



# Celebrating 10 Years of Collaborative Impact

### Dear partners and friends,

We can't quite believe it. Connected Conservation has turned ten!

This year's annual review looks back at the last year, but is also a celebration of our journey and what we've achieved together. A decade ago, Connected Conservation was launched with our founding partners Cisco and Dimension Data, with a bold mission: to protect endangered species and natural ecosystems through the power of technology.

Today, we've helped transform that vision into real environmental and societal impacts. CCF stands at the forefront of conservation technology, rolling out a proven digital infrastructure blueprint that connects and strengthens protected areas. Helping countries advance towards their goal of safeguarding 30% of land and sea by 2030.

Working alongside inspiring partners, we've enabled technology companies to donate proven tools to a growing technology ecosystem. Together, we are facilitating data-driven interventions at 53 sites across 18 countries, enhancing the conservation of over 40+ threatened species. From real-time threat detection to community-led monitoring and decision-making, technologies are boosting local capacity to protect biodiversity and enhance resilience.

#### But nature can't wait.

As pressures mount, we're doubling down - helping accelerate the digital transformation of conservation across Africa, Asia, and soon Latin America. From satellite imagery and AI to IoT sensors and centralised IT systems, we're helping design, and implement integrated solutions, for real-time protection and management.

We're also extending our mission beyond ecosystems. Most recently, we've connected two community environmental education centres, near national parks in Uganda and South Africa with digital infrastructure, enabling education, outreach and access to opportunity.

And we're building for the future. Our new Protected Area Technician Training Program is upskilling local talent to maintain systems and help create tech-based careers in conservation.

Thank you to you and all our partners for being part of this journey.

Here's to the next ten years of collaboration and lasting impacts.

With gratitude, **Sophie Maxwell & Doc Watson** *Connected Conservation Foundation* 

BZSOUR

### Decade Achievements:





# (C) 41



### Pioneering conservation technology

Now, with 32 leading partners—
ranging from private sector
companies to NGOs and Protected
Areas— we've secured, designed
and implemented cutting-edge
conservation technologies. By
testing, proving and scaling what
works, we've boosted efforts to
protect 40+ threatened species
and their habitats.

### Catalysed investment in vital tools

Recognised by the UN as "a leader in helping developing countries access conservation technologies," we've unlocked \$13 million in donated tech—from software and hardware to satellite data and cloud infrastructure—to multiply capacity and impact.

## Sites pioneering IoT and Connectivity in conservation

We've deployed and donated IoT infrastructure, connectivity infrastructure across 41 sites, with partners refining a validated technology blueprint for conservation, helping strengthen protected area management.

## Scaling LoRaWAN Nationwide

In Kenya, we're working to help design and scale LoRaWAN for conservation nationwide. In 2024, 17% of Kenya's National Parks were covered by CCF's LoRaWAN infrastructure, including the Northern Rangelands Trust conservancies, Tsavo, the Mara, and more. In 2025, new sites and networks will be added.



## Rhinos reintroduced into safe parks

By enabling a tech ecosystem for early warning and wildlife tracking, we've supported the creation of safe parks. Sabi Sand Nature
Reserve has stayed poaching-free for 700+ days, with several parks now deemed 'safe' with many rhinos tagged with LoRa Trackers.



### **Environmental Education campuses connected**

In South Africa and Uganda, helping bring reliable digital infrastructure, **strengthen education**, training and community outreach efforts.



## Monitored with high resolution satellite imagery

In partnership with the Airbus
Foundation, we're harnessing
high-resolution satellite imagery,
Al and in situ data to advance
powerful monitoring methods that
help protect ecosystems for
people and the planet, supporting
18 initiatives across 14 countries.



# Learners registered in the first month, building tech skills for nature protection

CCF joined with Cisco Networking
Academy, The Open University
and partners to build a free, global
Protected Area Technician
Training Program, helping future
technicians deploy and sustain
conservation tools.

### 2024/25 Achievements:



### 1.1 million

**New hectares across five new protected areas,** now with enhanced management and security, adding to the world's largest LoRaWAN Biodiversity Network, across Uganda, Kenya and South Africa.



27

Eastern black rhinos, now tracked via a new LoRaWAN network in the Maasai Mara National Reserve, transmitting data to central operations and ranger protection teams.



### 2.9 mil ha

Monitored with high-resolution satellite imagery, across 6 projects in countries including Nepal, South Africa, Kenya, Peru, Ethiopia and South Sudan.



Environmental education facility
equipped with connectivity
infrastructure for enhanced
community outreach and education.



\$1.3 million

Value of combined equipment and funding donated from four partners supporting the roll-out of conservation technologies



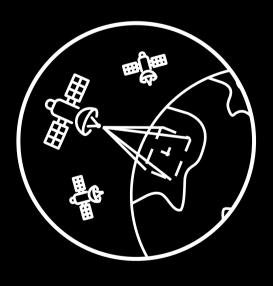
# Mat We Do

We employ a holistic digital ecosystem, integrating landscape-scale technology, training and community engagement to drive meaningful change. We help conservation teams navigate technical complexities, plan effectively and secure and support the most suitable tools and platforms, whether donated or acquired.

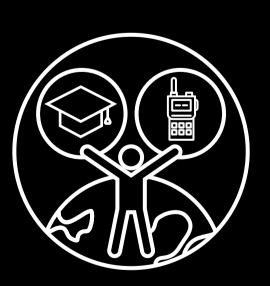
### Our Programs:



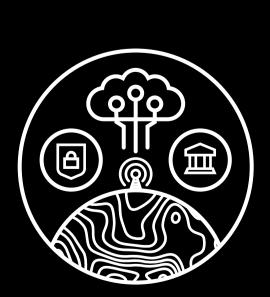
1. Wide-Area Sensor Networks And Connectivity (Pages 10-17)



2. Wide-Area Satellite Monitoring (Pages 18-23)



3. Capacity Building and Community Education (Pages 24–27)



4. Technology Evaluation, Strategy and Innovation (Pages 28-36)

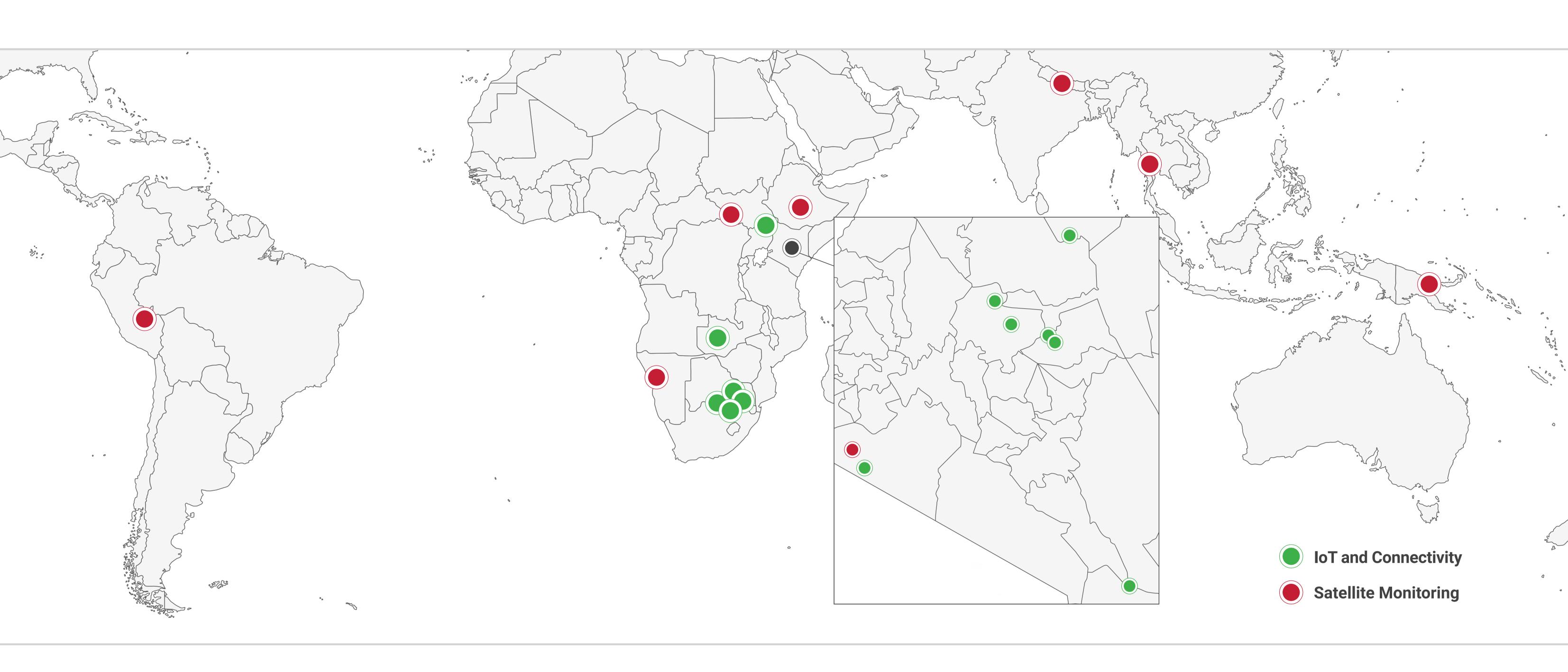


5. Catalysing Private Investment (Pages 37-43)



### Collaborative Projects

We proudly provide ongoing technical support and training to partners across 18 countries to ensure the lasting impact of conservation and community efforts.



### **IoT and Connectivity**



#### Tsavo, Sheldrick Wildlife Trust, Kenya

**Focus:** Advanced wildlife tracking, vehicle tracking, ranger patrol and environmental monitoring and rhino and elephant rehabilitation.

**Area:** 750,000 ha

**Tech:** LoRaWAN network, cloud server, sensor integration platform, wildlife monitoring sensors.



#### Sera Wildlife Sanctuary, NRT, Kenya

**Focus:** Wildlife monitoring, informing life-saving conservation interventions during drought.

Area: 10,000 ha

**Tech:** Live-stream video from PTZ cameras across five watering holes, transferred across 100 km. via a high-bandwidth network.



#### Northern Rangelands Trust, Kenya

**Focus:** Support community-led conservation, with coverage across 22 conservancies.

Area: 493,500 ha

**Tech:** High bandwidth backbone network, communications, LoRaWAN and IoT network, sensor integration platform, wildlife, vehicle, ranger and livestock trackers, solar power gages, water tank level detectors, weather station, fence detectors and diesel tank probes.



### Maasai Mara, The Safari Collection Footprint Trust, Kenya

**Focus:** Strengthen wildlife protection, regulate tourism and enhance ranger and wildlife welfare.

Area: 195,008 ha

**Tech:** LoRaWAN network, cloud server, sensor integration platform.



### 19 African Parks Headquarters across 10 Countries

**Focus:** Enabling reliable, managed connectivity at park HQ as the lifeblood of modern park management.

Countries: Malawi, Rwanda, Benin, Chad, Zambia, CAR, Congo, DRC, South Sudan, Mozambique.

Tech: Cisco Meraki routers harnessing Starlink

connectivity.



### Madike, Madikwe Futures Company NPC, South Africa

**Focus:** Anti-poaching, effective ecosystem management and monitoring for rewilding and species reintroductions.

**Area:** 75,000 ha

**Tech:** Satellite Radios, LoRaWan network, vehicle, ranger and canine sensors, long-range thermal cameras and high-resolution satellite imagery.



#### Sabi Sand Nature Reserve, South Africa

Focus: Halting rhino poaching and improving effective protected area operations, and monitoring the impact of conservation technologies.

**Area:** 65,000 ha

**Tech:** Backbone point to multipoint radio area network, LoRaWan IoT network, gate biometrics, CCTV cameras, control room server, sensor integration platform, vehicle registration cameras, long-range thermal cameras, vehicle and fence sensors, Al-enabled detectors and drones.



#### Lapalala Wilderness Reserve and School, **South Africa**

Focus: LoRaWAN deployment for enhanced protected area management and environmental education.

Area: Education campus + 48,000 ha

Tech: Campus-wide Wi-Fi network, LoRaWAN network, cloud server, sensor integration platform for wildlife and asset tracking, infrastructure, security and environmental monitoring.



#### Lewa Wildlife Conservancy, NRT, Kenya

Focus: Peace and security, preventing poaching, datadriven conservation management.

**Area:** 28,813 ha

Tech: Digital radio communications, LoRaWAN network, sensor integration platform for sensors, ranger trackers, fence detectors, solar power gages, water tank level detectors, weather station, diesel tank probe.



#### Loisaba Conservancy, Kenya

Focus: Protected area management effectiveness, rhino monitoring, improving patrol operations and monitoring invasive plant species.

**Area:** 10,410 ha

**Tech:** LoRaWAN network, cloud server, sensors for wildlife and patrol tracking operations, 30 cm Very High-Resolution Pléiades Neo imagery.



#### Ol Jogi, NRT, Kenya

Focus: Improved land-use management and sustainable grazing for wildlife and livestock coexistence.

**Area:** 19,763 ha

**Tech:** LoRaWAN network, cloud server, sensor integration platform for livestock tracking and rotational

grazing.



#### Kidepo, Uganda Conservation Foundation, Uganda

Focus: Deploy LoRaWan network to collect data from remote areas for enhanced management to build resilient ecosystems and communities.

**Area:** 144,200 ha

**Tech:** LoRaWAN network, cloud server, sensor integration platform, including ranger and wildlife tracking.



#### Kafue, Game Rangers International, Zambia

Focus: Creating a virtual fence line to stop illegal fishing

and poaching. **Area:** 200,000 ha

**Tech:** FLIR thermal cameras with AI detection, radio masts, high bandwidth connectivity and LoRaWan

network.



### Satellite Monitoring



#### Kunene, Erongo & Otjozonjupa, EHRA, Namibia

Focus: Reducing human-elephant conflicts, working with farmers to find solutions, testing deterrents and securing elephant corridors.

**Area:** 199,100 ha

**Tech:** 50 cm high-resolution Pléiades satellite imagery,

machine learning, elephant collar analysis.



#### Bale Mountains, Chulalongkorn University, **Ethiopia**

Focus: Protecting critically endangered Ethiopian wolves by monitoring habitat degradation, overgrazing, human encroachment and disease transmission from domestic dogs.

**Area:** 303,500 ha

**Tech:** 50cm High-resolution Pléiades satellite imagery, machine learning, Geographic Information Systems.



#### Bangangai and Bire Kpatuos, FFI, South Sudan

Focus: Protecting lowland forests in South Sudan and globally significant chimpanzee populations by creating a community conservation area as a protective buffer zone from threats.

**Area:** 199,600 ha

Tech: 50cm High-resolution Pléiades satellite imagery,

machine learning.



#### **Nyakweri Forest, Langland Conservation, Kenya**

Focus: Mapping landscape fragmentation and fence lines to prevent pangolin electrocution.

**Area:** 179,100 ha

Tech: 30 cm Very High-Resolution Pléiades Neo

imagery, machine learning.



#### Chitwan-Parsa Complex, ZSL, Nepal

Focus: Identifying and optimising the most costeffective grassland management strategies for the greater one-horned rhino.

**Area:** 158,700 ha

Tech: 30cm Very High-Resolution Pléiades Neo

imagery, machine learning.



#### Manu Biosphere Reserve, Conservacion **Amazonica, Peru**

Focus: Identify crucial corridors for Andean bears and facilitate informed habitat protection and restoration strategies.

**Area:** 110,100 ha

Tech: 30cm Very High-Resolution Pléiades Neo imagery, machine learning, GPS collars, camera collars.



#### YUS Conservation Area, Tree Kangaroo Program, Papua New Guinea

Focus: Saving the Matschie's tree kangaroo and the Eastern long-beaked echidna from extinction, understanding habitat encroachment and illegal logging activities.

**Area:** 122,700 ha

Tech: 50 cm high-resolution Pléiades satellite imagery,

machine learning, land-use field monitors.



#### Sai Yok National Park, AIT, Thailand

Focus: Assessing habitat loss of the Asian elephant in the Sai Yok reserve forest between 2012 and 2022, providing data for elephant and coexistence strategies.

**Area:** 100,800 ha

Tech: Archive high-resolution Pleiades data, machine

learning.





