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**Tech
is in our
nature:
Wildlife**



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TRAFFIC



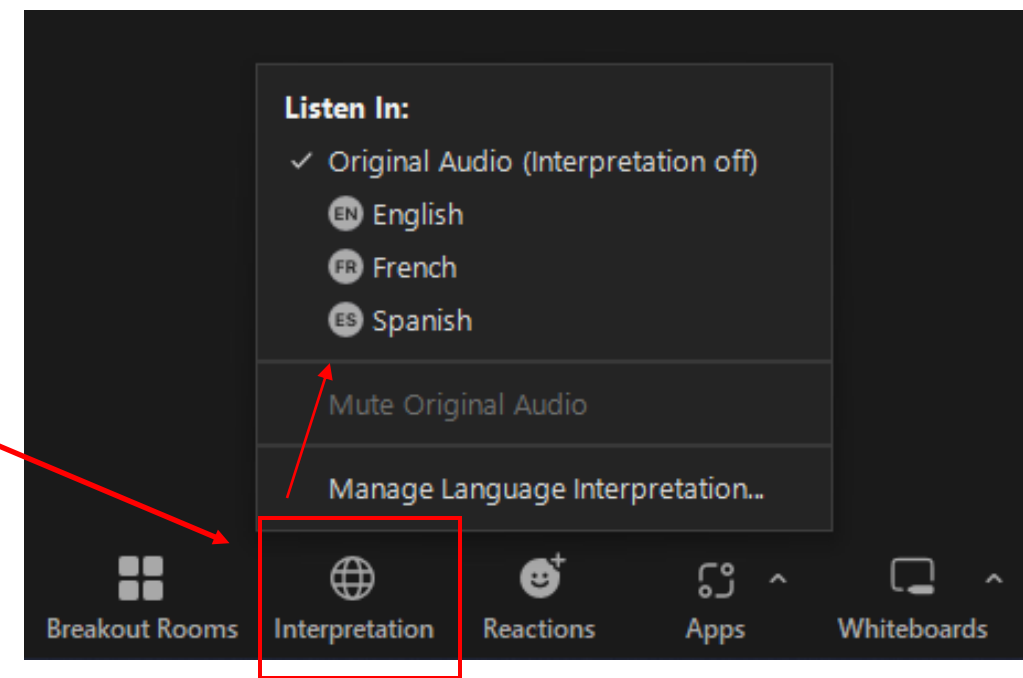


Join in English, Spanish or French

Interprétation en français // Interpretación en español

1. Pulse sobre el símbolo del globo terráqueo.
2. Seleccione **Español**.

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





Housekeeping

Now:

1. Rename yourself (Name, Affiliation)
2. Use the chat to say hello, tell us where you're joining from and why you're interested in this topic.

During Talks & Panel:

- Use the chat to ask questions, debate and share resources
- We will keep track of the questions you ask. During Q&A and Panel discussion we'll call on you to switch on your mic and join the conversation

After:

- If you need to follow up anything after the event, email Stephanie at sodonnell@worldbank.org



Agenda

Time (EST)	Topic
8:00 AM	Welcome & Opening Remarks
8:10 AM	Lilian Pintea: ‘Converting Data into Local Conservation Action’
8:25 AM	Yanira Pop & Heron Moreno: ‘Delivering Conservation-Tech Initiatives Through Public-Private Arrangements in Belize’
8:40 AM	Panel Discussion: ‘Challenges and Opportunities: Pathways to the Future’ • Paul Bunje, President and Co-Founder, Conservation X Labs • Nagaraja Rao Harshadeep, Global Lead (Disruptive Technology), Global Environment Department, the World Bank • Sara Beery, Assistant Professor, EECS' Faculty of AI and Decision Making & CSAILMIT, MIT
9:25 AM	Closing remarks

The background is a collage of nature-related images. On the left, a close-up of a tiger's face. In the center, a landscape with a river and green hills. On the right, a man in a green shirt holding a camera. The entire image is overlaid with a white diamond-shaped grid pattern.

Tech is in our nature: Wildlife



Stephanie O'Donnell

Knowledge Management & Partnership Coordinator,
Global Wildlife Program, the World Bank

The Global Wildlife Program: 38 countries across Africa, Asia & Latin America



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CONSERVATION
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Flora**



A THREE-YEAR TRENDS REPORT

NOVEMBER 2023

THE STATE OF CONSERVATION TECHNOLOGY

Explore insights from the
first multi-year, global assessment
capturing community insights on the
evolution of technology for nature

