

**Ecosystem Thematic Network  
First Quarterly Report  
November 1, 2006**

**Submitted by**

**Vincent J Abreu  
Project Coordinator**

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*I. Specific Accomplishments during the First Quarter*

The following activities were carried out during the First Quarter:

1. The Project Coordinator (PC), Vincent Abreu was contracted by the OAS.
2. The Project Coordinator traveled to Panama City, to work with SRTI and IABIN personnel from July 30 to August 16, 2006 .
3. A detailed implementation plan for a year was submitted, starting in August 2006;
4. Terms of reference were prepared and advertised for two positions:  
A GIS Analyst and an Ecosystem Expert.
5. Applications for these two positions were received and evaluated. The candidates that came first and second in both positions rejected the offer. We are interviewing the candidates that came in third.
6. A procurement plan was prepared through December 2007 and submitted to the OAS.
7. The Project Coordinator traveled to Costa Rica (August 28-Sept 2, 2006) to participate in the Species and Specimen Workshop at INBio.
8. A GEOSS meeting took place in Asunción, Paraguay to adopt a global ecosystem (terrestrial, freshwater and coastal-marine) classification system. This was a very important event for the ETN given that the ETN will leverage of these developments.
9. After the GEOSS meeting, a meeting of the ETN Project Coordinator with staff from TNC, STRI and NatureServe took place October 17-18 in Washington D.C. at NatureServe offices with the following objectives:
  - Consider the adoption of the GEOSS classification structure for the ETN.
  - How the adoption of the GEOSS classification system will impact the overall architecture and functionality of the ETN.
  - Plans for the Ecosystem Expert Meeting that will take place in Panama City in March, 2007
  - Develop an activity plan up to December, 2007

The minutes of this meeting are presented in Annex I. Here it will be mentioned that:

- The GEOSS Classifications structure was adopted for the ETN. This structure is shown in Figure 1.
- The overall architecture and functionality of the ETN was reviewed and modified. New diagram of the ETN Portal functionality is presented in Figure 2.
- It was agreed that the Expert Committee meeting will take place in March, 2007 in Panama City, Panama.

## GEOSS Classification System

Level#	Theme	Terrestrial (geoecosystem)	Terrestrial (bioecosystem)	Freshwater	Marine
1	Macro-Bioclimate	Polar, Temperate, Tropical	Polar, Temperate, Tropical plus major vegetation structure (treed, shrub/ herbaceous, sparse)	Polar, Temperate, Tropical	Polar, Temperate, Tropical
2	Meso-Bioclimate/ Biogeographic	global biomes (e.g., wet vs. humid vs.. dry: polar, boreal/austral, ...)	global biomes + relevant leaf phenology combinations + phytogeography	global biomes + zoogeographic basins (WWF)	marine regions defined by SST, sea surface elevation, mixed layer depth;  biogeography
3	Geochemical	index of plant-available soil moisture; specialized substrates	index of plant- available soil moisture; specialized substrates	Ecological Drainage Units: climate/physiography/su bstrate porosity	Nearshore FW, Coastal marine, Neritic, Oceanic
4	Biophysical Structure	Total Biomass Vegetation Structure Landscape Juxtaposition	Total Biomass Vegetation Structure Landscape Juxtaposition	Surface water character determining biotic structure (e.g., lakes, rivers, streams)	e.g., Estuary, FW plume; Reef; Biomass estimate by water column layer
5	Biotic Composition	Gradient from urban to mixed agriculture/ disturbed secondary vegetation	Gradient from secondary vegetation to primary vegetation/undisturbed land cover	Macrohabitats; Fish/invert communities	Coastal Macrohabitats; Plankton communities

