Instituto de Investigación de Recursos Biológicos
Alexander von Humboldt

DESDE LA CIENCIA A LA GESTIÓN: Aportes del Instituto Humboldt al monitoreo ecológico

Programa de Evaluación y Monitoreo de la Biodiversidad

Desarrollo Conceptual de un Sistema de Observación Ecológica para Colombia – Simposio EOS

22 de noviembre de 2016, Medellín

INSTITUTO DE INVESTIGACIÓN DE RECURSOS BIOLÓGICOS ALEXANDER VON HUMBOLDT COLOMBIA

Promover, coordinar y realizar investigación que contribuya al conocimiento, la conservación y el uso sostenible de **la biodiversidad como un factor de desarrollo y bienestar de la población colombiana** incluyendo los recursos hidrobiológicos y genéticos.

Trabaja en red con múltiples organizaciones, con capacidad para incidir en la toma de decisiones y en las políticas públicas.

Coordina el Sistema Nacional de Información sobre Biodiversidad **(SIB Colombia)** y la conformación del inventario nacional de la biodiversidad.

Biodiversity: Multi-scale concept

"Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

"Biological resources" includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.

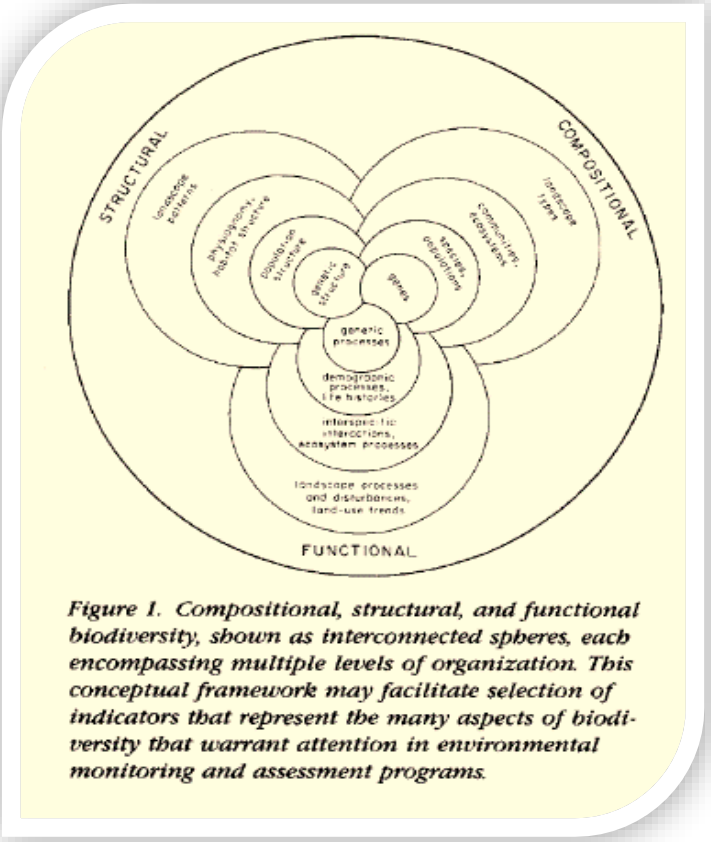


Figure 1. Compositional, structural, and functional biodiversity, shown as interconnected spheres, each encompassing multiple levels of organization. This conceptual framework may facilitate selection of indicators that represent the many aspects of biodiversity that warrant attention in environmental monitoring and assessment programs.

https://www.cbd.int

Tomada de Noss (1990)

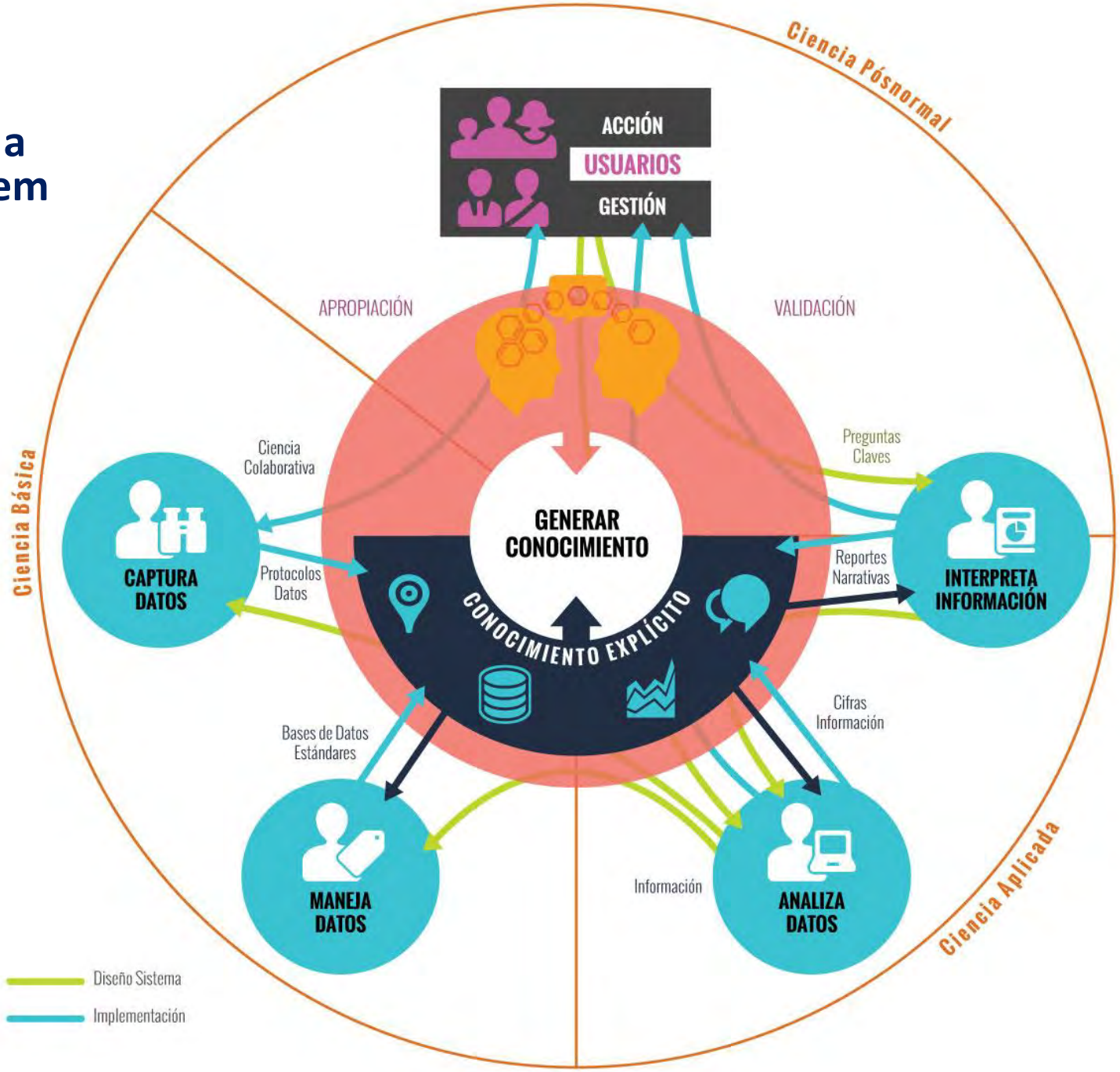
EOS aims

- ✓ Identify resources, i.e. existing data and computational resources for detecting, characterizing and monitoring hotspots of biodiversity change in Colombia through generic indices such as Essential Climate Variables ECVs and Essential Biodiversity Variables EBVs.

What? How?

