REPUBLIC OF KENYA

WILDLIFE RESEARCH & TRAINING INSTITUTE

Discover Beyond

The 2nd International Wildlife Scientific Conference

"Innovations in Wildlife Science and Practice for Sustainable Biodiversity Conservation and Socio-economic Development"

23rd – 25th September, 2025



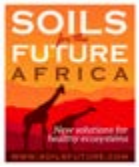


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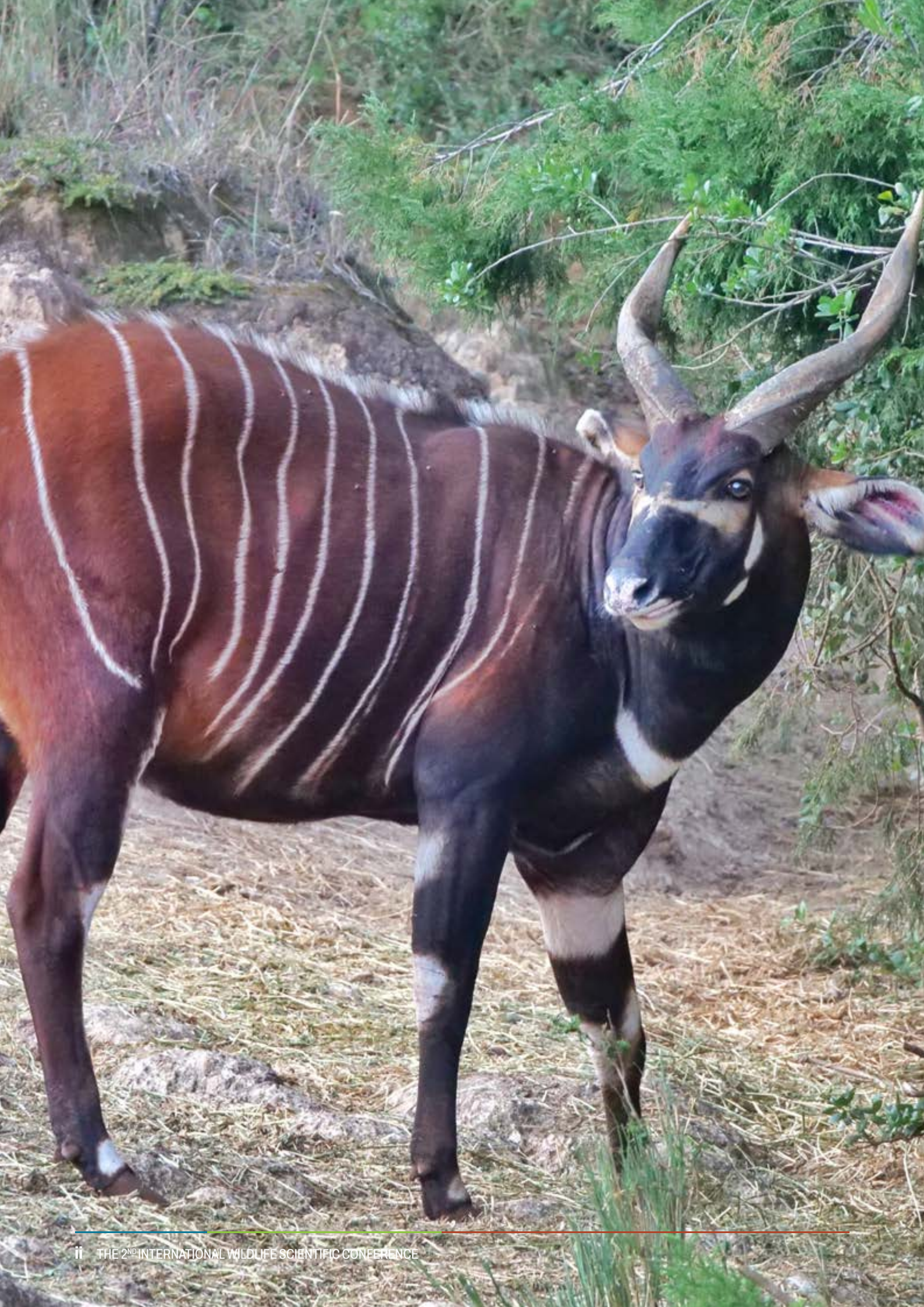

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Background

The scientific forums' main objective is to bring data collectors and synthesizers, information consumers, policy makers, managers and users together.

The Government of Kenya recognises that wildlife is an important driver for socio-economic development and provides indispensable ecological, cultural, economic and social value to the people of Kenya. As such, the Government established the Wildlife Research and Training Institute (WRTI) as a body corporate under Section 50 of the Wildlife Conservation and Management Act, 2013. The Institute's establishment was informed by the need to provide dedicated focus on wildlife research and training; enhance knowledge through research on the status of the country's wildlife and their potential thereby facilitating optimized benefits from the resource; generate quality and comprehensive wildlife data and information to inform decision-making and policy formulation; and capacity development through specialized training.

The Institute is mandated under Section 51 of the Act to undertake and coordinate wildlife research and training. Its functions are specified under Section 52 of the Act and include conducting and coordinating all forms of wildlife research and related emerging issues in the wildlife sector; enhancing capacity in wildlife conservation and management through training. In addition, the Institute grants permits for all wildlife scientific research in accordance with Section 59 of the Act and is also required to establish and maintain a comprehensive wildlife database as provided in Section 60 of the Act to guide management and policy development in the wildlife sector. It also provides technical and scientific advisory on the implementation of wildlife-related Multilateral Environmental Agreements (MEAs) that Kenya is Party to.

Among the functions specified in Section 52 of the Act is to: "**organize symposia, conferences, workshops and other meetings to promote the exchange of views on issues relating to wildlife research and training**" biennially as recommended in the National Wildlife Strategy 2030. The scientific forums' main objective is to bring data collectors and synthesizers, information consumers, policy makers, managers and users together. The ultimate goal is to promote evidence-based decision support for sustainable wildlife conservation and management for Kenya and the global community.

The Institute held its first wildlife scientific conference on 26th to 28th September 2023, themed "**Use of Wildlife Science for Enhanced Biodiversity Conservation and Improved Livelihoods.**" This conference attracted 424 participants from different parts of the world. A total of 127 scientific papers comprising 103 from local scientists and 24 from foreign scientists including the UK, USA, Tanzania, Benin, South Africa, France, Netherlands, Spain and Germany were presented. The proceedings of this conference can be accessed through: https://wrti.go.ke/. One of the key recommendations from the conference was to make it a biennial event. Subsequently, the Institute is planning to hold the second wildlife international scientific conference on 23rd to 25th August, 2025.

Rationale

Wildlife significantly contributes to Kenya's economy, primarily through tourism, which is a major driver of the country's economic growth. Wildlife-based tourism contributes over 10% of Kenya's Gross Domestic Product (GDP). The tourism industry heavily relies on wildlife and accounts for 21% of total foreign exchange earnings and 12% of GDP. Furthermore, 10% of Kenyans in formal employment work in the wildlife and tourism sector and ecotourism industry which boosts local economies.

Wildlife also contributes to the multiplier effect through stimulating other sectors like agriculture, horticulture, transport, and communications, creating broader economic impacts amongst other benefits. Improving local community lives and livelihoods is in line with the Government's Bottom-Up Economic Transformation Agenda (BETA).

Despite the aforementioned critical roles, Kenya's wildlife sector is experiencing environmental, political, economic, social, technological and legal challenges. Unplanned conservation challenges including changes in land use, infrastructural development, increasing human and livestock populations, and unpredictable global climate change have direct impacts on sustainable wildlife conservation and management. Further, wildlife poaching, human-wildlife co-existence, species loss and population decline, habitat loss and degradation can best be addressed by use of scientific data. This calls for engagement with conservation partners, land owners and the local communities that live and interact with wildlife daily. The government is required to create such fora where policy briefs can be generated to address emerging and mounting threats to wildlife conservation through use and adoption of the best science.

The holding of the conference is in line with the National Wildlife Strategy 2030 which recommends biennial conferences in conservation as a priority activity to bring scientists, managers and other stakeholders together to review, plan and coordinate conservation with the goal of catalyzing innovation, developing new technologies and spurring investments to promote data collection, sharing and use for evidence-based decisions. It is also aligned to the Wildlife Policy 2020 that provides for promotion of the use of scientific knowledge and information in decision making.

Message from The Cabinet Secretary, Ministry of Tourism and Wildlife

Hon. Rebecca Miano, EGH



> **This conference will also review the progress on the recommendations of the 1st conference that took place in September 2023."**

The Government of Kenya recognises that natural resources, wildlife included form an integral part of Kenya's economic backbone. To preserve and protect these invaluable natural resources, Kenya has enacted crucial national laws besides being party to several multilateral environmental pacts, that enforce both local and international guardianship of our natural resources.

Currently, Kenya's biodiversity faces existential threats due to habitat loss and degradation, poaching and illegal wildlife trade, climate change, invasive species, pollution, diseases, and overexploitation all exacerbated by growth of rising human population. These factors have contributed to the constricting of wildlife ranges and ecosystems thus leading to overall decline of wildlife numbers and species. This unfortunate eventuality has eroded the economic base upon which large numbers of communities depend. The Government is therefore keen on instituting all possible solutions and collaborations that can enhance sustainable wildlife resources for the benefit of our people and the world at large.

The Government of Kenya through the Ministry of Tourism and Wildlife, and specifically the State Department for Wildlife appreciates that scientific wildlife research yields invaluable knowledge for policy formulation. This has inspired us to regard that knowledge and its relevance to policy formulation as a national priority that links to a wider global responsibility. Further, sustainable conservation and management of wildlife resources pivots upon cutting-edge scientific research. Wildlife research provides science-based solutions that inform policy decisions and management approaches that then enables the creation of innovative wildlife-based products and services.

The Wildlife Conservation and Management Act Cap 376 established the Wildlife Research and Training Institute (WRTI) to spearhead, conduct and coordinate wildlife research in the country. However, the Government operationalized the Institute in the year 2020.

The Institute held its first successful wildlife scientific conference in September 2023 during which 15 important outcomes and resolutions were adopted. I am happy to announce that the Government and stakeholders have since implemented most of these resolutions including the establishment of a National Wildlife Database.

Additionally, the Wildlife Conservation and Management Act CAP 376 is currently undergoing review to make it more responsive to the needs of the wildlife sector. Once complete, the review should lead to improved service delivery to the people of Kenya. Meanwhile, wildlife health, research and surveillance is now being undertaken under the One Health Approach.

In the meantime, technologies in wildlife research are being utilised while modalities for one-stop research permitting platform are being evaluated as the fostering of strategic collaborations continue guided by well-defined frameworks and initiatives geared towards reducing disturbing decline of wildlife numbers. This has been established through censuses and ecosystem connectivity presently under implementation and most importantly focused on during this 2ndInternational Scientific Conference happening here and now. That notwithstanding, some resolutions—for instance increasing research funding from 0.8% to 2% of the GDP—are yet to be actualised though consideration for the same is on the table.

The main objective of this conference is to bridge the nexus between scientists, wildlife managers and policy makers. The ultimate goal on the other hand, is to promote evidence- based decision making to better support sustainable wildlife conservation and management for Kenya and the global community.

This conference will also review the progress on the recommendations of the 1st conference that took place in September 2023. It will also present wildlife scientific discourses to researchers, managers, policy makers and stakeholders. It will also provide opportunities to enhance networking and share wildlife and related research findings while obtaining reviews and feedback to improve outcomes of future conferences. The overall aim being to enhance professionalism through publishing conference proceedings and scientific works.

It is therefore my pleasure to welcome you to our lovely country on behalf of the Government and the people of Kenya.

Message from The Principal Secretary, State Department For Wildlife, Ministry of Wildlife, & Tourism

Silvia Museiya, CBS



> **The State Department for Wildlife is in the meantime striving to strengthen Kenya's conservation landscape, guided by our constitutional mandate and aligned with the national development blueprints"**

Kenya's mega bio-diversity includes over 35,000 species of fauna and flora that contribute to our rich genetic, species and ecosystem diversity. Wild animals comprise about 25,000 species, vascular plants 7,000 species and 2000 species of fungi and bacteria. Our avifauna diversity boasts of about 1,100 bird species, a case simply unparalleled across Africa. This wide array of biodiversity is also found in a ranging ecosystem including forests, savannas, coastal areas, inland waters (fresh & saline) and wetlands, as well as marine habitats with varied environmental conditions that define the vastness of our biodiversity. This rich biodiversity occurs in protected areas as well as community land and private conservancies

Even then, this rich biodiversity is faced with many challenges and threats mostly emanating from anthropogenic influences such as climate change and a rising human population and its demand for limited land space. As a result, we have lost wildlife migratory corridors and dispersal areas over the years. Meanwhile, poaching and bushmeat for commercial purposes has also posed a big challenge from small to medium sized antelopes. This calls for the best minds to provide the best solutions to address such challenges if Kenya is to halt the extinction of species.

This conference therefore, offers a timely opportunity to exchange ideas, evaluate progress, and reaffirm our commitment to evidence-based decision-making to support wildlife management and conservation. Thankfully, the Wildlife Research and Training Institute on behalf of the Government of Kenya is continuously providing a platform for scientific dialogue and knowledge exchange as exemplified during the 1st International Wildlife Scientific Conference held in September 2023.

The State Department for Wildlife is in the meantime striving to strengthen Kenya's conservation landscape, guided by our constitutional mandate and aligned with the national development blueprints. Wildlife conservation and management is a collective effort and therefore, I wish to extend my sincere appreciation to our esteemed communities, all our partners, development agencies, research institutions, Non-Governmental Organisations in the conservation space, County Governments, private sector actors, and international collaborators who continue to walk this journey with us.

I remain ever hopeful and optimistic that together we shall leave this conference better informed and more connected. Therefore, welcome to the 2nd International Wildlife Scientific Conference in Kenya.

Message from The Chair, Board of WRTI

Dr. David Ole Nkedianye



> **IThis important event further aims to present ground-breaking scientific findings, strengthen cross-border and international collaborations ultimately shaping future conservation pathways through science-driven interventions."**

On behalf of the Board of the Institute, I am honoured to welcome you to the Second International Wildlife Scientific Conference, a pivotal event in the conservation calendar for the country.

The theme of this conference "Innovations in Wildlife Science and Practice for Sustainable Biodiversity Conservation and Socio-economic Development" is geared towards catalysing economic transformation through wildlife conservation. This is in line with Government's policy frameworks including the Bottom-up Economic Transformation Agenda (BETA), the Kenya Vision 2030, and the Wildlife Strategy 2030. It is also an important milestone for the Institute as provided for in the Wildlife Conservation and Management Act, 2013

The conference reflects the Board's unwavering support to the growth of the Institute as a globally competitive wildlife research and training centre through innovation, knowledge and technology transfer for sustainable wildlife conservation and management. This redefined focus has its foundation in the Institute's Strategic Plan 2023–2027.

This important event further aims to present ground-breaking scientific findings, strengthen cross-border and international collaborations ultimately shaping future conservation pathways through science-driven interventions. I specifically look forward to the outcomes of the conference in identifying solutions to emerging challenges in the wildlife sector including climate change and its impacts on wildlife, ecosystems connectivity, human-wildlife co-existence, emerging and re-emerging diseases, and invasive species amongst others.

Let us remember, science must serve society. The success of this conference will be an assurance that the rich scientific information and knowledge generated by wildlife researchers is synthesised for policy and management interventions by conservation policy makers, managers, and frontline communities.

Let me thank the Ministry of Tourism and Wildlife Cabinet Secretary Hon Rebecca Miano and Principal Secretary State Department for Wildlife Silvia Museiya, the Board and Management of the Institute for making this conference a reality. I express sincere appreciation to all partners, both Government and private, and all participants for your support in diverse ways.

I wish you fruitful interactions during the three days of the conference.

Ahsanteni.

Message from The Director/CEO of WRTI

Dr. Patrick Omondi, OGW



> **“The conference aligns with the Institute’s mandate of coordinating and conducting wildlife research and training and related emerging issues in the country.”**

The Institute is excited to host the Second International Wildlife Scientific Conference that will be held from 23rd to 25th September 2025 in Naivasha, Kenya. I wish to extend my warm welcome to all participants both local and international.

The second conference is being held against the backdrop of the First Wildlife Scientific Conference two years ago. The inaugural conference was a watershed event in bridging the gap between wildlife science and policy. It brought together scientists, policy-makers, and other stakeholders from across the globe to provide insights on pertinent issues in the wildlife sector, show case scientific outputs, and share experiences and expertise. This second conference is structured along the science-policy-community nexus aiming to further advance the agenda and make practical recommendations for sustainable wildlife conservation and management and enhanced wildlife based socio-economic development.

The event has drawn participants from wildlife scholars/ scientists, Government (MDAs) and non-government wildlife conservationists, and various development partners from across the globe. Subject matter experts from across the world including Germany, Canada, South Africa, and Kenya will make key note addresses on topical issues in the wildlife sector. Additionally, there will be guest speakers drawn from different parts of the world for each of the sub-themes. The selection of the speakers was informed by the need to blend researchers and practitioners to find lasting solutions to an ever-declining biodiversity in Kenya and across the world. It is hoped that the discussions will capture the current and future scientific discourses, to inform management and policy directions. Oral presentations will be made by scientists from the United States, United Kingdom, Denmark, Switzerland, Netherlands, Germany, Italy, Norway, Russia, Vietnam, Rwanda, Tanzania, Uganda, and Kenya. We wish to increase participant interactions through poster presentations and several side events including symposia and seminars.

The conference aligns with the Institute’s mandate of coordinating and conducting wildlife research and training and related emerging issues in the country. This mandate is premised on the fact that scientific data and information are critical and that, when timely generated and disseminated, will result in evidence-based decision making by managers and relevant policy formulation in the conservation sector. I believe that this conference will provide the much-needed data and information for the conservation of biodiversity for the people of Kenya and the world.

My sincere gratitude to all the participants, the conference planning team and our partners for making this second conference a reality.

I look forward to the intensive scientific discussions and wish you a pleasant stay in Naivasha.

Thank you.

Message from

The Conference Planning Committee

The Conference Planning Committee (CPC) welcomes you to the 2nd International Wildlife Scientific Conference that brings together wildlife data collectors and synthesizers, information consumers, policy makers, managers and all users. The conference participants come from government ministries and agencies, County Governments, wildlife conservation non-government organizations, local and international wildlife research and training institutions, local and international universities, individuals and the fourth estate.

Wildlife scientists, upcoming researchers, and conservationists will share their research findings on wildlife across the world. Wildlife and in general natural resources particularly in Africa, face many and mounting challenges including rising human and livestock populations, global climate change and diseases. Increased demand for land for agriculture, settlements and infrastructure result in habitat fragmentation and degradation leading to wildlife displacement and human-wildlife conflicts. Close interactions with wildlife have increased potential for zoonotic disease spillover. All these impacts threaten sustainable biodiversity conservation that many of our people derive important ecosystem services. This forum will present an opportunity to address these and many other wildlife challenges to inform policy and management actions for sustainable conservation.

The 1st International Wildlife Scientific Conference held in September 2023, provided very well thought out and insightful recommendations that have helped guide policy, management and research in the country. We hope that this 2nd conference will generate even better recommendations to improve wildlife research and conservation, policy formulation and management re-engineering for improved socio-economic benefits not only for Kenyans but the world at large.

We hope that you will enjoy your interactions during the conference and that you will learn and share your experiences.

Thank you.



General information

Venue and Dates

The 2nd International Wildlife Scientific Conference takes place at Lake Naivasha Resort, Naivasha - Kenya, from 23rd to 25th September, 2025.

Contact Address

Wildlife Research and Training Institute, Naivasha - Kenya.

- **Secretariat Mobile Number**: +254 797 900800
- **Phone**: + 254 700 000 321 / 731 919 465
- **Email**: wrtiscicon2025@wrti.go.ke
- **Website**: www.wrti.go.ke

Mobile Phone Policy

Delegates are advised to put their mobile phones either on silent mode or switched off during all conference sessions.

Language

The official language of the conference is English.

Conference registration hours

- **Tuesday, 23rd September, 2025**: 08.00 – 09.00 hrs
- **Wednesday, 24th September, 2025**: 08.00 – 08.15 hrs
- **Thursday, 25th September, 2025**: 08.00 – 08.30 hrs

Entry requirement

For international visitors to enter the country please visit www.mfa.go.ke for country specific information.

Lost and Found

For lost and found items, please contact the Information Desk at the registration area. However, participants are encouraged to keep their belongings safe.

Name badge

Your name badge is your entrance ticket to all sessions. Please, always remember to wear your badge throughout the conference. Participants without name badges will be denied access to conference rooms/sessions. If you lose your badge, a new one will be provided against proof of your original registration.

Wi-Fi/Internet connections

Wi-Fi will be available to all delegates. Participants will be informed of Wi-Fi access points during the conference.

Lunch and Coffee Breaks

Lunch and coffee/tea is included in the registration fee and will be served daily in the conference area.

Time Zone

The time zone is (UTC+03:00) Nairobi.

Banking

Banks and Bureau de Change are available at the airport and in all major towns. Banks are Open in general from Monday to Friday between 0090 hrs and 1600 hrs, and Saturdays between 0900hrs and 1200hrs. Kindly note that banks are closed on Sundays and public holidays. ATMs with multinational financial services are available in Naivasha town.

Electricity current

The voltage in Kenya is 220 – 240 volts. The sockets require a 3 square pin plug.

Security

Kenya is a safe country. However, like in any other country, reasonable precautions should be taken. Avoid walking alone at night and lock your valuables in your hotel safe. In case of any emergency, report to the nearest police station or call the conference secretariat Mobile Number: +254 797 900800.

Hospitality

Kenyan people are warm-hearted and willing to help visitors.

Registration and conference payment

All participants are required to register and receive their conference materials at the registration desk. Registration will commence on **Tuesday 23rd September, 2025 from 0800 hrs. East African time.**

Important: All participants are reminded to pay participation/registration fees before the conference dates to avoid inconveniences. Payment details should be sent to wrtiscicon2025@wrti.go.ke

Jomo Kenyatta International Airport

It is located about 107 km from Naivasha town. It takes about two hours from Nairobi to Naivasha by road. Facilities available include banks, curio shops and restaurants. Cab services are available from the airport to Nairobi and Naivasha. Public transport is available from Nairobi to Naivasha.

