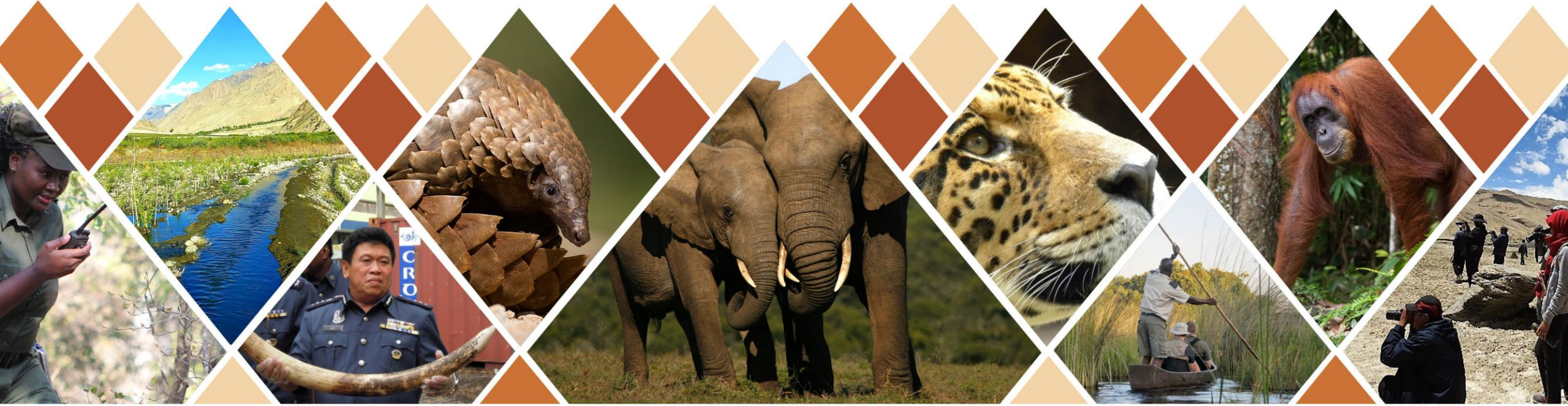




A GLOBAL PARTNERSHIP ON WILDLIFE CONSERVATION & CRIME PREVENTION FOR SUSTAINABLE DEVELOPMENT

GLOBAL WILDLIFE PROGRAM



Knowledge Sharing Event: Conservation Technology & Data

Wednesday, March 1, 2023

Zoom Housekeeping

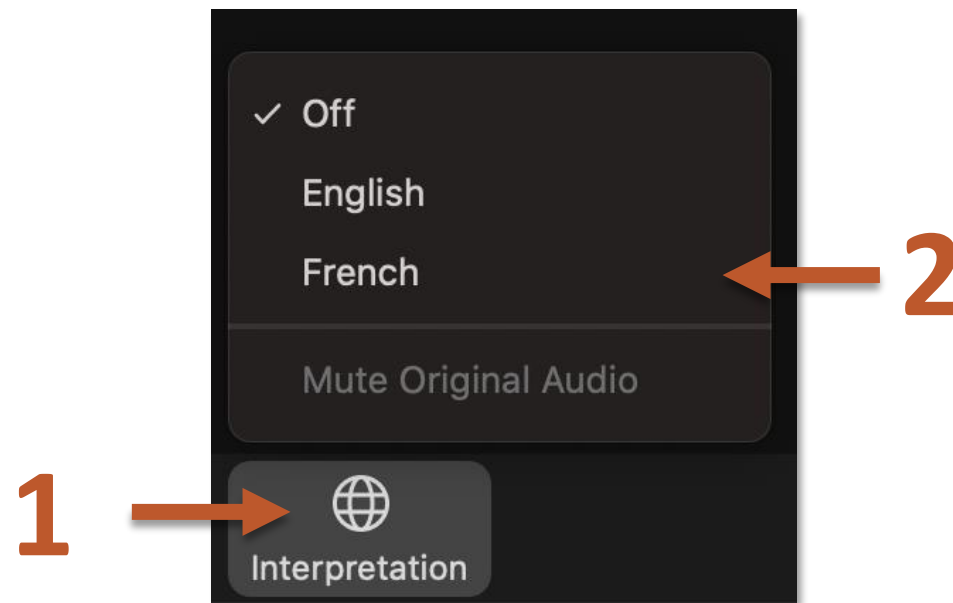
Listen in English, French, or Spanish

Interprétation en français / Interpretación al español

1. Click on the globe symbol.
2. Select **French**, **Spanish**, or **English** audio.

1. Cliquez sur le symbole du monde.
2. Sélectionnez l'audio **français**.

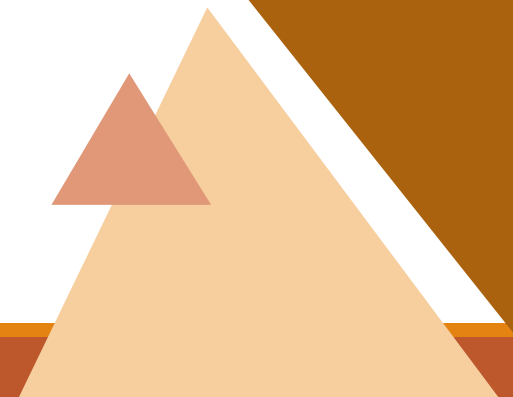
1. Haga click sobre el símbolo del mundo.
2. Seleccione el audio **español**.



Stephanie O'Donnell

Event Facilitator

GWP Technical Advisor for Conservation Technology,
and WILDLABS Executive Manager, Fauna & Flora
International



Housekeeping

This event is being recorded (including chats and shared messages) for learning and archival purposes for access at a later time. Your participation in this webinar will be taken as your consent to the recording.

- Now:
 - Welcome! Use the chat to say hello and introduce yourself, where you're from and why you're interested in the topic
- During:
 - Use the chat to comment, share links + resources
 - Drop your questions into the chat – we'll keep track
 - Use @NAME to direct question to a specific speaker or @group for a question for the panel
 - Discussion – videos on, mute unless speaking
- After: If you need to be connected to anyone you met in the chat, email us:
community@wildlabs.net

Agenda	Topic area
Welcome	Welcome, setting the scene from GWP perspective Lisa Farroway
Part 1: Hardware & Data Collection	
Talk 1	The State of Conservation Technology Stephanie O'Donnell
Talk 2	Drone usage by ZimParks in the Zambezi Valley Chipangura Chirara, Zimbabwe Team
Talk 3	How Technology Helps Coexistence between Humans and Jaguars in Panama Ricardo Moreno, Panama Team
Talk 4	Development of a Database of Protected Species and Mobile Application for the Wildlife Identification Achmad Pribadi, Indonesia team
Open Discussion	Guided by questions from registration and coming through during talks Panel and Audience, facilitated by Stephanie
Break	
Part 2: Data Analysis & Insights	
Talk 1	AI in Conservation Dan Morris, Google AI for Nature and Society
Talk 2	Geodata for Enhanced Effectiveness and Efficiency in Conservation Area Management Franziska Steinbruch, ANAC Mozambique
Talk 3	Enhancing jaguar corridors and strongholds through improved management and threat reduction Yanira Pop, Belize Team
Talk 4	Accelerating Conservation's Intelligent Edge with Private/Public Partnerships Sarah Maston, Microsoft & Project 15
Open Discussion	Guided by questions from registration and coming through during talks Panel and Audience, facilitated by Stephanie
Close	Summary and where you can go for additional support Stephanie O'Donnell

Introductory Talk

State of Conservation Technology

Stephanie O'Donnell

WILDLABS is the global, open online community dedicated to conservation technology



WILDLABS aims to build and support an active cross-sector community of conservationists and technology experts who use the **WILDLABS** online platform to:

1. **Share information** to increase transparency and decrease replication of effort
2. **Ask and answer questions** to share best practices to increase efficiency and effectiveness of technology deployment to address conservation challenges
3. **Collaborate** to improve existing technologies or develop new technologies that address identified conservation needs.



WILDLABS.NET

[The conservation technology network]

CONSERVATION
INTERNATIONAL



FAUNA & FLORA
INTERNATIONAL



WCS



WWF

ZSL
LET'S WORK
FOR WILDLIFE

Our Top Picks

DISCUSSION / AI FOR CONSERVATION | EMERGING TECH

ChatGPT for conservation

Isobel Ashbey

Hi, I've been wondering what this community's thoughts are on ChatGPT? I was just having a play with it and asked "could you write me a script in python that loads photos..."

16 January 2023

ARTICLE / ACOUSTIC MONITORING

New guidance - Good practice for ecoacoustic monitoring

Carole Abraham

We're very pleased to announce the publication of new Good practice guidelines for long-term ecoacoustic monitoring in the UK, produced by Manchester Metropolitan University, Baker Consultants Ltd and a great team of...

23 February 2023

ARTICLE / AI FOR CONSERVATION | AUTONOMOUS CAMERA TRAPS FOR INSECTS

Tropical pilot of insect camera traps

Tom August

New technology enabling the automated monitoring of moths has been put to rigorous testing in tropical conditions in Panama by an international team of researchers

22 February 2023

DISCUSSION / CONSERVATION TECH TRAINING AND EDUCATION

What new best-practice guides do you need?

Stephanie O'Donnell

Hi everyone, Two best practice guides have been added to the library this week, and I'm hearing some whispers of some others in development. I'm collating them into...

23 February 2023

DISCUSSION / CONSERVATION TECH TRAINING AND EDUCATION

CT Textbook? Want to contribute/help author? Reach out!

Andrew Schultz

Hello All! I have had some great discussions this past few weeks on the Conservation Tech Introductory textbook for undergrads. If others would still like to be involved as authors...

21 February 2023

Conversations & Questions

Description	Activity	Replies	Groups	Updated
Solar panel recs for camera traps	I have a small grant to support solar-izing part of our campus camera trap array and before finalizing purchases wanted to assess other's...		Camera Traps	16 hours 44 minutes ago
Block chains and NFTs in wildlife conservation	Hi all, Thank you so much for sharing the resources, these are quite insightful!		Emerging Tech	1 day 4 hours ago
What new best-practice guides do you need?	What about thermal cameras and drones with thermal cameras for monitoring of mammals?		Conservation Tech Training and Education	1 day 20 hours ago
Project Introductions and updates	I'm happy to vouch for this system. We tried it out in Panama alongside the Drojsia and All-trap and it got some great results. The UV light is a little weak, and it might not...		Autonomous Camera Traps for Insects	1 day 20 hours ago
AudioMoth and Song Meter Micro battery life tests	Hi Justin, Dropping in a question you've received over on twitter:		Acoustic Monitoring	1 day 23 hours ago
Elephant Recognition	Hi Steph, This should be a simple project. Recently I came across a website with a sample video I am not sure whether it was from the wild Labs website. Where a camera is...		AI for Conservation, Camera Traps	2 days ago
camera with fast trigger and recovery time?	@Stephanie well this just goes to show how good Browning market segmentation is :) Yes -- it sounds like the "dickies" Patriot is a good choice for you. I am in the...		Camera Traps	2 days 11 hours ago
tiny trackers for fish - other applications?	These are really small acoustic tags. Lotek Wireless, Sonotronics, and the JSATs design are examples of similar manufacturers/products. These tags will only work in water...		Biologging	3 days 22 hours ago
Field testing of a radio telemetry system to be deployed in the sea.	When I used to do manufacturing, we would use mineral (7) oil for very deep water, seafloor, applications. It works		Biologging, Marine Conservation, Sensors	3 days 23 hours ago
Welcome to the Conservation Tech Training and Education Group!	Hi Folks, I'm Liz Ferguson from Ocean Science Analytics and just noticing this thread so reaching out to express interest! Thanks for posing that overview Stephanie. My...		Conservation Tech Training and Education	4 days ago
Conservation Tech...	That's a great idea! I just came across it - soooooo		AI for Conservation,	4 days ago

1,382 Conversations

Akiba
Community Member

Add your voice to our conservation tech community

The WILDLABS community forums are a fountain of knowledge. By joining discussions, we can understand what the real problems are, collaborate with people with the right expertise to solve those problems, and work together to craft real solutions. We hope you'll join the conversation!

