QUESTIONS & ANSWERS

GENERAL

Q: Which app is good for wildlife species population counting?
A: Counting specific species is challenging with remote sensing data. However, satellite data can be used in conjunction with ground based data for species habitat monitoring. Data from Landsat and MODIS for example can be used to examine vegetation health or phenology with indices like the Normalized Difference Vegetation Index (NDVI). Landsat can be used to also create land cover maps, with specific land cover types that might be related to certain species of interest. You can also look at things like change over time or forest degradation, which can modify when and where certain species occur. We also have an ARSET training on species distribution modeling with much more information on this topic: https://appliedsciences.nasa.gov/join-mission/training/english/arset-species-distribution-modeling-remote-sensing

Q: Which is an optimized app that could be used for ongoing measurement of regrowth of trees and vegetation?
A: It can be challenging to use optical remote sensing data for monitoring specific trees. However, Synthetic Aperture Radar or SAR data can be used for these purposes. Using SAR data, you can calculate things like Forest Stand Height for example. We have a previous ARSET training on using SAR data for forest monitoring, with GEE codes available too: https://appliedsciences.nasa.gov/join-mission/training/english/arset-forest-mapping-and-monitoring-sar-data

Q: Regarding UNBL layers, where does the word "slug" come from?
A: It is a standard technical terminology and not one specific to UNBL. It is a unique identifier.

Q: I would like to know, is the use of the data from these sensors free?
A: Speaking about the UN Biodiversity Lab - all the data available on the public platform as well as on the private workspaces are free to access. We believe that cost is a barrier to the use of space data, and the goal of the UNBL is to give you easy access to data that can help you improve the planning, implementation and reporting process for environmental, climate-related, or sustainable development policies.

Also, all NASA data is freely available and can be downloaded from several different platforms such as EarthExplorer and others.

Q: Is there any documentation on the platform that describes how the different indices were calculated for the different subjects published?
A: When looking at the dynamic metrics. It is possible to click on the information tab to understand a little more about the data included and the method of calculation.

Q: Does UNBL have offices in other countries? How does the recruitment process work if someone wants to join the research and development team, for example?
A: UNBL is created through a partnership between the UN Development Programme, UN Environment Programme, UN Environment Programme World Conservation Monitoring Center, and Secretariat of the Convention on Biological Diversity. All UNBL staff work for one of these organizations. However, if you are interested in our work, we do occasionally have internship or consultancy opportunities. Please send your CV to support@unbiodiversitylab.org and we can keep you in mind if we have upcoming opportunities.

Q: What is a blue zone?
A: These are geographic areas that attract attention for being home to very long-lived populations and, therefore, with a good quality of life. There are 5 blue zones in the world. They are places that concentrate populations with ages above ninety and one hundred years. "There are factors that coincide in such populations such as good physical and mental health, healthy food tradition, respect for family togetherness, strong faith and spirituality, constant mobility and a purpose in life." To read more: https://www.visitcostarica.com/es/costa-rica/blog/¿qué-es-una-zona-azul

Q: What factors are evaluated to decide where to restore? Does it include at-risk areas?
A: The identification of priority restoration areas is based on an optimization that takes into account several factors:
- Areas in the country where restoration could be possible. This is based on national definitions of restoration, and generally excluded areas with extremely high or extremely low human pressure, urban areas, and agricultural areas.
- The weights given to datasets that map various national priorities related to climate change adaptation. In the case of Costa Rica, these were primarily national datasets that were used to map values related to biodiversity, climate change adaptation, and human well being.
- The estimated impact of restoration towards achieving the national policy priorities.

For more information on the approaches used in ELSA, explore our [brochure](#) and [webpage](#)

Q: Good afternoon, I am from Parana, Argentina and the Guarani aquifer is located on this territory, is information about this included?
A: We do not currently have data on subterranean water supply and aquifers. This is something we will look into!

Q: Is the UN Biodiversity Lab manual also available in Spanish? could you share it?
A: Yes, we do. You can find the UNBL public platform guide here ([online](#) | [downloadable](#)). We also have a guide to [UNBL workspaces](#).

UNBL PLATFORM

Q: How can a country add their own data to the UN Biodiversity Lab platform?
A: Our UN Biodiversity Lab UNBL workspaces offer users the ability to upload data to a secure, password-protected data repository, visualize them in combination with our global data layers, invite colleagues to collaborate, and calculate dynamic indicators for a subnational or transboundary area of interest. You can learn more and apply for our workspaces [here](#). We'll also be covering this in much more detail in Session 3 of the Intermediate Course and our Advanced Lab 2.

Q: Can I identify vegetation species from my specific area of interest? Can I calculate the carbon stored in above and below ground vegetation of my area of interest?
A: UNBL hosts an above and below ground carbon layer and metric which can be used to identify the carbon stored for an area of interest. You can see this visualized for Colombia [here](#). UNBL's dynamic metrics include various aggregations of raster datasets calculated for an area of interest (country, province, state, cross-border area, etc.) and displayed on the map view. 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.

The carbon metric might be used in conjunction with land cover layers to understand the ecological vegetation types that may be contributing to these carbon values.

Q: As an Environmental preservation NGO in France, can we upload very high spatial resolution maps (0.5 m), perform our analysis and publish publicly the results as a link to our website?