Accommodation

Accommodation is available at the venue (Lake Naivasha Resort and Blooming Suites). For more information, contact James of Lake Naivasha Resort on jmucheru@lakenaivasharesort.co.ke or Tel: +254 724 475 346. Accommodation is also available at WRTI. For booking, please contact the reservation desk, mobile number +254 790 699 935 or email reservations@wrti.go.ke. In addition, Naivasha town has numerous accommodation facilities ranging from five-star hotels to home-stay apartments.

Weather

The weather in Naivasha during this time of the year is usually sunny and windy with temperatures ranging from 18 to 28°C.

Sight-seeing and excursions

Naivasha area has a wide range of wildlife conservation and recreation sites. WRTI boasts of a Wildlife Sanctuary and a Hippo Campsite, along the shores of Lake Naivasha for memorable boat safaris, game watching, hiking, camping and bush parties. The venue is only a few kilometers from Nakuru city, which is the home of flamingos at Lake Nakuru National Park. There is also a wide range of areas for sightseeing such as the Nakuru-Naivasha wildlife conservancies, Aberdare Moorlands, Hell's Gate National Park, Mt. Longonot National Park, among others. The famous Nairobi National Park is about 100Km from the conference venue and is easily accessible. For those interested in excursions, the Institute will organise the tours of nearby facilities at participants' cost. For further information, participants can contact wrtiscicon2025@wrti.go.ke or call the secretariat Mobile Number: +254 797 900 800.

For more information and updates, visit the WRTI website www.wrti.go.ke or contact the organizing committee using wrtiscicon2025@wrti.go.ke

General Programme

Day 1

Tuesday 23rd September 2025

8.00 - 9.00	Registration, exhibition and housekeeping – Kiboko Hall		
9.00 – 10:30	**Opening Ceremony – Kiboko Hall**		
10.00 – 10.30	**Keynote Address 2: Wildlife Economics – Kiboko Hall**		
10.30 – 11.00	**Health Break**		
11.00 - 12.00	**Keynote Address 1:** Human-Wildlife Coexistence – Kiboko Hall		
12.00 - 13.00	**Keynote Address 2:** Wildlife Economy– Kiboko Hall		
13.00 - 14.00	**Lunch Break**		
14.00 – 16.20	**Parallel Breakout Session 1:** **Kiboko Hall** **Sub-theme:** Wildlife population dynamics and ecosystem connectivity	**Parallel Breakout Session 1:** **Jasmine 1 Hall** **Sub-theme**: Policy Governance legal framework and Institutions in Conservation	**Parallel Breakout Session 1:** **Jasmine 2 Hall** **Sub-theme**: Climate Change and Its Impacts on Wildlife
16.20 - 17.00	**Poster Presentations and Health break**		
17.00 – 17.30	Side events; **Seminar 1**: Framing the future- The power of Image framing on people's attitude and perceptions towards wildlife. Organizer: Tony Wild Foundation - **Kiboko Hall** **Seminar 2**: Crop selection preferences study to reduce human-wildlife conflict". Organizer: Mara Elephant Program – **Jasmine 1**		

Day 2

Wednesday 24th September 2025

8.00 – 8.30	Registration, exhibition and housekeeping		
8.30 - 9.30	**Keynote Address 3: Landscapes and Connectivity -Kiboko Hall**		
9.30 - 10.30	Messages from Key sponsors (Save The Elephants, Sheldrick Wildlife Trust, Biodiversity Research Institute, Nature Kenya, Born Free Foundation and Kenya Wildlife Service)		
10.30 -11.00	**Health break & Poster Presentations**		
11.00 -13.00	**Parallel Session 2: Kiboko Hall** **Sub-theme**: Leveraging science and combating illegal wildlife trade	**Parallel Session 2: Jasmine 1 Hall** **Sub-theme:** Aquatic ecosystems Conservation	**Parallel Session 2: Jasmine 2 Hall** **Sub-themes:** Wildlife Health, Disease management and Genetics
13.00 - 14.00	**Lunch Break**		
14.00-16.20	**Parallel Session 3: Kiboko Hall** **Sub-theme:** Human Dimensions in Wildlife Conservation	**Parallel Session 3; Jasmine 1 Hall** **Sub-theme:** Wildlife Populations dynamics and Ecosystems Connectivity	**Parallel Session 3 – Jasmine 2 Hall** **Sub-theme**: Wildlife Health, Disease management and Genetics
16:20 -17:00	**Health Break and Poster Presentation**		

17.00 -18.00	**Side event:** **Symposium**: Using Citizen Science for Effective Biodiversity Conservation. Organizer: Wyss Academy for Nature - **Kiboko Hall**		

Day 3

Thursday 25th September 2025

8.00 - 8.15	Registration, exhibition and housekeeping		
8.15 - 9.15	**Keynote Address 4: Technology for Wildlife Conservation – Kiboko Hall**		
9.15 - 10.45	**Parallel Session 4: Kiboko Hall** **Sub-theme:** Conservation Science, Practice and technological innovations	**Parallel Session 4: Jasmine 1 Hall** **Sub-Theme:** Wildlife Populations dynamics and Ecosystems Connectivity	**Parallel Session 4: Jasmine 2 Hall** **Sub-Theme:** Wildlife Populations dynamics and Ecosystems Connectivity
10.45 -11.00	**Health Break & Poster Presentation**		
11.00 - 13.00	**Parallel Session 5: Kiboko Hall** **Sub-theme:** Conservation Science, Practice and technological innovations	**Parallel Session 5: Jasmine 1 Hall** **Sub-Theme:** Human Dimensions in Wildlife Conservation	**Parallel Session 5: Jasmine 2 Hall** **Sub-Theme:** Integration of conservation strategies across disciplines
13.00 -14.00	**Lunch Break**		
14.00 - 15.30	**Parallel Session 6: Kiboko Hall** **Sub-theme:** Conservation Science, Practice and Technological Innovations	**Parallel Session 6: Jasmine 1 Hall** **Sub-Theme:** Human Dimensions in Wildlife Conservation	**Parallel Session 6: Jasmine 2 Hall** **Sub-Themes:** Aquatic Ecosystem Conservation
15.30 – 16.00	**Recommendations and way forward**		
16.00 – 16.30	**Closing Ceremony and End of Conference**		

Daily Programme

Day 1

Tuesday 23rd September 2025

Time	Event/Paper	Responsible	Chair
8.00 – 9.00	Registration, exhibition and housekeeping	Organizing committee	Conference Secretariate
9.00 - 10.30	**Opening Ceremony - Kiboko Hall**		Master of Ceremony
10.30 – 11.00	**Group Photo and Health Break**		
11.00 – 12:00	Keynote Address 1: Human-Wildlife Coexistence – **Kiboko Hall**	Prof. Erustus Kanga & Dr. Eva Gross	Dr. David Nkedianye
12.00 – 13.00	Keynote Address 2: Wildlife Economy – **Kiboko Hall**	Dr. Julius Kipng'etich & Richard Vigne	
13.00 - 14.00	**Lunch Break**		

PARALLEL SESSION 1- Kiboko Hall

Sub-theme: Wildlife population dynamics and ecosystem connectivity

Chair: Dr. Yusuf Wato

Time	Event/Paper	Presenter
14.00-14.10	Guest Speaker	Dr. Patrick Omondi
14.00-14.30	Guest Speaker	Dr. Mohamed Said
14.30– 14.45	Nesting Habitat Preferences and Nestling Diet of the Martial Eagle (*Polemaetus Bellicosus* Daudin, 1800) in the Masai Mara Ecosystem, Narok County, Kenya.	Vasco Nyaga *et al.*
14.45- 15.00	Habitat Suitability Modeling for the Invasive Opuntia stricta using Remote Sensing and Maxent in Tsavo East National Park, Kenya	Lilian Apollo *et al.*
15.00 - 15.15	Linking Dietary niche breadth and body size to rodent diversity conservation in the Rungwe Mountain Forest Reserve	Upendo Richard Ngoda et al
15.15 – 15.30	Protected Areas: The Lifeline for the Critically Endangered Tana River Primates in Kenya	Stanislaus Kivai *et al.*
15.30 – 15.45	Waterholes, Wildlife, and Vegetation: Managing Piosphere Effects for Conservation and Biodiversity in Kasigau Corridor	Geoffrey Wambugu *et al.*
15.45 - 16.00	Population Status of the Endangered *Colobus guereza percivali* in Mathew Ranges in Samburu, Kenya.	Tony Muisyo Wambua *et al.*
16.00 – 16.15	Drivers of hirola antelope diet selection in natural and managed habitat in eastern Kenya	Abdullahi H. *et al.*

Time	Event/Paper	Presenter
16.15 – 16.35	Q & A	
16.30 - 17.00	Poster presentations and Health Break	
17.00 – 17.30	Side Events	

PARALLEL SESSION 1 – Jasmine 1 Hall

Sub-theme: Policy Governance legal framework and Institutions in Conservation

Chair: Dr. Ben Okita

Time	Event/Paper	Presenter
14.00-14.10	Guest Speaker	Silvia Museiya
14.10 - 14.30	Guest Speaker	Dr. Paul Matiku
14.30– 14.45	Monitoring Kenya's Key Biodiversity Areas for Conservation Priority Setting	Paul Gacheru *et al.*
14.45- 15.00	Assessing institutional contributions, metadata completeness, and data interoperability in Kenya datasets	Dickens Odeny *et al.*
15.00 - 15.15	Testing the Law: Innovative Data-driven and community-centric policy and governance of Kenya's wildlife resources in the drylands of Samburu, Laikipia and Isiolo Counties	Benard Opaa *et al.*
15.15 – 15.30	Strengthening Community Institutions for Sustainable Livelihoods: An Organizational Capacity Assessment of Community Based Organizations in Diani, Kenya	Judith Nyunja *et al.*
15.30 – 15.45	Global-local-linkages: Actor analysis for transformative biodiversity governance in Kenya	Van Thi Hai Nguyen *et al.*
15.45 – 16.10	Q & A	
16.10 - 17.00	Poster presentations and Health Break	
17.00 – 17.30	Side Events	

PARALLEL SESSION 1 - Jasmine 2 Hall

Sub-theme: Climate Change and Its Impacts on Wildlife

Chair: Paul Gacheru

Time	Event/Paper	Presenter
14.00-14.20	Guest Speaker: Climate Change and Its Impacts on Wildlife	Dr. Richard Kiaka
14.20– 14.40	Guest Speaker: Invasive species	Dr. Arne Witt
14.40- 14.55	Seasonal resource scarcity often drives animals to increase their foraging activity to meat energetic demand	Charlotte Christensen *et al.*
14.55 - 15.10	Proximity to anthropogenic activities and climate determine protected area's burnt area trends and fire susceptibility	Amos C. Muthiuru *et al.*
15.10 – 15.25	Plant Functional Traits as a Proxy to Reconstruct Climate and Mammal Interactions: Links in Modern to Miocene Ecosystems in Eastern Africa	Rebecca Muriuki *et al.*
15.25 – 15.40	Interrelationships of Rainfall, Temperature, Habitats, and the Distributions and Abundance of Elephants and Giraffes in Meru National Park (1994-2024)	Lynnette Mwari Kiboro *et al.*
15.40 – 16.55	Influence Of Climate Change on Shoreline Birds Species Population in Kenya: A Review	Kithaka Samson Chabari *et al.*
15.55 – 16.10	Landuse/Landcover trend analysis of the wider upper Ewaso Ngi'ro river basin in northern Kenya	Julius Maina Waititu *et al.*
16.10 – 16.30	Q & A	
16.30 - 17.00	Poster presentations	
17.00 – 17.30	Health Break & End of Day 1	
	Side events: **Seminar 1**: Framing the future- The power of Image framing on people's attitude and perceptions towards wildlife. Organizer: Tony Wild Foundation - **Kiboko Hall** **Seminar 2:** "Crop selection preferences study to reduce human-wildlife conflict". Organizer: Mara Elephant Program **- Jasmine 1 Hall**	

Day 2

Wednesday 24th September 2025

Chair: Dr. Albert Long'ora

Time	Event/Paper	Presenter
8.00 - 8.30	Registration	
8.30 - 9.30	Keynote Address 3: Landscapes and Connectivity -**Kiboko Hall**	Lucy Waruingi & Dr. Annika Keeley
9.30 - 10.30	Messages from Key sponsors (Kenya Wildlife Service, Save The Elephants, Sheldrick Wildlife Trust, Born Free Foundation, Nature Kenya, Biodiversity Research Institute)	

PARALLEL SESSION 2 – Kiboko Hall

Sub-theme: Leveraging science and combating illegal wildlife trade

Chair: Dr. David Manoa

Time	Event/Paper	Presenter
11.00 – 11.20	Guest speaker	Dr. Sam Wasser
11.20 – 11.35	Understanding Local Perceptions of Primate Hunting for Consumption and Trade: Insights from the Lower Tana River, Kenya	Pauline Otoli *et al.*
11.35 – 11.50	Exploring Contextual Modifiers: Investigating Interactions between Predictors and Study Area Features in Elephant Poaching hot spots	Lekishon Kenana *et al.*
11.50 – 12.05	Poor food safety practices and the health risks along the illegal wild meat value chain in the Nairobi Metropolitan Area (NMA)	Sherril Phyllis Masudi *et al.*
12.05 – 12.20	Stranded: Taxonomy and Conservation of Guineo–Congolian Large Mammals in the Kenyan Highlands	Stratton Hatfield
12.20 – 12.35	Africa's overlooked top predator: Towards a better understanding of martial eagle feeding ecology in the Maasai Mara, Kenya	Stratton Hatfield *et al.*
12.35 – 13.00	Q & A	
13.00 – 14.00	Lunch Break	

PARALLEL SESSION 2: Jasmine 1 Hall

Sub-theme: Aquatic ecosystems Conservation

Chair: Dr. Judy Nyunja

Time	Event/Paper	Presenter
11.00 – 11.20	Guest speaker	Dr. James Kairo
11.20 – 11.35	Biodiversity of Rivers of Lake Victoria Basin	Beatrice Mukami
11.35 – 11.50	Water hyacinth's extent on freshwater bodies within Queen Elizabeth National Park, Uganda; implications on water quality	Hakiza Augustine *et al.*
11.50 – 12.05	Spatio-Temporal Changes on Seagrass Habitat in The Intertidal Areas of Lamu, Kenya	Grace Waiguchu
12.05 – 12.20	Small community-based Marine Protected Areas in Kenyan lagoonal reefs enhance local fish stocks and hard coral habitats	Jelvas Mwaura *et al.*
12.20 – 12.35	Ranger led Marine Ecological Surveys within Marine Protected Areas, Kenya	Said S. Mohamed *et al.*
12.35 – 13.00	Q & A	
13.00 – 14.00	Lunch Break	

PARALLEL SESSION 2 – Jasmine 2 Hall

Sub-theme: Wildlife Health, Disease management and Genetics

Chair: Dr. Vincent Obanda

Time	Event/Paper	Presenter
11.00 – 11.20	Guest speaker	Dr. Francis Gakuya
11.20 – 11.35	Efficacy of antibiotic, ivermectin, and antibiotic-ivermectin combination for treatment of giraffe skin disease (gsd) in Ruaha National Park, Tanzania	Julius Keyyu *et al.*
11.35 – 11.50	Anthropogenic barriers reshape diet but not gut microbiota in reticulated giraffes (*Giraffa reticulata*)	Mary Burak *et al.*
11.50 – 12.05	The Bacterial and Pathogenic Landscape of African Buffalo (*Syncerus caffer*) Whole Blood and Serum from Kenya	Richard Nyamota *et al.*
12.05 – 12.20	Higher fecal glucocorticoid and triiodothyronine metabolite concentrations are associated with agricultural use in male African savanna elephants	Sandy Oduor *et al.*
12.20 – 12.35	Increased reported occurrence of dystocia among free-ranging giraffes in Kenya	Francis Gakuya *et al.*
12.35 – 13.00	Q & A	
13.00 – 14.00	Lunch Break	

PARALLEL SESSION 3 – Kiboko Hall

Sub-theme: Human Dimensions in Wildlife Conservation

Chair: Kasaine Sankan

Time	Event/Paper	Presenter
14.00-14.20	Guest Speaker	Prof. Moses Okello
14.20– 14.35	Encroachment on Water Corridors Drives Farmers-Giraffe Conflicts along River Tana Ecosystem in Eastern Kenya	Mohamed Hussein *et al.*
14.35- 14.50	Examining the Causes and Extent of Human-Wildlife Conflict in Queen Elizabeth National Park: Lessons for Lasting Coexistence	Hindrah Akisiimire *et al.*
14.50 - 15.05	Geospatial Patterns and Behavioral Responses of Elephants to Cattle and Mortality Risk in a Pastoralist Maasai Mara Landscape, Kenya	David K. Korir *et al.*
15.05 – 15.20	Mitigating Human-Crocodile Conflict in Tanzania: A Case Study of Korogwe, Mkinga, Ludewa, and Uvinza Districts	Janemary Ntalwila *et al.*
15.20 – 15.35	Beyond the Safari: What Satisfies Nature Tourists in Northern Tanzania?	Kessy Betty *et al.*
15.35 - 15.50	Implications of Infrastructural Development on Primate Conservation: A case of Sykes Monkey (*Cercopithecus mitis kolbi*) Road-Kills in Oloolua Forest, Kenya.	Ruth Wambui *et al.*
15.50 – 16.05	Assessment of the Impact of Land Use/Land Cover Change on Human-Wildlife Conflict in Mukogodo Landscape, Laikipia County, Kenya	Peris Lare *et al.*
16.05 – 16.30	Q & A	
16.30 - 17.00	Poster presentations and Health Break	
17.00 – 18.00	Side Event	

PARALLEL SESSION 3 -Jasmine 1 Hall

Sub-theme: Wildlife Populations dynamics and Ecosystems Connectivity

Chair: Dr. Festus Ihwagi

Time	Event/Paper	Presenter
14.00 – 14.15	What drives the extreme and persistent loss of wildlife in Kenya?	Joseph Ogutu *et al.*
14.15 - 14.30	Assessing the critical habitats key to cheetah space use	Dennis Minja *et al.*
14.30 – 14.45	Modelling spatial temporal dynamics of landuse-Landcover in complex socio-ecological systems using a flexible, reproducible hierarchical classifications	Joseph Ogutu *et al.*
14.45 – 15.00	Diet and Activity Budget of Tana River Red Colobus in an Agroecosystem Forest; A Case Study of the Makobhoyo Farmlands	Rose Abae *et al.*
15.00 - 15.15	African elephant behaviour at conspecific carcasses: patterns and drivers	Giacomo D'Ammando *et al.*
15.15 – 15.30	Ecological Patterns and Pressures:A Study on Wildlife Population Dynamics and Ecosystem Connectivity in the Greater Mara Ecosystem	Peter Sunkuyia
15.30 – 16.00	Q & A	
16.00 - 17.00	Poster presentations and Health Break	
17.00 – 18.00	Side Event	

PARALLEL SESSION 3 – Jasmine 2 Hall

Sub-theme: Wildlife Health, Disease Management and Genetics

Chair: Dr. Isaac Lekolool

Time	Event/Paper	Presenter
14.00-14.15	Leveraging Syndromic Surveillance, Wildlife Management Workforce Knowledge and Machine Learning for Wildlife Epidemiological Intelligence in Kenya	Macon Overcast *et al.*
14.15– 14.30	Recent Advances in Wildlife Health Management	Francis Gakuya
14.30- 14.45	Epidemiology and Prevalence of Antimicrobial Resistant Bacteria in Wildlife in Africa	Jemimmah Mwangi *et al.*
14.45 - 15.00	Building capacity for Biobanking Wildlife genetic resources in Kenya: A collaborative initiative	Stephen Chege *et al.*
15.00 – 15.15	Strengthening health objectives in conservation translocations: Outcomes from a transdisciplinary workshop in Kenya	Francesca Vitali *et al.*
15.15 – 15.30	Prevalence of pesticide residues in Akagera National Park, Rwanda using passive sampling: A One Health Study	Charline Rutatengwa *et al.*
15.30 – 16.00	Q & A	

Time	Event/Paper	Presenter
16.00 – 17.00	Poster presentations and Health Break	
17.30 - 18.00	**Side event: Kiboko Hall** **Symposium**: Using Citizen Science for Effective Biodiversity Conservation. Organizer: Wyss Academy for Nature	

Day 3

Thursday 25th September 2025

Chair: Dr. Joseph Mukeka

Time	Event/Paper	Presenter
8.00 - 8.15	Registration	Secretariate
8.15 – 9.15	Keynote Address 4: Technology for Wildlife Conservation – Kiboko Hall - **Kiboko Hall**	Dr. Kevit Desai & Dr. Jake Wall

PARALLEL SESSION 4 – Kiboko Hall

Sub-theme: Conservation Science, Practice and technological innovations

Chair: Daniel Letoiye

Time	Event/Paper	Presenter
9.15 - 9.35	Guest Speaker	Dr. Giacomo D'Ammando
9.35 – 9.50	Effect of semi-circular bunds in rangeland restorations on honeybees (*Apis mellifera*) and other pollinator communities in Naibung'a Conservancy, Laikipia, Kenya	Anne Nyandiala *et al.*
9.50 – 10.05	Wildlife Data Mobilization And Organization In Lake Nakuru National Park, Kenya	Peter Hongo *et al.*
10.05 – 10.20	A Digital Model For Managing Human-Wildlife Conflicts Claims Data Collection And Payments In Kenya	Shadrack Ngene *et al.*
10.20 – 10.45	Q & A	
10.45 – 11.00	Health Break	

PARALLEL SESSION 4 – Jasmine 1 Hall

Sub-theme: Wildlife Populations dynamics and Ecosystems Connectivity

Chair: Dr. Shadrack Ngene

Time	Event/Paper	Presenter
9.15 - 9.35	Demographic effects of predator naivety in a reintroduced antelope	Annabella Helman *et al.*
9.35 – 9.50	Spotted Hyena Demographics at Ol Jogi Conservancy	Olivia Poore *et al.*
9.50 – 10.05	Population and Distribution of the De-Brazza's Monkey (*Cercopithecus neglectus*) in Kakamega Forest National Reserve, Kenya	George Anyona
10.05 – 10.20	Implications of carnivore diet on endangered herbivores in Tsavo	Stotra Chakrabarti *et al.*
10.20 – 10.45	Q & A	
10.45 – 11.00	Health Break	