WITH URGENCY AND INNOVATION, CCF AND PARTNERS ARE SUPPORTING CONSERVATION HEROES WITH CUTTING-EDGE TOOLS ACROSS PROTECTED AREAS AROUND THE WORLD

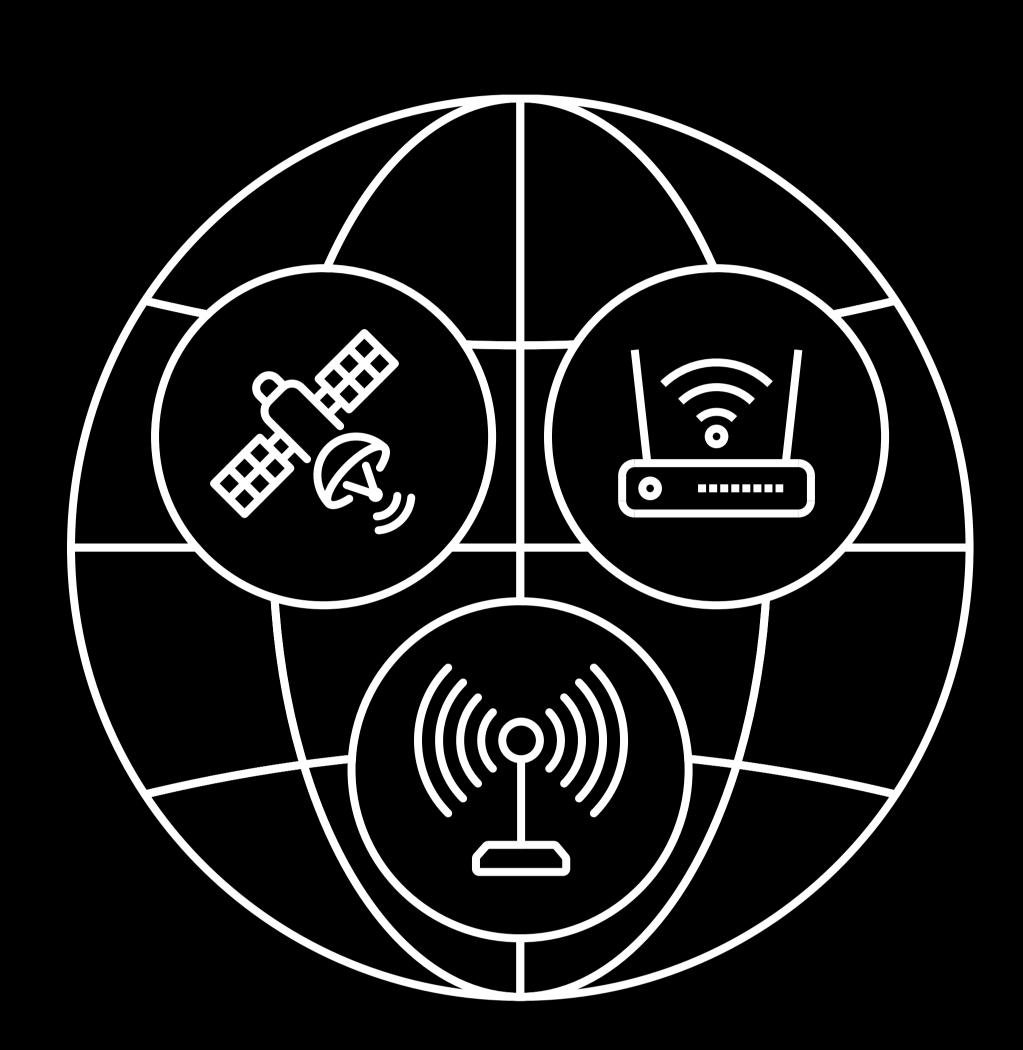




# New 2024—2025 Projects

Explore our latest initiatives expanding into new countries across Peru, Nepal, Uganda, South Sudan and Ethiopia, safeguarding some of the planet's rarest wildlife and most vital biodiversity hotspots.





# 1. Wide-Area Sensor Networks and Connectivity

CCF and partners have been refining a blueprint design for the donation of free, robust, IoT end-to-end infrastructure. Enabling on-the-ground Internet of Things (IoT) sensor networks and connectivity, we're supporting 360° real-time management, monitoring and protection.

This year, we added support for four new loT networks.



# Balancing Migration, Wildlife and Tourism in the Mara-Serengeti Ecosystem

The Safari Collection Footprint Trust & Narok County Government Maasai Mara National Reserve, Kenya





The Safari Collection Footprint Trust (TSCFT), in partnership with Narok County Government, is leading efforts to protect Kenya's crown jewel—the Mara-Serengeti Ecosystem—through innovative conservation and community programs. This region is home to the iconic wildebeest migration, where over two million animals cross the plains, earning it status as a Natural Wonder of the World.



195,000 + ha

Covered by LoRaWAN network



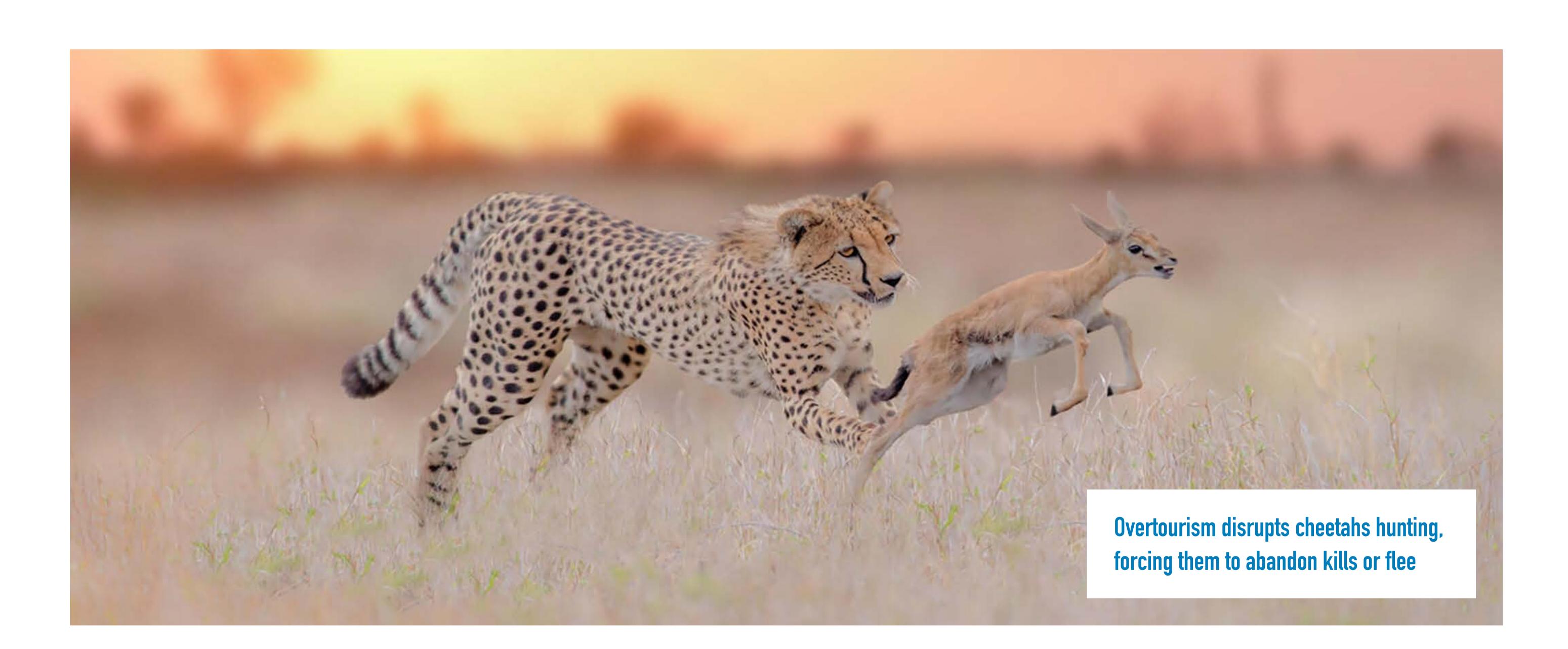
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Endangered black rhinos tagged with LoRa sensors



2024

Opening of the conservation tech hub



This fragile landscape faces growing threats: overtourism, poaching, conflict and unregulated grazing strain its biodiversity and cultural heritage. In 2023, **Narok County launched a landmark 10-year strategy,** the first in over 40 years, to safeguard wildlife, manage tourism, and support rangers and the species they protect.



### PROTECTING MARA'S ENDANGERED CHEETAHS

LORA VEHICLE SENSORS WILL TRACK SPEEDING, OVERCROWDING AND TOURIST HOTSPOTS, DIRECTING WILDLIFE WELFARE RANGER INTERVENTIONS.



### Tackling over-tourism

Over 300,000 annual visitors and 100+ safari vehicles crowd ecological hotspots, disrupting wildlife, causing predators to abandon kills and diverting migrating herds. Congestion at river crossings like the Mara River stresses animals, threatening migration and hunting behaviours.

### The Maasai Mara Conservation Centre

In October 2024, the Narok County Government, with The Safari Collection Footprint Trust and other stakeholders, launched the Maasai Mara Conservation Centre.

Transmitted by a LoRaWAN network donated by Cisco, Actility, and CCF, the Centre integrates collected real-time data from remote areas, including wildlife monitoring, ranger tracking and tourism movements, giving decision-makers vital tools to protect the reserve's future.



### Key achievements with stakeholders:

 Protecting the critically endangered eastern black rhino, with only 50– 60 remaining in the Mara.

66

- 27 rhinos have been successfully ear-notched and fitted with LoRa GPS transmitters for robust monitoring.
- LoRa Infrastructure is ready for the deployment of 150+ vehicle trackers to monitor overtourism and reduce harmful impacts on species, along with funded environmental monitoring sensors to manage this precious ecosystem.



THE CCF DONATED LORAWAN INFRASTRUCTURE NOT ONLY HELPS THE MARA'S
RANGERS BETTER MONITOR THE BLACK RHINOS IN THE RESERVE, BUT ALSO
TRACKS PATROL AND VEHICLE MOVEMENTS. WE'RE PROUD TO BE HELPING SHAPE
A FUTURE WHERE RHINOS NOT ONLY SURVIVE, BUT THRIVE.



# IoT Sensor Networks for Advanced Wildlife Tracking and Rhino Rehabilitation in Tsavo

Sheldrick Wildlife Trust & Kenya Wildlife Service Tsavo, Kenya



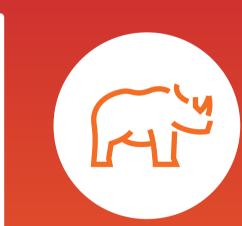


For decades, the sprawling, red-dusted savannahs and rugged hills of Tsavo have been a sanctuary for **Africa's** iconic Big Five and over 500 bird species. Once home to tens of thousands of black rhinos in the 1970s, Tsavo saw numbers fall to just 350 by 1983 due to the illegal horn trade. Sheldrick Wildlife Trust (SWT) and Kenya Wildlife Service (KWS) are building back rhino numbers.



500,000 ha

Wilderness covered by the LoRaWAN network



1.783

Rhino sightings recorded in Tsavo in 2024



Together, they are using data-driven tools to protect and restore populations of rhinos and elephants, combining aerial and ground operations with strong community partnerships. Data streams into SWT's central operations room, enabling faster, more targeted conservation action across 500,000 hectares.

# IoT & LoRaWAN expand monitoring capabilities

LoRaWAN infrastructure now supports real-time monitoring of wildlife, with the opportunity to expand to vehicles, patrols and environmental conditions.
This system, using Actility's platform and Cisco gateways, scales up security and ecological research.





### VIRTUAL VETS

SWT'S MOBILE VET UNIT TREATS WILDLIFE HURT BY SNARES OR CONFLICT. LORA TAGS CAN BE QUICKLY DEPLOYED TO TRACK THEIR RECOVERY.



### LoRa for Rhinos

In February 2025, KWS installed LoRa horn transmitters on black rhinos in Tsavo East as part of the Black Rhino Recovery and Action Plan. These tiny, low-impact devices send real-time data to a secure KWS platform. Alerts are triggered if rhinos near park boundaries or show unusual behaviour, allowing immediate response. These sensors also reveal vital data on feeding, mating, habitat use, and emerging threats, turning previously time-intensive tracking of hours of aerial patrols into fast, actionable insight.



THESE EXAMPLES HIGHLIGHT OUR INITIAL
STEPS USING LORAWAN IN TSAVO.
RECOGNISING ITS POTENTIAL, THE SHELDRICK
WILDLIFE TRUST IS EAGER TO SUPPORT THE
KENYA WILDLIFE SERVICE IN DEPLOYING
SOLUTIONS THAT CAN FURTHER ENHANCE
CONSERVATION EFFORTS IN KENYA.

— Robert Carr-Hartley, Sheldrick Wildlife Trust



# Connected Corridors: Safeguarding Wildlife Across Uganda and Kenya

Uganda Conservation Foundation Kidepo National Park, Uganda



Kidepo Valley National Park—Uganda's third-largest—spans rugged savannah along the Kenya and South Sudan borders. It's **home to elephants, lions, giraffes, pangolins** and more, but also faces threats of poaching, intertribal tensions, and rising human-wildlife conflict.



To build resilient ecosystems and communities in and around Kidepo, the Uganda Wildlife Authority (UWA), with support from the Uganda Conservation Foundation (UCF), CCF, Actility and Cisco, is deploying a LoRaWAN loT network across the park.

CCF completed a new network design, secured, delivered and prepared equipment ready for the implementation of 144,200 hectares of wilderness covered by LoRaWAN.

Donated gateways and a suite of low-cost, long-life sensors will stream real-time data across vast, remote areas.

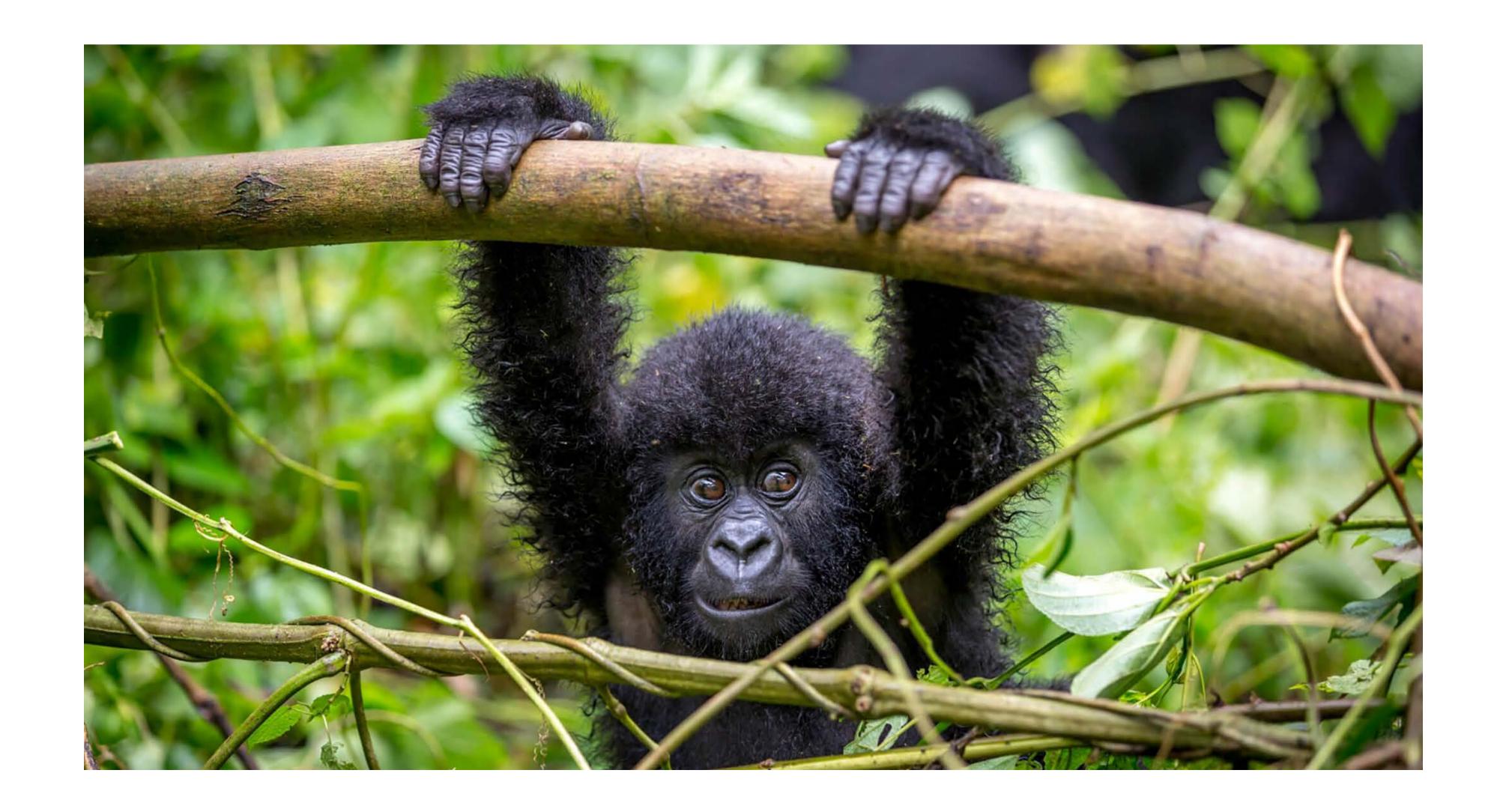
The data will arrive in UCF's separately funded operations room, where radios, laptops, servers and live-feed screens bring the landscape into sharper digital focus. New tower infrastructure extends coverage, feeding near-real-time data into EarthRanger software in Kampala.