A: The best option would be to request the creation of a [UNBL workspace](#) on the platform, where you could grant access to users that you work. From there, you will be able to upload your data. We have not dealt with this type of extremely high-resolution data previously, so our technical team would discuss with you to understand the total file size and if there would be a cap.

At this point, the only layers we display on the UNBL Public Platform are those that have been screened by our UNBL data team against our [data criteria](#). However, you would be able to view this as part of your workspace.

Q: Can one clip and download data for a specific area of interest, or do all analyses have to be done through the UNBL interface?

A: UNBL 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. You will be introduced to this during Session 2 of our Intermediate Training and Advanced Lab 1.

Further information can be found on our [Support](#) page, or in our [UNBL Public Platform User Guide](#).

Q: Regarding the dynamic metrics: are they meant to be used as coarse indicators, or what is the level of detail possible? Is it possible to input finer scale indicators (from projects/interventions on the ground)?

A: Standard metrics and analysis are provided for a number of key global datasets on UNBL and calculated for all of the provided countries and jurisdictions globally, as well as custom places created by users in their UNBL workspaces. On-the-fly analyses and custom metric creation are currently under development. The ambition is for users to be able to swap in and out their preferred dataset so metrics will be as detailed as the input data.

Q: I think we cannot talk about biodiversity without talking about species richness. How can we use the lab to calculate species richness of a particular location in a country?

A: We agree. We have several data layers related to species richness on the public platform and we invite you to have a look at available data, focusing on a specific location of interest. Please take a look at [Threatened Species Richness](#) and Species Richness. We also would be happy to support you to undertake a specific analysis -- reach out to us at support@unbiodiversitylab.org.

Q: In addition to searching country by country to generate country-specific stats, can users do batch downloads, i.e., a spreadsheet with summary stats of multiple countries (or every country in the world).
A: Yes, this is possible for registered UNBL users with a workspace (admin, owners access). Workspace owners and admin users can create the collections of places in their workspaces and view the metrics summary for your entire collection. In addition to viewing on UNBL, you can also download a summary table for the metric in .csv or .json formats.

We will explore downloading metrics data as a .csv or .json in our Advanced Lab 1 next week.

Q: Is there a server to include in GIS software?
A: I'm not sure I understand this question completely but I will make a guess at assuming it means 'do we offer web services to access data that we host on UNBL'? UNBL is not a data producer -- we rely on our extensive partnership with our data providers to share the data you see on the platform. Therefore, at this point we are not able to push data directly from the platform. We link back to the source of the data where possible.

Q: Is it possible to insert your own polygon for calculating dynamic metrics?
A: Yes, we offer the ability to upload polygons for areas of interest in our [UNBL workspaces](#). This area of interest can then be used for calculating the dynamic metrics. We will explore this further in Part 3 of our Intermediate Training on 28 April, and in our Advanced Lab 1 on 4 May.

Q: Can you add a report from an NGO as a point file to any given layer?
A: This functionality is not currently available. We would love to understand further what you would like to see here so we are aware of user needs as we look towards further development.

Q: Is it possible to upload our own polygon (which can represent district) in the UNBL to perform zonal statistics on the layers (ex: global intactness index)?
A: Yes, you are able to upload your own places of interest through a UNBL workspace. You can then calculate any of the dynamic metrics available on the public platform within these places. Our current list of dynamic metrics include:
- Tree cover loss (2000-2020)
- Biodiversity intactness index (2015)
- Enhanced vegetation index (2000-2020)
- Global land cover (2015)
- Monthly fire activity (2001-2020)
- Protected areas (2021)
- Terrestrial carbon density (2010)
- Terrestrial human footprint (2013)

We hope to add additional metrics in the future, including those relevant to the post-20202 global biodiversity framework as well as a general metric calculation for any of our available layers.

Q: Can different users maintain workspaces for the same locations of a country?
A: Users are not limited by the actions of another user. If a user uploads a place into their workspace it does not matter if another user has uploaded the exact same place. It will be considered a completely separate place which is specific for your use and management in your workspace.

Q: Is there a way to get locations, like cities on a map, without uploading a data? That is, after I zoom to a place [a country], how can I see "major cities" on my map?
A: You can zoom in the basemap on the public platform to view the cities. At present we do not offer cities as places, meaning they are not able to click and automatically calculate dynamic metrics. We do offer sub-national administrative units in addition to national boundaries.

This would be something that you would need to upload as part of your workspace or alternatively you could suggest it as a layer to be included on UNBL. To suggest new datasets, please submit via this form.

Q: Do viewers, editors, and admin need to have a workspace to be in the owner's workspace, or do they just need to be registered?

A: They need to be registered on UNBL, and then the owner needs to add them to the workspace with the email address they used to register. Di demonstrated this during the presentation, and you can also see an easy set of steps in the **UNBL workspace guidance**: EN | FR | SP | PT | RU .

Q: Can we do multi criteria site suitability kind of spatial analysis on the fly here with different raster spatial resolutions?
A: We are limited to the current dynamic metrics. Look for the ability to create your own widgets. You can clip and download the raster data and perform data analysis in a GIS.

Q: Can we add for example Niger?
A: Yes you can add your own boundaries for Niger but it is also worth noting that we offer national boundaries already within UNBL.