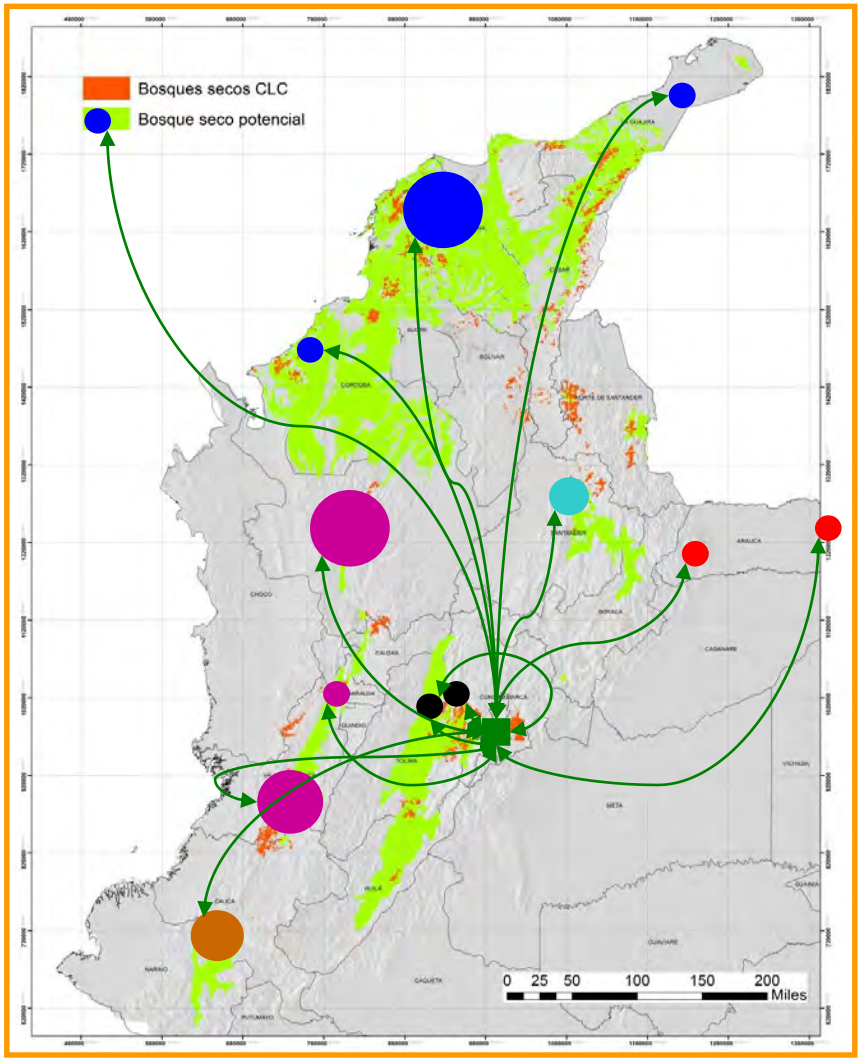
- ➢ Outline a research strategy for implementing an Ecological Observatory System (EOS) that integrates ground-based observations of ecosystem properties with satellite-derived products.
- ➢ Develop an EOS prototype for a small region in which temporal changes in EBVs and ECVs are calculated.
- ➢ Identify funding opportunities for the establishment, operation, and maintenance of the Colombian EOS.

Framework for a Biodiversity System Observatory



Permanent
plots

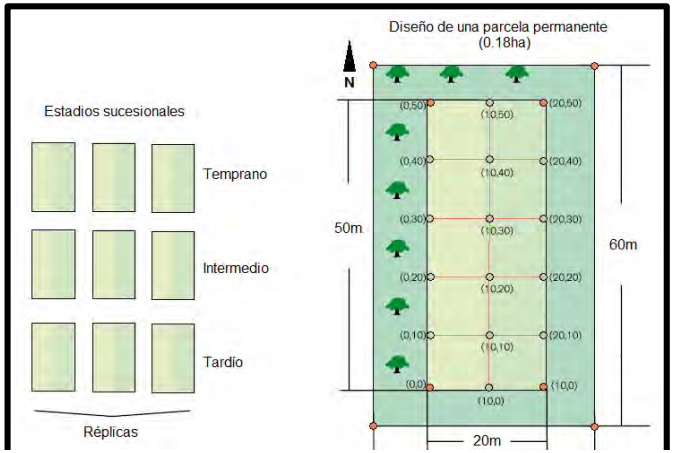
Permanent Plots in Tropical Dry Forest



3 Inst. Internacionales
+ 50 Inst. Nacionales
+ 150 Investigadores

Permanent Plots in Tropical Dry Forest

- Taxonomic, functional and genetic monitoring.
- Trap Camera and Bioacoustics.



Fields of research

Species and populations

Species charatetization
Inventory and collections

Resolution

Taxonomy
Geography
Virtual

Communities

Diversity and structure
Forest dynamcis
Monitoring

Strategies

Sussesional plots networks
Long term studies

Ecosystems

Strategic ecosystems distribution

Cheecking sussessional stages

Strategies

Sussesional plots networks
Soils

Framework for a Biodiversity System Observatory

Observations

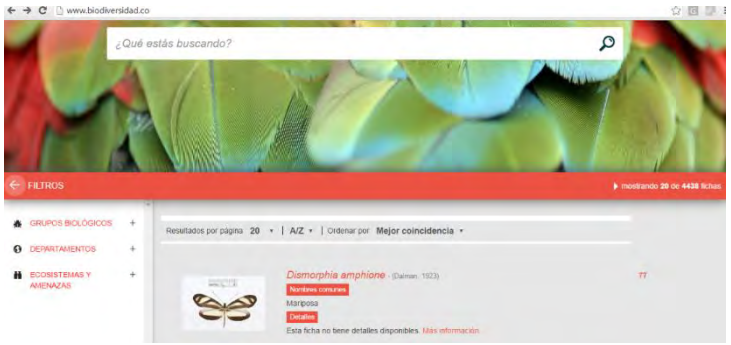
Data management

Data analysis

Information and interpretation

SIB Colombia

Colombia **Biodiversity Information** System

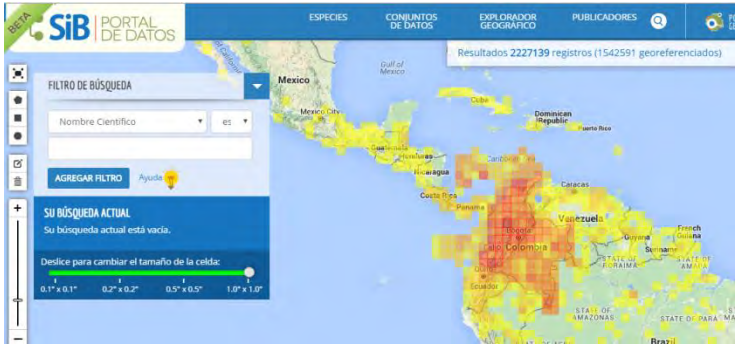


MANEJA DATOS

SiB

64 Institutions
2 million species records

GBIF



MiAmbiente

Instituto amazónico de investigaciones científicas SINCHI

INSTITUTO HUMBOLDT COLOMBIA

IDEAM INSTITUTO DE HIDROLOGÍA, METEOROLOGÍA Y ESTUDIOS AMBIENTALES

invemar

IIAP Instituto de Investigaciones Ambientales del Pacífico

UNIVERSIDAD NACIONAL DE COLOMBIA

PARTICIPATION CHANELS

SiB Sistema de Información sobre Biodiversidad de Colombia

Open access to biodiversity information

Portal SiB Colombia

Publique sus datos con ayuda de guías y manuales y manténgase informado de nuestras actividades.

www.sibcolombia.net

Portal de Datos

Explore, use y contribuya con datos sobre más de 56.000 especies de la biodiversidad del país.

datos.biodiversidad.co

Catálogo de la Biodiversidad

Descubra información detallada sobre las especies de Colombia en más de 4.000 fichas de especie disponibles.

catalogo.biodiversidad.co

Ciencia Participativa

Encuentre herramientas para aportar al conocimiento de la biodiversidad del país.

mi.biodiversidad.co

MANEJA DATOS

To publish on SIB is easy

New global approaches applied locally

- Interoperability: Darwin and Plinian Core standards
- Tools to integrate data and information. IPT
- Recognition and copyright: Creative Commons licenses.
- Information use: DOIs and downloads tracking

