Using UN Biodiversity Lab to Monitor the Pulse of the Planet

Advanced Lab 1 : UNBL Public Platform

This Advanced Lab offers participants the opportunity to dive into hands-on exercises and activities to explore the UN Biodiversity Lab (UNBL) public platform. With over 400 of the world's best global data layers on biodiversity, ecosystem services, and sustainable development, UNBL provides the ability to access essential global data, upload national datasets, and calculate dynamic indicators for any area of interest -- all without any background in remote sensing and GIS.

With attendance capped at 250 registrants, this lab offers participants a chance to build your skills using all functionalities of the public platform, with our experts on hand to answer questions and offer advice. Through this lab you will learn to:

- Search and visualize data,
- Calculate dynamic metrics for your country,
- Create maps, and
- Download data.

To receive your certificate, you must:

- Register on UN Biodiversity Lab (Homework Assignment 1) **by 27 April**;
- Attend the live session **on 27 April at 9-10:30am EST**;
- Submit the Homework Assignment 2 to support@undbiodiversitylab.org **by 11 May**. *Note: we recommend that you attempt this assignment before our live session so that you can ask our experts any questions during the session.*

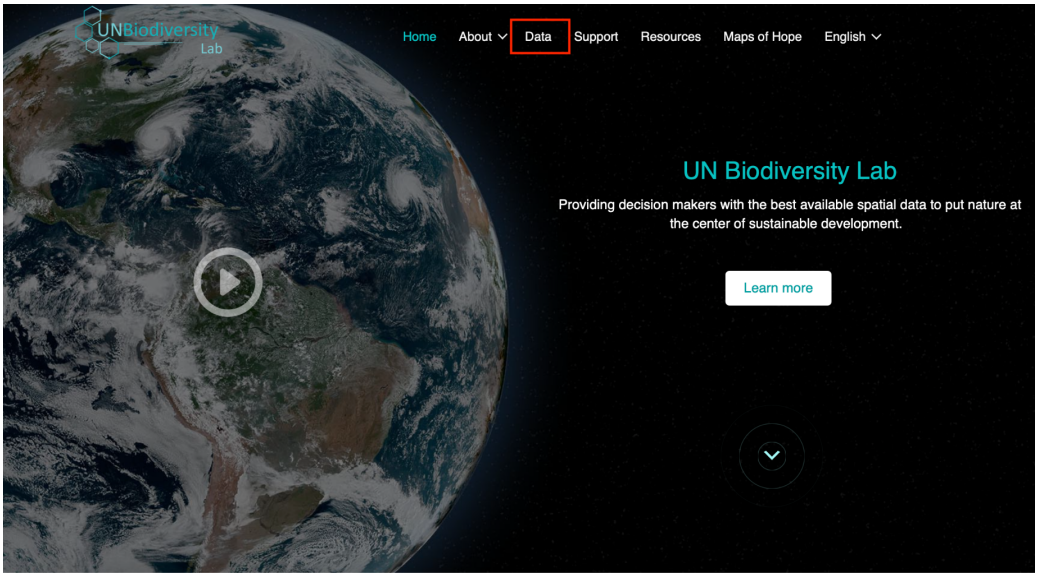
☐ Homework Assignment 1: Register on UNBL

Background:

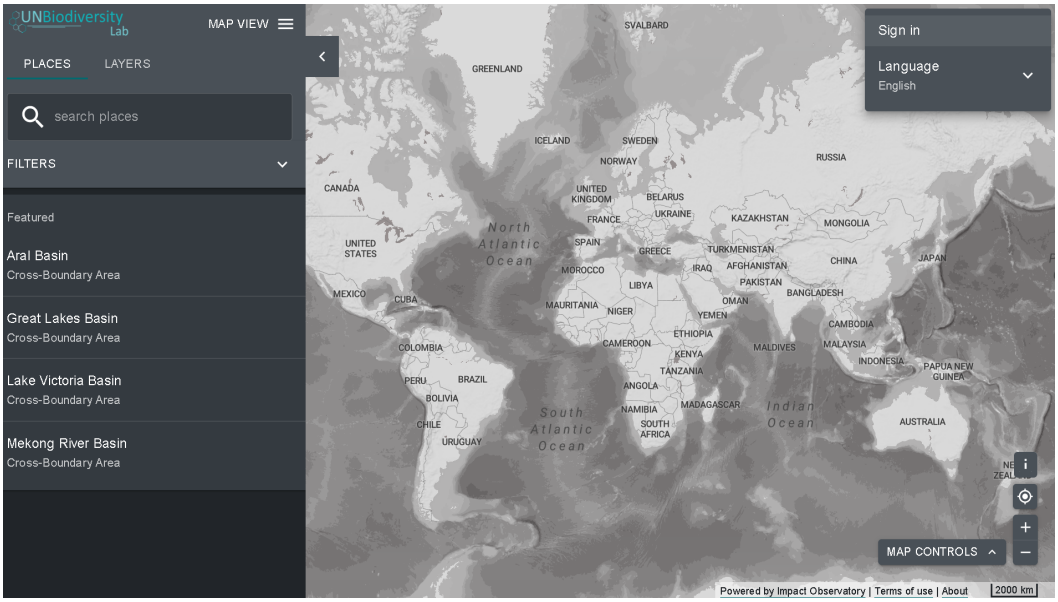
- ★ Creating an account gives you greater access to data and analytic features on UNBL. In particular, your account will enable you to clip and download data from an area of interest.
- ★ This lab sheet will help guide you through the steps of creating an account with UNBL.
- ★ You must complete this assignment in advance of our live session on 27 April or you will not be able to complete the exercises during the session. You also will not receive your certificate.

Instructions:

1. Click the 'data' page of the UNBL website, then select the launch button to access the data app.



2. Once this has loaded, select the account icon in the top right-hand corner and choose 'sign up'. Enter your email, name, country, and institution (optional), and create a password to sign up. If you are also participating in Advanced Lab 2, please be sure that you use the same email that you used to register for the training.



3. You will receive an email within a few minutes. Follow the instructions in this email to verify your account.
    i. If this email does not appear in your inbox please check your spam folder.
    ii. If no email arrives at all, please let us know by emailing support@unbiodiversitylab.org.
4. Once your account is verified, you can log in using your email address and password each time you access the platform.
5. You can log-out at any time by clicking on your user icon and selecting Sign Out.

❖ Need more help? Click here to view a demo (slide 1): EN | FR | SP

☐ Homework Assignment 2: Find your country, load the Biodiversity Intactness Index 2015 to your mapview, and produce a map using the screenshot function on your devices.