WE ARE TRULY INSPIRED BY THE COLLABORATIVE SPIRIT OF THIS CONSORTIUM.
THIS INITIATIVE NOT ONLY ELEVATES UGANDA'S DIGITAL CONSERVATION PROFILE
BUT ALSO SETS A PRECEDENT FOR PUBLIC-PRIVATE PARTNERSHIPS IN
SAFEGUARDING AFRICA'S NATURAL HERITAGE.

— Charles Tumwesigye, Director Field Operations, Uganda Wildlife Authority



### Impact and Vision

With more sensors coming online, the system is scaling up to manage higher data volumes and boost responsiveness, delivering critical tactical and strategic insights. By linking landscapes, data and communities, this project is a major step toward peaceful coexistence in one of East Africa's wildest and most extraordinary regions.



# Lapalala's LoRaWAN Enhancement for Protected Area Management

Lapalala Wilderness Foundation
Lapalala Wilderness Reserve, Limpopo Province, South Africa



Nestled in the UNESCO Waterberg Biosphere, Lapalala Wilderness Nature Reserve **pioneered private black and white rhino reintroductions** in the 1980s and now protects threatened species like **sable antelopes, cheetahs, and pangolins**.



48,000

Hectares of wilderness covered by LoRaWan



70

LoRa sensors for deployment



In 2025, CCF teamed up with Lapalala Wilderness
Foundation, Cisco and Actility to deploy a robust
LoRaWAN network and ecosystem. This system,
spanning the reserve and including a planned 7,000
ha expansion, will enable LoRa sensors to deliver
near real-time data for wildlife monitoring,
infrastructure oversight and resource management,
enabling smarter, faster, and more cost-effective
conservation decisions.



CCF IS DELIVERING ON-SITE TRAINING
TO LAPALALA, ENSURING THE NEW
SYSTEMS ARE FULLY INTEGRATED INTO
DAILY OPERATIONS.

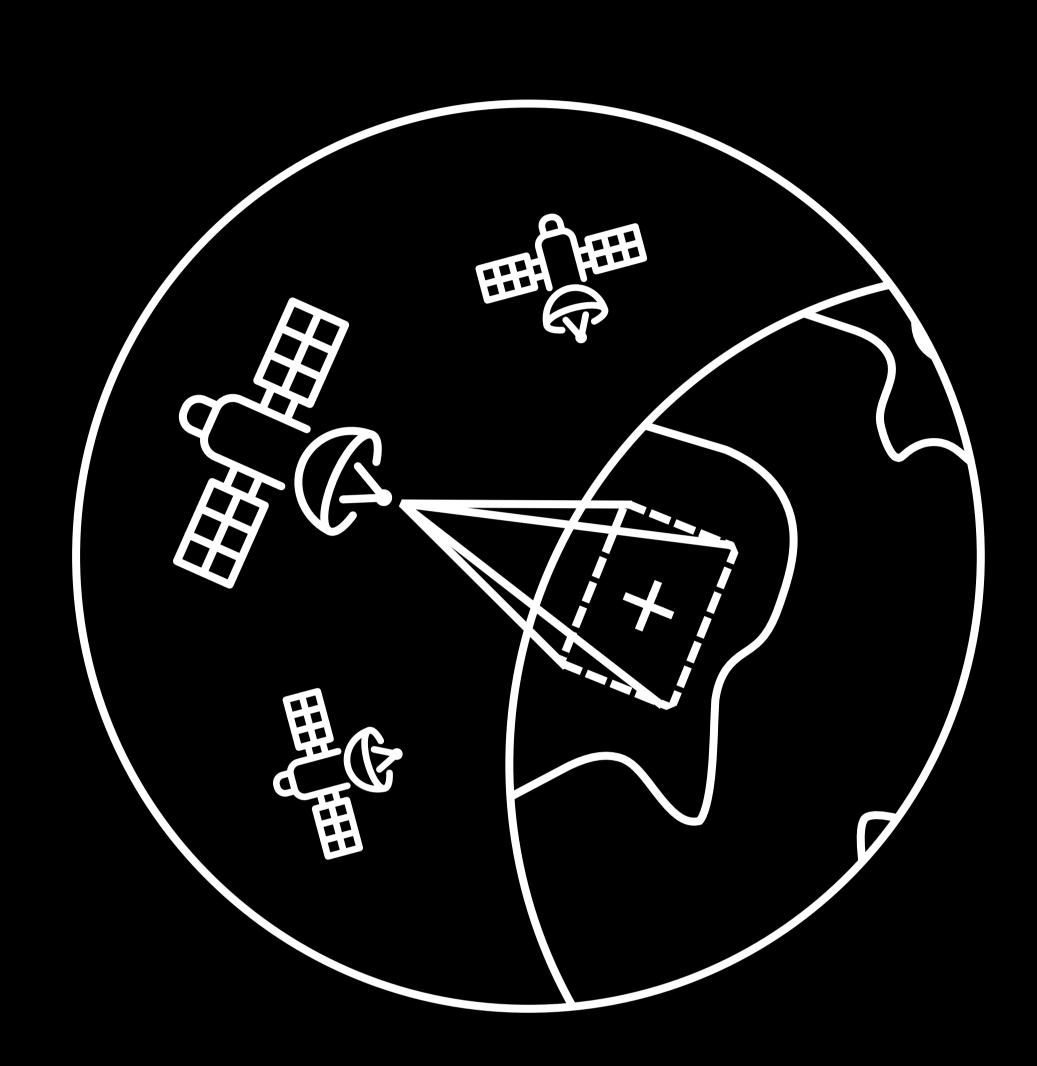
### LoRa sensor uses:

- Wildlife tracking: Spatial mapping of rhino, cheetah and African wild dog activity.
- **Asset tracking:** Monitor vehicles, personnel and movable assets.
- Infrastructure monitoring: Remotely monitor water and fuel levels, borehole pumps and power usage.
- Environmental monitoring: Soil moisture monitoring.
- Security monitoring: Ranger patrol tracking, electric perimeter fence line monitoring, access point monitoring.



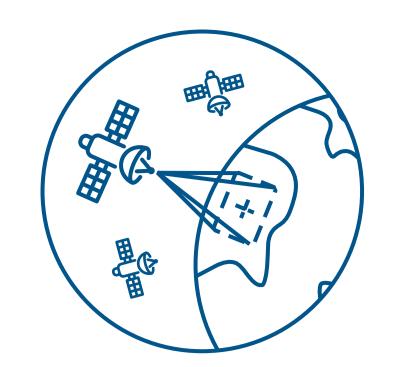
TERRAIN DEMANDS A RELIABLE COMMUNICATIONS
BACKBONE. THE CISCO LORAWAN SYSTEM DONATED
TO LAPALALA WILDERNESS BY CCF DELIVERS
EXACTLY THAT—ENABLING CONSISTENT, EFFECTIVE
DATA TRANSMISSION FROM SENSORS IN THE FIELD
DIRECTLY TO THE MONITORING ROOM.





# 2. Wide-Area Satellite Monitoring

By combining high-resolution imagery, artificial intelligence, and in situ data, we are advancing a new frontier in Earth Observation—unlocking greater precision and enabling innovative use cases. In collaboration with the Airbus Foundation and field partners, we've explored new possibilities, co-developing advanced analytical methods for enhanced nature-related impacts. Most recently, we launched six new projects, bringing the total to 15 groundbreaking initiatives that now monitor over 3.1 million hectares of wildlands.



# **Encroachment Management and Coexistence for Ethiopian Wolf Conservation**

Chulalongkorn University & Ethiopian Biodiversity Institute Bale Mountains, Ethiopia





Bale Mountains National Park (BMNP) harbours **half the world's critically endangered Ethiopian wolves**. Home to species found nowhere else, it faces urgent threats from overgrazing, human encroachment and disease from domestic dogs.



303,500 ha

Satellite imagery provided



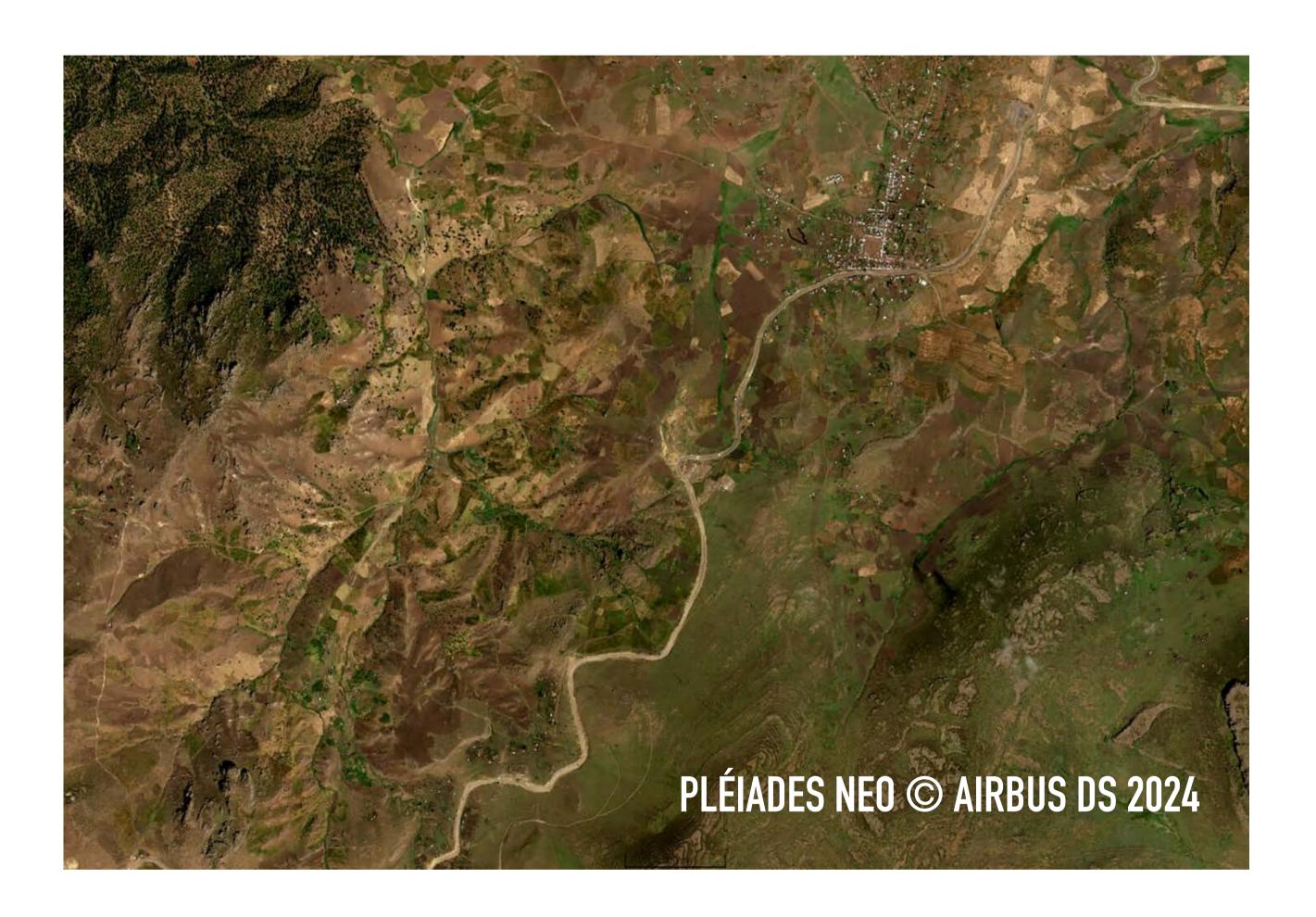
300-500

Ethiopian wolves left in the wild



Local communities engaged

Supported by the Airbus Foundation and CCF, the Ethiopian Biodiversity Institute used AI, ESRI GIS tools and very high-resolution satellite imagery to monitor Ethiopian wolf habitats in Web Valley. Al-driven analytics provided precise metrics to guide conservation policy, while community engagement bridged knowledge gaps. The project revealed a dramatic proliferation of human settlements within and surrounding the BMNP between 2019 to 2024. Results are helping balance livestock, wolves, and prey with habitat pressures via exclusion zones and community-led coexistence.





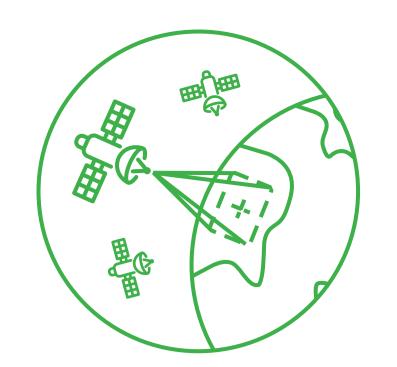
FIVE COMMUNITIES REACHED WITH A 'PEACEFUL CO-EXISTENCE' CAMPAIGN AND EDUCATION INITIATIVE.



6

THIS GENEROUS SUPPORT TRANSFORMED
OUR EFFORTS TO PROTECT ETHIOPIAN
WOLVES BY ENABLING ACCURATE MAPPING
OF HABITAT LOSS AND VITAL INSIGHTS INTO
THEIR CHALLENGES.

—— Yacob T. Tesfaldet, Chulalongkorn University



# Community collaboration: Protecting Wildlife in South Sudan's Untouched Terrain

Fauna & Flora Bangangai & Bire Kpatuos, South Sudan

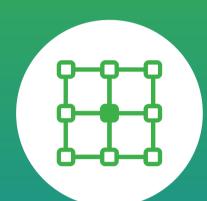


Bangangai Game Reserve and Bire Kpatuos in South Sudan protect vital habitats for endangered species like **chimpanzees**, **elephants and bongo**. Despite political instability and poaching threats, Fauna & Flora has safeguarded these unique forests and grasslands for over a decade.



199,600 ha

Satellite imagery provided



237

Detailed ground-reference points collected during a field expedition



1 billion +

Pixels classified into critical habitat features



Fauna & Flora, with local communities, is creating a conservation buffer around South Sudan's reserves.

Using high-resolution satellite imagery from the Airbus Foundation and support from CCF, they've mapped habitats and corridors (wetlands, grassland, shrub and forest), offering vital insight where ground access is limited. The imagery has identified encroachment areas, like farms and plantations, enabling targeted community action. This data will guide conservation strategies, patrol planning, and future funding to assess habitat suitability and species connectivity.

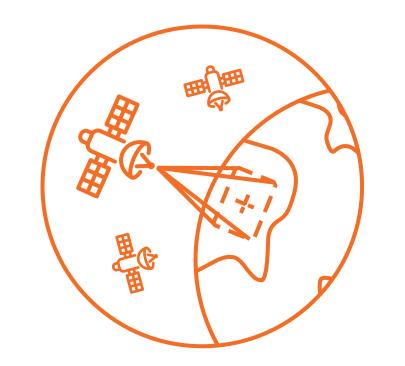


THIS PROJECT STRENGTHENED FAUNA & FLORA'S USE OF AI-DRIVEN SATELLITE IMAGE ANALYSIS. LESSONS LEARNED NOW SHAPE THEIR GLOBAL GEO-AI APPROACH.



THIS PROJECT HAS SIGNIFICANTLY ENHANCED OUR SKILLS AND DEEPENED OUR UNDERSTANDING OF APPLYING AI-DRIVEN SATELLITE IMAGING TECHNIQUES IN OTHER COUNTRIES, PAVING THE WAY FOR BROADER IMPACT.

—— Harriet Branson, Technical Specialist GIS & Remote Sensing, Conservation Technology



# Coexisting with Andean Bears in the Heart of Peru

Conservacion Amazonica Manu Biosphere Reserve, Peru



In the heart of the majestic Manu Biosphere Reserve lives one of South America's most iconic creatures: the **Andean bear.** These elusive bears, key to reforestation and ecosystem balance, share their habitat with **pumas and the tiny dwarf deer.** Together, they face mounting threats from habitat fragmentation, illegal poaching and climate change.



110,100 ha

Satellite imagery provided



>20,000

Andean bears left in the wild



Wild Andean bears equipped with camera collars

CCF's Data Analytics Team and Conservación
Amazónica are combining Airbus Foundation satellite
data, machine learning, wildlife tracking and community
insights to map Andean bear habitats, identify climate
corridors and reduce conflict. The project also aims to
empower local communities through education, training
conservation ambassadors and utilising science to
inform policy for protected corridors, supporting the
bear's long-term survival.