MANEJA DATOS

Nombre	Tipo	Subtipo	Registros	Última modificación	Última publicación
Amenazas globales y nacionales, endemismos, usos e importancia ecológica de las aves presentes en las regiones Caribe, Pacífico, Andes y Piedemonte Amazónico	Lista de chequeo	Inventario Temático	1,701	2016-07-06	2016-07-06
Amenazas para las especies de aves priorizadas en las regiones Caribe, Pacífico, Andes y Piedemonte Amazónico	Lista de chequeo	Inventario Temático	471	2016-07-06	2016-07-06
Anfibios asociados a páramos y humedales de Colombia con información de rasgos funcionales y derivada de fuentes secundarias	Lista de chequeo	Inventario Regional	479	2016-07-06	2016-07-06
Anfibios de la familia Centrolenidae (Amphibia: Anura) presentes en Colombia	Registro biológico	Ejemplar	2,286	2016-07-01	2016-07-01

http://i2d.humboldt.org.co/ceiba/

MANEJA DATOS

http://geonetwork.humboldt.org.co/

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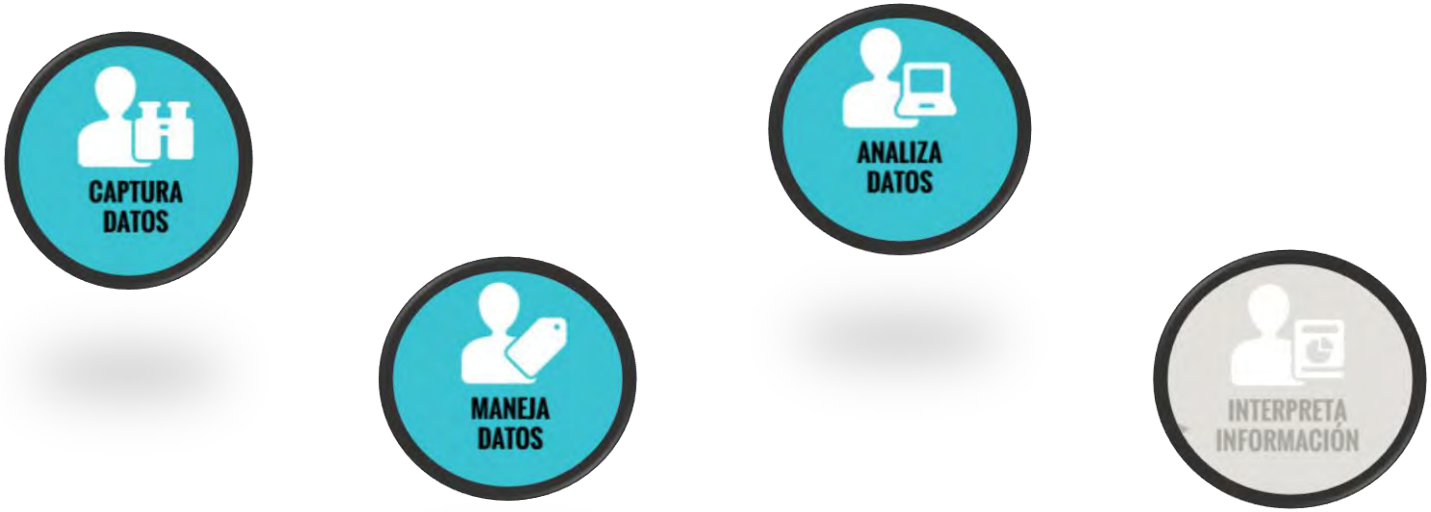


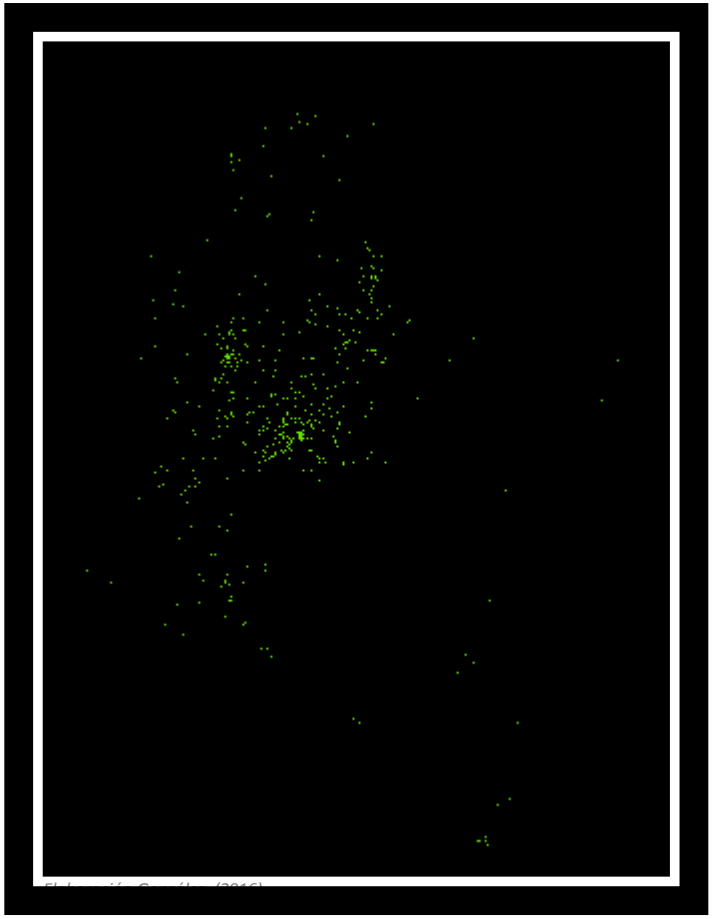
ANALIZA DATOS

DATA TREND

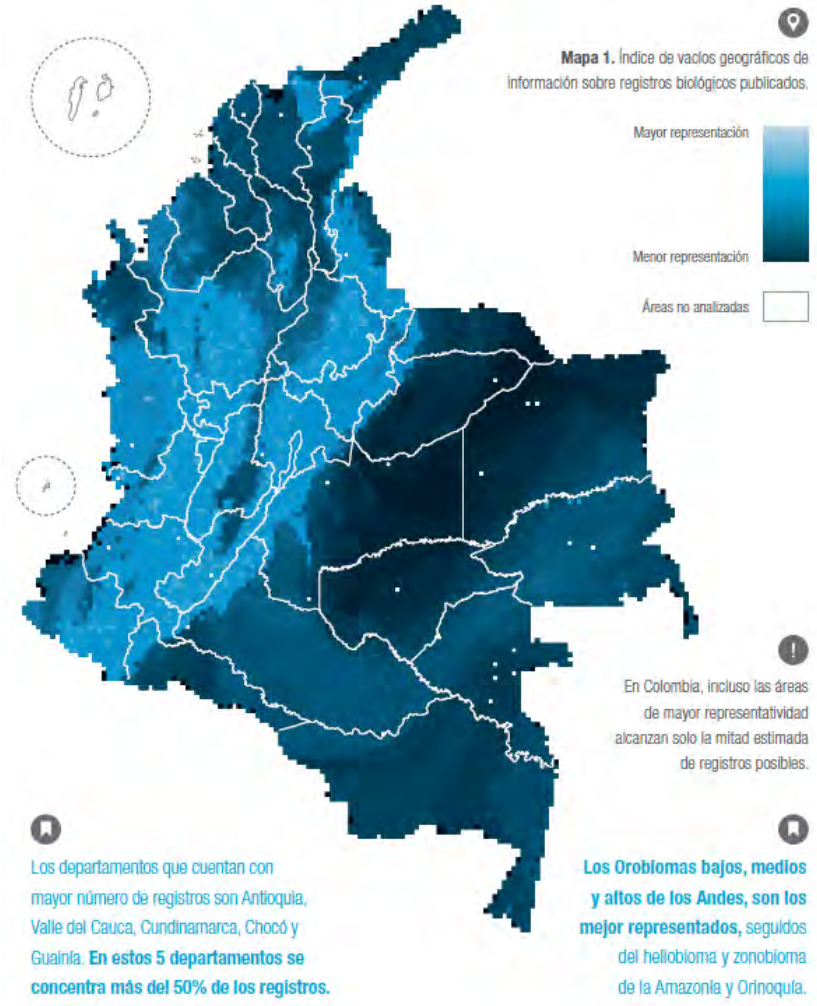
GBIF: Global Biodiversity Information Facility

Escobar et al. (2016)

SIB: 2012-2013-2014-2015-2016



Data gap analysis.