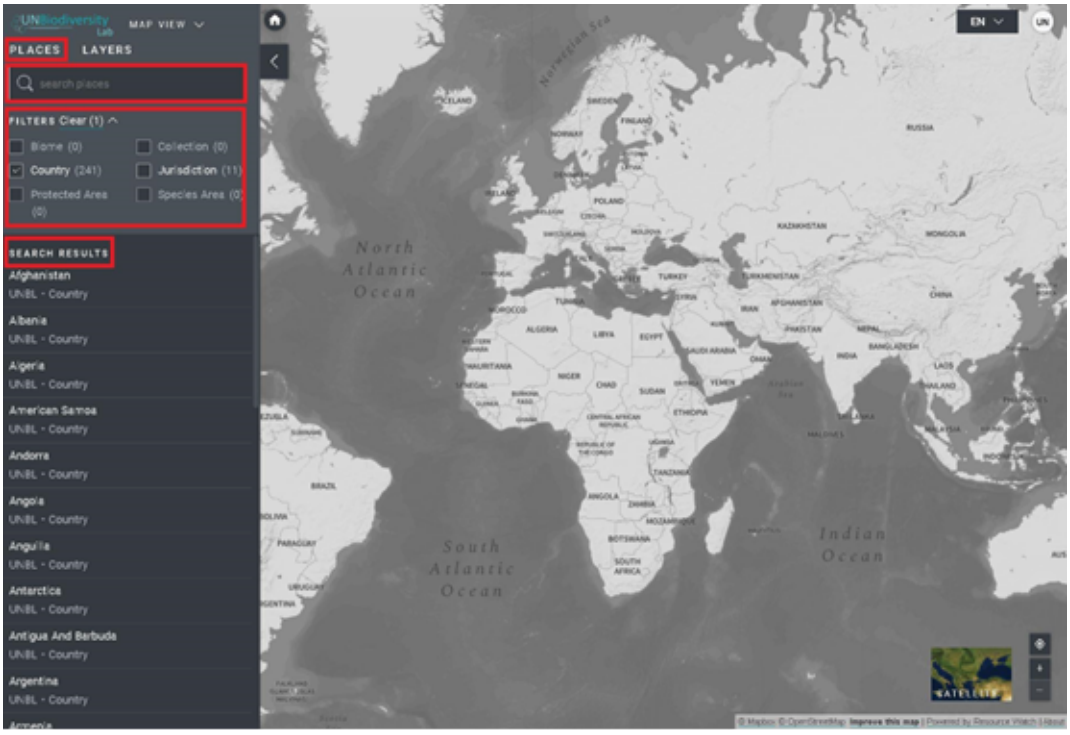
Background:

★ The ability to access and visualize essential global data is one of the key functionalities of UNBL.

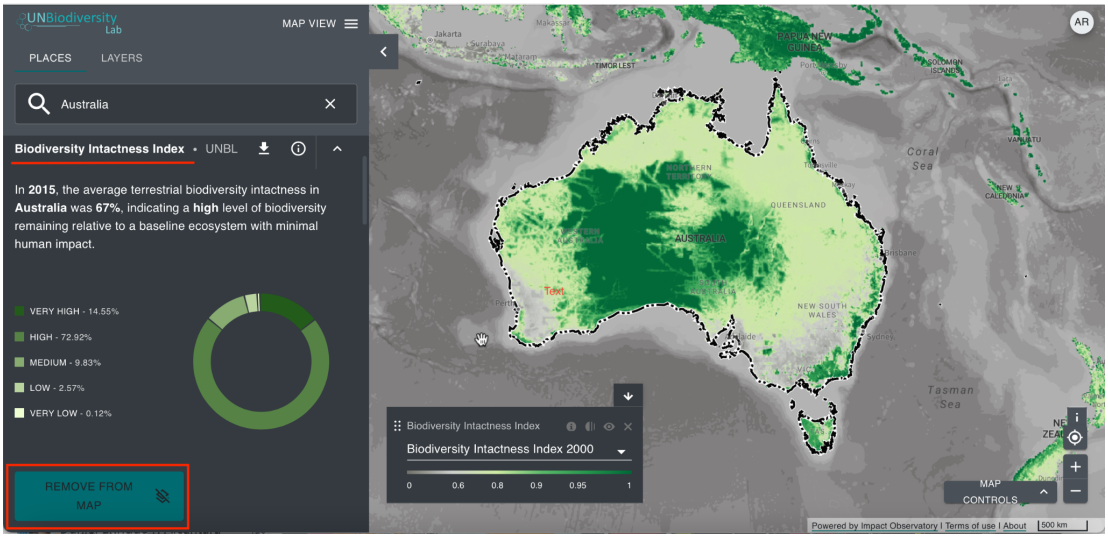
- ★ We regularly update our data list to ensure that we have the best, most updated global data on biodiversity, climate change, and sustainable development.
- ★ Our goal is that all data provided through UNBL align with selection criteria developed by UNDP, UNEP, and UNEP-WCMC that place data into one of three tiers, and consider aspects like data relevance, open-licensing and availability, transparency, and geographic coverage.
- ★ The proposed criteria can be viewed here. We welcome feedback on these criteria to help inform their development and the accompanying methodology.
- ★ This exercise takes you through searching, visualizing, and creating a map using one of our data layers.
- ★ You must submit this homework assignment by 11 May to receive your certificate. We encourage you to attempt this before our live session on 27 April so you come ready with your questions.

Instructions:

1. Make sure you are registered and logged in on UNBL (see Homework Assignment 1).
2. Find your country in “PLACES”, then click on the name of your country to zoom in.



3. View the dynamic metrics in the left panel, scroll to Biodiversity Intactness Index, then click on “SHOW ON MAP” (shown in screenshot). Alternatively, you can search the name of the dataset in “LAYERS”.



4. Use the screenshot function to capture the map. This screenshot should follow the mapping standards below. *Note: You will add the map title and citation separately, see #7 below.*

Mapping Standards

i. Maps should be clear and concise.
ii. Important text on maps should be clear and legible (e.g., cities, place names, legend items, etc.).
iii. The map should include basic mapping elements, including a legend of relevant data layers and scale bar.
iv. 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.

Map Citation Standards

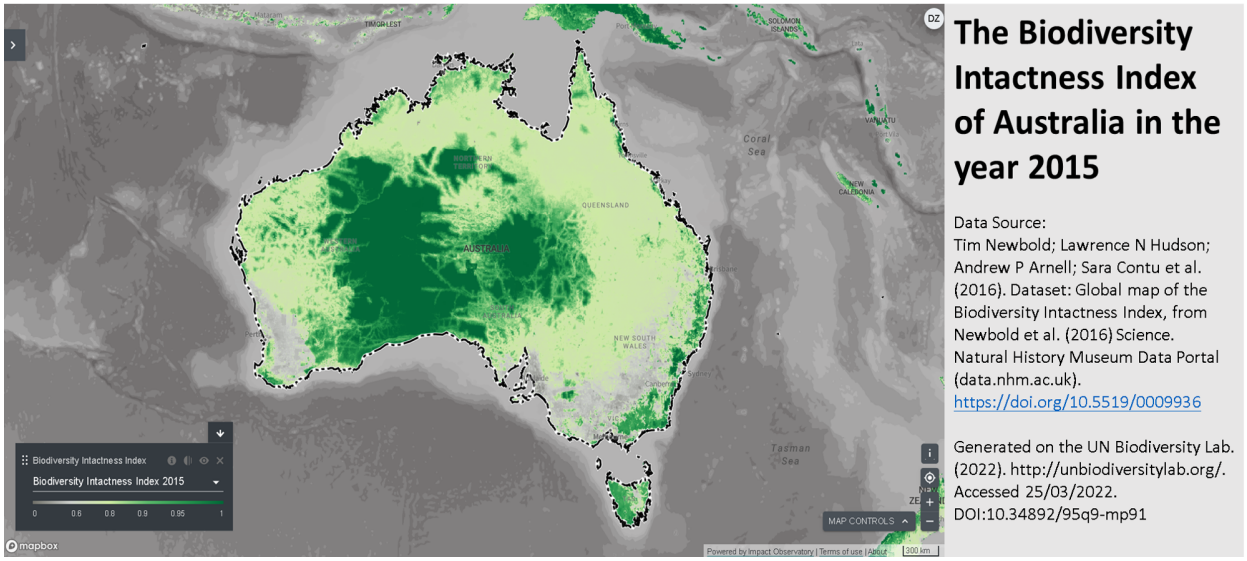
v. Cite all data sources shown on the map; either on the map itself or in a figure caption.
vi. Include full citations for data citations used in the references section of the document.
    1. Tim Newbold; Lawrence Hudson; Andy Arnell; Sara Contu et al. (2016). Dataset: Global map of the Biodiversity Intactness Index, from Newbold et al.

