

Mission GeoNameec #1

Corcovado national park, Costa Rica
October 16th to 19th, 2025

France (OFB-PNE) meets Costa Rica (SINAC)
to work together on information systems, data
management and camera traps.



GeoNameec

 GeoNature meets Pronamec 

Context

NATUREXPAIRS
The French Hub
for Protected Areas & People

Technical Assistance Match France x Costa Rica (2)

Analysis and systematization of monitoring data of species of special interest in Corcovado National Park-National System of Conservation Areas

Supported by

In Partnership with

MINISTÈRE DE L'EUROPE ET DES AFFAIRES ÉTRANGÈRES
MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE ET DE LA COHÉSION DES TERRITOIRES
AFD
OFB
HIGH AMBITION COALITION FOR NATURE & PEOPLE

The Costa Rica – France “Match”: PRONAMEC & Corcovado:

- Requesting country: Costa Rica, through SINAC
- Identified needs:
 - Improve the management and analysis of wildlife monitoring data from Corcovado National Park (in particular through camera traps and national monitoring protocols).
 - Support the development of the PRONAMEC national platform to strengthen its integration of data collected from protected areas.
- French response: mobilization of experts from the Écrins National Park and the OFB, drawing on their experience in developing and using the GeoNature platform in France, as well as their expertise in digital biodiversity monitoring tools and protocols (including artificial intelligence applications).

Overall Objective of the Match:

- To contribute, through bilateral technical exchange, to strengthening Costa Rica’s capacity to implement a robust and operational national biodiversity monitoring system.
- To showcase French know-how (particularly regarding GeoNature) and share the lessons learned from its development.

Participants



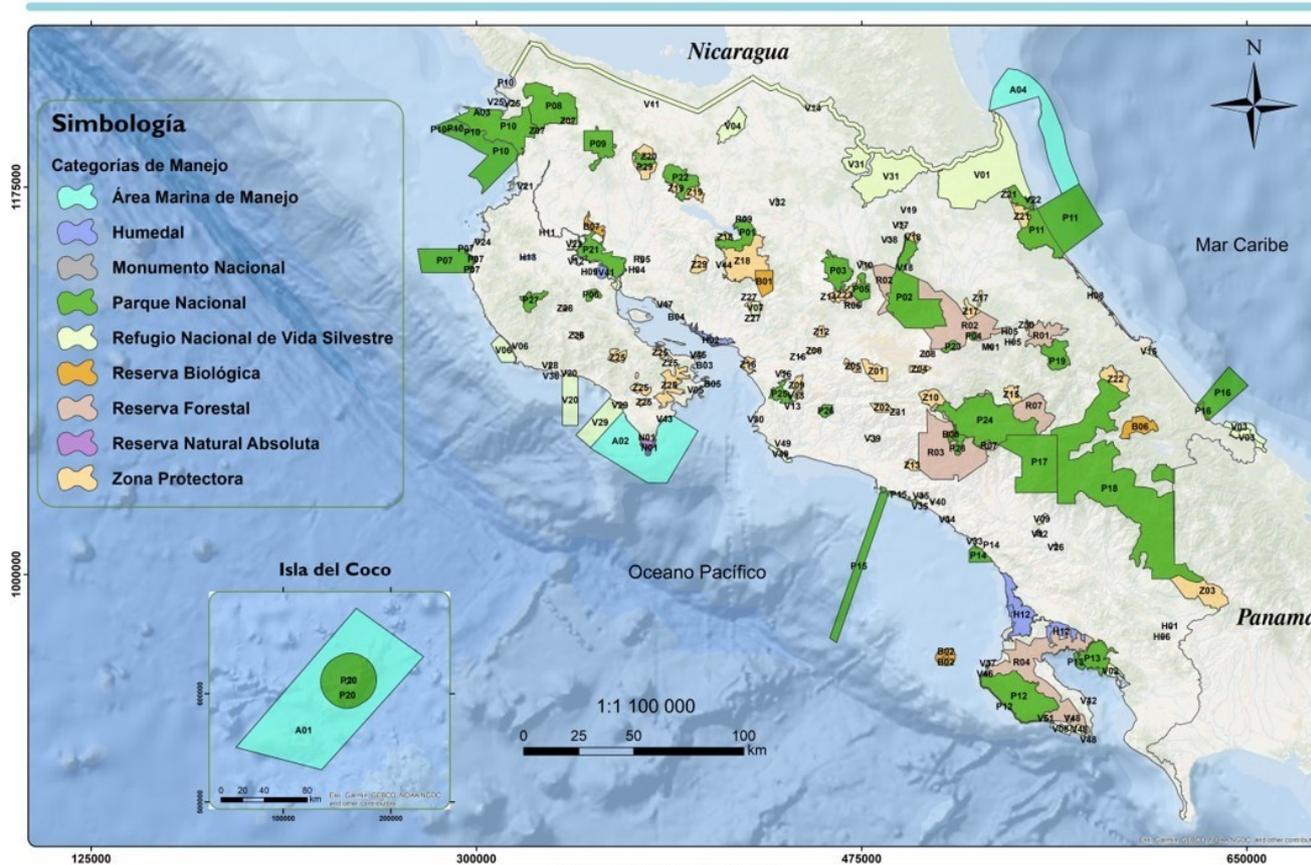
- Alejandro
- Eugenia
- Mauricio
- Marvin
- Ivan
- Camille
- Ilsia
- Roberto
- Daniela
- Yocelin
- Marylin
- Désirée
- Concha
- Harold
- Luis
- Jason
- Vindas

Travel



SINAC - Costa Rica protected areas

Áreas Silvestres Protegidas de Costa Rica

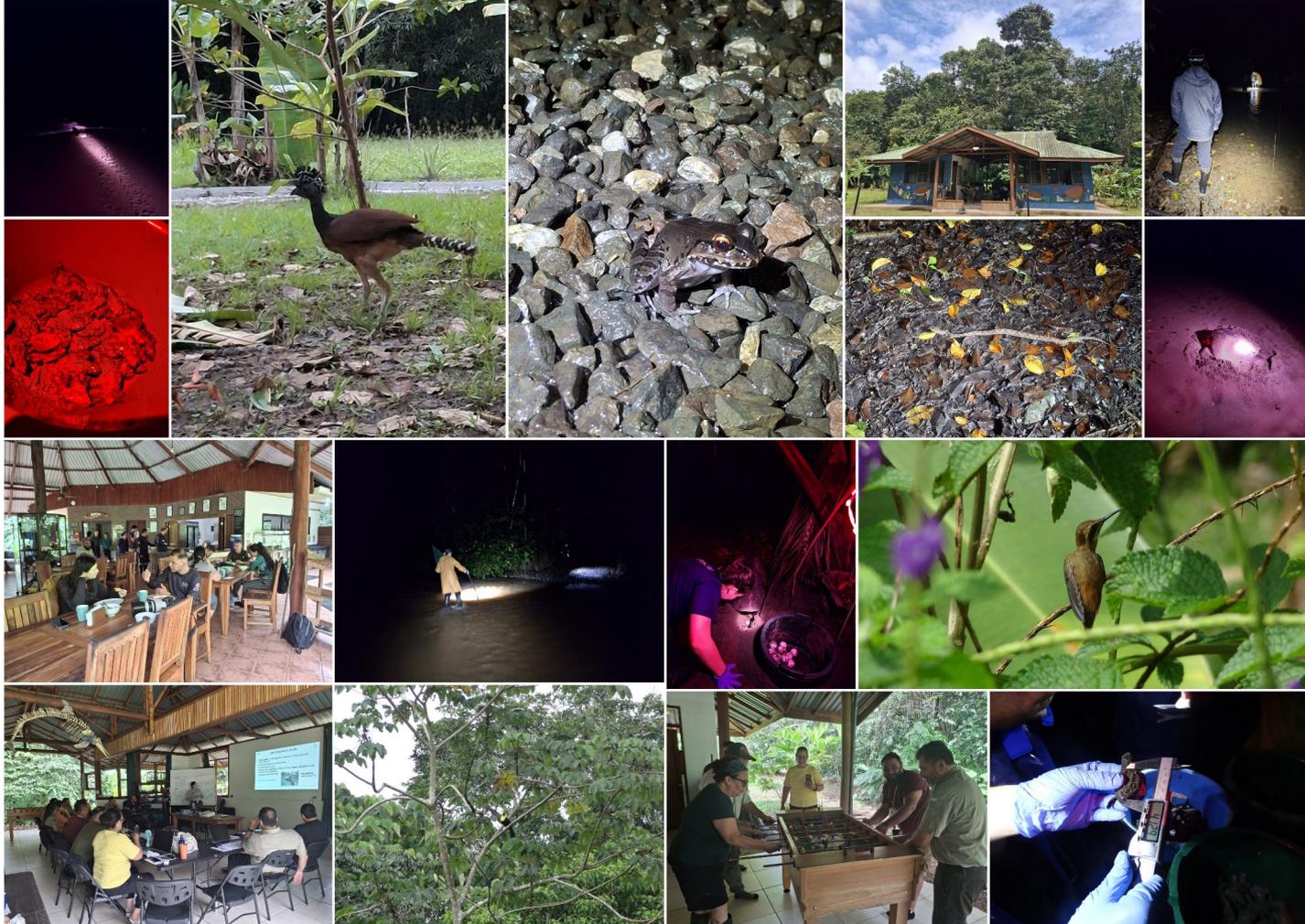


Ministerio de Ambiente y Energía
Sistema Nacional de Áreas de Conservación
Sistema de Coordenadas: CR05
Versión 2020

Day 1 - Classroom



Day 1



Day 1 - Presentations



Day 1 - Presentations

The screenshot shows the GeoNature DEMO web application interface. At the top left is the GeoNature logo. The navigation menu on the left includes: Accueil, Admin, Blaireautières, Dashboard, Ecrevisses à patte..., Exports, Import, Metadonnées, Monitorings, Occhab, Occtax, and Prairies fleuries. The main header displays 'Accueil', the GeoNature logo, 'GeoNature DEMO', and user information 'admin'. The main content area is titled 'Bienvenue sur le serveur de démonstration de GeoNature 2.16.3' and 'Les 100 dernières observations'. It features a map of France with observation points, a search bar, and a list of events: 'Septembre 2025 - Le serveur est mis à jour en version 2.16.3'. A pink warning box states: 'Ce serveur sert uniquement pour les tests et les démonstrations. Les données saisies ici ne sont pas sauvegardées et sont effacées régulièrement.' Below the map are four summary cards: '577 OBSERVATIONS', '94 TAXONS', '~81 OBSERVATEURS', and '31 JEUX DE DONNÉES'. The footer includes 'Discussions' and 'Validations' sections.

The screenshot shows the GeoNature mobile application interface. The top status bar displays the time '15:30' and various icons. The main header is green and contains the title '2 - Pointage'. Below the header is a map of a river area with a red location pin. The map shows 'L'Erdre' river, 'Ruban Vert', and 'Ile de Versailles'. At the bottom, there are two orange buttons: 'PRÉCÉDENT' and 'SUIVANT'. The mobile interface also shows a search bar and a scale bar.

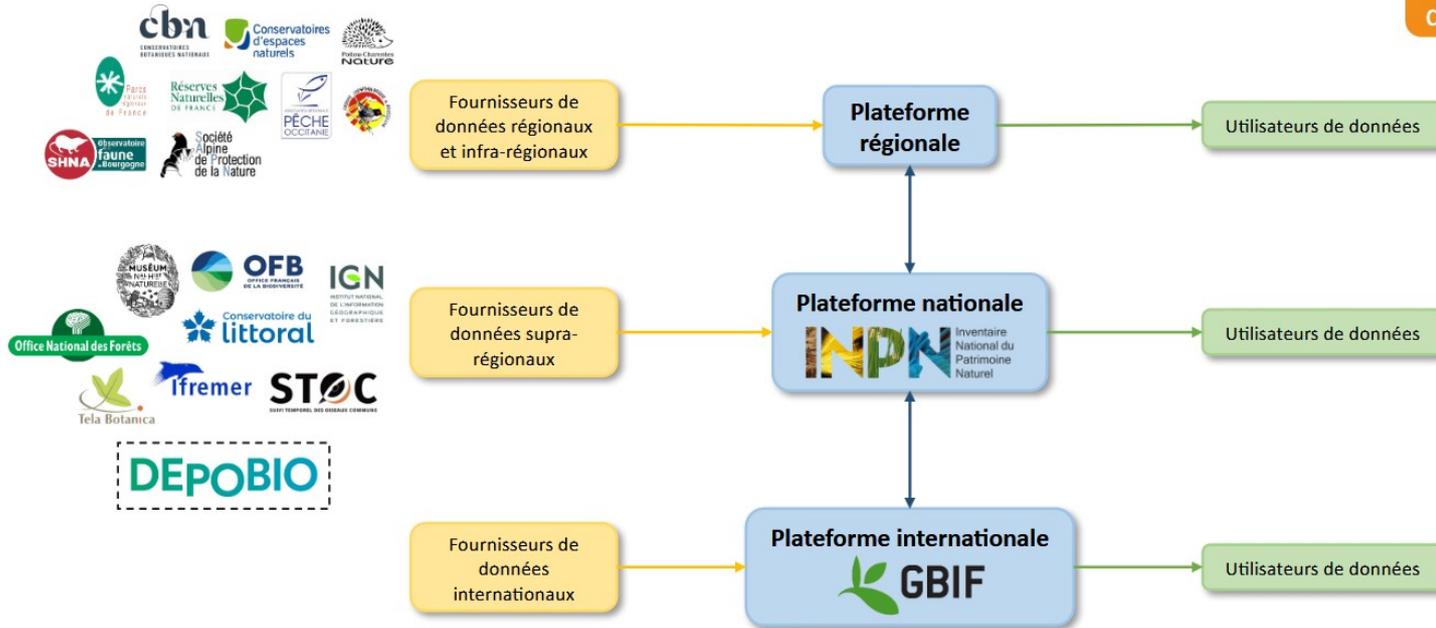
Day 1 - Presentations



Le SINP, dispositif **décentralisé**

L'architecture du SINP et la circulation des données partagées

Principe de dépôt unique !

