



University Interns - Conservation Project

Kruger Conservation NPC

Limpopo, South Africa or Sofala, Mozambique

About the Organisation

Kruger Conservation NPC is a non-profit Organisation operating in South Africa and Mozambique.

The Organisation works on community-owned land, supporting sustainable conservation that directly benefits the people living on the land. Kruger Conservation collaborates with local communities to develop conservation models that create direct benefit to locals while maintaining strong ecological, social, and educational principles.

Project Participation

The following projects, **Predator Reintroduction & Habituation-Based Conservation Project, Autonomous Drone-Based Fence Monitoring Project and Conservation Storytelling & Documentary Project**, are designed to be accessible and relevant to students and professionals from a wide range of academic disciplines and backgrounds. While certain projects may naturally align more closely with specific fields of study, all projects integrate multiple perspectives. All Students are encouraged to engage based on their individual interests and skill sets. Each project offers opportunities to contribute discipline-specific knowledge, develop applied research questions, and gain practical field or project-based experience.

If any of the projects outlined below are of interest, we encourage you to contact us (info@krugerconservation.com) directly for further information. Additional details, project updates, and application information can be found on our website: <https://www.kruger-conservation.com/>

Predator Reintroduction & Habituation-Based Conservation Project

Project Overview

This project explores an integrated conservation model that combines predator habituation, controlled feeding and breeding, community-based tourism, and targeted reintroduction efforts. The aim is to reduce human-wildlife conflict, protect vulnerable prey species, improve predator survival, and create direct socio-economic benefits for local communities, while maintaining ecological integrity.

Background and Context

Predatory species such as servals and cheetahs are increasingly under pressure due to habitat loss, fragmentation, and escalating human-wildlife conflict. These predators require high-protein diets and often prey on livestock, domestic animals, and wildlife species that are either protected or of direct importance to local communities.

As a result, predators are frequently perceived as a threat, leading to persecution, removal, or local extinction. At the same time, fully wild predators are rarely observed by people and therefore generate limited direct economic value, despite the costs they impose on surrounding communities.

This disconnect between ecological importance and socio-economic impact represents a major challenge for predator conservation in human-dominated landscapes. The project attempts to deal with the reality that very few predators are not currently beneficial to local communities.

Project Rationale and Concept

This project investigates whether habituated predators, managed under strict ethical and ecological guidelines, can offer a more effective conservation pathway than fully wild individuals in certain contexts.

The core hypothesis is that habituation allows for:

- Improved monitoring, health management, and controlled feeding
- Reduced predation on livestock and protected wildlife species
- Increased visibility for conservation-focused tourism
- Stronger links between predator presence and community benefits
- Strong bonds between the people who care for and raise the babies up until release and ultimate reproduction

By combining habituation with structured breeding and reintroduction programs, the project aims to align predator conservation with human livelihoods and long-term ecosystem management.

Habituation as a Conservation Tool

In this project, habituation is defined as a controlled reduction of fear responses toward humans while maintaining natural behaviours such as hunting, territoriality, and social interactions.

Potential advantages of habituated predators include:

- Easier veterinary intervention and medical treatment
- Reduced stress during transport and handling
- Improved data collection on behaviour and health
- Greater tolerance by local communities due to visibility and economic value
- Stronger financial and emotional interconnected bonds between humans and animals

A central component of the research is to assess whether habituated predators can be successfully prepared for reintroduction without losing ecological functionality, short and longterm.

Feeding Strategy, Nutrition, and Conflict Reduction

High protein demand is a key driver of human–predator conflict. This project examines whether controlled feeding regimes can reduce pressure on wild prey populations and livestock while maintaining predator health and reproductive success.

Research focuses include:

- Nutritional composition and adequacy of controlled diets
- Use of domestic animals not intended for human consumption (e.g. guinea pigs, rabbits)
- Effects of diet on growth, reproduction, parasite load, and behaviour
- Long-term impacts on hunting competence following reintroduction

Tourism and Community Integration

Habituated predators are more likely to be observed, enabling the development of low-impact, conservation-oriented tourism. This provides an opportunity to convert predators from a perceived liability into a tangible economic asset.