Q: It would be interesting to have CO2 data visible on the platform at the highest possible resolution. One question: Is it possible to download the layers from the UN Biodiversity Lab?
A: UNBL offers the ability to clip raster layers of interest to your country and download them for use in the GIS desktop if this is allowed by the original data provider (Note: this feature is currently being upgraded and will be available again shortly). It can also be used to directly access complete global datasets from the original data provider. You will be introduced to this during Advanced Lab 1. More information can be found on our Support page, or in our UNBL Public Platform User Guide.

Regarding CO2 data, we have usually stayed away from some climate scenario data, as they are very large. However, we would like you to let us know what data you would like to see in the UNBL in the future. Please fill in this form.

Q: How many accounts can share the same secure space in UNBL?
There is no limit on the number of accounts that can be added to a workspace. The only requirement is that users must be registered on UNBL before they can be added to a workspace.

Q: Is it possible to visualize/include the coordinates in the maps?
A: Currently it is not possible to return the coordinates of your/your mouse's position on the map.

WEB DEVELOPMENT AND IT

Q: Could you provide further details on the integration and the API functionalities? Is it possible to access UNBL data with programmatic languages such as Python or R? Does UNBL provide Cloud computing functionalities?
A: Our API integration at this point focuses on supporting the creation of a digital infrastructure to share biodiversity and sustainable development data. Within a UNBL workspace, you can connect to your existing GIS repository, or upload your data directly to our repository. We currently support connections via Google Earth Engine (GEE), Carto, Azure (*coming soon*). We are exploring connections to ESRI hosted service. Access to languages, UNBL is more linking to the data. We do have cloud storage and computing.

UNBL is not a data producer -- we rely on our extensive partnership with our data providers to share the data you see on the platform. Therefore, at this point we are not able to push data directly from the platform.

UNBL is run on the cloud, and offers cloud storage for users via our GIS repository and cloud computing for the metrics available on the platform.

Q: Which projection and coordinate system do you use for the geojson?
A: Please make sure your geojson file is in EPSG 4326 (WGS84). This is the same for places and layers to be added to your workspace.

Q: If you try to upload a spatial layer with multiple features, do you get a warning that explains why your spatial layer will not load up? Likewise, if you upload a shapefile (or other), do you get a warning that it is not a geoJSON file?
A: You are still able to upload multiple features, but when viewing this place the attributes won't be accessible, and the zonal statistics is calculated for the whole instead of per polygon. Currently only geoJSON is supported for places.
If you'd like to view your vector data while keeping attributes on the mapview (when clicking on each polygon, the attribute table can pop up), we suggest pulling the data as a layer to your workspace. This can be multiple formats depending on the cloud data repository you are using.
More instructions on uploading places to your UNBL workspaces below:

- **For Vector Data, Please Make Sure:**

- Each location shape is a **single-feature polygon or single-feature multipolygon file**. Please no multi-feature vector files containing multiple locations; each location must be exported to its own file
- Data for each feature is the highest resolution possible while staying **under 2MB in size**. To greatly enhance performance, file sizes under 1 MB are highly recommended
- File format is in **geojson (.geojson)** . ESRI shapefiles and other vector formats can be converted using [QGIS](#), [ArcGIS Pro](#), [ArcGIS desktop](#), or [command line operations](#). We recommend limiting file accuracy to **no more than 6 decimal places** (accuracy up to 0.11 m). If you do not simplify your geojson to this degree, the UNBL support team may do it for you.
- CRS is in **EPSG 4326 (WGS84)**
- Data **only contains latitude/longitude (x/y)** information, **no height (z)** information is supported at this time
- **No feature covers more than 1,000,000 sq km and/or has more than 1,000,000 vertices**

Q: Is there a document that explains how to write a config file?
A: Yes, the **UNBL workspace guidance** explains how to write a config file. The guidance is available in: [EN](#) | [FR](#) | [SP](#) | [PT](#) | [RU](#)

Q: Are there plans to allow ARC (ESRI) users to upload their Rasters?
A: Yes, this is something that we are in the process of implementing. We are also hoping to be able to link to ESRI web services. Currently we support links to existing raster and vector layers you already have stored in GEE, Carto, Planetary Computer, and several other cloud locations. You can also upload your data layers directly into the UNBL GIS data repository on Azure and have them available in your UNBL workspace.

Q: I tried to upload a .geojson file of my country but apparently the file size was too big. Is there a way around this?
A: We currently have limitations on the upload size. We would be interested in working this through with you to see if we can help. It would be great if you could reach out to di.zhang@undp.org to explore further.

Q: How does UNBL deal with rasters that have different cell size (resolution)? Or do we need to control all rasters with the same resolution?
A: Rasters do not need to have the same resolution to be visualized on UNBL. For example, on the public platform, we have resolution sizes that vary from 10m to 10km.

The only restriction is that the raster file is preferred to be less than 1GB and below 2,147,483,648 pixels.

UNBL metrics only deal with single layers, so there is no need for rasters to be the same resolution to conduct our calculations.

Q: Is there a plan to allow files like Geopackage files to upload their rasters? In terms of making UNBL accessible to people from all over the world, this seems more important.
A: Agreed, we have been highlighting the ESRI solutions, but we are looking for opp to improve and one is a different file types for people to work with.