<https://wildlabs.net/state-of-conservation-technology>

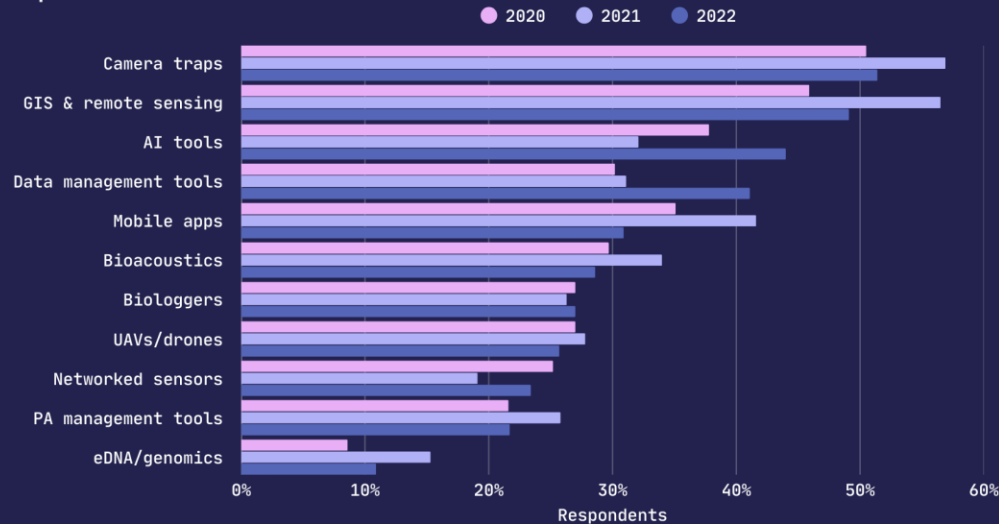
The State of Conservation Tech

Perceived high potential tools



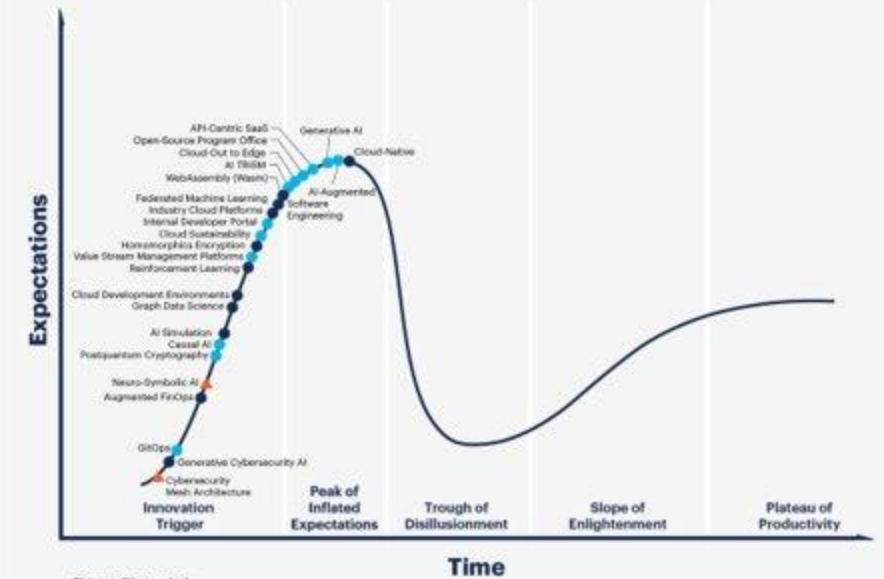
Note: The above two graphs show the ranking of the mean scores of survey responses for each technology. Respondents rated technologies on both fronts on scales from 1-5, with 1 being the least positive and 5 being the most.

Popular tools



Note: Multiple technologies could be indicated. PA management tools = Protected Area Management tools; eDNA = environmental DNA

Hype Cycle for Emerging Technologies, 2023



Plateau will be reached:
 ○ less than 2 years ● 2 to 5 years ● 5 to 10 years ▲ more than 10 years As of August 2023

gartner.com

Source: Gartner
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Gartner.

Movement Ecology Horizon Scan

INNOVATION PRIORITIES

OUTCOMES



CHRISTIAN RUTZ



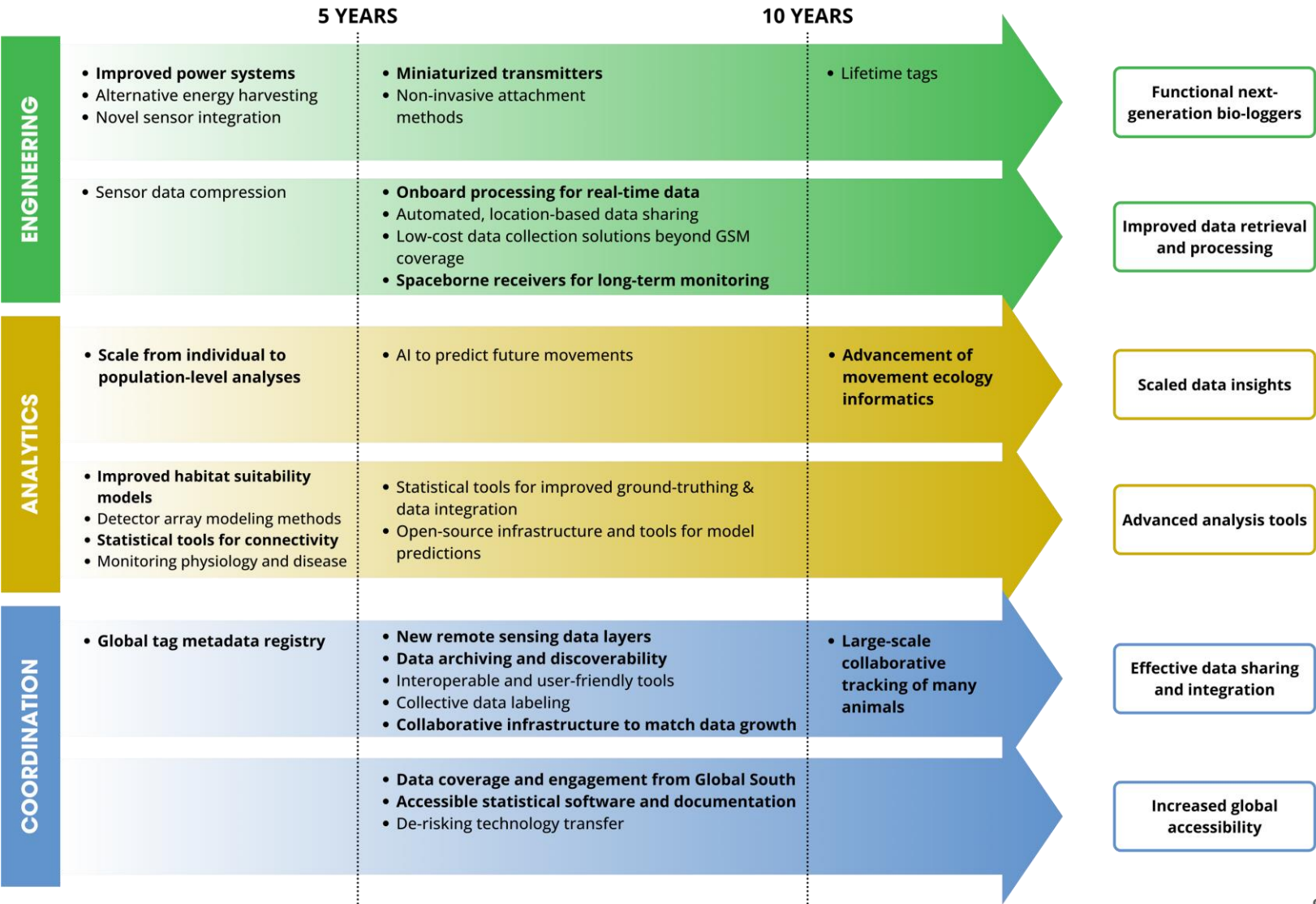
SARAH DAVIDSON



SARA BEERY



ROLAND KAYS



“

I think people think ML is the hot thing and so we tend to concentrate on that. But in order to have real impact there's a long way to go in terms of the engineering, and even just thinking about the UX of making your ML results usable for people. It's not like you write software once and it solves that problem—it needs maintenance.