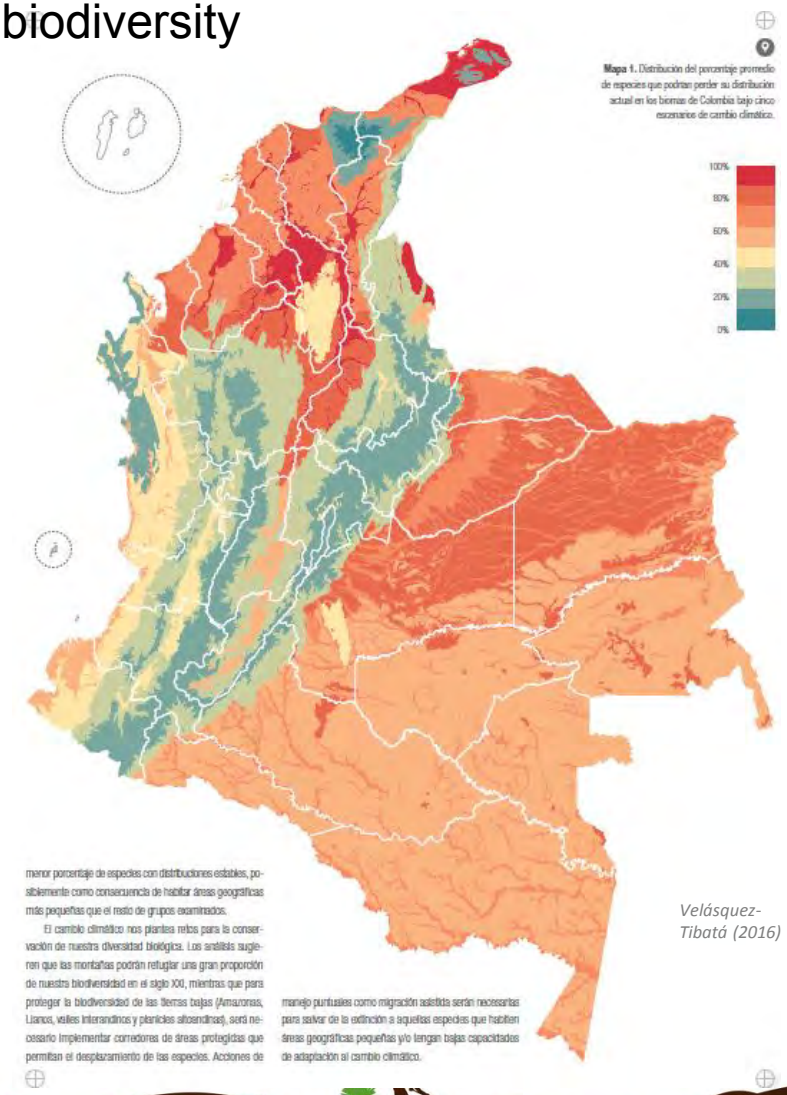


Londoño-Murcia, González y Bello (2015)

