mapbox** logo and a footer with the text: **© Mapbox Improve this map | © Natural Earth Data © Mapbox © OpenStreetMap Improve this map | Powered by Impact Observatory | Terms of use | About | 1000 km**



**SEARCH & VIEW GLOBAL DATASETS**

# SEARCH DATA

UN Biodiversity Lab

MAP VIEW 1

PLACES LAYERS

search places

FILTERS

Collections

You currently do not have any collections in your workspaces. Create a collection and start sharing your insights with your workspace members

CREATE NEW COLLECTION

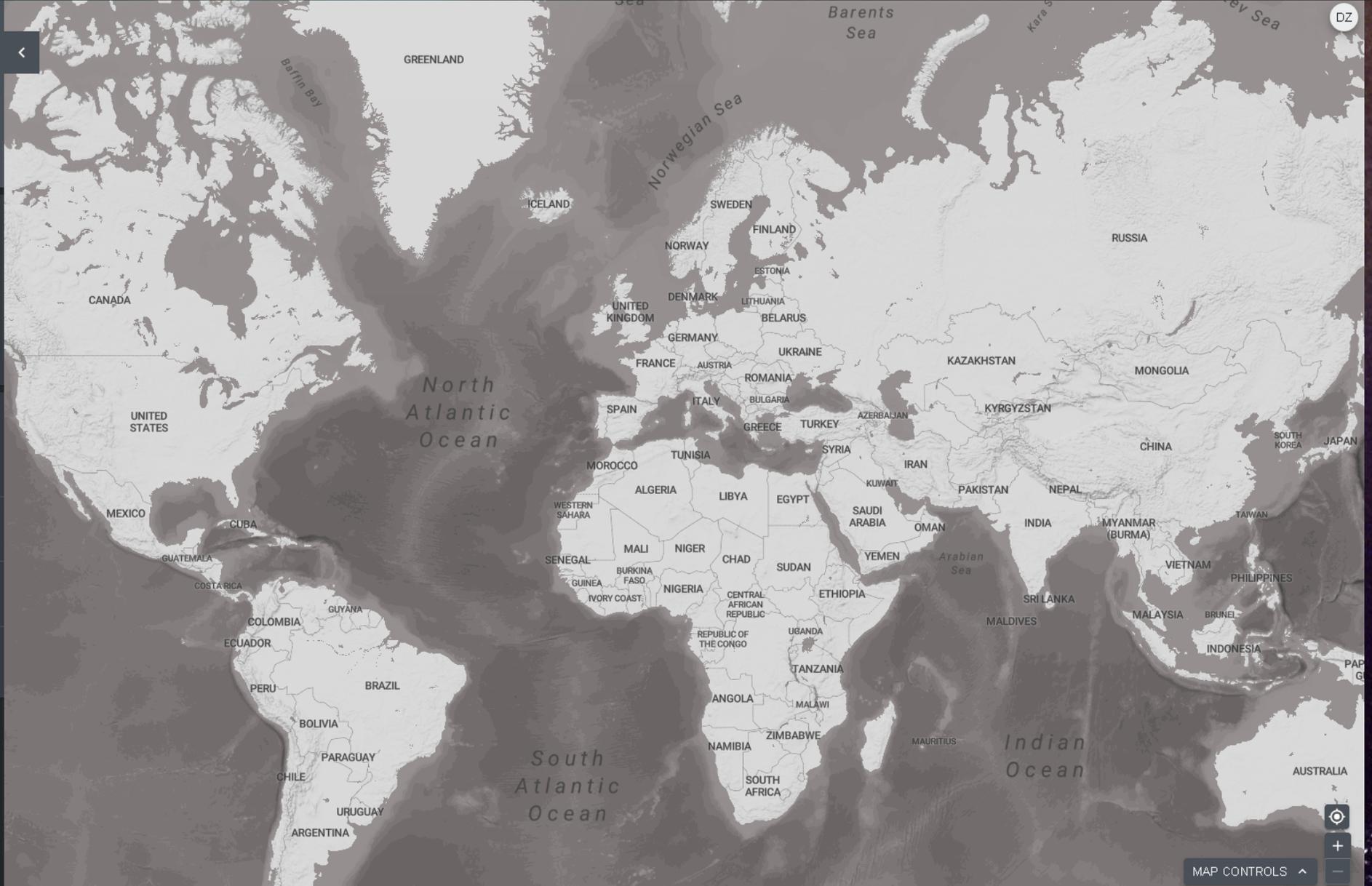
Featured

Aral Basin  
Cross-Boundary Area

Great Lakes Basin  
Cross-Boundary Area

Lake Victoria Basin  
Cross-Boundary Area

Mekong River Basin  
Cross-Boundary Area



mapbox

# VISUALIZE MULTIPLE DATA LAYERS

**UN Biodiversity Lab** MAP VIEW

PLACES LAYERS

search places

FILTERS

Last Viewed Place

Colombia  
UNBL • Country

Collections

You currently do not have any collections in your workspaces. Create a collection and start sharing your insights with your workspace members.

CREATE NEW COLLECTION

Featured Places

Afghanistan  
UNBL • Country

Brazil  
UNBL • Country

Colombia  
UNBL • Country

Costa Rica  
UNBL • Country

Haiti  
UNBL • Country

Kazakhstan

WDPA PROTECTED AREAS

- WDPA All Categories
- WDPA Simple View
- IA - STRICT NATURE RESERVE
- IB - WILDERNESS 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

TREE LOSS 2001 TO 2019

TREE COVER LOSS

2001 2019

EN UN

© Mapbox © OpenStreetMap Improve this map | Powered by Resource Watch | About | 1000 km

# ADJUST BASEMAP

UNBiodiversity  
Lab

MAP VIEW 1 

PLACES

LAYERS

 search layers

FILTERS 

Coral Reef Tourism and Protection ...  
Marine, Socio-Economic, Ecosystem Se...