PARALLEL SESSION 4 – Jasmine 2 Hall

Sub-theme: Wildlife Populations dynamics and Ecosystems Connectivity

Chair: Dr. George Njagi

Time	Event/Paper	Presenter
9.15 - 9.35	Influence of Habitat Types on Elephant Behaviour and Distribution in Meru National Park, Kenya	Newton Simiyu, et al
9.35 – 9.50	Measuring changes in biodiversity as related to managing cattle in East and southern African savannas: Connections with generating carbon and biodiversity credits	David Evers *et al.*
9.50 – 10.05	Modelling Univariate and Multivariate spatial temporal wildlife and livestock population dynamics in Kenya	Joseph Ogutu et al
10.05 – 10.20	Primate Conservation In Green Urban Spaces: Population Status Of Sykes Monkeys In Oloolua Forest, Nairobi, Kenya	Balozi Lekaaso *et al.*
10.20 – 10.45	Q & A	

PARALLEL SESSION 5 – Kiboko Hall

Sub-theme: Conservation Science, Practice and Technological innovations

Chair: Dr. Fredrick Lala

Time	Event/Paper	Presenter
11.00 – 11.15	Using Semi-Circular Bunds For Restoration of Rangeland Vegetation In Naibung'a Conservancy, Laikipia Kenya	Agnes Lusweti *et al.*
11.15 – 11.30	Farmers' knowledge of pollinators: Understanding their importance in pollination, threats and implication for conservation in East Usambara, Tanzania	Faith Thomas Mpondo *et al.*
11.30 – 11.45	Unveiling temporal and taxonomic patterns in biodiversity datasets in Kenya: Identifying trends, gaps, and opportunities for future research	Dickens Odeny *et al.*
11.45 – 12.00	Real-time classification of Serengeti wildebeest behaviour with edge machine learning and a long-range IoT network	Cyrus M. Kavwelea *et al.*
12.00 – 12.15	Use of Remote Sensing in monitoring the status of invasive species in Tsavo National Parks – case of *Opuntia stricta* and *Prosopis julifora*	Peter Maina *et al.*
12.15 – 12.30	Spatiotemporal Habitat Use and Home Range Sizes of Collared Lions (Panthera Leo) In Masai Mara Ecosystem, Kenya	Kasaine Sankan *et al.*
12.30 – 13.00	Q & A	
13.00 – 14.00	Lunch Break	

PARALLEL SESSION 5-Jasmine 1 Hall

Sub-theme: Human Dimensions in Wildlife Conservation

Chair: Lekishon Kenana

Time	Event/Paper	Presenter
11.00 – 11.15	Spotted Hyena, (*Crocuta Crocuta*) Demographics, Distribution and Human-Hyena Interactions In Meru Conservation Area	Michael Mugo *et al.*
11.15 – 11.30	People and Parks: Exploring the Human Dimension in Community-Led Wildlife Conservation	Peter Sunkuyia
11.30 – 11.45	Navigating human-wildlife conflicts around Nairobi National Park: Causes, trends, and pathways to coexistence	Jocelyn Weyala Burudi *et al.*
11.45 – 12.00	Centering Equity and Local Perspectives: Exploring Human Well-Being in Leopard Conservation Around Loisaba Conservancy, Kenya	Ambrose Letoluai *et al.*

Time	Event/Paper	Presenter
12.00 – 12.15	Human-giraffe coexistence: Community nature-based enterprises as a basis for Somali giraffe conservation in eastern Kenya	Nishad Patel *et al.*
12.15 – 12.30	Rotational grazing with cattle- free zones supports the coexistence of cattle and wild herbivores in African rangelands	Robert Buitenwerf
12.30 – 13.00	Q & A	
13.00 – 14.00	Lunch Break	

PARALLEL SESSION 5 – Jasmine 2 Hall

Sub-themes: Integration of Conservation Strategies Across all Disciplines

Chair: Dr. Richard Chepkwony

Time	Event/Paper	Presenter
11.00 – 11.20	Guest speaker	**Dr. Yussuf Wato**
11.20 – 11.35	A One Health Approach to Engaging Communities Better in Long-Term Elephant Conservation in Sagalla, Kenya	Belinda Omollo *et al.*
11.35 – 11.50	Long-Term Range Shifts of the Amboseli Elephants: A Multigenerational Perspective of Conservation Impacts on Elephant Family Occupancy and Dispersal Patterns	Vicki Fishlock *et al.*
11.50 – 12.05	Perspectives on giraffe conservation success in East Africa	Arthur Muneza *et al.*
12.05 – 12.20	Using Earthranger to understand human-elephant conflict in Amboseli, Kenya	Lydia Tiller *et al.*
12.20 – 12.35	Evaluating Biodiversity functional groups from Kenya Biodiversity datasets: Insights into ecological balance and ecosystem service sustainability	Dickens Odeny *et al.*
12.35 – 13.00	Q & A	
13.00 – 14.00	Lunch Break	

PARALLEL SESSION 6 - Kiboko Hall

Sub-theme: Conservation Science, Practice and technological innovations

Chair: James Mathenge

Time	Event/Paper	Presenter
14.00 – 14.15	Community-led Approaches to Vulture Conservation in Southern Rangelands of Kenya	Brian Otiego *et al.*
14.15 – 14.30	Untangling local knowledge and perspectives on different carnivores	Emily Madsen *et al.*
14.30 – 14.45	Audio data as a tool for wildlife conservation and management	Eli Strauss
14.45 – 15.00	MapBook: A standardized method for the analysis and display of African elephant (*Loxodonta africana*) GPS movement data	Purity Milgo *et al.*
15.00 – 15.15	Nubian Giraffe Conservation – A Success Story	Adams Kipchumba *et al.*
15.15 - 15.30	Q&A	
15.30 – 16.00	Recommendations and Way forward	
16.00 – 16.30	Closing Ceremony and End of Conference	

PARALLEL SESSION 6 – Jasmine 1 Hall

Sub-themes: Human Dimensions in Wildlife Conservation

Chair: Wycliffe Mutero

Time	Event/Paper	Presenter
14.00 – 14.15	Balancing Benefits and burdens: Tourist camps and lion conservation in Masai Mara	Niels Mogensen *et al.*
14.15 – 14.30	Community perceptions on the enhancement of Avi-tourism activities in Arabuko Sokoke Forest in Kilifi County, Kenya	Koki Jairus *et al.*
14.30 – 14.45	Status of wildlife Road kills in Ngorongoro Conservation Area, Northern Tanzania	Richard Lyamuya *et al.*
14.45 – 15.00	Prey exhibit relaxed anti-predator responses due to predator exclusion via Human shielding	Raymond Owino Otieno *et al.*
15.00 – 15.15	Eco-tourism as a spatial strategy for human-elephant conflict mitigation: Opportunities and limitations in Kenya's heterogenous landscapes	Sospeter Kiambi
15.15 – 15.30	Q&A	
15.30 – 16.00	Recommendations and Way forward	
16.00 – 16.30	Closing Ceremony and End of Conference	

PARALLEL SESSION 6 – Jasmine 2 Hall

Sub-theme: Aquatic ecosystems Conservation

Chair: Dr. Mohammed Omar

Time	Event/Paper	Presenter
14.00-14.15	Occurrence and distribution of aquatic beetles all over Africa housed in the Natural history collection at the National Museums of Kenya	Kelvin Kemei *et al.*
14.15– 14.30	Baseline assessment of aquatic resources in Laikipia National Reserve, Kenya	Alice Bett *et al.*
14.30- 14.45	Catastrophic bleaching and mortality of corals in Marine Protected Areas in Kenya	Mohamed, S. Omar *et al.*
14.45 - 15.05	Q&A	

CLOSING CEREMONY - KIBOKO HALL

15.30 – 16.00	Recommendations and Way forward
16.00 – 16.30	Closing Ceremony and End of Conference



Posters

Author(s)	Title	Sub-Theme
Anne Euniter Namaemba and Damiene Farine	Sex-Biased Dispersal in Vulturine Guineafowl (*Acryllium vulturinum*)	Wildlife Population Dynamics and Ecosystem Connectivity
Peter Lemangwa *et al.*	Vulture caretakers' volunteers Community-led conservation	Human Dimensions in Wildlife Conservation
EmmanuelAkampurira *et al.*	Prevalence and hotspot areas of roadkill and impact of vehicle traffic along public roads and tracks inside wildlife-protected areas of Uganda	Human Dimensions in Wildlife Conservation
Joyce W Mbugua *et al.*	Population and Habitat Survey of the Critically Endangered Tana River Red Colobus and Tana River Mangabey in the Lower Tana River, Kenya	Wildlife Population Dynamics and Ecosystem Connectivity
Abdullahi H. Ali	Human disturbance, seasonality and tree cover drive hirola antelope calving site selection in eastern Kenya	Wildlife Population Dynamics and Ecosystem Connectivity
Paxton Kabasa et al.	Activity Budget of Tana River red colobus (*Piliocolobus rufomitratus*) in the lower Tana River, Kenya.	Wildlife Population Dynamics and Ecosystem Connectivity
Natalie Rose Asai	Addressing human-elephant conflict with Naibunga Lower Community Conservancy	Human Dimensions in Wildlife Conservation
Maingi Kivasu and Kivai SM	Impact of Habitat Disturbance on Key Plant Foods and Foraging Behavior of the Tana River Mangabey (*Cercocebus galeritus*) in the Lower Tana River, Kenya.	Wildlife Population Dynamics and Ecosystem Connectivity
Monicah Wambui Mwaniki et al.	Laterality in feeding behaviour in a population of African savanna elephants (*Loxodonta africana*) in northern Kenya	Human Dimensions in Wildlife Conservation
Vincent Kipkazi *et al.*	Movements of African elephants (*Loxodonta africana)* in the Tana River region	Wildlife Population Dynamics and Ecosystem Connectivity
Peter Mathenge	Utilization of Opuntia stricta as an alternative source of forage during drought	Conservation Science, Practice and Technological Innovations
S Keith Lindsay *et al.*	Monitoring vegetation in Amboseli over the long term for informing elephant demography, movements and conservation	Wildlife Population Dynamics and Ecosystem Connectivity
Linda Kimotho *et al.*	Assessing elephant habitat connectivity in Northern Kenya using GIS techniques	Conservation Science, Practice and Technological Innovations

Author(s)	Title	Sub-Theme
Vasco Nyaga *et al.*	Roan Antelope Population Recovery Strategies. A Case Study of Ruma National Park, Kenya	Conservation Science, Practice and Technological Innovations
Benard Kuloba *et al.*	Crossing Lines: Community-Based Insights into The Conservation of Wide-Ranging Carnivores at The Kenya-Tanzania Interface	Wildlife Population Dynamics and Ecosystem Connectivity
Grace Wairimu *et al.*	Promoting Wildlife Corridor Connectivity in the Wake of Infrastructural Development; A Case Study of the Standard Gauge Railway (SGR) in Tsavo Conservation Area	Wildlife Population Dynamics and Ecosystem Connectivity
Stephen Mwiu *et al.*	Aerial Census of Large Mammals in Maasai Mara Ecosystem, 2024	Wildlife Population Dynamics and Ecosystem Connectivity
Dustin E. Meattey *et al.*	Dung Beetles And Grasshoppers as Indicators of Rangeland Health and Ecosystem Function: Baseline Metrics from Two Soil Carbon Projects in East Africa	Wildlife Population Dynamics and Ecosystem Connectivity
Edward Jenkins *et al.*	Birds as indicators of rangeland health: baseline metrics from a soil carbon sequestration project in Kajiado, Kenya	Wildlife Population Dynamics and Ecosystem Connectivity
Sospeter Kibiwot *et al.*	Preliminary Results of Acoustic Bat Surveys in Unexplored Regions of Kajiado County, South Eastern Kenya	Conservation Science, Practice and Technological Innovations
Thomas Odeyo *et al.*	Spatial And Seasonal Variation in Abundance and Diversity of Reptiles in Shimba Hills National Reserve, Kwale County, Kenya	Wildlife Population Dynamics and Ecosystem Connectivity
Benjamin Loloju et al.	Sustainable rangelands: Northern Kenya wildlife and livestock corridors	Human Dimensions in Wildlife Conservation
Lynn Njeri Njuguna	The Ecological Impacts of Elephant Disturbance in the Arabuko Sokoke Forest Reserve	Wildlife Population Dynamics and Ecosystem Connectivity
Dr. Elena V. Chelysheva *et al.*	Vocal repertoire of wild cheetahs (*Acinonyx jabatus*); call types, acoustic parametres and contexts	Conservation Science, Practice and Technological Innovations
Wycliffe Mutero	Building Capacity for Biobanking Wildlife Genetic Resources in Kenya: A Collaborative Initiative	Wildlife Population Dynamics and Ecosystem Connectivity
Ogalo Baka *et al.*	Enhancing Human-Wildlife Coexistence through Agroecology and Participatory Rangeland Management in the SOKNOT Landscape.	Human Dimensions in Wildlife Conservation

Author(s)	Title	Sub-Theme
Robinson Ododa	Balancing Energy Development & Conservation: A Case Study of Biodiversity Risk Mitigation and Restoration in Oil & Gas Surveys.	Integration of Conservation Strategies Across Disciplines
Helena Back	MIGRAZE – An individual-based model for migratory systems in ungulate species	Wildlife Population Dynamics and Ecosystem Connectivity
Teresia Njeri *et al.*	Ecosystem services on agroecosystems: local community perception, valuation and conservation in Irate River basin, Kenya.	Human Dimensions in Wildlife Conservation
Martin Mulama and Ivan Kiptui	Ecological and socio-economic impacts of *Ipomoea hildebrandtii* invasion in Kajiado County, Kenya	Human Dimensions in Wildlife Conservation
Rehema Ulimboka	Conservation Education Programs and Biodiversity Loss: A systematic review in Kenya and Tanzania	Policy Governance legal framework and Institutions in Conservation
Eunice W. Kamau	Seasonal Variation in Elephant Movement Patterns: Analysing the Role of Migratory Corridors in Habitat Connectivity in Kenya	Wildlife Population Dynamics and Ecosystem Connectivity
Timothy N. Kaaria	Survival and Predation Risk in Grevy's Zebra (Equus grevyi) Foals: Insights from the Lewa-Borana Landscape, Meru-Laikipia, Kenya	Wildlife Population Dynamics and Ecosystem Connectivity



Keynote Speakers



Prof. Erustus Kanga, EBS

Topical issue: Human-Wildlife Coexistence

Prof. Kanga is currently the Director General Kenya Wildlife Service. He has over twenty (20) years of experience in biodiversity conservation, climate change vulnerability assessment and mapping, bio-enterprises, and community livelihood support. He has a long trajectory in biodiversity conservation, including four (4) years of strategy and policy direction as the Secretary for Wildlife at the Ministry of Tourism & Wildlife, and over 18 years of extensive work experience with the KWS, in both technical, managerial and leadership responsibilities. In 2017 and 2023, he was bequeathed with Kenyan Presidential Awards of the Head of State Commendation (HSC) and Elder of the Burning Spear (EBS) respectively, for distinguished and exceptional service to the nation in the field of wildlife conservation, management and protection. Prof. Kanga attained his PhD in Natural Resources Conservation from the University of Groningen in the Netherlands in 2011. He has authored over thirty (30) publications, and is driven by the passion to work towards the core purpose of biodiversity conservation. In October 2024, he was appointed a Guest Professor at Wuhan Botanical Garden, Chinese Academy of Sciences.



Dr. Eva Gross

Topical issue: Human-Wildlife Coexistence

With over 20 years of experience in international nature conservation, Dr Eva M Gross is a seasoned professional specializing in community-based approaches to human-wildlife conflict and sustainable rural livelihoods. She has led participatory conservation initiatives across Africa and Asia, focusing on inclusive project development, implementation, and evaluation in partnership with local NGOs. Her expertise spans conflict mediation, socio-ecological systems analysis, and facilitation of collaborative processes. Raised in Germany, Iran, Indonesia, and Nepal, she brings a unique intercultural perspective to her work. Known for her interdisciplinary mindset and practical engagement, she is committed to fostering coexistence between people and wildlife through democratic, community-driven solutions.



Lucy Waruingi

Topical issue: Landscapes and Connectivity

Lucy Waruingi is the Executive Director of the African Conservation Centre (ACC). She holds a BSc in Computer Science and Statistics from the University of Nairobi and an MSc in Geographic Information Systems (GIS) from Manchester Metropolitan University (UK). She is currently pursuing a PhD at the University of Toronto, focusing on integrating indigenous knowledge in natural capital valuation.

With over two decades of experience, Lucy is a recognized leader in the application of geoinformatics, spatial integrated planning, and biodiversity knowledge to inform conservation policy, practice, and landscape management. She has led several national and international initiatives, including the development of biodiversity informatics platforms, national strategies, wildlife connectivity assessments, and regional research on biodiversity and infrastructure. Her work also contributes to CBD reporting and conservation advocacy in Africa. Lucy served as the founding Chair of the Conservation Alliance of Kenya (CAK) and currently serves as Chairperson of the Wildlife Conservation Trust Fund (WCTF) and sits on several advisory and technical boards advancing conservation science and practice



Dr. Annika Keeley

Topical issue: Landscapes and Connectivity

Dr. Annika Keeley works at the Center for Large Landscape Conservation where she focuses her work on ecological connectivity. She has contributed papers on modeling, measuring, and implementing connectivity. She helped write the IUCN 'Guidelines for Conserving Connectivity through Ecological Networks and Corridors'. As a co-author, she updated the book 'Corridor Ecology - Linking landscapes for biodiversity conservation and climate adaptation' with the most current science. With her team, she now supports partners in connectivity conservation planning, implementation, and monitoring at local, national, and regional scales, and works on answering science questions that come up in the process.



Dr. Kevit Desai

Topical issue: Technology for Wildlife Conservation

Dr. Kevit Desai, PhD, MBS, CBS, FIET, is an esteemed leader in engineering, research, innovation, and wildlife conservation, with an extensive career spanning multiple sectors, including academia, technology, governance, and trade. Due to his contribution to the development of government and industry dialogue in the private sector, Dr. Kevit Desai has also been called to serve in various top government positions including Principal Secretary for TVET and later for EAC. Dr. Kevit Desai is a passionate conservationist, who brings together Industry 4.0 with modern practices of animal protection and welfare, mitigation of Human-Wildlife-Conflict (HWC) and a forward-thinking approach on creating livelihoods for communities.



Dr. Jake Wall

Topical issue: Technology for Wildlife Conservation

Dr. Jake Wall began work with Save the Elephants in 2003 and completed a PhD in Geography at the University of British Columbia in 2015 studying the geospatial analysis of African elephant movement. Jake was Director of Research and Conservation for the Mara Elephant Project for 5 years and is the founder, and now, project leader of the Ecoscope platform for Ai2. He is also the co-founder of the EarthRanger platform and established Wildlife Dynamics in 2024 as a means to provide technical expertise and training to improve impact in applied conservation.



Dr. Julius Kipng'etich

Topical issue: Wildlife Economics

Dr. Julius Kipng'etich is currently the Group CEO at Jubilee Holdings Limited, a public company listed on the NSE & cross listed on the DSE & USE. He is also the Chairman of Northern Rangelands Trust, a non-profit umbrella organization and a Board Member of Ghetto Classics, a music Programme started in an informal settlement in Korogocho, Nairobi. He previously served as Chief Executive Officer of Kenya Wildlife Service and the Chief Operations Officer at Equity Bank.



Richard Vigne

Topical issue: Wildlife Economy

Richard Vigne is a Kenya and a conservation practitioner with 20+ years' experience. He has a reputation for forward thinking and innovation. He developed the Ol Pejeta Conservancy in Laikipia Kenya to be East Africa's largest sanctuary for black rhinos. The conservancy pioneered the integration of a profitable livestock operation with conservation and tourism and runs a community development program. He has held numerous other roles in the conservation sector including as a founder of the Laikipia Conservancies Association, a board member of the Northern Rangelands Trust, as an operator of a safari company throughout Uganda and eastern Democratic Republic of the Congo, Chairman of the Kenya Educational Trust, and as a consultant on conservation and land use with Conservation Capital and the African Wildlife Foundation. Currently, he is the Chairman of the Executive Board of the Kenya Wildlife Conservancies Association and the Director of the School of Wildlife Conservation at the African Leadership University. He is also a co-director with his wife in her fashion retail company - Rock and Stones Limited. Richard holds a Masters in Management for Agriculture from Cranfield, UK and a first degree in Zoology from Newcastle, UK. He is a keen fisherman and scuba diver and speaks fluent Swahili.

Sub-Theme Guest Speakers



Silvia Museiya

Sub-theme: Policy Governance Legal Framework and Institutions in Conservation

A dedicated advocate for both wildlife and people, Ms. Silvia Museiya brings a unique perspective to her role as Kenya's Principal Secretary at the State Department for Wildlife. Her deep connection to this mission is rooted in her identity as a member of the Yiaku indigenous community from Laikipia's Mukogodo Forest. Her distinguished career is a testament to her commitment to service: from her early work as a teacher and author to her leadership as a Nairobi County Assembly Member and chair of the Indigenous Peoples' National Steering Committee on Climate Change. She holds a Bachelor of Law (LL.B) and a Bachelor of Education (B.Ed.) degrees from the University of Nairobi, a Diploma in Human Rights and International Advocacy from Columbia University. She is also an alumna of the Young African Leadership Initiative (YALI), which informs her holistic approach to governance. In 2023, H.E. The President awarded her the national honour of the Chief of the Order of the Burning Spear (CBS) in recognition of her profound contributions to the nation.



Dr. Paul Matiku

Sub-theme: Policy Governance Legal Framework and Institutions in Conservation

Dr Paul Matiku, Executive Director - Nature Kenya. PhD, Environmental Planning. M.Phil Environmental Studies. Bsc, Wildlife Management. 30 years conservation experience. Implemented a wide range of conservation and development initiatives including butterfly farming in Arabuko-Sokoke Forest and beekeeping across 26 Key Biodiversity Areas in Kenya. Actualized Kenya's Key Biodiversity Areas Monitoring. Catalyzed 30 local action groups (site support groups) working with Nature Kenya. Contributed to the Kenya policy, legal and institutional frameworks and continuing to inform policy, legislation, development and decision making through science led advocacy.



Dr. Patrick Omondi

Sub-theme: Wildlife Population Dynamics and Ecosystem Connectivity

Dr Patrick Omondi is the Chief Executive Officer of Wildlife Research and Training Institute (WRTI), a National Research State Agency with the mandate of coordinating and conducting wildlife research and training in Kenya. He is an experienced Wildlife Ecologist with over 30 years' experience in Species Conservation Planning and Management and has published widely in peer reviewed journals. He is a skilled international negotiator on natural resources governance and represents Kenya in several global conventions including the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). He was conferred with the National Honour of Order of the Grand Warrior of Kenya (OGW) twice in the year 2007 and 2022 for his passion and outstanding contribution to Wildlife Conservation and Management. He has a PhD in Animal Ecology from Kenyatta University, a MSc degree in Wildlife Management and Control from Reading University, UK and BSc in Wildlife Management from Moi University. He is the current Chair of the IUCN National Committee and a member of the IUCN African Elephant Specialist Group.