Research within this component evaluates:

- Tourism revenue linked to predator presence
- Employment and income opportunities for local communities
- Changes in community attitudes toward predators
- The role of economic incentives in promoting long-term protection

Reintroduction and Rewilding Component

Selected individuals are prepared for reintroduction into suitable habitats where predator populations have been reduced or eliminated.

Comparative analyses include:

- Habituated versus wild-caught individuals
- Survival rates and post-release adaptation
- Movement patterns, territory establishment, and prey selection
- Integration with existing ecosystems

GPS telemetry and post-release monitoring form a core part of this component.

Data Collection and Methodology

Behavioural Data

- Activity budgets and behavioural flexibility
- Social interactions and parental care
- Hunting behaviour and prey selection

Health and Nutrition Data

- Diet composition and intake
- Parasite load and disease monitoring
- Body condition, growth, and reproductive success

Spatial and Survival Data

- GPS tracking and home range analysis
- Dispersal and habitat use
- Survival and mortality causes

Socio-Economic Data

- Tourism metrics and income generation
- Conflict incidents and livestock losses
- Community perception surveys

Key Research Questions

- Do habituated predators adapt more successfully to reintroduction than wild-caught individuals?
- Can controlled feeding reduce predation on protected species without impairing hunting ability?
- How does habituation affect breeding success and parental behaviour?
- Does predator-focused tourism increase community tolerance and conservation support?
- Can this integrated model provide a financially sustainable conservation framework?

Practical Skills and Student Experience

Participants gain hands-on experience in:

- Predator behaviour observation and data collection
- Feeding protocols and nutritional management
- Veterinary support and health monitoring
- GPS telemetry and spatial data analysis
- Field-based conservation research
- Human-wildlife conflict assessment

Conservation Significance

This project tests a pragmatic, evidence-based conservation approach that links:

predator habituation → conflict reduction → community benefit → reintroduction → long-term conservation success

The findings have the potential to inform predator conservation strategies across human-dominated landscapes in Southern Africa and beyond.

Autonomous Drone-Based Fence Monitoring Project

Project Overview

Development and deployment of autonomous drones for continuous fence inspection, damage detection, and automated alerting. This approach addresses high costs, time constraints, and reliability issues associated with manual fence monitoring while supporting wildlife protection, anti-poaching efforts, and human-wildlife conflict prevention. The project is carried out in collaboration with Dronetech Austria.

Background and Context

Fence integrity is critical for:

- Containing wildlife safely
- Preventing human-wildlife conflict
- Supporting anti-poaching and broader conservation management

Fence monitoring is one of the largest operational expenses on conservation farms. Manual inspections are:

- Time-consuming
- Costly
- Often unreliable, as it is difficult to ensure that every inspection is performed thoroughly and consistently

Autonomous drones provide a scalable, reliable solution. Unlike human staff, drones:

- Do not require food, clothing, or rest

- Never call in sick or ask for time off
- Can perform repetitive monitoring tasks consistently and precisely

Equipped with AI-based detection systems, drones enable continuous surveillance, rapid identification of damage, and real-time alerts, improving both conservation and security outcomes. Collaboration with Dronetech Austria brings expertise in drone hardware, autonomous flight systems, and AI integration.

Note: Drones, unlike human staff, do not require food, clothing, breaks, or wages, and they perform consistently without error or delay, highlighting the operational advantage of autonomous systems in large-scale conservation contexts.

Objectives

- Design and implement autonomous drone flight systems capable of following fence lines without manual control.
- Develop AI algorithms to detect fence damage, breaches, fallen sections, or unusual disturbances.
- Integrate automated alert systems to notify management in real time.
- Evaluate drone performance across varying environmental conditions, terrain types, and weather scenarios.
- Connect drone-collected data with broader wildlife monitoring and anti-poaching management systems.