EXPLORE CONVERSATIONS →

WHAT WE DO



Connect People and Projects on our Platform

On **WILDLABS.NET**, the leading community platform for conservation technology online, engaging, collaborating, and learning has never been easier thanks to our thriving forums and extensive resource library, all built for experts, beginners, and everyone in between.



Deliver Uniquely Engaging Virtual Events

WILDLABS' virtual series and community events unite conservation technology experts with high-quality, professional facilitation in panels, tutorials, lectures, and more, all designed to make conservation tech's biggest topics accessible and engaging.



Get Results with Insightful Research

With unparalleled access to rich data from the leading global community of conservation tech practitioners and developers, **WILDLABS** uncovers and shares unique, unprecedentedly insightful research through our State of Conservation Technology programme.



Create Conservation Tech's Future with Fellowships

WILDLABS Fellowships and Grants connect funding, mentorships, and support to impactful conservation tech projects in our community, helping tomorrow's conservation tech leaders turn inspiration into innovations.

TECH TUTOR

SEASON FOUR | EAST AFRICA

The **WILDLABS** Tech Tutors are here to answer your 'How do I do that?' questions of conservation technology.

This season, our expert speakers will cover tools and topics that help address conservation challenges unique to East Africa, while also opening up new tech skills for our global community.

Wherever you are in the world, we hope you'll join us!

THURSDAYS 4PM EAT / 1PM GMT

FEBRUARY



ARTHUR MUNEZA

Thursday, 9 Feb

How do I fit GPS satellite tags to remotely track giraffe movements?



KENNEDY MURIITHI

Thursday, 16 Feb

How do I get started with setting up my camera trap to monitor wildlife?



MTALII OCHIENG

Thursday, 9 March

How do I get started with mobile phones in sea turtle monitoring?



PHOEBE ODUOR

Thursday, 16 March

How do I get started with using Landsat for land use and land cover mapping?



MOSES OTIENDE

Thursday, 23 March

How do I select an ivory sampling method to generate intelligence data?



ALINA PETER

Thursday, 13 April

How do I extract spatial data from EarthRanger to create maps on QGIS & ArcGIS Pro?



NAIMA SHEIKHAN

Thursday, 20 April

How do I get started with drones in aerial counting and wildlife monitoring?



HOWARD FREDERICK

Thursday, 11 May

How do I create a flight plan for an aerial survey sample count?



RICHARD LAMPREY

Thursday, 18 May

How do I get started with systematic reconnaissance flights for wildlife surveys?



JACQUILINE BUBI

Thursday, 25 May

How do I get started with collecting mobile digital data to combat IWT?



VARIETY HOUR

Wednesday, 22 February



VARIETY HOUR

Wednesday, 29 March



VARIETY HOUR

Wednesday, 26 April



VARIETY HOUR

Wednesday, 31 May

THE VARIETY HOUR

The **WILDLABS** Variety Hour is your monthly connection to the exciting projects, research, and ideas that are happening in conservation tech right now.

Wednesday 22nd Feb, 4pm GMT | 11am EST

wildlabs.net/variety-hour

Organised by
WILDLABS.NET
[The conservation technology network]

Supported by
aws



JOSH SELTZER ————— 7 mins
ChatGPT for conservation



DR. ANDREA KÖLZSCH ————— 7 mins
Moveapps: A no-code analysis platform for animal tracking data



HARI PRASATH & ABHIJIT KUMAR NAGESHKUMAR ————— 7 mins
Developing a radio telemetry system to study green turtle movements in India



DR. GILBERTO CÂMARA ————— 15 mins
Big Earth Observation Data Analysis: What separates the offerings from Google, Microsoft, and others?



ASK, OFFER, NEWS ————— 5 mins
Open forum to jump in and ask for something you need, offer your help, or share some news

THE STATE OF CONSERVATION TECHNOLOGY

2021



WILDLABS.NET

[The conservation technology network]

CONSERVATION
INTERNATIONAL



ZSL
LET'S WORK
FOR WILDLIFE

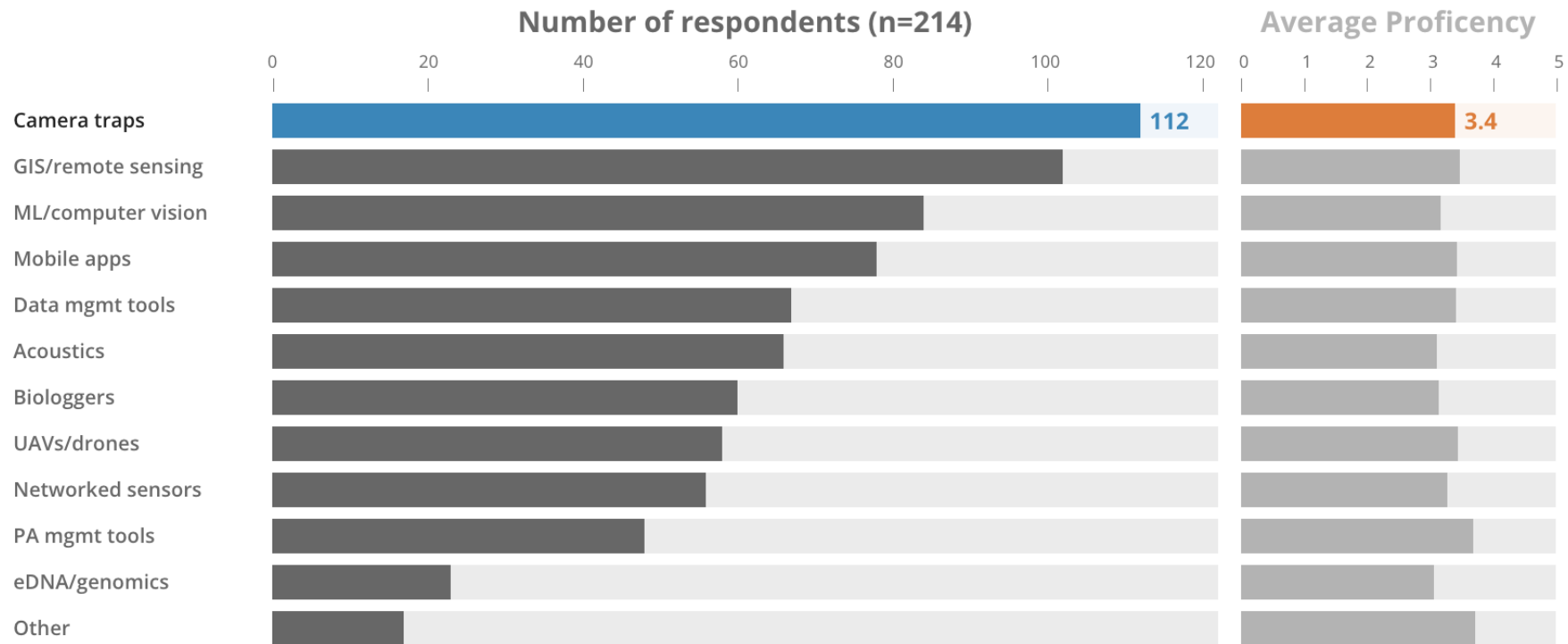


arm



Current Tools

Graph of technology use and average reported proficiencies

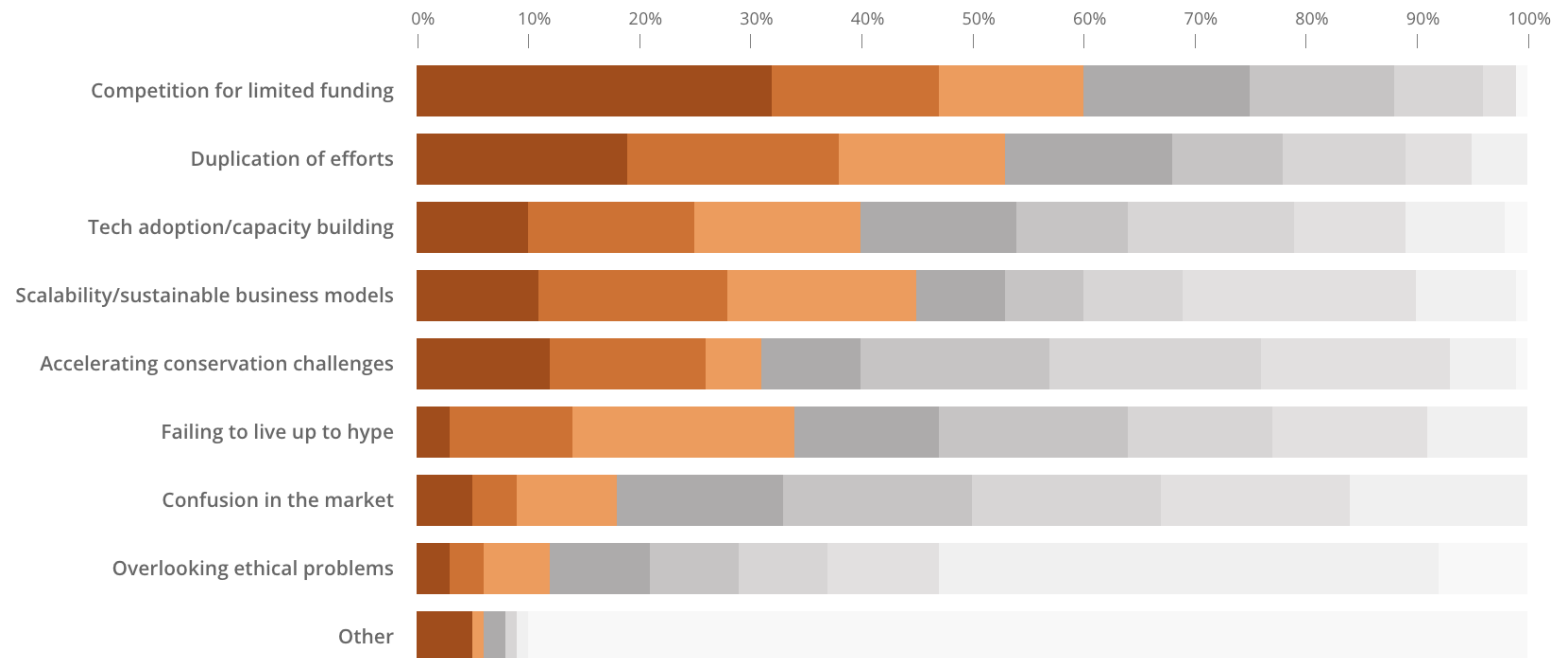


Challenges and Constraints

Ranked challenges facing the conservation technology ecosystem



What percentage of respondents (n=144) said this was the greatest challenge?