**Figure 1:**

# ETN Portal Functionality

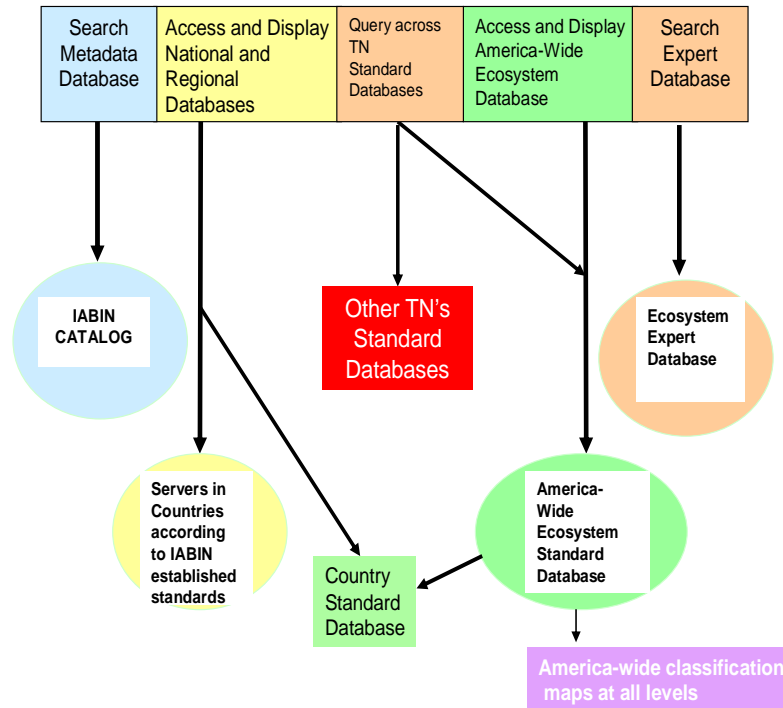


Figure 2

- The schedule of activities through December, 2007 was reviewed and modified (see Table 1), taking into consideration the necessary preparations for the March Expert Committee meeting. Table 1 presents the timetable for the products that will be delivered through December, 2007.
  - It was agreed that the group will meet again during December 11-12 in Washington D.C. to work on the Standard Format for Ecosystem Types.
10. Began the collection of names for the Expert Committees (see Annex 3). Discussions also began on how the Expert Committees are going to be conformed, and the member's responsibilities. There are three Expert Committees being implemented, one for each type of ecosystem: terrestrial, freshwater and coastal-marine. A list of potential members of the Expert Committee is being compiled with suggestions from the consortium members. From this list the Consortium members will

- choose for each ecosystem, two types of experts, those who will be part of the ETN working group, and those that will just participate in an advisory fashion. The working group members together with the members of the consortium and consultants will participate in meetings and working sessions; the advisory group will be sent reports and documents for review. The working group for each ecosystem type will consist of 5 members. The number of advisory members can vary depending on availability. The working group members will attend the Experts Working Group Meeting planned for March, 2007 in Panama City.. This task will be completed during the beginning of the second quarter.
11. Consortium members are beginning to work on a list of institutions in Latin America and the Caribbean who have ecosystem data. This task will be completed during the second quarter.
  12. A draft of a data questionnaire (see Annex 4) has been put together. This task will be completed during the first part of the second quarter.
  13. A teleconference with Roger Sayre and Andrea Grosse, representing the GEOSS program took place on October 20. In this teleconference Roger and Andrea were informed of discussions and decisions made during the ETN meeting at NatureServe. Discussions took place concerning the implications our schedule had for the GEOSS program and vice-versa, and we agreed that:
    - a. The classification structure being developed by GEOSS is very important to the development of the ETN.
    - b. GEOSS and the ETN need to coordinate activities with respect to the development of the Classification system;
    - c. The GEOSS classification system will be presented at the Experts Meeting that the ETN will sponsor in March, 2007 in Panama, with support from the GEOSS staff.
    - d. The recommendations of the Expert Committee will be presented to the IEC for final approval of an Ecosystem classification system for the ETN.
    - e. Representatives from GEOSS will participate in the next meeting in Washington scheduled for December 11 and 12.

## *II. Performance Measures*

As a reference, the implementation plan generated at the beginning of the project (July, 2007) is presented in Annex II.

We are about a month behind in the following activities in Component 1: 1 (identify lead institutions in each country), 2 (develop questionnaire for data providers), 3 (identify data providers), 14 (develop a list of expert keywords), and 16 (begin the design an implementation of an indicator system). The main reason for being behind is that we have not been able to hire the Ecosystem Expert. We will try to make up some of this time by asking the consortium members to provide a list of institutions with ecosystem data.