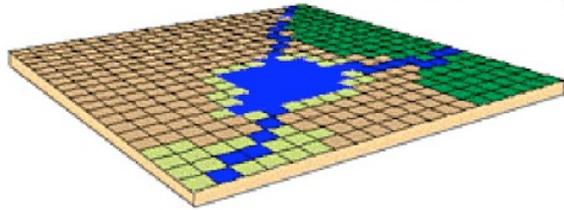


Day 2

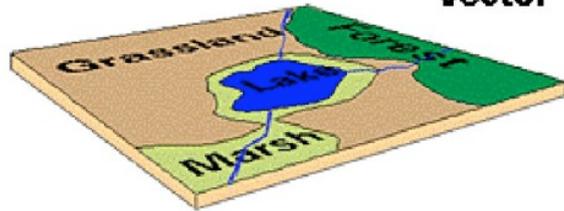


Day 2 - QGIS Mapping challenge

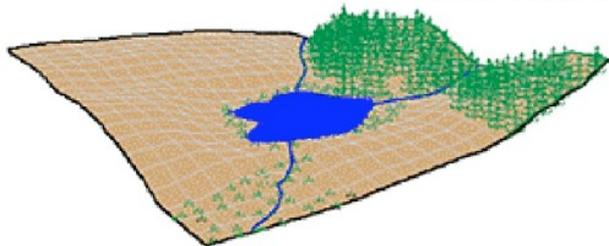
Raster / Image



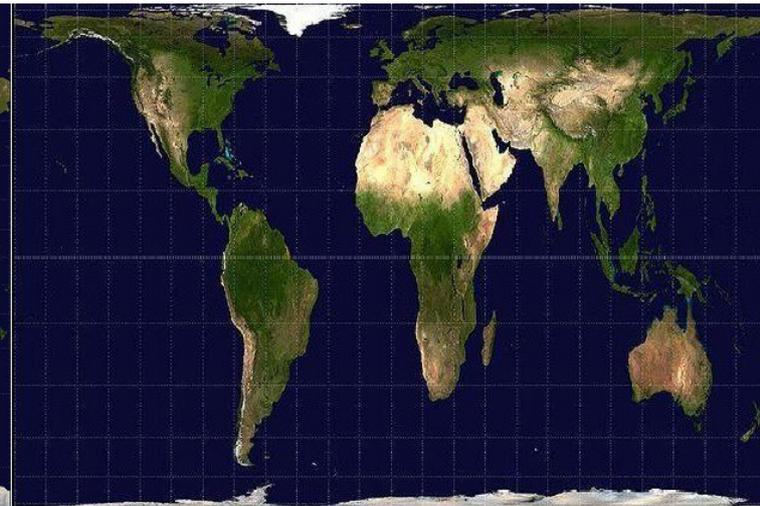
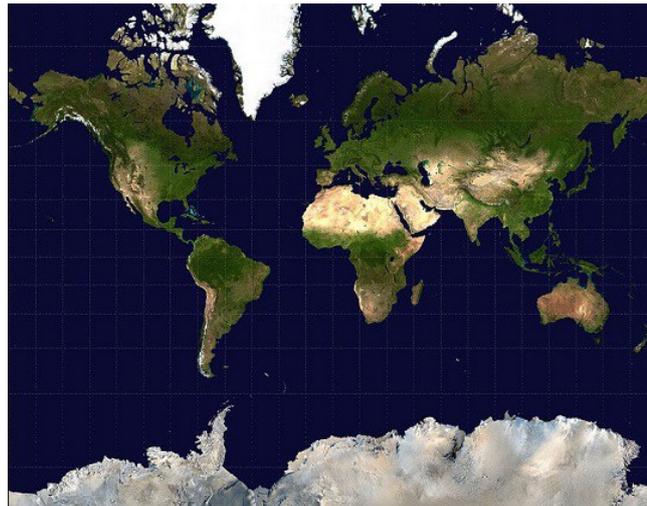
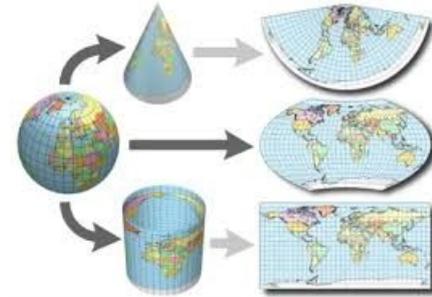
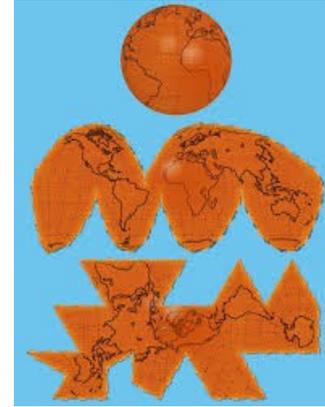
Vector



Real World



2 concepts :
- Raster / Vector
- Projections

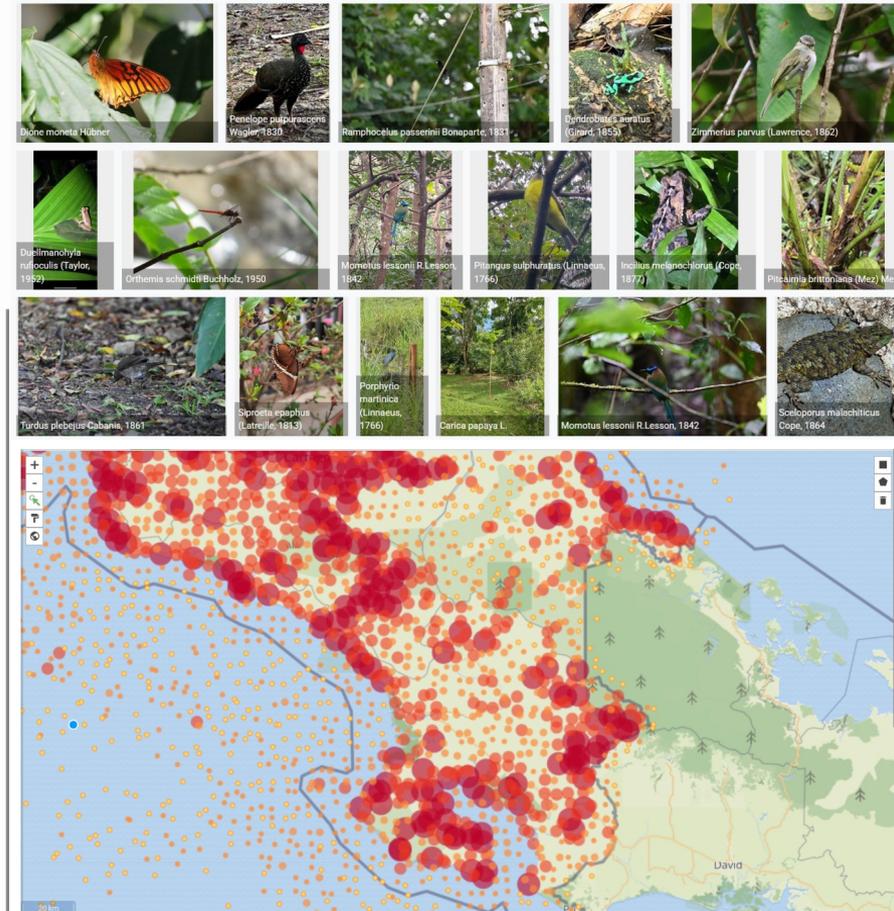


Day 2 - GBIF in Costa Rica

OCCURRENCES PER DATASET

Dataset	Count	
↻ EOD – eBird Observation Dataset	25,414,310	<div style="width: 100%;"></div>
↻ International Barcode of Life project (iBOL)	4,995,237	<div style="width: 80%;"></div>
↻ Insecta of Costa Rica (INBio)	3,276,500	<div style="width: 60%;"></div>
↻ iNaturalist Research-grade Observations	649,163	<div style="width: 30%;"></div>
↻ Plantae of Costa Rica (INBio)	352,692	<div style="width: 20%;"></div>
↻ Tropicos MO Specimen Data	202,222	<div style="width: 15%;"></div>
↻ INSDC Sequences	191,052	<div style="width: 15%;"></div>
↻ herbario	174,944	<div style="width: 15%;"></div>
↻ LACM Entomology Collection	128,311	<div style="width: 10%;"></div>
↻ Observation.org, Nature data from around the World	120,791	<div style="width: 10%;"></div>

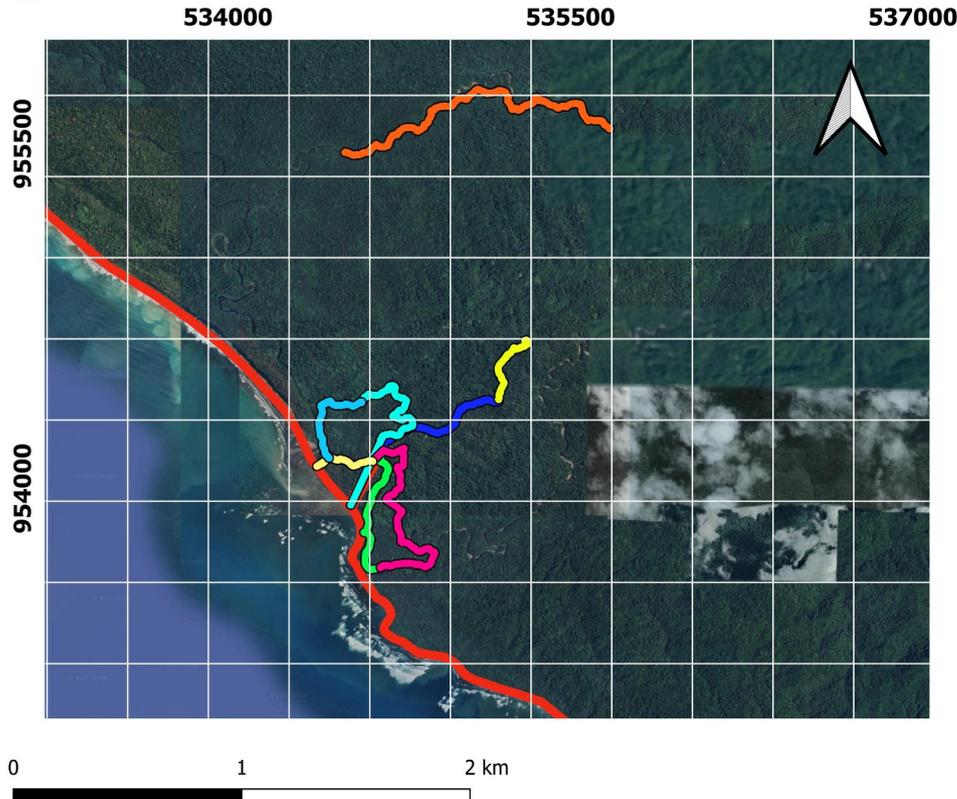
NEXT



Day 2 - QGIS Mapping challenge



Red de senderos de la Estación Sirena, Parque Nacional Corcovado; Costa Rica.