(2016) Science. Natural History Museum Data Portal (data.nhm.ac.uk). https://doi.org/10.5519/0009936

2. Generated on the UN Biodiversity Lab. (year). http://unbiodiversitylab.org/. Accessed DD/MM/YY. DOI:10.34892/95q9-mp91

5. To add the map title and citation, you can use figure editing softwares like Photoshop or PowerPoint. To create a map in Powerpoint:
   i. Insert your screen capture of the map into a blank slide.
   ii. Insert a textbox for the title and citation.
   iii. Write in a clear title based on data displayed, place shown, and year.
   iv. Insert the citation for the data used. To find this, click on the layer info icon on the legend of the activated layer.
   v. Insert the citation for UNBL.
   vi. Style as desired with font and coloration.

   See below for an example of a complete map with a proper title and citation.



6. *Optional:* Use your twitter to tweet the screenshot with hashtag #UNBiodiversityLab. Tag @NASAARSET, @unepwcmc, and/or @NBSAPForum for a chance to be featured!
7. Regardless of whether you post on social media, please submit your map to our experts at support@unbiodiversitylab.org with the subject "Homework Assignment: UNBL Advanced Lab 1". You must submit Assignment 2 by 11 May to receive your certificate.

❖ Need more help? Click here to view a demo (slide 2): EN | FR | SP

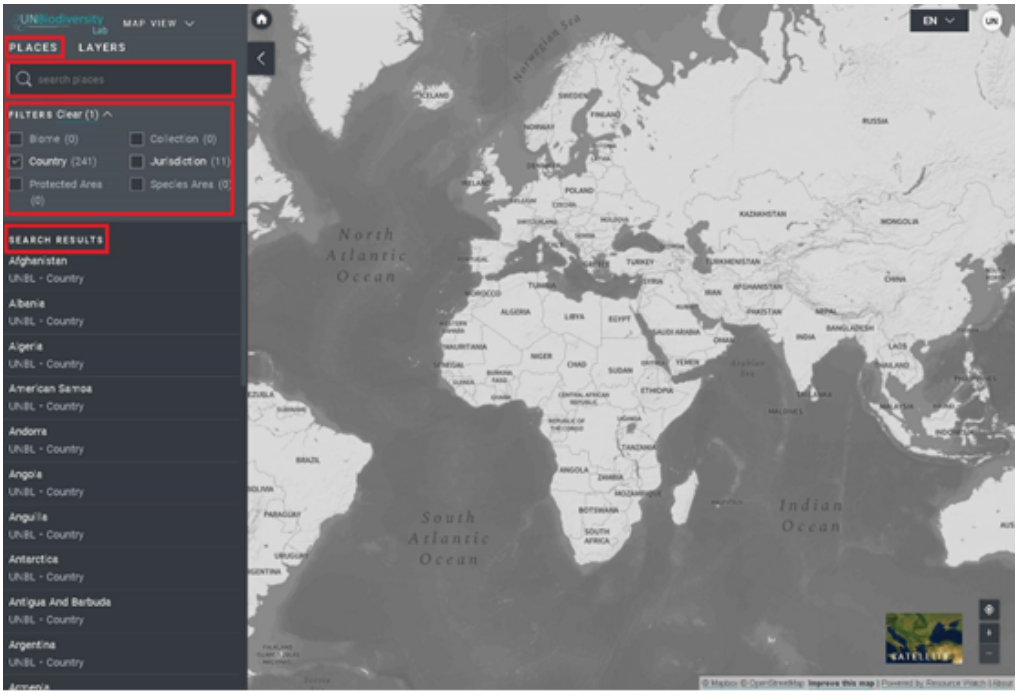
☐ Co-led Exercise 1: Use UN Biodiversity Lab to create a map of the World Database on Protected Areas and Forest Loss in your country

Background**:**

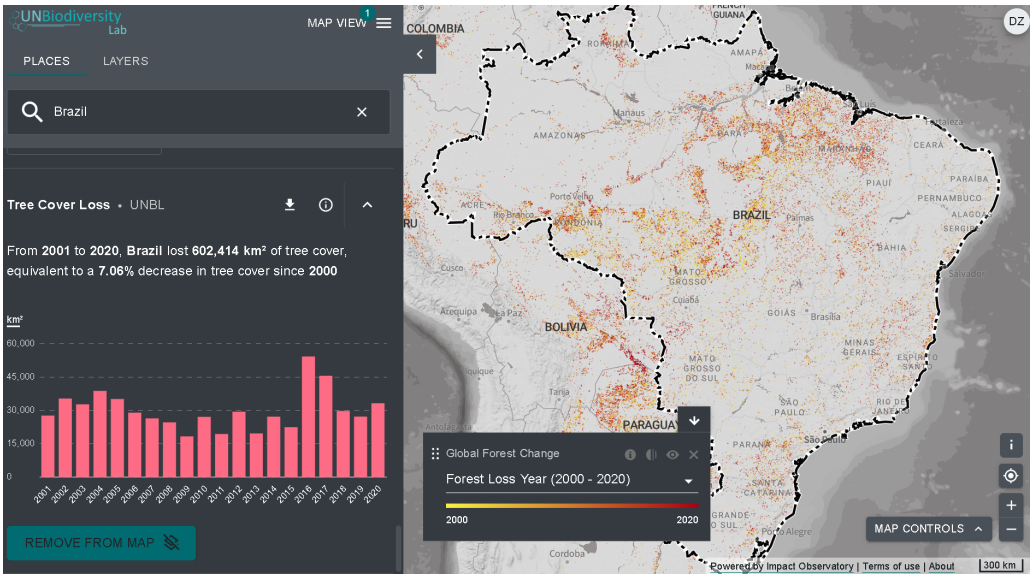
- ★ UNBL offers the ability to overlay multiple layers to help you generate insight for action.
- ★ In this exercise, we look at protected areas in your country and forest loss. Overlaying these two layers can provide initial insight into forest loss within protected areas in your country and help you to answer questions such as:
    - Why might these losses be occurring?
    - Are they the result of natural events, such as wildfire, or the result of illegal (or even legal, managed) logging?
    - How do these losses relate to the management of the protected area, and could (lack of appropriate) management and resources be contributing to them?
- ★ UNBL also offers the ability to clip raster layers of interest to your country and download them for use in desktop GIS, where allowed by the original data provider (*Note: this feature is currently being updated, and will be available again shortly*). It can also be used to directly access full global datasets from the original data provider.
- ★ The aim of this exercise is for you to practice finding places and layers of interest on the UNBL public platform, to learn how you can modify the mapview on UNBL, and to explore how to download layers of interest.
- ★ The exercise builds on your homework assignment and enables you to explore the different functionalities available on UNBL to style and customize the map, as well as to download geospatial data layers.
- ★ During the live session, our experts will walk through each of the steps with you. Please follow along using this sheet. Following the walk through, you will have time to complete the exercise on your own.