Challenges and Constraints

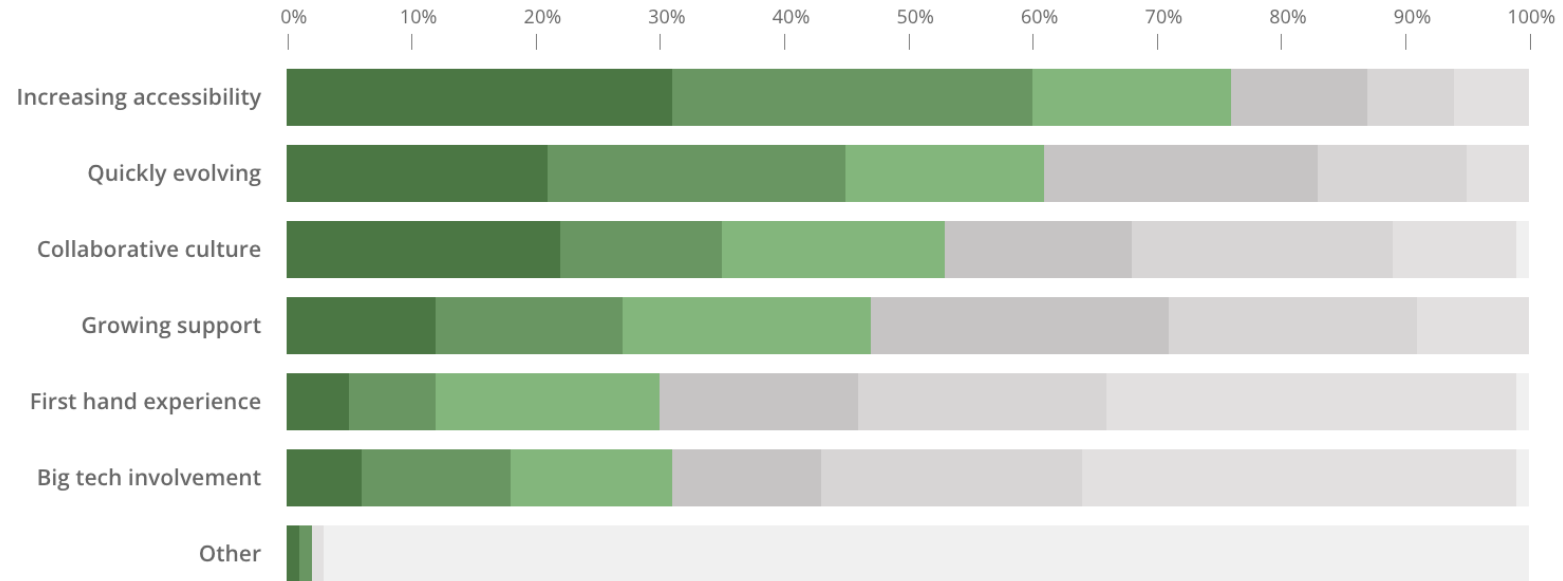
1. **Inequality in financial accessibility to end-users:** End-users in countries with developing economies were more likely to report being constrained by both upfront costs and maintenance costs
2. **A gender divide in perceived technical skills:** Female end-users were more likely to report being constrained by technical skills than male respondents
3. **Inequality in sustained financial support for developers:** Both female developers and those in countries with developing economies were also more likely to report struggling to secure funding throughout the technology development cycle

Reasons for Optimism

Ranking of reasons for optimism about the future of conservation technology



What percentage of respondents (n=144) said this was the greatest reason for optimism?





Opportunities

- Collaboration & info sharing
- Interoperability
- Data analysis at scale
- Bespoke/fit for purpose tools
- Data collection & sharing (efficiency & scale)
- Local capacity building & ease of use

Looking Ahead

- A few of the key elements mentioned included:
 - Targeted investment in infrastructure (like open, community-curated data repositories) to support collaboration among willing actors
 - Resourcing and defining industry standards
 - And improved coordination and scaling of efforts, potentially through a body along the lines of an international lab



Connect into Community

- More information at www.wildlabs.net
- Contact: stephanie.odonnell@wildlabs.net

Intro Talk

State of Conservation Technology

Stephanie O'Donnell

Agenda	Topic area
Welcome	Welcome, setting the scene from GWP perspective Lisa Farroway
Introduction	State of Conservation Technology I Stephanie O'Donnell
Talk 1	Drones Chipangura Chirara (TBC), Zimbabwe Team
Talk 2	Collars and Cameras Ricardo Moreno, Panama Team
Talk 3	Apps Achmad Pribadi, Indonesia team
Open Discussion	Guided by questions from registration and coming through during talks Stephanie & panel
Break	
Intro talk	Emerging technology, AI, where are we headed TBC
Talk 1	Earthranger, Smart, Satellite data Franziska Steinbruch, ANAC Mozambique TBC
Talk 2	National databases and management structures Yanira Pop, Belize Team
Talk 3	Cross sector partnerships and opportunities Sarah Maston, Microsoft
Open Discussion	Guided by questions from registration and coming through during talks Stephanie & panel
Close	Summary and where they can go for additional support Stephanie



Drone usage by ZimParks in the Zambezi Valley Zimbabwe Project Team



Chipangura Chirara
Project Manager

1. The Challenge

- ZimParks support **70% of their operations from tourism revenue**, with the remainder being derived from support of partners and donors in the private sector and NGO community
- ZimParks income was severely affected by **COVID-19** when the Zimbabwean government closed its borders (air and land) to all human traffic except for returning nationals, with the result that **tourism activities in the country almost completely stopped.**
- For surveillance, we usually **use people** and patrols. There ranger complement in ZimParks is already insufficient.
- Before covid, tourists in large areas were a strong deterrent, so those areas frequented by tourist didn't need intense ranger patrols.
- When covid hit, there was need to cover everywhere and we realized how **big the area was we needed to patrol.** That's when we started looking at **drones** to help us cover the area.

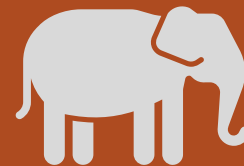
Threats to Wildlife



HABITAT DEGRADATION
AND FRAGMENTATION



ILLEGAL WILDLIFE
TRADE



HUMAN-WILDLIFE
CONFLICT



CLIMATE CHANGE

2. The Solution

- To cover a bigger area with available rangers, ZimParks used **drones that they already had.**
- These drones have a range of 5km at most and are used to short-range pursuit and checking uncertain or rough terrain
- Drones have cameras to capture real-time videos and pictures of patrol data like sightings of carcasses, poachers' camps, spoor and sightings of key species
- They also work to assist apprehend poachers as they have inbuilt speakers and a microphone on the remote control.
- There was some success with these drones.

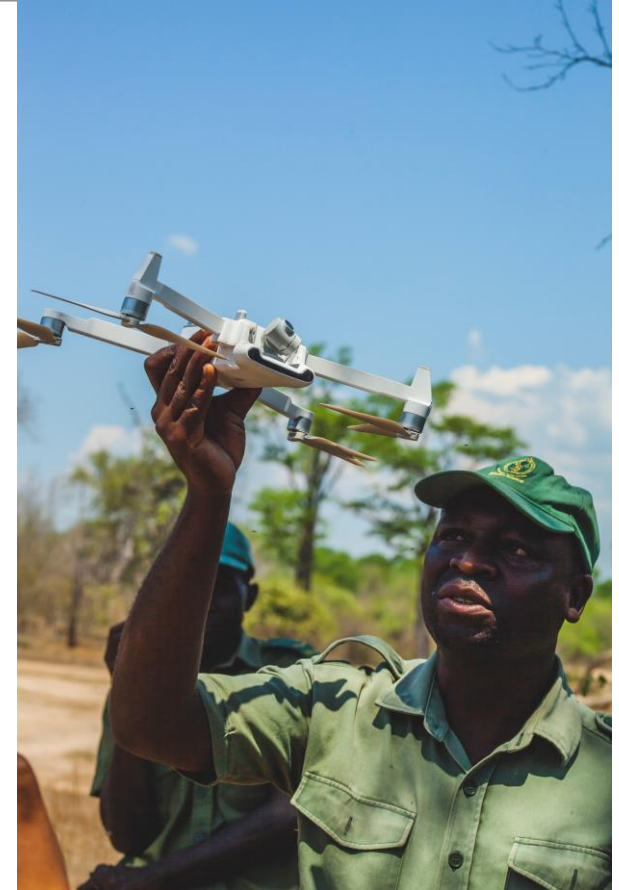
2. The Solution

However:

- There were challenges with endurance and more flight time was required
- The data collected needed computers with better specs
- More rangers needed to be trained in the use of drones
- The project ordered new drones based on requirements from current experience

Key requirements for support:

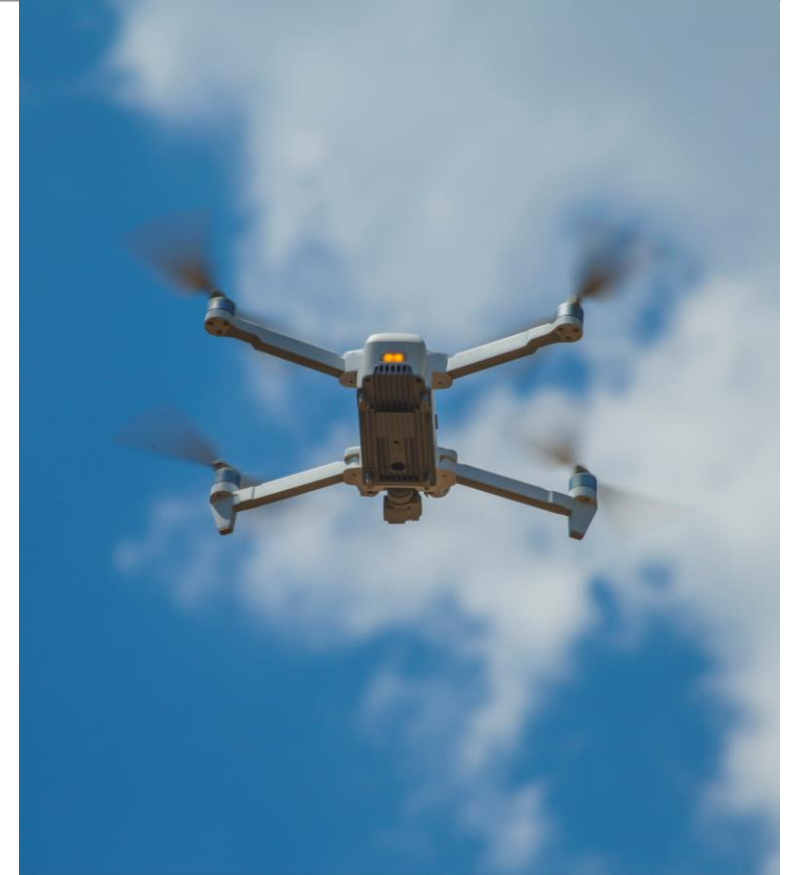
1. Improved Flight time
2. Computer - where you download data, these specs needed to be better/bigger
3. Training - knowledge is needed



2. The Solution

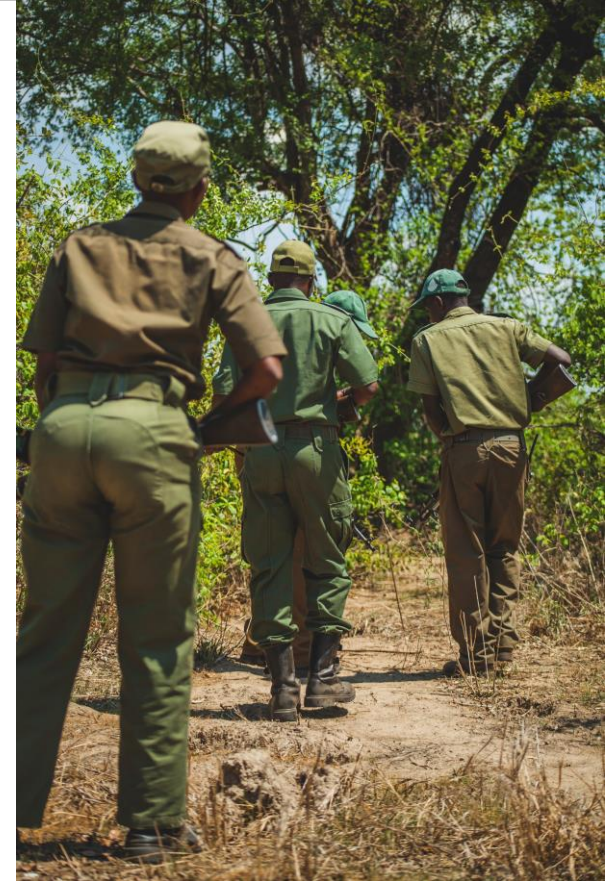
Training

- We have put **1.5 x the budget** for buying drones into actual training.
- That knowledge is not there, we need to train rangers and field staff to use these drones without crashing them.
- We're getting external drone pilots to come and train them.
- Parks have insisted that external trainers use their own drones so they don't "come here and crash ours" during training



3. Why is this approach successful?

- Drones have proved useful, at times with unexpected benefits.
- An example is armed robbers who had hidden their loot in the park were detected by rangers and apprehended.
- There is the additional need for drones with night vision cameras that can also track poachers and animal movements during the night.
- Poachers cross boundaries in the project area and ZimParks will in future explore the use of Underwater Remotely Operated Vehicles (ROVs) - Underwater Drones