Leyenda

-  P.N. Corcovado
-  SEN. SIRENA
-  SEN. RIO SIRENA
-  SEN. RIO CLARO
-  SEN. OLLA
-  SEN. NARANJO
-  SEN. ESPAVEL
-  SEN. CORCOVADO PC
-  SEN. CONCHA

Google Satellite

Google Maps

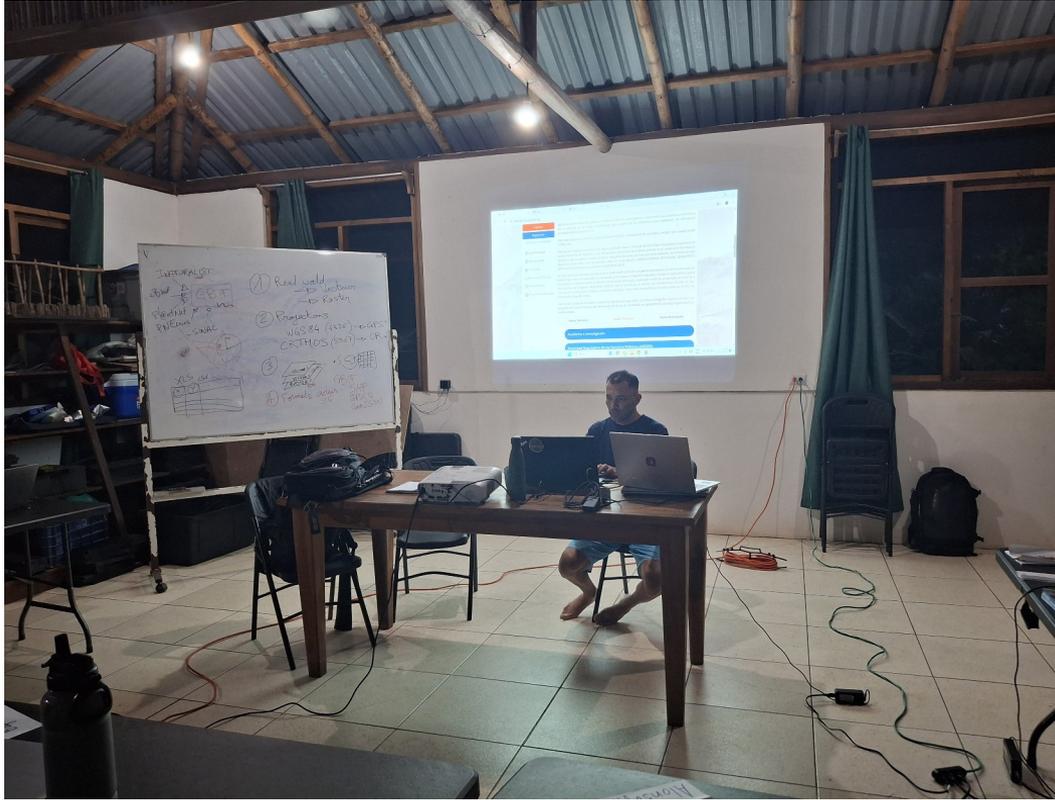
GOLFO DULCE-CRTM05
LLORONA-CRTM05
CARATE-CRTM05
MADRIGAL-CRTM05

Proyección CRTM05
Datum WGS84

Fuente: Patrimonio Natural del
Estado
Hojas Cartográficas: Atlas 2014

Elaborado por:
Téc. Jeyson Céspedes Vindas
SINAC-ACOSA-RFGD
10 de octubre del 2025

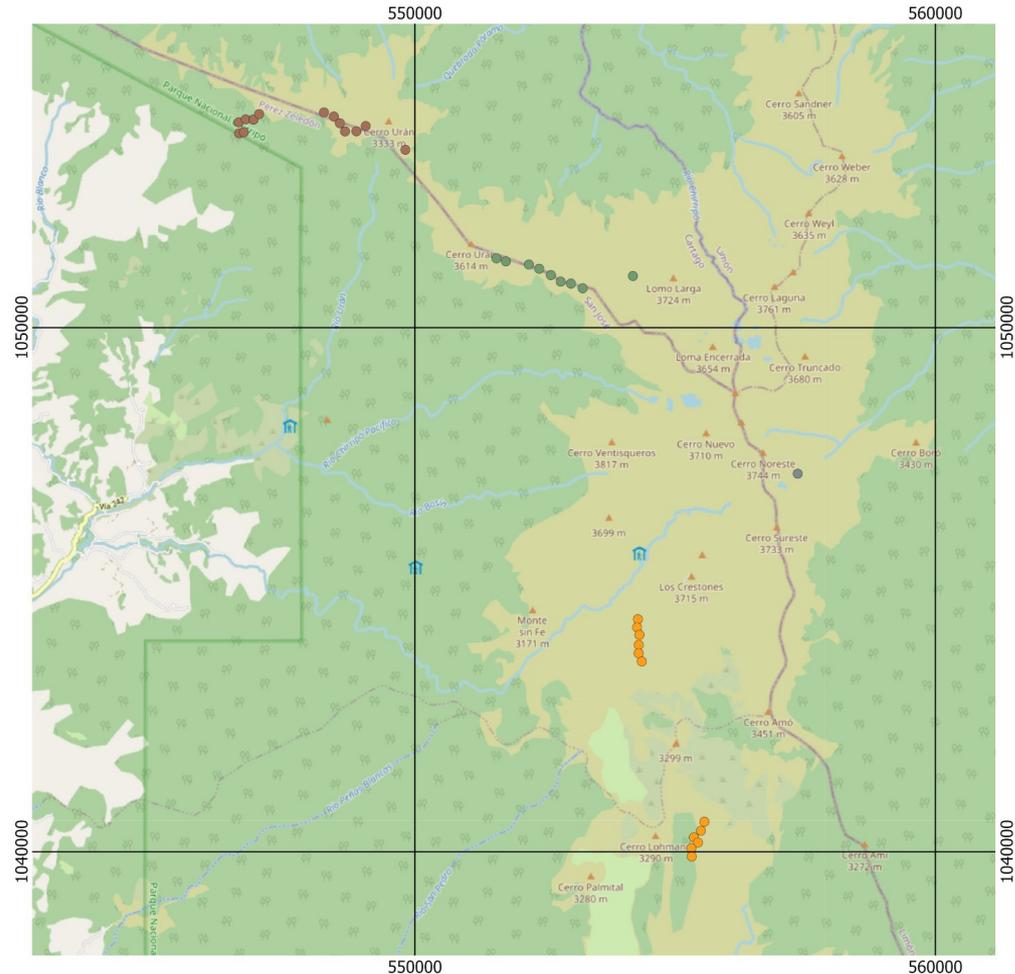
Day 2 - QGIS Mapping challenge



Day 2 - QGIS Mapping challenge



Day 2 - QGIS Mapping challenge



MAPA TRANSEPTO MONITOREO DE AVES PN CHIRRIPO

- Uran primer dia
 - Uran segundo dia
 - Camara Ditkevi
 - Sabana de los Leones
- OpenStreetMap

Ubicación: Parque Nacional Chirripó
Equipo Utilizado: Garmin 62s msp
Proyección: CRTM05
Fecha de Levantamiento: Del 26 al 28 de mayo, 2025.

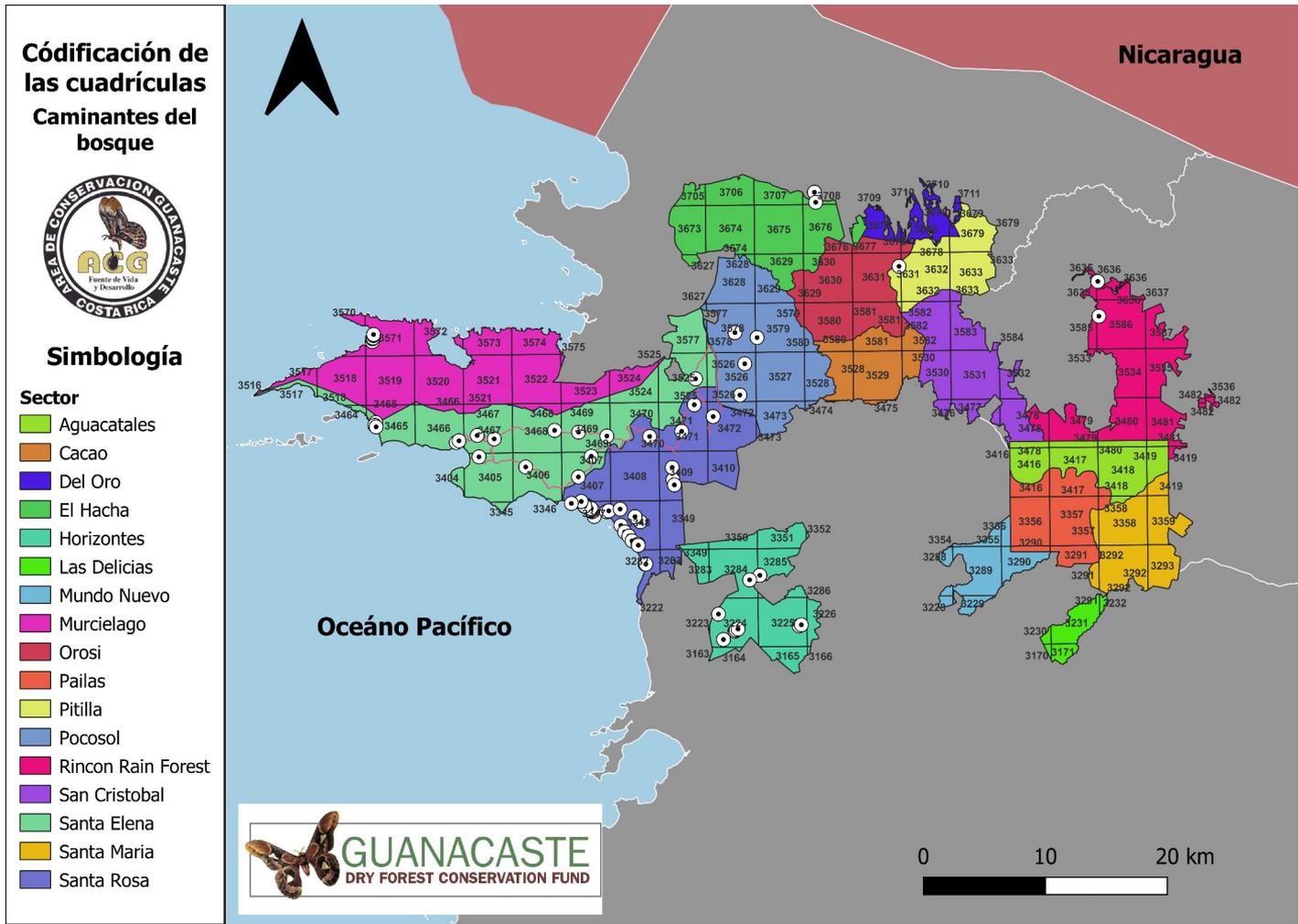
Datos: Ivan Leitón Zúñiga
Diseño: Harold Madrigal Ortega