Instructions:

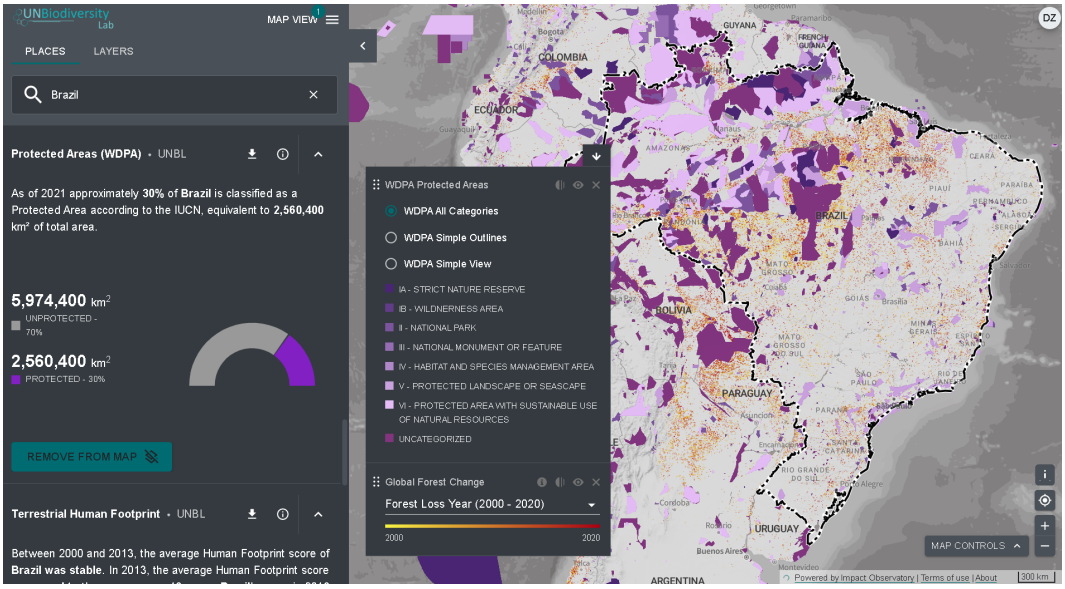
1. Find your country in “PLACES”, then click on the name of your country to zoom in.



2. View the dynamic metrics in the left panel, scroll down the dynamic metrics, select the option “Annual Accumulated Tree Cover Loss”, click on “SHOW ON MAP”.



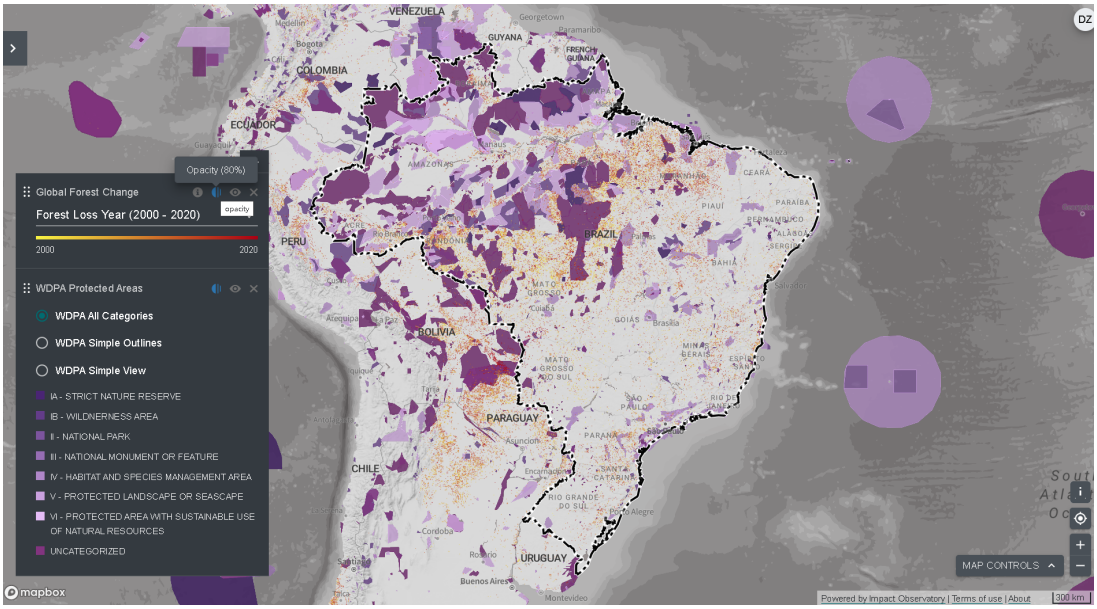
3. On the dynamic metric panel, find Protected Areas (WDPA) , then click on “SHOW ON MAP”. Alternatively, you can search the name of the above datasets in “LAYERS”.



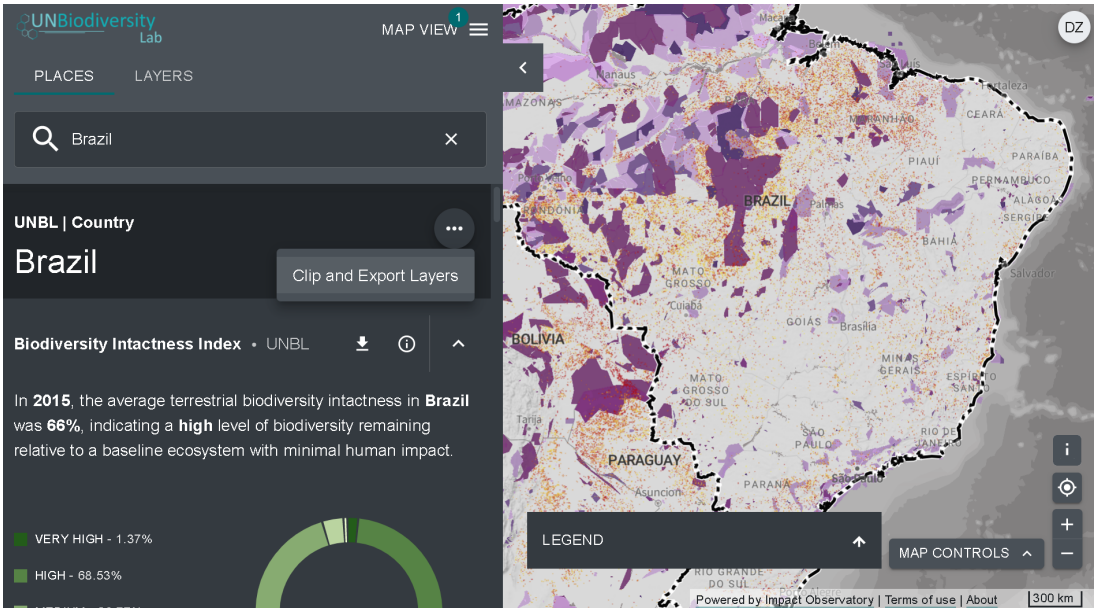
4. UNBL offers two different basemaps. The default is a greyscale basemap with country boundaries and names. The other option is a satellite basemap. Experiment with turning on the satellite basemap through the Map Controls bar at the bottom right of the screen.

5. Experiment with activating/deactivating place labels and roads.
    a. Labels: The labels show the name of the places, including countries, states, cities, and representative landmarks. Click the toggle on to activate labels, and click off to hide *(see above)*.
    b. Roads: Click on the toggle to show roads; toggle off to hide roads *(see above)*.

6. Experiment with changing the order of the layers. To do this, click on the dots icon on the left of the layer name in the legend and move the icon up or down, as preferred *(see below)*. The top layer on the legend will be the top layer on the map. We recommend placing the forest loss layer on top.
7. Experiment with changing the opacity of the layers. To do this, click on the circular icon *(see below)*. Reducing the opacity increases the transparency of the layer and can enable you to better view two or more layers at once. We recommend 80% opacity for the forest loss layer and 70% opacity for the WDPA.



8. *Optional:* Copy the URL of the mapview from your browser and share with us in the question and answer box!
9. Next, try to clip and export the forest loss layer to the range of your country. Registered users on UNBL are able to clip raster layers to an area of interest and download them for use in an offline GIS software. This function allows you to access the underlying data while avoiding the bandwidth and storage required to download and work with a global dataset. Note: *To access this function, please make sure you have signed-in UNBL with your registered account.* To clip the layer to your country and download:
    i. On the Places panel, click on the **...** icon on the right of the country's name, and click on Clip and Export Layers.