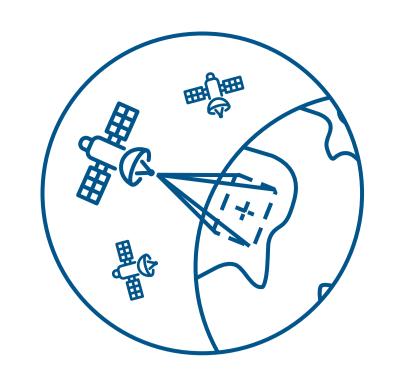




CAMERA COLLAR FOOTAGE HAS REVEALED ANDEAN BEARS TO BE SURPRISINGLY SOCIAL, ENGAGING IN BOTH PEACEFUL AND AGGRESSIVE INTERACTIONS, SUGGESTING THEIR SOCIAL BEHAVIOUR IS MORE COMPLEX THAN BELIEVED.







### Sustaining Suitable Habitats for the Greater One-Horned Rhino

**Zoological Society of London (ZSL)** Chitwan-Parsa Complex, Nepal

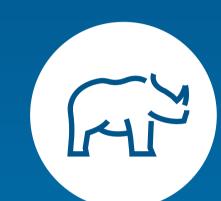


Nepal's Chitwan-Parsa grasslands are a stronghold for the country's rhinos, tigers and elephants, supporting 350,000 people whose livelihoods depend on biodiversity but face threats from agriculture, poaching and invasive species.



158,700 ha 697

Satellite imagery provided



One-horned rhinos living in Nepal's Chitwan-Parsa grasslands





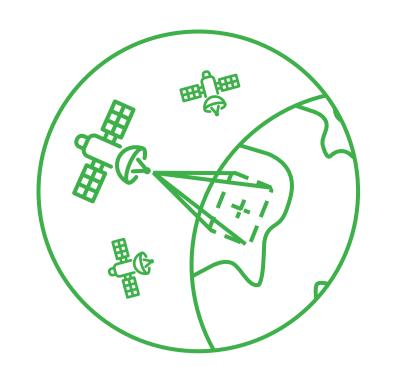
The invasive plant Mikania micrantha threatens grassland health in one of the most biodiverse regions of our planet, the Terai Grasslands. A keystone species that depends on this habitat is the endangered one-horned rhino. To stop the degradation of this intact ecosystem and manage it effectively, ZSL used 30 cm Pleiades Neo satellite imagery and machine learning to map its spread and assess control efforts. Supported by the Airbus Foundation and CCF, ZSL combined satellite data with field surveys to create costeffective, evidence-based grassland management strategies. This work will inform a Rhino Habitat Policy Brief, guiding conservation policy, improving national park management, and supporting rhino protection.



BY COUPLING VHR SATELLITE IMAGERY WITH ON-THE-GROUND INSIGHTS, THIS PROJECT STRENGTHENS EFFORTS TO PRESERVE CRITICAL HABITATS.



IN MANY REGIONS, INVASION SCIENCE AND MANAGEMENT ARE STILL SIGNIFICANTLY UNDERFUNDED AND UNDER-RESEARCHED. THIS HAS BEEN A TRUE GAME CHANGER, OFFERING INSIGHTS AND DATA WE SIMPLY COULDN'T HAVE OBTAINED.



# Invasive Species Monitoring and Ecosystem Management

Loisaba Conservancy Laikipia County, Kenya



Loisaba Conservancy, covering approx 58,000 acres in northern Kenya, is home to diverse wildlife including **elephants**, **lions and rare bird species**. This vital ecosystem faces **growing threats from the invasive plant species**, *Opuntia* **engelmannii** (Texas prickly-pear), which outcompetes native flora, degrade habitat quality and reduces forage availability for wildlife and livestock.



25,000 ha

Satellite imagery provided



258

Opuntia class sample points collected from the field



74%

Reduction in Opuntia cactus was achieved between 2021 and 2025 in targeted removal zones

Loisaba and CCF used high-resolution satellite imagery from the Airbus Foundation, coupled with Al-powered analysis and field validation data, to develop an effective tool to map Opuntia density across this vast landscape. The results show Loisaba's removal efforts in targeted areas have been successful, with a 74% reduction of Opunita between 2021 and 2025. With plans to eliminate Opuntia within five years, early signs show native vegetation recovery and increased wildlife presence in removal areas. Loisaba will continue to document and share its approach, particularly the success of mechanical removal, through reports, community meetings and technical workshops, contributing to wider knowledge on invasive species management.



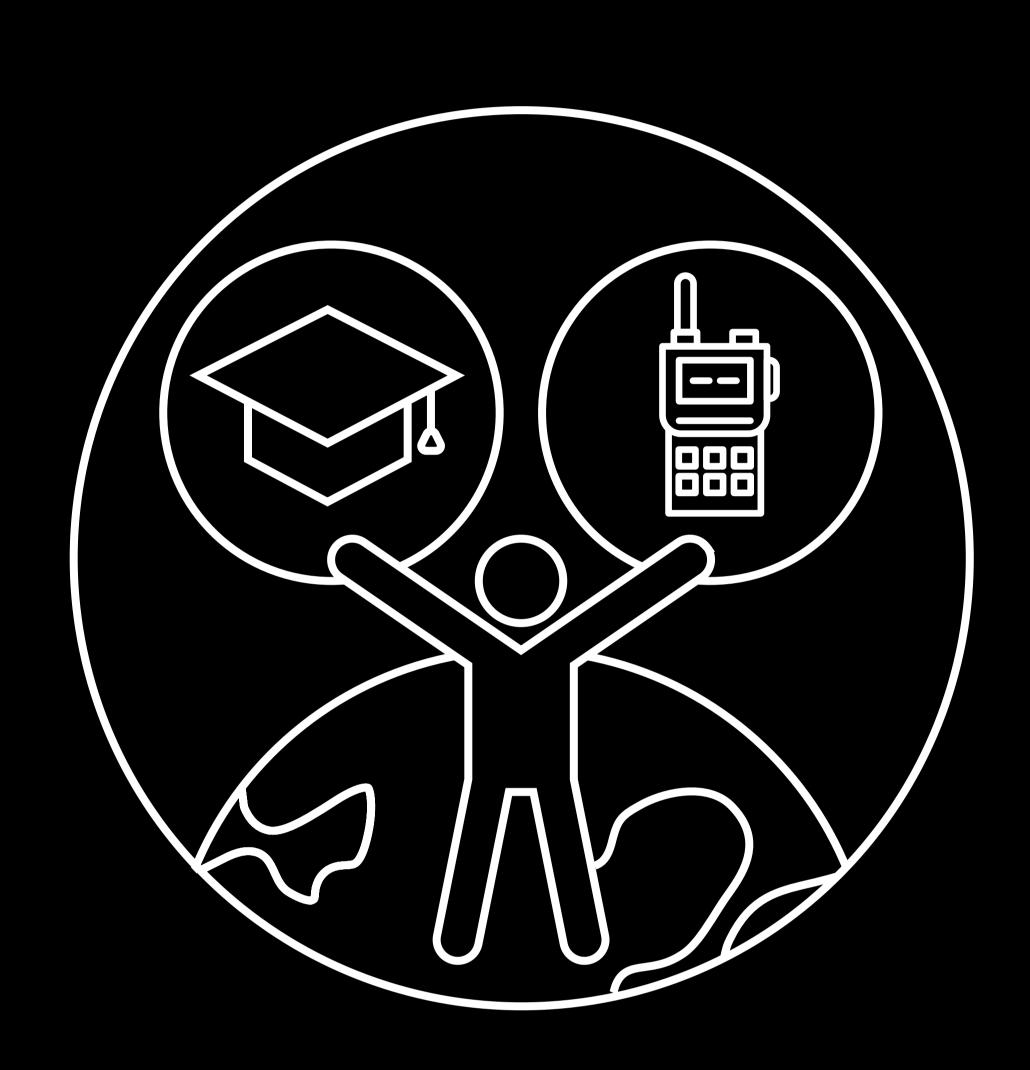


THIS AI MODEL OFFERS SOLUTIONS FOR INVASIVE OPUNTIA SPECIES MANAGEMENT ACROSS SIMILAR LANDSCAPES IN AFRICA AND BEYOND



WE'VE SIGNIFICANTLY IMPROVED OUR ABILITY
TO MAP OPUNTIA INFESTATIONS, TARGET
REMOVAL EFFORTS, AND MONITOR RECOVERY.
THIS PARTNERSHIP IS HELPING US PLAN MORE
EFFECTIVELY FOR LONG-TERM RANGELAND
RESTORATION.





# 3. Capacity Building and Community Education

We provide local training to develop skills and build future conservation technology champions. We equip local education facilities alongside reserves with robust connectivity, supporting community environmental education and outreach.



# **Enhancing Environmental Education through Connectivity for Lapalala Wilderness School**

Lapalala Wilderness School, Waterberg Biosphere, South Africa



Located in South Africa's Waterberg Biosphere, Lapalala Wilderness School sits within one of the country's most iconic private reserves. It offers extensive **immersive environmental education programmes that have reached tens of thousands of learners, from nearby villages to international universities.** 



3.000

Learners supported annually



40

Local schools engaged in conservation learning



Campus-wide digital access and connectivity

Each year, over 3,000 students join residential courses exploring ecology, biodiversity, and conservation careers. Partnering with 400+ local schools, Lapalala Wilderness School connects conservation with community. With support from CCF and equipment from Cisco, the school is rolling out a campus-wide Wi-Fi network. Designed using Cisco's best practices and powered by Cisco Meraki, the system provides secure, reliable internet and seamless access for community groups.

This scalable infrastructure **boosts digital learning**, **supports teacher development** and expands outreach, strengthening the school's ability to inspire the next generation of conservation leaders.

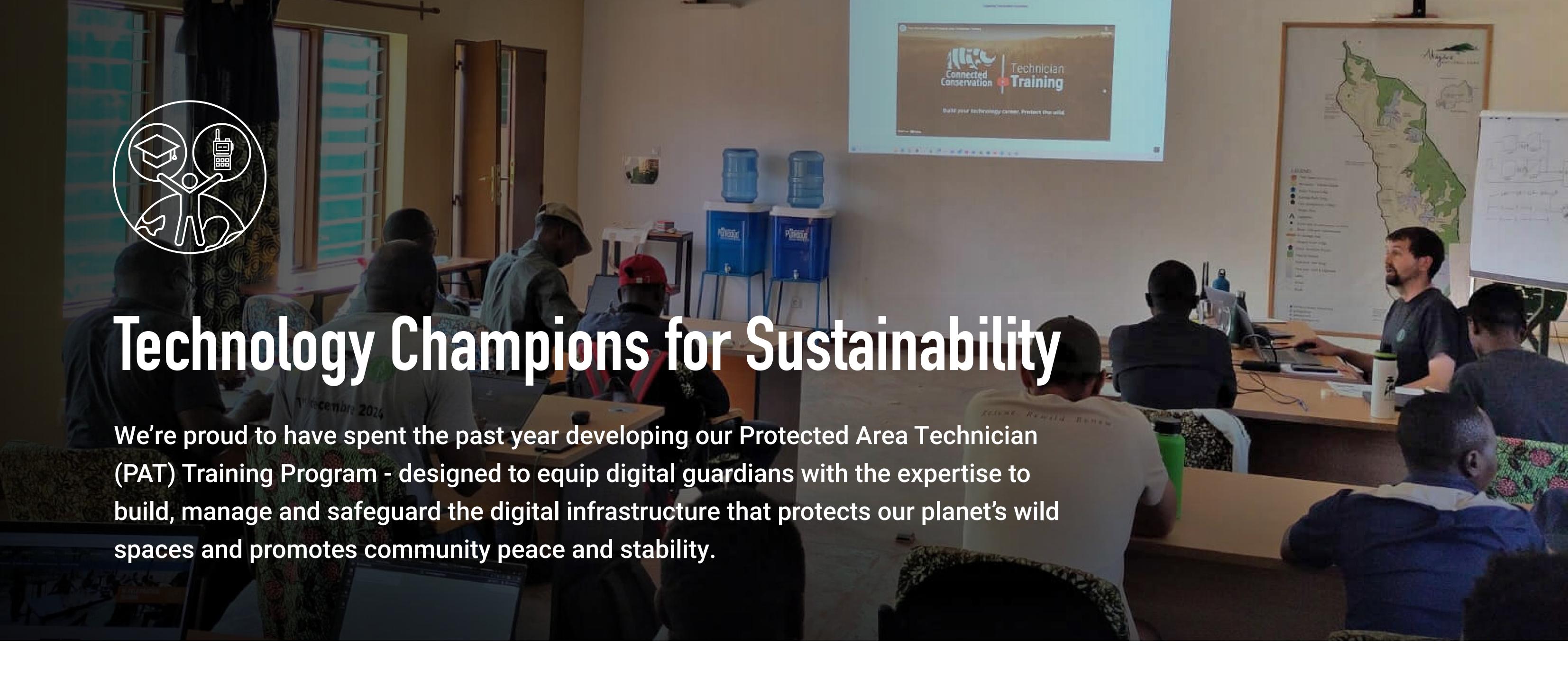




THESE DIGITAL UPGRADES ARE HELPING LAPALALA INTEGRATE TECHNOLOGY MORE EFFECTIVELY INTO ITS ENVIRONMENTAL EDUCATION PROGRAMMES AND EXTEND LEARNING OPPORTUNITIES TO MORE REMOTE AREAS.



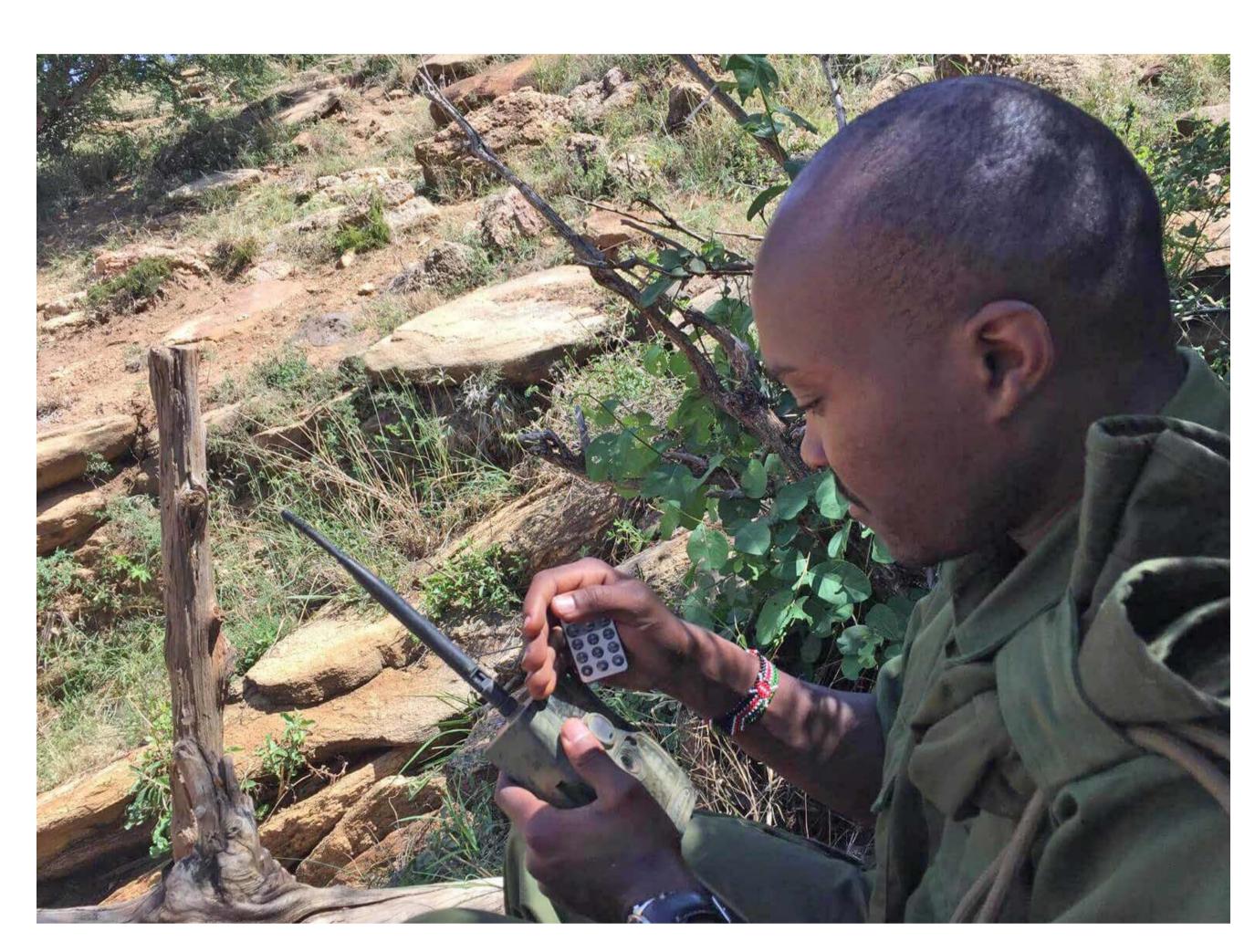




### Launched 2025

Our free online Protected Area Technician Courses have been curated to build and support tech-based conservation careers.