Crop Suitability  
Ecosystem Services, Socio-Economic

Crop Suitability Change  
Human Impact and Pressures

Cumulative Ocean Impact 2008-2013  
Marine, Human Impact and Pressures

Dam Catchments - Global Georefer...  
Human Impact and Pressures

Dams - Global Georeferenced Data...  
Human Impact and Pressures

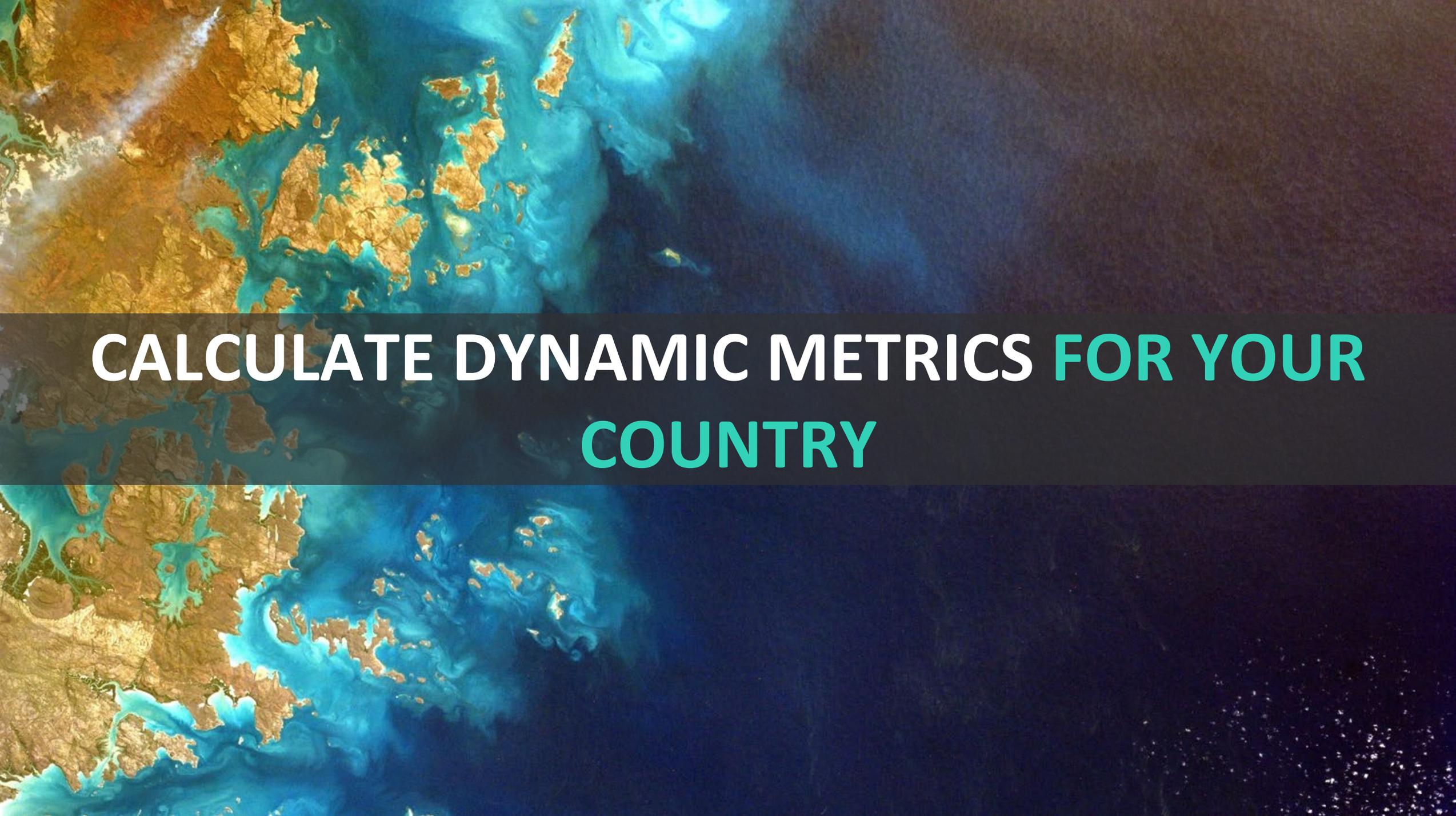
DMSP-OLS/VIIRS harmonized glob...  
Human Impact and Pressures

ESA CCI Land Cover  
Land Cover



DZ

 mapbox



**CALCULATE DYNAMIC METRICS FOR YOUR  
COUNTRY**

A satellite-style map of Earth, showing landmasses in brown and green and oceans in blue. The map is partially obscured by a dark blue horizontal band that contains the title and list.

# METRICS AVAILABLE FOR YOUR COUNTRY

---

1. Tree cover loss (2000-2020)
2. Biodiversity intactness index (2015)
3. Enhanced vegetation index (2000-2020)
4. Global land cover (2015)
5. Monthly fire activity (2001-2020)
6. Protected areas (2021)
7. Terrestrial carbon density (2010)
8. Terrestrial human footprint (2013)

# FIND YOUR COUNTRY

UNBiodiversity  
Lab

MAP VIEW 1

PLACES

LAYERS

search layers

FILTERS

Layers (101)