Dr. Mohammed Yahya Said

Sub-theme: Wildlife Population Dynamics and Ecosystem Connectivity

Dr. Mohammed Yahya Said is an ecologist and spatial analyst with over 30 years of experience in climate change, biodiversity conservation, and land-use planning. He has led pioneering work in ecosystem monitoring, livestock–wildlife interactions, and resilience-building across Africa. A former Senior Scientist at ILRI and current Senior Programme Officer at the IUCN/SSC African Elephant Specialist Group, Dr. Said has published widely and advised global institutions including the World Bank, the Food and Agriculture Organization (FAO), and the Overseas Development Institute (ODI). He holds a PhD in Ecology from Wageningen University and has received several honors, including the Ecological Society of America's Sustainability Award (2012), the World Bank Civil Society Award (2007), and commendation for his scientific contributions. He is an associate of the University of Nairobi, Institute of Climate Change and Adaptation.



Dr. Richard Kiaka

Sub-theme: Climate Change and Its Impacts on Wildlife

Dr. Richard Kiaka is an Environmental Anthropologist. He holds a Ph.D. in Anthropology from the University of Hamburg. His research focuses on land tenure transformation, human-wildlife coexistence, and community-based conservation in Kenya and Namibia. With seven years of post-doctoral experience, he employs transformative research approaches and participatory methodologies to explore socioecological resilience, climate adaptation, and inclusive approaches to research in pastoral rangelands.



Dr. Arne Witt

Sub-theme: Invasive Species

Dr. Arne Witt has been undertaking research and implementing projects on invasive alien species (IAS) management for over 30 years, focusing on invasive plants and their control. Mostly, this work has been undertaken in low-and-middle-income countries (LMIC), developing tools to assist in identifying invasive plants, but in some cases also alien animals. He has also been involved in developing various strategies and plans including national invasive species strategies and action plans, prevention mechanisms and early detection and rapid response systems. He has been an International Project Coordinator and Technical Advisor for several regional and national UNEP-GEF IAS projects in Africa, Asia, the Caribbean, and the Middle East. He holds a PhD from the University of the Witwatersrand, South Africa, and MSc in Entomology and Conservation Biology. He has published several journal articles, and authored, or co-authored, book chapters and books on the identification and management of IAS.



Prof. Samuel Wasser

Sub-theme: Leveraging Science and Combating Illegal Wildlife Trade

Prof. Samuel Wasser holds the Endowed Chair in Conservation Biology at the University of Washington where he is the Director of the Center for Environmental Forensic Science. His laboratory pioneered genetic methods to determine the major elephant poaching hotspots across Africa, as well as link criminal organizations to multiple transnational shipments of ivory. These tools are now being expanded to include pangolins and illegally harvested timber, helping government agencies across Africa, SE Asia and the U.S. disrupt and dismantle transnational criminal organizations trafficking in large volumes of environmental contraband.



Dr. James Gitundu Kairo

Sub-theme: Aquatic Ecosystems Conservation

James Gitundu Kairo is a Marine Ecosystems/Blue Carbon Specialist and a Pew Fellow (2019) and Chief Scientist at the Kenya Marine and Fisheries Research Institute - a national research institute mandated to research and advice the government on wise use of aquatic resources. Kairo obtained BSc and MSc in Biology from the University of Nairobi (Kenya) before proceeding for his PhD at the Free University of Brussels (VUB, Belgium) on the theme of ecology and restoration of mangrove systems. Kairo has vast knowledge and working experience on the conservation, rehabilitation, and sustainable utilization coastal and marine resources, which has earned him several national and international awards. Kairo was the lead author (LA) and Coordinating Lead Author (CLA) on IPCC (2009) Wetland Supplement as well as Coordinating Lead Author (CLA) on IPCC (2019)'s Special Report and Oceans (SROCC).



Dr. Francis Gakuya

Sub-theme: Wildlife Health, Disease Management and Genetics

Dr. Francis Gakuya, is a Senior Principal Scientist at the Wildlife Research and Training Institute, Kenya. He is wildlife veterinarian, epidemiologist and a research scientist with over 25 years' experience in research, clinical practice, capture and translocations, and captive wildlife management. He was formerly the Chief Veterinary Officer at Kenya Wildlife Service. He holds a Bachelor of Veterinary Medicine, MSc and PhD in Veterinary Epidemiology from the University of Nairobi. His research areas of interest are zoonotic and animal diseases at the human-wildlife-livestock interface, disease ecology and wildlife genetics. He has contributed to knowledge, science and technology through publication of 82 papers in peer-reviewed journals and 5 book chapters.



Prof. Moses Makonjio Okello

Sub-theme: Human Dimensions in Wildlife Conservation

Prof. Moses Makonjio Okello is a Professor of Wildlife Management and Tourism at Moi University. He studied at Moi (B.Sc.) University of Idaho (M.Sc.); and the University of Alberta (Ph.D.). He worked at Moi University between 1996 and July 1999. He returned to Moi from 2015 to June 2025 as professor of Tourism and Wildlife. He joined the SFS in July 1999 as a lecturer and rose through the ranks to professor in 2006. In 2009, he was appointed SFS Kenya director. In 2015- 2020 he was appointed a Honorary Warden. His current interests are elephant ranging and the future of wildlife conservation in Kenya.



Dr. Giacomo D'Ammando

Sub-theme: Conservation Science, Practice and Technological Innovations

Dr Giacomo D'Ammando is the Research Manager at Save the Elephants. Giacomo is a zoologist with more than 10 years of experience conducting field research on African mammals, focusing on the behavioural ecology of large herbivores. He has worked on a variety of species across multiple countries in eastern and southern Africa. At present, he is in charge of the Save The Elephants research team in Kenya. His main task is to build capacity for animal behaviour research in the country, while providing mentorship to emerging Kenyan field scientists and research students. He is strongly committed to the development of African-led research hubs dedicated to the study of elephant behaviour and movements.

Giacomo holds a PhD in behavioural ecology from the University of Liverpool (UK), an MSc in animal behaviour from the University of the Witwatersrand (South Africa), and a BSc in Natural Sciences from the Sapienza University of Rome (Italy).



Dr. Yussuf Wato

Sub-theme: Integration of Conservation Strategies Across All Disciplines

Dr. Yussuf Wato is a Wildlife Ecologist with over 20 years of experience in the nature conservation sector. He has extensive expertise in integrated natural resource management, having served as a protected area manager in both marine and terrestrial ecosystems. He is currently a Board Member of the Wildlife Research and Training Institute and leads a team of thematic experts in Biodiversity, Research, and Innovation at the World Wide Fund for Nature (WWF) Kenya. Dr. Wato holds a PhD in Production Ecology and Resource Conservation from Wageningen University in the Netherlands. He has authored numerous peer-reviewed papers published in high-impact scientific journals.



Abstracts

Day 1

Tuesday 23rd September 2025

PARALLEL SESSION 1 - Kiboko Hall

Sub-Theme: Wildlife Population Dynamics and Ecosystem Connectivity

Nesting Habitat Preferences and Nestling Diet of the Martial Eagle (*Polemaetus Bellicosus*) in the Masai Mara Ecosystem, Narok, Kenya

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Abstract

The Martial Eagle (*Polemaetus bellicosus*), an apex raptor native to sub-Saharan Africa, is listed as endangered due to drastic population declines. Major threats include habitat loss from land-use change, persecution for livestock predation, poisoning, electrocution on power lines, drowning in man-made reservoirs, and nest disturbances (Global Raptor Information Network, 2009). This study investigated nesting habitat preferences and nestling diet within a 3,406 km² area of the Masai Mara ecosystem using the Maxent species distribution model. Nest location data was analyzed against environmental and anthropogenic variables. Nestling diet was assessed using camera traps fitted near active nests. Prey availability was evaluated along 30 transects (200 m width) within five martial eagle territories. Vegetation structure was surveyed using nested plots of 100×100 m for trees, 20×20 m for shrubs, and 1×1 m for herbaceous cover. Maxent modeling generated an AUC of 0.812 ± 0.044, identifying 1,137 km² as highly suitable nesting habitat. Habitat suitability was most influenced by protected area coverage (63.4%), followed by distance to rivers (16%), roads (9.7%), settlements (6.6%), habitat quality (3.4%), and slope (0.9%). Mean nest tree height was 14.7 ± 0.57 m, with mean nests placement height of 11.69 ± 0.54 m (R = 0.8). Mean inter-nest distance was 7.99 ± 0.83 km. Nesting site selection was strongly influenced by habitat quality, prey availability, and preference (Jacobs' index), with prey preference significantly affecting delivery rates ($p = 3.1 \times 10^{-9}$, df = 32).

Keywords: Maxent, Nesting ecology, Prey delivery, Habitat suitability, Martial Eagle

Habitat Suitability Modeling for the Invasive *Opuntia Stricta* Using Remote Sensing and Maxent in Tsavo East National Park, Kenya

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Abstract

Opuntia stricta (Australian pest pear) is an invasive species posing significant ecological threats to biodiversity and ecosystem services in protected areas such as Tsavo East National Park, Kenya. Effective monitoring and habitat suitability mapping are essential for guiding its management. This study aimed to model the potential distribution of O. stricta in the southern part of Tsavo East National Park using remote sensing and MaxEnt habitat suitability modelling. Multi-seasonal optical satellite imagery (Sentinel—2) and ten environmental predictors, including vegetation indices (NDVI, MSAVI, Red Edge NDVI, NRVI), were used to assess the spatial distribution of O. stricta. MaxEnt modelling was employed to identify key predictors and classify habitat suitability. Model performance was evaluated using the Area Under the Curve (AUC). Results: Vegetation indices emerged as significant predictors of O. stricta presence, with seasonal variation enhancing detection efficiency. The model achieved an AUC of 0.718, indicating fair predictive performance. Habitat suitability was categorized into four classes: 51 km² (high), 37 km² (moderate), 83 km² (low), and 3,589 km² (very low). Approximately 4.15% of the study area showed O. stricta presence, predominantly along park boundaries and road networks. In conclusion, remote sensing combined with MaxEnt modelling offers an effective approach for mapping invasive species. Regular monitoring of Opuntia stricta using remote sensing could serve as a key indicator of ecosystem health and inform targeted intervention in protected areas.

Keywords: MaxEnt; Opuntia stricta; Remote sensing; Sentinel-2; Vegetation indices (Vis)

Linking Dietary Niche Breadth and Body Size to Rodent Diversity Conservation in the Rungwe Mountain Forest Reserve

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Abstract

Small mammals, with their wide spread distribution and high abundance, have evolved coexistence mechanisms that contribute to their ecological success. Among these mechanisms, resource partitioning and foraging strategies play a crucial role in understanding their feeding ecology. Body size differences also potentially influence feeding behaviors and dietary patterns. This study aimed to investigate the correlations between dietary niche breadth and body size among coexisting rodents in Rungwe Mountain forest. Data were collected on four rodent species in different elevations of the mountain using removal traps. Rodents diet and

body weights were analysed and then Spearman correlations were applied to see if there was a correlation between body size and niche breadth. Results showed that niche breadth and body sizes varies among species with values of 0.28 to 0.74 and 26 g to 71 g respectively. G. cometes experiences significantly narrow niche breadth when compared to *M. delectorum*, B. hindei

and L. machangui, while *M. delectorum* showed a significantly lower niche when compared to *L. machangui* and *B. hindei*. However, no significant differences were observed in the niche breadths or body masses between B. hindei and L. machangui. Interestingly, while *M. delectorum* had the lowest body mass, G. cometes demonstrated a narrower dietary niche, indicating a higher level of dietary specialization. By understanding these patterns it can inform conservation strategies of species with specialized diets that may be more vulnerable to habitat changes and given conservation priorities. The findings supported the hypothesis that dietary niche breadth increases with body mass among small mammals, highlighting the interplay between ecological factors and morphological traits in shaping resource use strategies.

Keywords: Body size; Dietary Niche breadth; Rodents Ecology; Rungwe Mountain Forest, Small Mammals Conservation

Protected Areas: The Lifeline for the Critically Endangered Tana River Primates in Kenya

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Abstract

Protected areas (PAs) are fundamental in protecting endangered species in the face of increased threat of climate change, land-use changes and deforestation. However, the effectiveness of PAs in enhancing the survival of the endangered primates amid these threats remains unclear. Here we focused on the critically endangered Tana River red colobus (Piliocolobus rufomitratus) and Tana River mangabey (Cercocebus galeritus) and compared their population size estimate and habitat threats in PAs (Ndera Conservancy and Tana River Primate National Reserve and unprotected areas (UPAs) particularly the community forests between Mitapani and Mwina forests) in the lower Tana River. With the help of trained scouts and local field research assistants, we used sweep count methods to estimate the population size and quadrant method to assess the key threats. Our findings showed higher populations of P. rufomitratus (1,075 vs. 288 individuals) and C. galeritus (912 vs. 105 individuals) in PAs than in UPAs, respectively. Threat analysis revealed higher logging in PAs compared to unprotected areas (52% vs. 27%), while poaching and bushmeat trade were severe in unprotected forests. Our results align with global findings that PAs offer limited but crucial refuge amid deforestation and climate change. Our data call for the need to strengthen protected area conservation, habitat connectivity, anti-poaching efforts, and community-led conservation to secure the long-term survival of the Tana River red colobus and the Tana River mangabey in the lower Tana River flood plain forests.

Keywords: Tana River red colobus, mangabey conservation, protected areas, habitat threats, community-based conservation

Waterholes, Wildlife, and Vegetation: Managing Piosphere Effects ForConservation and Biodiversity in Kasigau Corridor

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Abstract

Waterholes serve as critical resources in African savannas, but they also create localized gradients of herbivory and trampling, known as piospheres, which influence vegetation structure and composition. This study examines the effects of distance from waterholes on tree and shrub characteristics, species diversity, and browsing pressure in Kasigau Corridor, Kenya. Data were collected along transects radiating from waterholes, recording species identity, canopy dimensions, and browsing intensity. Results indicate a significant decline in browsing pressure with increasing distance from waterholes (ANOVA: $p = 0.00046$; Kruskal-Wallis: $p = 0.00203$), confirming the presence of a piosphere effect. Generalized linear modeling further demonstrated a

negative correlation between distance and browsing intensity ($p = 0.003$). Species richness and Shannon-Wiener diversity index increased with distance, suggesting that heavily browsed areas near waterholes favor a subset of browsing-tolerant species. Among the most browsed species near waterholes were Dobera glabra, Manilkara mochisia, and several Vachellia species. In contrast, species such as Albizia anthelmintica experienced more browsing further from water sources. The findings highlight the role of waterholes in shaping vegetation dynamics in semi-arid rangelands. High browsing intensity near waterholes may lead to shrub encroachment and loss of palatable species, with implications for conservation and land management. Strategies such as rotational grazing and strategic placement of additional water points could mitigate these impacts and promote sustainable rangeland use.

Keywords: browsing pressure, Kasigau Corridor, Piosphere effect, tree-shrub dynamics, waterholes

Population Status of the Endangered Black and White Colobus Guereza (*Colobus Guereza Percivali*) in Mathew Ranges in Samburu, Kenya.

Wambua T.M. [1,2*], Otoli P.M. [1], Mbugua J. W. [1], Wambui R.M. [1], Musa L [3], Benjamin L. [3], Kabasa P.M. [1,2], Maingi C.K. [1], Lekaaso B. [1], Mwangi D.K. [1], Ngalatu J. N [1] and Kivai S.M [1].

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Abstract

Kenya's Mathews Range Forest in Samburu County is experiencing significant habitat changes due to human activities and climate change, threatening its biodiversity. The population of several primate species found in this forest, including the Endangered Percival's black and white colobus guereza (*Colobus guereza percivali*), has declined over the last 13 years. Previous studies in 2012 indicated this decline, but there has been no updated data for over a decade. To address this gap, a population survey was conducted using the line transect method across four areas, Wamba, Nkare Narok, Kangulata, and Ngilai, within the Mathews Range Forest Reserve in 2024. The study identified 12 groups of C. g. percivali, totaling 96-144 individuals. This is a sharp 77% decline compared to the previous census of 635 individuals in 2012. The population decline could be due to prolonged severe droughts, which reduced pasture land for pastoralists, leading to increased tree cutting for livestock fodder, severely impacting the forest canopy and shrinking the primates' habitat. This disruption might also have affected the ecosystem, depriving primates of their natural environment and disturbing the ecological balance. Thus, the survey findings underscore the need for long-term ecological monitoring, awareness programs, and community involvement.

Keywords: Population-Dynamics, Human -Activities, Colobus-percivali, Samburu

Drivers of Hirola Antelope Diet Selection in Natural and Managed Habitat in Eastern Kenya

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Abstract

Diet selection, referring to the food that is ingested by an animal along with its nutritional composition, is essential for animal fitness, survival and behavior. The hirola (Beatragus hunteri), with ~ 500 individuals remaining, is classified as critically endangered by IUCN. For effective hirola conservation, there has to be a clear understanding of habitat-specific forage quality, more importantly as there are planned re-introduction efforts managed into natural habitats. We used populations in natural and managed breeding habitat in eastern Kenya to assess the dietary selection of hirola. Hirola consumed a total of 17 species with Chloris virgata being the most preferred grass, while Commelina benghalensis and Commelina diffusa were the most preferred forbs. Cyperus kilimandscharicus was the only moderately preferred sedge. We then analyzed nutrient content for 14 variables, including crude protein (CP), fiber fractions, in vitro dry matter digestibility (IVDMD), and key minerals. Forage in natural habitats was more closely associated

with higher levels of phosphorus (P), magnesium (Mg), and IVDMD, while managed habitats were characterized by elevated sodium (Na), potassium (K), and CP levels. Seasonal differences were also detected, particularly in calcium (Ca) and Mg concentrations. Our results suggest that hirola must cope with changing plant chemical composition, forage quality and diversity. Future habitat restoration programs should focus on monitoring and reseeding preferred forage species and the provisioning of supplementary diets with appropriate chemicals to newly released herds or in the breeding facility.

Keywords: Hirola, forage quality, diet selection, restoration, habitat management, species recovery

DPARALLEL SESSION 1 – 2 - Way Hall

Sub-Theme: Policy Governance Legal Framework and Institutions in Conservation

Monitoring Kenya's Key Biodiversity Areas for Conservation Priority Setting

Gacheru, P[1]*., Sese, J[1]., Mulwa, R[2]., Kariuki, L[3]., Ngoru, B[5]., Wanjohi, H[4]., Mwang'ombe, J[6]., Mwinami[2], T., Mutunga, J[1]. and Matiku, P[1].

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Abstract

Key Biodiversity Areas (KBAs) are sites that contribute significantly to global biodiversity conservation. These areas are identified based on a global standard established in 2016 during the IUCN Congress. Currently, there are 16,428 KBAs worldwide, with Kenya accounting for 121. Of these, 68 are designated as Important Bird Areas (IBAs) due to their significance for bird species. Annual assessments are conducted to evaluate the condition of Kenya's KBAs, identify threats, and monitor conservation efforts. The Basic Monitoring Protocol, a standardized methodology implemented since 2004, is used to assess three key aspects: STATE, PRESSURE, and RESPONSE. In 2023, 56 KBAs were assessed using this protocol, representing 82% of IBAs and 46% of all KBAs in Kenya. Long-term monitoring from 2004 to 2023 indicates that the overall STATE of Kenya's KBAs has remained STABLE, while PRESSURE has MOUNTED, and RESPONSE has DECLINED. Between 2022 and 2023, PRESSURE and RESPONSE scores decreased (*2022 = Score 1.96; 2023 = Score 1.60*), while the STATE score showed a slight improvement (*2022 = Score 0.90; 2023= Score 1.00*).

Keywords: Key Biodiversity Areas, State, Pressure, Response

Assessing Institutional Contributions, Metadata Completeness, and Data Interoperability of Kenya Datasets

Dickens Odeny[1], Richard Kiaka[1], Benson Okita[1], Marie-Estelle Demory[2,3], Cornelius Okello[2,3,4], Margaret Owuor[2,3,4]

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Abstract

Effective conservation planning and biodiversity management in Kenya depend on data systems that are comprehensive, interoperable, and collaboratively managed. This study evaluates institutional contributions to biodiversity datasets in Kenya, focusing on metadata quality, completeness, and data interoperability. By analysing datasets from government bodies, research institutions, and NGOs, the study identifies key gaps and inconsistencies that hinder effective data sharing and use. Findings show that over 80% of biodiversity records submitted to GBIF from Kenya are generated by fewer than ten institutions, mostly well-funded government and academic entities. In contrast, less than 5% of records come from community conservancies or local institutions, highlighting a major data gap in ecologically significant but underrepresented areas such as the northern rangelands. Metadata completeness varies widely, with frequent omissions in key fields like geographic coordinates, sampling protocols, and taxonomic authorities. These inconsistencies reduce the utility of datasets for landscape-level analysis critical for wildlife conservation and policy formulation. Moreover, limited adherence to data standards and weak interoperability across institutional databases further constrain biodiversity monitoring and ecosystem assessment. The lack of centralized data governance and limited collaboration among institutions exacerbate these issues, undermining Kenya's capacity to track species trends and ecological connectivity at national and regional levels. The study underscores the urgency of fostering institutional partnerships, building capacity in data management, and developing national guidelines to standardize biodiversity data collection and sharing. Strengthening these systems will enhance evidence-based conservation decision-making and support more inclusive biodiversity monitoring that integrates data from local and community-managed landscapes.