As conservation efforts become increasingly data and tech-driven, the role of Protected Area Technicians has never been more crucial. These digital guardians work behind the scenes to maintain systems and keep data flowing. From installing anti-poaching sensors to real-time monitoring and automated alert systems, their work powers modern conservation.



### The PAT Program aims to:



Build global capacity through accredited training, empowering a new generation of technology Champions to drive sustainable, tech-enabled conservation in Protected Areas.





Create career pathways by
opening doors for local talent
from neighbouring communities
to step into impactful roles in
conservation technology.



Professionalise the field by formalising the role of the Protected Area Technician and attracting fresh talent into this vital and evolving career.



10

Video courses with 3
Certification levels available



200+

Registrations for courses in the first 4 weeks



5

Industry-led experts developing content

### Course content developed by industry leaders

In collaboration with Cisco Networking Academy, The Open University, EarthRanger (AI2), African Parks, Sabi Sand Nature Reserve and Wild Insight Lab, a bespoke series of expert-led learning and certification has been co-created, covering networking, cybersecurity, digital infrastructure, IoT deployment and data management.



Tools for Informed Decision Making



Infrastructure Fundamentals



Networking and IoT



Deploying Devices



Data Management



**Software Integration** 



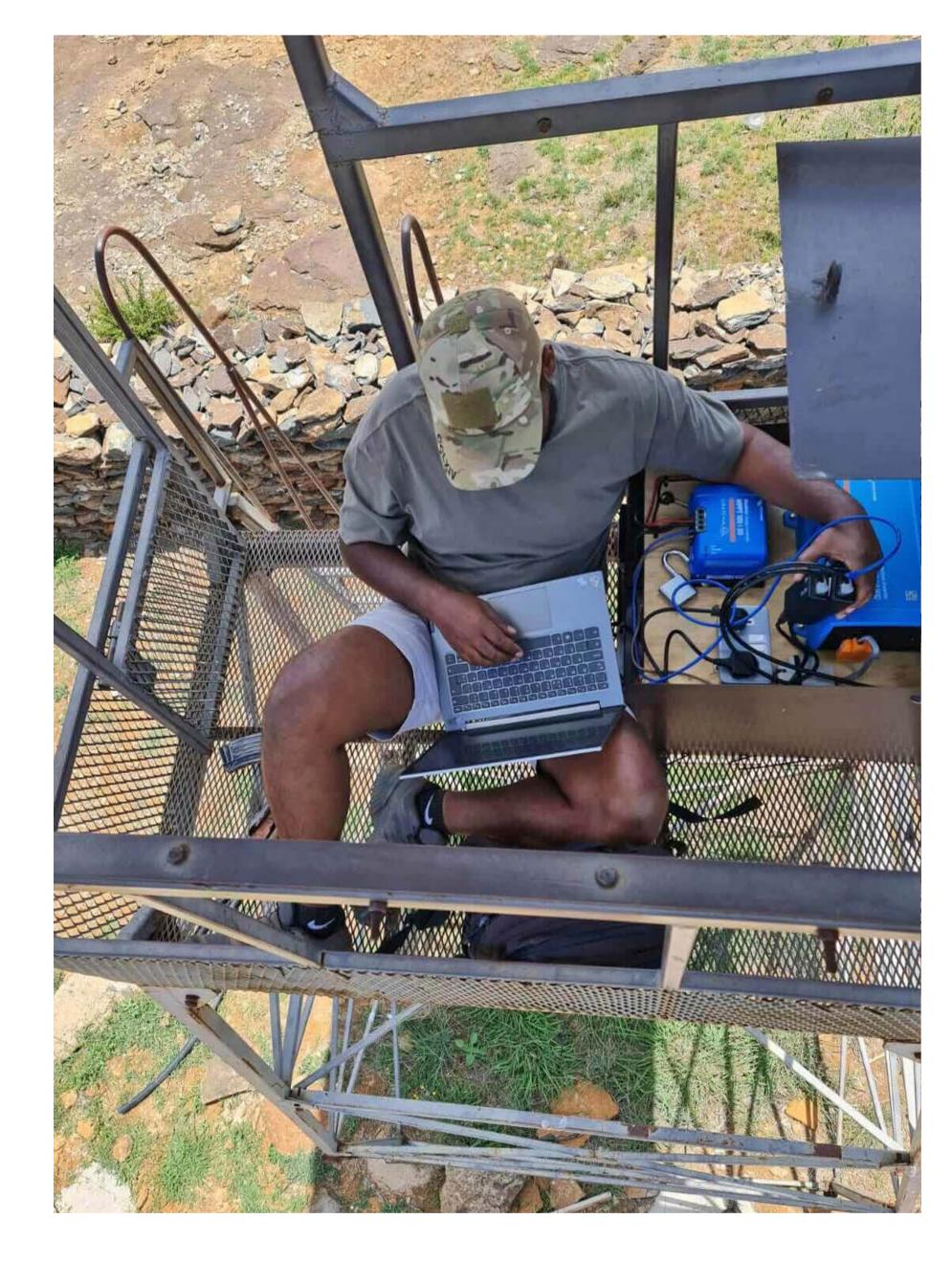
**Cybersecurity** 

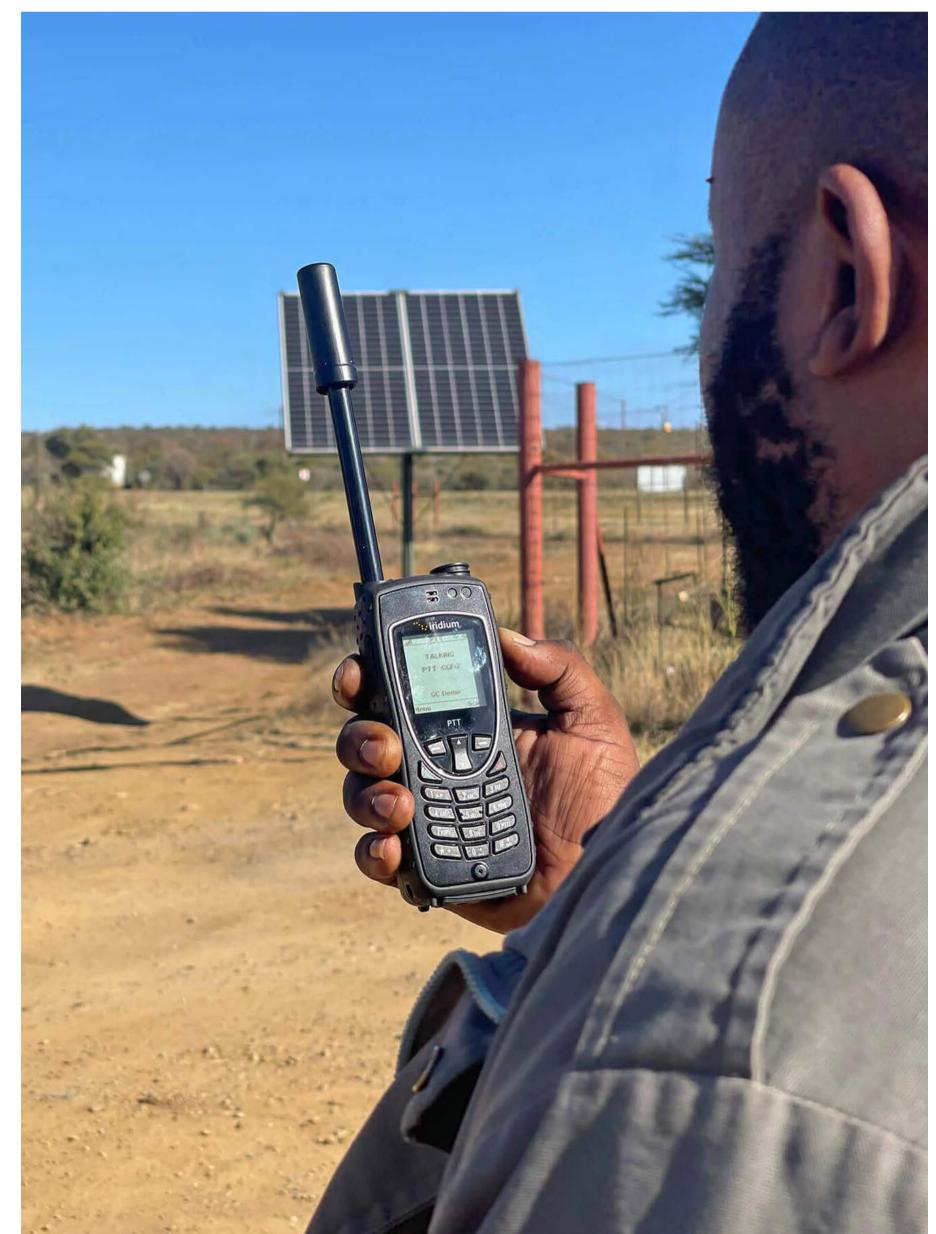


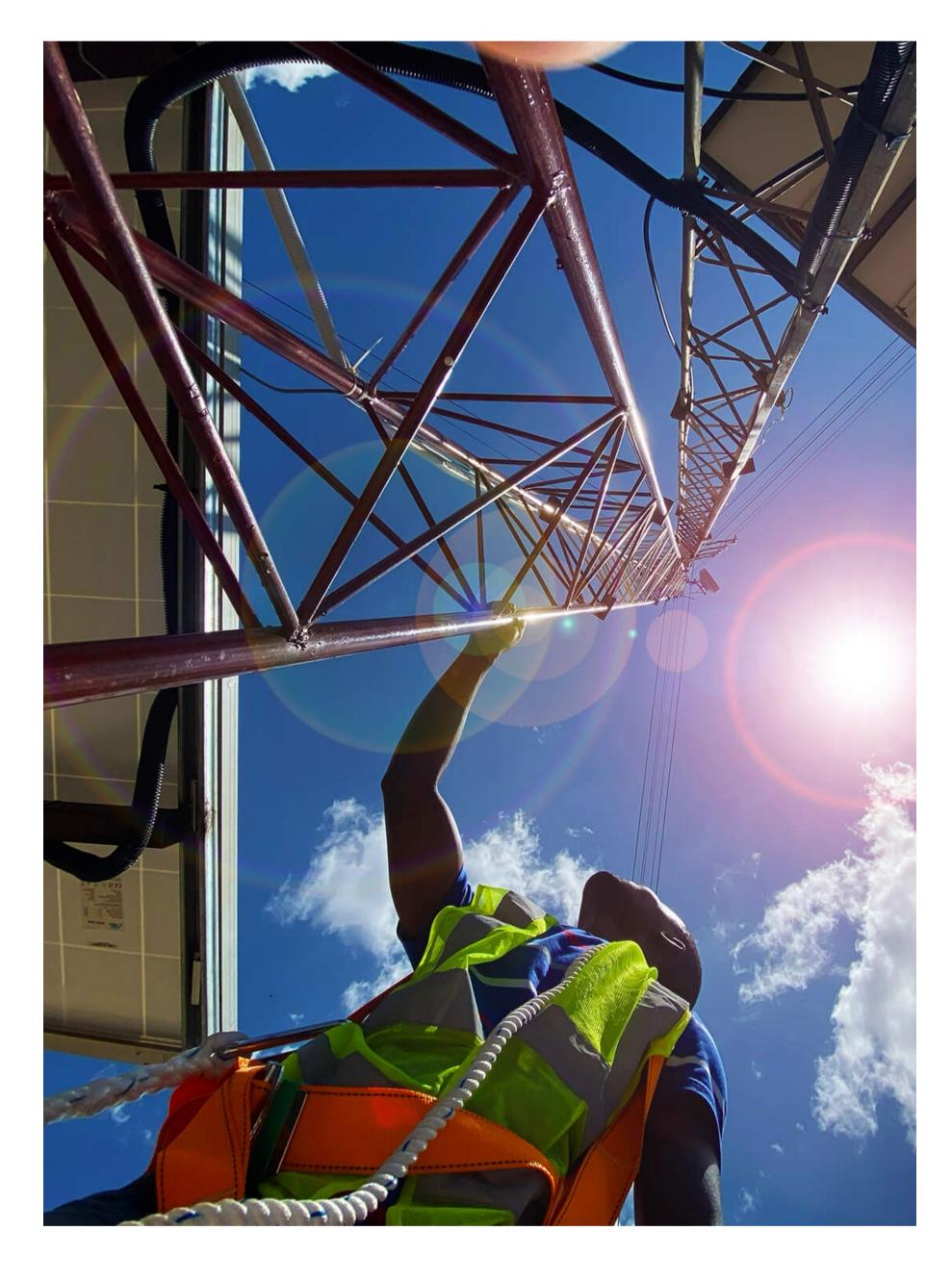
Maintenance and Sustainability



Collaboration and Management



















WE'RE PROUD TO TRAIN THE NEXT WAVE OF TECHNICAL CHAMPIONS, READY TO DEFEND OUR NATURAL ENVIRONMENT. OUR DECADE-LONG PARTNERSHIP WITH CCF HAS EVOLVED FROM PROTECTING RHINOS TO SAFEGUARDING ENTIRE LANDSCAPES, AND NOW UPSKILLING TALENT FROM LOCAL COMMUNITIES.





# 4. Technology Evaluation, Strategy and Innovation

Our experts help Protected Areas plan the best design of technologies to meet conservation goals, guiding a holistic digital ecosystem of tools, capacity and community engagement.

# Technology Assistance in Zinave National Park

Peace Parks Foundation
Zinave National Park, Mozambique



Zinave National Park is a major success in large-scale ecological restoration and forms part of the Great Limpopo Transfrontier Conservation Area, which reconnects 88 parks and corridors across southern Africa.

Since 2016, over 2,550 animals from 16 species have been reintroduced. In 2022, black and white rhinos arrived, making Zinave Mozambique's first big five park. The natural return of apex predators like lions further reflects a recovering ecosystem.



In 2025, CCF was invited by Peace Parks Foundation to assess and improve Zinave's digital infrastructure, preparing for rhino reintroductions and LoRaWAN Rhino Pods. Our field assessment of communications towers, sensors and monitoring systems led to recommendations to enhance tracking, network reliability and future tech use. CCF is proud to support strengthening this vital conservation area with smart, resilient technology.

