



## *Conservation Biology Institute*

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The Conservation Biology Institute (CBI) is pleased to submit the First Technical and Financial Progress report for the project: ***Data Integration and Analysis Center (IABIN DIAC): A Pilot Application for the Integration, Visualization, Sharing and Analysis of IABIN Thematic Network Data.***

Please accept this technical-financial progress report of the Project ("First Report"), presented in conformity with Annex 6 of the OAS-IABIN grant agreement.

Please contact me if there are any questions or points of clarification required with this progress report.

Sincerely,

A handwritten signature in black ink, appearing to read "Dennis Grossman".

Dennis Grossman, Ph.D.  
Senior Scientist  
Project Manager

## **First Report on Technical & Financial Progress**

This Report documents progress made on the products and deliverables as defined in Annex 8 of the proposal for ***Data Integration and Analysis Center (IABIN DIAC): A Pilot Application for the Integration, Visualization, Sharing and Analysis of IABIN Thematic Network Data.***

### **Deliverable 1.1 Report on the status of IABIN data and technology across the different TNs relative to the ability to integrate and analyze this data in the IABIN DIAC.**

#### **Ecosystem Thematic Network (ETN)**

The ETN data are currently hosted in two servers. The ETN portal with its database and other functionality is hosted at the University of Tennessee. This database consists of tabular (non-spatial) data that references the different national ecosystem types to the ETN data standard and regional reference classification system.

The spatial data are being hosted on a server at the University of Southern Mississippi. The map viewer serves the reference maps for the terrestrial ecosystems of Central and South America (e.g., the NatureServe ecosystems classification and map). Some of the countries that received IABIN grants have sent the shapefiles for the maps of their classifications. Most of the countries do not have a standard ecosystem map, and many that do serve this information from their own servers.

The small number of datasets was provided as shapefile products from the IABIN grants. These maps are not currently being served in the ETN map viewer due to the substantial amount of data handling required to prepare them to display and perform according to the viewer requirements.

#### **Species and Specimens Thematic Network (SSTN)**

The SSTN has been supporting partner institutions across Latin America to standardize their data holding to the Plinian Core information standards, and to centralize these data in the portal that is developed and maintained by the Costa Rica National Institute of Biodiversity (INBIO). These data are also shared with the Global Biodiversity Information Facility (GBIF).

A significant number of records have been centralized at the INBIO portal at this time from numerous museum and herbarium collections across Latin America.

#### **Pollinators Thematic Network (PTN)**

The PTN similarly follows the Plinian Core data standards for the reporting of Pollinator records across Latin America and the Caribbean. There are some additional fields to represent the information specifically relevant to pollinator observations. In comparison with the other

Thematic Networks, the focus of the PTN is to build core data regarding pollinators as there is relatively little standardized data on this topic. Data entry tools have been developed to enable contributors to contribute new observations of pollinator interactions. The development of national databases is also being supported. At this point, the pollinator data remains sparse, and is quite uneven across this region.

#### Invasives Thematic Network (I3N)

The I3N TN similarly follows the Plinian Core data standards for the reporting of invasive species records across Latin America and the Caribbean. There are some additional fields to represent the information specifically relevant to observations of invasive species. In comparison with the other Thematic Networks, the focus of the I3N is to build the core data as there is very little data available at this point. Data entry tools have been developed, and national databases are being developed. The data is quite uneven across different countries.

#### Protected Areas Thematic Network (PATN)

The PATN datasets are being built on top of the existing UNEP-World Database on Protected Areas (WDPA) by the UNEP-World Conservation Monitoring Centre (UNEP-WCMC). WCMC had collected, managed and distributed a significant amount of protected area data across the region from each of the national governments. Many of the historical problems associated with out-of-date datasets and poorly covered areas are being addressed through this IABIN project.

### **Deliverable 2.1 Document the IABIN DIAC system requirements.**

The IABIN DIAC is being constructed using ArcGIS Online (a new ESRI initiative) and traditional ESRI GIS mapping technology on the Data Basin software platform. Data Basin is programmed in English, but capabilities are being built that will allow multiple language facility. The IABIN DIAC will be made available in English, Spanish and Portuguese.