Aboveground Biomass Carbon Dens...  
Climate and Carbon

Access to Healthcare - All Modes of...  
Human Impact and Pressures

Access to Healthcare - Walking  
Human Impact and Pressures

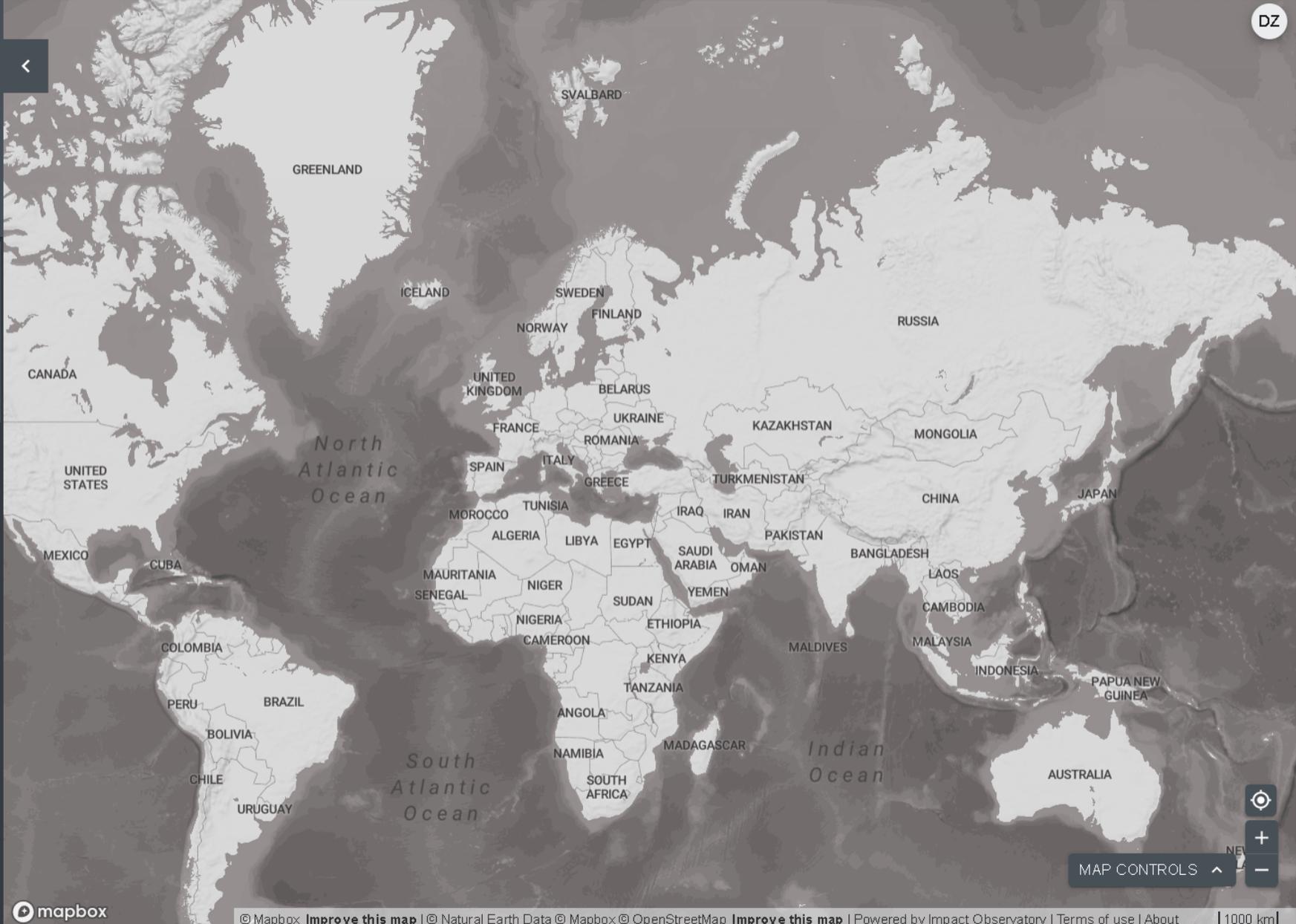
ALOS Global Digital Surface Model  
Habitats & Ecosystems & Biomes

Aqueduct Baseline Water Stress  
Protected and Conserved Areas

Aqueduct Groundwater Table Decline  
Protected and Conserved Areas

Areas of Global Significance for Re...  
Restoration

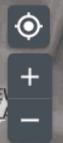
Belowground Biomass Carbon Dens...  
Climate and Carbon



DZ

mapbox

MAP CONTROLS



# CALCULATE DYNAMIC METRICS



UNBiodiversity Lab MAP VIEW ▾

PLACES LAYERS

🔍 search places

FILTERS ▾

LAST VIEWED PLACE

Colombia  
UNBL • Country

COLLECTIONS

You currently do not have any collections in your organizations. Create a collection and start sharing your insights with your organization members.

CREATE NEW COLLECTION

FEATURED PLACES

Colombia  
UNBL • Country

Costa Rica  
UNBL • Country

Haiti  
UNBL • Country

Kazakhstan  
UNBL • Country

Nepal  
UNBL • Country

Peru  
UNBL • Country

Turkey  
UNBL • Country

Uganda  
UNBL • Country

EN ▾ UN

GREENLAND

Greenland Sea

Barents Sea

Kara Sea

ICELAND

NORWAY

SWEDEN

FINLAND

RUSSIA

Norwegian Sea

ESTONIA

LATVIA

UNITED KINGDOM

DENMARK

BELARUS

GERMANY

UKRAINE

FRANCE

AUSTRIA

KAZAKHSTAN

MONGOLIA

ITALY

SERBIA

GEORGIA

KYRGYZSTAN

CHINA

South Korea

PORTUGAL

TUNISIA

GREECE

TURKEY

IRAQ

IRAN

AFGHANISTAN

NEPAL

INDIA

MYANMAR (BURMA)

THAILAND

PHILIPPINES

WESTERN SAHARA

ALGERIA

LIBYA

EGYPT

SAUDI ARABIA

OMAN

INDONESIA

SENEGAL

MALI

NIGER

CHAD

SUDAN

ERITREA

YEMEN

Arabian Sea

GUINEA

FASO

GHANA

CENTRAL AFRICAN REPUBLIC

ETHIOPIA

SRI LANKA

GUINEA-BISSAU

GABON

KENYA

TANZANIA

ANGOLA

ZAMBIA

ZIMBABWE

MADAGASCAR

SOUTH AFRICA

BRAZIL

OLIVIA

PARAGUAY

URUGUAY

GENTINA

FALKLAND ISLANDS (ISLAS MALVINAS)