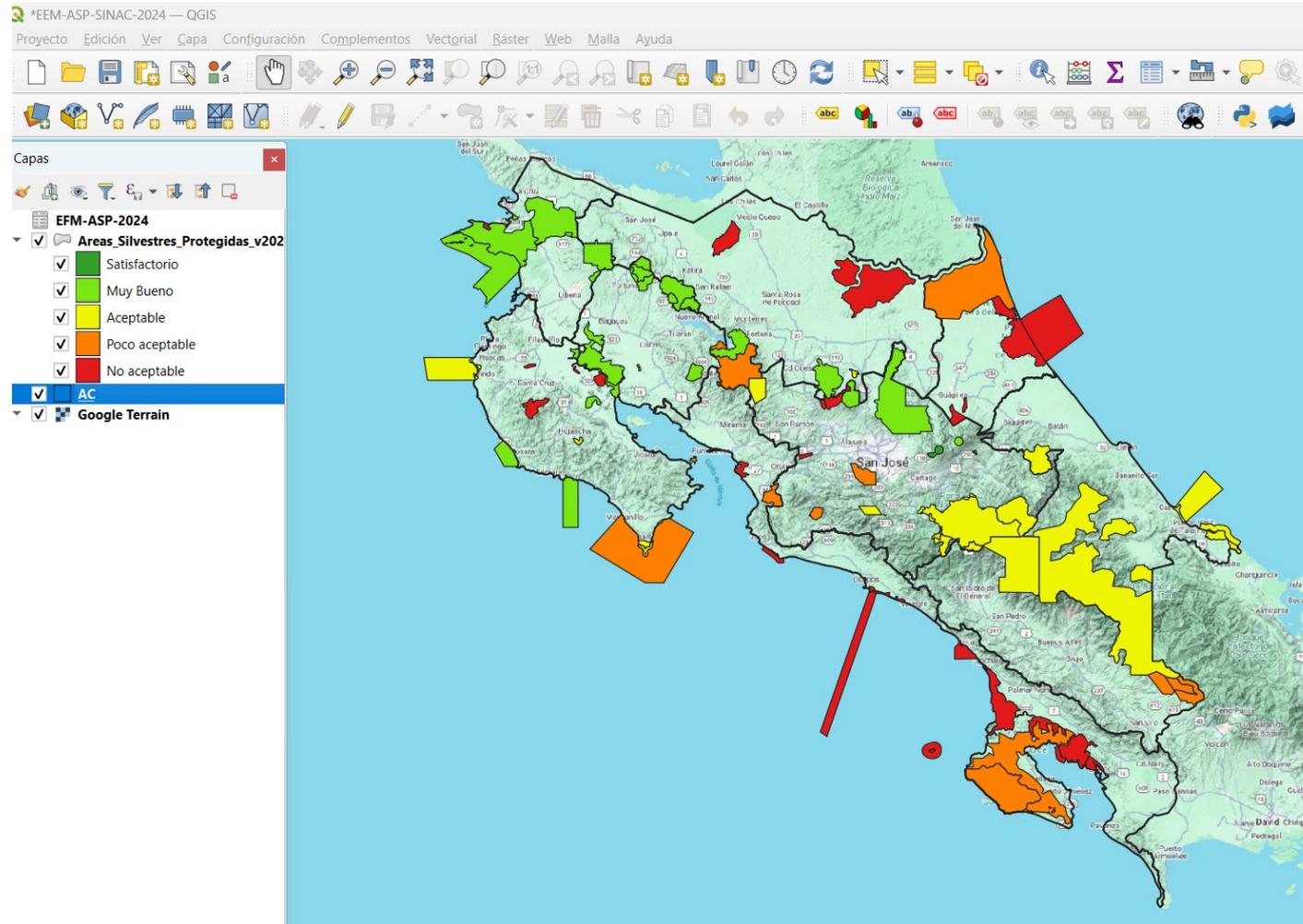
Day 2 - QGIS Mapping challenge



Day 2 - QGIS Mapping challenge



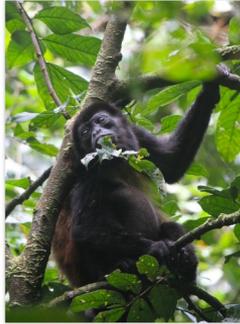
Day 2 - QGIS Mapping challenge



Jorge Alonso Vindas Angul



Jorge Alonso Vindas Angul



iNaturalist contribution

249 observations from 143 species, by 42 observers in iNaturalist / GBIF since 2025-01-01

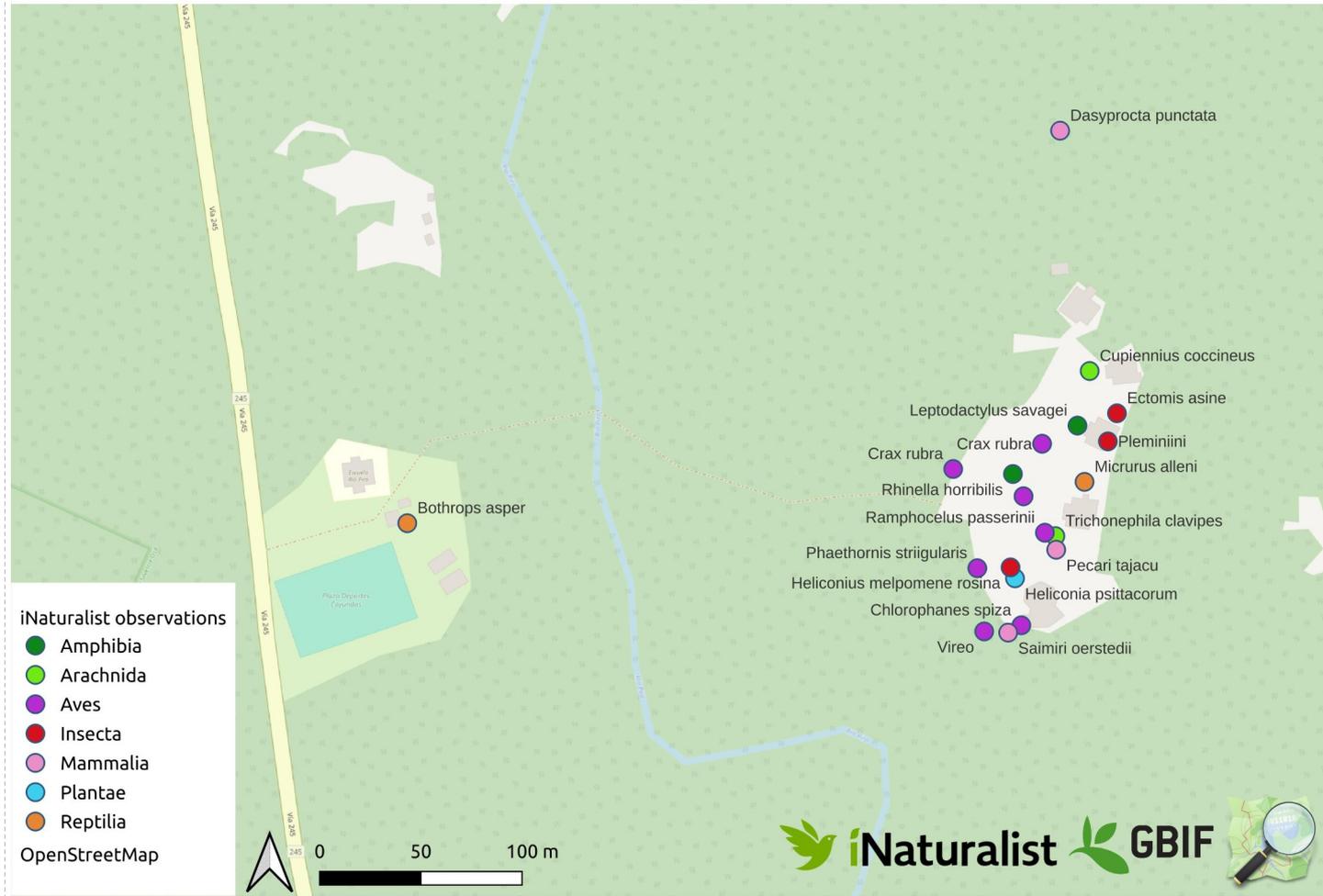


iNaturalist (since 2025-01-01)

- Actinopterygii
- Amphibia
- Animalia
- Arachnida
- Aves
- Fungi
- Insecta
- Mammalia
- Mollusca
- Plantae
- Reptilia

iNaturalist contribution

21 species observed at the scientific station during the mission and published in iNaturalist / GBIF



Day 3 – Camera traps



Day 3 – Camera traps



Day 3 – Camera traps

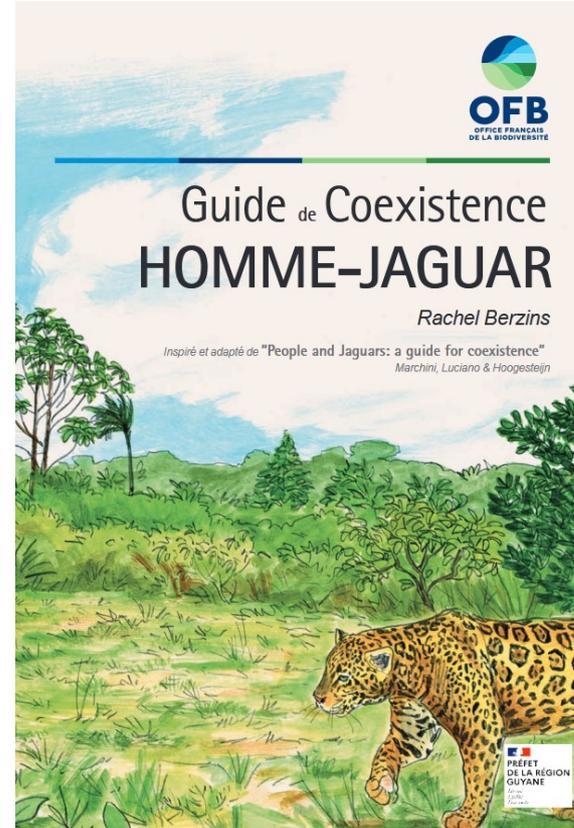


Day 3 – Camera traps

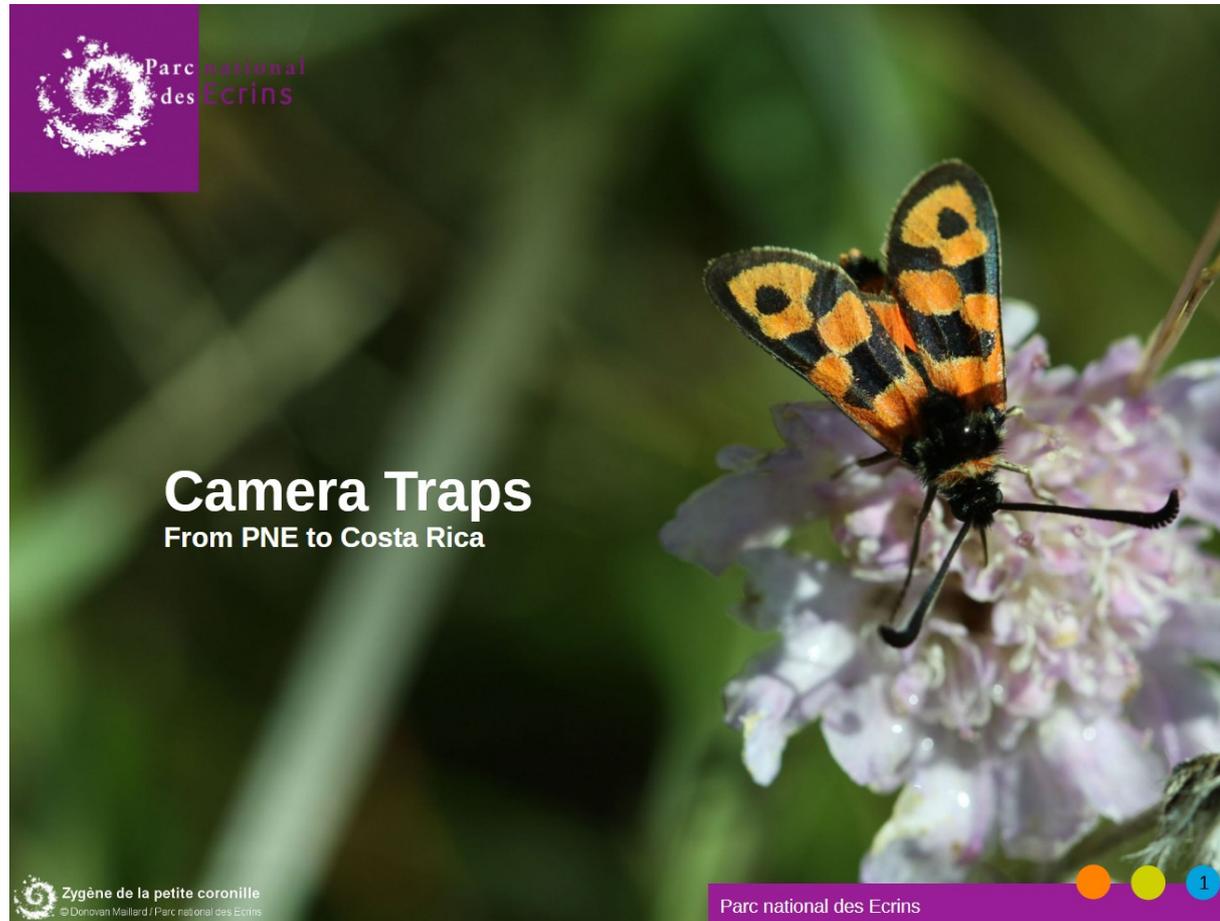


- Conflictos jaguar/hombre en Guyana francesa :
https://guyane.ofb.fr/wp-content/uploads/2021/04/OFB_LivretJaguar_MAJ_032020.pdf

- Monitoreo de los jaguars y pumas en Guyana francesa:
<https://guyane.ofb.fr/decouvrir-les-etudes-de-la-faune-sauvage-et-de-la-chasse/les-etudes-realisees-et-en-cours/le-programme-de-resolution-des-conflits-homme-jaguar/#amlioration-des-connaissancesfinancement-cnes>