— Focus group participant, ML & Computer Vision

”

“

I think it's incredibly important that we really solidify some metadata standards and platforms for data sharing. There's so much data out there and it could be exponentially more powerful if we can share it with other people.

— Focus Group Participant, Camera Trapping

”

“

I think there's kind of a technology paralysis, from what I've seen. There needs to be more just basic foundational capacity building and instruction to demystify all the hype and just say, well, this is what it is. This is what it's good for. I think that's when there can be a lot of really interesting things happening with the technology.

— Focus group participant, Networked Sensors

”



Tech is in our nature: Wildlife



Lilian Pintea

Vice President of Conservation Science, Jane Goodall
Institute



Yanira Pop

Forest Officer, Belize Forest
Department



Heron Moreno

Executive Director, Corozal
Sustainable Future Initiative



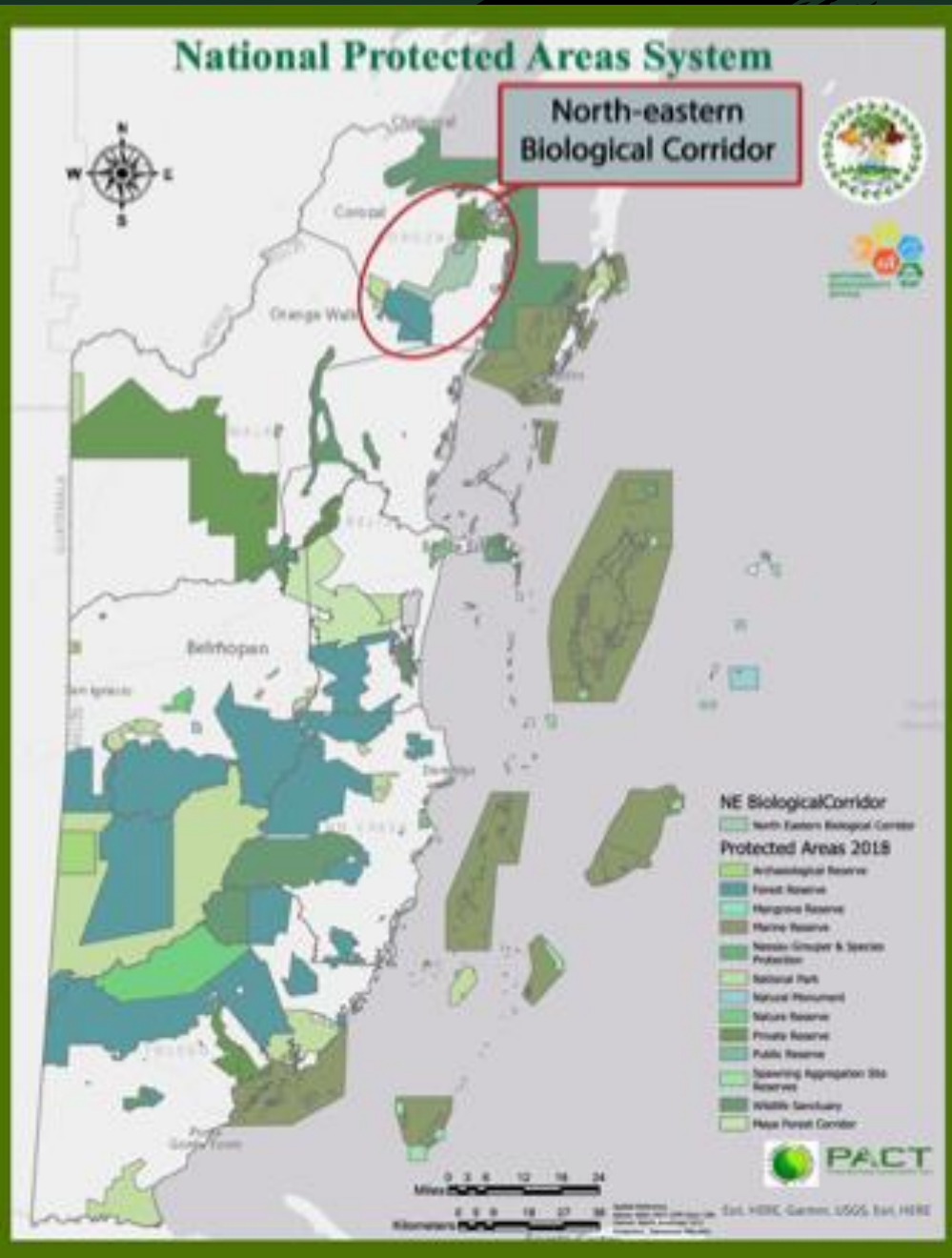
Delivering Conservation-Tech Initiatives Through Public-Private Arrangements in Belize

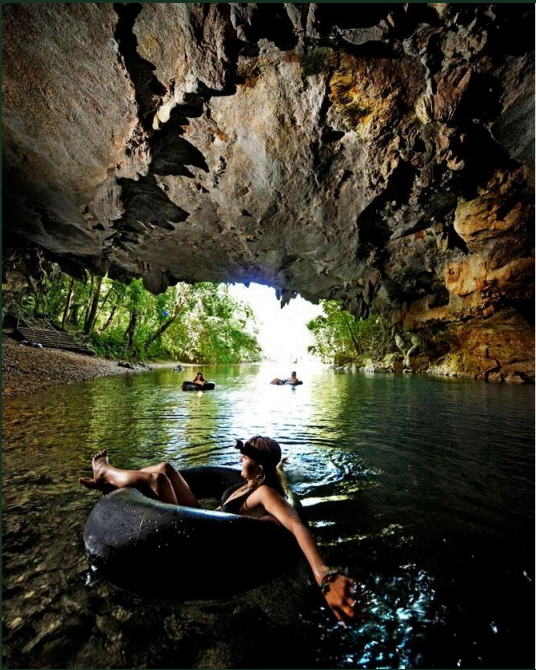
September 24th, 2025

Presented by:
Mrs. Yanira Pop, Forest Officer, FD
Mr. Heron Moreno, Executive Director, CSFI

Quick snapshot of Belize's PA System:

- Over 40% of Belize's territory is under some form of protection.
- Belize boasts almost 60% of it's forest cover
- Belize is recognized as one of the global leaders in conservation.