# CCF Technical Design for Kenya's Nationwide LoRaWAN Network Infrastructure

Kenya Wildlife Service

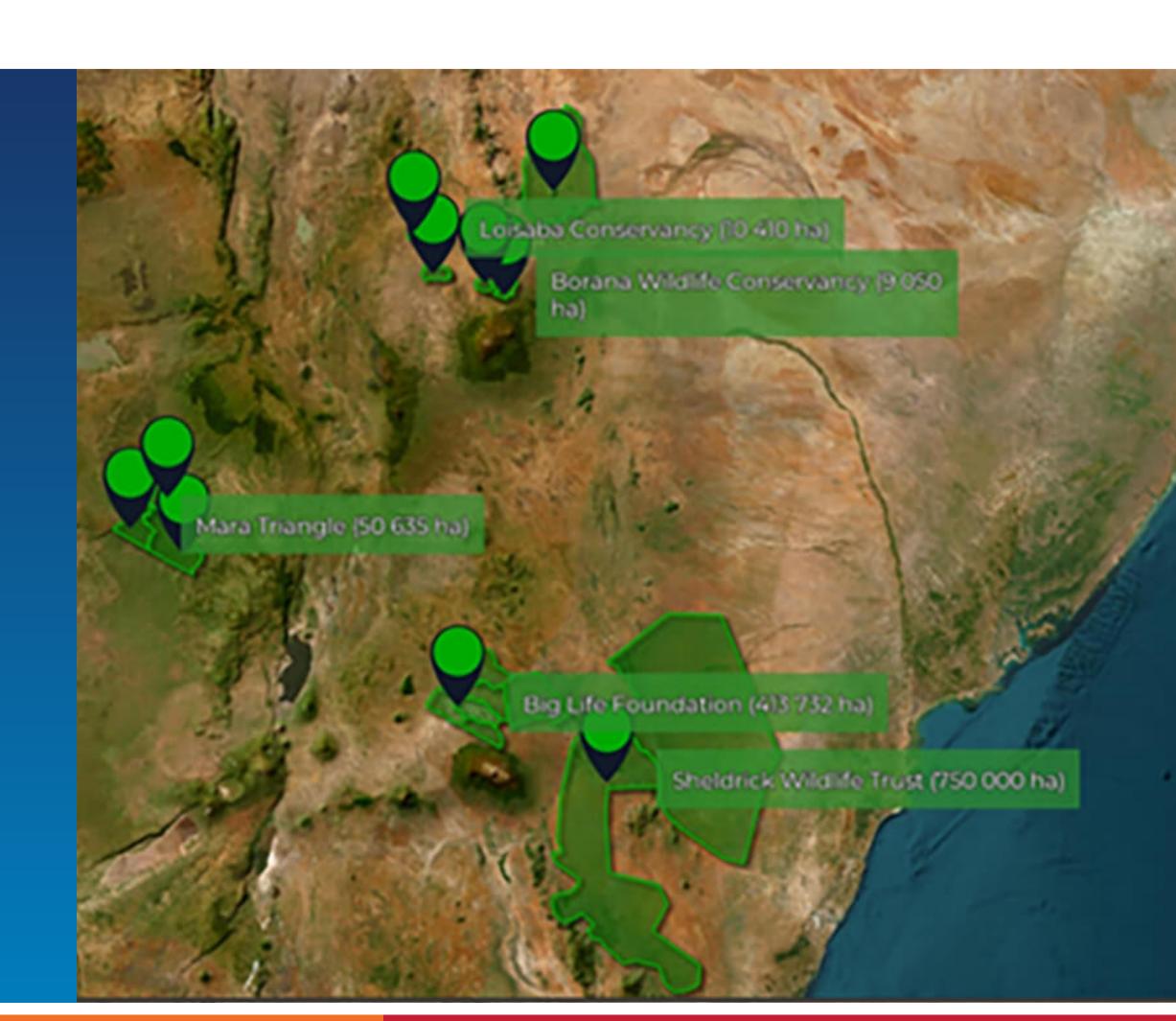




CCF'S LORAWAN INFRASTRUCTURE
NOW SPANS APPROX 17% OF KENYA'S
NATIONAL PARKS

CCF is collaborating with the Kenya Wildlife Service (KWS) to roll out advanced conservation capabilities using LoRaWAN nationwide. Our technical team assessed national requirements and delivered data flow diagrams and architectural blueprints to support future scaling of digital infrastructure. This work provides a foundation for national governance and coordination of LoRaWAN and related technologies.

OUR VISION FOR A NATIONWIDE LORAWAN CONSERVATION
NETWORK IS SUPPORTED BY DETAILED TECHNICAL
DOCUMENTATION, ADDRESSING KEY CONSIDERATIONS SUCH AS
POLICY, GOVERNANCE, DATA SECURITY FOR CRITICAL SPECIES,
SOVEREIGN DATA MANAGEMENT AND BUILDING A DIVERSE
SERVICE PROVIDER ECOSYSTEM.





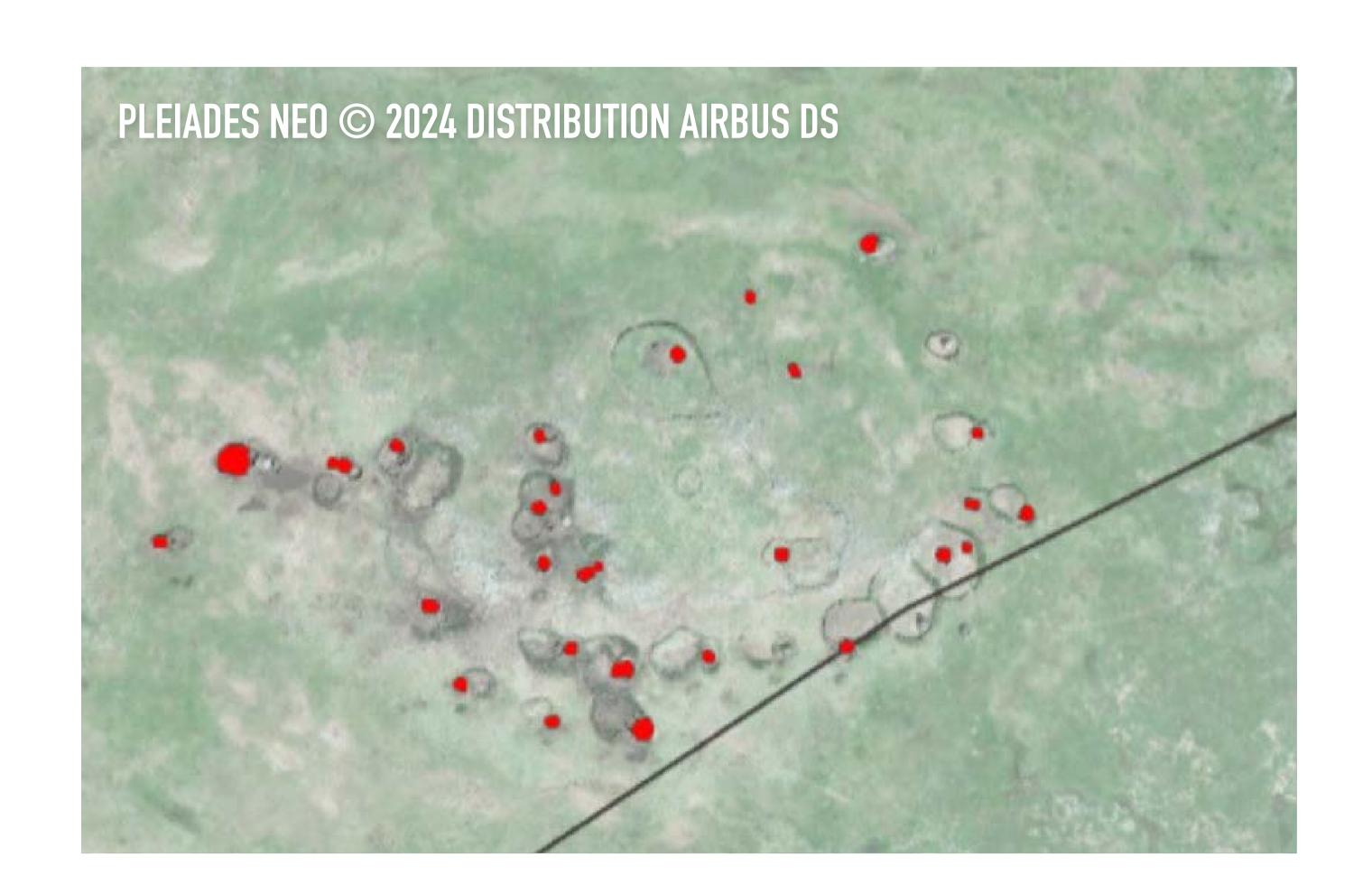
### Innovating New Models

Protecting wildlife and ecosystems requires teamwork and diverse expertise.

We bring together cross-sector partners and cutting-edge technologies to accelerate innovation.

### **Satellites for Biodiversity**

In partnership with the Airbus Foundation, we are integrating high-resolution satellite imagery (30–50 cm), Al and in-situ data to monitor ecosystems with exceptional speed and precision. Working alongside local collaborators, we're combining satellite intelligence with on-the-ground information, ranging from wildlife tracking and camera trap footage to environmental sensors and ranger reports, unlocking powerful insights into the dynamics of Earth's life-support systems.



We support partners in testing and refining AI tools to process this data efficiently, enabling faster, data-driven conservation decisions. These tools are helping to identify patterns, predict threats and prioritise action. Projects range from tracking desert elephants in Namibia to understanding wildlife corridors, mapping invasive plant species, to detecting electric fences in Kenya's Nyakweri Forest to prevent electrocution and inform conservation strategies for the endangered Giant Pangolin.

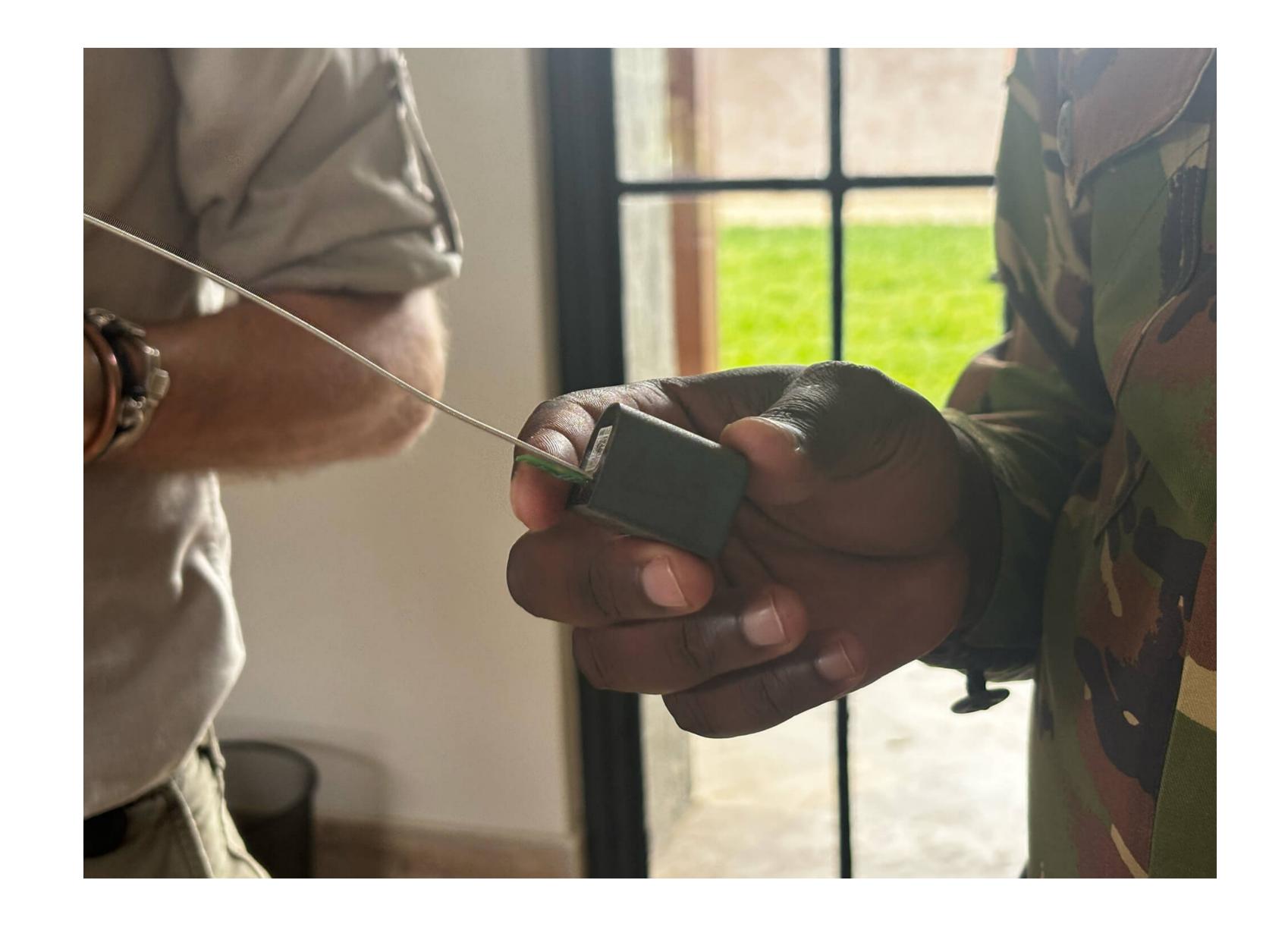


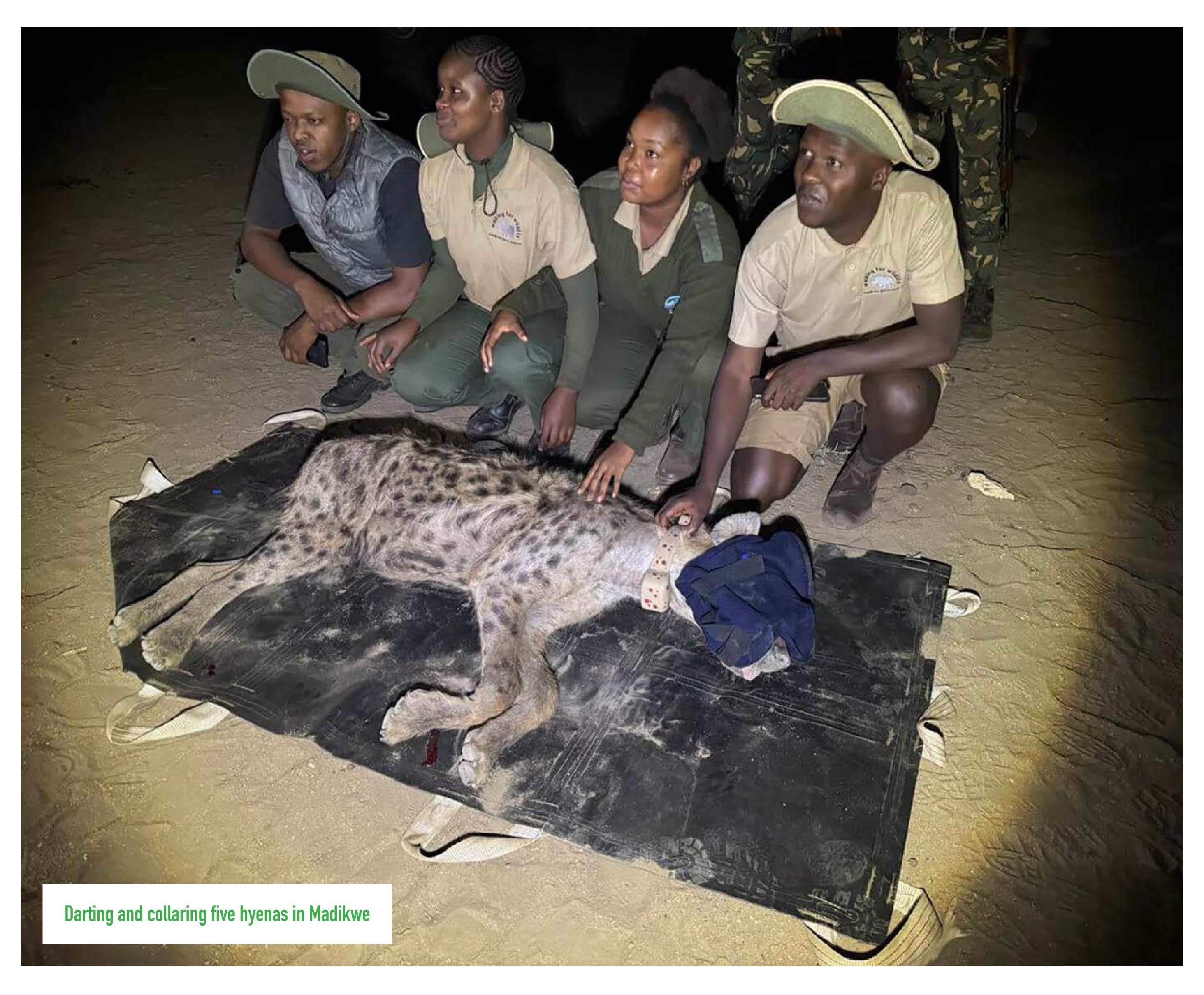
### Unlocking and testing HD15 satellite imagery

Thanks to the Airbus Foundation, the Round 3 and 4 winners of the Satellites for Biodiversity Award will benefit from access to **advanced HD15 imagery**. This enhanced clarity is made possible through Airbus's proprietary AI and machine learning algorithms, which significantly improve the detail and sharpness of 30 cm Pléiades Neo data. **HD15 processing reveals finer features and subtle landscape changes, empowering field teams to extract deeper insights.** We look forward to seeing how this added precision supports impactful conservation efforts on the ground.