Q: Can various spatial analysis be accomplished using rasters of different resolutions or is it just allowing viewing?
A: At this point, you can only calculate metrics for the 8 indicators we offer through the platform. These include:
- Tree cover loss (2000-2020)
- Biodiversity intactness index (2015)
- Enhanced vegetation index (2000-2020)
- Global land cover (2015)
- Monthly fire activity (2001-2020)
- Protected areas (2021)
- Terrestrial carbon density (2010)
- Terrestrial human footprint (2013)

We offer the ability to automatically calculate these for any *shapes* that you upload to your workspace. However, you cannot at this point conduct further analyses with layers that you upload (e.g., intersection analysis). This is a functionality that we would like to make available in the future.

Q: What is the spatial resolution of the raster coverages?
A: The scale is specific to the dataset of interest. The UNBL hosts some raster datasets that have a scale as fine as 10m for some land cover layers. In general, many datasets are derived from NASA Landsat data and are therefore 30m.
Other vector datasets, such as the World Database on Protected Areas (WDPA), which is composed of nationally derived protected area polygons, can be used at a global scale in combination with national protected areas elsewhere. The boundary accuracy

of the WDPA (and datasets like this one) can differ from provider to provider and location to location, making it more difficult to apply scale to such a dataset.

Q: What is the output scale or pixel scale of the maps shown in the ADAPT project?
A: It is impossible to know the scale before knowing the size of the map viewing window, so the scale is relative to any display case, i.e., the screen size and zoom level (if viewed on some device screen), or the size of the map on paper if printed. There are three methods of scaling on maps that work dynamically. One at the bottom that indicates the current scale in kilometers (looking at the positive side, for the whole Kraljevo a section is 5 km, and for Gledic a section is 1 km, the negative side is half), the one in the frame of each map (indicates the distance from the base of the x and y axes for UTM34N projection, in meters, and of course the length of each section, it is 10 km for Kraljevo maps per section), and the third is the cartographic grid presenter with crosses over the maps following the scale measurement in the frame. One can easily calculate the scale in the current map view using the ruler, for example, in any of those three scale methods.

DATA

Q: How do you validate the data layers for accuracy?
A: UNDP, UNEP, and UNEP-WCMC have adopted criteria to assist in identifying and curating the best available data layers in order to enable more streamlined and standardized analyses and reporting. These selection criteria will place data into one of three tiers, and consider aspects like relevance to policy- and decision-making, accessibility, transparency, and geographic coverage. This tiered system is intended solely to assist in the development and implementation of global datasets that are fit-for-purpose in supporting progress toward the 2030 Sustainable Development Agenda, the emerging targets of the post-2020 global biodiversity framework and related global targets. The proposed criteria can be viewed [here](#). We welcome feedback on these criteria to help inform their development and the accompanying methodology. Please send any input to lauren.weatherdon@unep-wcmc.org.

We are always looking to improve our data. If you are experiencing issues with a dataset or believe it is outdated or inaccurate, please contact our team (support@unbiodiversitylab.org). To suggest new datasets, please submit via [this form](#).

Q: How often is spatial data updated?

A: This is very much dependent on the dataset of interest. Where possible though, UNBL links directly to the source of the data, so a dataset is updated as the data provider updates it. Information regarding when a dataset was last updated can be found in the associated metadata on the site. One of our [proposed data criteria](#) is to assess data available based on its update frequency.

Q: What is the map scale of spatial data provided by UNBL?
A: The scale is specific to the dataset of interest. UNBL does host some raster datasets that are as fine scale as 10m in the case of some Land Cover layers. In general, many datasets are derived from NASA Landsat data and are therefore 30m.
Other vector datasets such as the World Database on Protected Areas (WDPA), which is composed of nationally derived polygons of protected areas, can be used at a global scale in combination with national protected areas from other locations. The accuracy of the WDPA boundaries (and datasets like this) may differ from provider to provider and location to location so it's more difficult to apply scale to a dataset of this type.

Q: How do I download data to prepare maps for analysis in a GIS Platform?
A: UNBL 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. You will be introduced to this during Session 2 of our Intermediate Training and Advanced Lab 1.

Further information can be found on our [Support](#) page, or in our [UNBL Public Platform User Guide](#).

Q: Will it be possible to drill down into provincial or county data per country?
A: Yes, this is possible. We provide subnational regions for countries. In addition to this, when a preferred region is not available, it is possible for a user to upload the boundaries of their area of interest to a [UNBL workspace](#). We will explore this in Session 3 of our Intermediate Training and Advanced Lab 2.

Q: All case studies and data layers seemed to focus on terrestrial examples, could you expand on limitations / opportunities of the UNBL for marine environments?
A: Absolutely! The UN Biodiversity Lab already has several important marine datasets. There is a 'marine' filter that currently directs you to 26 marine-related data layers, such as Global Fishing Watch, Global Surface Water layers, and various layers on marine

and coastal habitats. These can certainly be used to undertake any analysis you're interested in, similarly to what colleagues presented on terrestrial areas. We also welcome suggestions for new global marine-related layers of interest, as we appreciate this is a quickly evolving space. You can contact our team support@unbiodiversitylab.org) or suggest new datasets via this form.

Q: As an Integrated Pest Management specialist and Biodiversity Conservationist, will the access to this dataset help in getting information on movement of invasive pests, developing proposals on restoring depleted savannah areas? can we also have access to this Earth Observatory satellite data despite coming from developing countries?
A: Everyone can access the UNBL public platform, no matter where you are based - so, yes! It is important for us to offer the opportunity to anyone to unleash the potential of spatial data.