250 experts involved

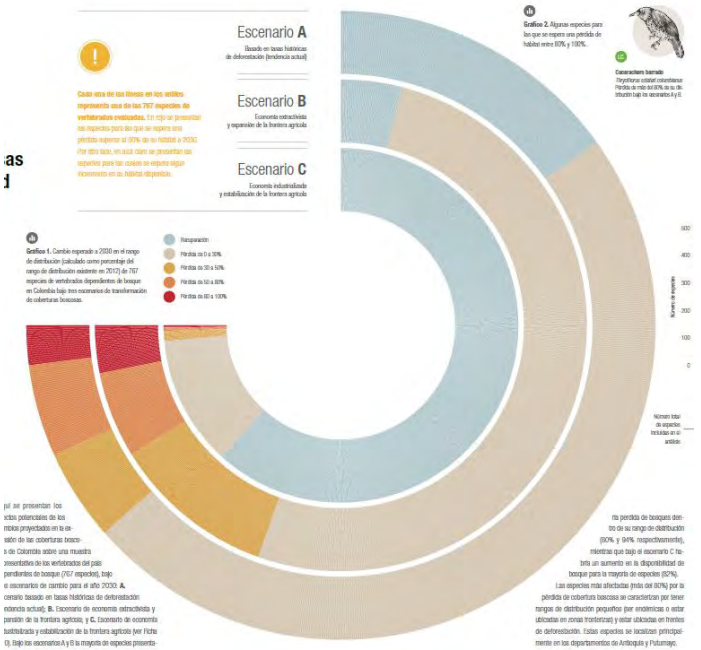
http://biomodelos.humboldt.org.co/

Climate change and biodiversity

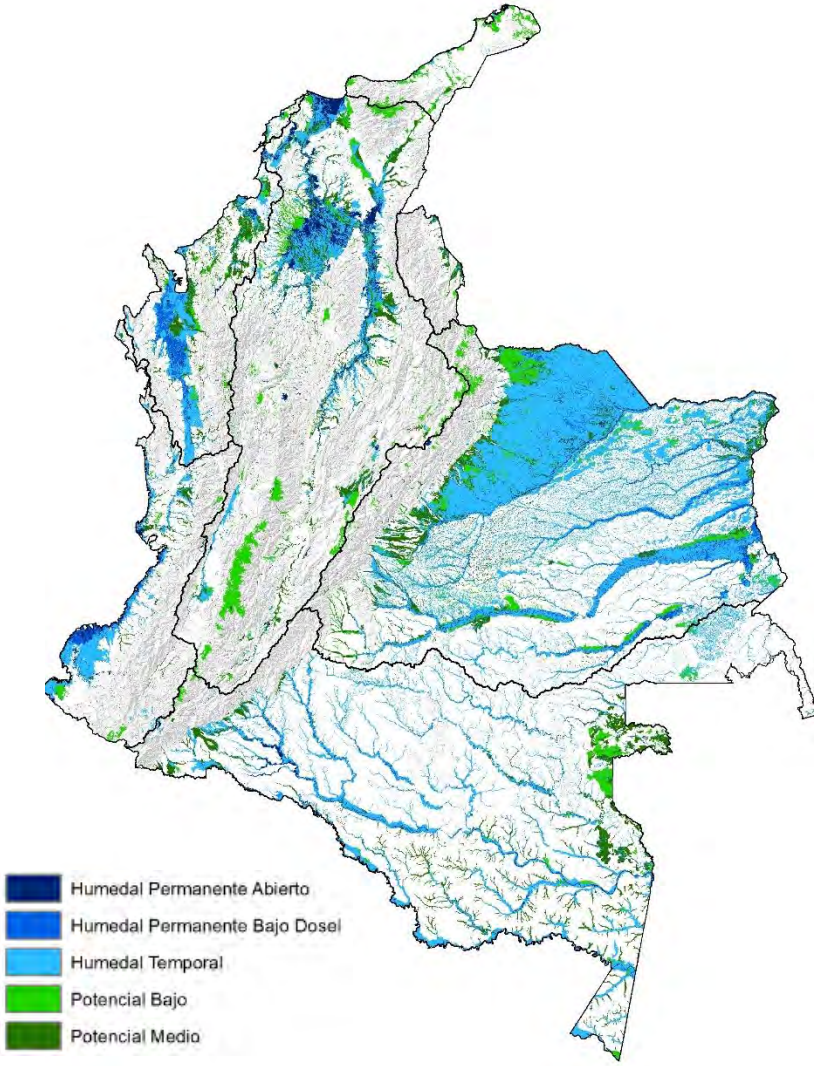


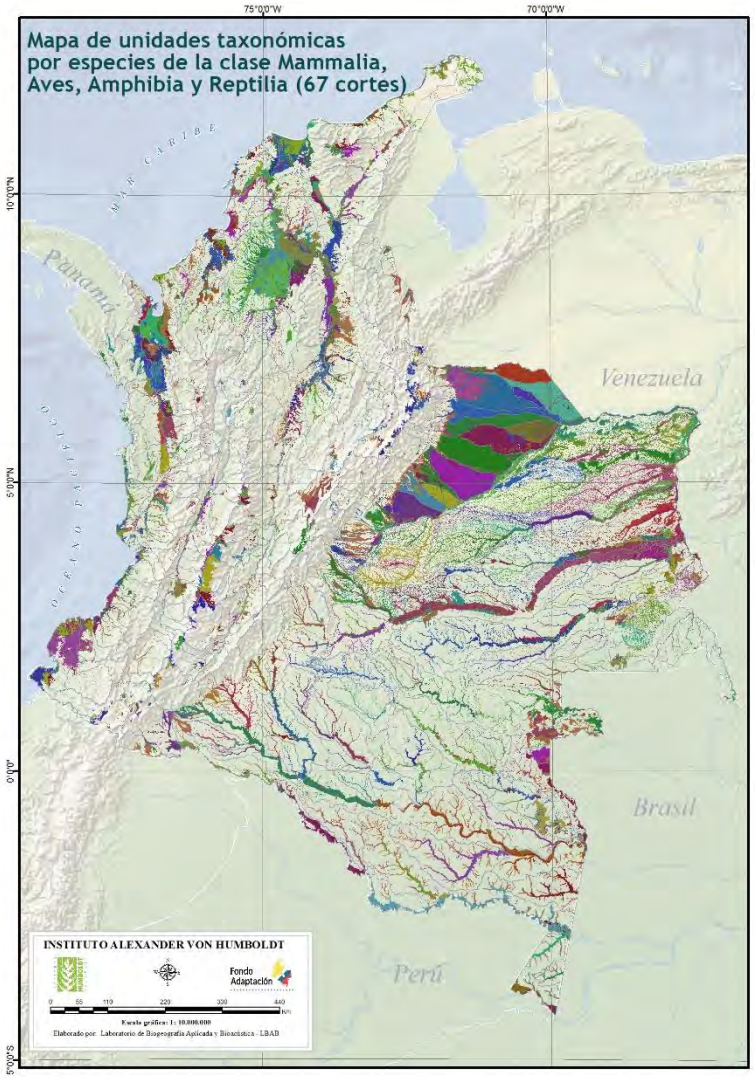
Velásquez-Tibatá (2016)

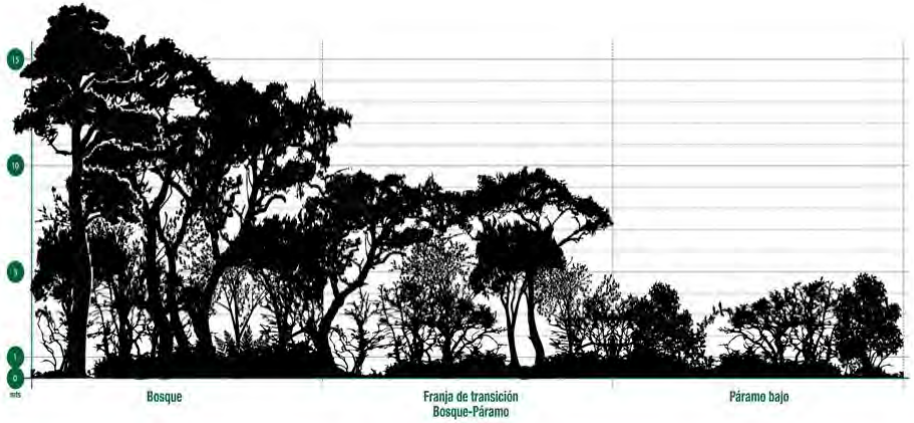
Effects of climate and land cover change in biodiversity

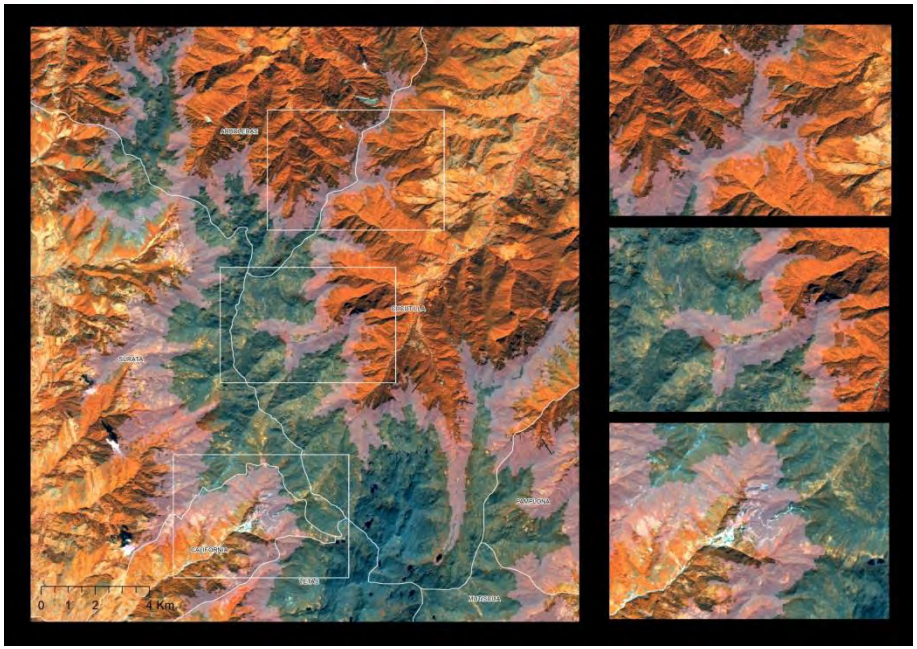


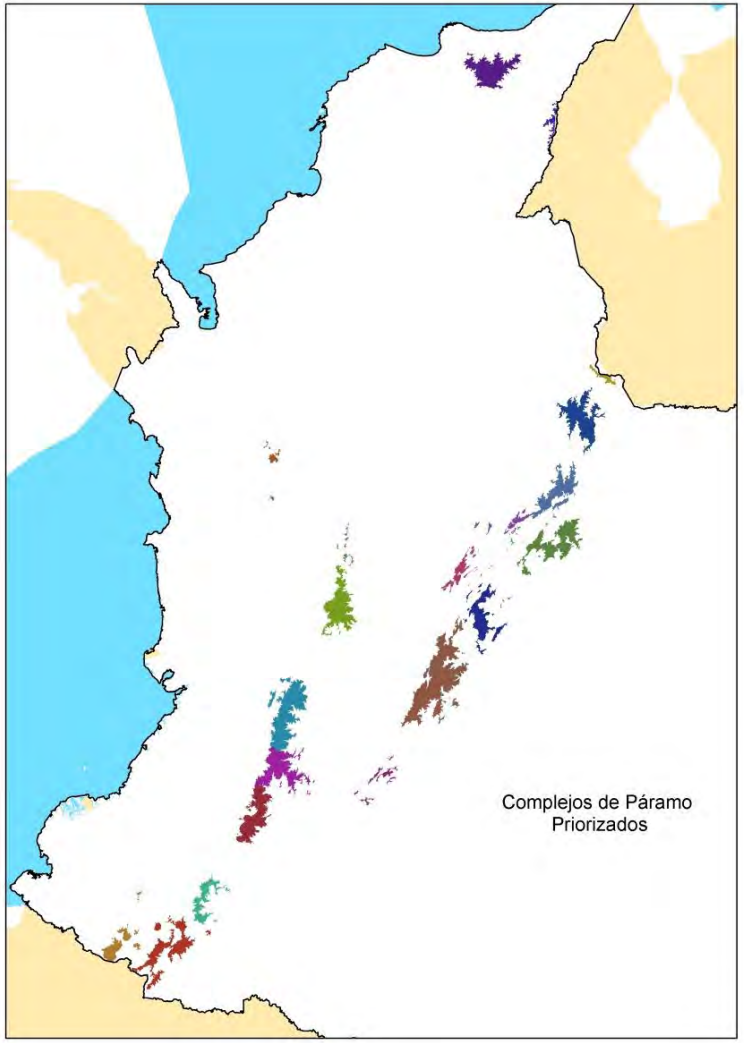
Velásquez-Tibatá , Etter y Arévalo (2016)