# Innovative conservation through smarter sensor use

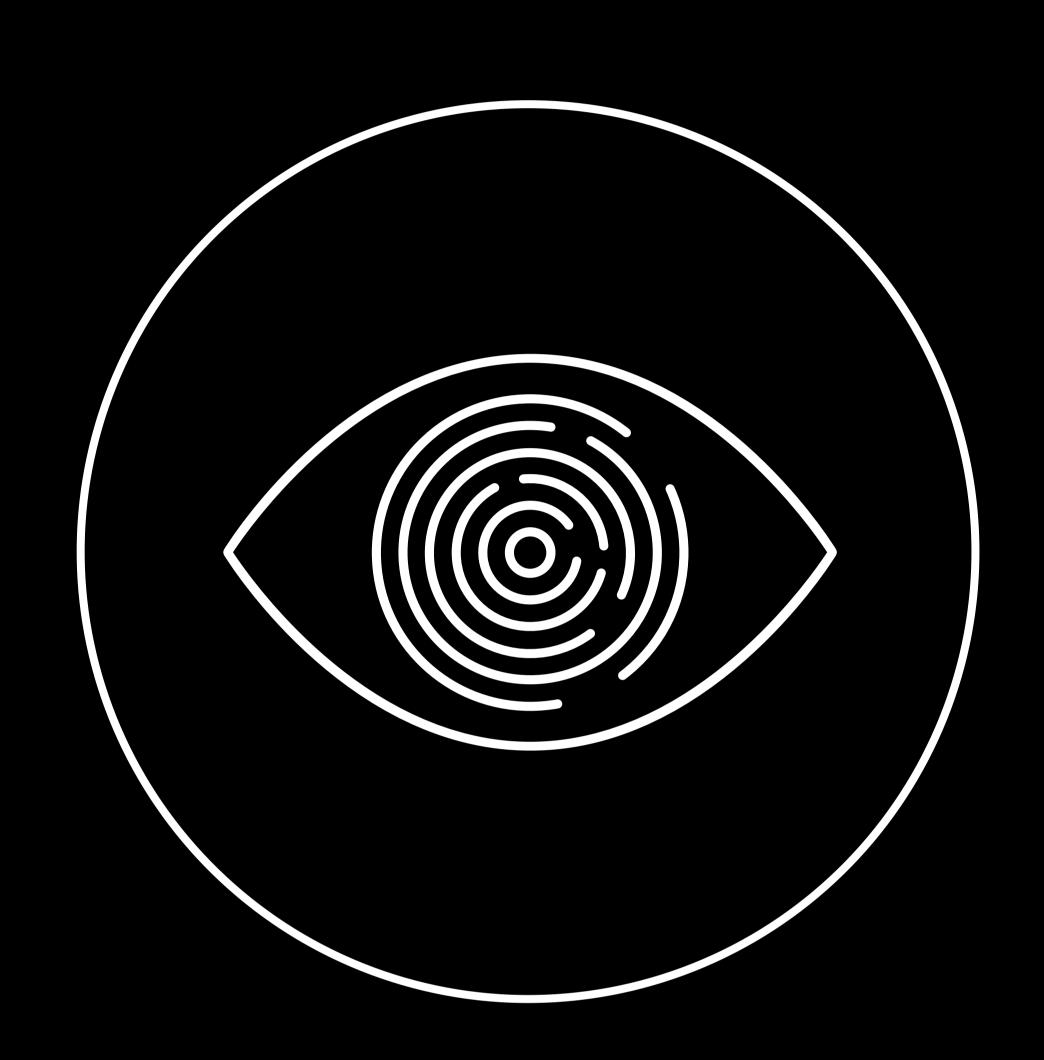
Choosing the right technology is critical for conservation success. To simplify sensor selection, CCF is partnering with leading organisations to **field-test a wide range of IoT devices**, from vibration sensors that detect security fence breaches to LoRa-enabled rhino and predator trackers. Insights from these trials are informing the **development of an Al-powered LoRaWAN assistant to help conservationists select the most effective sensors** for their needs.





One such trial is underway in Madikwe, South Africa, where LoRaWAN-enabled predator collars are being tested on five spotted hyenas, each from a different clan. Led by Mandela University, Madikwe Futures Company and the North West Parks & Tourism Board, the project uses real-time hyena movement data to identify carcass sites, which can indicate poaching events or natural deaths. Data flows into EarthRanger, boosting response and ecological understanding. While LoRaWAN predator collars are still in the early stages of development, their potential has sparked significant interest. We're excited to learn from this innovative trial with Madikwe Futures Company and share insights with the wider conservation community.





# Looking ahead to next year and 2035

Here, we look ahead to CCF's immediate upcoming projects and our vision for the next decade.



## Looking Ahead: 2025—2035

The next decade will bring deeper digital transformation to conservation, embedding technology into the core of strategy, financing, monitoring and governance. This shift will help drive nature-positive change across protected areas, national governments and business sectors.

We are committed to inclusive technology that supports well-connected, effective protected areas—helping countries work towards to the global goal of safeguarding 30% of their lands by 2030.

In 2025, CCF supported Protected Areas and national governments with technology audits to help map clear pathways to adopting conservation technology, laying the foundations to harness new capabilities and innovations in the years to come, including:



**Networked Observational Data** 



Al and Earth Monitoring



**Global Connectivity** 



**Next-Gen Drones** 

Scaling digital conservation brings cybersecurity risks, sovereign concerns, costs, skills and policy gaps. CCF will continue lowering deployment barriers through partnerships, expanding training, and working with governments to shape inclusive digital policy. In collaboration with tech leaders like Cisco, we'll also reinforce cybersecurity and data protection.

Together, we're **shaping a holistic digital ecosystem**—one that supports data-driven conservation, respects data sovereignty, and empowers Indigenous Peoples and local communities to steward nature and share in the benefits of this digital transformation.

### 2035 Targets

### \$20 million

In effective technology donated

50+

Threatened species better protected

20

Governments supported with biodiversity technology strategies

100+

Protected Areas strengthened

2,000+

Protected Area Technicians certified

40+

Communities engaged with connected community education centres



## Upcoming Projects 2025-2026

### **Expanding and Standardising a Conservation IoT Network**



Building on our partnership with the Uganda Conservation Foundation (UCF) and the Uganda Wildlife Authority (UWA) in Kidepo Valley, CCF is extending its work in Uganda through two major initiatives:

### 1. Expanding and Standardising their Conservation IoT Network

Smart IoT networks will be deployed at Murchison Falls and Queen Elizabeth National Park, creating a standardised approach led by the government that links conservation operations across Uganda. This integrated approach will enhance real-time awareness, support inclusive decision-making and foster stronger collaboration.

### 2. Digital Infrastructure for Training and Community Outreach

Six new high-capacity WiFi access points will boost connectivity at the UWA Community Education and Ranger Training Academy in Lugaya. **These upgrades will strengthen environmental education and outreach programs for local communities** and support training for over 500 new rangers.



CCF BRINGS TECHNOLOGY AND A TEAM THAT CONSERVATION, INCLUDING ACROSS UGANDA, SIMPLY COULDN'T AFFORD OR ACCESS. THE UPLIFT IN PROTECTED AREA AND SPECIES MANAGEMENT IS INCREDIBLE, SUPPORTED BY THE HIGHEST POSSIBLE STANDARDS OF EXPERIENCE AND EXPERTISE.

# Securing Mpilo: Smart networks for security and conservation





CCF is supporting the rollout of advanced conservation tech at Mpilo Game Reserve in KZN, a Black Rhino Range Expansion site in South Africa. In Phase 1, a LoRaWAN network and AI camera traps will enable real-time detection of fence breaches, vehicle tracking and live surveillance to protect high-value wildlife.

Future phases will expand to track endangered species like black rhinos and African wild dogs, and monitor broader environmental data. In partnership with Mpilo and the Wildlife Act, CCF is supporting a scalable, cross-reserve system that will integrate into daily conservation and security operations, helping the Black Rhino Range Expansion Project (BRREP) site in South Africa's Mkuze Valley cluster.

# Scholarship and In-Field Training for Protected Area Technicians

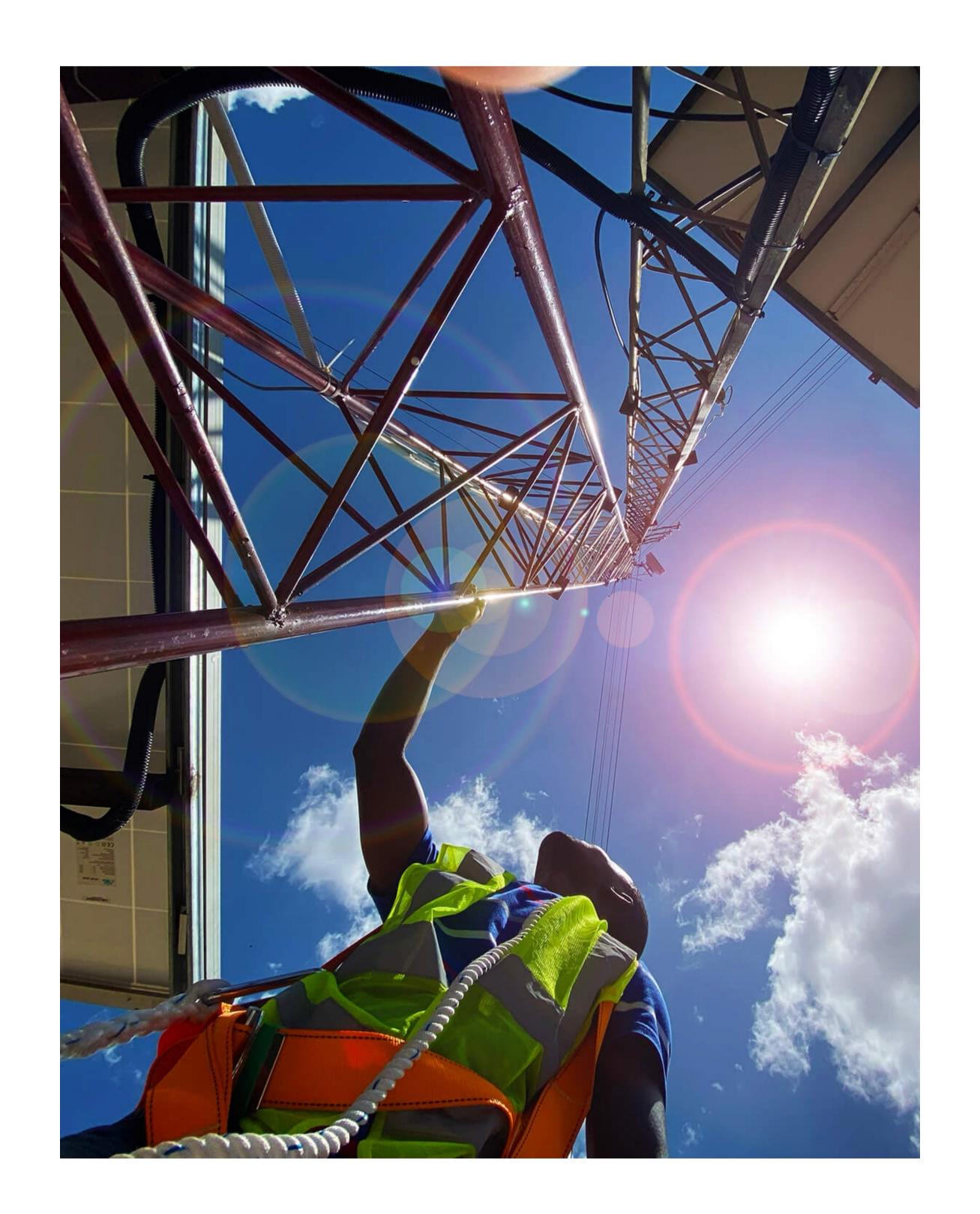






Launching in September 2025, the global PAT Training Program will grow to offer sponsorships, free in-field training and internships at leading protected areas. Twenty candidates will be selected for a fully funded, two-week field bootcamp in Kenya or South Africa, where they'll gain hands-on training and field experience in the intersection of technology and wildlife protection.

Five outstanding graduates will earn two-month internships at leading protected areas across Africa, offering real-world impact, expert mentorship, and invaluable industry connections.





### New IoT Assistant launch

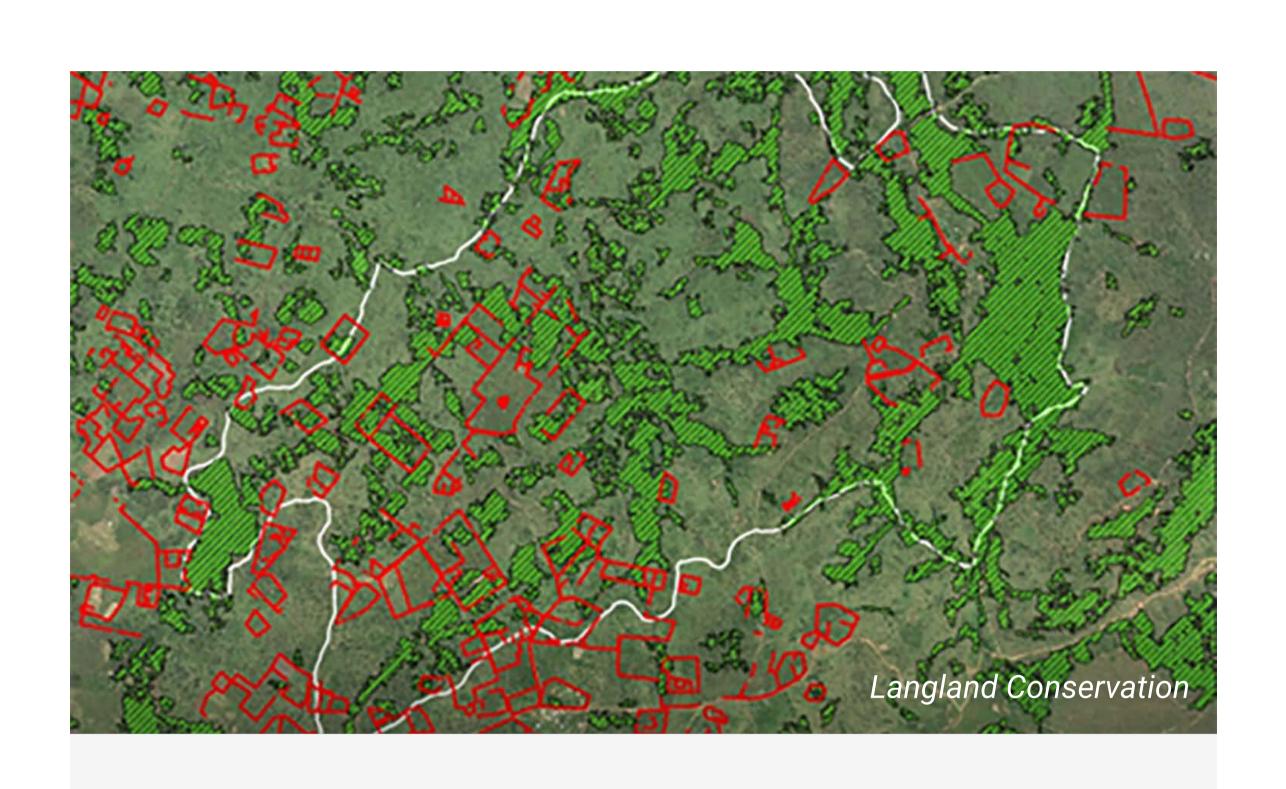
Our new Al-powered assistant is designed to guide conservation teams through the process of selecting the right IoT sensors tailored to their specific operational needs. From wildlife tracking and perimeter security to environmental and infrastructure monitoring, the assistant provides tailored recommendations based on specific use cases, field conditions and conservation objectives. This tool streamlines what is often a complex and time-consuming process, enabling teams to navigate technical options with greater confidence.