Keywords: Data Interoperability, Metadata Completeness, Institutional Collaboration, Governance Frameworks, Biodiversity Monitoring

Testing Laws: Innovative, Data-Drive, and Community-Centric Policy and Governance of Kenya's Wildlife Resources in the Drylands of Isiolo, Laikipia and Samburu Counties

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Abstract

Kenya's drylands are endowed with natural assets that support both wildlife and socio-economic activities yet there is growing human footprint and appetite for exploitation of not only the natural assets but also the rich tapestry of minerals and wildlife diversity. We mapped natural assets in Isiolo, Laikipia and Samburu as pilot counties and documented their status for exploring the legal and policy implications and contestations of securing these assets in law. Primary data was obtained through visiting the sites, photography, ArcGIS Survey123, participatory GIS, use of satellite imagery and traditional and indigenous knowledge. In all the counties, there were major wildlife movement corridors that are more pronounced while others are relatively small and acting more like passage routes, linked to the broader landscape. Wetlands, ponds, springs, dams and rock catchment showed significant disparities between the three counties. Isiolo, Lakipia, and Samburu recorded 34, 232, and 93 wetlands; 138, 314, and 229 ponds; 40, 71, and 112 rock catchments; 83, 607, and 245 springs; and 79, 89, and 156 sand dams respectively. Lakipia had the highest total assets, followed by Isiolo and Samburu. It is only Samburu County that had a sand dune, a unique feature and asset which is both a water resource and also a tourism attraction site. Ewaso Nyiro is the main river traversing the three counties, although each depicted differences in the numbers of small tributaries and laggas, alongside the islands of dense vegetation, wildlife concentration areas and salt licks. The findings also revealed substantial natural resource endowment in these areas. This study will be used to test various relevant legislative frameworks that traverse both land and natural resources for securing these assets in order to enhance their security and posterity or improved governance, resilience and sustainable use.

Keywords: Community land, Counties, Governance and Law, Resilience, Sustainability, Natural Assets, Wildlife corridors

Strengthening Community Institutions for Sustainable Livelihoods: An Organizational Capacity Assessment of Community Based Organizations in Diani, Kenya

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Abstract

Coastal communities surrounding the Diani-Chale marine ecosystem in Kwale County, depend on natural resources such as fisheries, mangroves, and coral reefs for their livelihoods. However, these ecosystems are under pressure due to overfishing, mangrove harvesting, habitat degradation, and weak enforcement of resource management regulations. In response, there is growing recognition of the need to integrate nature-based enterprises and ecotourism into coastal development strategies. These enterprises offer sustainable alternatives that can diversify income, reduce pressure on marine resources, and enhance community resilience. To assess community readiness for such initiatives, an Organizational Capacity Assessment (OCA) was conducted in June 2023. The assessment focused on six Community-Based Organizations (CBOs) in the Diani-Chale area, applying the USAID OCA tool across seven domains: governance, administration, human resources, financial management, organizational management, program management, and project performance. A participatory self-assessment, guided by external evaluators, involved structured scoring, group discussions, and evidence validation. Findings indicated that overall organizational capacity was below average. Mwakamba Beach Management Unit (BMU) had the highest score at 40%, followed by Chikonophidzu (34%), Pono (31%), Tunusuru Women Group (26%), Sisi Ndisi Enye (24%), and Mwakamba Silk (22%). The relatively higher score of Mwakamba BMU is attributed to its operations being regulated under Kenya Fisheries Service (KeFS) BMU Regulations (2007). Key weaknesses were identified in human resource management, where none of the organizations had formal job descriptions or salaried staff, and in financial management, where accountability systems were underdeveloped. While basic governance structures were in place, few groups had understood or implemented constitutions. Strategic planning, grant management, and monitoring and evaluation capacities were limited. The CBOs demonstrated strong interest in building their technical and operational capacities. The study demonstrates the urgent need for targeted capacity-building interventions to enhance local institutional effectiveness and enable successful implementation of nature-based enterprises among communities in Kenya's coastal regions.

Keywords: Community-Based Organizations (CBOs)**;** Organizational Capacity Assessment**;** Marine resource management**;** Alternative livelihoods

Global-Local-Global Linkages: Actor Analysis for Transformative Biodiversity Governance in Kenya

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Abstract

Biodiversity challenges remain an issue of concern globally, addressing this requires systemic transformations across multiple governance scales and contexts. However, a critical knowledge gap persists regarding the specific actors and capacities necessary to effectively connect, facilitate, and implement transformative changes. Particularly important is the capacity to scale solutions horizontally across sectors and vertically through societal structures. Our research contributes to addressing this gap by using mixed methods of social network analysis to examine properties and dynamic of biodiversity governance landscape. Kenyan biodiversity conservation and the country process of the Global Biodiversity Framework implementation are used as a case study. We concentrate on exploring the roles of 'middle actors', characterized primarily by Non-governmental organizations,, community-based organizations, and also new emerging actors to propose the 'middle-out' approach to complement the top-down and bottom-up approaches in multiscale governance analysis. We also introduce the concept of 'telecoupling brokers', highlighting how the middle actors uniquely influence upwards (toward policy actors), downwards (toward local communities), and laterally (among peer organizations). Through detailed empirical examples, we aim to demonstrate how these telecoupling brokers navigate complex socio-ecological dynamics, addressing both ecological concerns and underlying social inequalities. Recognizing their challenges and capacities provides valuable insights into enhancing their role in driving systemic and transformative governance change, ultimately informing more effective national and international biodiversity policy frameworks.

Keywords: Transformative changes, biodiversity governance landscape, Global Biodiversity Framework, telecoupling brokers

Sub-Theme: Climate Change and Its Impacts on Wildlife

Seasonal Resource Scarcity Often Drives Animals to Increase Their Foraging Activity to Meat Energetic Demand.

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Abstract

Seasonal resource scarcity often drives animals to increase their foraging activity to meet energetic demands. However, doing so can introduce trade-offs between foraging and exposure to risk (e.g., hypo/hyperthermia). Using behaviour and physiological data from an arid-adapted bird, we assess how foraging activity is adjusted when resources decline, and temperatures rise. We measure feeding activity (classified via accelerometers) from n=28 vulturine guineafowl (*Acryllium vulturinum*) to estimate responses to changing environmental harshness (quantified through NDVI) over 10 months. We also link internal body temperature measurements from n=6 guineafowl to external operative temperature to identify a 'thermal threshold' (which we hypothesise marks the point where birds must manage heat dissipation – physiologically and/or behaviourally - to avoid hyperthermia). Finally, we use five years of capture data, to test whether birds lose weight during periods of resource scarcity. We find that feeding activity was positively correlated with environmental harshness, suggesting these birds compensate for resource scarcity by increasing foraging time investment. We find that body temperature reaches a maximum at an average operative temperature of 33.8ºC and that greater environmental harshness corresponds to a higher proportion of the day exceeding this 'thermal threshold'. This raises the possibility that birds incur physiological costs to maintain thermal homeostasis during compensatory foraging. Indeed, we find that birds lose weight during these periods of environmental harshness. In conclusion, while arid-zone wildlife may be physiologically and behaviourally adapted to forage under hot and arid conditions during cyclical dry seasons, the projected intensification and frequency of resource scarcity and higher temperatures under climate change may push these adaptations to new limits. The results of compounding environmental factors for wildlife (e.g., body mass loss) could result in fitness consequences with implications for population viability.

Key words: arid systems, birds, drought, foraging ecology, resource scarcity

Proximity to Anthropogenic Activities and Climate Determine Protected Area's Burnt Area Trends and Fire Susceptibility

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Abstract

Protected areas and their ecosystems play an essential role in safeguarding unique habitats, endangered and threatened species, and ensuring the maintenance of ecosystem services for humanity, whilst also being economically important as key tourist attractions. In East Africa, land use and climate change are expected to alter fire regimes in protected areas, potentially threatening these ecosystems and the services they provide. Therefore, accurate understanding of burnt area and fire susceptible areas is critical for managing fire and protecting endangered species and their habitats. This study used moderate spatial resolution (30m) Landsat 7 and Landsat 8 images from 2001 to 2022 to establish spatial and temporal patterns of burnt area and fire susceptibility in Kenya's key protected areas, including two montane and two savanna ecosystems. The random forest algorithm was used to classify burnt and fire-susceptible areas and to model key causal factors while quantifying the total susceptible areas within each protected area. Rainfall, elevation, temperature, and proximity to agricultural farms were the main model predictors among the study sites. We observed insignificant declining trend in burnt areas in montane ecosystems and varying insignificant trends in savannas. Susceptible areas within the study sites ranged between 11% to 37% of the total size of the protected area annually. Fire seasonality varied between the two ecosystems; however, Masai Mara National Reserve experienced spatial and temporal changes between 2010 and 2021. We show that protected areas affected by human driven fires burn more frequently and in larger proportions compared to weather driven fires. Monitoring, management and implementation of wildfire frameworks consequently need to be site-specific and holistic.

Keywords: habitat, endangered species, climate change, ecosystem

Plant Functional Traits as a Proxy to Reconstruct Climate and Mammal Interactions: Links in Modern to Miocene Ecosystems in Eastern Africa.

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Abstract

The synthesis of terrestrial plant communities and fossilized botanical remains is challenging-the further we go to the past, the less overlap between taxonomic communities is expected. Comparing traits of modern plants with those preserved in fossil record can help us to overcome this challenge.Plant functional traits are primary attributes related to plant growth,adaptability and post-mortem taphonomical processes.Various studies have examined how plants respond to climate change across environmental gradients.However, it remains unclear whether these functional traits can be effectively used to trace plant evolution and their interactions with the herbivores through time.This study aims to quantify and analyze functional traits of contemporary plants as analogues,ranging from the present day and back to the Miocene period in the Eastern Africa region.We aim to understand, which plant communities and their functional traits can better predict climate, and thus can be used to trace back plant evolution and their interactions with herbivores. We present plants data obtained during our field expedition as well as data sourced from published literature.We have compiled plant species data from 14 national parks in the region and categorized their functional traits by family and species.Inspection and coding of specimens was done on collections at the University of Helsinki herbarium and East African herbarium, National Museums of Kenya. Traits coding followed the standards of the TRY Database and CLAMP whereas climate data was obtained from WorldClim. For our preliminary analysis,we are examining 7 plant functional traits in relation to climate variables. Data analysis will be conducted using a combination of classical statistical techniques as well as tailored machine learning methods used for tracking associations between functional traits of communities and analysing evolution of ecosystems over time. In its broadest implications, this ongoing research will help to better understand fundamentals of how terrestrial ecosystems change through time using ecometrics approach.

Keywords: Botanical, CLAMP, Eastern Africa, Functional Traits, NOW database

Interrelationships of Rainfall, Temperature, Habitats, and the Distributions and Abundance of Elephants and Giraffes in Meru National Park (1994-2024)

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Abstract

This study explores the interrelationship between climate variables particularly rainfall and temperature and their effects on the distribution and population dynamics of African elephants (*Loxodonta africana*) and giraffes (*Giraffa camelopardalis*) in Meru National Park, Kenya, from 1994 to 2024. The research employs a multidisciplinary approach, integrating climate data collected from Meru National Park weather stations, different satellite imageries for habitat assessment and wildlife survey data. The objective is to demonstrate how fluctuations in climatic factors influence ecological patterns within this critical ecosystem. The study reveals a notable prolonged increase in temperatures with erratic rainfall patterns. These climatic shifts have resulted in significant changes in habitat suitability for both species, adversely affecting their access to critical resources for their survival such as food and water. The study indicates that elephants show a preference for mixed woodlands and riverine habitats, while giraffes prefer areas-dominated by Vachellia species. The study shows a decline in giraffe populations over the analyzed period, likely attributed to the loss of suitable habitat driven by climate variability as well as elephants feeding behavior. On the other hand, elephant populations have remained slightly stable but have demonstrated the ability to migrate toward favorable habitats as conditions change. This study demonstrates an interrelationship between rainfall, temperature and habitat changes on the distribution and abundance of elephants and giraffes in Meru National Park. The study recommends the need for continuous monitoring to safeguard these iconic species in the face of a changing climate and shifting habitat conditions.

Keywords: Abundance, Climate change, Distributions Rainfall, Temperature

Influence of Climate Change on Shoreline Birds Species Population in Kenya: A Review

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Abstract

Since the industrial era, changes in climate have caused significant impacts on the globe. Experts and studies show that climate change is among the greatest challenges to changes in biodiversity distribution patterns. Among the biodiversity, shoreline birds are affected significantly due to changes in shoreline ecosystems such as mangrove forests, seagrass. These ecosystems serve as habitats, breeding grounds for bird's native and migratory bird species. In Kenya, there is a limited number of studies focusing on shoreline protection, conservation and linking this to shoreline birds. In this review, we focused on available literature to check the possible influence of climate change on shoreline birds in Kenya. A systematic review is conducted from a global perspective and checking the situation at the Western Indian Ocean status of birdlife. Possible

solutions are provided and recommendations for research are provided. The Kenyan shoreline has face increased pressure due to increase in human population, urbanization, agriculture from inland, construction of structures to support tourism, aquaculture and land use changes since 2011. As a result, the natural habitats are affected, shoreline erosion and ecosystem changes have been observed within the shoreline. The population of the native and migratory birds such as Great Egret (*Casmerodiusalbus)* which is a resident shorebird and the Eurasian Curlew (*Numeniusarquata)* respectively is at risk. The review concludes that climate change continues to cause significant influence on shoreline bird species. There is a need for continuous monitoring of the population of shoreline birds in Kenya to evaluate what is their trend and how climate change affects each bird species specifically.

Keywords: climate change, shoreline, Birds species, Biodiversity conservation, Numeniusarquata, Kenya

Landuse/Landcover Trend Analysis of the Wider Upper Ewaso Ngi'ro River Basin in Northern Kenya

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Abstract

Global environmental changes are manifested through significant increase in landuse/landcover (LULC) changes. Modelling future LULC changes based on past trends is crucial in ecosystem monitoring, especially in landscapes shared by wildlife, livestock and humans. This study seeks to quantify past and future LULC changes in the wider upper Ewaso Ng'iro river basin, in northern Kenya. The Land Change Modeler, a module in TerrSet libera GIS software will be used to perform change analysis over the past from 1990 to 2025 using time series LULC data generated from Landsat image data and develop a model to project future LULC for 2050, 2070 and 2100 based on a trend scenario. Based on 2010 – 2018 historical LULC change, an empirical model between LULC transitions and selected explanatory variables will be developed using a Multi-Layer Perceptron (MLP) neural network. Change demand modelling will then be performed using transition probability matrices generated through Markov Chain. The output of this work is expected to reveal the nature of land change processes that are likely to occur in the future and to answer the question as to where they would be occurring the landscape. These results will carry important implications for sustainable management of wildlife and livestock movement corridors in the landscape.

Keywords: Landuse/Landcover change; Land Change Modeler; Land change processes; wildlife corridors conservation

Day 2

Wednsday 24th September 2025

PARALLEL SESSION 2 – Kiboko Hall

Sub-Theme: Leveraging Science and Combating Illegal Wildlife Trade

Understanding Local Perceptions of Primate Hunting for Consumption and Trade: Insights from the Lower Tana River, Kenya

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Abstract

Hunting for consumption, trade, and elimination is a comprehensive threat to primates across the tropics. Hunting densely contributes to the primate population decline in Africa, but is less reported and uncommonly considered in East Africa. Hunting has been reported among the local community in the lower Tana River-Kenya, but few interventions have been done to understand the scope. We administered questionnaires in Galole and Garsen constituencies in 15 villages to understand the scope of hunting in the area. 110 respondents (5 each from Chalaluma, Galili, Kipendi, Makere, Maroni, Mnguvweni, and Wenje, and 10 each from Baomo, Kinyadu, Kitere, Mnazini, Moa, Onkolde, and Wema) were interviewed to understand how the local community utilizes five diurnal primates in the lower Tana River. 44.5% of the respondents were aware of primate hunting for trade, consumption, and elimination, 52.7% were not aware of hunting or did not want to disclose what they knew for fear of law punishment, and 2.8% did not believe that primates can be hunted since they are genetically related to humans. We found out that yellow baboons (*Papio cynocephalus*) were most hunted, followed by sykes monkeys (*Cercopithicus mitis*), the Tana River red colobus, and vervet monkeys (*Chlorocebus pygerythrus*). Surprisingly, the Tana River mangabey was not mentioned during interviews, but the local community acknowledged setting up traps to capture this species. These trends of primate hunting make the situation worse for the already threatened Tana River primate population and call for further surveys to ascertain the intensity of hunting effects on the lower Tana River primates. This study recommends community education on the potential of zoonotic disease transmission from primate meat, alternative livelihood projects, the introduction of ecotourism initiatives, and stakeholder engagement to mitigate primate hunting in the lower Tana River.

Keywords: Hunting, Local Community, Knowledge, Population, and, Tana River Primates

Exploring Contextual Modifiers: Investigating Interactions Between Predictors and Study Area Features in Elephant Poaching Hot Spots

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Abstract

Poaching of the African elephant remains a significant threat to the survival of the species, necessitating effective anti-poaching strategies. To devise such strategies, it has been suggested that leveraging predictors for poaching can optimize the allocation of limited anti-poaching resources, thus strengthening law enforcement. However, frequently suggested predictors often show inconsistent and even opposing relationships with poaching incidents across different locations, making it difficult to identify patterns that apply broadly and generally. Consequently, a generalized understanding of how these predictors relate to poaching incidences remains elusive and difficult to establish. In this study, we attempt to unravel the complexity in predictor-poaching associations by testing whether interactions between frequently used poaching predictors and site-specific contextual features could explain the variability in insights drawn from predictor-poaching associations. Drawing on data from 130 sites within elephant ranges in Kenya, we modeled the number of carcasses of poached elephants, as a function of the interactions between six predictors and three contextual variables of the study areas using zero inflated negative binomial models. Models that included an interaction term between the predictors and the contextual variables provided better fit than those without, indicating that contextual characteristics modified the relationships between predictors- poaching incidences. By highlighting the role of local context, this research raises critical considerations for the generalization of predictor-poaching associations and improves understanding of where poaching occurs. We recommend that modelling interactions, though analytically demanding, is essential, as site-specific interactions may constrain the broader applicability of insights from individual studies.

Keywords: Poaching predictors, Contextual interactions, Poached carcasses, Zero-inflated negative binomial models

Poor Food Safety Practices and the Health Risks Along the Illegal Wild Meat Value Chain in the Nairobi Metropolitan Area (NMA)

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Abstract

Consumption of, and trade in wild meat could result in infectious pathogen spillover into human populations. A better understanding of how wild meat value chains operate and surveillance for potential pathogens could assist in mitigating spillover events. We used key informant interviews and literature review to understand the structure and operations, actors, health risk practices, and health risk perceptions along a wild meat value chain supplying a rapidly urbanizing city in Africa, the Nairobi Metropolitan Area (NMA). Thirty (30) wild meat samples collected during Kenya Wildlife Service response to poaching or roadkill cases, or other cases of wild animal deaths, were also analyzed for the presence of foodborne pathogens. The value chain operated informally, creating a 'rules in use' framework focusing on sanction avoidance, while ignoring food safety concerns. Consequently, respondents reported slaughtering wild animals on the bare ground, handling wild meat with unwashed bare hands and uncleaned utensils. Wild meat was sourced through poaching, from roadkill, predator kills, or from carcasses of unknown deaths. At the distant markets' trader node wild meat was sold as livestock meat and these meat vendors engaged in similar unsafe practices. The ongoing laboratory analysis of wild meat samples have demonstrated the prevalence of various *E.coli* pathotypes, indicative of meat contamination with foodborne pathogens (We will provide final figures on pathogens and their prevalence before the conference, once analysis is done). We speculate that the observed pathogens on wild meat are attributable to the unsafe and poor hygiene and food safety practices during illegal exploitation of wild animals for food, income and for medicinal purposes. Multisectoral efforts at the conservation and public health nexus, as well as community education on the potential health risks from wild meat are key in reducing potential spillovers.

Keywords: Bushmeat, game meat, hygiene, foodborne pathogens, food safety

Stranded: Taxonomy and Conservation of Guineo–Congolian Large Mammals in the Kenyan Highlands

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Abstract

Kenya's highland forests harbor an extraordinary assemblage of large mammal species (body mass >500 g) with deep biogeographic roots in the Guineo–Congolian rainforest biome. During the Late Pleistocene (ca. 126,000–11,700 years ago), contiguous tropical forest stretched from the Congo Basin into central Kenya. A recent gradual shift toward drier conditions, combined with land-use change, fragmented this habitat, leaving isolated "islands" of forest, most notably atop Kenya's five principal water towers: Mt. Elgon, the Cherangani Hills, Mau Escarpment, Aberdares, and Mt. Kenya. Populations of forest-dependent Guineo–Congolian mammals became stranded here, far from the core of their range. These marooned populations—ranging from the Bongo (Tragelaphus eurycerus) to the East African Potto (Perodicticus ibeanus)—represent an understudied frontier in mammal taxonomy. Long-term allopatry appears to be driving divergence, yet current taxonomy rarely acknowledges these unique evolutionary trajectories. This poses a significant challenge for conservation, which depends on accurate species delineation to set priorities. Incorrect classification can lead to reduced attention, funding, and intervention for unique populations, potentially resulting in overlooked extinctions. Here, I present an overview of our current taxonomic understanding of eight of the more charismatic and well-known members of the stranded large mammal Guineo–Congolian cohort in Kenya: the Bongo, Giant Forest Hog (Hylochoerus meinertzhageni), Yellow-backed Duiker (Cephalophus silvicultor), Black-fronted Duiker (Cephalophus nigrifrons), African Golden Cat (Caracal auratus), Jackson's Mongoose (Bdeogale jacksoni), East African Potto, and Red-legged Sun Squirrel (Heliosciurus rufobrachium). What becomes immediately apparent is how little is known about most of these species' taxonomy and population status within Kenya. Above all, this presentation is both a call for attention and a call to action. These species are not mere relics of a wetter past—they are living laboratories of evolution and represent an urgent test of Kenya's commitment to biodiversity stewardship.

Key words: land-use change, water towers, habitat, populations

Africa's Overlooked Top Predator: Towards a Better Understanding of Martial Eagle Feeding Ecology in the Maasai Mara, Kenya

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Abstract

Raptors exert top-down influences on ecosystems via their effects on prey population dynamics and community composition. Most raptors are sympatric with other predators, thus complicating our understanding of their relative influence in these systems. Estimates of kill rates and prey biomass recycling have been used as predation metrics that allow quantitative comparison among species and assessment of the relative role of single species within complex food webs. Few studies have produced findings of kill rates or prey biomass recycling for raptors. We used a supervised machine learning algorithm to behaviourally classify high resolution accelerometer-informed GPS locations of tagged adult non-breeding martial eagles (*Polemaetus bellicosus*) in the Maasai Mara region of Kenya to estimate kill rates and prey biomass recycling. Eagle locations classified as feeding were clustered using distance and time thresholds to identify kills and calculate kill rates. Identified kill sites were quickly ground-truthed to confirm kills and identify prey species. We estimated kill rates for martial eagles at 0.59 kills day-1 for males and 0.38 kills day-1 for females, and we estimated biomass recycling per ground-truthed kill at 1796 g for males and 3860 g for females. From our sample of identified ground-truthed kills, 'gamebirds' was the most frequently recorded prey category for male eagles and 'small ungulates' was the most frequently recorded prey category for female eagles. These results position martial eagles close to sympatric mammalian top predators in trophic pyramids and provide evidence for their classification as a top predator.