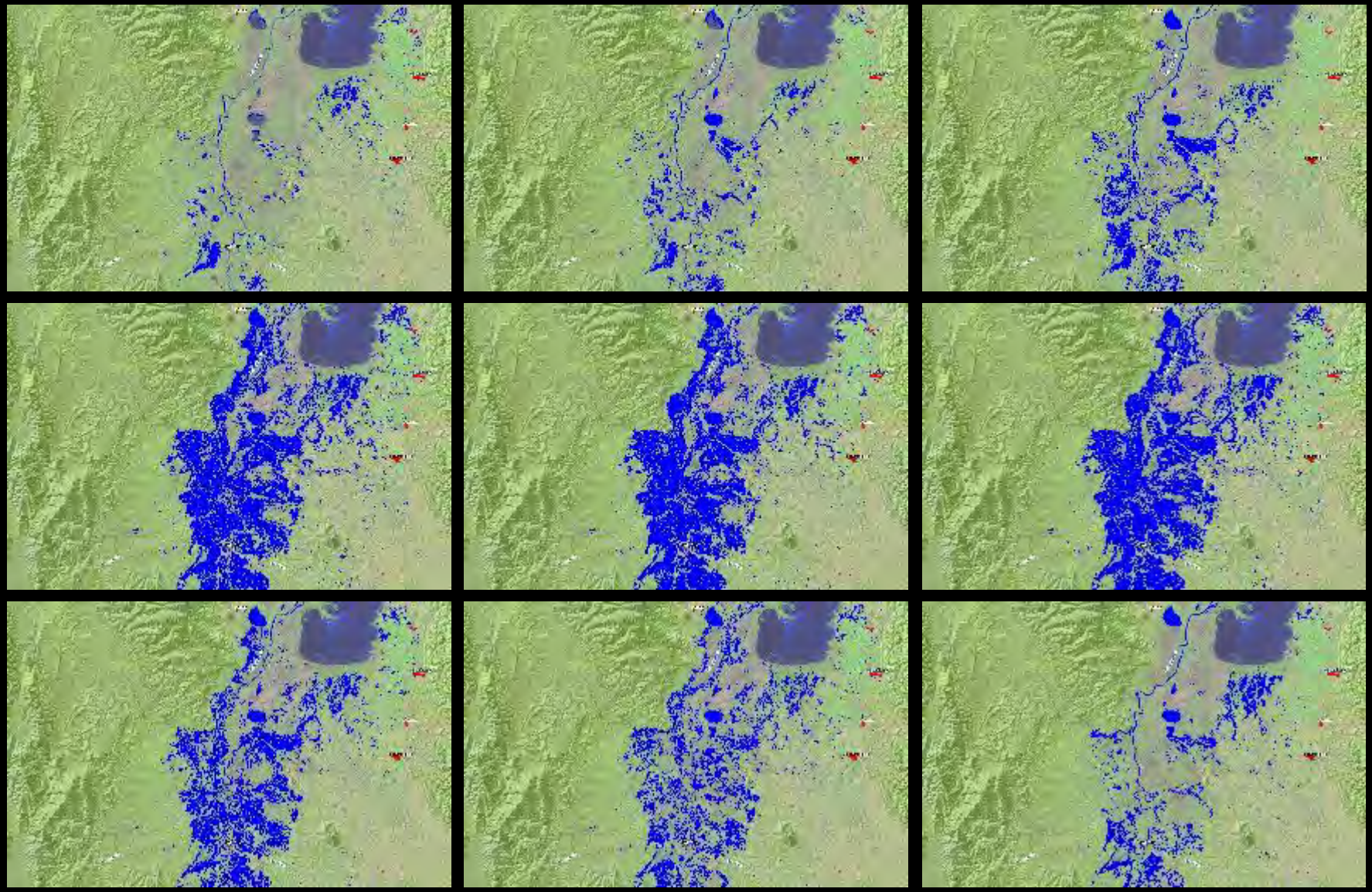

Humedal Permanente Abierto
Humedal Permanente Bajo Dosel
Humedal Temporal
Potencial Bajo
Potencial Medio


Mapa de unidades taxonómicas
por especies de la clase Mammalia,
Aves, Amphibia y Reptilia (67 cortes)
75°0'0"W
70°0'0"W
10°0'0"N
5°0'0"N
0°0'0"
5°0'0"S
MAR CARIBE
Panamá
OCEANO PACIFICO
Venezuela
Brasil
Perú
INSTITUTO ALEXANDER VON HUMBOLDT
Fondo Adaptación
0 55 110 220 330 440
km
Escala gráfica: 1: 10.000.000
Elaborado por: Laboratorio de Biogeografía Aplicada y Bioestatica - LBAB


Bosque
Franja de transición
Bosque-Páramo
Páramo bajo

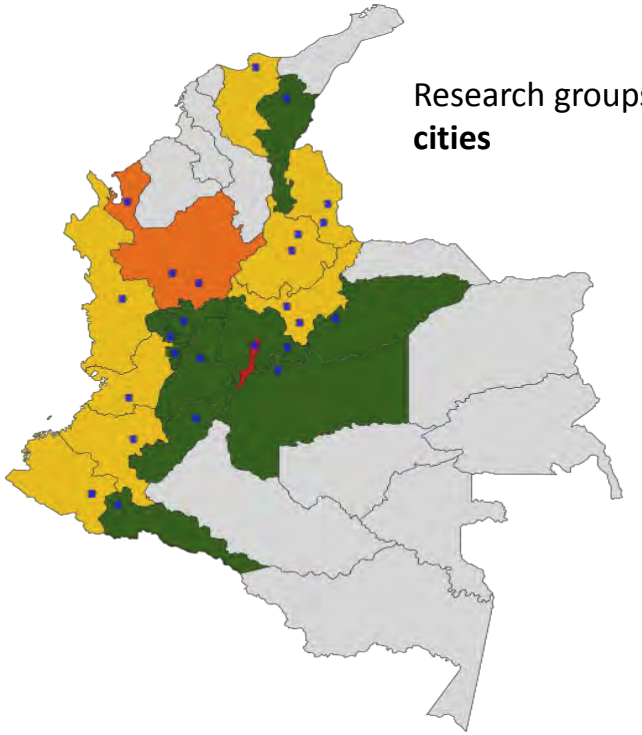

0 1 2 4 Km


Complejos de Páramo
Priorizados

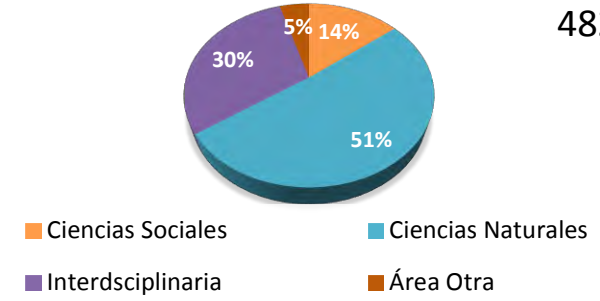


Dynamic of Atrato waterbodies (2007 – 2011).
ALOS-PALSAR I 50 m images (JAXA courtesy). Source: SARVISION – I. Humboldt – IDEAM agreement.
Project: *Insumos para la delimitación de Ecosistemas Estratégicos*
Convenio Interadministrativo 005 (13-014). Fondo Adaptación – I. Humboldt.