4. What is your advice for anyone else looking to incorporate drones or new tech into their work?



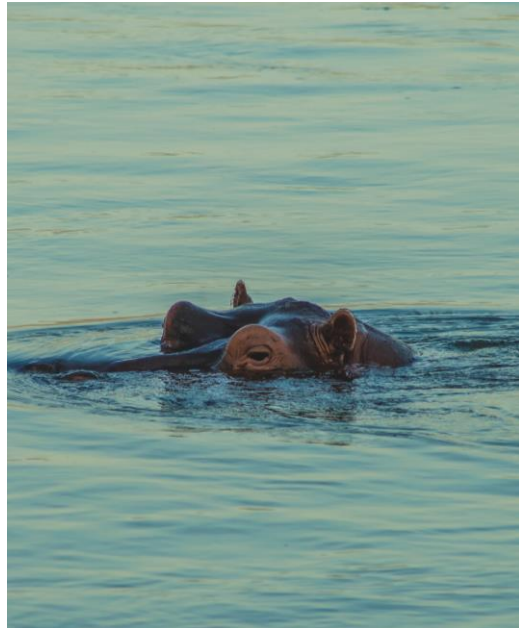
Drones help surveil the vast area in need of protection

▶ **1,616,900**

hectares in the project area are under improved protection



Thematic Focus



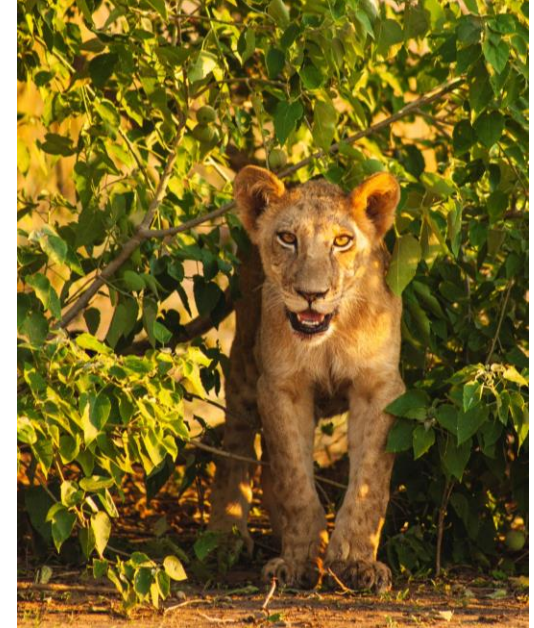
Conserve
Wildlife and
Habitats



Promote
Wildlife-based
Economies



Combat
Wildlife Crime



Reduce
Demand





HOW TECHNOLOGY HELPS COEXISTENCE BETWEEN HUMANS AND JAGUARS IN PANAMA

Panama GWP Project Team



RICARDO MORENO
FIELD BIOLOGIST

1. The Challenge

Since 1998 we began to search for information on jaguars in Panama; but since 2000 we started working with camera traps and telemetry. At this moment, Fundación Yaguará Panama has the most extensive camera trap monitoring in the country and to date we have managed to place GPS collars in an area where we work with the community, trying to minimize the conflict between humans and jaguars.

Having jaguar populations today depends directly on us humans. Panama is a country that is small and narrow. The strips of forests are even narrower and most of the cattle are free with traditional management and that is the perfect formula for there to be big problems where both parties lose, but the one that loses the most is the jaguar, since their populations they go down quickly. Between 1989 and 2023 we know of 338 jaguars killed in Panama.

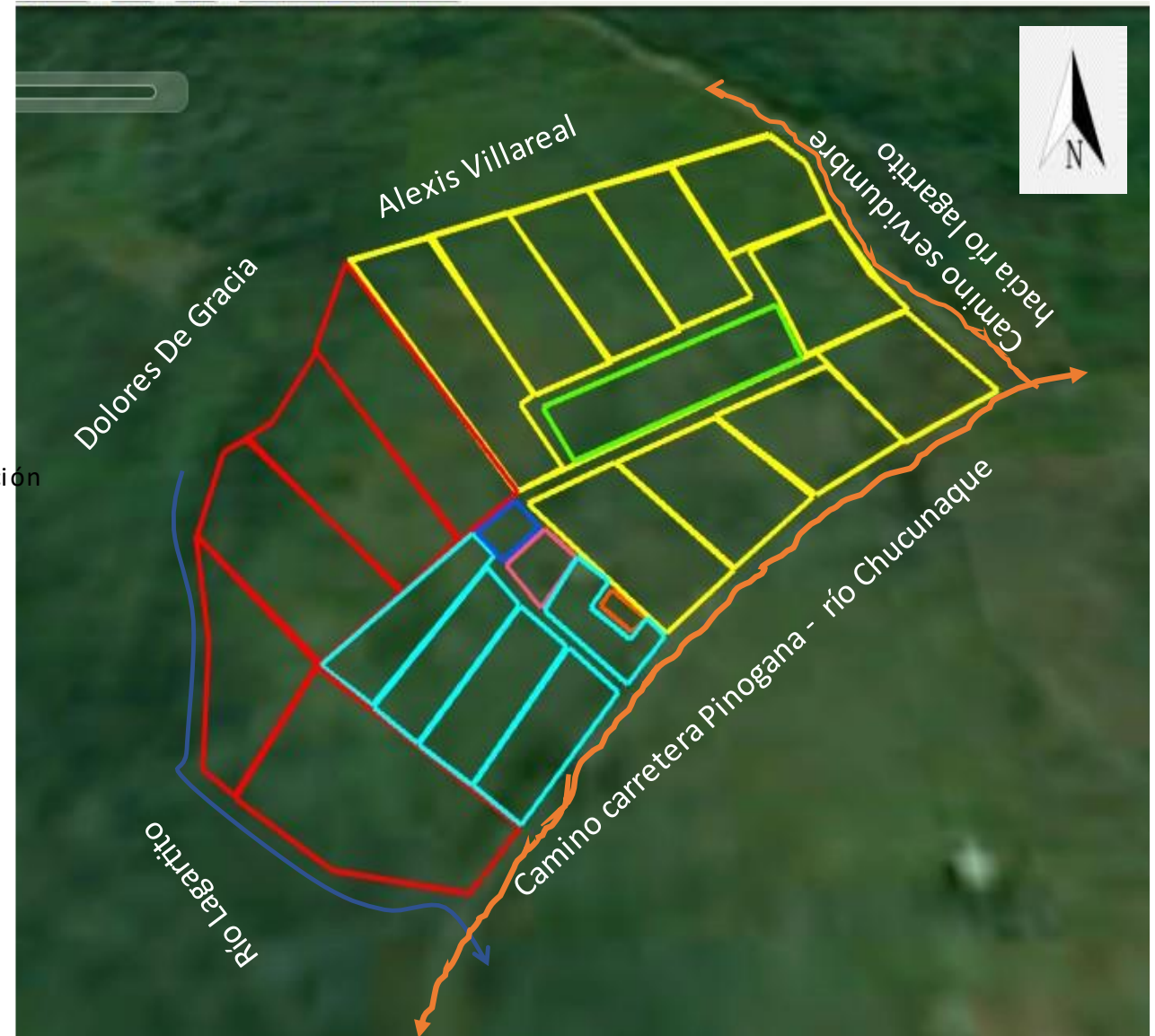
It is here where we see that the technology of camera traps and GPS telemetry play a fundamental role in finding answers to promote Coexistence.



2. The Solution



-  Área de bajoriesgo
-  Zonaseguracon medida de anti depredación
-  Área vulnerable a depredación
-  Área de vivienda
-  Corral de tubo
-  Chiquero de cerdos
-  Área agrícola
-  Área segura
-  Río lagartito
-  Caminos servidumbres