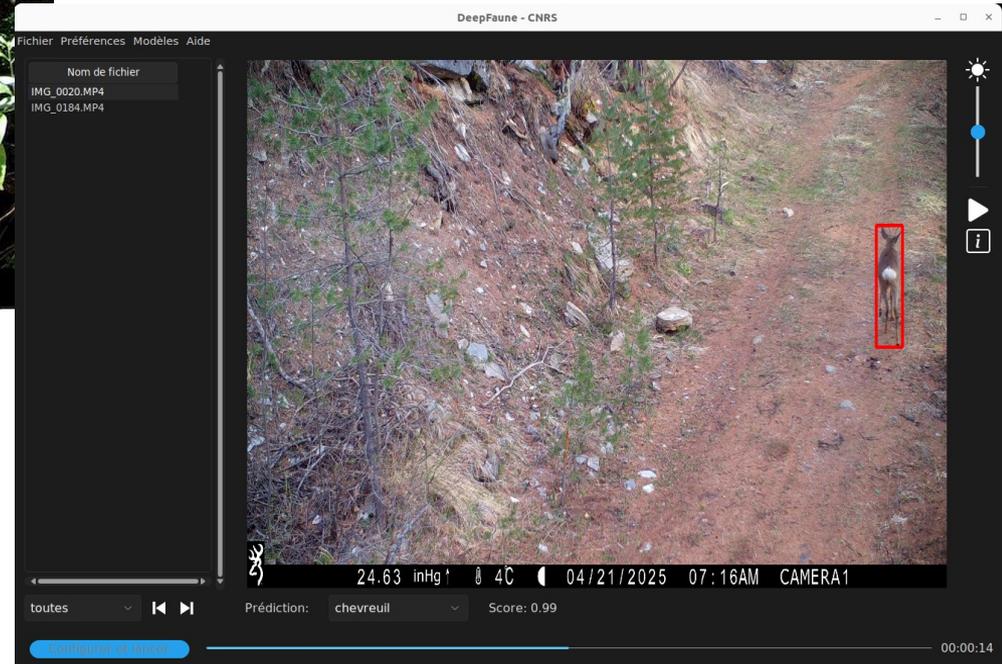


Day 3 – Camera traps



Full presentation : <https://geonature.fr/documents/autres/2025-Costa-Rica/2025-10-Camera-Traps-PNE.pdf>

Day 3 – Camera traps



Day 3 – Camera traps

Everything I know about ML and camera traps

[View on GitHub](#)

Overview

This is a list of everything I know about machine learning and camera traps, which is presumably just a subset of what's out there... [email me](#) with updates, or submit pull requests. Help me keep this page up to date! And tell me what I got wrong about your software and your papers!

Maintained by Dan Morris. Disclosure of what I work on: I contribute to several projects on ML for camera traps (particularly, [MegaDetector](#), [SpeciesNet](#), and [Wildlife Insights](#)) and an open repository for conservation data ([Illa.science](#)). And since I've disclosed that, I can say that although I don't filter papers for this list based on whether they use stuff I've worked on, I *do* use this list as a way of tracking how those systems are being used, so in the "papers" sections, you will see tags for a few things I want to track.

Table of Contents

[Camera trap systems using ML](#)
[Systems in active development](#)

The screenshot shows the WildLabs.Net website. The header includes the logo and navigation links: Search, Login, Explore, Connect, Resources, About, and Join. The main content area features a blog post titled "We are releasing SpeciesNet" dated 3 March 2025. The author is Stefan Istrate, a Machine Learning Researcher & Nature Photographer. Below the author information are buttons for "AI for Conservation" and "Camera Traps". To the right, there is a camera trap image of a giant armadillo with a bounding box and classification labels: "animal: 93%" and "giant armadillo: 99.8%". The bottom of the image shows metadata: "Rishmell", "CTLU10", "73°F 22°C", "04-21-2020", and "03:40:38".

Day 3 – Camera traps

AddaxAI v6.19 - Simple mode

Al modo avanzado |  | Patrocine proyecto
Français | Restablecer valores

 ¿Qué carpeta quieres analizar? ?
 no hay carpeta seleccionada

 ¿Qué modelo de identificación de especies quiere utilizar? ?

 ¿Qué especies están presentes en la zona de su proyecto? ?

- Species 1
- Species 2
- Species 3
- Species 4
- Species 5
- Species 6



Creado por Addax Data Science. ¿Más tecnología de conservación? Visite addaxdatascience.com

AddaxAI v6.19 - Advanced mode

To simple mode |  | Sponsor project
Español | Reset values

Deploy Help About

Step 1: Select folder
...o/02-Cerro_Bella_Vista

Step 2: Analysis

Model to identify animals: MegaDetector 1000 Redwood
Global - SpeciesNet - Google

Identification options

Show model information

Location: gional taxa and allow all species to

Detection confidence threshold: 0.20

Don't process subdirectories
Use custom image size
Use absolute paths in output file
Disable GPU processing
Process images, if present

Image options

Use checkpoints while running
L Checkpoint frequency: Par. ex.: 500
Continue from last checkpoint file

Process videos, if present

Video options

Don't process every frame
L Sample frames every N seconds: 1

Step 3: Annotation (optional)
Manually verify results

Step 4: Post-processing (optional)

Destination folder: ...xai_speciesnet_results

Separate files into subdirectories
Visualise detections and blur people

Visualization options

Draw bounding boxes and confidences
L Select line width and font size: Medium
Blur people

Crop detections
Create maps and graphs
Export results and retrieve metadata

Export options

Output file format: CSV

Confidence threshold: 0.3

By Addax Data Science. More conservation technology? Visit addaxdatascience.com

Day 3 – Camera traps



Day 3 – Camera traps

results_detections.csv — LibreOffice Calc

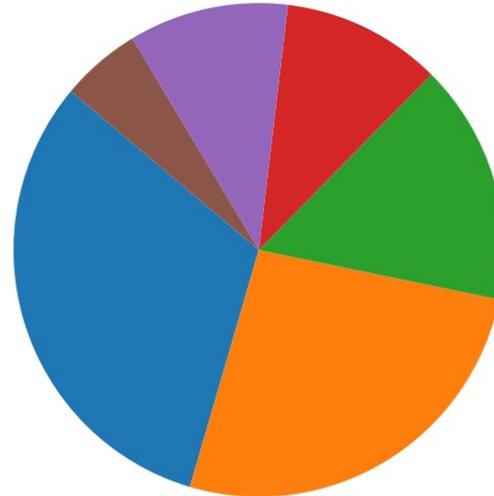
Fichier Édition Affichage Insertion Format Styles Feuille Données Outils Fenêtre Aide

Liberation Sans 10 pt G I S A

A1 absolute_path

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	absolute_path	relative_path	data_type	label	confidence	human_verified	bbox_left	bbox_top	bbox_right	bbox_bottom	file_height	file_width	DateTimeOriginal	DateTime
2	C:/PNE/piege_photo/02-Cerro Bella Vista	07310020.JPG	img	bird	0.7840008810162544	False	882	974	1023	1202	3468	4624	31/07/22 09:39:15	31/07/22 09:39:15
3	C:/PNE/piege_photo/02-Cerro Bella Vista	07310022.JPG	img	bird	0.769195668399334	False	3663	2232	4184	2913	3468	4624	31/07/22 13:54:44	31/07/22 13:54:44
4	C:/PNE/piege_photo/02-Cerro Bella Vista	07310023.JPG	img	bird	0.7049725670367479	False	3801	2172	4553	2899	3468	4624	31/07/22 13:54:45	31/07/22 13:54:45
5	C:/PNE/piege_photo/02-Cerro Bella Vista	07310024.JPG	img	bird	0.6515031736344099	False	3639	2245	4432	2884	3468	4624	31/07/22 13:54:45	31/07/22 13:54:45
6	C:/PNE/piege_photo/02-Cerro Bella Vista	07310025.JPG	img	animal	0.8115458488464355	False	3675	2180	4472	2866	3468	4624	31/07/22 13:54:50	31/07/22 13:54:50
7	C:/PNE/piege_photo/02-Cerro Bella Vista	07310026.JPG	img	bird	0.7408715672791004	False	3423	2123	4175	2769	3468	4624	31/07/22 13:54:51	31/07/22 13:54:51
8	C:/PNE/piege_photo/02-Cerro Bella Vista	07310027.JPG	img	temminck's tragopan										
9	C:/PNE/piege_photo/02-Cerro Bella Vista	07310027.JPG	img	temminck's tragopan										
10	C:/PNE/piege_photo/02-Cerro Bella Vista	07310028.JPG	img	animal										
11	C:/PNE/piege_photo/02-Cerro Bella Vista	07310037.JPG	img	south american coati										
12	C:/PNE/piege_photo/02-Cerro Bella Vista	07310038.JPG	img	south american coati										
13	C:/PNE/piege_photo/02-Cerro Bella Vista	07310039.JPG	img	south american coati										
14	C:/PNE/piege_photo/02-Cerro Bella Vista	07310040.JPG	img	south american coati										
15	C:/PNE/piege_photo/02-Cerro Bella Vista	07310043.JPG	img	nasua species										
16	C:/PNE/piege_photo/02-Cerro Bella Vista	07310044.JPG	img	south american coati										
17	C:/PNE/piege_photo/02-Cerro Bella Vista	07310045.JPG	img	south american coati										
18	C:/PNE/piege_photo/02-Cerro Bella Vista	07310046.JPG	img	nasua species										
19	C:/PNE/piege_photo/02-Cerro Bella Vista	07310047.JPG	img	nasua species										
20	C:/PNE/piege_photo/02-Cerro Bella Vista	07310048.JPG	img	no cv result										
21														

Distribution of detections (n = 19)



- south american coati (n = 6, 31.6%)
- bird (n = 5, 26.3%)
- nasua species (n = 3, 15.8%)
- animal (n = 2, 10.5%)
- temminck's tragopan (n = 2, 10.5%)
- no cv result (n = 1, 5.3%)



Day 3 – Camera traps



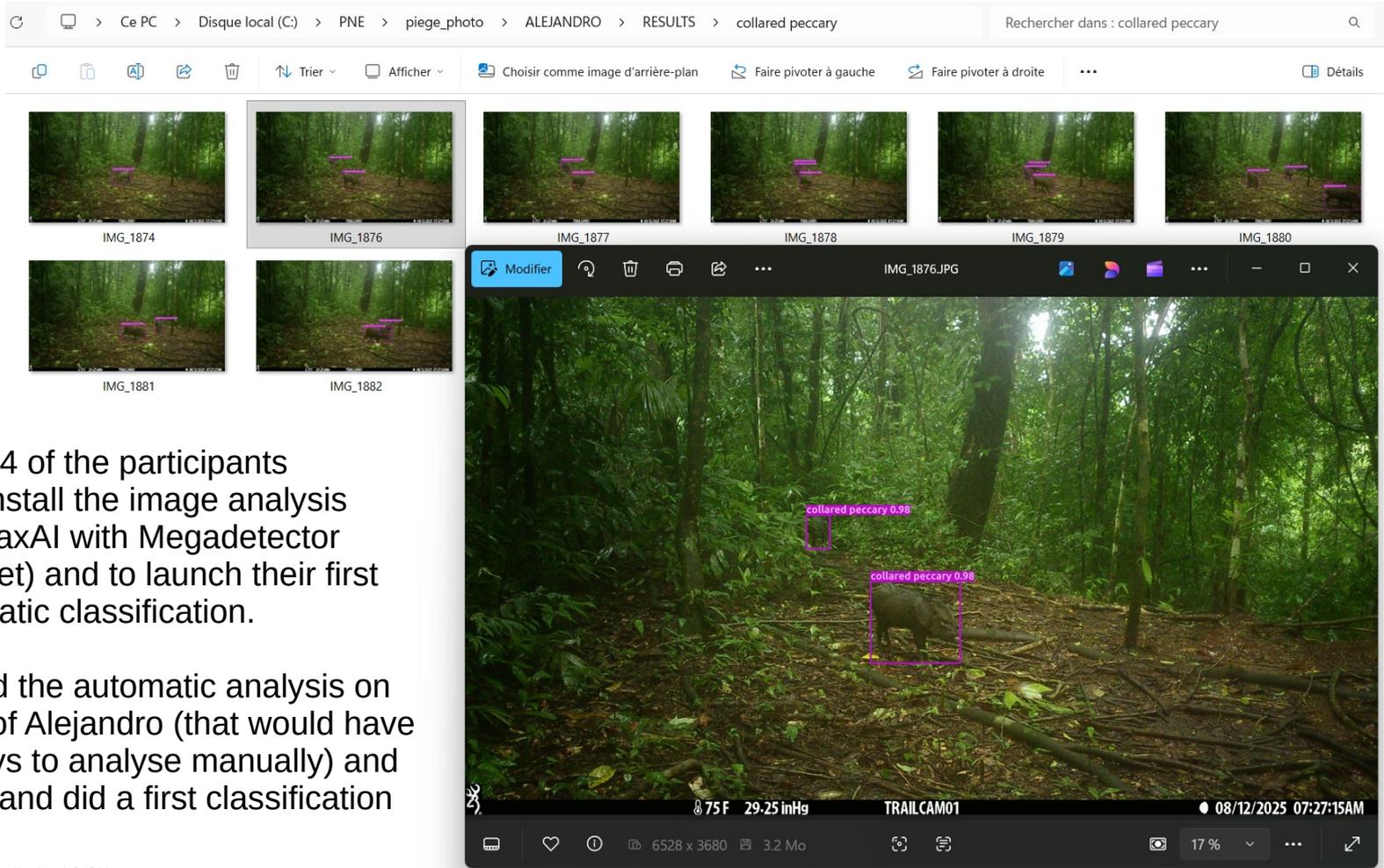
Day 3 – Camera traps

File Explorer window showing a directory structure for camera trap results. The address bar indicates the path: Ce PC > Disque local (C:) > PNE > piege_photo > ALEJANDRO > RESULTS. The search bar shows "Rechercher dans : RESULTS".