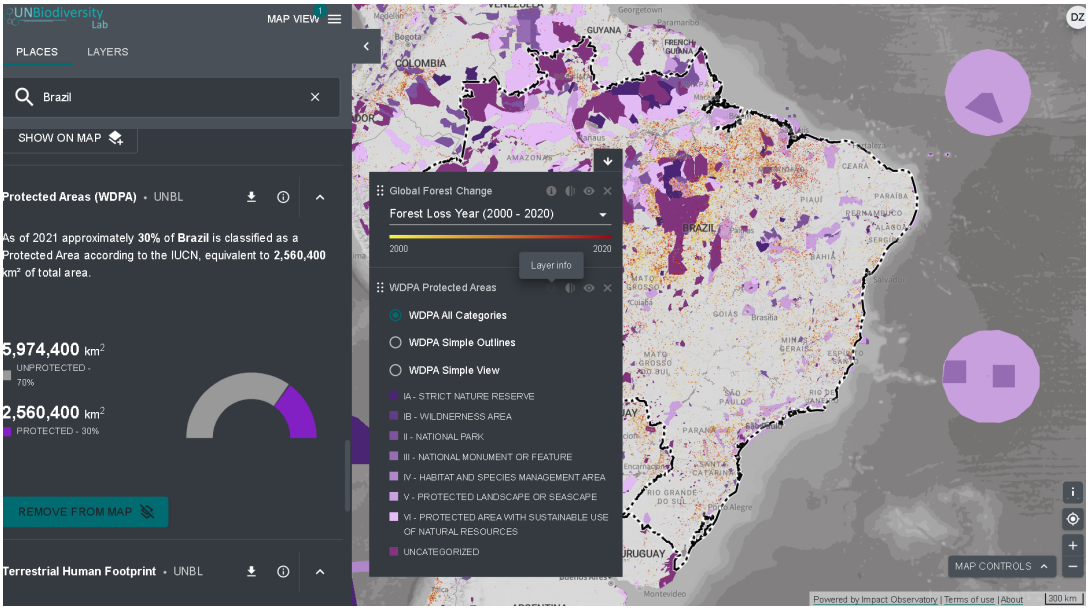
ii. Type the name “Global Forest Change” in the search box of the select layer for download. Since this dataset contains multiple layers, a second search box will appear. Click on the search box, and select “Forest Loss Year (2000 - 2020)” in the dropdown layers list.

iii. Select the file type you want to download, both GEOTIFF and PNG format are offered. Note: *currently we are updating the function of downloading raster in GEOTIFF format, by the time of this exercise, you may only see the PNG option. Don’t worry, the function will be available soon.*

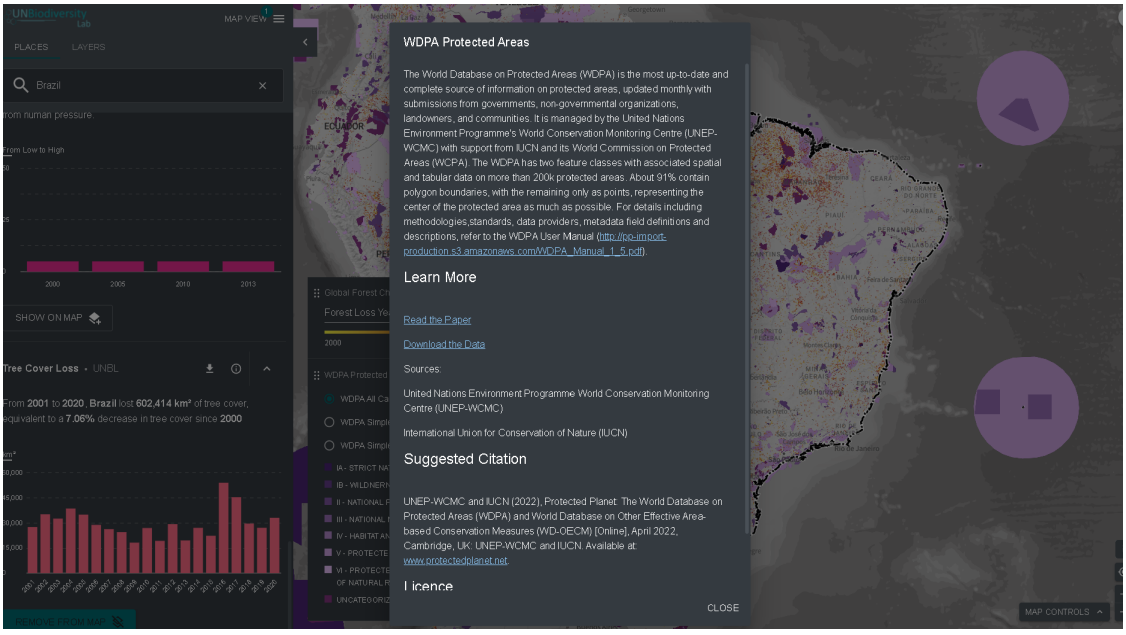
iv. Click download.

10. Download the Protected Areas (WDPA) layer at the global scale. If you are interested in downloading the entire global dataset, UNBL has provided the link to the original data provider in the data information page. *Note: This dataset is several gigabytes. If you do not wish to download it to your local computer, do not complete step iii.* To do this:

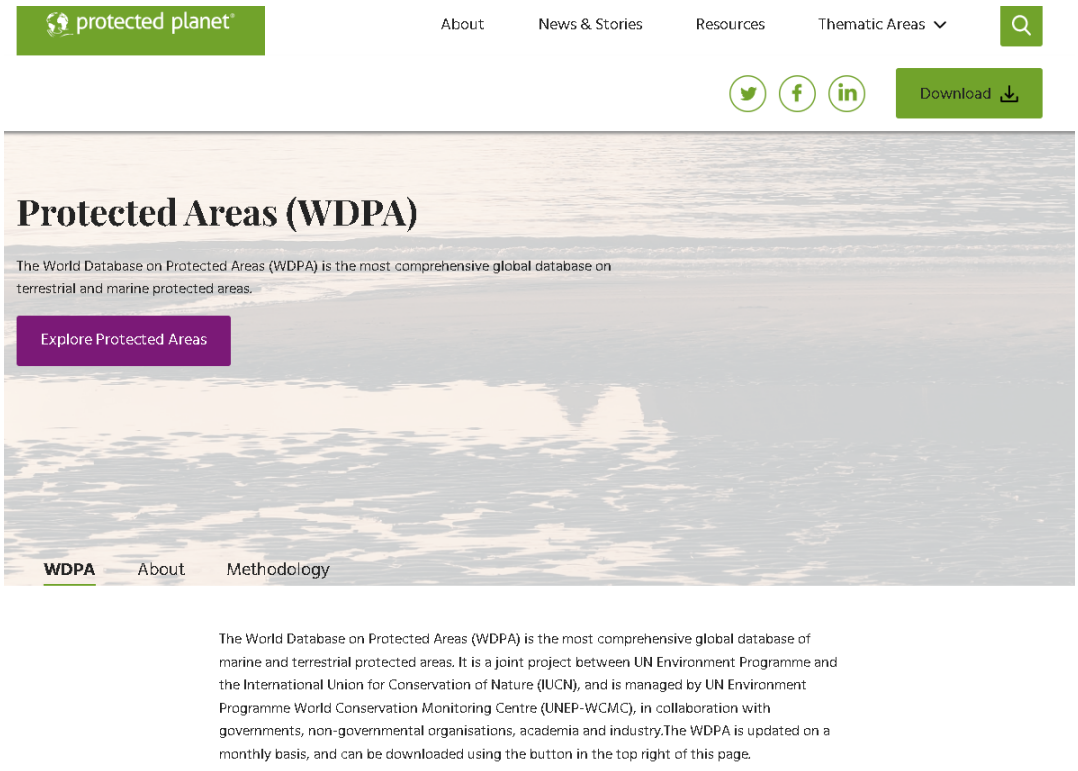
    i. Click on the layer info icon of the WDPA Protected Areas layer.



ii. Click on the link “Download the data” under LEARN MORE to download the data from its original source.



iii. Download the dataset from the source page.