We place
cameras traps
on the farms





We catch jaguars and we put GPS collars on them to know where they move



3. Why is this approach successful?





Corazones



Su

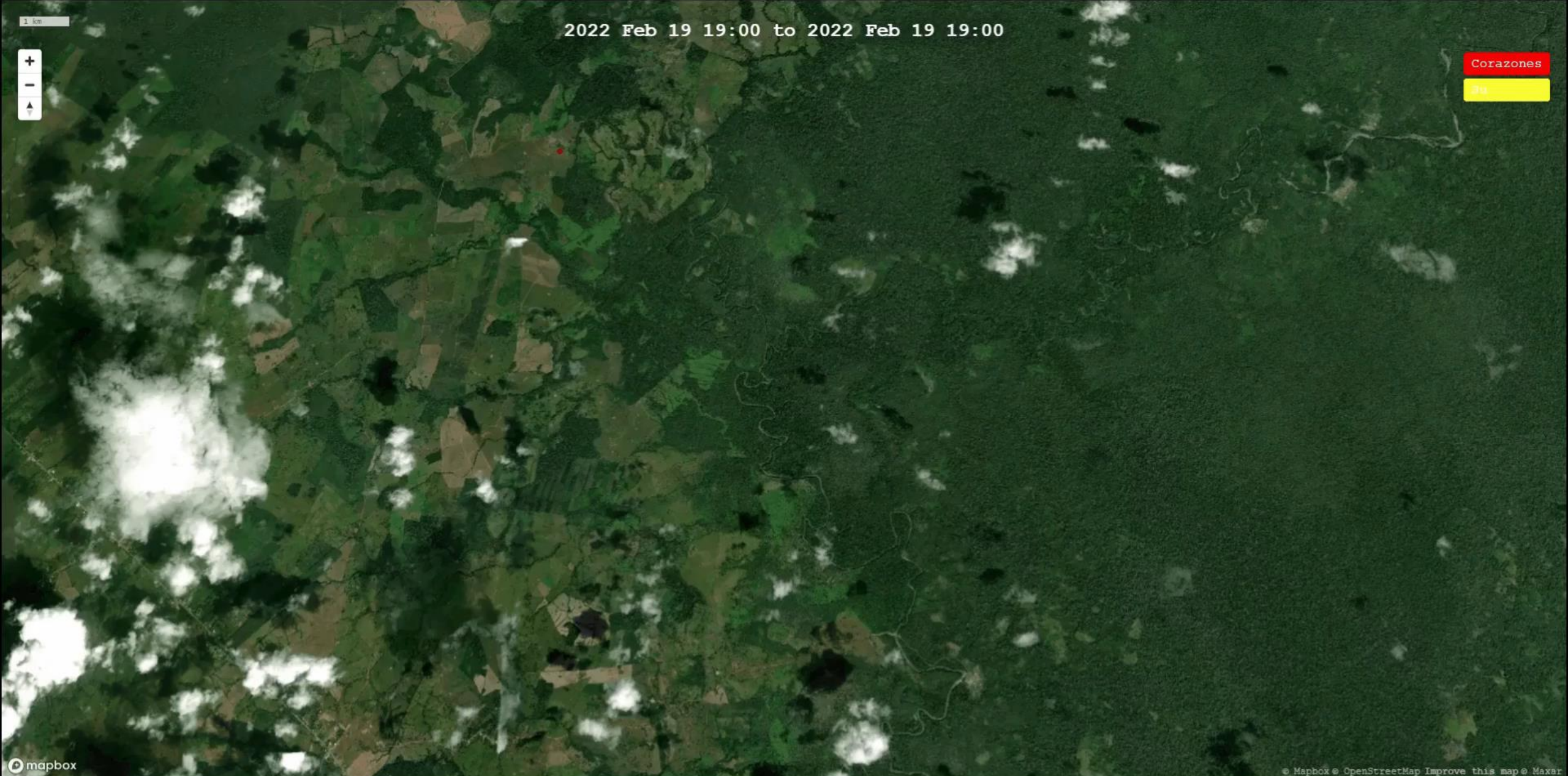


1 km

2022 Feb 19 19:00 to 2022 Feb 19 19:00

Corazones

34

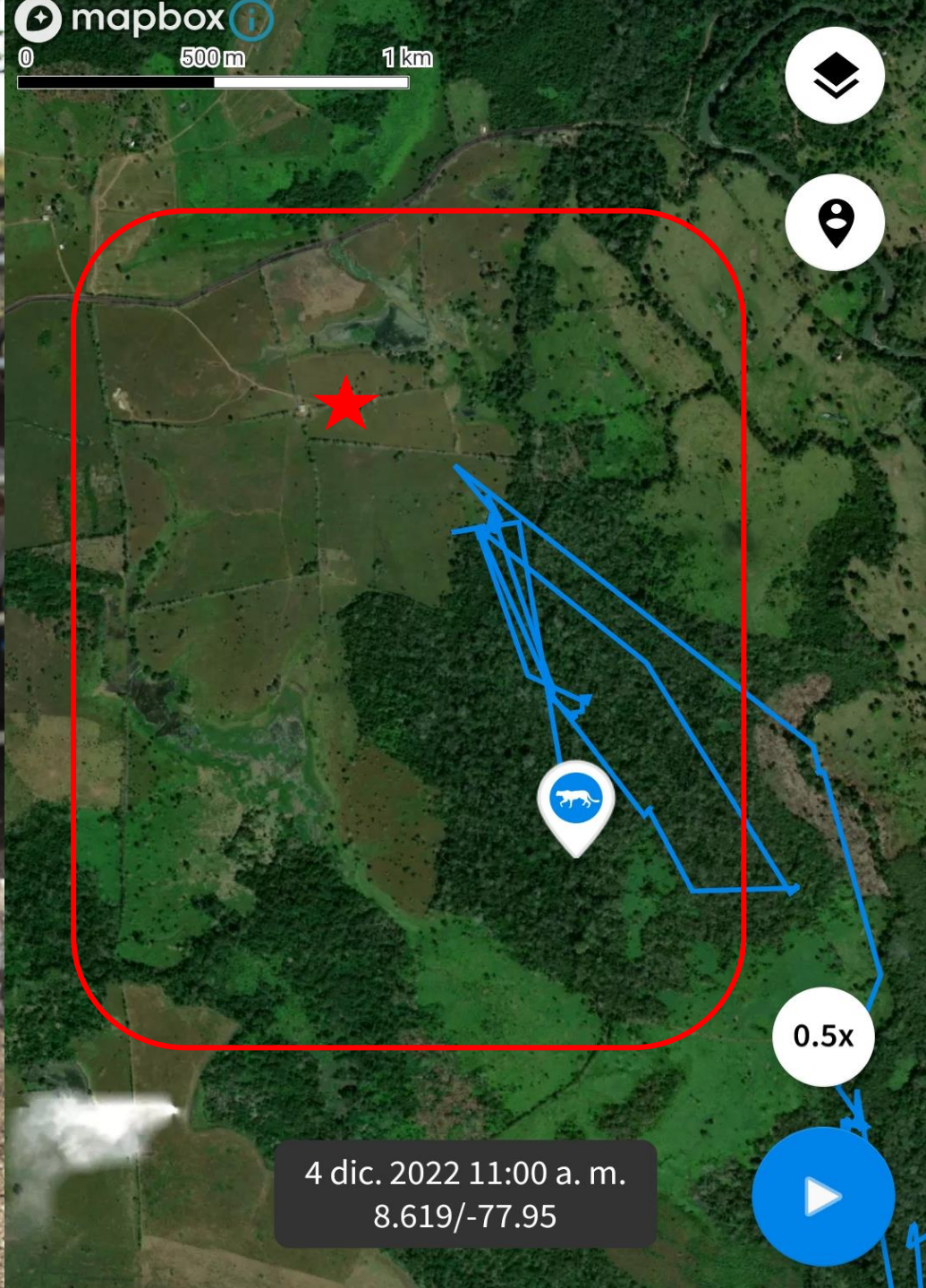


mapbox

© Mapbox © OpenStreetMap Improve this map © Maxar

Feb 19 Feb 25 Mar 03 Mar 08 Mar 14 Mar 20 Mar 25 Mar 31 Apr 05 Apr 11 Apr 17





4. What is your advice for anyone else looking build tech into their projects?



4. What is your advice for anyone else looking build tech into their projects?

Our goal is to have a cluster of 14 farms with sustainable management plans and anti-predation measures.

Knowing about the spatial and temporal movement of various jaguars in the study area, which are the cattle farms, we will be able to know what they do on the farms.

All the data produced by the two methods -cameras and GPS collars- helps us to work with the producers, but we also use the videos and photos to sensitize the communities and the country in general. Apart from having a biological monitoring that helps us to know about the oscillations of the populations over time. Only in this way can we convince decision makers.

The communication and trust that is generated with the people of the communities will make the work more successful, this is important.





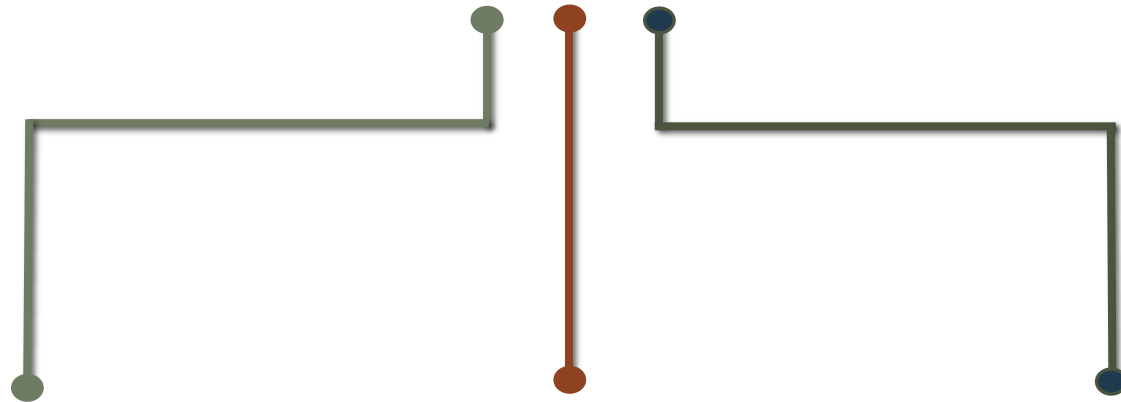
Development of a Database of Protected Species and Mobile Application for the Wildlife Identification

Indonesia GWP Project Team



ACHMAD PRIBADI
NATIONAL PROJECT MANAGER
CIWT INDONESIA

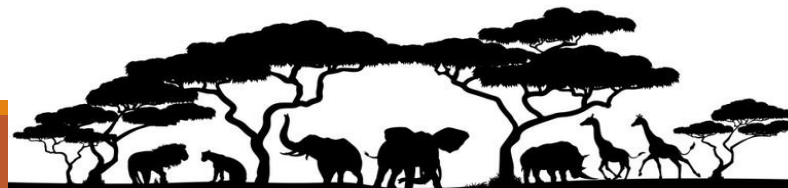
WHY database development & Technology is necessary?



In Indonesia, wildlife crime is the third organized crime after drug abuse and human trafficking.

There are at least 723 protected wild animal species in Indonesia
Regulation Ministry of Environment & Forestry
Nbr.

Customs Authority other related law enforcement officer **needs Practical device/application to assist them in identifying those such number of protected species which in turn can help them to proceed what kind sanction treatment can be applied.**





The Challenge

- Exclusive photos/features of those 723 prohibited species are spread out belong to many sources. Photo from Google source need to be validated by Scientific Authority of CITES before utilized.
- How to building trust and coordinating with key stakeholders to collecting data information?
- Apply key determinant for identifying the species

How We Work ?

Data Collection

- ✓ Collecting secondary data from several agencies, institutions, communities, photographers, and literature from **animal species identification book**.
- ✓ Because the literature data is not fully available, then we collected data **from field surveys at several animal rescue centers and zoos** throughout Indonesia.
- ✓ The survey team collected data including photos of wild animals from various angles, animal descriptions, unique characteristics, distribution areas, names of species and subspecies.
- ✓ If the team can not obtain photo figures of particular species then the team is encouraged to take photos illustration **of the species**.

Preparation of the Application System

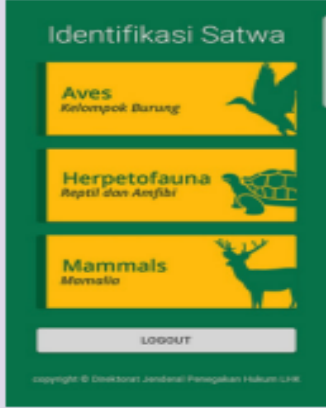
- ✓ IT Team prepared an application system from the description of the data collected. This include data analysis, database preparation, design preparation, flow charts, and interfaces.
- ✓ We implement a user interface and user experience (UI and UX).

USER:

- FOREST RANGER
- CUSTOMS
- AGRICULTURAL QUARANTINE AGENCY
- NATIONAL POLICE OF INDONESIA
- BABINSA
- LEGAL INVESTIGATOR

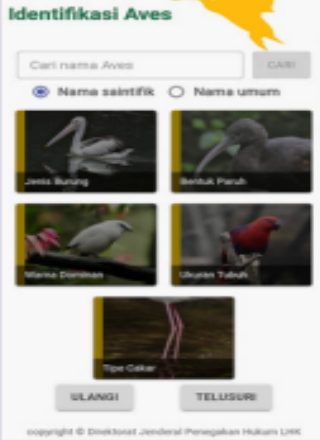
USER CHOOSE WILDLIFE IDENTITY FEATURE

DISPLAY CLASSIFICATION OF WILDLIFE OPTION
(AVES, HERPETOFAUNA, MAMALS)

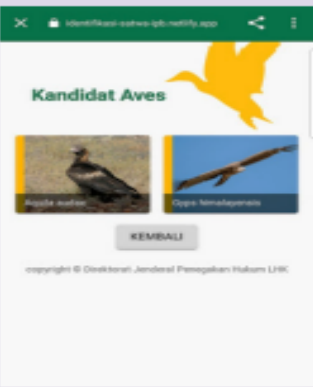


USER CHOOSE WILDLIFE CLASIFIKATION
(By Dominant Color, Size, Beak Type, ETC.)

DISPLAYING CHOOSSED WILDLIFE IDENTIFICATION
(EX: AVES | aquila audax)
Dominant Color: Black and Brown
Beak Type: Sharp Tapered Beak
Size: Big



USER CHOOSING BY CAPTURED WILDLIFE



DISPLAYING WILDLIFE ANIMAL BASED ON CHOOSSED INFORMATION
(EX AVES | aquila audax / Wedge-tailed eagle)

FINISH (ACTION)

Why was this approach successful?



Not trying to use high tech such as AI if you don't have an adequate number of photos from various angles.

Focusing on the need for the customer

"We provide What people need"



Learned from previous experience related to some applications that have been developed previously. So that we can learn the weaknesses and the strengths of the previous application..



Build coordination with key stakeholders to develop a database and application for the identification of protected animals according to needs and it should be user-friendly. *(tutorial guide for using the application is preferable to develop)*



The application should be **interactive, real-time and easy to maintain at affordable cost.** The application development used the Android platform.



Advice to build an app or use technology?

1. Identify what are needed by users and choose the right technologies and development approach.
2. Availability of complete and informative data. Build trust and cooperation with various parties to gain complete data collection is very important
3. Data validation (from scientific authority) is needed before running the application.
4. For sustainability of use, we need to develop a *tutorial guide* for users so that data and application can be maintained
5. Training is also needed for users to apply the application.

THANK YOU



Ministry of Environment
and Forestry



Driving Innovations, Elevate Knowledge



Open Discussion 1





Acoustic monitoring in Gorongosa National Park

Gorongosa National Park, Mozambique E.O. Wilson Biodiversity Laboratory

Piotr Naskrecki, Ph.D.

1. The Challenge



Many acoustic animals (bats, birds, orthopteroid insects) are difficult to observe and monitor using traditional, visual methods. In Gorongosa National Park we have over 400+ species of birds, 50+ bats, and 100+ acoustic orthopteroid insects, many of which are of conservation concern or endemic.