The directory contains 18 folders, each with a thumbnail image representing its contents:

- 00-graphs
- animal
- bird
- canine family
- carnivorous mammal
- cat family
- cervidae family
- cetartiodactyla order
- collared peccary
- cracidae family
- crax species
- dasyprocta species
- dasyproctidae family
- domestic dog
- empty
- great tinamou
- human
- jaguar

Day 3 – Camera traps



Day 3 – Camera traps



YOLOV8 ATTENDANCE

Students: Aurelien Coste, Florian Machenaud
Esteban Thevenon, Longy Riffard
Supervisor: Didier Donsez



Tutors: Pierrick Navizet, Mathieu Garé

DESCRIPTION

Ecrins national park is a French park near Grenoble in which photo traps are set to take pictures of everything that passes in front of them. Those pictures are used to monitor the frequentation of the park quantitatively, in other words how many people pass through a certain path, how many dog, bike, etc...



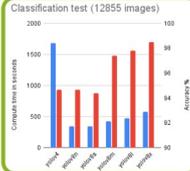
WHAT WE HAD: YOLOV4 (AI MODEL)

To detect people, objects and animals, the park uses the AI model of Ultralytics, YOLOv4. This model is capable of recognizing people, dogs, backpacks, etc... However, qualitatively speaking, it does not do much. From the time when this solution was made, several upgrades were released. That is why our work aims to upgrade the model from v4 to v8 the newest version! (almost see "for the future")

YOLOv4 results



YOLOv8 results



WHAT WE HAVE: YOLOV8 POSE & DETECTION

This version of the model is faster, more accurate, able to estimate the age of people and detect their equipment. Furthermore, it has a second version made to detect the pose of them, allowing us to add some quality assessment to the data, such as the walking direction.

HOW IT WORKS



We use both YOLOv8-detect model and YOLOv8-pose model to analyse pictures. The first one counts every people, animals and equipment that are in the picture. The second predicts the pose of people. Then we made a code to interpret those data to know in which direction they are going (mainly to know if they go left or right on a certain path).



FOR THE FUTURE

During the development of our project, the YOLOv9 version was released which could be an improvement on the YOLOv8 for computing speed.

Qualitatively speaking there is CLIP, a language model able to analyse pictures, that could also be a potential improvement.

Later, this solution could be transformed to use embedded, AI and LoRa devices to gather data more safely and with less cost.

Suivi de la fréquentation

PhotoLauvitelSousDanch
Piège photo mis sur la rive gauche plus bas (sentier GR54)
Sensor type : insitu-fixed-point
Time serie : From 2023-07-27T15:00:00+0200 to 2024-09-05T15:00:00+0200

Data

Observed properties

- outflaw (null)
- female (null)
- dog (null)
- cattle (null)
- camping (null)
- sporty (null)
- cross (null)
- hiking (null)
- bicycle (null)
- down (null)
- right (null)
- person (null)
- vehicle (null)
- male (null)
- horse (null)
- animal (null)
- padeî (null)
- mountain_sport (null)
- tourist (null)
- Observer (null)
- vertical (null)
- up (null)
- left (null)

Observed properties: person | Plot type: lines

Start date: 1/1/2022 | End date: 9/5/2024

Buttons: Plot, Export, Settings

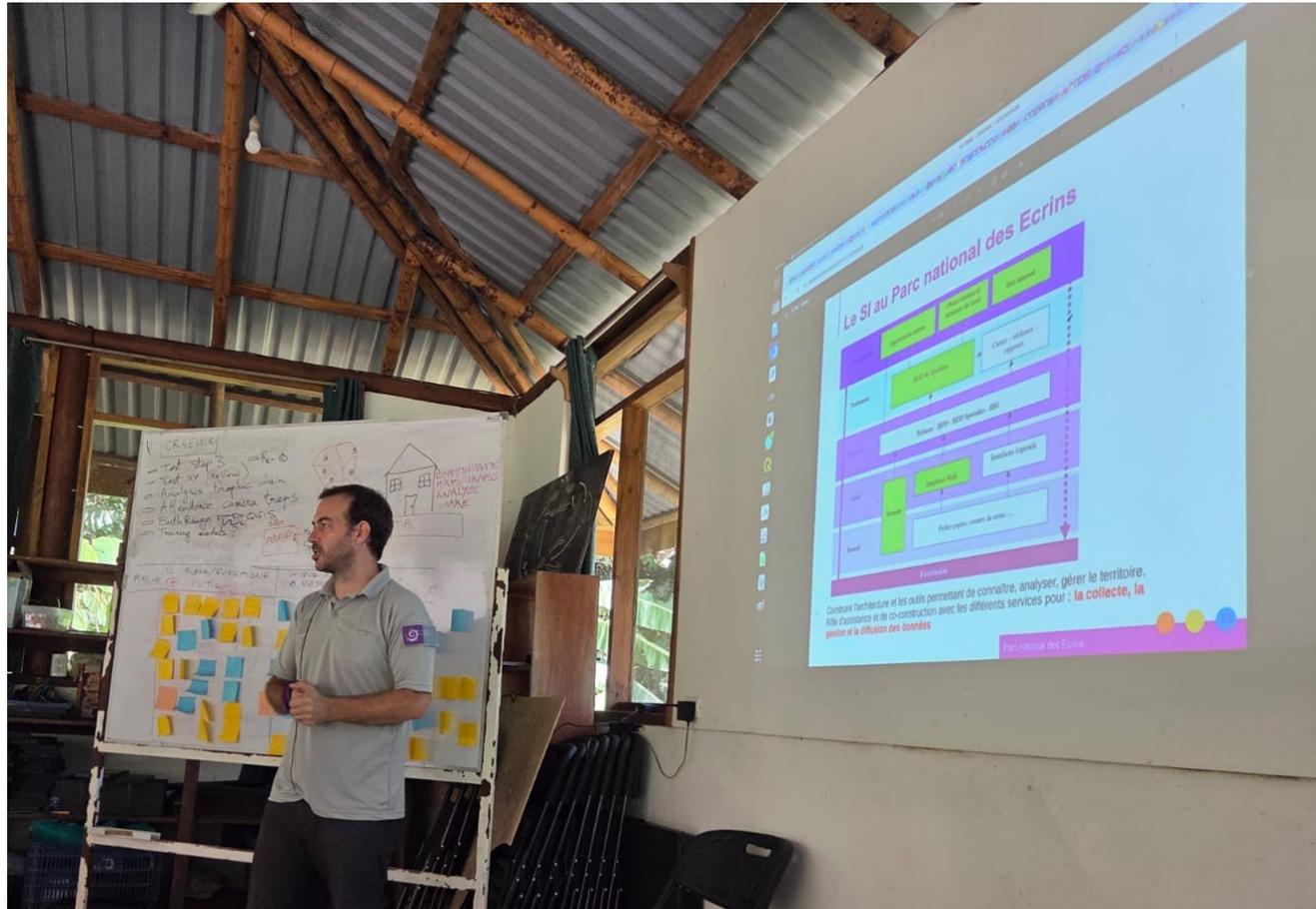
Day 3 – PRONAMEC vision



Day 4 – PRONAMEC vision



Day 4 – PRONAMEC vision



Day 4 – PRONAMEC vision

PRONAMEC - What is working well

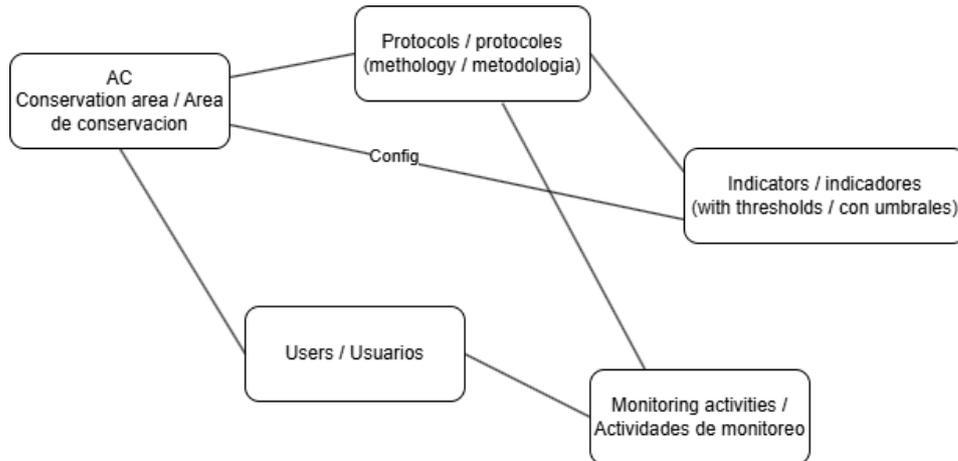
PRONAMEC - Improvement propositions

PRONAMEC - Reactions and proposals

PRONAMEC - Additional Suggestions

PRONAMEC - Strategic Vision

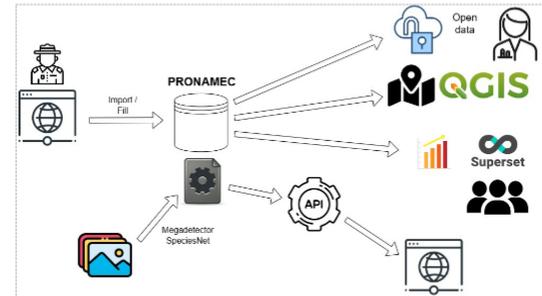
PRONAMEC - Perspectives for actions and collaborations



- Organizar reuniones semestrales con los guardaparques para actualizaciones tecnológicas e intercambio de experiencias.
- Desarrollar un mecanismo de apoyo francófono dedicado a Costa Rica (por ejemplo, un equipo de asistencia técnica).
- Fomentar que la dirección del SINAC dé mayor reconocimiento y prioridad a las actividades de monitoreo científico.

PRONAMEC – Sugerencias adicionales

- Realizar dos reuniones anuales centradas en actualizaciones tecnológicas y protocolos de monitoreo.
- Llevar a cabo reuniones internas del SINAC para hacer seguimiento a la disponibilidad de tiempo del personal dentro de las áreas protegidas.
- Mejorar la gestión de la ubicación de los puntos de muestreo (PP).
- Crear un diagrama visual de flujo de trabajo que aclare las etapas operativas de PRONAMEC.