❖ Still need help? We'll walk through this together in the live session. You can also click here to view a demo. EN (Slides 3-4) / FR (Slides 3-5) / SP (Slides 3-4)

☐ Co-led Exercise 2: View land cover and terrestrial biomes within your country and download the metrics data

Background:

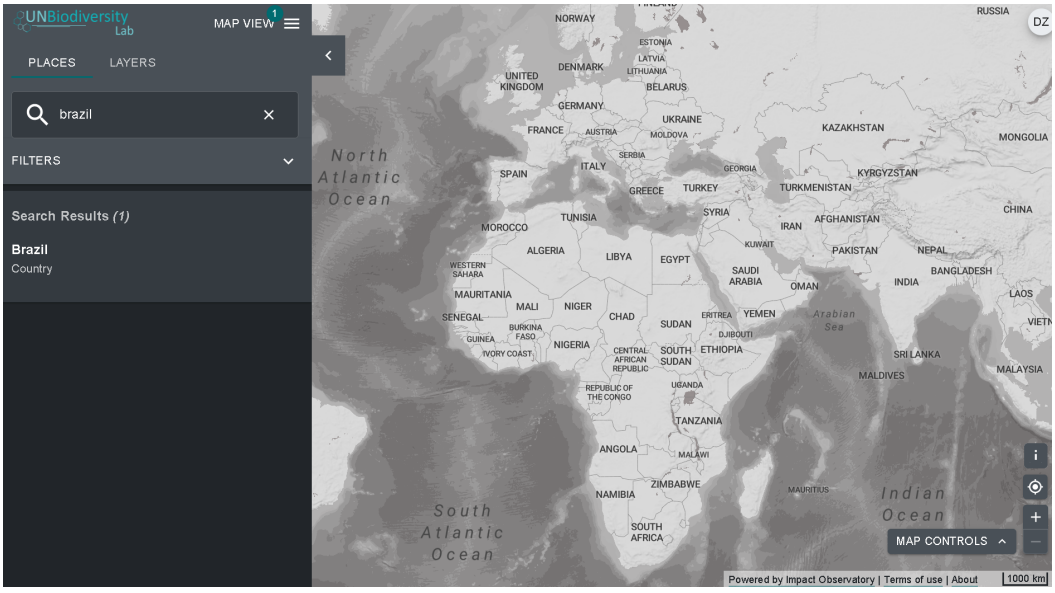
★ UNBL offers dynamic metrics based on the best available global spatial datasets. These metrics can be used to report on the state of nature and human development in your country. Available metrics include:

- Tree cover loss (2001-2020)
- Biodiversity intactness index (2015)
- Enhanced vegetation index (2000-2021)
- Global Land cover (ESA CCI Land Cover) (2020)
- Monthly Fire Activity (NASA MODIS) (2001-2020)
- Protected areas (WDPA) (2021)
- Terrestrial carbon density (2010)
- Terrestrial human footprint (2000 & 2013)

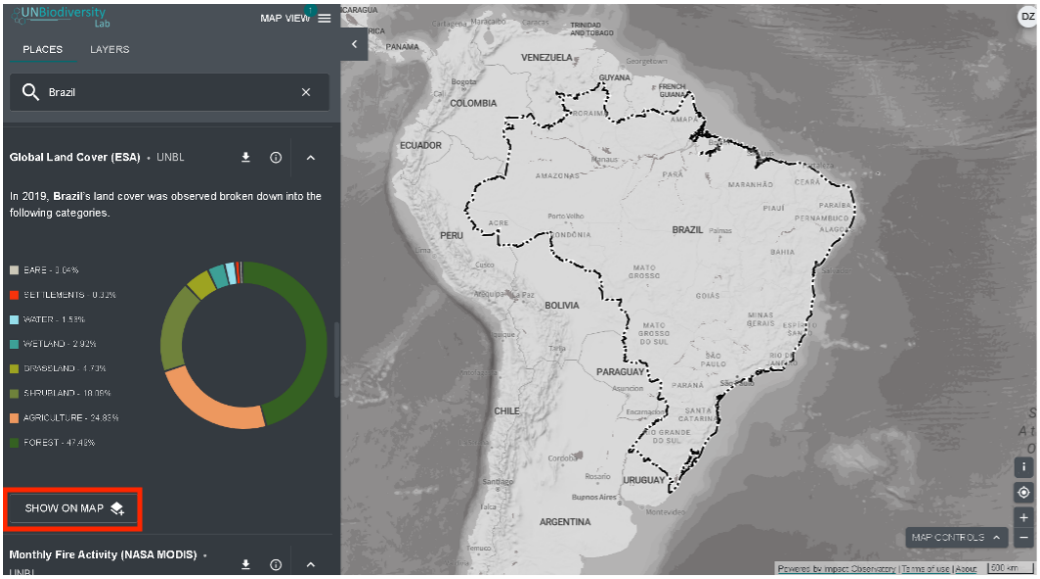
- ★ The summary data for the metrics can be downloaded as .csv or/and .json format. They can be used for further analysis, as well as in data tables in reports and communication products.
- ★ UNBL's dynamic metrics include various aggregations of raster datasets calculated for an area of interest (country, province, state, cross-border area, etc.).
- ★ The aim of this exercise is for you to practice accessing and calculating UNBL's dynamic metrics, to practice downloading metrics data tables, and to explore characteristics of vector layers on UNBL.
- ★ During the live session, our experts will walk through each of the steps with you. Please follow along using this sheet. Following the walk through, you will have time to complete the exercise on your own.

Instructions:

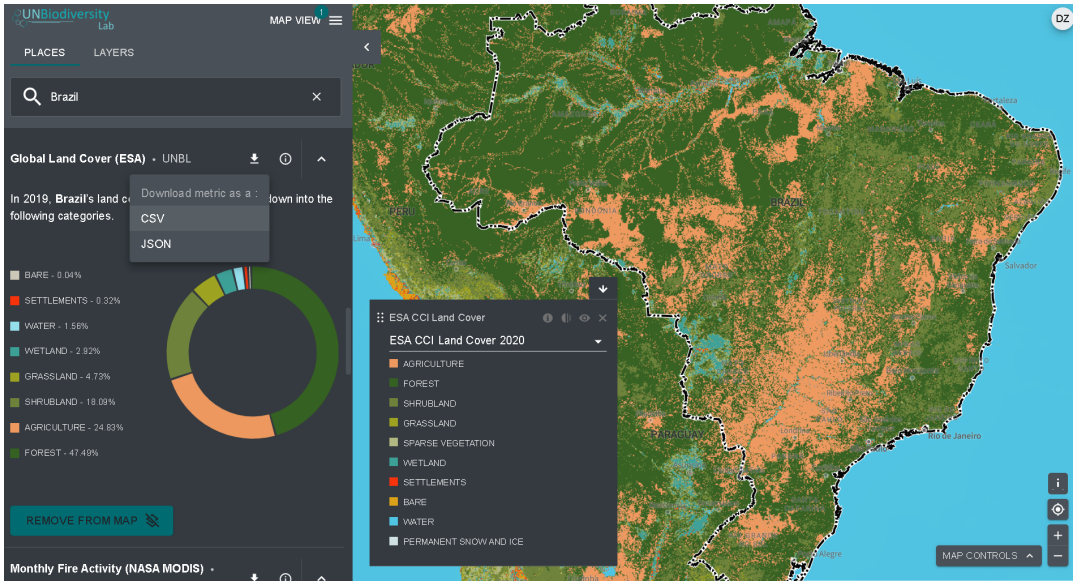
1. Find your country in "PLACES", then click on the name of your country to zoom in.