Academic Relevance

- Engineering: design and optimisation of autonomous systems
- Robotics: navigation, obstacle avoidance, and control
- Artificial Intelligence: image recognition, anomaly detection, predictive maintenance
- Wildlife Management: ensuring fence reliability to protect species
- Environmental Studies: understanding environmental constraints on automated systems

Data & Information to be Collected

- High-resolution aerial imagery and video along fence lines
- Sensor readings: GPS, altitude, speed, and environmental parameters
- Detection logs: identified breaches, damage, or disturbances over time
- Drone system performance: flight duration, battery efficiency, coverage area
- Incident verification data and response outcomes

Potential Research Questions

- How accurately can autonomous drones detect different types of fence damage or breaches under real-world conditions?
- Which sensor and AI configurations perform best across varying terrains and environmental conditions?
- How can autonomous flight paths be optimised for efficiency and coverage while conserving battery life?
- How does drone-based monitoring compare with manual inspections in terms of cost, time, and reliability?
- Can automated monitoring reduce the operational workforce required and improve overall fence maintenance consistency?

Practical Skills & Student Experience

- Autonomous drone operation and flight path planning
- AI-based image analysis and anomaly detection
- Integration of hardware, software, and communication systems
- Field testing, optimisation, and troubleshooting of robotic systems
- Data collection and analysis for operational decision-making

Project Significance

Fence maintenance is essential but resource-intensive. Autonomous drones, developed in collaboration with Dronetech Austria, offer a cost-effective, reliable, and scalable alternative to human inspection, reducing error, saving time, and improving wildlife and farm protection. By combining technology, AI, and automation, this project demonstrates how robotics can enhance conservation outcomes while addressing practical farm management challenges.

Conservation Storytelling & Documentary Project

Project Overview

Develop short films, documentaries, and multimedia content to showcase conservation, wildlife, and community initiatives, educate audiences, and increase engagement, volunteer participation, and funding opportunities.

Background

Conservation projects often struggle to gain visibility, attract volunteers, secure funding, and engage the public. Traditional outreach methods are limited in scope and may not effectively communicate the significance or impact of conservation work.

Strategic storytelling and multimedia content provide a powerful tool to:

- Educate audiences about environmental challenges and solutions
- Highlight community-based initiatives and conservation successes
- Increase participation, donations, and partnerships
- Strengthen public understanding and support for wildlife and habitat protection
- Explore how to capture African communities without the influence of the lens.

Objectives

The project combines content creation, marketing, and communication strategy to enhance conservation visibility:

- Produce multimedia content including videos, photography, graphics, and written materials tailored to target audiences
- Plan and execute digital campaigns across social media, websites, and email channels
- Monitor audience engagement and adapt content strategies for maximum impact
- Coordinate messaging across multiple Kruger Conservation projects to maintain brand identity and consistent communication
- Use storytelling to highlight both the ecological and socio-economic aspects of conservation initiatives

Academic Relevance

- Marketing: strategy development, campaign effectiveness, audience targeting
- Media Studies: multimedia content creation, visual storytelling, editing
- Communication: messaging strategies, narrative design, audience engagement
- Digital Content Creation: social media management, analytics, digital campaigns
- Public Relations: brand coordination, outreach, community engagement
- Education: conveying complex scientific and ecological concepts to diverse audiences

Data & Information to be Collected

- Engagement metrics across platforms (likes, shares, comments, reach, impressions)
- Website traffic and campaign analytics
- Performance data of multimedia content (video views, click-through rates, time spent)
- Volunteer registrations and donor contributions linked to campaigns
- Feedback from audiences on content clarity, relevance, and impact

Potential Research Questions

- Which content formats (video, photography, graphics, written stories) generate the highest engagement?
- How can digital storytelling be optimized to increase volunteer participation or fundraising?
- What messaging strategies effectively communicate conservation challenges, successes, and community benefits?
- How does cross-platform content coordination influence overall reach and impact?
- What role does storytelling play in shaping public perception and support for conservation initiatives?

Practical Skills & Experience

- Multimedia production: video filming, photography, editing, graphic design
- Digital marketing and social media management

- Campaign planning, performance monitoring, and analytics
- Science communication and narrative storytelling
- Coordinating messaging across multiple projects for consistent outreach
- Iterative content development based on audience feedback and analytics

Project Significance

Effective storytelling is critical part of modern conservation. All too often the stories are told with a western world perspective. With your help Africans can solve African problems and communicate it to the world. By combining digital media, marketing strategy, and scientific communication, this project ensures that conservation initiatives are visible, understood, and supported by the public. It bridges the gap between ecological research and community engagement, creating measurable outcomes in awareness, volunteer participation, and financial sustainability.