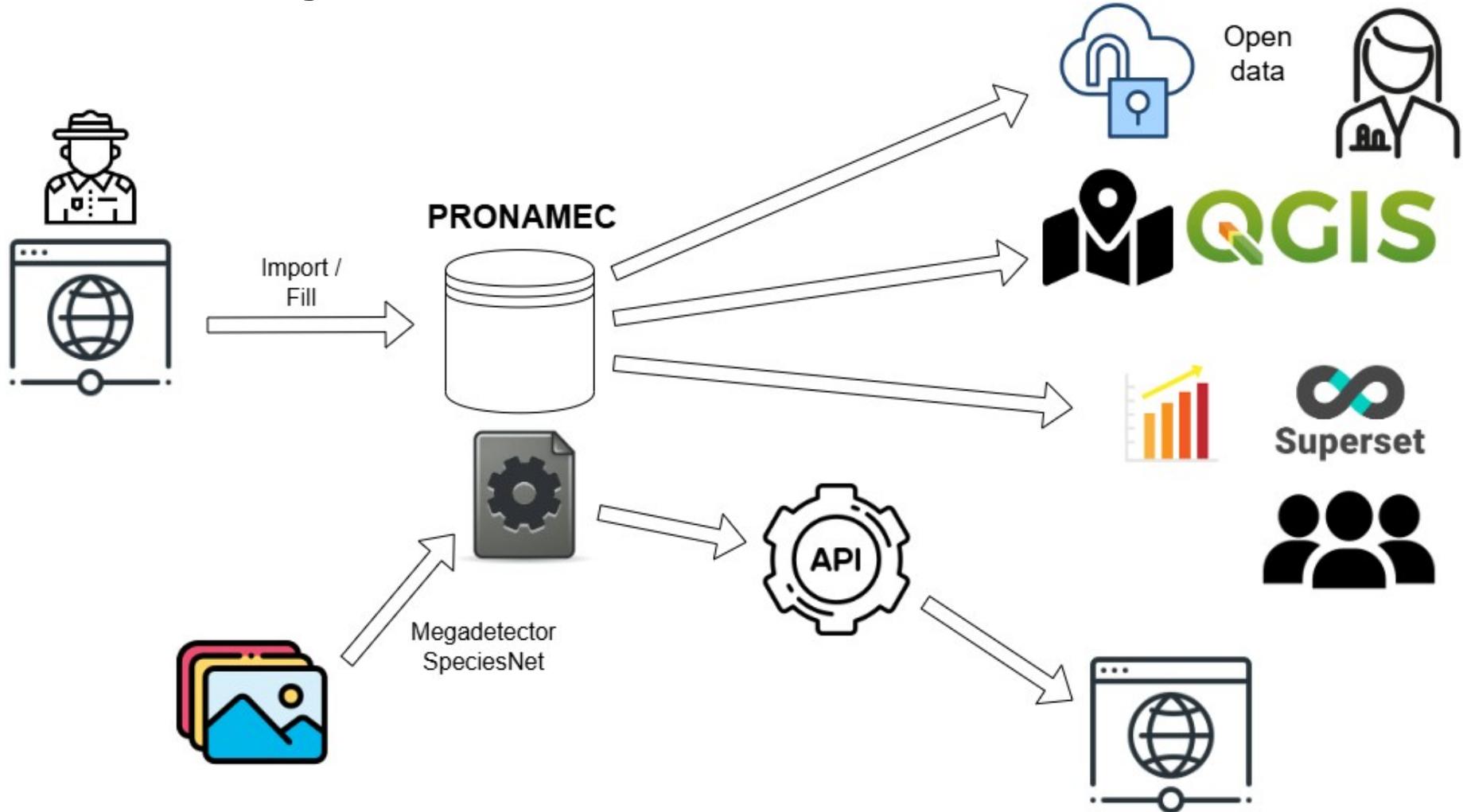
PRONAMEC – Visión estratégica

- PRONAMEC debe convertirse en una plataforma de referencia nacional, que apoye la gestión sostenible de los recursos naturales mediante datos científicos confiables.
- Debe mantenerse dinámica y adaptable, evolucionando junto con las nuevas tecnologías y las necesidades de los usuarios.
- Objetivo final: fomentar la toma de decisiones informada, la transparencia, la cooperación y la promoción de la ciencia al servicio de la conservación.

El proyecto PRONAMEC representa un avance importante en la gestión de la biodiversidad de Costa Rica, permitiendo la estandarización nacional de los protocolos de monitoreo, una mejor calidad de los datos y decisiones más informadas dentro del SINAC.

La plataforma fomenta la motivación científica, la innovación y la colaboración internacional. Sin embargo, su éxito a largo plazo depende de fortalecer los recursos humanos y financieros, estandarizar los análisis y los informes, mejorar la interoperabilidad y el acceso abierto, y desarrollar herramientas fáciles de usar, como paneles de control y API.

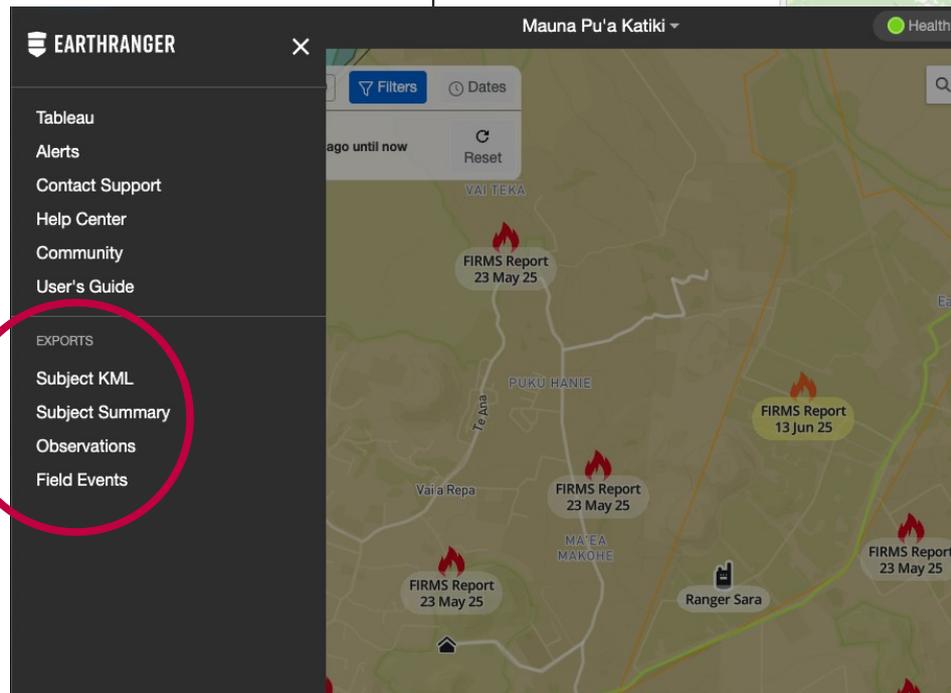
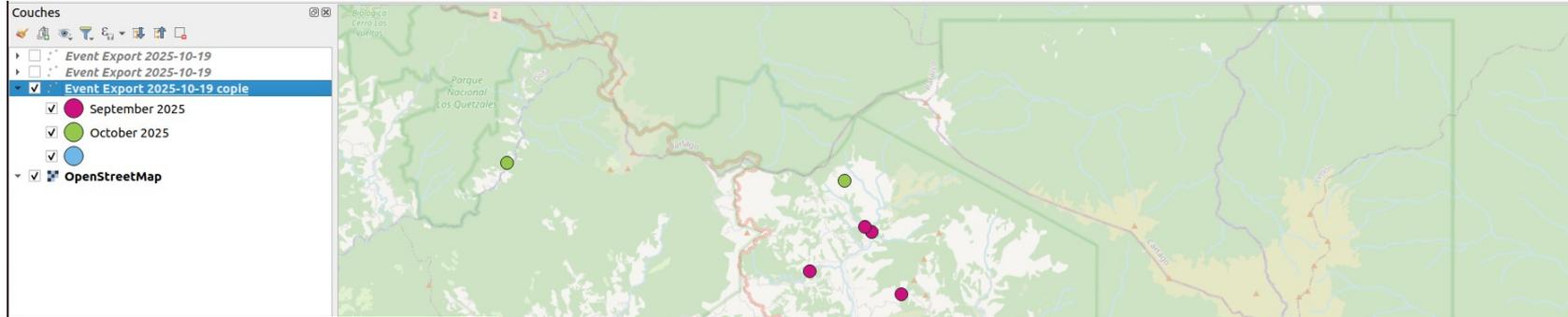
Day 4 – PRONAMEC vision



Day 4 - Thanks Peter (AddaxAI)

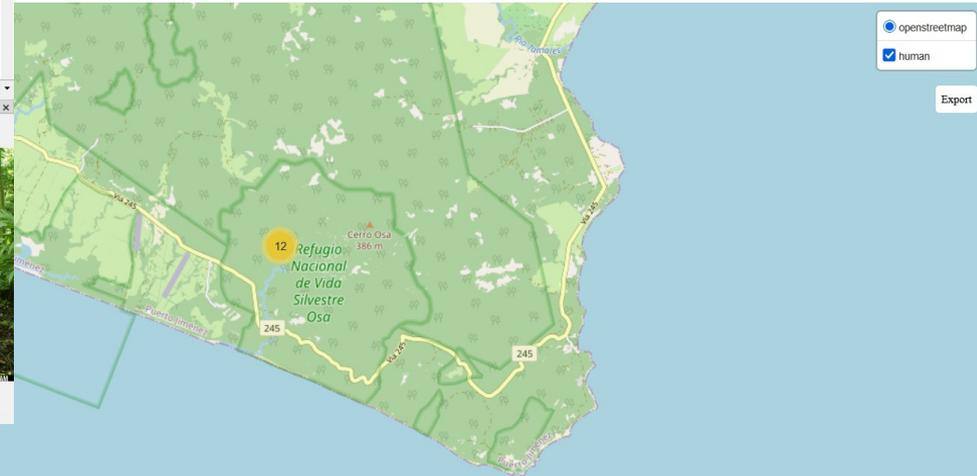
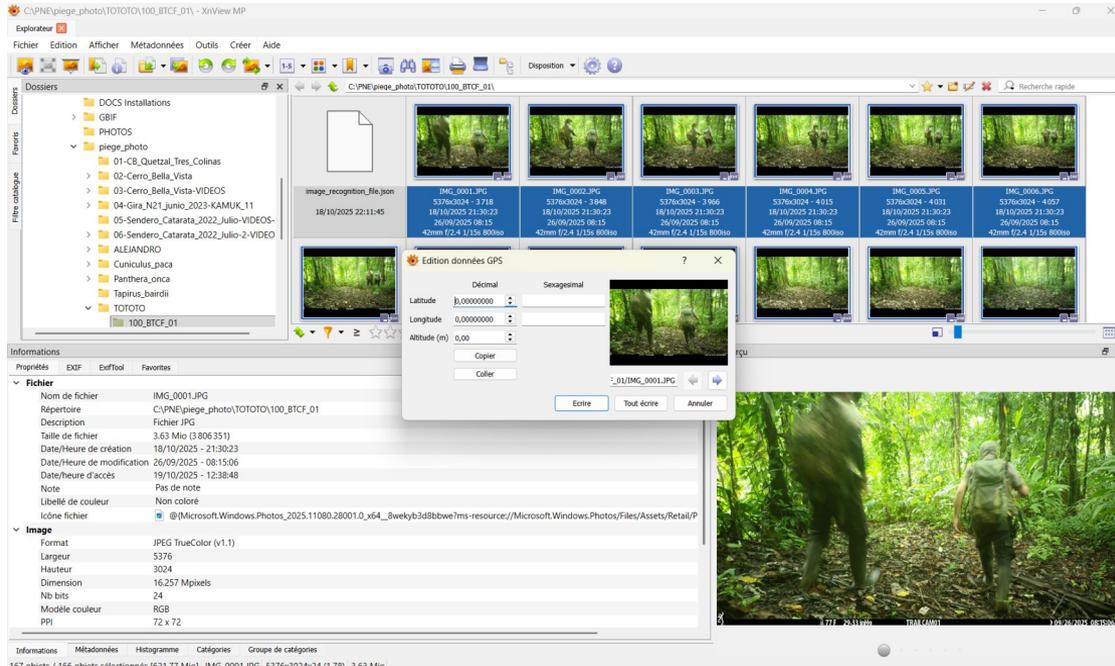


Day 4 – EarthRanger to QGIS



https://support.earthranger.com/en_US/data-export-options
Download CSV file / Load it in QGIS as « Delimited text » / Projection WGS 84 (4326)

Day 4 - XnView and images metadata



Day 4 - Geotrek



[Inicio](#) [Productos](#) [Usuarios](#) [Sobre](#) [Contacto](#) [en](#) / [es](#) / [fr](#)

Inicio

GEOTREK

GESTIONA Y PROMUEVE TUS RUTAS Y ACTIVIDADES TURÍSTICAS

SABER MÁS

Parc national des Écrins Destination **PARC NATIONAL DES ÉCRINS** Discovery [EN](#) Search

FILTERS 1 Practice > Themes > Localization > Clear all 153 results

153 results practice: By walk Search...

Lancien et le nouv... Villar-d'Arène

Adèle Planchard Refuge

History and architecture Hut

Hard 7h <> 22km ↗ +1473m

La Bâtie des Vigne... Les Vigneaux

Around Les Vigneaux and Grand Parcher

Fauna Flora History and architecture

Easy 4h <> 10,7km ↗ +253m

Refuge de Font Tur... Valjouffrey

Ascent to the Font Turbat

<https://geotrek.fr>

<https://destination.ecrins-parcnational.fr/en>

Day 4 - ONB



Day 4 – BAM

18:04 56% 17

←

GBIF: The Global Biodiversity Information...
10 981 abonnés
1 h •

🎁 Announcing the 2025 Ebbe Nielsen Challenge winners at #LivingData2025!