Sub-Theme: Aquatic Ecosystems Conservation

Biodiversity of Rivers of Lake Victoria Basin

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Abstract

Aquatic ecosystems play a crucial role in sustaining biodiversity and supporting livelihoods, yet they face increasing threats from pollution, habitat degradation, and climate change. This study, conducted under a project funded by the JRS Biodiversity Foundation and titled "Biodiversity of Rivers of Lake Victoria Basin" at the National Museums of Kenya, examines the ecological health of river systems feeding into Lake Victoria. Using a combination of biodiversity assessments, water quality analysis, and habitat evaluations, the research documents species diversity, identifies key conservation challenges, and proposes strategies for sustainable management. Results show a measurable decline in water quality, with biochemical oxygen demand (BOD) levels exceeding 6 mg/L in over 40% of the sampling sites and nitrate concentrations reaching up to 12 mg/L, indicating significant nutrient loading. Correspondingly, macroinvertebrate diversity declined sharply in these degraded sites, with Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa richness reduced by more than 60% compared to relatively pristine upstream locations. The findings highlight significant impacts of human activities on aquatic biodiversity, including declining water quality, loss of sensitive species, and habitat fragmentation, underscoring the urgent need for targeted conservation interventions. This research aligns with Subtheme 6: Aquatic Ecosystems Conservation by providing evidence-based insights essential for protecting freshwater habitats, preserving endemic species, and promoting ecosystem resilience. The study also emphasizes the importance of community engagement and policy advocacy in ensuring the long-term sustainability of these vital water resources.

Keywords: Aquatic ecosystems, biodiversity, Lake Victoria Basin, freshwater conservation, community engagement

Water Hyacinth's Extent on Freshwater Bodies Within Queen Elizabeth National Park, Uganda; Implications on Water Quality

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Abstract

The water hyacinth (*Eichhornia crassipes*) sometimes referred to as *Pontederia crassipes,* has been indicated to occur in different water bodies across the world. This weed threatens ecosystems and human livelihoods across different scales. While management interventions have been implemented to control its spread in various sites, their success has been undermined by limited scientific data across different sites. This study adds to the existing scientific data regarding impact of water hyacinth (*Eichhornia crassipes*) on the water quality at the wildlife interface. We utilized a cross-sectional study design within Lake George, Lake Edward and the Kazinga Channel within Queen Elizabeth National Park in Uganda. Analysis of the data was done using descriptive and inferential statistics. T- test was utilized to understand the differences in the water quality parameters across the three sites. Results indicated water hyacinth (*Eichhornia crassipes*) occur majorly within Lake Edward especially at the point where Kazinga Channel

pours water into this lake. Regarding water quality, the results indicated that some water quality parameters were outside the standard acceptable ranges accepted by National Environmental Management Authority (NEMA) and World Health Organization (WHO). These results reflect the potential of water hyacinth (*Eichhornia crassipes*) to undermine the water quality and productivity of water bodies with consequences not only on wildlife (aquatic and terrestrial) but also human livelihoods. There was a significant difference in the parameters over the different sites. The differences were significant at $p<0.05$ across many parameters and at different levels of measurements. Water hyacinth (*Eichhornia crassipes*) has shown the potential to undermine various parameters of water quality. Interventions thus ought to be implemented to mitigate the impact of this weed. This should integrate large scale and long-term monitoring activities so as to effectively limit impacts of this plant.

Keywords: Aquatic invasions, *Eichhornia crassipes*, *Pontederia crassipes*, Water quality, Wildlife

Spatio-Temporal Changes on Seagrass Habitat in The Intertidal Areas of Lamu, Kenya

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Abstract

Geographic Information Systems (GIS) and Remote Sensing are effective, cost-efficient tools for monitoring natural resources. Coastal and marine ecosystems, especially seagrasses, are often understudied despite their crucial roles in climate regulation, biodiversity, and supporting coastal livelihoods. This study focused on Lamu County, a key seagrass habitat along the Kenyan coast, to evaluate changes in seagrass cover from 1994 to 2021 using Sentinel-2, Landsat imagery, Google Earth Engine, and GIS tools. Community perceptions were also surveyed to assess local knowledge and experiences on seagrass ecosystems. Findings showed that seagrass status in Lamu was at 25,488 ha in 2021, marking a 16% increase since 1994. However, between 2011 and 2021, there was a 12.56% decline, equivalent to an annual loss of 1.2%. Pate Island showed the highest recovery, attributed to community-led conservation through Locally Managed Marine Areas (LMMAs). In contrast, Kiunga Marine National Reserve experienced minimal variation due to its protected status and restricted human activity. Survey results revealed that 66% of respondents recognized seagrass as vital for marine food sources, while 21% cited its role in fish breeding. Human activities were identified as the primary cause of seagrass loss by 57.5% of respondents, followed by climate change (39%) and sea urchin herbivory (38%). Most believed seagrass cover changes were natural and not subject to full depletion. Despite this, prolonged decline has led to species loss, including local extinctions like *Dugong dugon*. Current governance largely protects seagrass indirectly, emphasizing the need for direct, community-inclusive conservation strategies. This study provides a baseline for future research and supports evidence-based decision-making. It advocates for targeted conservation to enhance ecosystem resilience, supporting sustainable coastal resource management and long-term community well-being.

Keywords: Community, Conservation, Lamu, Remote-Sensing, Seagrass

Small Community-Based Marine Protected Areas in Kenyan Lagoonal Reefs Enhance Local Fish Stocks and Hard Coral Habitats

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Abstract

Marine Protected Areas (MPAs) are widely acknowledged for their efficacy in conserving healthy coral reefs and restoring depleted fish stock, and thus contribute to enhancing their conservation. A fundamental question in coral reef conservation is whether small community-based Marine Protected Areas (MPAs) can be effective in conserving healthy coral reefs and restoring depleted fish stocks. We examined eight commercially important fish families (density and size), benthic cover and coral recruitment in three small-sized and well-enforced community-based MPAs (<1 km^2) and compared with adjacent reef areas where fishing is allowed (non-MPAs) in southern coast, Kenya. Dataset was collected using standardized underwater survey; line-belt transects and photo-quadrat methods. The community-based MPAs exhibited higher density of reef fishes >25 cm total length and contained six times more medium to larger individuals of herbivorous fishes (i.e., Siganidae, Acanthuridae and Scaridae) than non-MPAs. Hard coral cover in MPAs was 3 - 5 times greater than in adjacent non-MPAs. Two of three MPAs had 3 - 4 times more coral recruits than non-MPAs. We conclude that small community-based MPAs can benefit exploited fish populations and provide higher coral cover and recruits, potentially forming important nodes in MPA networks for effective coral reef conservation. The study highlight increased attention for well-enforced and small community-based MPAs as a viable conservation tool in a context where increasing use of coastal areas need to be reconciled with the global conservation goals foreseen in the near future.

Keywords: Small community-based marine protected areas, coral reef conservation, underwater visual census, herbivorous fishes, coral recruits, Kenya

Ranger-Led Marine Ecological Surveys Within Marine Protected Areas, Kenya

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Abstract

Continuous monitoring and evaluation of the health status of coral reefs is critical for enhancing coral reef resilience, especially in marine protected areas. The present study aims to provide detailed information concerning the conditions of live hard corals and reef fishes, including density at **four Marine Protected Areas** (MPAs), which include Kisite-Mpunguti MPA, Mombasa MPA, Watamu MPA and Malindi MPA. The benthic data was collected in March 2024 using point Intercept transect (PIT) and underwater visual census method for fish survey. The overall health status for MPAs was considered as "good" with >41.61%+-4.6 of mean hard coral. Among the MPAs, Kisite-Mpunguti had highest live coral coverage accounting for 50.7%+_6.6, followed by Mombasa MPA (43.2%+-5.7). Malindi and Watamu had lower coverage of 23%+-5.4 and 30%+-3.6, respectively. Furthermore, 25 families of reef fish were found, belonging to 48 genera, 102 species. Kisite-Mpungtuti and Malindi MPAs had higher fish density of mean 178 indiv. and 160 indiv. Per 250m 2 transects, respectively. Watamu and Mombasa had lower fish density of < 45 indiv. Per 250m 2, respectively. This work demonstrates the capability of ranger-led ecological surveys in MPAs, providing useful information that would allow active engagement of different stakeholders in identifying adaptive management actions such as reduced overfishing, poaching and improved water quality.

Keywords: fish census, coral reefs, Marine protected areas, reef fish, benthic cover and Kenya

Sub-Theme: Wildlife Health, Disease Management and Genetics

Efficacy of Antibiotic, Ivermectin, and Antibiotic-Ivermectin Combination for Treatment of Giraffe Skin Disease (GSD) in Ruaha National Park, Tanzania

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Abstract

Giraffe Skin Disease (GSD) is an infectious disease that was first recorded in the northern section of Ruaha National Park at Lunda area in Tanzania in 2000. This treatment trial was conducted to determine the efficacy of ivermectin, antibiotic and their combination to control GSD in giraffes in Ruaha National Park from October 2022 to February 2023. A total of 18 giraffes were immobilized using 20mg Etorphine HCL (M99) each and reversed with Diprenorphine (M5050) at 3 times the dose of M99. The immobilized giraffes were treated as follows; 5 giraffes were treated with long acting 20% Oxytetracycline injectable solution at a dose of 20mg/kg; 3 giraffes were treated with 1% w/v ivermectin injection per subcutaneous route at a dose of 200mcg/kg, equivalent to 1ml/50kg); 6 giraffes were treated with a combination of 20% long-acting antibiotic and 1% ivermectin, 4 giraffes were left as untreated control (2 negative control and 2 positive control). All immobilized giraffes were fitted with Savanna tracking GPS collars on the tail and ear tags with numbers to enable tracing of giraffes for assessment of treatment efficacy. Results showed that 50% of giraffes treated with ivermectin alone had high significant recovery while 50% had moderate improvement; 50% of giraffes treated with antibiotic alone had significant recovery while 50% had moderate recovery, and that 66.66% of giraffes treated with a combination of ivermectin and antibiotic had significant recovery while 33.33% had moderate improvement. One of the two un-infected control giraffes in an infected herd with collar number 4044 and ear tag 2555 was infected with GSD three months after commencement of the study. It was concluded that GSD responds well to treatment of combination of ivermectin and antibiotic or ivermectin alone, and that the efficacy of drugs was higher for fresh cases than for chronic cases.

Keywords: Giraffe Skin Disease; GSD; Giraffe; Ruaha

Anthropogenic Barriers Reshape Diet but Not Gut Microbiota in Reticulated Giraffes (*G. Reticulata*)

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Abstract

Anthropogenic barriers such as roads and fences alter wildlife movement, with potential consequences for foraging behavior, nutrition, and gut microbiota. In Laikipia County, Kenya, we investigated how two distinct movement barriers—a fenced highway in Mugie Conservancy and elephant exclusion plots in Ol Jogi Conservancy—altered the diet and gut microbiota of reticulated giraffes (*Giraffa reticulata*). Using DNA metabarcoding on 34 dung samples, we analyzed giraffe dietary composition and microbial diversity in barrier-constrained versus unconfined habitats to assess how this species responds to human-induced landscape modifications. We found that giraffes exhibited notable dietary shifts in response to movement restrictions and habitat structure. In Ol Jogi, giraffes at the Pyramid site—characterized by greater tree density and taller acacias—consumed fewer plant species and showed stronger selection for *Vachellia* and evergreen shrubs, compared to those at the Ranch site, which supported lower tree density and a dominance of evergreen shrubs. Diet dissimilarity between these two sites was significant (Bray-Curtis = 0.55, $P < 0.001$). At Mugie, although East and West sites had highly similar vegetation composition (Pearson's $r = 0.865$), giraffes still showed subtle but ecologically meaningful differences in diet, such as selection for *Croton* in the West but complete avoidance in the East. Despite these shifts in dietary composition, gut microbiota remained stable across all groups, with no significant differences in microbial diversity or predicted functional pathways. These findings highlight that while physical barriers and vegetation structure can shape giraffe foraging behavior, microbial communities may be buffered against short-term dietary shifts. Nevertheless, restrictions to wildlife movement can limit dietary flexibility and potentially affect long-term health and population dynamics. Thus, integrating molecular tools into wildlife monitoring offers valuable insights for management approaches to herbivore nutrition, health, and habitat resilience in increasingly fragmented ecosystems.

Key words: Reticulated giraffes, endangered species, forage quality, habitat fragmentation, megafauna, moving in the Anthropocene, nutrition

The Bacterial and Pathogenic Landscape of African Buffalo (*Syncerus Caffer*) Whole Blood and Serum from Kenya

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Abstract

African buffalo (*Syncerus caffer*) is a significant reservoir host for many zoonotic and parasitic infections in Africa. These include a range of pathogenic viruses and vector-borne bacteria. Despite the considerations of mammalian blood as a sterile environment, blood microbiome sequencing could become crucial for agnostic biosurveillance. This study investigated the blood microbiome of clinically healthy wild buffaloes in Kenya to determine its applicability in agnostic testing for bacteria in apparently healthy wild animals.Whole blood and serum samples were collected from 46 wild buffalos from Meru National Park (30), Buffalo Springs (6) and Shaba (10) National Reserves in Kenya. Total deoxyribonucleic acid (DNA) was extracted from these samples and subjected to 16S rRNA amplicon-based sequencing. The generated amplicons were mapped to the SILVA database to identify the bacteria operational taxonomic units (OTU) to species levels. These generated OTU tables were used to infer the microbial abundance in each sample type and at the individual animal level. The sequences for the corresponding OTUs were also used to generate phylogenetic trees and thus infer evolution for the OTUs of interest. The findings demonstrate that buffaloes harbor many bacteria in their blood. We also report a diversity of 16S rRNA gene sequences for *Anaplasma* and *Mycoplasma* from individual animals. By sequencing both whole blood and serum in triplicate for each animal, we provide evidence of the differences in detecting bacteria in both sample types. In conclusion, diverse bacteria, including some potential pathogens, can be found in the blood of clinically healthy wild African buffalo. Agnostic pathogen surveillance via blood microbiome sequencing can use either whole blood or serum, depending on the research question.

Key words: *Anaplasma*, 16S rRNA sequencing, blood microbiome, buffalo, Mycoplasma

Higher Fecal Glucocorticoid and Triiodothyronine Metabolite Concentrations are Associated with Agricultural Use in Male African Savanna Elephants

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Abstract

Human-wildlife conflict is increasing in frequency and distribution with the accelerating conversion of natural lands to agriculture. These agricultural areas provide valuable resources for wildlife but also pose risks of conflict with humans. While optimal foraging theory predicts that animals adopt a strategy that maximizes benefits-to-cost, the rewards of foraging on crops come with unclear costs. We investigated how agricultural use by African elephants correlated with ecological conditions as measured by the Normalized Difference Vegetation Index (NDVI) (a measure of vegetation greenness). We also investigated how fecal glucocorticoid metabolite (fGCM) and fecal thyroid metabolite (fTM) correlated with body condition scores (BCS) and time spent within agricultural areas while controlling for ecological conditions as measured by NDVI. Individuals with lower BCSs had higher fGCM concentrations than those with higher scores. Time spent in cultivated areas was negatively correlated with NDVI values. While both fGCM and fTM concentrations were positively correlated with time spent in agricultural areas, those correlations occurred at different time scales. The strongest correlation with fGCM was related to the time spent over the previous 3 days, while for fTM, it was for time spent over the previous 10 days, potentially reflecting differences in physiological mechanisms related to acute versus chronic responses for these two hormones. The association between elephant dietary choices and habitat use, related to their physiological and metabolic state, provides a proximate explanation for human-elephant conflict.

Keywords: Crop raiding; fecal glucocorticoid metabolites; thyroid hormones; human-elephant conflict; Loxodonta africana

Increased Reported Occurrence of Dystocia Among Free-Ranging Giraffes in Kenya

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Abstract

Dystocia, a complication that occurs at parturition, either due to fetal or maternal factors, is uncommon in wild ungulate species because of genetic selection against maternal and fetal predisposing factors. Among giraffes , reports of dystocia are rare in free-ranging populations. Only one case of dystocia in free-ranging giraffes was reported in Kenya before 2012. This study investigated occurrence of dystocia, type and predisposing factors and outcome of obstetrical interventions, in giraffes in Kenya 2012-2023, including; in both fenced and unfenced protected areas. Seventeen cases were recorded during the study period in 10 different locations. Three giraffe sub-species in Kenya were affected, with 9 cases in Maasai giraffes (*Giraffa tippelskirchi*) and 4 cases each in; Reticulated (*Giraffa reticulata*) and Rothschild's (*Giraffa camelopardalis rothschildi*) giraffes. Cases were mainly attributed to fetal factors including, malposition or malpresentation. In this review a 75% (n-16) success rate of relieving dystocia was recorded through obstetrical manipulation, based on dam survival. None of the calves survived. Prompt detection, reporting and veterinary interventions were observed to increase the survival rates of dams. A temporal and spatial increase of reporting of dystocia cases in Kenya is noted, possibly due to improved awareness or an actual increase due to nutritional associated diseases or other risk factors. Poor natural food quality and quantity due to shrinking browsing range may be a factor, resulting from more frequent and sometimes prolonged climate change associated droughts over recent decades. We postulated that there is a likelihood of occurrence of other inherent reproductive conditions, including anestrus, poor conception, abortions, and stillbirths. These could have significant impacts on the giraffe population and need to be investigated. With a decline of free-ranging giraffe population in Kenya, these findings inform mitigation measures towards reversing this trend.

Key words: Climate change, dystocia, veterinary obstetrics, giraffe, nutritional disease

Sub-Theme: Human Dimensions in Wildlife Conservation

The Future of Wildlife Conservation in Kenya: Insights from Analysis from Human Dimension Factors

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Abstract

A big question many in government, academia and conservation are asking themselves is whether wildlife conservation (the species and its spaces) have a reasonable future in Kenya Many identify key threats as poaching (for trophies, meat and other products), habitat loss and fragmentation, human wildlife conflicts and climate change. Other threats are biological ones such as genetic drifts, stochastic (environmental and demographic), diseases, predation and parasitism are not out of our control. One key focus should be human dimension related threats. This paper examined 20 indicators commonly mentioned in literature under five factors (Perception of the local communities, Key benefits from wildlife, Impacts of wildlife to people and their livelihoods Impacts of people on wildlife, underlying community drivers, long term mitigation strategies and overall score for future of wildlife conservation) in Kenya scoring using a Likert scale (1=very poor/very low, 2=poor/low, 3=average/medium, 4 = good / high 5= very good / very high). I interviewed purposively 20 known experts (informed leaders, scientists to NGO and community conservationists) from each of the 8 KWS conservation areas. Analysis was done using SPSS version 18 (2009) and IBM Amos Version 26 (2019) for critical insights on the influence of these factors to the future of wildlife conservation in Kenya. From average scores, the overall future for wildlife conservation in Kenya is bleak. The relatively better prospects were found at the coast, followed by Tsavo and northern conservation areas. The worst prospects were for southern, followed by western, eastern and mountain conservation areas. I considered the role of four long term mitigations indicators (space expansion outside protected areas, practicing compatible land uses in wildlife rich areas, creating vibrant education and awareness programs, and adequately funding wildlife conservation in protected areas and communities) and the five factors on future of wildlife conservation in Kenya. Only two indicators (Adequate wildlife funding $p < 0.001$, Space expansion $p < 0.001$) were the most important. Further, only two factors (Impact of wildlife on people $p < 0.001$, perception of people on wildlife $p = 0.024$) were most significant. The two indicators and two factors however explained a poor variability of the scores on the future of wildlife conservation in Kenya (R^2 =30.3%) alluding to complexity of this question. The future of wildlife increased with more wildlife space and declining impacts of wildlife on people. Therefore, two strategies most needed are expanding space for wildlife (migration corridors, dispersal areas, encouraging conservancies) and reducing impacts of wildlife on people (livestock predation, crop raiding, insecurity, property damage, injury and death to humans). Intervening factors may include perception of communities and wildlife funding.

Encroachment on Water Corridors Drives Farmers-Giraffe Conflicts Along River Tana Ecosystem in Eastern Kenya

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Abstract

Human-wildlife conflict (HWC) is an escalating global issue that is influenced by climate change, human population growth and agricultural expansion. In arid and semi-arid lands (ASALs) such as Garissa County in Kenya, where resource scarcity intersects with expanding human land use, the effects of HWC are particularly severe, threatening the survival of species like the reticulated giraffe (*Giraffa reticulata*). We investigated how degradation of historical water corridors contributes to increasing conflicts between farmers and the reticulated giraffe (*Giraffa reticulata*). Using field surveys, spatial mapping, and supplementary feeding trials, we assessed (1) the current status and drivers of water corridor degradation, (2) spatial hotspots of conflict risk, and (3) the effectiveness of targeted mitigation strategies, specifically supplementary feeding. Our results show that *Prosopis juliflora* invasion (63.0%), farmland expansion and riverbank erosion are the primary drivers of corridor degradation along the River Tana Ecosystem in Eastern Kenya. Conflict hotspots were closely associated with areas near water sources (≤0.011 km) and intensive croplands. Supplementary feeding trials significantly reduced giraffe incursions into farmlands ($t = -9.18$, $p < 0.0001$). These findings highlight the central role of ecological connectivity in managing human–giraffe coexistence and offer a practical, scalable framework for conflict mitigation in water-stressed, human-modified landscapes.