Scotia Sea

SATELLITE



# ACCESS INFO & DOWNLOAD **DYNAMIC METRICS**



UNBiodiversity Lab MAP VIEW

PLACES LAYERS

Colombia

UNBL | COUNTRY

## Colombia

UNBL - ANNUAL ACCUMULATED TREE COVER LOSS

From 2001 to 2018, Colombia lost 40,698 km<sup>2</sup> of tree cover, equivalent to a 3.58% decrease in tree cover since 2000

km<sup>2</sup>

Year	Annual Accumulated Tree Cover Loss (km <sup>2</sup> )
2001	~2,500
2002	~1,800
2003	~1,500
2004	~2,200
2005	~1,800
2006	~1,800
2007	~2,500
2008	~2,200
2009	~2,000
2010	~1,800
2011	~1,800
2012	~1,800
2013	~1,500
2014	~1,500
2015	~1,500
2016	~2,500
2017	~4,200
2018	~3,500

REMOVE FROM MAP

UNBL - BIODIVERSITY INTACTNESS INDEX

In 2015, the average terrestrial biodiversity intactness in Colombia was 84%, indicating a very high level of biodiversity remaining relative to a baseline ecosystem with minimal human impact.

- VERY HIGH - 62.61%
- HIGH - 28.27%
- MEDIUM - 7.22%
- LOW - 1.78%

EN UN