2. The Solution



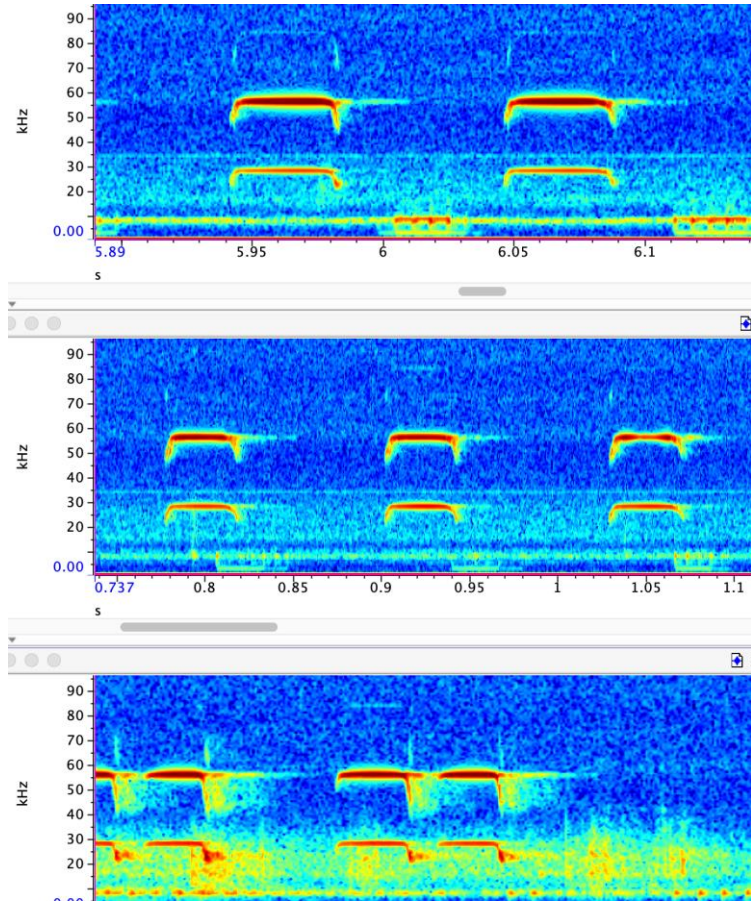
1. We conduct acoustic monitoring using an array of automatic sound recorders.
2. Bats and ultrasonic insects are recorded with Wildlife Acoustics SM4BAT FS Ultrasonic Recorders.
3. Recording is triggered by an ultrasonic signal that meets specific parameters and only during the time of known activity of bats and insects.

2. The Solution



1. Birds are recorded with Wildlife Acoustics SM4BAT Sound Recorders.
2. Recording is periodical (10 minutes/hour/24 h/1-6 months) or continuous (up to 30 days).
3. This allows us to detect and record both diurnal and nocturnal bird species.

2. The Solution



1. Data are initially processed using automatic species recognition modules in Kaleidoscope v. 5 from Wildlife Acoustics.
2. Unknown/new species are detected via cluster analysis in Kaleidoscope, followed with a “manual” analysis in Raven Pro v. 1.6 (Cornell Lab of Ornithology).
3. Processed data provide information on the presence/seasonality of species but not abundance.

3. Why is this approach successful?

1. A cost-effective, non-invasive method of data collection.
2. Ability to detect species that are difficult or impossible to observe.
3. Data can be collected and recorders maintained by technicians with a minimum amount of training and experience.
4. Data on known target species can be analyzed nearly automatically.
5. Ability to detect unknown and new species.

4. What is your advice for anyone else looking to incorporate data or new tech into their work?

1. Software needs to be trained to recognize target species.
2. Recorders collect a massive amount of data (one recorder can produce 10-100,000 recordings in a typical 1-month session).
3. May not work on closely related species.
4. High probability of false positives.
5. "Manual" species recognition very time-consuming.
6. Low efficiency in noisy environments e.g., near rivers, waterfalls etc.

BREAK
(10 mins)



SUPPORTED BY

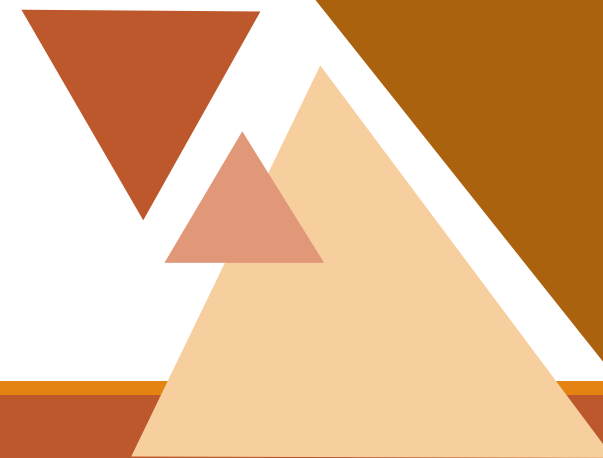


LED BY



Speaker

Intro Talk: Emerging technology, AI, where are we headed





Dan Morris
Google AI for Nature and Society



Geodata for Enhanced Effectiveness and Efficiency in Conservation Area Management

National Conservation Area Administration, Mozambique Project Team

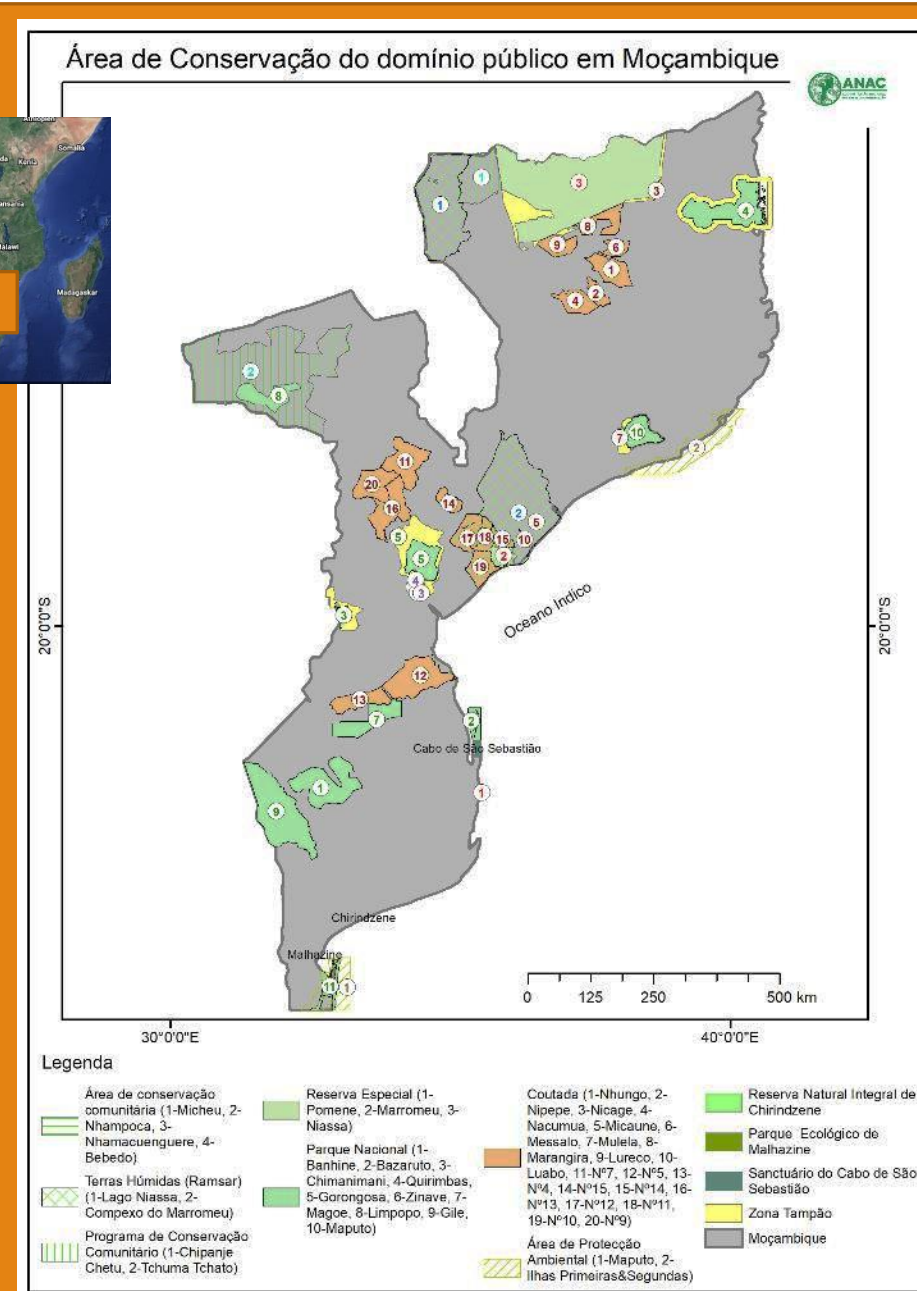
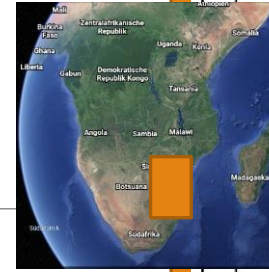


Dr. Franziska Steinbruch
Senior Officer of GIS and Research

1a) The Geography Challenge

Mozambique's conservation areas hold more than 25% of the terrestrial territory

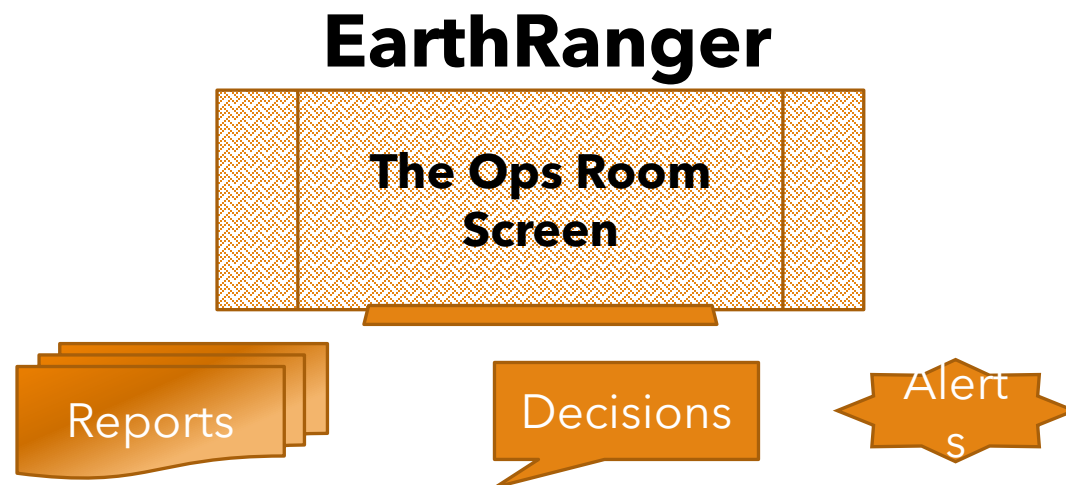
- Sparse road networks
- Isolated during the rainy season
- Reliance on aerial support for logistics and surveillance
- Not enough rangers