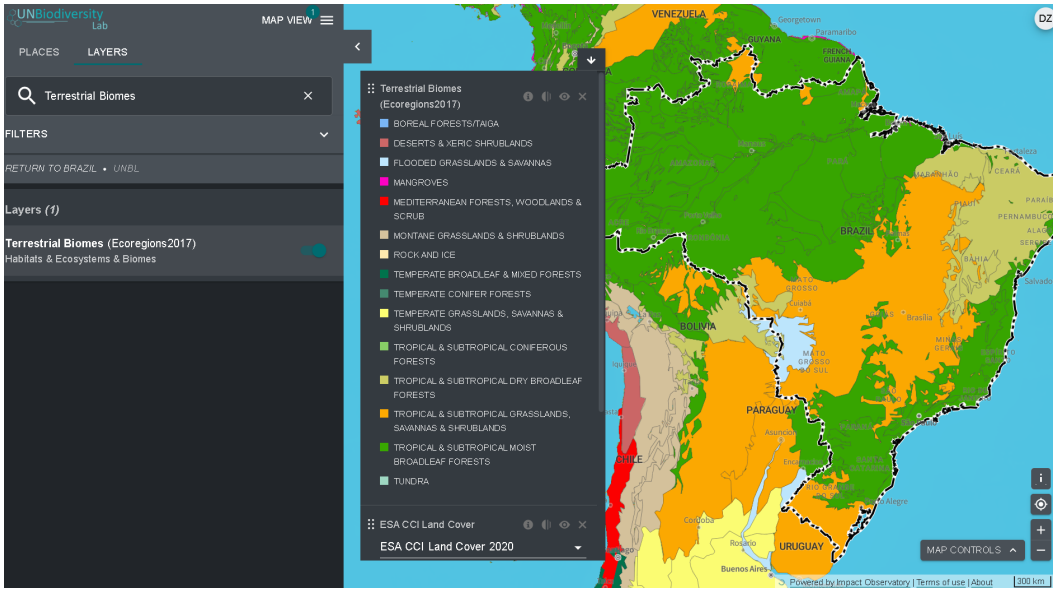
2. Scroll down the dynamic metrics at the left panel, find the **Global Land Cover (ESA)** then click on "SHOW ON MAP".



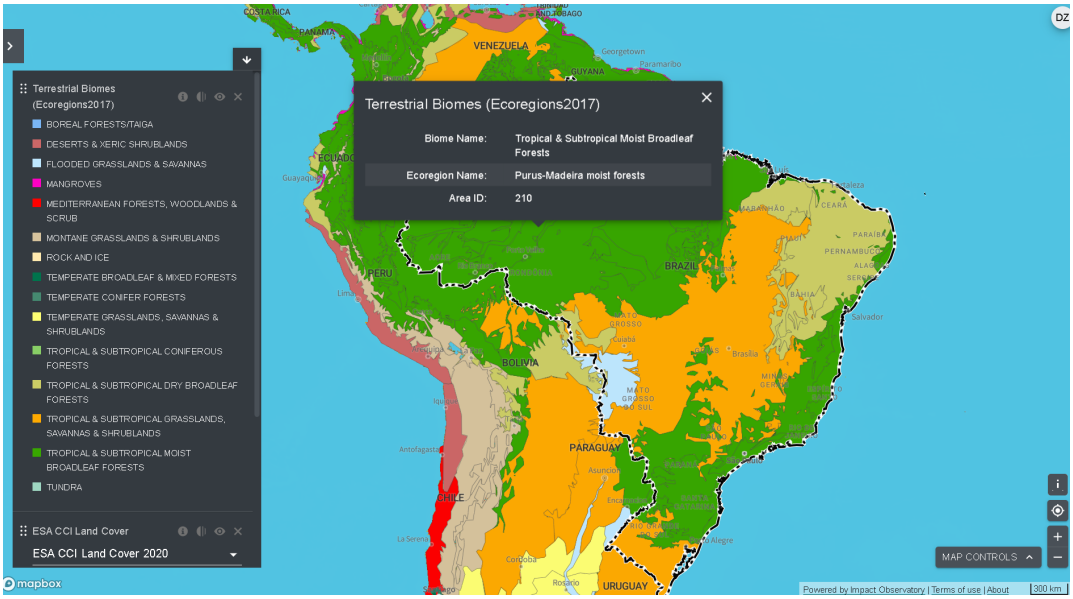
3. Review the calculated coverage of different land types in your country as visualized on UNBL. Next, click on the arrow icon  next to the layer name “Global Land Cover (ESA)”, and download the Global Land Cover metric data as a **.csv** file.



4. Open the .csv file using Excel, Numbers, or Google Sheets. Use the information in the .csv file, describe the forest cover and wetland cover in your country. Share this information with us and your fellow participants in the question and answer box.
5. Next, click on Layers at the top of the left panel. In the search box, search the “**Terrestrial Biomes (Ecoregions 2017)”** layer, then activate this to your mapview by clicking on the toggle bar at the right side of the layer name.



6. When you click on the polygons in different colors within your area of interest, an attribute table will pop up with the biome name. Describe the types of terrestrial biomes within your featured areas, and share in the question and answer box.



7. Think about how you could use this type of data and metrics to support your work. Share with our team and your fellow participants in the question and answer box.

❖ Still need help? We'll walk through this together in the live session. You can also click here to view a demo: EN (slide 5)| FR (slide 6) | SP (slide 5).

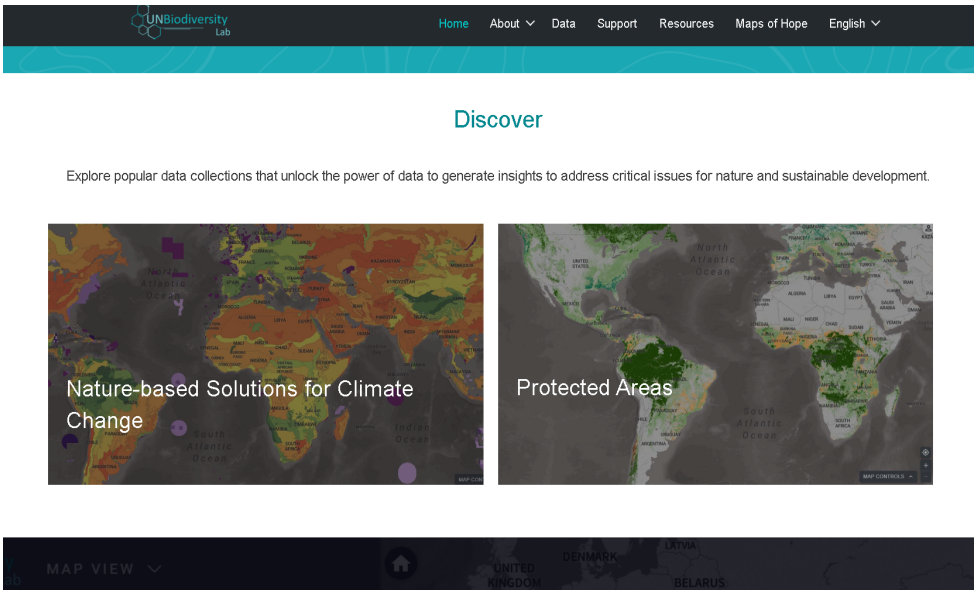
☐ Co-led Exercise 3: Explore the UNBL Protected Areas Data Collections and how it could be used for action in your country