Keywords: *Prosopis Juliflora*; Reticulated Giraffes; Wildlife water corridors; Mapping human-giraffe conflicts; Analytic Hierarchy Process; Supplementary feeding; Ecosystem fragmentation

Examining the Causes and Extent of Human-Wildlife Conflict in Queen Elizabeth National Park: Lessons for Lasting Coexistence

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Abstract

Human-wildlife conflict (HWC) in Queen Elizabeth National Park (QENP), Uganda, poses significant challenges to both conservation efforts and the livelihoods of local communities. As human populations expand into wildlife habitats, conflicts involving species such as elephants, lions, and buffalo have intensified, resulting in crop destruction, livestock predation, and occasional human fatalities. This study examines the ecological, social, and economic drivers of HWC using a comparative statistical analysis of data collected from 120 household surveys, six focus group discussions, and 40 key informant interviews across three sub-counties adjacent to QENP. Statistical tests, including chi-square tests and regression models, were used to compare the relative influence of variables such as proximity to the park, household income level, type of livelihood, frequency of wildlife encounters, and perceived effectiveness of mitigation strategies on conflict severity. Results indicate that households closer to the park and those primarily

dependent on agriculture are significantly more vulnerable to HWC. Ecological drivers such as drought, wildlife population increase, were more strongly associated with elephant-related incidents, whereas economic and governance factors such as delayed compensation, poor park community relations, played a larger role in triggering retaliatory actions. Findings underscore the importance of integrating community-centred conservation strategies, such as equitable benefit-sharing, transparent compensation schemes, and adaptive livelihood alternatives. The use of comparative analysis enhances understanding of the nuanced contributions of different conflict drivers, providing a more robust basis for policy recommendations aimed at fostering coexistence between communities and wildlife.

Keywords: Community participation, conservation policies, human-wildlife conflict, Queen Elizabeth National Park

Geospatial Patterns and Behavioural Responses of Elephants to Cattle and Mortality Risk in a Pastoralist Maasai Mara Landscape, Kenya

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Abstract

Although behavioural plasticity can enhance survival in altered environments, maladaptive behavioral scenarios or "evolutionary traps" can threaten the persistence of some species from anthropogenic alteration. Altered social structures and habitats may impact decision making of elephant social groups in anthropogenic landscapes creating maladaptive responses that can amplify conflict. We examined geospatial patterns of elephant mortality risk, cattle distribution, NDVI and habitat protection status on elephant distribution and group-sizes at the Maasai Mara National Reserve, Community Wildlife Conservancies and surrounding Community Grazing Lands in the Maasai Mara ecosystem. We also investigated how social group type, group-size, age of the oldest individual in a group and habitat openness influence elephant response to experimental cowbells. Using kernel density analyses from ten years of georeferenced clinical reports pertaining to elephant injuries and elephant mortality due to poaching, we show that elephant injuries and mortalities were highest in CWC and CGL compared to MMNR. Ninety elephants were treated from injuries. Injured elephants were located close to rivers (t_{84} = 6.44; P< 0.001) but were farthest from settlements (t_{140}= -4.68; P< 0.0001) than expected from a random distribution of injury locations. Our study showed a positive relationship between elephant group-size with NDVI, and the risk of elephant mortality or injury. Roads had no influence on the distribution of dead elephants (t_{223} = -1.76; P =0.080).Cochran–Mantel–Haenszel analyses revealed that there was a strong association between defensive bunching and retreat behaviour (Mantel-Haenszel $\chi^2_{(1, n=46)}$ = 10.04, P = 0.002). Defensive bunching was not observed in all-male groups but was more common among matriarchal groups ($\chi^2_{(1,n=60)}$ = 22.531, P < 0.001). Concealed cowbells played to elephants revealed that elephant aggression towards cowbells was not influenced by matriarch age, group-size, habitat type or status of habitat protection. However, defensive bunching was positively related to the matriarch's age, group-size and social group type. These results suggest sensitivity of older matriarchs to poaching risk and that elephants use group defense or avoidance behavioural strategies irrespective of vegetation cover.

Keywords: Evolutionary traps; human–elephant conflict; mortality hotspots

Mitigating Human-Crocodile Conflict in Tanzania: A Case Study of Korogwe, Mkinga, Ludewa, and Uvinza Districts

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Abstract

Human-crocodile conflict (HCC) is an increasing threat in Tanzania, primarily driven by population growth and agricultural encroachment into crocodile habitats. These conflicts frequently result in human fatalities, livestock loss, and disruption of livelihoods, particularly in water-dependent communities. This study evaluates efforts by the Tanzania Wildlife Research Institute through the Ministry of Natural Resources and Tourism in mitigating HCC by constructing crocodile exclusion fences in four high-risk districts: Korogwe, Mkinga, Ludewa, and Uvinza. Between 2010-2020, 65 fatal crocodile attacks were reported in Tanzania, of these 37% occurred during swimming or bathing, 23% while fishing, 10% collecting water, 8% crossing rivers, and 22% in other circumstances. Incidents peaked during the rainy season (November–May), which overlaps with the crocodile breeding season. In alignment with the National Human-Wildlife Conflict Mitigation Strategy (2020–2024), ten crocodile exclusion fences were constructed between February and May 2025. Concurrently, 916 community members received training on HCC mitigation strategies. Feedback collected from 320 individuals through focus group discussions and key informant interviews indicated that 85% believed the exclusion fences would significantly reduce conflict. Another 10% recommended combining the fences with supplementary initiatives such as safe water supply and public education, while 5% remained uncertain. The study concludes that sustainable mitigation of HCC in Tanzania requires integrated interventions, including the provision of safe water access points, land-use planning along waterways, and the construction of secure river crossing structures. Success hinges on strong collaboration between conservation authorities, local governments, and community stakeholders.

Keywords: Crocodile, Human-Wildlife Conflict, Mitigation Strategies, Exclusion Fences

Beyond the Safari: What Satisfies Nature Tourists in Northern Tanzania?

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Abstract

Nature-based tourism is a rapidly expanding sector that contributes significantly to national economies, particularly in biodiversity-rich regions like Tanzania. Despite its national importance, limited empirical studies have assessed drivers of satisfaction levels among tourists. This study examined tourist satisfaction in the protected areas (PAs) of northern Tanzania specifically, Ngorongoro Conservation Area, Serengeti, Lake Manyara, Tarangire, Arusha and Kilimanjaro National Parks, with a focus on biodiversity attractions and tourism services. Adopting a quantitative

approach, we collected data from 620 randomly selected tourists at PA exit gates after their visits. The data were analyzed using R (version 4.4.1) to identify key drivers of satisfaction. Our survey results indicated that 82.5% of tourists expressed satisfaction with biodiversity attractions, while 83.1% reported satisfaction with the tourism services. The statistical analysis revealed that female tourists (β= 0.52, SE=0.18, CI: [0.174 0.870]), cottage accommodation (β=-0.92, SE=0.45, CI:[-1.80 -0.04]), camping accommodation (β=-0.86, SE=0.28, CI: -1.40 -0.32]), one-day stay (β= -0.81, SE= 0.30, CI: [-1.41 -0.22]), and popularity of the PA (β= -8.81, SE=0.30, CI: [-1.41 -0.22]) were significant predictors of satisfaction with biodiversity attractions in the PAs. Regarding satisfaction with tourism services offered in different PAs, we found tourists visiting Tarangire National Park reported significantly higher compared to those visiting Arusha National Park (β= -3.38, SE=0.43, CI: [-4.23 -2.54]), Kilimanjaro National Park (β= -1.98, SE=0.41, CI: [-2.79 -1.17]), Ngorongoro Conservation Area (β= -1.71, SE=0.18, CI: [-2.69 -0.72]), Serengeti National Park (β= -1.26, SE=0.40, CI: [-2.06 -0.476]). While the overall satisfaction was high, we highlight the importance of sustainable tourism practices to protect biodiversity, recognizing that wildlife plays a critical role in enhancing visitor experiences. Moreover, we recommend future research to explore strategies to enhance tourist satisfaction, optimize revenue generation and minimize ecological impacts on the PAs.

Keywords: Attractions, Biodiversity, Satisfaction, Tanzania, Tourism

Implications of Infrastructural Development on Primate Conservation: A Case of Sykes Monkey (*Cercopithecus Mitis Kolbi*) Road-Kills in Oloolua Forest, Kenya.

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Abstract

The development of transportation infrastructure negatively impacts ecosystem structure and function. Road construction in particular increases the risk of wildlife-vehicle collisions, which might have far-reaching consequences on the species population and structure. However, studies to understand the effects of roads on primate populations remain scant despite the grave threat of wildlife-vehicle collisions posing survival challenges to vulnerable species. Thus, we aimed to monitor the impact of the newly constructed link road between Gataka and Embulbul towns within the Oloolua forest, Kajiado North, and develop strategies to help reduce vehicle collisions. We collected data through a road transect walk along the Oloolua forest section of the road and recorded all incidents of wildlife-vehicle collisions between March 2021 and May 2024. We recorded data on species affected, individual age-sex class, georeferenced incidence location, and whether the animal was alive or dead. We recorded a total number of 19 wildlife-vehicle collisions, out of which 81% were fatal. Relative to other species, Sykes monkeys were the most affected, accounting for 53% of the total wildlife-vehicle collisions. Out of the total collisions involving Sykes Monkey, the survivorship rate was 30%, implying 70% succumb to injuries. Females were the most affected, accounting for 60% compared to other age classes. We observed that lack of road speed bumps, road warning signs on animal crossing points, and animals crossing the road on the ground were the key drivers of the road-kills. In conclusion, Sykes recorded the highest fatalities, and females were the most affected, which can have long-term effects on population growth. The findings are crucial in informing the decision-making process and policy amendments to ensure that infrastructural development considers wildlife survival needs.

Keywords: Wildlife-vehicle collisions, Conservation, Sykes monkey, Road kills

Assessment of the Impact of Land Use/Land Cover Change on Human-Wildlife Conflict in Mukogodo Landscape, Laikipia County, Kenya

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Abstract

Land Use and Land Cover (LULC) change is a major driver of ecological transformation and human-wildlife conflict (HWC), particularly in arid and semi-arid ecosystems. This study assessed the relationship between LULC dynamics and HWC incidents in the Mukogodo Landscape, Laikipia County, Kenya, from 2009 to 2024. A mixed-methods approach integrated supervised classification of Landsat 7, 8, and 9 imageries with spatial analysis of HWC data. Classification accuracy was high across all years (89.0%–95.3%, □ = 0.83–0.93). Forest cover increased from 141.35 km² (2009) to 287.81 km² (2019) before declining to 260.77 km² in 2024, while areas under human impact rose significantly after 2019, from 87.35 km² to 135.69 km².nA total of 3,110 HWC incidents were reported, increasing by 95.8% over the 15-year period. Conflict frequency rose from 711 (2009–2013) to 1,392 (2019–2024). Kernel density analysis revealed intensifying HWC hotspots in areas with accelerated LULC conversion and corridor degradation. Of the analyzed grid cells, 9,816 showed increased conflict density. Human threats were the most common conflict type (59.6%), followed by predation and crop damage. Elephants accounted for 75.9% of all incidents, especially in crop raids and human threats. Other conflict species included leopards, hyenas, and lions. Community feedback highlighted mixed success of mitigation efforts, particularly predator-proof bomas, and emphasized the need for participatory conflict resolution. These findings provide crucial insights into the socio-ecological dynamics of HWC in Mukogodo, informing targeted interventions for conflict mitigation. Key outputs from the study include LULC maps, statistical conflict models, and policy recommendations for sustainable land management. Through addressing the drivers of HWC and evaluating mitigation strategies, this research contributes to evidence-based decision-making for conservation practitioners, policymakers, and local communities, promoting human-wildlife coexistence in arid and semi-arid landscapes.

Keywords: Land Use/Land Cover (LULC), Human-Wildlife Conflict (HWC), Mukogodo, Kernel Density, Elephants, Conflict Mitigation

PARALLEL SESSION 3 - 2-Way Hall

Sub-Theme: Wildlife Populations Dynamics and Ecosystems Connectivity

What Drives the Extreme and Persistent Loss of Wildlife in Kenya?

Ogutu JO* et al.
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Abstract

Mounting evidence shows precipitous wildlife declines worldwide, with particularly severe losses across Africa. Using systematic aerial surveys that sampled rangelands covering 88% of Kenya's land surface, we reported in 2016 that national wildlife abundance had fallen by 68% between 1977 and 2016. Losses were most acute (-72 – -88%) for warthog, lesser kudu, Thomson's gazelle, eland, oryx, topi, hartebeest, impala, Grevy's zebra and waterbuck. Declines were widespread, affecting nearly all 21 rangeland counties. During the same period cattle numbers shrank by 25.2%, whereas sheep and goats rose by 76.3%, camels by 13.1% and donkeys by 6.7%. Consequently, livestock biomass increased from 3.5 × that of wildlife in 1977–1980 to 8.1 × in 2011–2013. Narok County alone harboured roughly 30% of Kenya's remaining wildlife by 2013, while only Taita-Taveta, Laikipia, Garissa and Wajir increased their share—reflecting even steeper losses elsewhere. These trends call into serious question the effectiveness of current conservation policies, institutions and practices. Proximate drivers include explosive human population growth, expanding livestock herds, declining rainfall and marked warming. The ultimate drivers, however, are land tenure and land use changes, governance, policy, institutional and market failures. We therefore reviewed Kenya's land tenure, governance and conservation policy landscape and proposed remedial actions—including stronger investment in community and private conservancies—to restore rangeland health and wildlife populations.

Extending the 1977-2016 analysis to: 1885 – 2025

To diagnose the continuing crisis, we assembled data spanning 1885–2025 and applied dynamic, multi-scale cascading-causality and statistical analyses. Drawing on grey and published literature from 4000 BP to 2025 and extensive statistical modelling, we divided Kenya's socio-ecological history into six regimes demarcated by major transitions:

1. Pre-colonial (before 1895)
2. Early colonial to end-WWI (1895 – 1919)
3. Inter-war colonial (1920 – 1945)
4. Post-WWII to independence (1946 – 1963)
5. Post-independence, pre-devolution (1964 – 2012)
6. Post-devolution and COVID-19 era (2013 – present)

Interacting drivers of wildlife decline

Our evaluation highlights the cumulative impact of the following and other factors:

- Land-tenure change: unplanned enclosure, adjudication, privatisation, individuation and subdivision from colonial times to the present and land use change;
- Wildlife legislation, policy and institutions (1889 – 2025);
- Governance failures: presidential authoritarianism and its impact on corruption, weak institutions and weak enforcement;
- Macroeconomic pressures: structural-adjustment programmes imposed by IMF and the World Bank and their adverse environmental linkages;
- Demography and production: rapid human population growth, settlement expansion, urbanisation, fencing, infrastructure, agriculture and the degradation, fragmentation and contraction of wildlife ranges;
- State-led land transfer, resettlement and development schemes from independence that have contributed to dramatic destruction of wildlife habitats;

- Excessive offtake: vermin control, licensed game cropping, poaching and both sanctioned and unsanctioned hunting;
- Mass uncontrolled culls during World Wars I & II, soon after WII and during the Mau Mau insurgency (1952–1955);
- Livestock displacement: competitive exclusion of wildlife by burgeoning livestock herds;
- Encroachment and compression of protected areas by human activities.

Towards recovery

We conclude by outlining evidence-based measures to halt wildlife declines and revitalise conservation in Kenya, with priority given to:

1. Scaling up and adequately financing community and private conservancies;
2. Reforming land-use and tenure policy to secure wildlife habitats, corridors and dispersal areas;
3. Strengthening governance, transparency and enforcement within conservation agencies;
4. Aligning macro-economic and sectoral policies (agriculture, infrastructure, tourism) with biodiversity goals;
5. Restoring rangeland ecosystem services through participatory, climate-smart management.

Implementing these interventions can help reverse current trajectories and safeguard Kenya's unique wildlife heritage for future generations.

Assessing the Critical Habitats Key to Cheetah Space Use

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Abstract

Cheetahs navigate landscapes shaped not only by natural ecological dynamics but also by human influences, selecting habitats that best support their survival and reproductive success amidst varying anthropogenic pressures. As human activities expand in areas adjacent to the core protected areas, understanding how these changes affect cheetah habitat selection is critical, particularly in terms of access to key resources and avoidance of anthropogenic threats. This study explores the habitat selection of cheetahs (Acinonyx jubatus) within the southern borders of Serengeti National Park. Addressing anthropogenic and environmental factors affecting habitat choice, we utilized GPS satellite collar data from ten cheetahs between 2022 and 2024. Our analysis incorporated a range of human-related and environmental covariates, employed Generalized Linear Mixed Models (GLMMs) to identify areas selected by cheetahs. Key anthropogenic factors encompassed distances to lodges, roads, and bomas and the environmental variables included woody cover, slope, elevation, relative vegetative greenness, and distance to rivers. The analysis revealed that cheetahs exhibited flexible responses to human activities, showing an avoidance of areas near roads and lodges during peak tourist seasons (wet seasons) and strategic avoidance of areas near occupied Maasai bomas during dry seasons. Cheetahs also prefer areas with high tree density, flatter terrains, lower elevations, less green vegetation, and closer proximity to rivers, particularly in the dry season. These results contribute significantly to the development of cheetah conservation strategies by highlighting the importance of specific landscape features that influence their distributions and may improve our understanding of how cheetahs manage to minimize the impacts of human disturbance across the southern borderlands of the Serengeti ecosystem.

Key words: Cheetah habitat selection, GPS telemetry, Serengeti ecosystem, Anthropogenic Impacts, Conservation planning

Modelling Spatio-Temporal Dynamics of Land-Use/Land-Cover in Complex Social-Ecological Systems Using a Flexible, Reproducible Hierarchical Classification

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Abstract

Reliable characterisation of land-use/land-cover (LULC) change is essential for environmental monitoring, spatial planning and understanding the drivers of landscape transformation. African savannas and other similar biomes, however, present a particular challenge because LULC categories often grade gradually into one another. We present a scale-independent, fully reproducible framework for modelling LULC dynamics for complex socio-ecological systems such as savannas and illustrate it using aerial-survey data collected by Kenya's Directorate of Resource Surveys and Remote Sensing (DRSRS) between June 1984 and 2022. Vegetation and land use were recorded on 5 × 5 km^2 or 5 × 2.5 km^2 grids and classified with a five-level hierarchy that progressively adds ecological detail:

- **Level 0** – primary life-form: grassland, shrubland, woodland, or bare ground.
- **Level 1** – canopy density: dense, closed, open, or sparse.
- **Level 2** – secondary modifiers: wooded, treed, shrubbed, or grassed.
- **Level 3** – plant height plus grazing history or phenological state: tall, low, or dwarf.
- **Level 4** – dominant species (e.g. *Acacia drepanolobium* low, open grassed shrubland).

Combining these descriptors yields 163 unique LULC classes across Levels 0–3:

- Level 0: 4 classes
- Level 1: 13 classes
- Level 2: 37 classes
- Level 3: 109 classes

(Classes are generated from three vegetated life-forms × four density modifiers × three secondary modifiers × three height categories, plus one barren-land class.)

Each class is expressed concisely as

species description + optional modifier + height + canopy density + secondary name + primary name; for example,

"*Acacia reficiens–Acacia mellifera* low open grassed shrubland."

We model the spatio-temporal trajectories of Levels 0–3 and relate them to elevation, annual rainfall, temperature deviates, soil type and distance to rivers or drainage lines and other predictors. Illustrated for the Greater Masai Mara Ecosystem (1977–2022), the framework produces a time-series of high-resolution LULC maps suitable for supporting principled land-use planning, habitat-suitability assessments and robust change-detection analyses.

Diet and Activity Budget of Tana River Red Colobus in an Agroecosystem Forest; A Case Study of the Makobhoyo Farmlands

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Abstract

Food availability and species resilience to habitat alterations are critical factors influencing forage, range ecology, and other social interactions among colobus populations globally. The Tana River Red colobus, a specialized folivore endemic to the lower Tana, riverine forest, feeds on more than 20 plant species. While recent population surveys revealed healthy populations in farmed areas (agroecosystems), species diet and behavior therein remain poorly understood. This study was conducted on a habituated population of the species in Makobhoyo, a farmed forest patch North of the TRPNR, for four months over two consecutive seasons, employing focal scan sampling method to document behavioral activities, diet and seasonal variations. Mangifera indica (33%), Ficus sycomorus (30%), and Vachellia robusta (26%) were the most utilized plant species across seasons, accounting for 86% of the food consumed. Foraging accounted for 53% and 47% of the time budget during the dry and wet seasons respectively. A significant decrease in resting (42%) and movement (45%) defined the wet season, compared to the dry season (71% and 55%). Seasons influenced species activity time budgets in this agroecosystem patch. While comparative studies will serve better in understanding the species in other agroecosystem patches, intensive community sensitization and habitat restoration activities are critical strategies for limiting habitat loss and averting potential human-wildlife conflict scenarios.

Keywords: Activity time budget, Agroecosystems, *Piliocolobus ruformitratus*

African Elephant Behaviour at Conspecific Carcasses: Patterns and Drivers

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Abstract

African elephants are known to show interest in conspecific carcasses and bones, often investigating the remains of other individuals for prolonged periods. Field workers have frequently interpreted such behaviour as evidence of "mourning" in elephants, especially if targeting deceased family members. However, elephant-carcass interactions have never been systematically documented, and the potential adaptive significance of this behaviour remains unknown. In the Samburu-Buffalo Springs National Reserves of northern Kenya, we investigated elephant behaviour at conspecific carcasses via the use of camera traps, deployed at 11 different carcasses at various stages of decay. Taking advantage of Save the Elephants' individual-based, long-term elephant monitoring project, we were able to determine inter-individual differences in the frequency of carcass visits, and in the behavioural repertoire expressed at carcass sites. Here we present the results of this study, highlighting social and ecological factors that could have contributed

to drive differences in behaviour at carcasses, and we provide interpretations of the potential functional role of carcass visits.

Keywords: Elephants - Thanatology - Carcass - Behavioural Ecology - Mourning

Ecological Patterns and Pressures: A Study on Wildlife Population Dynamics and Ecosystem Connectivity in the Greater Mara Ecosystem

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Abstract

This study investigates ecological disruptions and wildlife movement patterns across the Greater Mara Ecosystem, where land fragmentation, fencing, and increased livestock activity are threatening wildlife corridors and driving human-wildlife conflict. Field-based observation during routine patrols as a security head and conservation practitioner. Informal interviews with rangers, herders, and community elders Species Focus: Elephants, wildebeest, giraffes, zebras, and lions Real-time, qualitative observations combined with visual documentation. Key findings include: Elephants: Squeezed into narrow corridors near Talek and Oloolaimutia, frequently raid farms — triggering human-elephant conflict, Wildebeest: Migration corridors between the reserve and conservancies increasingly blocked (see Map: red lines = fencing, green = corridors), Giraffes & Zebras: Shifting away from human-settled edges into quieter conservancy interiors, Lions: Livestock depredation on the rise — particularly at night, where lions invade bomas or intercept grazing herds (see Image 2: local cattle on key wildlife grazing routes) and Community Feedback: Consistent concerns over fencing, wildlife disappearance, and heightened predator attacks on livestock. Quotes from the Field: "We used to see giraffes near our homesteads, now they stay far in the conservancy. Fences are chasing them away." — Local elder, Talek, "Last week, lions killed three of our cows. We need help to protect our animals." — Community herder, Oloolaimutia. "The elephants broke into my maize field again. They follow the same path every dry season." — Farmer, Olare Motorogi "Wildlife is part of our heritage, but the pressure from settlements is becoming too much." — Senior ranger, Mara Triangle. In conclusion, the Mara's ecosystem is at a tipping point and demands urgent, coordinated conservation efforts which include, Wildlife corridors must be secured and physically demarcated, Land-use planning should be aligned with wildlife needs and seasonal movements, Human-wildlife conflict (especially lion predation on cattle) must be addressed through better community engagement and rapid response teams.