ARUBA CURAÇAO

PANAMA

VENEZUELA

COLOMBIA

ECUADOR

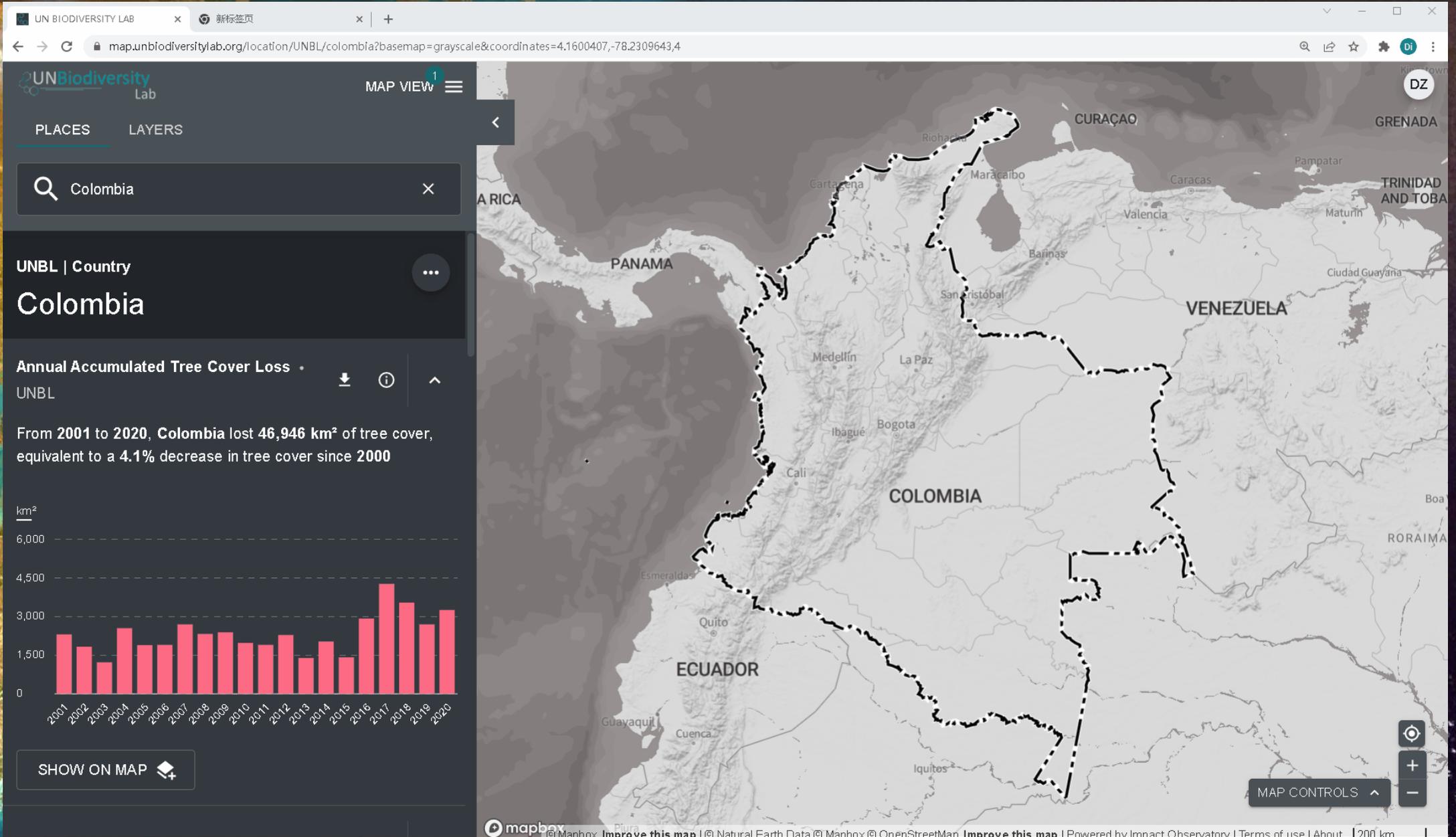
AMAZON SATELLITE

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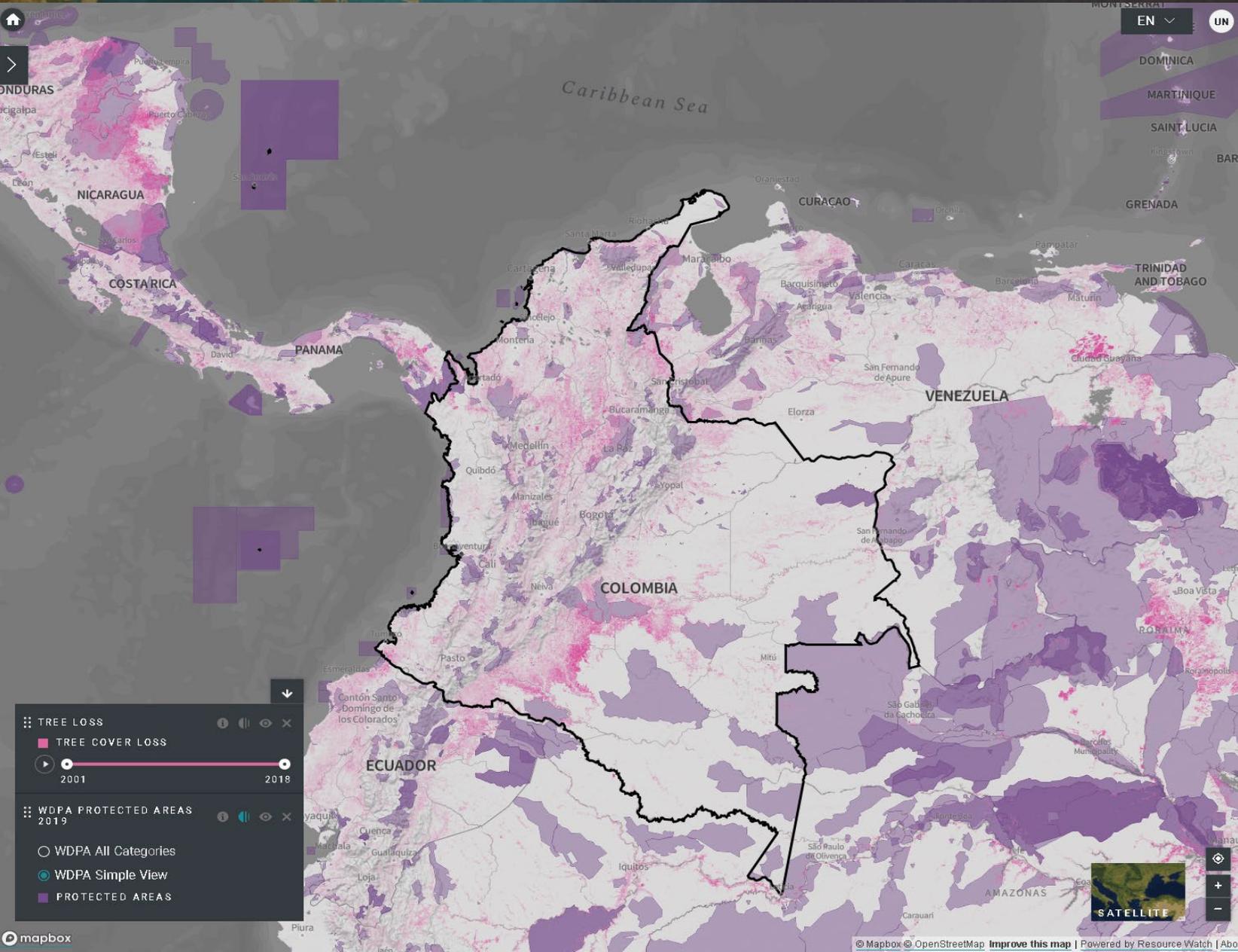


**SHARE VIEWS, CREATE MAPS, & DOWNLOAD  
DATA**

# SHARE VIEWS



# MAKE MAPS | CAPTURE IMAGE



**TREE LOSS**

■ TREE COVER LOSS

2001 2018

WDPA PROTECTED AREAS 2019

○ WDPA All Categories

● WDPA Simple View

■ PROTECTED AREAS

mapbox



# MAKE MAPS | MAPPING STANDARDS

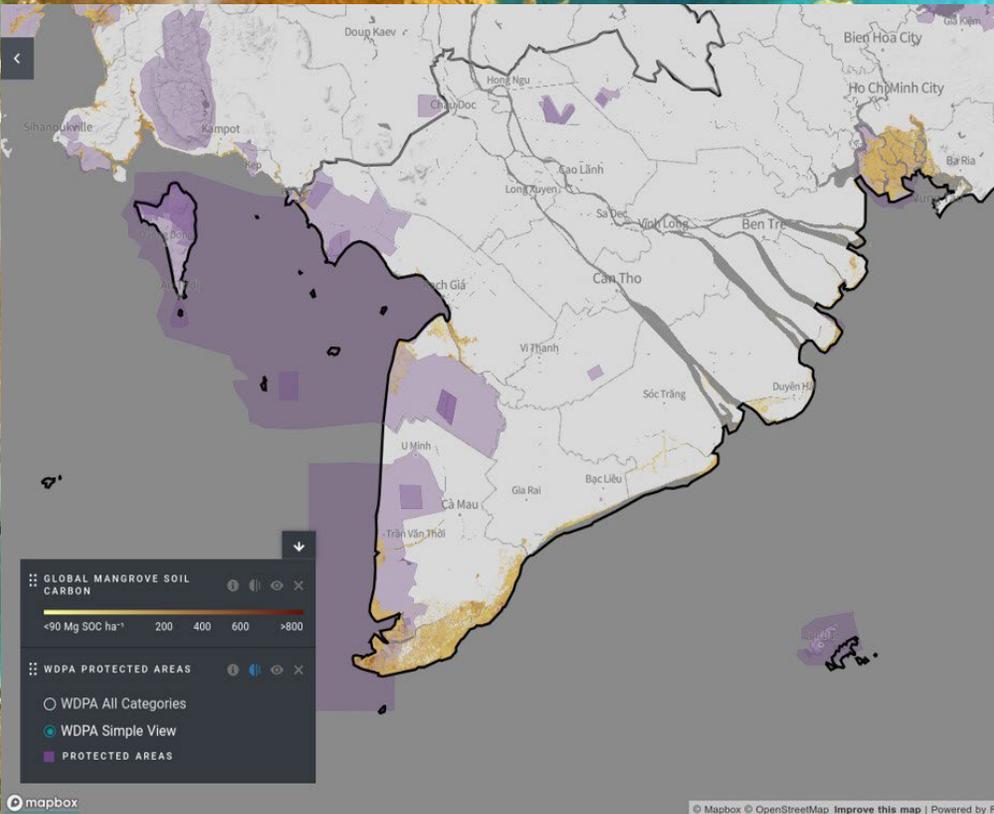
---

- Maps should be clear and concise.
- Important text on maps should be clear and legible (e.g., cities, place names, legend items, etc.).
- The map should include basic mapping elements, including a legend of relevant data layers and scale bar.
- The map must provide correct attribution(s) and citation(s) for the data source(s) used in its creation; either on the map itself or in a caption describing the map.