The IABIN DIAC system requirements are:

The IABIN DIAC site will be created to have its own branding within Data Basin and will be dynamically linked to the IABIN.net web site. The home page and the workspace for the IABIN DIAC will showcase the different Thematic Networks and the consortium of organizations within each network and other pertinent IABIN OAS relationships.

IABIN DIAC will allow users to (1) access and visualize datasets across all of the Thematic Networks, (2) combine any selected datasets in a selected geographic area, (3) create and customize their own maps, (4) use specific analytical tools to query and report on the datasets, and (5) access direct links to data providers and subject experts.

The IABIN DIAC will facilitate the upload and integration of any datasets that are in the appropriate shapefile and raster spatial format and projection. These data will come from a number of sources, including (1) servers that currently manage the data for each of the five IABIN Thematic Networks, (2) compatible map services that are provided by the five Thematic Networks and partner institutions, (3) other relevant datasets developed and hosted by IABIN, (4) other relevant datasets hosted by compatible partner portals (e.g., GeoSUR), (5) other local,

regional and national datasets that provide valuable context for visualization and analysis, and (6) all other datasets that reside within the greater Data Basin database.

The system will ensure that all uploaded and downloaded datasets and maps will be accompanied by require full metadata before inclusion into the system. Each dataset will need to be accompanied with an abstract and completed core meta-data fields to ensure the proper interpretation, use and attribution of these data. The abstract and metadata can be completed in English, Spanish or Portuguese.

The IABIN DIAC must provide the level of security that is required by the data developers and the OAS-IABIN to control the ability of groups and individuals to view, use and distribute each dataset. The system will provide different levels of security to defined groups that are established by the IABIN DIAC administrator.

The IABIN DIAC will allow users to (1) search for datasets, (2) manage datasets, and (3) create Work Groups with designated access rights. The development of data visualization and map creation functions will allow a user to (1) visualize selected datasets, (2) create new maps through the integration of existing datasets, (3) customize these maps, (4) save newly created maps as a new file, (5) distribute newly created and existing maps for review and editing within designated groups and individuals.

Users will be able to use the provided mapping tools (including user-defined composition and individual layer customization), or download individual files as ArcGIS layer packages to be used on their own desktop.

The IABIN DIAC will support the user experience to explore and datasets across multiple Thematic Networks, and to query the data in relationship to a biodiversity theme or a specified geographic area. Graphics tools will be built that allow the user to identify any area of interest, and analytical tools will be built that will analyze and report on the specific data that is included in these areas.

### **Deliverable 3.1 Document the queries that will be supported in the prototype IABIN DIAC system.**

Queries that will be supported by this IABIN DIAC fall into two different processes.

One of these processes will support the query of specific data themes, and the ability to display the results of this query on the map visualizer. The features that can be queried include the different data categories within a TN. An example of this type of query is “Show all of the occurrences of the Invasive Species in Costa Rica”. A query could also focus on subset of a data categories. An example is “Show all of the records for collections of the *Swietenia humilis* (Honduran Mahogany) in Central America”. The resulting polygons from either type of query will be displayed on the visualizer and can be output as a physical report.

The other process will involve a query of the intersection of different datasets. Examples of these types of queries include “What are all of the invasive species that have been identified associated with the *Desierto tropical interior con vegetación escasa* ecosystem in Chile?”

**Deliverable 5.1 Report on the strategy and the implementation plan for populating the IABIN DIAC prototype with standardized and compatible Thematic Network data.**

**Ecosystem Thematic Network (ETN)**

All of the existing country level datasets will be included in the IABIN DIAC. Those datasets that have already been accessed and uploaded include. Miguel Blanco is evaluating whether there are additional national and local ecosystem datasets that can be gathered and uploaded.