First - Brief Background

- Project: “Enhancing Jaguar Corridors and strongholds through improved management and threat reductions
- TPRP was signed between the FD and CSFI
- Implementation of Component 2 “Promoting a more Wildlife-Friendly Economy
- Main Objective: address human- jaguar conflict



Jaguar Protection Program

The Belize Jaguar Program is a national program spearheaded by the Government of Belize through the Forest Department with the official support of the Corozal Sustainable Future Initiative – CSFI, designed to address the growing challenges of human-wildlife conflict.



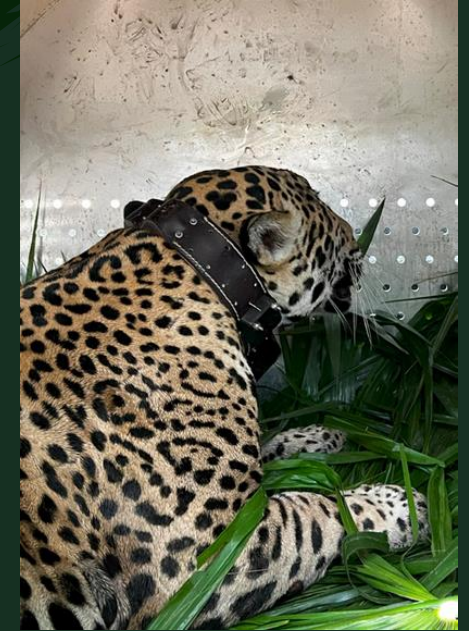
Official Certification of the Jaguar Capture Team

- A major accomplishment for the Jaguar Protection Program was the official certification of the National Jaguar Capture Team.
- The training program was designed to mirror real-life capture operations and conflict response scenarios. It covered the following subject areas:
 1. *Darting and firearm safety.*
 2. *Anaesthesia and recovery procedures.*
 3. *Clinical examination and biological sample collection.*
 4. *Emergency response and first aid.*
- This certification has significantly strengthened the country's capacity to respond to human-jaguar conflict in a professional and humane manner, while laying the foundation for advanced research and conservation work through telemetry and health monitoring.