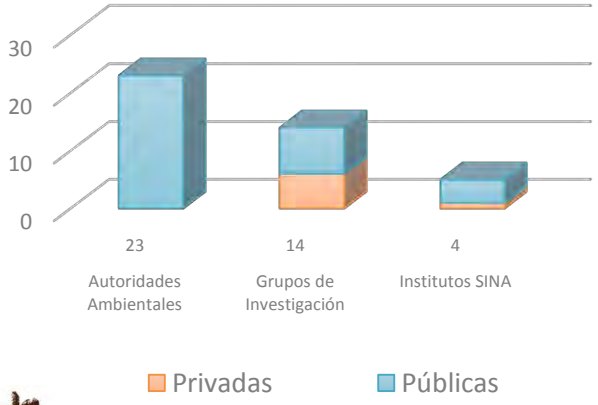
Highly participative method



Research groups **25 cities**



482 people

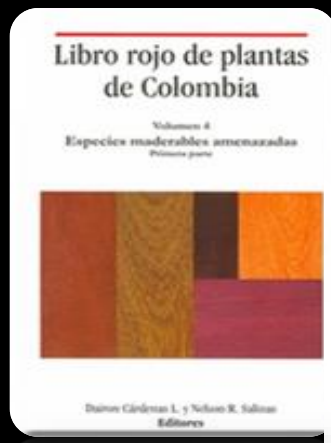


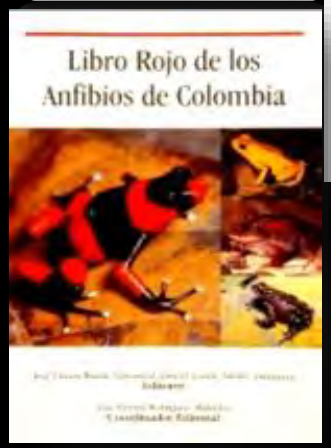
41 institutions

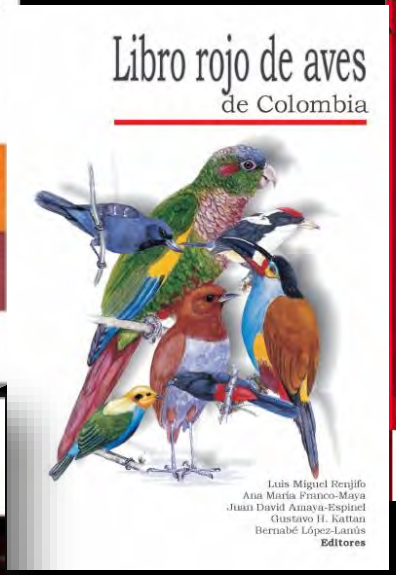
INTERPRETA INFORMACIÓN

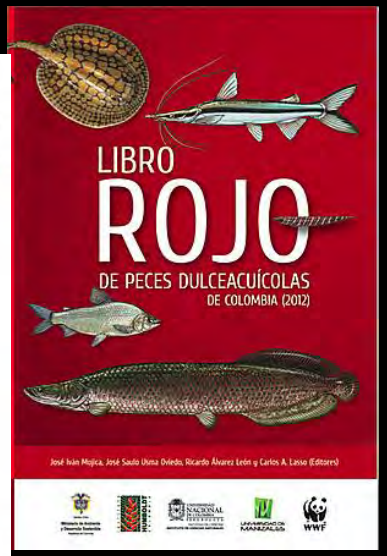
RET: State and Trends of Biodiversity Report

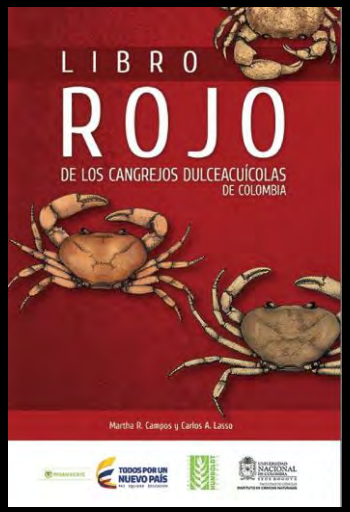
INTERPRETA INFORMACIÓN

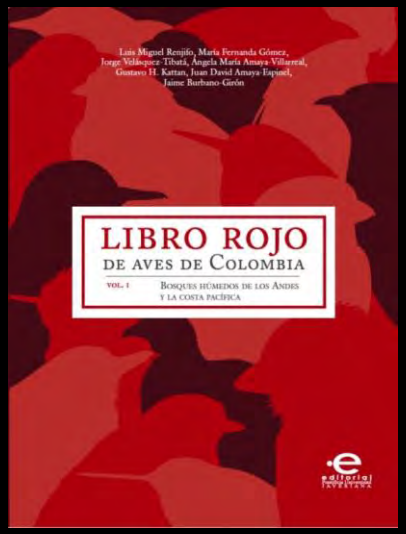






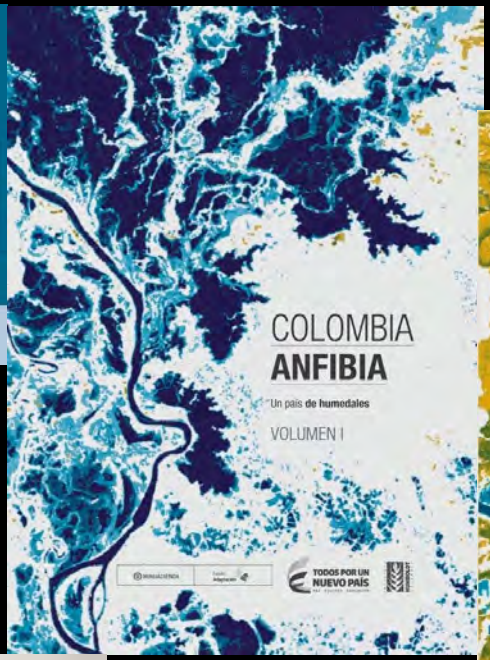


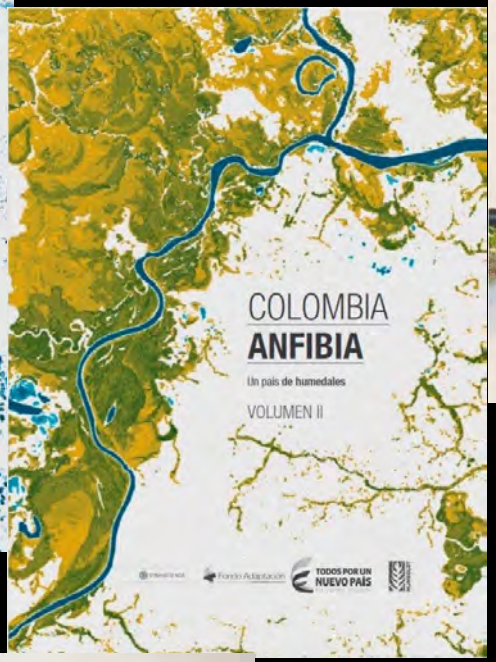




Species red list
Libros Rojos de Colombia

Paramos and Wetlands project





HOW TO IMPLEMENT A BIODIVERSITY OBSERVATORY SYSTEM USING THE EBVs FRAMEWORK?

Colombia BON

INSTITUTO HUMBOLDT COLOMBIA

Lead by

Instituto de Investigación de Recursos Biológicos Alexander von Humboldt

Network partners

The Colombian BON is envisioning to be part of the actual National Environmental Information System (SINA) were all the research and administrative institutions related to the Ministry of Environment of Colombia are represented.

Personnel and financial recources

Currently the personnel working on the establishment of the Colombian BON are part of the Biodiversity Evaluation and Monitoring programme in the Humboldt Institute. This program has a team of 52 professionals including biologist, ecologist, engineers and graphic designers. Of this team four people have been working directly with the GEO BON secretariat to progress towards the consolidation of the National BON. In 2015 we will have invest approximately 44.000 Euros.