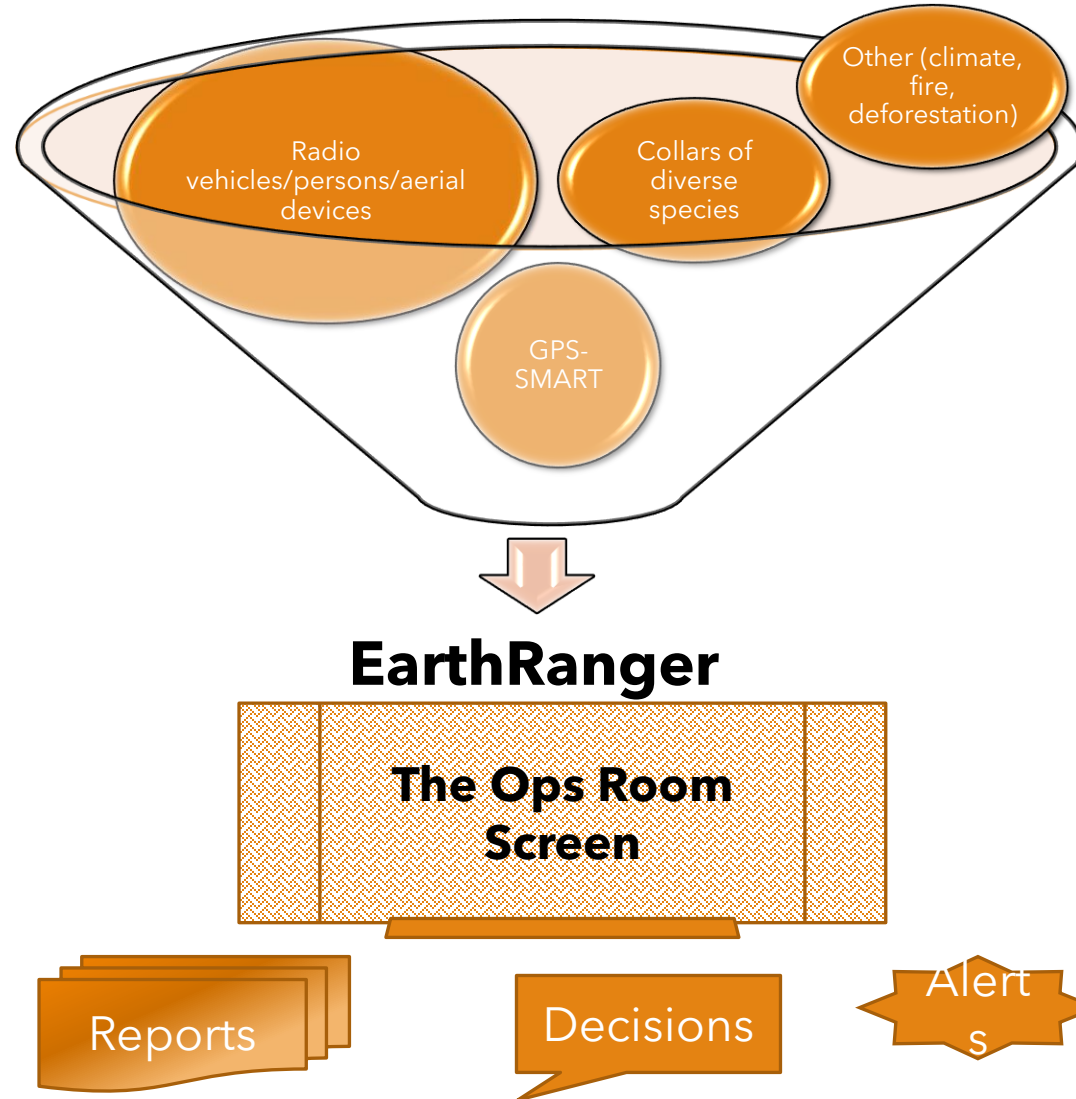
1 b) The Technology Challenge

- ❑ Large remote wilderness areas
 - limits to conventional methods
- ❑ Many actors with often diverse interests on the ground
 - need for leadership and procedures
- ❑ Weak legal framework
 - digital governance / information society
- ❑ Conventional techniques are costly
 - geolocation and remote sensing data systems are an alternative
- ❑ Slow or reluctant knowledge uptake in daily operations
 - need for live-long learning

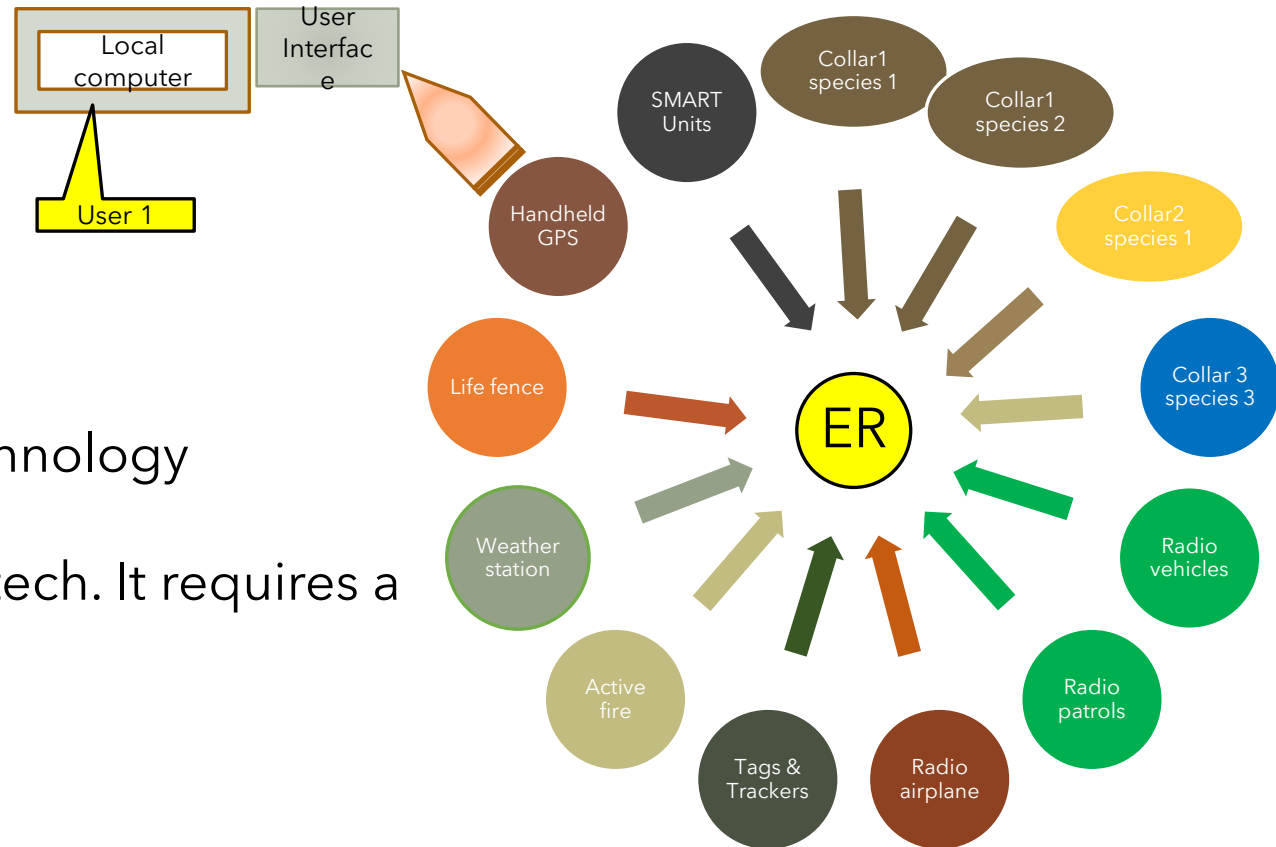
2. An Apparent Solution



2. An Apparent Solution



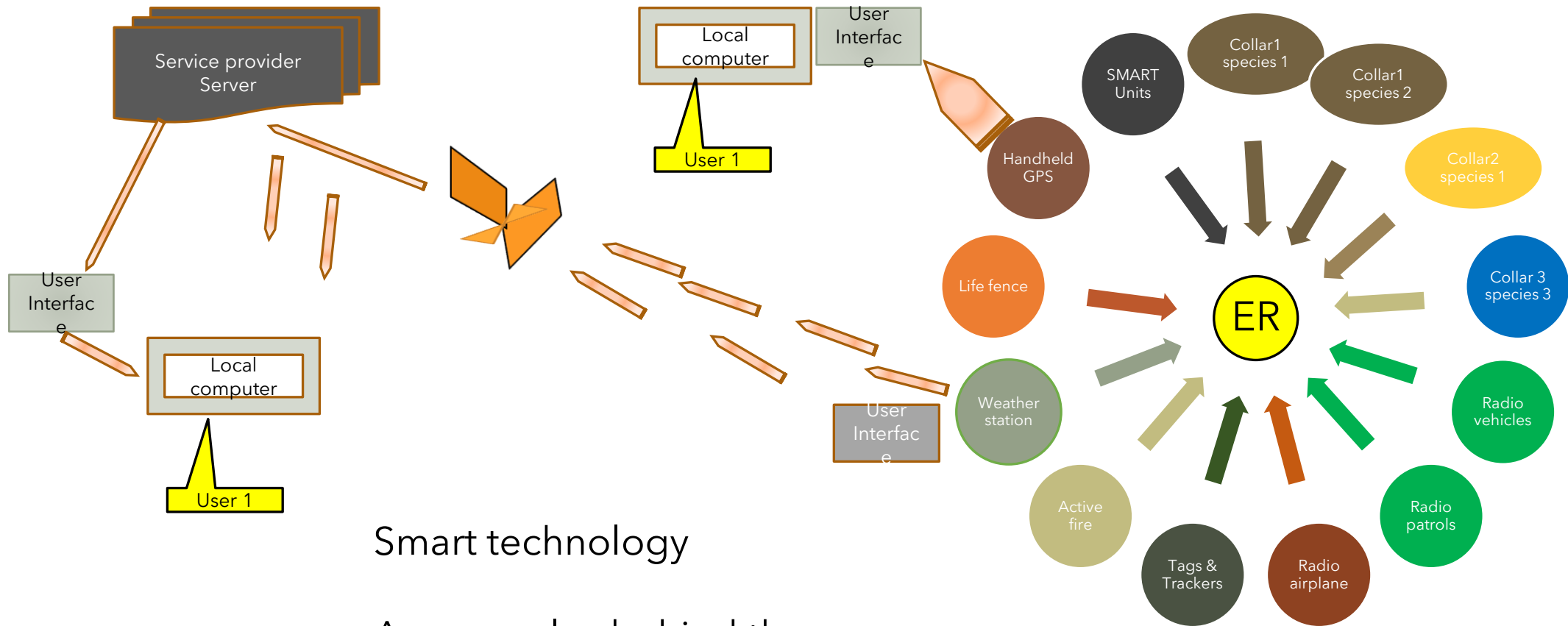
Transition Issues



Conventional and analog technology

Does not integrate with new tech. It requires a complete system change.