# MAKE MAPS | CITATION

---

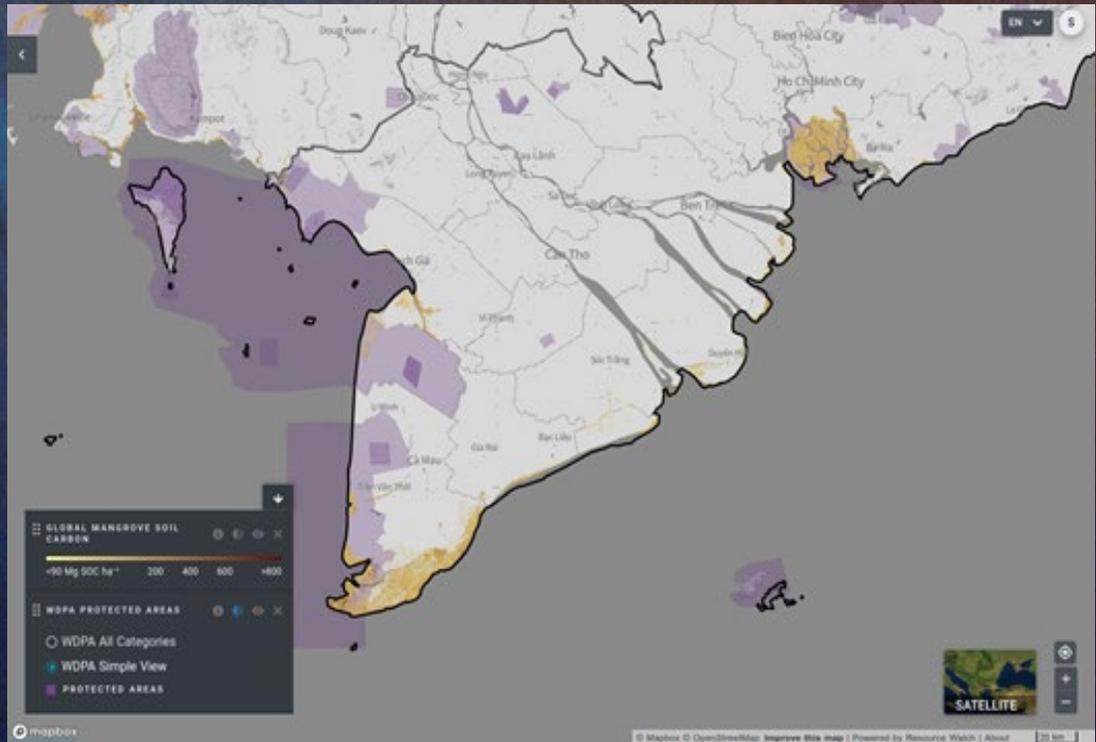
1. Cite all data sources shown on the map; either on the map itself or in a figure caption.
2. Include full citations for data citations used in the references section of the document.
  - UNEP-WCMC and IUCN (2021), Protected Planet: The World Database on Protected Areas (WDPA) [On-line], 02/2021, Cambridge, UK: UNEP-WCMC and IUCN Available at: [www.protectedplanet.net](http://www.protectedplanet.net).
  - Generated on the UN Biodiversity Lab. (year). <http://unbiodiversitylab.org/>. Accessed DD/MM/YY. DOI:[10.34892/95q9-mp91](https://doi.org/10.34892/95q9-mp91)



# Mangrove Forest Soil Organic Carbon within South Vietnam's Protected Areas

**Data Sources:**  
 1) Sanderman, J. et al. (2018) 'A global map of mangrove forest soil carbon at 30 m spatial resolution', Environmental Research Letters, 13(5), p. 055002. doi: 10.1088/1748-9326/aabe1c.  
 2) UNEP-WCMC and IUCN (2021), Protected Planet: The World Database on Protected Areas (WDPA) [On-line], 02/2021, Cambridge, UK: UNEP-WCMC and IUCN Available at: [www.protectedplanet.net](http://www.protectedplanet.net).

Bond, James. "Mangrove Forest Soil Organic Carbon within Vietnam's Protected Areas" [map]. Scale not given. (14 Feb 2021). Map Generated on the UN Biodiversity Lab ([www.unbiodiversitylab.org](http://www.unbiodiversitylab.org)) [web]. Version 2. UNDP and UNEP, 2021.



**Figure 1** shows the estimated soil organic carbon present in mangroves (from Sanderman, et al., 2018) within protected areas in Southern Vietnam (UNEP-WCMC and IUCN, 2021). Created by James Bond using UN Biodiversity Lab ([www.unbiodiversitylab.org](http://www.unbiodiversitylab.org)) on 14 February, 2021.

The screenshot displays the UN Biodiversity Lab interface. On the left, a sidebar contains navigation and filter options. The main area shows a world map with a semi-transparent overlay of country names. The map is centered on the Atlantic Ocean, with labels for the North Atlantic and South Atlantic. The overlay includes country names such as Iceland, Norway, Sweden, Finland, Denmark, Germany, France, Spain, Italy, Greece, Turkey, Syria, Iran, Pakistan, India, China, South Korea, Taiwan, Philippines, Vietnam, Malaysia, Brunei, Indonesia, and others. The interface includes a search bar, a 'MAP VIEW' button, and a 'MAP CONTROLS' panel at the bottom right. The footer contains copyright information for Mapbox, Natural Earth Data, and OpenStreetMap, along with a 1000 km scale bar.