For the specific questions on invasive pests and depleted savannah, unfortunately at present we don't have this level of granularity in terms of being able to identify species movement (at the global scale). We are always looking to improve our data holdings. To suggest new datasets, please submit via this form. If you are experiencing issues with a dataset or believe it is outdated or inaccurate, please contact our team (support@unbiodiversitylab.org).

Q: What is the equation for the biodiversity intactness metric?
A: The Biodiversity Intactness Index shows the modelled average abundance of originally-present species in a grid cell, as a percentage, relative to their abundance in an intact ecosystem. Originally available for the year 2015, the data is now available in a time series covering the period 2000-2015. On UNBL, we provide a bi-decade subset of the index. For the full documentation, please see the source methodology.

Q: Is the Biodiversity Intactness data from the Newbold et al 2016 paper, or has it been subsequently updated?
A: This dataset is still data from the Newbold paper as you highlighted here. The full citation is as follows: 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.

Q: Any forestry, mining and agriculture expansion data by 2030? I downloaded the urban expansion data but couldn't find the others - if they are available.
A: Currently I don't believe we host projections of the expansion of these data types. We currently have the Crop Suitability and Crop Suitability Change layers as proxy for agricultural expansion. These layers showcase change in general agricultural suitability between 1981–2010 and 2071–2100 at a spatial resolution of 30 arc-second (~1km), considering rainfed conditions and irrigation on currently irrigated areas.

We are always looking to improve our data. If you are experiencing issues with a dataset or believe it is outdated or inaccurate, please contact our team (support@unbiodiversitylab.org). To suggest new datasets, please submit via this form.

Q: Right now only a few of the data can be calculated as country-level summaries. Will we be able to get country-level summaries of other data eventually?
A: We currently offer eight representative indexes for dynamic metrics. In the future, we would like to expand these metrics to be available for specific uses -- such as reporting on global headline indicators for the post-2020 of the Convention on Biological Diversity or on the Sustainable Development Goals. We also hope to offer customizable data metrics as one of the workspace functions in the future.

Q: On the topic of biodiversity intactness index, the PREDICTS database of the Natural History Museum (London) also allows us to download spatial data and country aggregates for this index. Is that the same dataset as on UNBL? The Natural History Museum dataset seems to have been more recently updated - is that correct?
A: I believe that is correct, there has been a 2019 update. They have updated methods previously used to estimate BII globally (Newbold et al., 2016) to allow pressure effects to differ between islands and mainlands, while also implementing some other recent improvements in modeling. Currently we do not host this updated layer but to suggest it as a new dataset, please submit it via this form.

Q: How is the below ground carbon data obtained and what does it include? Does it include all carbon stocks, namely fungi?
A: These data are available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

Belowground living biomass carbon stock density of combined woody and herbaceous cover in 2010. This includes carbon stored in living plant tissues that are located below the earth's surface (roots). This does not include dead and/or dislocated root tissue, nor does it include soil organic matter. Here's the link to download the data from the NASA DAAC: Earthdata Search (nasa.gov).

Q: Do any of the global data layers also show where there are likely significant gaps in the data?
A: No. Currently to our knowledge there aren't any datasets that are highlighting this. At this stage it is a case of understanding the dataset that you are using in your analysis, and knowing and acknowledging the limitations of the dataset.

Q: Would it be possible to integrate migratory data with UNBL Protected Areas data and/or Climate Change data?
A: Users can add multiple layers to mapview at the same time in order to compare them visually. We will explore how you can change the styling of the layers to better view simultaneously in our Advanced Lab 1 next week.

For further data analysis, you can also download these data from UNBL directly or from the data source link we provided in the layer info page. We will also explore these download functionalities in our Advanced Lab 1 next week.

Our UNBL Public Platform Guidance (online | downloadable) also provides instructions on how to do both of these things.

Q: Can we include climate change data in the 'time series data'?
A: Good question! Yes - it is possible to create a time series data as long as one dataset is available over several years. Next week in Part 3 of our Intermediate Training, we will explain how to group different years from the same dataset under the same layer. We would be happy to support you with the process.

For data layers available via the UNBL public platform, feel free to further specify which dataset you would like to see as a time series, and reach out to us via this form. We are always keen to consider users' suggestions to improve the data display. Often climate prediction datasets are quite large, so we have not included them previously. However, we would like to hear from you which datasets are most important to your work!

Q: For the data layers, is there a matching repository of past/existing efforts that have developed complementary information/data based on detailed on-the-ground observations?

A: We have offered the links to the source page of the dataset as well as the original paper. We do not have a repository of all previous existing efforts that have been carried out in the past. By linking to the data providers we are endeavoring to make sure that the datasets creators get the acknowledgement their work deserves.

Q: Thanks for this amazing presentation! I work for an initiative called RESTOR, maybe you have heard of them. We have a platform that also integrates some layers, and a couple of them include potential and total organic carbon in the soil. I noticed that these are not included in UNBL, maybe this could be something you could be interested in. And, a 2nd question, do you plan to have plans to have carbon data for multiple time series?

A: That sounds very interesting, and thank you for sharing this with us. We are always looking for new data to integrate to UNBL. To suggest new datasets for consideration, please submit via [this form](#).

With regards to time series of carbon layers, we try to include the best of class global data layers where available.