**On the other hand, we are ahead in other tasks concerning choosing the Classification systems and making preparations for the March Experts Meeting.**

*III. Second Quarter Activities*

**The detailed implementation plan for the project is presented in Annex 2. We will try to catch up on all activities. A more detailed view of the products that will be delivered is presented in Table I.**

**TABLE 1**

<b>Products</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug</b>	<b>Sept</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Person Responsible</b>
Confirm members of expert committees in terrestrial, freshwater and marine ecosystems	■														Vince
Concept document describing GEOSS Classification System (Levels 1-5) terrestrial, freshwater and marine		■													GEOSS/Pat Comer
Technical Meeting about Standard Format /Week of December 11 - Dec 11 and 12		■													Vince/ETN Analyst
Document describing Standard Format and protocol for querying database through the web		■	■												all
Identification of institutions with national data	■														Vince/Carmen/Touval/Petri
Summary of answers to questionnaires filled out by institutions with ecosystem data			■												Ecosystem Expert
Plans for making national data available through the web				■											Ecosystem Expert and GIS Analyst

Example of Levels 1-5 maps of selected classes in Bolivia (terrestrial)

Levels 1-5 maps of South America (terrestrial)

Levels 1-5 maps of Mesoamerica and Caribbean (terrestrial)

Levels 1-5 maps for US (terrestrial)

Levels 1-5 maps for Canada (terrestrial)

Hemispheric map (levels 1-5) for freshwater ecosystems)

Prototype Template for adding class information in standard format to database (terrestrial, freshwater and marine)

Prototype standard database Vs 1 (terrestrial)

Prototype standard database for classes vs 2 (terrestrial)

Prototype standard database for classes vs 1 (freshwater)

Prototype ETN Portal



Carmen

Carmen

TNC/Carmen

USGS

Touval/Petri

Expert Committee

Carmen and ETN Analyst

Expert Committee/Carmen and ETN Analyst

Expert Committee/Touval/Petri

ETN Analyst



Prototype Query interface for standard database  
Prototype interface for accessing national data through the web and integrating national data, available through the Portal Data from 2 countries available through the web (one of these should be Bolivia)  
Standard format available for national ecosystem classification from 2 countries  
Data from 8 countries available through the web  
Standard format available for national ecosystem classification from 8 countries  
Experts meeting  
Presentation of recommended classification system to IEC for approval  
Presentation of recommended standard format to IEC for approval

vs 1  
vs 1

vs 2  
vs 2

ETN Analyst

ETN Analyst

ETN Analyst

ETN Analyst

ETN Analyst

This depends on grants

Vince

Vince

Design of system to query species, specimen and ecosystem standard databases simultaneously  
Identify objectives for grants to institutions that provide data and training



ETN Analyst

Expert Committee and Vince

## ANNEX 1

### **Memo**

**To: Consortium Members**

**From: Vincent J Abreu, ETN Coordinator**

**Subject: Minutes from Meetings on October 17-20**

### **Attendees:**

#### **The Nature Conservancy:**

Shirley Keel

Jerry Touval

Paulo Petri

#### **NatureServe:**

Carmen Josse

Juan Pablo Arce

Pat Comer

Cameron Scout

Karen Monroe

#### **Smithsonian Research Institute:**

Steve Paton

Vincent Abreu

#### **USGS**

Roger Sayre

Andrea Grosse

The meeting took place at the NatureServe offices in 1101 Wilson, in Rosslyn.

### **Meeting Objectives:**

- **Begin discussions on the adoption of a classification system for terrestrial, fresh water and marine ecosystems**
- **Review the overall architecture and functionality of the ETN**
- **Plan for the Ecosystem Expert Meeting that will take place in Panama City in March, 2007**
- **Develop an activity plan up to December, 2007**

**The meeting agenda is presented in Annex 1.**

### **Main Conclusions:**

2. **A preliminary list of Ecosystem Experts was established. Other nominations for the Expert Committees will be requested from the Consortium Members. The participation of at least 5 experts in each committee will be confirmed over the next 2 weeks.**
3. **Given the importance of the GEOSS initiative to the Ecosystem Thematic Network, Pat Comer made a presentation of the GEOSS Classification system, as it was defined in a meeting in Asunción, Paraguay the previous week. Details of the classification structure being developed by GEOSS are still being defined; however, the overall concept is ready and the group**