First place: 🏆 **Rukaya Johaadien (#GBIFNorway)** for BDQEmail

Sharing first place: 🏆 **Dax Kellie, Amanda Buyan, Shandiyl Balasubramaniam and Martin Westgate (Atlas of Living Australia)** for galaxias

Second place: 🏆 **Amandine Sahl, Jacques Fize and Camille Monchicourt of Parc national des Écrins and Parc national des Cévennes (France)** for BAM (Biodiversity Around Me) tool

Congratulations to all the winners! 🎉

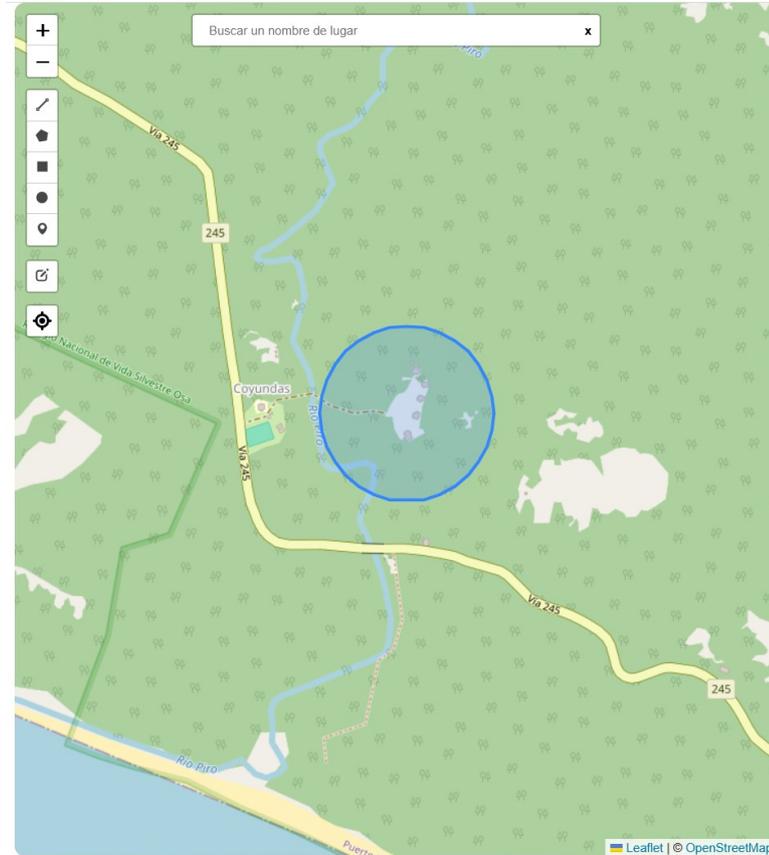
Learn more about the winning projects and the Challenge: <https://lnkd.in/gMqrrHpQ>

Afficher la traduction



5

Ajoutez un commentaire...



Chestnut-backed Antbird

Nombre Científico : Myrmeciza exsul P.L.Sclater, 1859

Número de observaciones : 61

[Más información →](#)

Fecha de última observación : 25/04/2024



Tinamú Grande

Nombre Científico : Tinamus major (J.F.Gmelin, 1789)

Número de observaciones : 57

[Más información →](#)

Fecha de última observación : 31/03/2025



386 especies encontradas en GBIF

https://pnx-si.github.io/BAM-widget/#/?buffer=200&connector=GBIF&nbTaxonPerLine=2&showFilters=false&mapEditable=true&ang=es&mode=detailedList&widgetType=mapList&hybridTaxonList=true&x=-83.3366632461548&y=8.403954350654981&GBIF_ENDPOINT=https://api.gbif.org/v1&LIMIT=300&NB_PAGES=10&soundSource=wikidata&imageSource=wikidata

<https://si.ecrins-parcnational.com/blog/2025-08-BAM-widget-en.html>

Day 4 – Individual debrief

The exchange mission between the French and Costa Rican national parks was unanimously praised for the richness of discussions, the quality of workshops, and the strong human connection it fostered. Participants discovered new solutions, particularly in data management and analysis through GeoNature, PRONAMEC and AddaxAI, recognized as powerful tools offering time savings, reliability, and efficiency. Participants also expressed a willingness to open up their tools and share their data with a wider audience.

The collaboration strengthened ties between teams, encouraged experience sharing, and laid the groundwork for continued cooperation to support technological and operational advancements in protected areas.

General Impressions

- Strong overall satisfaction: all participants highlighted the richness of the exchanges, the relevance of the themes discussed, and the quality of the practical exercises.
- Mutual discovery: Costa Rican participants expressed that they discovered “a new world” and new perspectives for their work, particularly in data management and analysis.
- Strengthened human connections: the human and fraternal dimension of the exchanges (workshops and field outings, especially at La Leona) was considered essential for reinforcing cooperation and joint projects.

Technical and Thematic Insights

- PRONAMEC:
 - Seen as a promising and powerful tool for managing and monitoring environmental data.
 - High potential for saving time, improving reliability, and supporting decision-making.
 - Need for ongoing support and follow-up to ensure proper adoption.
 - Recommendation to align Pronamec positively with other existing tools and internal processes.
- Technologies and AI:
 - Gradual but enthusiastic adoption: initially skeptical participants acknowledged the reliability and effectiveness of the tools presented.
 - Highlighted time savings, reduced fatigue, and greater reliability thanks to AI and digital tools (PRONAMEC, AddaxAI, etc.).
 - The AddaxAI tool was particularly appreciated for its power and potential applications.

Day 4 – Individual debrief

Collective Learning and Engagement

- Collaborative learning: the diversity of profiles enriched the exchanges. Sharing experiences (strengths and weaknesses) fosters collective growth and process agility.
- Hands-on learning: practical workshops were considered essential for understanding and retention.
- Knowledge sharing: several participants plan to share what they learned with colleagues from other protected areas.
- Continuing momentum: there is a strong desire to organize future collective sessions to monitor technological progress and strengthen France–Costa Rica cooperation.

Highlighted Quotes

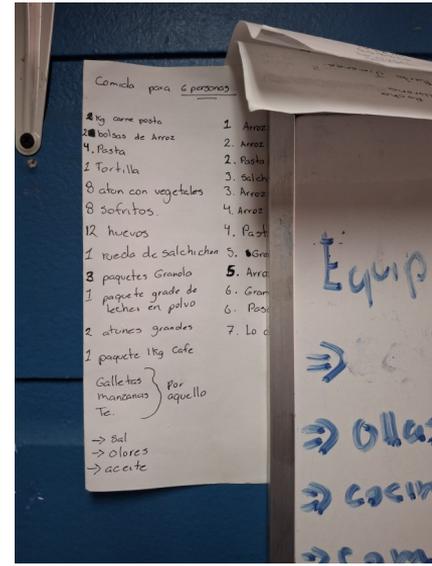
- *“A new world discovered that validates our work on management plans.”*
- *“Pronamec can become a powerful tool.”*
- *“Time-saving and more reliability thanks to AI.”*
- *“AddaxAI is very powerful.”*
- *“These tools really work — and work well.”*
- *“Fraternity, passionate learning, and collective construction.”*

Summary

A mission unanimously praised for its human impact, concrete technical contributions, and collaborative dynamic.

The exchanges between France and Costa Rica open new perspectives for cooperation in data management, AI use, and capacity building for field teams.

Day 5 – SINAC offices



Giro Norte
Español

Culcas Rites

- 44-1-1-2 camaras
- + Rio Surpico
- + Bahiada Romo

43-2-1-2 camaras

- + Seta
- + Agua Azul

42-1-1-1 camara

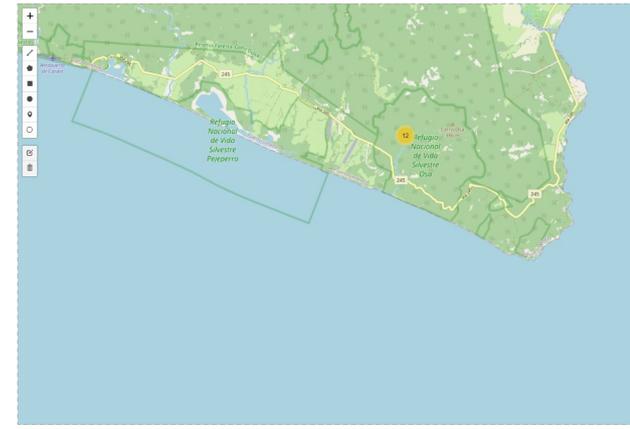
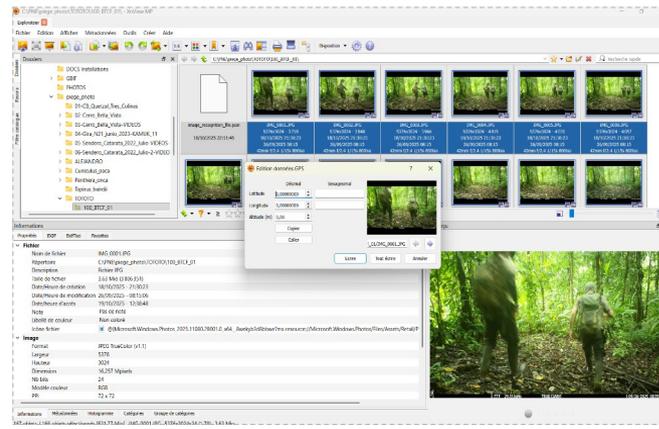
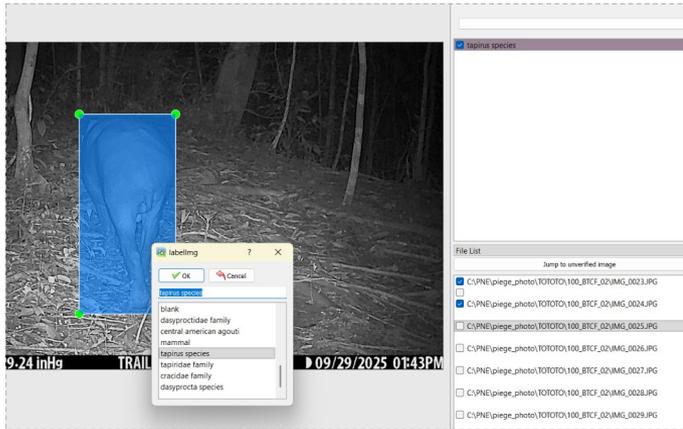
- + Rio Caracal

42-2-1-10 hoyo

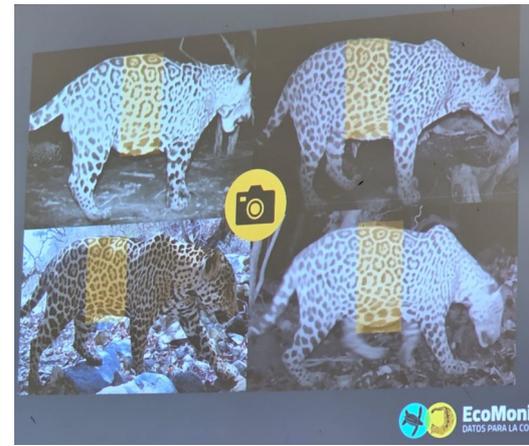
8 mst

First follow-ups

- XnView metadata table generation / Tests & documentation - <https://cloud.ecrins-parcnational.fr/index.php/s/CJAteXHP99WQ5cQ>
- XnView add GPS coordinates / Tests & documentation - <https://cloud.ecrins-parcnational.fr/index.php/s/CJAteXHP99WQ5cQ>
- iNaturalist contributions analysis / Export & mapping - <https://cloud.ecrins-parcnational.fr/index.php/s/XJiQMw4NmXnDWms>
- AddaxAI step 3 (manual images verification and validation) / Tests & documentation - <https://cloud.ecrins-parcnational.fr/index.php/s/pl7qiY97wk6LYzy>
- PRONAMEC vision synthesis
- November 3rd, 2025 : online meeting with all participants



Potential follow-ups



Immediate and Anticipated Follow-ups

- Remote cold debrief of the mission: November 3.
- Drafting technical documentation (AddaxAI, EarthRanger/QGIS, etc.).
- Searching for technical solutions for re-identifying jaguars captured by camera traps.
- Technical study of AI-based image analysis training solutions to contribute to building a more efficient model for Costa Rica.

Perspectives for actions and collaborations

- Support SINAC in transitioning their PRONAMEC platform to an open-source license.
- Contribute to the development of the PRONAMEC platform once it becomes open source.
- Support one of the protected areas in concepting a pilot project to digitally showcase the scientific knowledge of their territory.
- Analyze possibilities to align PRONAMEC data structuring with international standards (GBIF sampling-event – <https://www.gbif.org/sampling-event-data> for monitoring & Camtrap DP for camera trap deployments and media – <https://camtrap-dp.tdwg.org/>).
- Establish contact with tourism teams to present Geotrek and “Esprit Parc” tools, helping develop an ecotourism strategy and highlight tourism providers with best practices, as opposed to illegal practices.
- Prepare and fund the next mission in the form of a technical development workshop with experts from Costa Rica and France.
- Participate remotely in the new Costa Rican biannual meetings of the working group on new technologies, established following the mission.
- Assist in designing the opening and expansion of the PRONAMEC platform to other tools (camera trap analysis models, QGIS, etc.) and other audiences (scientists, students and universities, tourists and visitors, etc.).
- Support the use and valorization of PRONAMEC scientific data for other work areas: law enforcement (procedures, investigation techniques, satellite imagery, etc.), citizen mobilization (ABC, etc.), and more.
- Share the management of field agents’ time programming for OFB personnel.

Universal rangers



Pura vida