Q: Are the previous iterations of data layers available so that one can see the changes in for example how the forest biodiversity intactness index has changed over a certain time period?

A: Yes for the datasets with multiple iterations and years (time series), we have grouped them together. If you click on Biodiversity Intactness Index, you will see the previous iterations, for the year 2000, 2005, 2010, as well as changes from 2000 to 2015.

Q: What is the coordinate system and projection of the downloaded data?

A: This varies based on the dataset. You can find more information on the metadata associated with each data layer.

Q: How does the Normalized Difference Vegetation Index from AVHRR and MODIS help determine Aboveground Biomass Carbon Density?

A: The NDVI from AVHRR and/or MODIS is positively correlated to aboveground biomass. This is particularly useful in semi-arid regions with minimal vegetation, but it is difficult to use NDVI as a proxy for biomass in dense forests, like the Amazon, because

the NDVI saturates. The Enhanced Vegetation Index or EVI can be used in these regions as well. It is important to compare the remote sensing data with ground-based estimates of biomass as well to establish these relationships. Synthetic Aperture Radar or SAR data can also be used for estimating above ground biomass. There is a great resource from our sister program, SERVIR, on using SAR data for forest monitoring and biomass here: https://servirglobal.net/Global/Articles/Article/2674/sar-handbook-comprehensive-methodologies-for-forest-monitoring-and-biomass-estimation Additionally, data from sensors such as Landsat has recently been used to estimate carbon stocks in vineyards and other crop types. A good reference is Morandé et al (2017) (Morandé, J.A., Stockert, C.M., Liles, G.C. et al. From berries to blocks: carbon stock quantification of a California vineyard. Carbon Balance Manage 12, 5 (2017). https://doi.org/10.1186/s13021-017-0071-3).
They developed a series of allometric equations that incorporate Landsat data for biomass storage estimates.

Q: How can we calculate the radar vegetation index with SAR systems with simple polarizations from Sentinel1, knowing that the polarimetric data from the ALOS PALSAR sensor date from 2011 and do not allow biomass monitoring with a recent data set! How can we get fully polarimetric data knowing that these data give better indications on surface conditions?
A: Radar data can be especially useful for monitoring above ground biomass. I am not an expert in SAR, and it is a bit outside the scope of this training. However, we have many resources on using SAR data for forest monitoring. We have a previous ARSET training on using SAR data for forest monitoring, with GEE codes available too: https://appliedsciences.nasa.gov/join-mission/training/english/arset-forest-mapping-and-monitoring-sar-data

There is also a fantastic handbook that our sister program SERVIR created on the use of SAR data for forest monitoring with step-by-step instructions: https://servirglobal.net/Global/Articles/Article/2674/sar-handbook-comprehensive-methodologies-for-forest-monitoring-and-biomass-estimation

Q: Can we have the data on the potential areas susceptible to climatic risks (drought, flooding)?
A: We have some socioeconomic data on UNBL that looks at aspects like climate risk. We have datasets on forecasts of crop suitability for example. However, if there are datasets you feel are missing, we are always looking to improve our data. If you are experiencing issues with a dataset or believe it is outdated or inaccurate, please contact

our team (support@unbiodiversitylab.org). To suggest new datasets, please submit via this form.

Q: Is there a possibility to collect data on the inland valleys countries?
A: We do not currently host this data. However if there are datasets you feel are missing, we are always looking to improve our data. To suggest new datasets, please submit via this form.

Q: Are there logging datasets in the UN Biodiversity Lab?
A: There is a dataset looking at [Forest Change](). This time series data could be used as a method of looking at areas of logging activity from year to year.

Q: How reliable are these data if we want to integrate them into scientific publications?
A: We assess all data on the platform against some quality criteria. In addition to this all of the data included are peer reviewed themselves and the papers associated with them can be accessed in the metadata for any dataset.

Q: Is there a metadata catalog in the UN Biodiversity Lab platform that documents published data?
A: We have a catalog of datasets available on UNBL which includes information about them. You can access it [here]().

Q: Is it possible to compare between different years at a given moment in time? Is it possible to compare areas of different years by superimposing images?
A: This really depends on the dataset and whether it is available at multiple points on time. Some of the data available on UNBL is available at multiple timepoints -- for example Enhanced Vegetation Index, Forest Cover, Human Footprint, and Land Use Land Cover. For example, you can view Enhanced Vegetation Index for Colombia [here](), and select your year of interest.

Q: From which year is the above ground carbon data?
A: UNBL has several different soil carbon layers. You can find them by navigating to [map.unbiodiversitylab.org](), clicking on 'layers', and typing 'soil carbon' (in English). Once you have activated any layer on the map, click on the 'i' button in the legend to find the metadata, including the year. For example, the [Global Organic Soil Carbon (GLOSIS) from FAO]() was published in 2019.

We'll talk more about data available on UNBL and how to access it during Session 2 of our Intermediate Training.

Q: Can UNBL data sources also include official sources from some countries?
At this point, the only layers we display on the UNBL Public Platform are those that have been screened by our UNBL data team against our data criteria. However, it would be possible to create a workspace for your country and connect to your existing GIS repository or add official national layers to the UNBL GIS repository. Official data could then be visualized along with our global data layers in your UNBL workspace.