UN Biodiversity Lab

MAP VIEW

PLACES LAYERS

search places

FILTERS

Last Viewed Place

Colombia  
Country

Collections

You currently do not have any collections in your workspaces. Create a collection and start sharing your insights with your workspace members

CREATE NEW COLLECTION

Featured

Aral Basin  
Cross-Boundary Area

Great Lakes Basin  
Cross-Boundary Area

Lake Victoria Basin  
Cross-Boundary Area

© mapbox

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

**DOWNLOAD  
DATA |  
CLIPPED TO  
COUNTRY**

# DOWNLOAD DATA | GLOBAL RANGE

UNBiodiversity Lab

MAP VIEW

PLACES LAYERS

Colombia

UNBL | Country  
Colombia

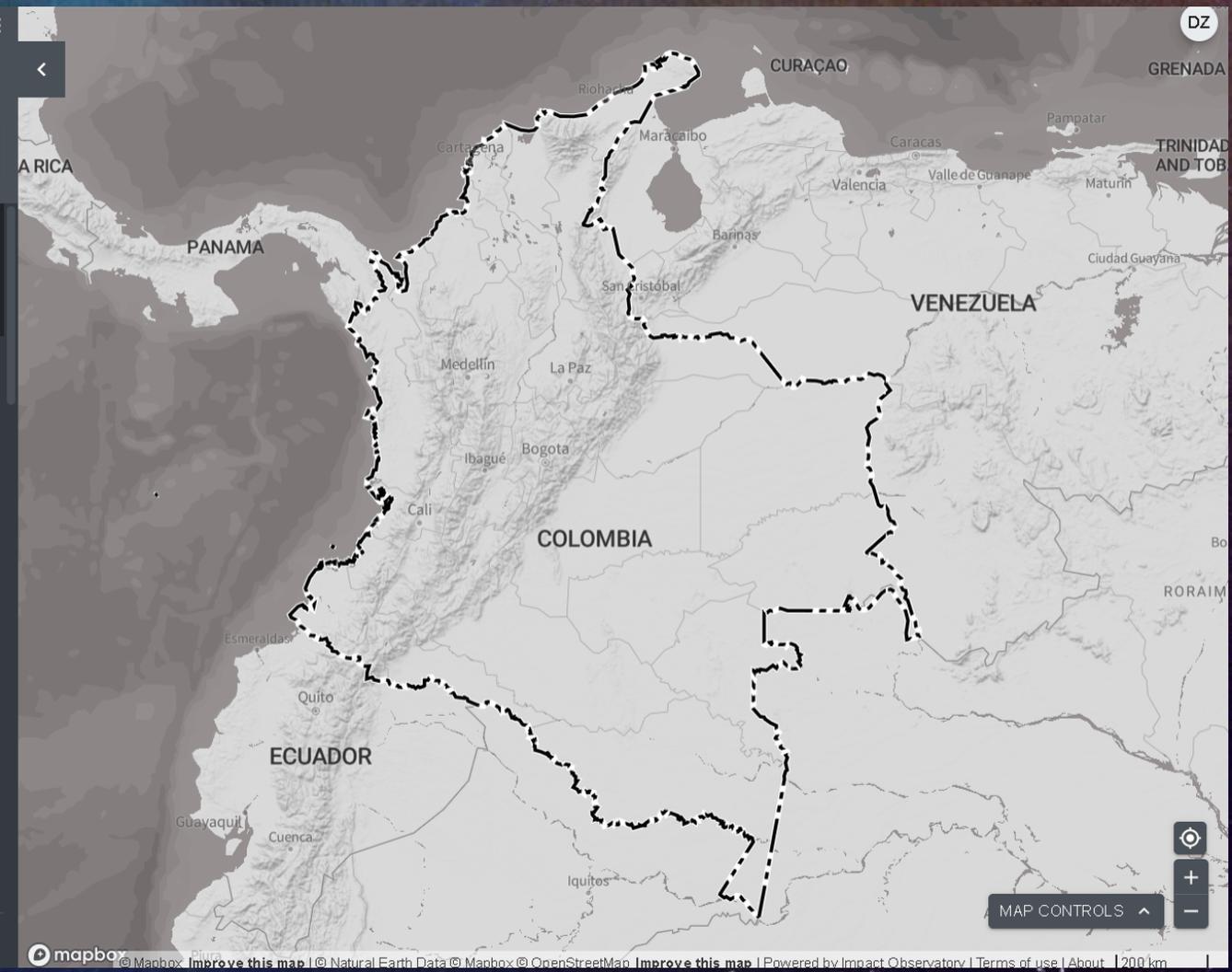
Annual Accumulated Tree Cover Loss - UNBL

From 2001 to 2020, Colombia lost 46,946 km<sup>2</sup> of tree cover, equivalent to a 4.1% decrease in tree cover since 2000

Year	Annual Accumulated Tree Cover Loss (km <sup>2</sup> )
2001	2,000
2002	1,500
2003	1,000
2004	2,500
2005	1,800
2006	1,800
2007	2,800
2008	2,500
2009	2,500
2010	1,800
2011	1,800
2012	2,500
2013	1,500
2014	1,800
2015	1,500
2016	2,800
2017	4,500
2018	3,500
2019	2,500
2020	3,200