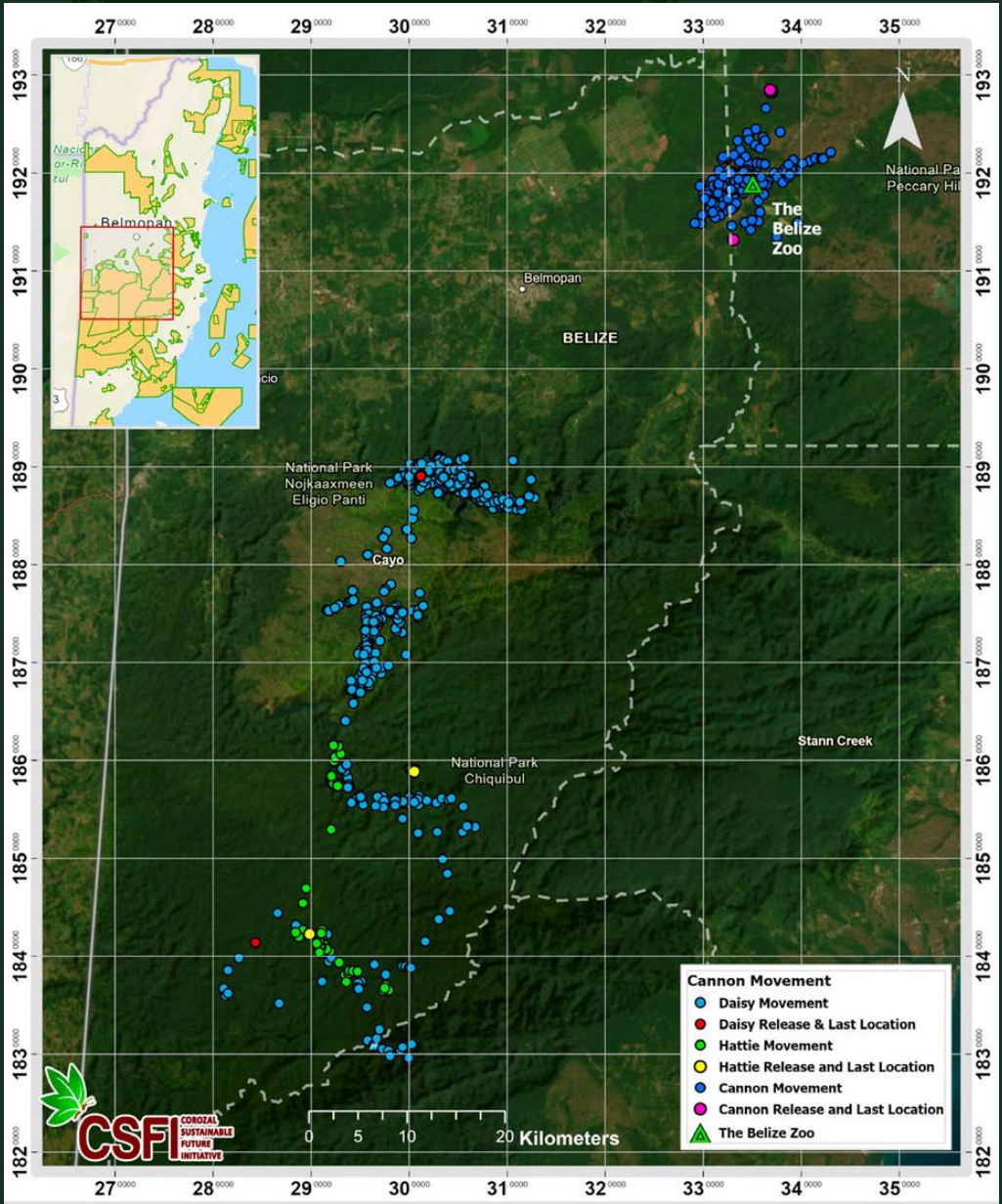
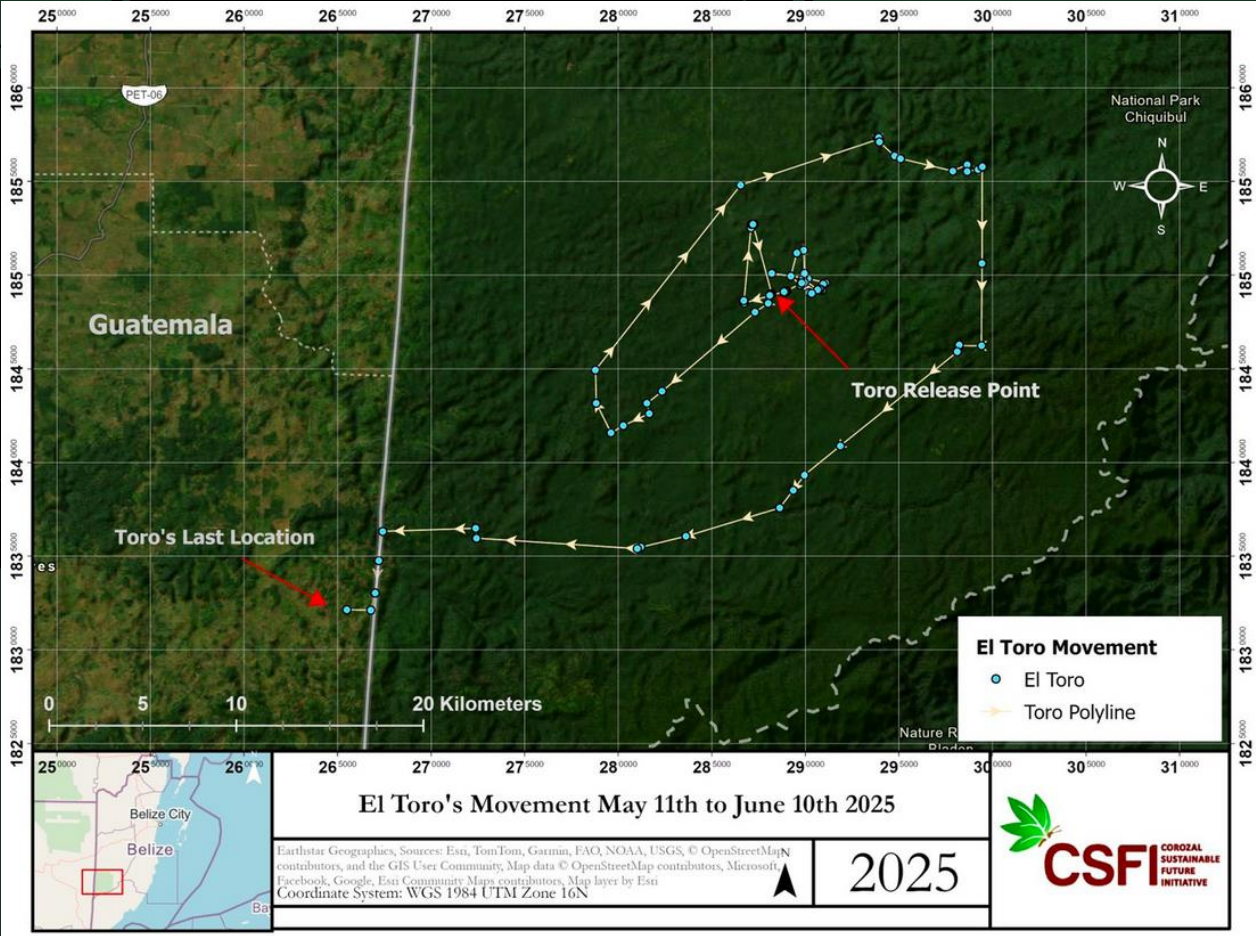


Managing Conflict: Jaguar Captures and Translocations

- Successfully collared several jaguars, enabling real-time tracking to better understand movement patterns, conflict zones, and priority areas for protection.
- Safely translocated several conflict jaguar, a first-of-its-kind operation in the region, demonstrating Belize's technical capacity and ethical response to human-wildlife conflict.
- Established a credible system at the national level and an evolving wildlife conflict response system.
- Helped shape the future of wildlife management in Belize, with field-tested protocols, data systems, and on-the-ground capacity becoming a model for national replication.
- Solidified partnership with the Forest Department ensuring proactive, policy-aligned action on a growing national issue.