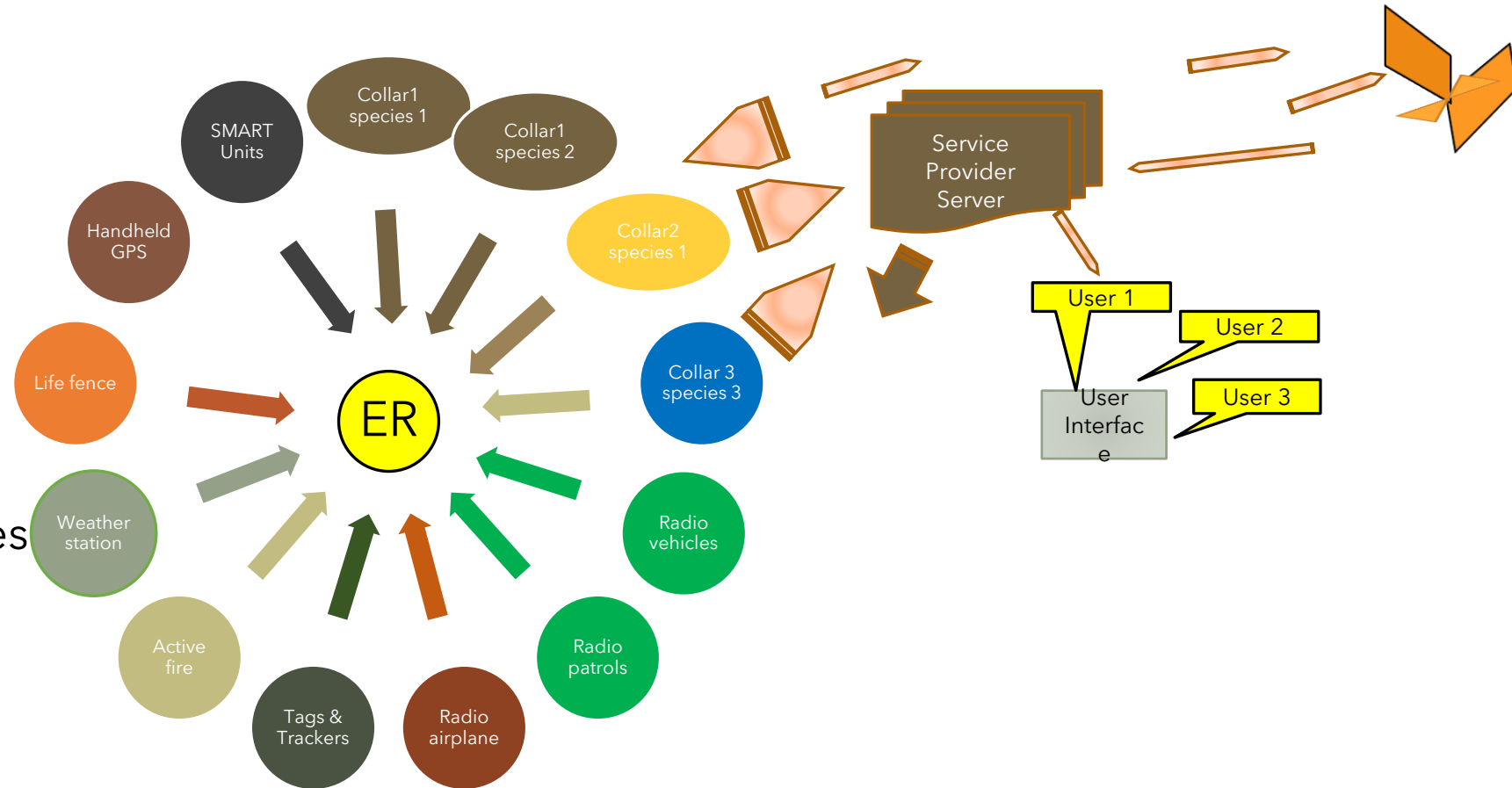
Complexity of network-based technology



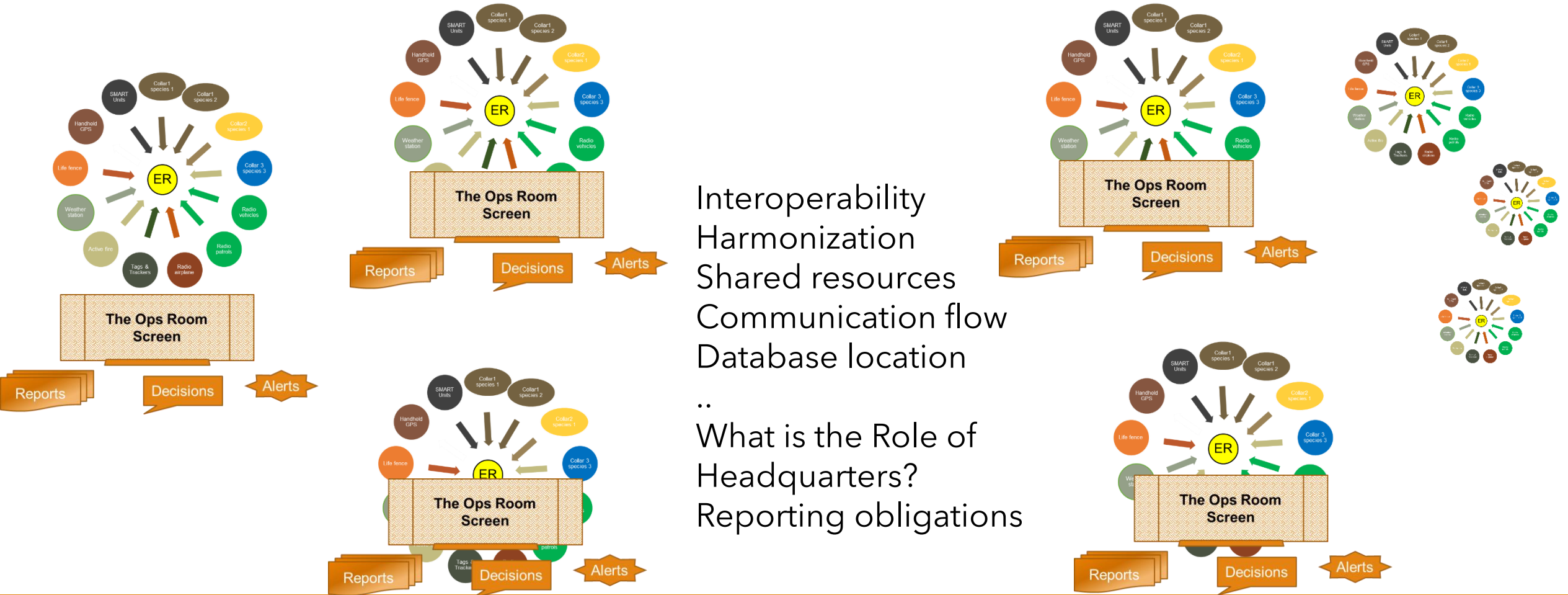
Multiple stakeholder's issue

Security
Sharing
Ownership
Insight knowledge
Decisions

..
Rests with many entities



Growing number of conservation areas - public and private



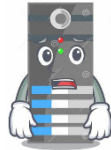
Interoperability
 Harmonization
 Shared resources
 Communication flow
 Database location
 ..
 What is the Role of Headquarters?
 Reporting obligations

3a) Property and Service Provisions

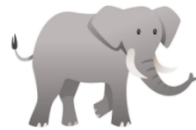
Property of Asset monitoring sensors, devices, instruments, storages, transmission systems



Data property and intellectual property rights



Asset property and personal rights (Infrastructure, vehicles, wildlife, staff, tourists)



Public goods, public assets

Communication services (internet, WIFI, LoRa)

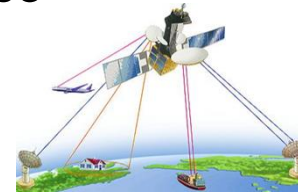
Instrument maintenance services

Data storage services

Data provider services

Security failures - cybersecurity - Vetting

Hidden costs



Access to instruments

Access to raw data

Access to processed data

Access to archive

Access to metadata

Administrative roles

3b) Rights and Responsibilities

Source of instruments often determines ownership over data

- Donated to..
- Purchased by ..
- Lease arrangements (MoU, Credential)

Sharing of instrumentation (transmission network, etc)

Data sharing

Decommissioning plans

Purpose and priorities (first to publish or decision support?)

4. The Advice

Plan in advance, have legislation in place

Know the data generation and information technology chain

Know the true cost

Manage risks

Develop protocols for communication flows, and for data and instrumentation sharing

Institute backups in-country

Decide and establish data licensing

Manage databases and metadata

Manage contracts with services providers



ANAC

ADMINISTRAÇÃO NACIONAL
DAS ÁREAS DE CONSERVAÇÃO

Thank you for your attention
fsteinbruch@anac.gov.mz





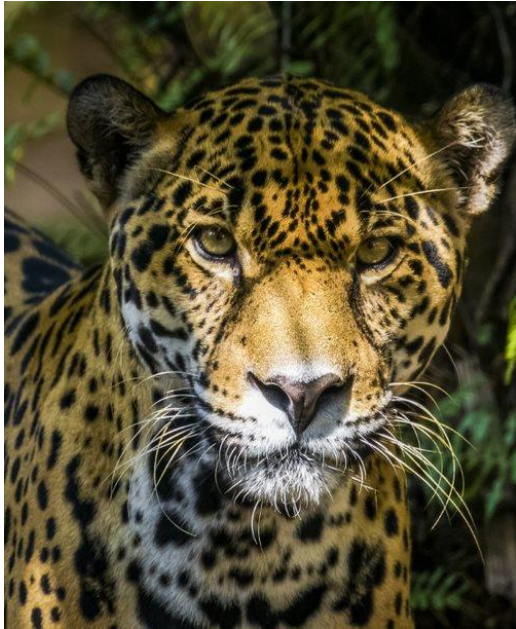
Enhancing jaguar corridors and strongholds through improved management and threat reduction

Belize GWP Project Team



YANIRA POP
FOREST OFFICER/PM

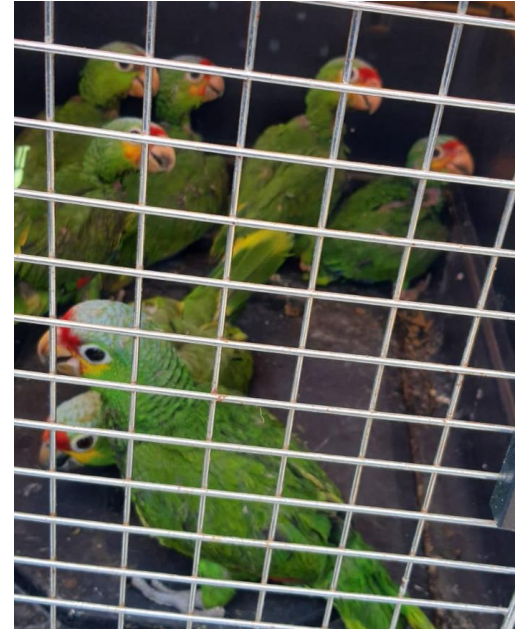
Thematic Focus



Conserve
Wildlife and
Habitats



Promote
Wildlife-based
Economies



Combat
Wildlife Crime



Reduce
Demand



1. The Challenge

Data integration, quality, privacy and security: How do we create collaborative networks that have sufficient incentives for stakeholders to participate, and share accurate, complete, and reliable data? How can we ensure that sensitive data are protected to avoid unauthorized access, misuse, or disclosure?



Stakeholder collaboration and coordination: Different stakeholders may have different priorities, goals and interests. How can we bridge the inter-department gap that exists in wildlife management?



Wildlife-human conflict: How can we attain balance between the need for biodiversity conservation and human activities? How do we change the perception that people/communities have on jaguars? What can be done to lower human-jaguar wildlife conflicts?



2. The Solution

- 1. First step, we are developing an MOU, a legal document that will support all organizations to collaboration. An MOU that outlines the specific data sharing agreement.**

The goal is to set out terms that:

- Coordinate efforts and ensure that stakeholders work together effectively
- Standardize data collection
- Standardize and promote effective use of data
- Ensure everyone's data is protected
- Ensure ownership and the source of data is acknowledged



Longer term, the vision is to have a data repository and all data housed in department, and to have this central repository that will then allow further analysis and questions to be asked we haven't yet thought of. But right now, the first step is the solid agreement.

2. The Solution (cont'd)

2. Strengthening the relationship with partners, e.g., Ya'axche, CSFI.
3. Revising the Wildlife Protection Act.
4. Addressing the underlying socio-economic factors that contribute to conflict.
 - Promoting coexistence between humans and wildlife
 - Implementing measures such as compensation for livestock losses, tourism packages, and community-based conservation programs that involve local stakeholders in conservation efforts
 - Establishing a wildlife response team





The Solution:



SIGNING OF MOU



STRENGTHENING
RELATIONSHIPS WITH
PARTNERS



REVISION OF THE
WILDLIFE PROTECTION
ACT.



ADDRESSING SOCIO-
ECONOMIC FACTORS

3. Why is this approach successful?

1. Before we started, we asked: **Why are we building this database?** What do we want it to do? Answer: We want to make better decisions as a government. It will be a decision-making tool for policies to reduce HWC. This is where we focused, this is how we envisaged doing reports and so shaped our decisions.
2. We are talking to Mexico - we are trying to learn from them. They have established something similar. They will present their database, and we have the long-term vision of seeing if we can make the databases talk to each other
3. We adopted a carrot and stick approach - looking for ways to break down barriers/resistance to participate rather than enforcing participation. Where are the wins and the motivations for people to join (link to research permits; participation gives something they can point to in grants etc).



4. What is your advice for anyone else facing data sharing challenges?

Constant discussions and close collaboration with partners is key in ensuring the development of the national database.

Approach is integrated and participative (bottom to top)!



THANK YOU

For more information contact:

Forest Officer Y. Pop

bmp.nipp@forest.gov.bz

OR

jaguar-bz-asst@forest.gov.bz



Talk 5: Cross sector partnerships and opportunities

Sarah Maston,
Microsoft



Open Discussion 2



Closing

Survey Link

<https://www.surveymonkey.com/r/JZLXHZR>



Thank You!

For more resources on Conservation Technology please visit:

GWP

WildILabs



SUPPORTED BY



LED BY



WORLD BANK GROUP