1. Mexico: INEGI\_80, INEGI\_III, Miranda, Rzedovsky, Zonas\_ecologicas\_TOLEDO, VEG\_POTEN\_MIRANDA, Selva Maya
2. Paraguay: National Ecosystems
3. Argentina: Unidades\_Fitogeograficas\_Carnevali\_1994, Unidades\_Paisaje\_Carnevali\_1994, Regionalizacio necologica INTA 1982,
4. Centro America: NS\_WB\_Ecosystem\_Crosswalk\_June2010
5. Bolivia: National Ecosystems
6. Chile: National Ecosystems, various Marine Data

CBI has been trying to set up a conference call with Dr. George Raber of the University of Southern Mississippi, where the reference ecosystem data is currently being hosted. The regional reference datasets for terrestrial, freshwater and coastal/marine ecosystems should also be uploaded into the IABIN DIAC.

**Species and Specimens Thematic Network (SSTN)**

The entire SSTN dataset has now been transferred to CBI for uploading into the IABIN DIAC. The total number of records that have been transferred are listed in the table below.

<b><u>Name</u></b>	<b><u>number of species and specimens records</u></b>
ANTARCTICA	189
ARGENTINA	99829
BOLIVIA	883
BRAZIL	2086
BELIZE	43
CHILE	1180
COLOMBIA	108263
COSTA RICA	2915021
CUBA	3
DOMINICAN REPUBLIC	5
ECUADOR	127158
FALKLAND ISLANDS (MALVINAS)	5
SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS	151
GUYANA	39
HONDURAS	1
MEXICO	18879
NICARAGUA	89819
PANAMA	13168

PERU	36354
PUERTO RICO	13
PARAGUAY	350
SURINAME	3
EL SALVADOR	81
TRINIDAD AND TOBAGO	12
UNITED STATES	6
URUGUAY	358
VENEZUELA	16273
TOTAL	3430172

The files are in tabular form, and require a significant amount of analysis to determine which records can has been represented spatially. We are also evaluating how the data should be organized in order to address the data queries from the stakeholders.

#### Pollinators Thematic Network (PTN)

The PTN met on November 23, 2010 to assess the status of their data, partnerships and vision for the future. They have been sent a request to discuss how to access the existing data they have developed through their network of partners, and promised to discuss this topic at their meeting. CBI expects to hear from them within the next week to hear their strategy for integrating their data into the IABIN DIAC.

#### Invasives Thematic Network (I3N)

CBI is waiting for them to upload the existing version of their dataset to the CBI FTP site so that it can be evaluated regarding number of records, the field attributes and the level of compatibility to the other TN datasets (particularly the SSTN and PTN datasets). The I3N TN is now currently updating their dataset with additional data from all participating institutions. CBI will replace the existing dataset with the updated I3N dataset when it will received. All of this data will be uploaded to the IABIN DIAC prototype.

#### Protected Areas Thematic Network (PATN)

CBI has currently accessed all of the official WCMC protected area records for Latin America and the Caribbean. A preliminary set of 5135 protected area records for Central and South America have been uploaded into the IABIN DIAC. They are listed below. The protected area records for the Caribbean countries will be uploaded over the next week.

<b><u>Country</u></b>	<b><u># of PAs</u></b>
Argentina	340
Belize	116
Bolivia	72
Brazil	1697
Chile	229

Colombia	287
Costa Rica	184
Ecuador	124
El Salvador	150
French Guiana	41
Guatamala	259
Guyana	17
Honduras	111
Mexico	972
Panama	94
Paraguay	44
Peru	81
Surinam	22
Uruguay	45
Venezuela	250
<b>TOTAL</b>	<b>5135</b>

## Financial Report through November 15, 2010

<u>Personnel</u>	<u>Total Project Budget</u>	<u>1st Report 11/15/10</u>
Total salaries/wages	\$ 85,893	\$ 24,955
Computer Services	\$ 3,000	\$ 1,111
Communications	\$ 500	\$ -
Printing	\$ 200	\$ -
<b><u>Total Project Cost</u></b>	<b><u>\$ 89,593</u></b>	<b><u>\$ 26,066</u></b>