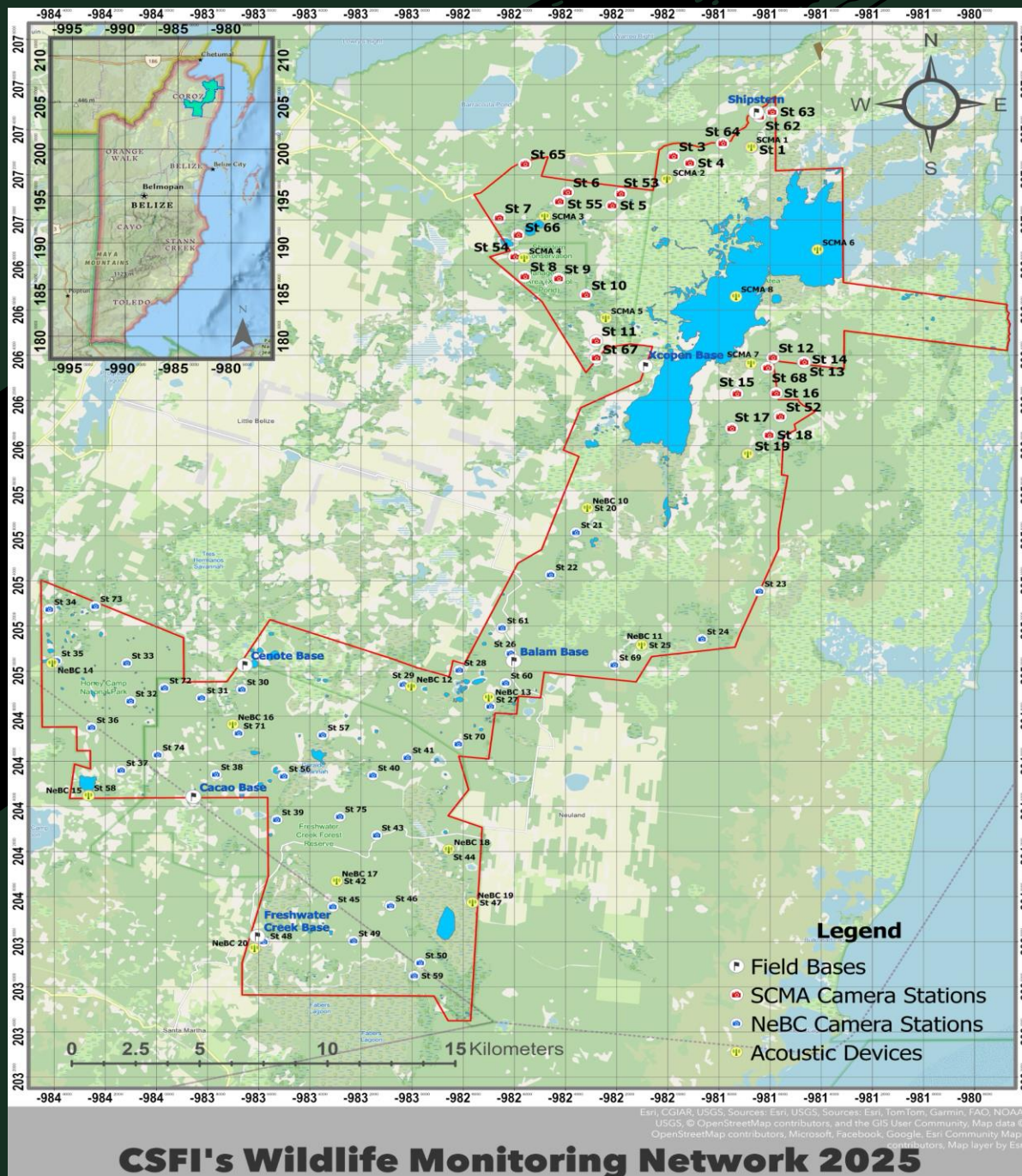


Tracking Progress: Collecting Vital Data



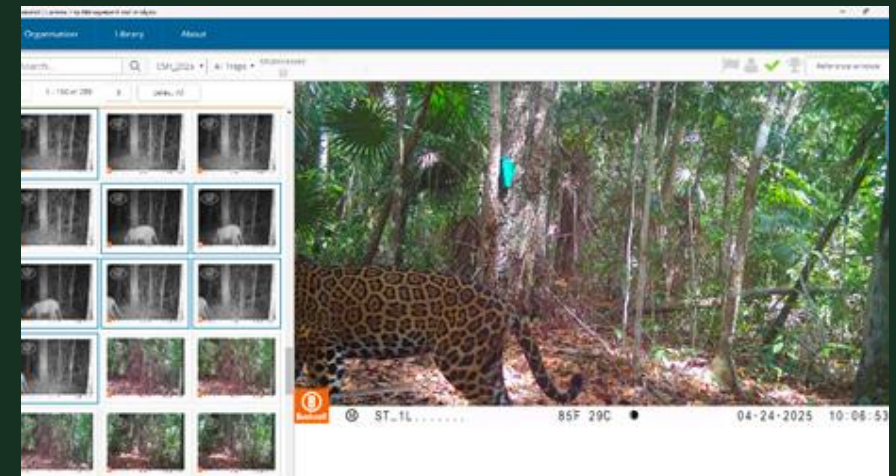
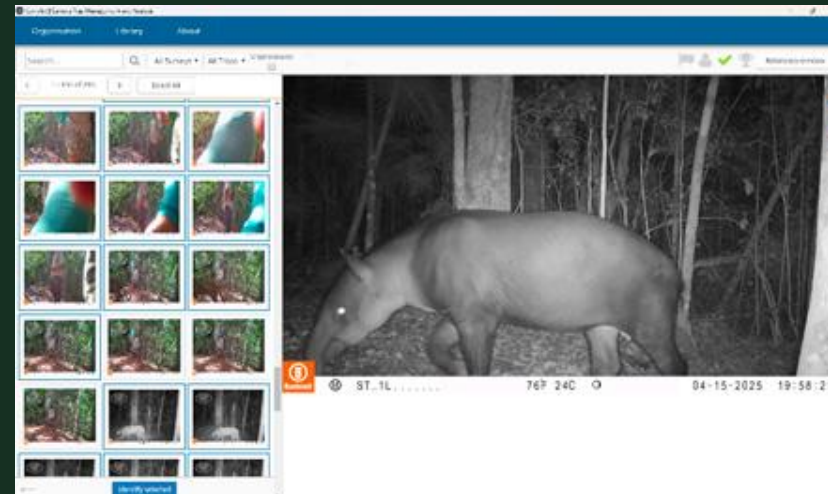
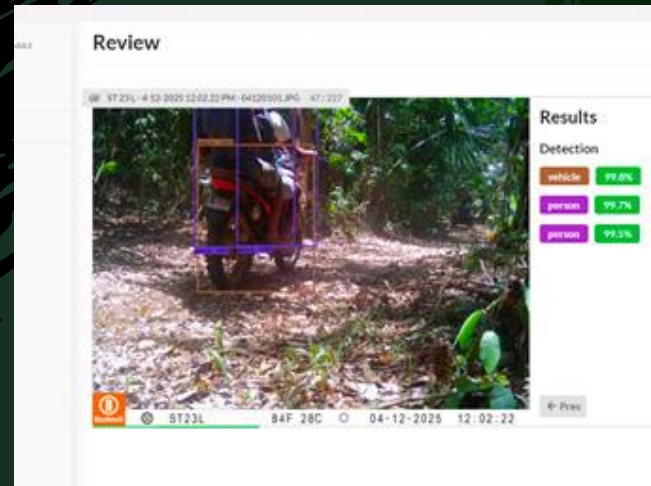
RESEARCH AND MONITORING