- adopted it as the America-wide classification structure for the ETN. A table describing the GEOSS Classification structure is presented in the power point presentation attached. The group suggested that Level 2 in this table should be called: **Mesoclimate/Biogeography/Ecoregion**.
4. The architecture and functionality of the ETN were reviewed by Vincent Abreu. Some changes were made in order to accommodate the GEOSS classification structure. The latest version of the architecture and functionality are presented in a power point presentation attached to this document.
  5. There were discussions on the Standard Format. The following characteristics of the Standard Format were defined:
    - a. The Standard Format is a template to be filled out for each class in an ecosystem classification, with fields that describe the class according to a series of pre-determined attributes, criteria or characteristics. These attributes include the ones associated with the Levels of the GEOSS proposed classification structure.
    - b. Species should not be used as criteria for classifying the America-wide system, however any species information should be included as a comment.
    - c. Keywords on species and specimens should be included in order to link to the databases on species and specimen being developed by the other thematic networks.
    - d. The standard should be filled out for every class defined by the America-wide classification system (GEOSS classification system) and by the national classifications, in order to allow for automatic cross-walks between national classifications and the America-wide classification.
    - e. The standard is the basic unit for a relational database that will allow queries by users and cross-walk among classifications.
    - f. A template should be created that allows data providers to fill out the standard and incorporate it into the database.
  6. A meeting will be held in Washington, at NatureServe on December 11 and 12 to define the Standard Format: content and technical design following the communication protocols established by the other TNs and GBIF.
  7. A schedule of activities and products was defined starting in November, 2006 and ending in December, 2007. This schedule is attached as an excel file. This schedule establishes our goals for the Expert Meeting on March, 2007. The schedule also shows the person or organization responsible for each product. The schedule activities is presented in the attached excel file.
  8. A teleconference with Roger Sayre and Andrea Grosse, representing the GEOSS program took place on October 20 from 10:00 am to 11:30 am. In this tele-conference Roger and Andrea were informed of discussions and decisions made during the ETN meeting at NatureServe. Discussions took place concerning the implications our schedule had for the GEOSS program and vice-versa, and we agreed that:

- a. GEOSS and the ETN need to coordinate activities with respect to the development of the Classification system;**
- b. The GEOSS classification system will be presented at the Experts Meeting that the ETN will sponsor in March, 2007 in Panama, with support from the GEOSS staff.**
- c. The recommendations of the Expert Committee will be presented to the IEC for final approval of an Ecosystem classification system for the ETN.**
- d. Representatives from GEOSS will participate in the next meeting in Washington scheduled for December 11 and 12.**

## ANNEX I

### Ecosystem Thematic Network (ETN) Meeting

#### Preliminary Agenda

NatureServe  
Washington D.C.

October 17-18, 2006

#### October 17

9:00 am	ETN Status, review of ETN planned structure, year workplan and goals	Abreu
10:30	Break	
10:45	Discussion about GEOSS workshop and its implications for data standards in the Americas	Comer
12:30	Lunch	
2:00 pm	Develop detailed plans for adoption of terrestrial classification system standard and cross-walk of national data	Josse
3:45	Break	
4:00	Content standards required from data providers for ecosystem classification: terrestrial (and freshwater)	Comer
5:00	Adjourn	

#### October 18

9:00 am	Plans for making ecosystem national data available through the web: technical requirements for data providers	Solano
10:30	Break	
10:45	NatureServe approach to the ecological systems classification schema and web service, an example	Monroe
12:15	Lunch	
1:30 pm	Plan workshop in Feb-March timeframe	
3:00	Adjourn	

**ANNEX 2: DETAILED IMPLEMENTATION PLAN (Sept, 2006)**

Component 1	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Person responsible	Institution	Indicators
<b>1. Identify Lead Institution in every country through Focal Point</b>															Alba Puig y Alejandro Tablado	Museo Argentino	Lead institutions identified in 80% of countries
															Carmen Josse & Juan Pablo Arce	NatureServe	
															Maarten Kappelle	TNC	
															Personnel at EcoCiencia	EcoCiencia	
<b>2. Develop questionnaire for potential data providers</b>															Alejandro Tablado	Museo Argentino	Questionnaire developed
															Personnel at EcoCiencia	EcoCiencia	
															Maarten Kappelle	TNC	
															Personnel at INBio	INBio	
															Carmen Josse	NatureServe	





															Personnel at Boticario	Boticario	
(with providers that are part of NatureServe network)															Carmen Josse & Juan Pablo Arce	NatureServe	
															Steve Schill and Marco Castro	TNC	
6. Choose America-wide terrestrial ecosystem classification system															Expert Committee		Terrestrial Expert Committee recommendation to the IEC ready
															Carmen Josse & Pat Comer	NatureServe	
7. Choose America-wide Freshwater ecosystem Classification system															Expert Committee		Freshwater Expert Committee recommendation to the IEC ready
															Jerry Touval	TNC	
8. Identify national data that will be cross-walked into America-wide Terrestrial system															Carmen Josse	NatureServe	National data that will be cross-walked during years 1 and 2 identified