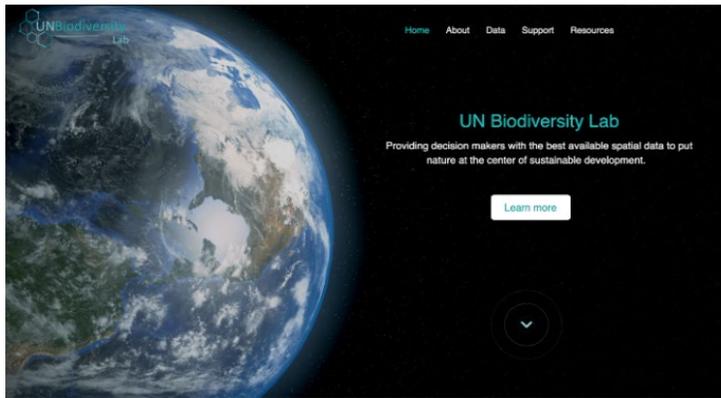
SHOW ON MAP

Biodiversity Intactness Index - INRI



# CONCLUSIONS

## UN Biodiversity Lab 2.0 Public Platform User Guide



Public Platform Technical Guidance

<https://bit.ly/33SOOjN>

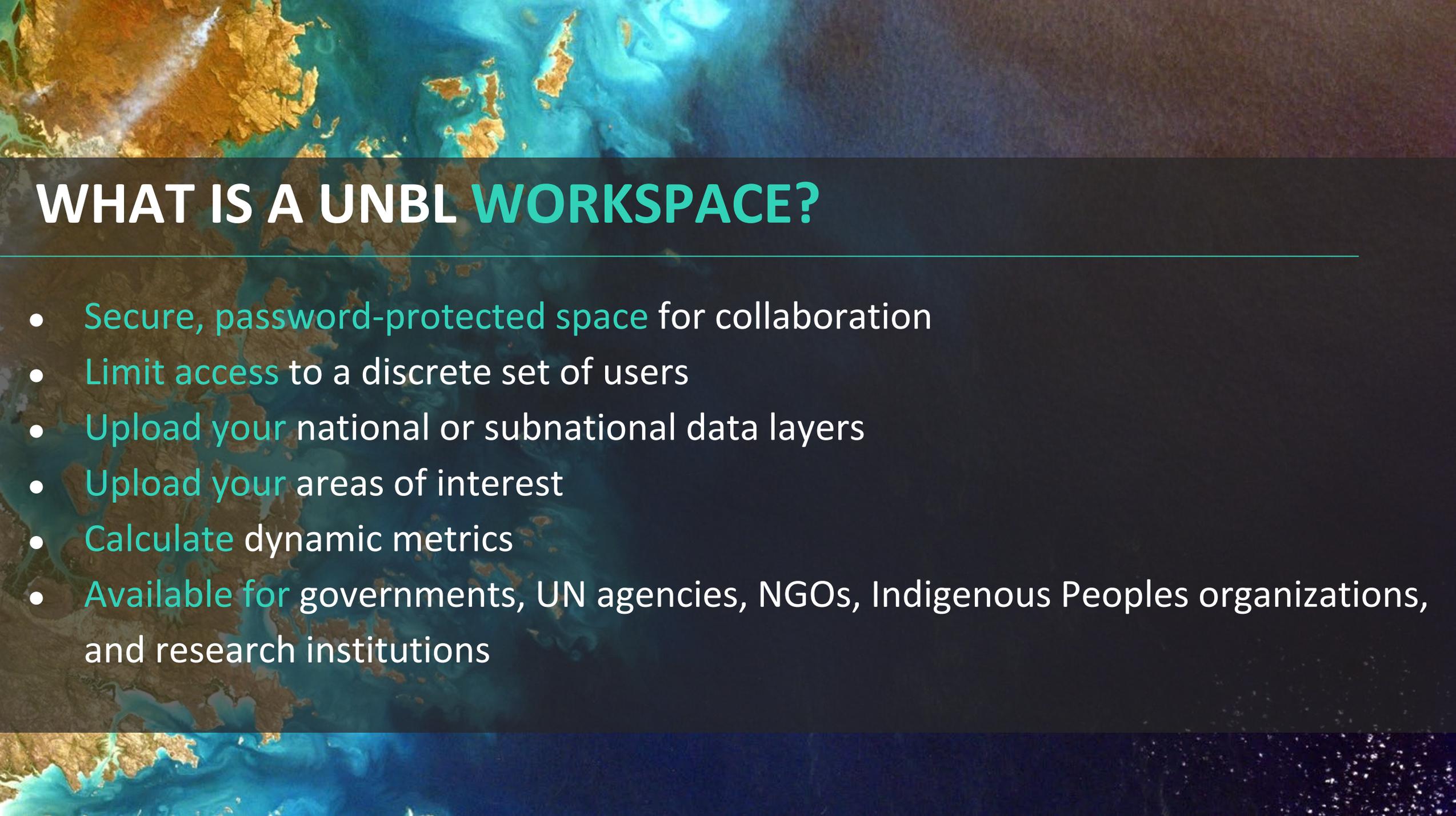
## Advanced Lab 1: Mastering the UNBL Public Platform

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

April 27<sup>th</sup>, 2022



# UNBL SECURE WORKSPACES



# WHAT IS A UNBL **WORKSPACE**?

---

- **Secure, password-protected space** for collaboration
- **Limit access** to a discrete set of users
- **Upload your** national or subnational data layers
- **Upload your** areas of interest
- **Calculate** dynamic metrics
- **Available for** governments, UN agencies, NGOs, Indigenous Peoples organizations, and research institutions

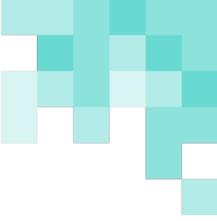
# Contacts

- Trainers:
  - Amber Jean McCullum: [AmberJean.McCullum@nasa.gov](mailto:AmberJean.McCullum@nasa.gov)
  - Juan Torres-Pérez: [juan.l.torresperez@nasa.gov](mailto:juan.l.torresperez@nasa.gov)
  - Annie Virnig: [anne.virnig@undp.org](mailto:anne.virnig@undp.org)
  - Di Zhang: [di.zhang@undp.org](mailto:di.zhang@undp.org)
- Training Webpage:
  - <https://appliedsciences.nasa.gov/join-mission/training/english/arset-using-un-biodiversity-lab-monitor-pulse-planet>

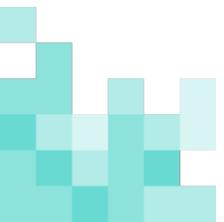
Follow us on Twitter  
[@NASAARSET](https://twitter.com/NASAARSET)

Check out our sister programs:





Convention on  
Biological Diversity





**Thank You!**