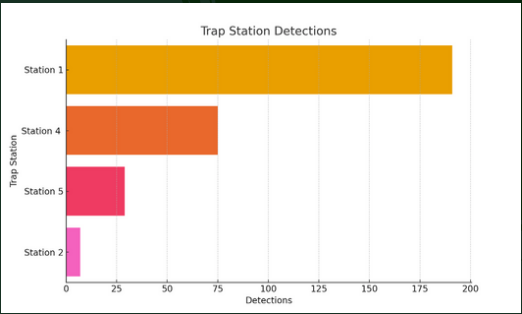
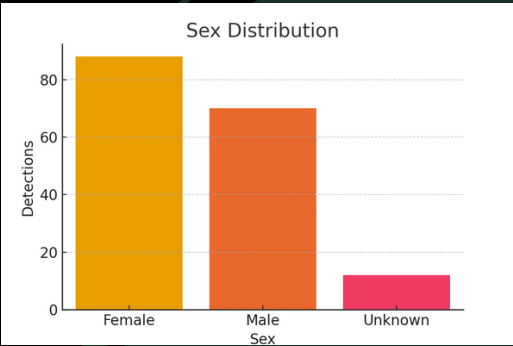
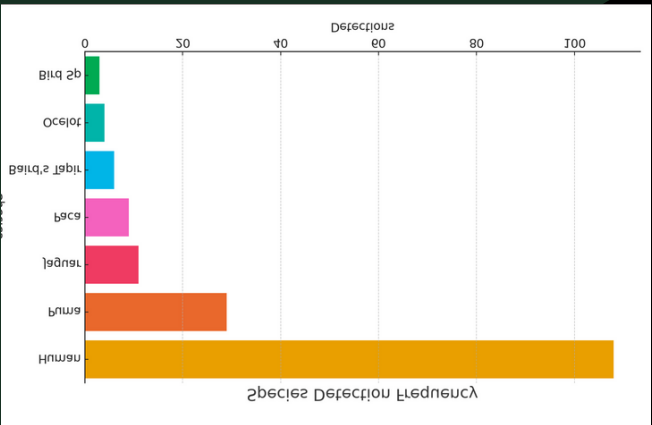
- An extensive network of camera traps across several PA's in Belize.
- For example, in SCMA and the Northeast Biological Corridor support **one of the densest camera/acoustic-trap arrays** in Belize, which feeds long-term data on jaguar presence, prey diversity, and human-wildlife conflict.



RESEARCH AND MONITORING

- The Wildlife Monitoring program remains one of the most dynamic and data-rich initiatives. Thus far, 2025 has already seen significant progress in the use of technology to enhance conservation outcomes.
- One of the most noteworthy developments has been the integration of Artificial Intelligence (AI) into research workflows. These tools such have been successfully adopted to streamline the processing and analysis of field data.
- Additionally, the team has made significant strides with the National Data Base that will not allow for the development of species protection strategies but will also contribute to other pressing national priorities – infrastructure development, land use, etc.

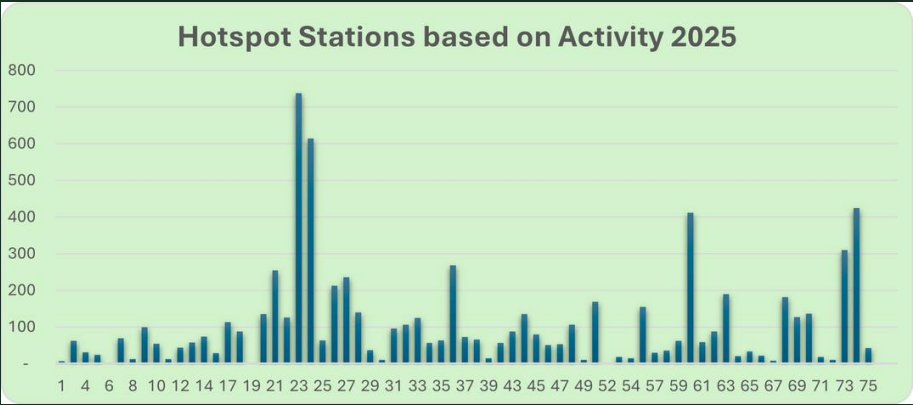
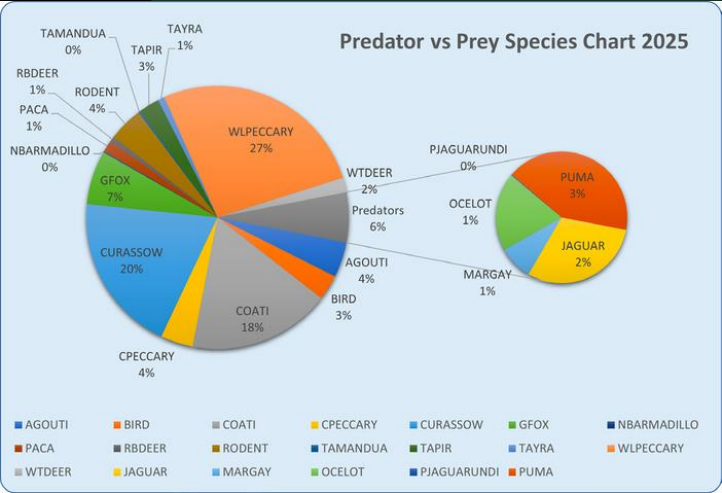




- New models of AI have also been incorporated into the Wildlife Monitoring Program to further manage the already cleaned camera trap images within a customized database built specifically for Belize's wildlife.

Trap Station ID	Trap Station Name	Genus	Species	Presence	Independent Observations	Nights Elapsed	Abundance Index	
1	Station 1	Bird	Bird	X		1	42	2.381
1	Station 1	Cuniculus	Paca	-	-		42	-
1	Station 1	Homo	Human	X		11	42	26.19
1	Station 1	Leopardus	Ocelot	X		1	42	2.381
1	Station 1	Panthera	Jaguar	X		1	42	2.381
1	Station 1	Tapirus	Baird's Tapir	X		1	42	2.381
1	Station 1	concolor	Puma	X		4	42	9.524

- This powerful tool has the ability to automatically tag metadata such as date, time, and station name, ensuring consistent and accurate data organization and the generation of detailed reports such as occupancy matrices based on species count or presence, station-level statistics, etc.