Background:

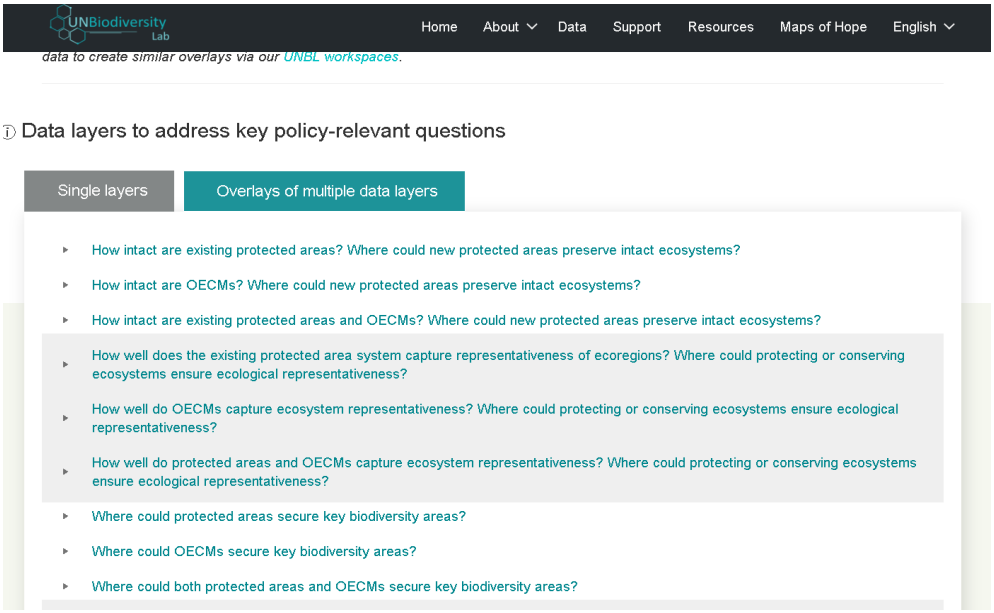
- ★ Our UNBL data collections bring together multiple data layers to unlock the power of data to generate insights to address critical issues for nature and sustainable development.
- ★ Through these data collections, we explore key policy questions for protected areas and nature-based solutions for climate change.
- ★ The aim of this exercise is to familiarize you with the resources available through Protected Areas Data Collection and explore its relevance for your country.
- ★ During the live session, our experts will walk through each of the steps with you. Please follow along using this sheet. Following the walk through, you will have time to complete the exercise on your own. We'll end the session with a chance to engage together on jamboard to discuss how these data could be used for action.

Instructions:

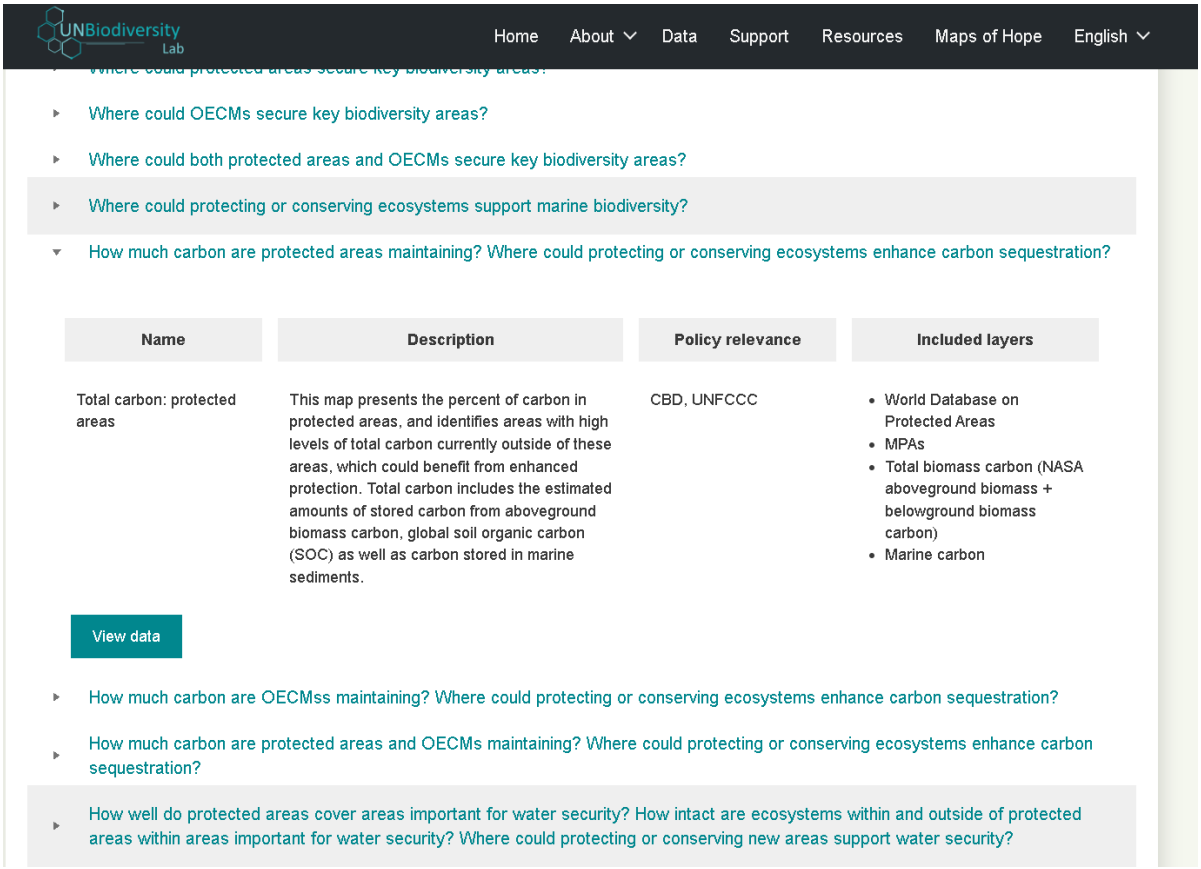
1. Navigate to the UNBL Protected Areas Data Collection.



2. Scroll down and click on "Overlays of multiple data layers" to expand the key policy-relevant questions.



3. View the layers relevant to this question: “How much carbon are protected areas maintaining? Where could protecting or conserving ecosystems enhance carbon sequestration?”
4. Click on “View data” to load the layers to mapview.



5. Click on “Places” and find your country.

6. Please share your thoughts on our jamboard (ENG | FR | SP) for the following questions:
    a. How much carbon are Protected Areas maintaining in your country?
    b. What is useful in this map? What other information would you need to guide action? Is there any national data available to answer this question?

❖ Still need help? We'll walk through this together in the live session. You can also click here to view a demo: EN (slide 6) | FR (slide 7) | SP (slide 6).

Thank you for participating in our Advanced Lab 1 on the public platform UN Biodiversity Lab! Please don't hesitate to reach out to our lead trainers for further questions following the session at di.zhang@undp.org and osgur.mcdermott-long@unep-wcmc.org.

Don't Forget! You must submit your Homework Assignment 2 by 11 May to be eligible for your certificate.

Additional Resources on UNBL:

- **Using UN Biodiversity Lab to Monitor the Pulse of the Planet: NASA ARSET Course Page:** EN | FR | SP
- **Public platform guidance:**
    - Online user guide | FAQs
    - Downloadable guidance: EN | FR | SP | PT | RU
- **UNBL workspace guidance:** EN | FR |SP | PT | RU
- **UNBL workspace application page:** EN | FR | SP
- **Learning for Nature Microcourse:** EN | FR | SP
- **UNBL @ UNEA-5.2: Exploring UNBL data providers and use cases:** EN | SP