### AIRBUS FOUNDATION

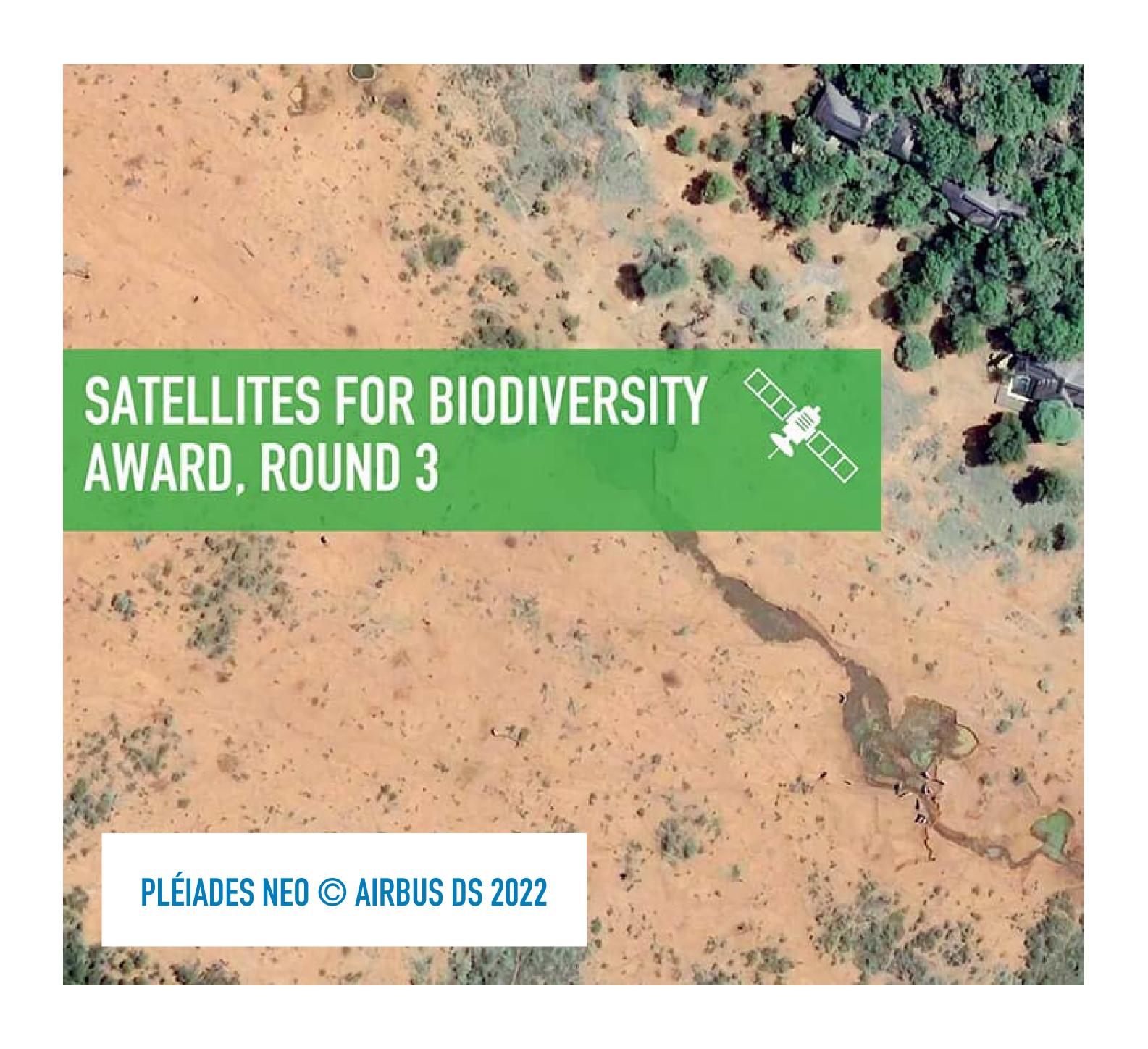
### New Ecosystem Insight Hub Launches

By sharing techniques, analyses and lessons learned, the Hub will foster collaboration across the conservation and Earth observation communities. Insights from completed Satellite for Biodiversity Award projects will continually feed into the platform, helping advance data-driven conservation efforts worldwide.



THE HUB AIMS TO EMPOWER PRACTITIONERS
TO REPLICATE PROVEN AI METHODS AND
SCALE UP EARTH OBSERVATION TOOLS FOR
GLOBAL CONSERVATION IMPACT.

### Satellites for Biodiversity Award, Round 3



As momentum builds, CCF and the Airbus Foundation have launched the third round of the Satellites for Biodiversity Award, expanding support for conservationists using space technology to tackle the planet's most urgent environmental challenges.

Three winning projects and three runners up will gain access to state-of-the-art optical satellite imagery at 30 cm, 50 cm, and, for the first time, an extraordinary 15 cm resolution, offering unprecedented detail and insight into the landscapes and ecosystems that shape wildlife populations around the world. Winners will also receive \$6,000 in funding, on-demand access to Airbus' extensive Archive Library, complimentary ESRI Software and expert technical support from CCF.





# 6. Catalysing Investment and Private Sector Contribution

Recognised by the United Nations as "a global leader connecting developing countries with private-sector technology," we unlock access to proven digital tools that protect nature. In our first decade, we've catalysed \$13 million in donations of transformative tech, from software and hardware to engineering, satellite data and cloud infrastructure, directly to the field.

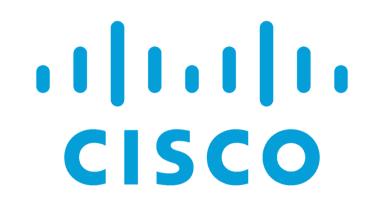


## Thank You to All Our Collaborators and Partners

Our work is made possible thanks to the generosity, innovation and commitment of our incredible partners. We extend our heartfelt thanks to the following collaborators and donors for their invaluable contributions to our mission:

### Leading partners:







### Supporting partners:







### Collaborators:























































## Fundraising with Birdies4Rhinos



Our partnership with Birdies4Rhinos continues to go from strength to strength. From day one, this passionate team of international golfers has raised vital funds and awareness for CCF with every birdie scored, proving that sport can be a powerful force for conservation.

In July 2024, Birdies4Rhinos and Hype Sports Management hosted a successful and inspiring Pro-Am golf event at London Golf Club, raising funds to support our frontline conservation work.

Leading the 2024 Birdies4Rhinos leaderboard was Louis Albertse, whose outstanding performance and dedication to fundraising earned him the rhino sculpture trophy. Thank you, Louis, for your passion and unwavering support for rhino conservation.

Chair, Doc Watson recently hosted Birdies4Rhinos ambassadors Louis Albertse, Rupert Kaminski, and Justin Walters at our partner site, Sabi Sand Nature Reserve, for a behind-the-scenes look at conservation technology in action.

With support from CCF and Birdies4Rhinos, Sabi Sand has become a leader in high-tech protection, creating a safe park where rhinos and other species roam free.

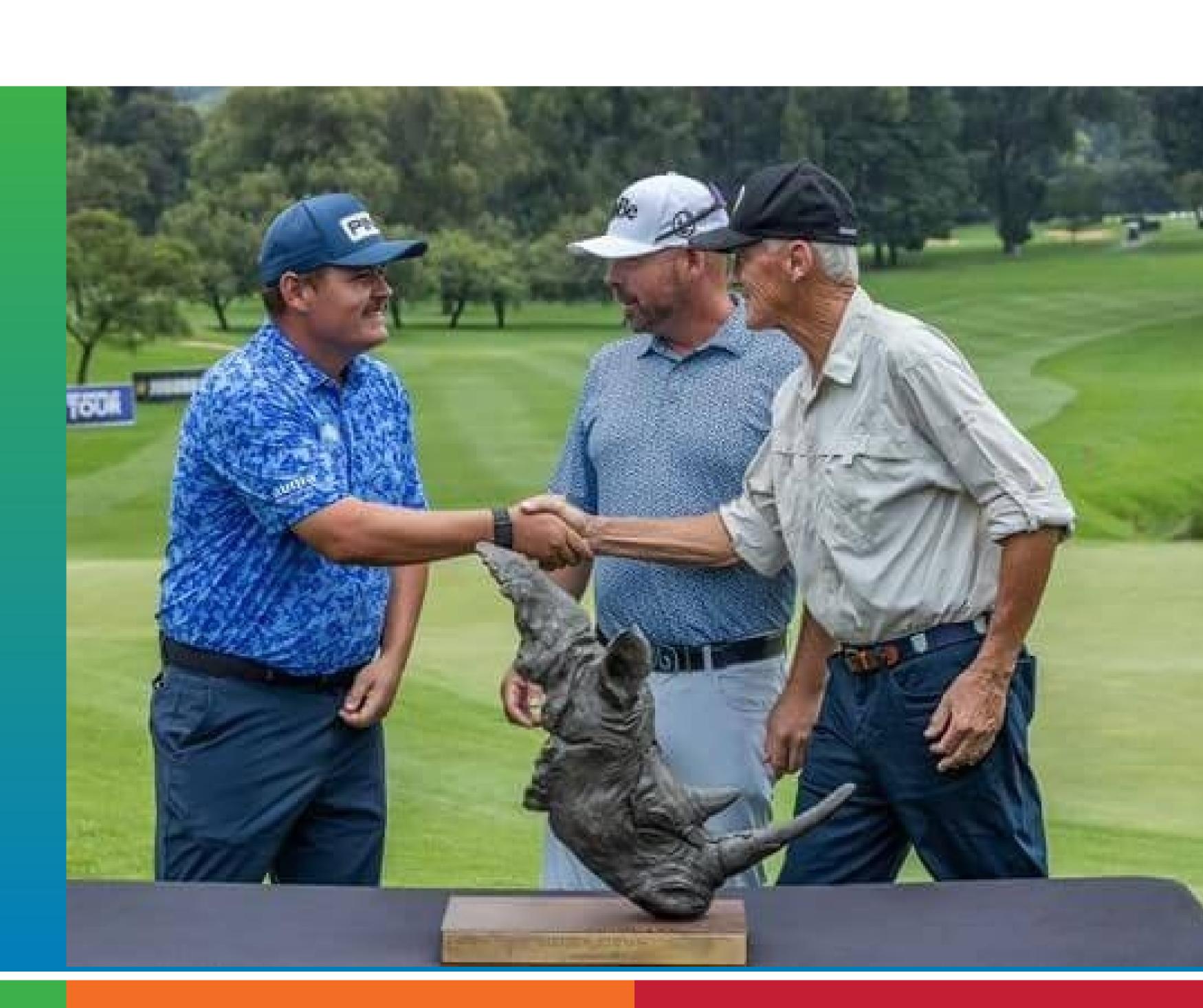






I'M PROUD TO BE PART OF THE BIRDIES FOR RHINOS INITIATIVE. WITH EACH BIRDIE, FUNDS ARE DONATED DIRECTLY TO RHINO CONSERVATION EFFORTS, HELPING PROTECT THESE INCREDIBLE ANIMALS AND THE ECOSYSTEMS THEY BELONG TO. IT'S A WAY FOR ME TO USE MY PASSION FOR GOLF TO GIVE BACK TO SOMETHING BIGGER THAN THE GAME.

Louis Albertse





### **Knowledge Sharing for Collective Success**

We help shape the future of conservation technology by bridging the private and public sectors, fostering collaboration and sharing insights on a global stage.

# June 2024 Cisco Live, Las Vegas

Executive Director, Sophie Maxwell, showcased how sustained collaboration has advanced species conservation, ecosystem restoration and community empowerment, to a large-scale and diverse tech audience. She underscored the power of long-term corporate support to drive lasting environmental impact through steadfast investment, innovation and shared vision.





# December 2025 EarthRanger user workshop, Kenya

Our Technical Director, Swabir Abdulrehman, attended a dynamic workshop hosted by EarthRanger in Kenya, bringing together conservation technology experts to share knowledge, collaborate and explore practical solutions to improve the impact of EarthRanger's tools in the field.

### February, 2025 Cisco Global Awards, Amsterdam

CCF was honoured to be shortlisted in the top five of 60 for the Sustainability Changemaker Award.

Standing alongside some of the world's leading innovators in technology and sustainability was truly inspiring. Our nomination recognised the impactful application of technology for the protection and management of biodiversity and natural ecosystems on a global scale.





# March, 2025 STWG: Space Education and Space for Good, London

Sophie Maxwell joined industry leaders at WCIT Hall, London, for a panel discussion on leveraging the integration of Artificial Intelligence high resolution satellite technology and in situ data to protect wildlife and ecosystems.

### Growing global awareness through the media

### **CCF** partners with Media Planet

This year, we were proud to be a key partner in Media Planet's Protecting Our Wildlife campaign, showcasing how CCF helps equip frontline teams with advanced technologies to support the UN's 30x30 conservation goals.







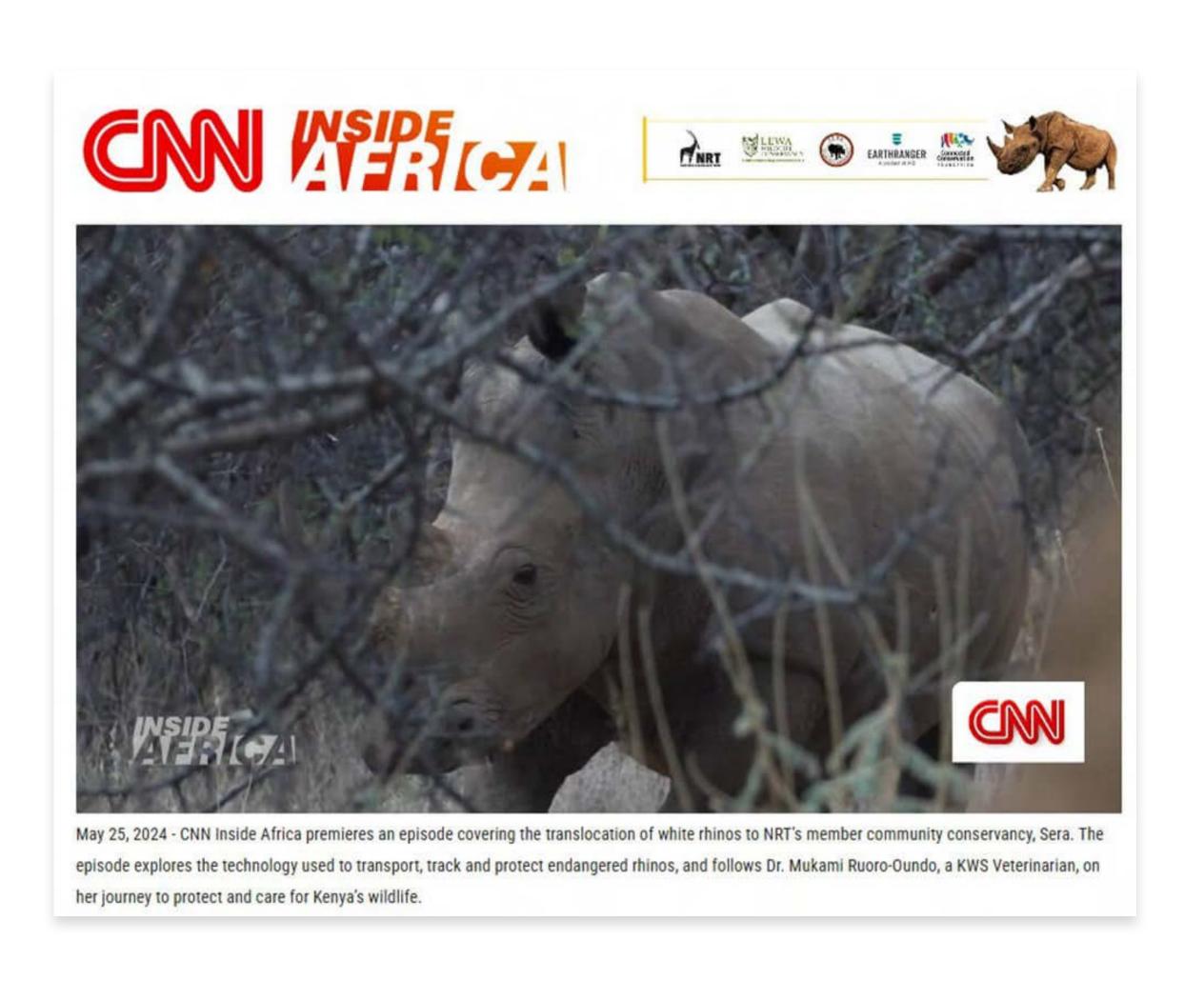
# Showcasing impact through major media outlets

We continue to amplify the successes of our partners and share the impacts of our collaborative projects through major media outlets including *The Star, Mongabay* and *Tech UK*.

### CCF and partners featured on CNN's Inside Africa

It was also rewarding to see our partners, NRT, Kenya Wildlife Service, EarthRanger, and The Lewa Wildlife Conservancy featured on CNN's Inside Africa, highlighting technology deployments at the community-run Sera Conservancy.

Here, CCF helped establish high-bandwidth connectivity, a LoRaWan network, and high-resolution Pan-Tilt-Zoom cameras at six crucial watering holes, greatly improving wildlife monitoring, poaching prevention and community-led conservation efforts.





## Driving Change: Team and Income Highlights

### Our team



Doc (Bruce) Watson, Chairman and Founder



Sophie Maxwell, Executive Director



Swabir Abdulrehman,
Technical Director



Japheth Kimeu, GIS & Data Science Specialist



Emma Oldham,
Communication and
PR Manager

### Expanding our Global Team

We're excited to announce the continued growth of our international team with three new team members:



Quin Clarke, Technical Project Manager



Laura Hoad, Project Manager



Carien Soldatos,
Project Manager

### 2024-2025 - Financial and Technology Resources



Income

£302,142



Facilitated Technology Donations

(Equipment, Engineering, Data and Services Direct to the field)

\$1,000,000



We invite new, bold, innovative partnerships to join us. Together, we can do so much more for the communities and extraordinary species we share our planet with. Please get in touch.

Sophie Maxwell

CCF Executive Director

sophie.maxwell@connectedconservation.foundation (+44) 7976 069 638