13. Make plans to access regional databases and information systems through the ETN.																	Steve Paton		Agreements with database owners and an implementation plan.	
14. Develop a list of expert keywords to classify experts																		Personnel at STRI	STRI	Expert keyword list ready
15. Development of metadata for the expert database																		Personnel at STRI	STRI	Expert metadata developed according to chosen format
16. Design and implement an indicator evaluation system																		Steve Paton	STRI	Indicator system in defined
17. Participate with other TNs in the design of a system to access data across TNs																		Vince Abreu	STRI	System to allow user to ask questions across TNs designed.
<b>Component 2</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Person responsible</b>	<b>Institution</b>	<b>Indicators</b>			
1. Provide server infrastructure																	Fernando Bouche	STRI	Network functioning	

<b>2. Provide connectivity (T1 line)</b>															Fernando Bouche	STRI	Network functioning
<b>3. Provide software needed to run network (anti-virus, firewall, operating system, etc.)</b>															Fernando Bouche	STRI	Network functioning
<b>4. Provide system administration</b>															Personnel at STRI	STRI	Network functioning
<b>5. Provide technical and user support</b>															Personnel at STRI	STRI	At least national data from 3 countries accessible through the ETN
<b>6. Data hosting</b>															Personnel at STRI	STRI	National data hosted from at least 2 countries
<b>7. Design, implementation and maintenance of version 1 of Portal interface</b>															Personnel at STRI	STRI	Website developed and functional
<b>8. Maintenance of ETN Portal</b>															Personnel at STRI	STRI	ETN Portal upgraded
<b>9. Design data structure and database for national terrestrial ecosystem data.</b>															Bruce Stein	NatureServe	National Information terrestrial database designed

10. Design data structure and database for national freshwater ecosystem data.																Steve Schill and Marco Castro	TNC	National information freshwater database designed
<b>Component 3</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Person responsible</b>	<b>Institution</b>	<b>Indicators</b>	
1. Cross-walk national terrestrial ecosystem classification systems to America-wide system															Carmen Josse	NatureServe	At least three distinct ecoregions done.	
															Steve Schill and Marco Castro	TNC		
2. Cross-walk national freshwater ecosystem classification systems to America-wide system															Jerry Touval	TNC	At least two countries in South America cross-walked	
<b>Component 4</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Person responsible</b>	<b>Institution</b>	<b>Indicators</b>	

<b>1. Coordinate and monitor project</b>															Vincent Abreu	STRI	Project progressing according to implementation plan
<b>2. Terrestrial Expert Committee Meetings</b>															Carmen Josse	NatureServe	
<b>3. Freshwater Expert Committee Meetings</b>															Jerry Touval	TNC	
<b>4. Quarterly Report</b>															Vincent Abreu	STRI	Quarterly Financial reports
<b>5. Semi-Annual Progress Reports</b>															Vincent Abreu	STRI	Semi-annual progress report
<b>6. Financial Reports</b>															Accounting	STRI	Quarterly Financial reports
															Accounting	NatureServe	
															Accounting	TNC	
															Accounting	Boticario	
															Accounting	INBio	
															Accounting	Museo Argentino	
															Accounting	EcoCiencia	

7. Sustainability Plan: Identify activities for which support is needed, develop concept paper and identify potential funders.														Vincent Abreu	STRI	A set of recommendations on sustainability of the network
8. Establish Terrestrial Expert Committee														Vincent Abreu	STRI	Terrestrial Expert Committee established
9. Establish Freshwater Expert Committee														Vincent Abreu	STRI	Freshwater Expert Committee established
10. Establish Marine Expert Committee														Vincent Abreu	STRI	Marine Expert Committee established
11. Develop Terms of Reference and contracts for consultants to be hired														Vincent Abreu	STRI	All contracts signed and personnel in place
12. Develop Implementation Plan for Year 2														Vincent Abreu	STRI	Implementation Plan for Year 2 completed

<b>13. Assist the IABIN Secretariat to choose the countries that will provide the National databases to be included in version 1 ETN and will receive Grants under the GEF Component 2</b>															Vince Abreu	STRI	Grants awarded
<b>14. Expert Committees Meeting</b>															Vincent Abreu	STRI	A set of recommendations from the experts



### **ANNEX 3: PRELIMINARY LIST OF EXPERTS FOR EXPERT COMMITTEES**

#### **Terrestrial**

Maarten Kapelle [mkappelle@tnc.org](mailto:mkappelle@tnc.org)