Topics, activities and products

Main partner organisations

iDiv NASA UNEP WCMC GBIF.org MOL MAP OF LIFE SASSCAL

Instituto de Investigación de Recursos Biológicos
Alexander von Humboldt

Using Bon in a Box for Colombia

Inventory and Diagnosis of Biodiversity Observation Tools

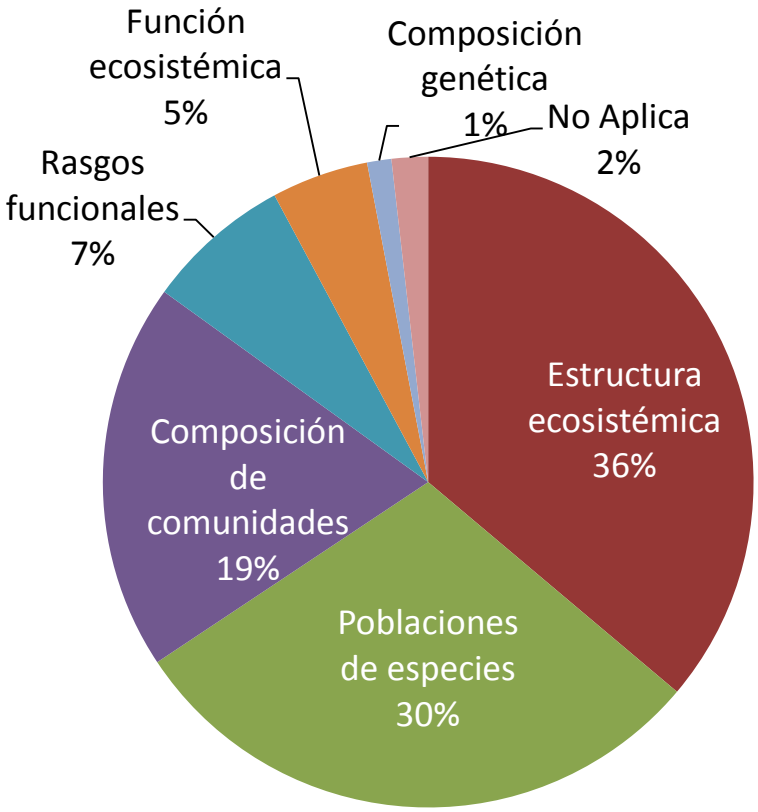
Sep-Dic 2015

117 tools found

GEOBON

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

EBV's Classes



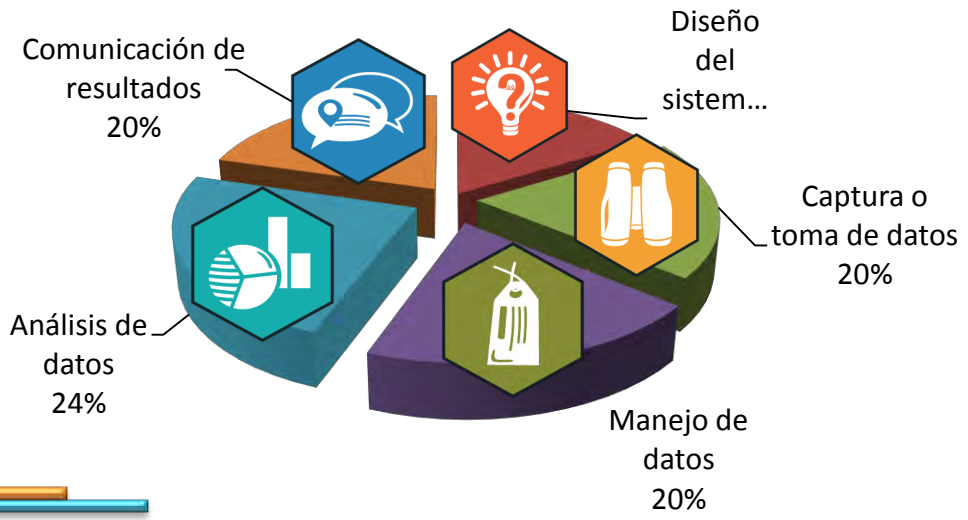
Strengths

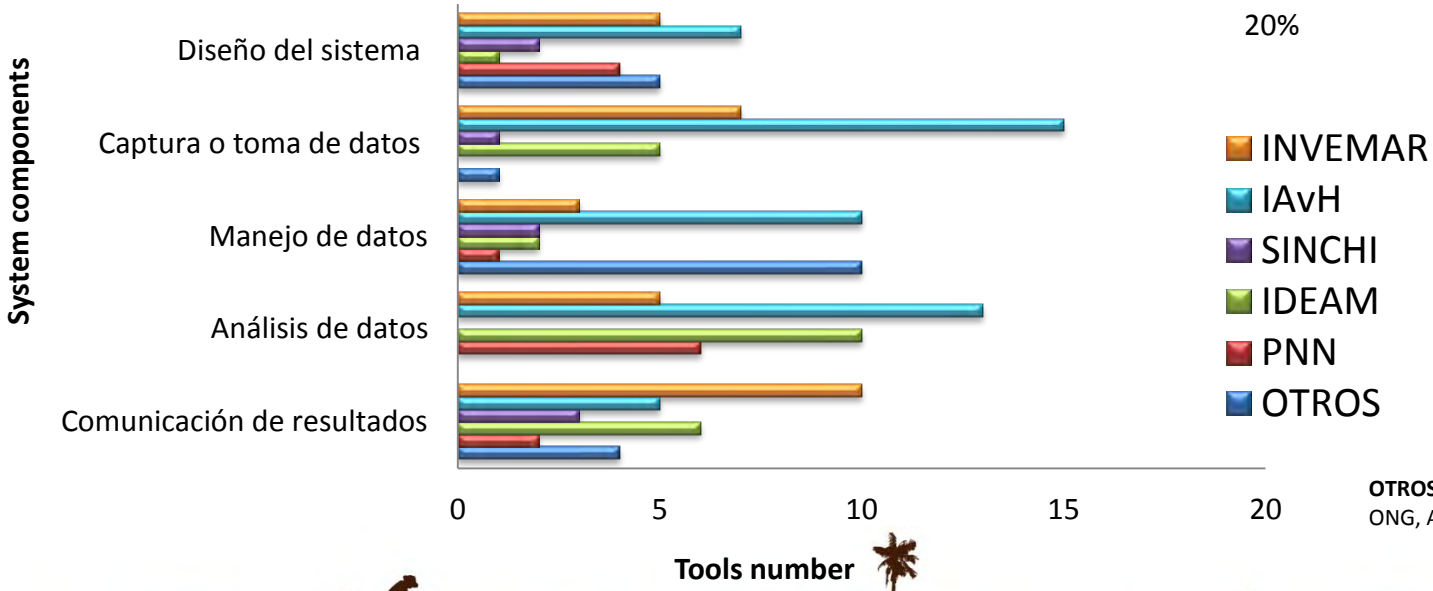
- Species population, community composition and ecosystem structure have enough information for integrating them into Biodiversity Observation System

Weakness

- Not enough on functional traits and ecosystem function, concern due to importance in ecosystem services assessment
- Still a long way to go in genetic composition, more incidence in needed regarding decision making.

System Components





OTROS: MADS, ANLA, ONG, Academia

General and specific objectives for 2020
Results for 2017

May	Jun	Jul	Ago	Sep	Oct	Nov	Dic
Establecer grupo de trabajo	Identificación de usuarios y sus necesidades. (FIMA)	Identificación de usuarios y sus necesidades. (FIMA)		Seleccionar métodos para obtención y análisis de datos.		Definir lineamientos para monitoreo de biodiversidad que permita obtener datos para las evaluación.	Congreso Ecología (simposio)
	Delimitación áreas (13 Junio)	Identificación de modelos conceptuales, variables e indicadores. (27-29)		Revisión de métodos e información disponible (7 a 9 sep)		Definir temporalidad y sostenibilidad del sistema. Plan de trabajo 2017 (10 y 11 Nov) Santa Marta	
			Obtención, publicación y accesibilidad de datos. 2017	Análisis de datos, generación de resultados. 2017			
			Desarrollos en infraestructura informática (últimos tres puntos) 2017				

GEOBON

Thank you for your kind attention!

Trapcamera