- Best of all, these new tools really allow the team to push the limits beyond simply collecting information but really understand the FUNCTIONALITY of the system by providing a visual image of what is happening on the ground.

***Samples of quick analysis can be generated from the data**

It is estimated that Belize has a jaguar population of approximately 600 individuals

Jaguar Monitoring







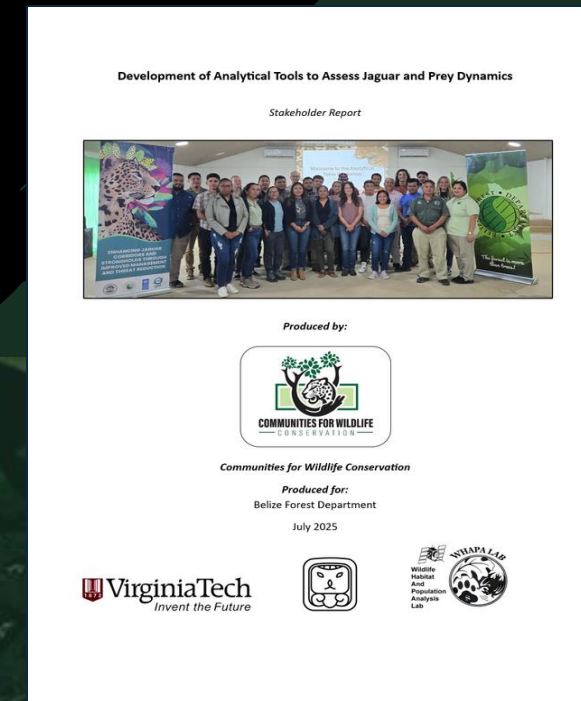
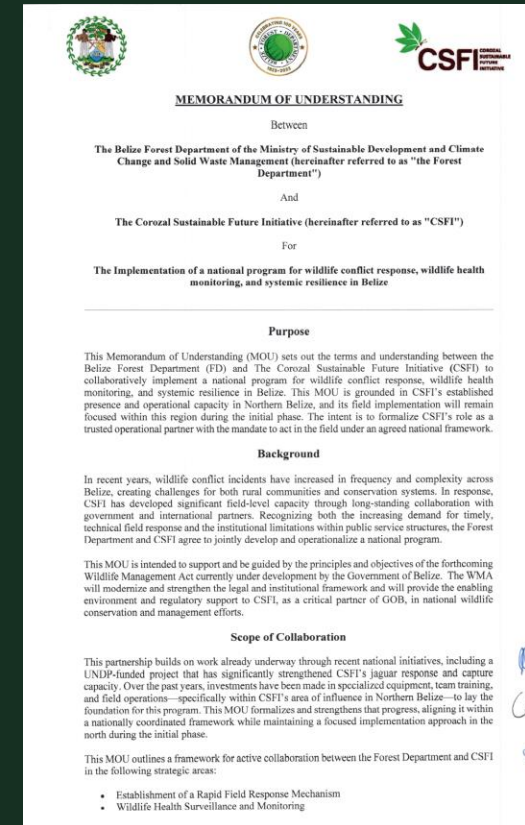
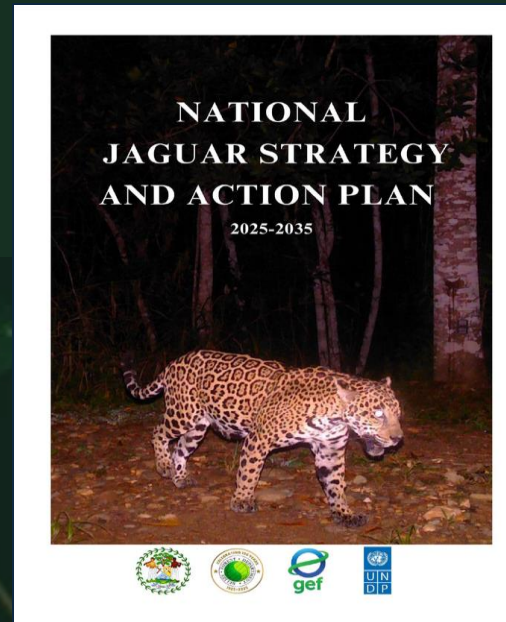
Delivering Tech Projects in Government: Challenge & Opportunity

Challenge:

- National Initiative
- Bureaucracy & rigid procurement processes slow progress
- Culture of doing things
- Rapid change in technology – evolves faster than government structures and policies
- Limited capacity
- High risk under public scrutiny

Opportunity :

- Potential for nationwide impact
- Enables smarter, data-driven policies and decisions
- Builds citizen trust & transparency
- Create new policies and expand or develop programs



WHAT HAS IT TAKEN?

- Collaboration
- Partnership
- Adoption to the use of new technology
- Commitment to conservation will allow space and flexibility to understand that GOB alone cannot make this happen.
- Creation of new policies that will permit the use of AI
- Financing
- TRUST





Thank you!



Meldase



25 °C / 77 °F

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(Moderator)

Consultant, Global Wildlife
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Paul Bunje
President and Co-Founder,
Conservation X Labs



**Nagaraja Rao
Harshadeep**
Global Lead (Disruptive
Technology), Global
Environment Department,
World Bank



Sara Beery
Assistant Professor, EECS'
Faculty of AI and Decision
Making and CSAILMIT, MIT



Thank you all for joining. Please take our 1 minute feedback survey and let us know how we did! Link: <https://www.surveymonkey.com/r/X3BPZVM>

Gracias a todos por unirse. ¡Responda nuestra encuesta de comentarios de 1 minuto y háganos saber cómo lo hicimos! Link: <https://www.surveymonkey.com/r/X3BPZVM>

Merci à tous d'y avoir participé. N'hésitez pas à répondre à notre sondage d'une minute et faites-nous savoir comment nous nous en sommes sortis ! Link: <https://www.surveymonkey.com/r/X3BPZVM>



Tech is in our nature: Wildlife

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For additional requests and support, email Stephanie at sodonnell@worldbank.org