Q: Are the data analyzed only in the range or can you also have the year-by-year series on the map?
A: It depends on the dataset you are considering. Some datasets are already in an aggregate form and represent a summarization of data over a start and end point (think Human Footprint). Others are available that indicate state in a single year, such as year of forest loss or land cover (ESA CCI Landcover). Others are available in each individual year, such as NDVI. We are only able to provide time series data when our data providers produce it at multiple points in time.

Q: I would like to see urban collections, specifically Climatology, to identify whether there are heat islands or, if applicable, the urban thermal distribution. Is this available?
A: These types of data are typically not available at high resolution globally and are the result, typically, of high-resolution localized studies. Currently we do not have data specific to this area of research.

Q: Are models of sea level rise available?
A: Currently they are not because global datasets at high-enough resolution to provide meaningful insight have not been available. However, this is a very active area of research so it is in our sights to provide data as soon as it is available.

Q: Does the UN Biodiversity Lab have coverage of mining activity, i.e. grids and type of mining production (Gold, Zinc Silver, Lithium, etc.)? I would like to have coverage of Biomass
A: We do not have data on mining activity. This is often proprietary, high-resolution data, with very high costs for users. We do have data on biomass, both above and below ground.

APPLICATIONS

Q: Let's say that while working as an independent consultant, I would like to assess biodiversity risks from companies' operations and/or investment portfolios. Am I allowed to use UNBL data and private workspace for that purpose?
A: UN Biodiversity Lab currently restricts commercial use, so unfortunately it would not be possible for the site and associated data to be used by commercial entities. That said, we would recommend reviewing the licensing of individual layers hosted on UNBL, as some do permit commercial use.

UNEP-WCMC and partners also offer opportunities for commercial use of biodiversity data through the [Integrated Biodiversity Assessment Tool (IBAT)](#) (to help with screening for areas of conservation and biodiversity value) and [ENCORE](#) (to help financial institutions understand how they can move towards potential portfolio alignment with global biodiversity goals). Similarly, [Global Forest Watch Pro](#) caters to commercial users.

Q: Thanks, recently we are having big dust problems in some parts of the West Asia, how we can use these tools to estimate level/ extent of damage on plants diversity/ damage, etc.
A: What time scale of damage are you hoping to look at? We do not currently have data looking at land cover at a temporal resolution to understand whether all the annual changes in land cover could be attributed to your dust problems. We currently don't host data on species extent but we do host data on species richness which could be overlapped with information on the extent of area impacted by dust which could give an indication of number of species potentially exposed.

Q: If a researcher wants to develop a sustainability framework to guide socioeconomic and land-use decisions for SDGs, what key aspects should he/she primarily focus on? How it can be supported by geospatial data?
A: This is a large question that might require a little more thinking! The first idea that comes to us is looking at the socio-economic data that are available on the platform - we are planning to walk you through these data next week. We also have several datasets on land-use, land change and zoning more general. Land-use for instance can be closely linked to understanding the evolution of agriculture in a given area, which can be linked to SDG 2 "No Hunger" (food security). This is just one example among many.

This is a really important question where we can really maximize the use and power of spatial data, but it would require a little more thinking than just this answer.

Q: What UNBL data can be used for development of National adaptation plan development?
A: Great question! You might also be interested in our UNBL Data Collection on nature-based solutions for climate change, which you can access here. You can access NbS relevant datasets and policy questions.

Q: Is there a method to track progress in biodiversity through data? Or is it limited to just analysis of existing biodiversity scenario?
A: There are multiple time series data, or datasets updated periodically on UNBL. These spatial continuous and methodological consistent data help you set up baseline indicators related to the status of biodiversity, and keep tracking the changes. For example, forest cover loss (update on a yearly basis), changes in biodiversity intactness, human footprint index in different years and changes, land cover in multiple years, etc. We also have datasets projected for the future scenario, for example, crop suitability and changes till the year 2100, increasing in the soil organic carbon after 20 years.

Q: Can the information collected from the platform be used as activity data to estimate baseline forest emissions?
A: While there are no currently hosted layers on UNBL that look directly at forest emissions it may be possible to look at datasets such as Above and Below ground Carbon density and Global Forest Change to make inferences as to the potential emissions of removing forest in an area of interest.

We are always looking to improve our data holdings. To suggest new datasets, please submit via this form. If you are experiencing issues with a dataset or believe it is outdated or inaccurate, please contact our team (support@unbiodiversitylab.org).

Q: Wouldn't it be interesting to be able to do a predictive analysis? For example, to have data on a future prediction of land cover changes
A: Absolutely that would be extremely interesting and there are some datasets included that look at predicted scenarios. However, this is not a space that we have a lot of current data for. We would love to hear from you. If you have suggestions, please fill in this form

Q: How can an ELSA analysis be performed at the local level for a watershed?
A: At this point, you can use a UNBL workspace to load the area of interest and calculate any of our dynamic metrics for this area.

ELSA analysis through UNBL is currently only available as a proof of concept for 3 countries (nationally): Colombia, Costa Rica and South Africa. We hope to expand it to eventually be available for any country, region or area of interest in the world. The ELSA analysis through UNBL is based primarily on global data, with limited options for changing national data, so it would probably be too coarse for a watershed level. Our UNDP team supports customized ELSA analyses at the national and sub-national level, but this requires funding and lots of coffees :).