Shirley Keel [skeel@tnc.org](mailto:skeel@tnc.org)

Lenin Corrales [lcorrales@TNC.ORG](mailto:lcorrales@TNC.ORG)

Roger Sayre  
USGS  
[rsayre@usgs.gov](mailto:rsayre@usgs.gov)

Carmen Josse  
[Carmer\\_Josse@naturereserve.org](mailto:Carmer_Josse@naturereserve.org)

Pat Comer  
[Pat\\_Comer@naturereserve.org](mailto:Pat_Comer@naturereserve.org)

Robin Foster  
Chicago

Gonzalo Nevado  
Bolivia

Marta Collantes  
Museo Argentino

#### **Freshwater**

Jerry Touval [jtouval@tnc.org](mailto:jtouval@tnc.org)

Francisco Nunez [fnunez@tnc.org](mailto:fnunez@tnc.org)

Carmen Revenga [crevenga@tnc.org](mailto:crevenga@tnc.org)

Mabel Maldonado,  
Universidad Mayor de San Simón  
Cochabamba, Bolivia  
Email:

Juan Jose Neiff <[neiff@arnet.com.ar](mailto:neiff@arnet.com.ar)>  
Centro de Ecología Aplicada del Litoral  
<http://www.cecoal.com.ar/index.php>  
<http://www.jjneiff.com.ar/>

Paulo Petry, PhD  
Associate in Ichthyology  
MCZ-Harvard University  
[ppetry@oeb.harvard.edu](mailto:ppetry@oeb.harvard.edu)

Alonso Ramirez

IRD

Puerto Rico

Dr. Gerardo Umaña, limnólogo, ecosistemas de agua dulce, CIMAR, UCR,  
[gumana@biologia.ucr.ac.cr](mailto:gumana@biologia.ucr.ac.cr)(INBio)

Dra. Pia Paaby, limnóloga, ecosistemas de agua dulce, consultora independiente,  
[piapaaby@hotmail.com](mailto:piapaaby@hotmail.com) (INBio)

Alejandro Tablado –Museo Argentino

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Alba Puig – Museo Argentino

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Tony Chatwin [achatwin@TNC.ORG](mailto:achatwin@TNC.ORG)

Phil Kramer [pkramer@tnc.org](mailto:pkramer@tnc.org)

Dr. Marcos Alpizar, ecosistemas marinos, CI, [marcos.alpizar@conservation.org](mailto:marcos.alpizar@conservation.org) (INBio)

**ANNEX 4: Institutional questionnaire**

**Perfil Institucional**

**[INSTITUCION]**

**Proyecto IABIN-ETN**

*El presente cuestionario servirá como base al proyecto IABIN-ETN para evaluar el tipo de asistencia técnica y apoyo que requiere su institución para el establecimiento de un geoservidor.*

*Por favor llenar y enviar por correo electrónico a Vincent J. Abreu, abreu@umich.edu*

<b>PREGUNTA</b>	<b>RESPUESTA</b>
<p>Por favor describa el tipo de conexión a Internet que posee su institución y el tipo de conexión que posee el servidor físico que almacenará al geoservidor.</p> <p>Añada información como ancho de banda, tipo de conexión, proveedor y demás detalles que considere relevantes.</p>	
<p>Describa en forma breve la experiencia de su institución en temas como SIG e IMS, programas utilizados, personal capacitado, proyectos ejecutados o en ejecución, etc.</p>	

<p>Describa la configuración del servidor físico que almacenará al geoservidor: CPU, RAM, capacidad en disco, sistema operativo, servidor WEB, firewall, etc.</p>	
<p>¿Posee ya su institución un geoservidor o planea poner uno en funcionamiento? En el caso de poseer el sistema describa sus características principales, el software utilizado, el tipo de datos servidos y aclare si utiliza el protocolo WMS.</p>	
<p>¿Su institución posee ArcSDE y B.D. relacionales (ej, ORACLE, INFORMIX) en su entorno SIG e IMS? Por favor describa</p>	
<p>Por favor coloque aquí una lista preliminar y resumida de los datos geo-espaciales relacionados a ecosistemas que se podrían incorporar al nuevo geoservidor.</p>	
<p>¿Posee su institución capacidad para desarrollar sitios web? Favor describa.</p>	

¿Su institución posee un nodo clearinghouse y metadatos? Si es el caso, favor describir la situación actual. En caso contrario, por favor indique si posee la capacidad y el interés en desarrollarlos.