Q: It is noted that you have a lot of environmental data in the UNBL but I would like to know if this data can be used for (metrics) aspects of sub-national scales, i.e. for a mapping at a scale of 1/50,000
A: The issue of applicability of data at a given scale is not clear. Sometimes it is a matter of not letting the perfect be the enemy of the good, which means that often there may not be better (higher resolution) data available and it is the discretion of the user/analyst to determine if that is appropriate for the uses of the data. In some cases it is clearly not useful for addressing an issue - for example, species richness data at 10 km resolution would not be very useful for performing any measure of analysis in a small PA of less than 5 km2.

Q: Is it possible to create a map in nature-based solutions, what would be the methodology to create this type of map?
A: We are currently working on the Mapping Nature for People and Planet project in 13 countries, which helps countries identify their Essential Life Support Areas (ELSA). As mentioned in the presentation, we are currently working to make this functionality available to any country in the world through the UNBL.

We are using the principles of Systematic Conservation Planning to identify a country's top priorities in relation to biodiversity, climate change and sustainable development, and use existing national and global data to map these commitments. The algorithm developed by our scientific team allows us to see the areas that allow a country to achieve the maximum of its commitments, and indicates where to undertake protection, restoration and sustainable management actions to reach national targets.

We invite you to consult the [Map of Hope](#) page on the UNBL for more information.

Q: In Chile we are at high risk due to climate change, which application will be the most appropriate for monitoring the progress of desertification and water resources?

A: I think the first question to ask is how you want to tease apart the impact of climate change vs changes in habitat and water resources due to other pressures. The first thing I would suggest looking at in relation to desertification is its advance in Chile over time. On UNBL we host temporal land cover datasets such as those created by the European Space Agency and Copernicus Climate Change. They have generated global Land Cover (LC) maps from 1992 to 2020. There are other land cover datasets such as the Esri 2020 Land Cover 10m (which will be annual). Through these datasets you can understand the advancement of the desert habitat over time. I would then suggest overlaying these land cover layers with layers such as Global Surface Water - Recurrence 1984 - 2018 and Global Surface Water - Occurrence 1984 - 2018 and the Human footprint index to understand better the potential relationships between these datasets. You might want to upload datasets on the surface temperature (records and projections) within your own private workspace to understand further the potential links to climate change.

UNDP is also working with Chile to create a map of Chile's Essential Life Support Areas, a process which works to address many of these questions and create an integrated action map to support planning and implementation. You can find information on this process here and here.

Q: How could the different data and applications be used to propose biological corridors of species? Do you have any bibliography or examples of this that you can share? Thank you

A: Without being an expert in the area of biological corridors I would first suggest it would depend on the scale at which you are looking to set up a biological corridor, whether it is based on the distribution of a single species or perhaps the diversity of species in an area. Considering the latter approach, one could look at Species Richness or maybe Threatened Species Richness and overlay that with land cover data (Esri 2020 Land Cover 10m) looking at habitat coverage. I would also suggest looking at the protected status of proposed biological corridors using the World Database of Protected Areas.

One caveat to this approach is that it is very broad brushed and not targeted. We do not know which species make up the Species Richness layer, without investigating its source layer (the IUCN Red List). In addition to this, while some of the land cover layers might have an accuracy of 10m, the classifications they use to describe habitat type are very broad and it is always better to use local or national habitat coverage maps where possible. They tend to be better tailored to the area of interest.

However there are many different aspects of connectivity to consider in relation to ecological corridors:
- realm (terrestrial, freshwater etc.);

- level (species single/multiple; ecosystem);
- structural vs. functional; and
- aspect (intactness/fragmentation vs. process/connectivity).

There are many different approaches to identifying ecological corridors (spatial prioritization, connectivity decision-making tools like CircuitScape, Condatis, GISFrag or simply Euclidean etc.)

IUCN have a set of connectivity guidelines which can be viewed here.

Other datasets that would be of particular interest in relation to Ecological Corridors which can be found on UNBL are:
- Biodiversity Intactness Index
- Forest Landscape Integrity Index
- Human Footprint

TRAINING

Q: When will other Advanced Labs be available?
A: Advanced Lab 1 took place on 27 April. Advanced Lab 2 will be held on the 4 May, and we will focus on the workspace functionalities and guide you through a few hand-on exercises.

The recordings and lab instruction sheets are available on our NASA ARSET page for the training.

Q: Can we have access to the links to the UNDP videos?
A: Here is ELSA's video: https://youtu.be/qcpVtm6E-e0.
Here is the UN Biodiversity Lab video: https://youtu.be/SWXdXQbGuFc.

Q: Will the Advanced Sessions Labs be recorded?
A: Yes, the advanced lab sessions will be recorded and all information will be available on our training web page on the NASA ARSET site.

Q: Is there any prospect of opening new sessions of the Advanced Sessions in the near future?
A: We have received a lot of interest for these Advanced Labs sessions! We are following up on these expressions of interest and will do our best to provide more opportunities. We strongly encourage you to sign up for our UNBL newsletter (via the UNBL platform) in order to receive news and upcoming training opportunities.

Advanced Labs materials will be available on the NASA ARSET training website (exercises, recordings): [EN](#) | [FR](#) | [SP](#).

Q: Is there a set of training files that can be used in one's UNBL workspaces?
A: We do not currently offer a set of training files for UNBL workspaces, but our UNBL team can likely provide you with test files that could meet your needs. Please reach out to di.zhang@undp.org to explore further.