Keywords: Greater Mara Ecosystem, livestock, corridor, migration,

Primate Conservation in Green Urban Spaces: Population Status of Sykes Monkeys in Oloolua Forest, Nairobi, Kenya

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Abstract

Urban green spaces play a critical role in biodiversity conservation, particularly for primates affected by habitat loss. This study evaluates the population status of Sykes monkeys (Cercopithecus mitis spp. albo) in Oloolua Forest, a peri-urban ecosystem increasingly threatened by anthropogenic pressures. The objectives were to (1) estimate the population size and structure of Sykes monkeys, (2) identify key threats to their persistence, and (3) provide baseline data to inform conservation planning. A census survey using line transect sweep counts was conducted across 479.6 hectares of relatively undisturbed forest. A total of 97 Sykes monkeys were recorded in five social groups, comprising eight adult males, 46 adult females, 16 adults of unknown sex, four juvenile males, four juvenile females, nine juveniles of unknown sex, and 10 infants. The adult:juvenile:infant ratio of 7:2:1 indicates a stable recruitment rate. Primary threats observed included natural tree dieback (36%), plastic waste (25%), glass waste (8%), tree cutting (8%), and metal waste (6%). Other concerns included invasive plant species, fallen trees, and illegal solid waste dumping. These findings underscore the urgent need for targeted conservation interventions such as long-term population monitoring, habitat restoration, and community engagement. Understanding primate–habitat interactions in Oloolua Forest is essential for shaping conservation strategies within urban and peri-urban landscapes. Strengthening protection measures is crucial to mitigating biodiversity loss and ensuring the survival of primate populations in Nairobi's remaining forest fragments.

Keywords: Urban ecology, Sykes monkey, Oloolua Forest, habitat degradation, primate conservation

Day 3

Thusrday 25th September 2025

PARALLEL SESSION 3 – Acacia Hall

Sub-Theme: Wildlife Health, Disease Management and Genetics

Wildlife Health Watch: Leveraging Syndromic Surveillance, Wildlife Management Workforce Knowledge and Machine Learning for Wildlife Epidemiological Intelligence in Kenya

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Abstract

Environmental change and ecosystem disruption are critically important but also inherently complex determinants of how emerging disease threats, including wildlife borne zoonoses (WBZs), manifest across landscapes to impact living populations. In response, our team has developed Wildlife Health Watch, a syndromic surveillance program under pilot in Kenya since 2022 that leverages wildlife rangers as eyes on the ground for wildlife health. Robust ranger training enables low cost and precise geolocated cell phone reporting of wildlife disease syndromes (visible signs of illness or death) via the Earth Ranger platform, leading to wider surveillance coverage and faster recognition of health threats. An automated machine (including deep) learning flagging system is being architected to provide real-time alerts and thus improve intervention response speeds and resource allocation from regulatory programs (KWS) and local wildlife managers. A stakeholder workshop will be held in June 2025 to incorporate local Kenyan veterinary health expertise on syndromic tagging, incidence thresholds, and other epidemiological features to include within the flagging system. This session will include results from the upcoming workshop (priority setting and participatory modeling), outline system design and training data synthesis procedures, and review current challenges and opportunities for the implementation of deep learning algorithms within the current production environment. We will discuss key opportunities for synergizing our program with cross-sectoral animal bio-surveillance and broader ecological monitoring initiatives to support future goals of disease forecasting, regulatory planning, and ecological interventions. Explicit methods and modeling results will not be provided, as this work has not been published.

Keywords: Wildlife borne zoonoses, syndromic surveillance, Earth Ranger platform, bio-surveillance

Recent Advances in Wildlife Health Management

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Abstract

Wildlife especially in Africa is facing a myriad of conservation challenges including human population pressures, habitat loss and degradation, loss of connectivity, climate change, human-wildlife conflicts, diseases and loss of genetic viability and poaching for trophies and bushmeat among others. These has resulted in the loss of biodiversity and near extinction of certain wildlife species. Due to these challenges, wildlife and ecosystems are increasingly having to be intensively managed in order to save and maintain biological diversity. This type of management calls for multi-disciplinary wildlife management team approach which is part of adaptive management and the veterinary profession is playing a crucial role in the maintenance of wildlife and ecosystem health as part of this team. Wildlife disease management and surveillance has evolved over time through deepening the understanding of the links between wildlife health, ecosystem integrity and human well-being then broadened to include concerns such as the impacts of climate change, habitat loss and increased human-wildlife interactions on wildlife health. Recently, the emphasis had shifted towards improved practices for wildlife disease control and the development of advanced diagnostic methods and vaccines. The veterinary profession has significantly contributed to multi-disciplinary wildlife management approach through increasing veterinary inputs into wildlife management and research, disease surveillance and prevention, training and education. In order to provide efficient and effective wildlife veterinary services, veterinarians have made great advances in the areas of development, testing and refining sedative, anaesthetic and tranquilization drugs, improved capture and relocation techniques, improved disease investigation and surveillance techniques, active applied research and wildlife veterinary training that enhances the field of wild animal capture and therefore improve wildlife health. This paper reviews the recent advances towards improved wildlife health management with particular focus to conservation of African wildlife.

Keywords: Conservation challenges, veterinary profession, adaptive management, recent advances

Epidemiology and Prevalence of Antimicrobial Resistant Bacteria in Wildlife in Africa

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Abstract

Antimicrobial resistance (AMR) poses a major global health challenge, yet its prevalence and drivers in African wildlife remain poorly understood, despite increasing interactions between wildlife, humans, and livestock. This review aimed to assess the prevalence, bacterial profiles, and ecological correlates of AMR in African wildlife, and to propose a framework for improved surveillance. We conducted a systematic review and meta-analysis of peer-reviewed studies reporting AMR in African wildlife, following PRISMA guidelines. Articles were eligible if they reported resistance phenotypes in wild animals. Data on host species, bacterial taxa, resistance patterns, sampling methods, and geographic distribution were extracted. Pooled prevalence was estimated using random-effects models. Heterogeneity and publication bias were assessed using I^2 statistics and Egger's test. Study quality was evaluated using the Joanna Briggs Institute appraisal tool. Sixty studies from 21 African countries, comprising 6,936 bacterial isolates, were included. Most were published after 2012. *Escherichia coli* (41%), *Klebsiella spp.* (6.3%), and *Enterococcus spp.* (4.8%) were the most frequently isolated bacteria. Wildlife hosts included herbivores (27%), non-human primates (24%), birds (17%), and bats (10%). The pooled AMR prevalence was 58% (95% CI: 42–71%), with high heterogeneity (I^2 > 90%). *E. coli*-specific resistance was 64% (95% CI: 47–78%). Most studies used phenotypic testing; fewer than 15% employed genomic methods. Sampling was predominantly from synanthropic species near human settlements. In conclusion, African wildlife harbor substantial AMR burdens, often reflecting human environmental contamination. We propose a research roadmap emphasizing sentinel species selection, harmonized testing protocols (e.g., FAO Laboratory Mapping Tool), and expanded genomic and longitudinal surveillance. Integrating wildlife into national AMR surveillance is essential for addressing AMR from a One Health perspective.

Keywords: Animals, Wild, Escherichia coli, One Health, Prevalence, Africa, Systematic Reviews

Building Capacity for Biobanking Wildlife Genetic Resources in Kenya: A Collaborative Initiative

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Abstract

Ex situ conservation of genetic resources, referred to as biobanking, is increasingly recognized as a critical tool for biodiversity preservation, complementing efforts to mitigate loss of genetic diversity in the wild. A new collaboration between the Wildlife Research and Training Institute (WRTI), San Diego Zoo Wildlife Alliance (SDZWA), and the IUCN SSC Center for Species Survival Biodiversity Banking aims to establish a robust centralized biodiversity biobanking facility at WRTI Headquarters in Naivasha to act as a safeguard for Kenyan wildlife. The facility will provide storage capacity for frozen genetic samples from wildlife, supporting research, conservation breeding, and species recovery initiatives. This project is designed as a scalable model, with plans to expand into cryogenic storage to enable long-term preservation of viable germplasm. As part of the capacity-building strategy, SDZWA will provide technical training to WRTI staff both at San Diego Zoo Wildlife Alliance facilities and through on-site mentorship in Naivasha, ensuring the development of local expertise in biobanking operations and protocols. To further align the biobank within Kenya's conservation priorities and regulatory frameworks, SDZWA and WRTI will co-host a workshop aimed at producing a National Strategic Biobanking Action Plan in early 2026. This workshop will engage stakeholders involved in all phases of sample collection, use, and permitting to collaboratively map workflows, build consensus on priorities, and establish protocols that align with national and international standards. The collaboration leverages WRTI's wildlife research and skills development leadership, SDZWA's technical expertise, and the global coordination framework of the IUCN SSC. This poster presentation will outline the project's phased development, capacity-building efforts, and its envisioned role within regional and global biodiversity conservation networks.

Keywords: Biobanking, biodiversity preservation, germplasm,

Strengthening Health Objectives in Conservation Translocations: Outcomes from a Transdisciplinary Workshop in Kenya

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Abstract

Conservation translocations are increasingly applied to restore species and strengthen ecosystem resilience, involving releases from wild populations or human care (e.g., rehabilitation, breeding programs). However, animal health and welfare considerations are insufficiently integrated into translocation planning and policy. In March 2025, a workshop, "Integrating Health Objectives in Conservation Translocation Planning: A Multidisciplinary Approach," was held at the Wildlife Research and Training Institute (WRTI), Kenya. Organized with Kenya Wildlife Service (KWS), Smithsonian Institution, and IUCN SSC Conservation Translocation Specialist Group (CTSG), the event built on discussions from a CBD COP16 side event co-organized by these partners, where the need to integrate health into conservation policy was highlighted. The workshop had three key objectives: (1) provide IUCN CTSG training; (2) facilitate cross-sectoral collaboration and knowledge exchange among Kenyan institutions and stakeholders, highlighting Kenya's health-centered research and translocation strategies; (3) advance integrating animal health and welfare into translocation at global policy level. Kenya's leadership served as a case study to identify priorities for international advocacy and standard-setting. The program combined technical training, scientific presentations, and structured discussions, including a session on national and international policy opportunities. Key outcomes included strong consensus that health and welfare must be fundamental objectives in translocation planning. Participants recommended revising Kenya's Standard Operating Procedures (SOPs) to strengthen health considerations and post-release monitoring. SWOT analyses revealed strengths such as technical expertise, infrastructure, and institutional partnerships, while identifying areas for improvement, including interdisciplinary coordination, disease risk assessment, and genetic monitoring. Opportunities included enhancing surveillance systems, adopting emerging monitoring technologies, and expanding capacity-building and collaborative networks to support evidence-based decision-making. The workshop contributed to a strategy for a real-time EarthRanger module for interdisciplinary translocation data collection.The workshop reinforced Kenya's leadership in conservation translocation and provided a roadmap for refining SOPs, aligning legal frameworks, and advancing international standards for health-integrated translocations.

Keywords: Adaptive Management, Conservation Translocations, Interdisciplinary Collaborations, Conservation Policy, Wildlife Health and Welfare

Prevalence of Pesticide Residues in Akagera National Park, Rwanda using passive sampling: A One Health study

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Abstract

Pesticide exposure poses significant challenges for wildlife conservation and ecosystem health, particularly in agriculturally active regions such as Akagera National Park, Rwanda. Around 70% of Rwanda's water ends up flowing through Akagera National Park. With surrounding agricultural practices, this means that pesticides and other toxins can accumulate in waterways that wildlife are dependent upon. Globally, protected areas face increasing challenges as growing human populations intensify interactions between communities, agriculture, and wildlife. Akagera National Park exemplifies the complexities of balancing conservation with community needs. To monitor pesticide exposure among wildlife, including long-lived mammals such as elephants (*Loxodonta africana*),black rhinoceroses (*Diceros bicornis*), and white rhinoceroses (*Ceratotherium simum simum*), this study employed silicone wristbands as passive sampling to ols. Deployed during dry, wet, and planting seasons, these wristbands absorb environmental compounds, which are extracted and analyzed using gas chromatography coupled with high-resolution mass spectrometry. This approach provides detailed pollutant profiles, offering valuable insights to advance research and Rwanda's conservation efforts. The study's objectives are to (1) assess seasonal and spatial variations in pesticide exposure, (2) identify high-risk zones and potential sources of contamination, and (3) evaluate the broader implications of pesticide use on wildlife health and behavior. This approach leverages the sensitivity and cost - effectiveness of silicone wristbands to provide an unprecedented glimpse into the chemical landscape impacting biodiversity. This research identifies strategies to mitigate agrochemical contamination through community collaboration and demonstrates wearable passive samplers as effective tools for One Health monitoring, advancing integrated conservation and wildlife health efforts within a One Health framework.

Keywords: Pesticides, silicone wristbands, wildlife health and behaviour, community collaboration, One Health

Sub-Theme: Conservation Science, Practice and Technological Innovations

Effect of Semi-Circular Bunds in Rangeland Restorations on Honeybees (Apis Mellifera) and Other Pollinator Communities in Naibung'a Conservancy, Laikipia, Kenya

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Abstract

Laikipia rangeland supports many nomadic pastoral communities, wildlife, and livestock. However, this landscape is threatened by degradation, resulting in a decline of biodiversity and the ecosystem services that depend on it, such as pollination. While there are existing efforts to restore this ecosystem, the lack of monitoring and reporting of restoration outcomes poses a challenge. This study aims to examine the effects of rangeland restoration through semi-circular bunds on honeybees and other pollinator communities at six rehabilitated sites within the Naibung'a Community Conservancy. Insects were collected using two methods: pan trapping and vegetation sweeping, in the dry (July/August 2023) and the wet (April 2024) seasons. A total of 87 individual honeybees (Apis mellifera) were counted across various pollinator groups during the wet season with no honeybees observed during the dry season. The abundance of pollinator flies (Diptera) saw a significant rise from 28 in the dry to 121 in the wet season. Butterflies (Lepidoptera) increased slightly from 65 to 68, wasps (Hymenoptera) and native bees (Hymenoptera) numbers increased from 9 to 150 and 371 to 404 in the dry and wet seasons respectively. Conversely, pollinator beetles (Coleoptera) numbers dropped from 67 to 27 in the wet season. Shannon-Weiner diversity index (H') of pollinators was slightly higher in the wet season with H' 1.279674 compared to dry H' 0.993352. The highest richness and diversity recorded during the wet season, was due to an increase in flowering plants thus enhancing the pollinator populations. Incorporating specialized species, such as native forbs and flowering shrubs in the semi-circular bands will maximize their benefits enhancing honey bee (Apis mellifera) and other pollinator species richness, abundance, and spatial turnover and contributing to ecosystem health. Moreover, integrating semi-circular bunds within homesteads for kitchen gardens with traditional vegetables will improve livelihood and food security.

Keywords: Pollination, Honeybees, Native forbs and shrubs, Biodiversity, Degradation

Wildlife Data Mobilization and Organization in Lake Nakuru National Park, Kenya

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Abstract

Wildlife spatial data is gathered for reference and can be processed, manipulated and analyzed using GIS and RS technologies. The common sources of spatial data include observation, inventories, big data, existing datasets, geographic data discoveries, georeferenced images, etc. Big data is a collection of data that is huge and generated more rapidly with time. The big data play a critical role in wildlife data mobilization and can be described by data volume, rate of data generation and nature of the data. Currently big data is a source of invention, competition, efficiency and has caused change to data-motivated research. The big data have impacted myriad aspects in climate change, disease monitoring, disaster mitigation, monitoring critical infrastructures, etc. The wildlife conservation organizations such as Wildlife Research and Training Institute and partners have collected biodiversity data across Kenya's Wildlife Protected Areas since 1950s. It is cacophonous the existing datasets have not been fully utilized by Scientists due to datasets conditions. The data exist in different formats, lack spatial reference and others have mismatch coordinate fields. The datasets are scattered in different locations and have diverse quality levels in terms of accuracy, consistency, reliability, completeness and data is not up-to-date. The other challenges include data privacy, confidentiality and security. The methodology used data mobilization and organization of introduced wildlife - *Giraffa camelopardalis*, white and black *Rhinocerotidae* in LNNP as explained by GBIF and integrate the result with the Land use Land cover (LULC) interpretation of Landsat Satellite imagery since 2009 to date. The results, which include flood zones trend maps and wildlife distribution maps, have shown that the flooding impacted negatively on the available space for wildlife forcing the wildlife to relocate to other blocks. The information provided by this study are useful for decision making regarding wildlife carrying capacity in LNNP.

Key words: Data mobilization and organization, flooding in Lake Nakuru National Park, Land use Land cover, Wildlife spatial data, big data

A Digital Model For Managing Human-Wildlife Conflicts Claims Data Collection And Payments In Kenya

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Abstract

Most of Kenya's wildlife population occurs outside protected areas (parks and reserves). This has resulted to human-wildlife conflicts (HWC), which include human death and injury, crop damage, livestock predation and property destruction. Kenya has developed a digital model of HWC compensation claims data collection and payments that is undergoing piloting in six (6) counties (Narok, Laikipia, Kajiado, Baringo, Meru and Taita Taveta). The pilot claims administration process is as follows: An attack by wildlife occurs; Notification of an HWC incidence is made by the claimant either individually through the USSD code or by dialing the hotline; or through the nearest local government representative; On receipt of the notification, the technology hub simultaneously notifies the State Department for Wildlife (SDW), Kenya Wildlife Service (KWS) and the scheme administrator; The Scheme Administrator then dispatches Community Verification

Officers (CVOs) to assess the nature of damage on the ground through the digital hub. The CVOs capture the claim information and take pictures and record neighbor's witness statement through voice or video recording and generates a verification report. The information is immediately reflected in the digital hub. The Scheme Administrator, KWS and SDW undertakes a verification and assessment process and if satisfied completes the claim analysis. After these, they issue the pay/not pay verdict. This is followed by claim benefit remittance to the bank/mobile bank (cheque, EFT, mobile transfer depending with size of the benefit and the agreement). Upon the submission of all the necessary documentation, the payment of the claim is settled within 60-90 days. The HWC data can then be downloaded for preparation of appropriate reports and maps using Statistica 10 and ArcGIS. The effectiveness of the programme is being evaluated based on the time taken for payment is made from the time a claim is reported, which is capped at 90 days.

Keywords*:* Human-wildlife conflicts; Compensation; Counties, Claims, Administration process

PARALLEL SESSION 4 – 2-Way Hall

Sub-Theme: Wildlife Populations Dynamics and Ecosystems Connectivity

Demographic Effects of Predator Naivety in a Reintroduced Antelope: Recommendations for Jackson's Hartebeest Management and Conservation in Laikipia, Kenya

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Abstract

Wildlife reintroductions - aim to repopulate extirpated, endangered, or declining species. Before reintroduction, practitioners frequently attempt to acclimatize individuals to maximize chances of reintroduction "success". Methods of acclimatization include keeping individuals in locations approximating reintroduction sites, "soft-release" of wildlife into predator-free areas within the reintroduction site, and, for prey species, introducing them to simulated predation threats to induce antipredator responses. However, "hard releases" entail reintroducing individuals without any acclimatization measures to ease their transition. In such cases, predation decides the fate of reintroduced prey species. Antipredator behavior is in response to the perceived risk of predation and the cost of maintaining such behavior can impact prey species, even when the direct effect of predation is zero. As more effort is invested to increase antipredator behavior, direct predation should decline, but risk effects would be amplified. Thus, maintaining antipredator behavior is costly: when predators are no longer present, they are relaxed or modified via selection. Jackson's hartebeest (Alcelaphus buselaphus jacksoni), an endemic subspecies of hartebeest to Laikipia, are in steep decline in central Kenya. The current management practice is to relocate hartebeest to predator-proof sanctuaries, proven to successfully increase hartebeest density, then reintroduce them to conservancies where predators are present. However, previous attempts to hard-release sanctuary-bred hartebeest into areas where predators are present, resulted in steep declines, often leading to near or total extirpation due to their predator naivety. As Jackson's hartebeest continue to decline, intervention is necessary and relocations to predator-proof sanctuaries will help increase their populations. Future reintroductions of Jackson's hartebeest must include an acclimatization period to predation in order to retrain antipredator behaviors.

Keywords: Jackson's hartebeest, predator naivety, reintroduction

Spotted Hyena Demographics at Ol Jogi Conservancy

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Abstract

The spotted hyena (Crocuta crocuta) plays an integral role in its ecosystem as a keystone species and a large carnivore guild member. Spotted hyenas predation and scavenging behaviors shape community structures, prey movements, and species interactions. Hyenas' moderate predator guild dynamics through their competition with other predators, such as lions, leopards, and cheetah, which prevents the dominance of a single carnivore. Despite their importance to the ecology of central Kenya, population estimates, and other demographic information of this species are largely unknown in the region. To begin to combat this unknown status, I will be assessing the population dynamics of spotted hyena on Ol Jogi Wildlife Conservancy. The study methods include mark-recapture analysis from camera trap data and vehicle sight-resightings using individuals' unique spotting patterns using the software Wildbook. These data will provide discrete insights that can inform management and conservation planning with respect to the health of spotted hyena populations, large carnivores, and their prey base, thereby broadening our knowledge of the overall health of the Conservancy's ecosystem. A stable hyena population suggests a healthy carnivore-prey dynamic and availability of natural resources. I will also assess the impact of spotted hyenas as scavengers by using camera traps targeted at carcasses. Scavenging provides efficient carcass disposal, controls disease, and stimulates nutrient recycling. By focusing efforts on spotted hyena demographics and ecosystem impact, this study will contribute valuable knowledge in an understudied part of this species' range.

Key words: Predator, ecosystem, spotted hyena, scavengers

Population and Distribution of the De-Brazza's Monkey (*Cercopithecus Neglectus*) in Kakamega Forest National Reserve, Kenya

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Abstract

De-Brazza's monkey (*Cercopithecus neglectus*) is a cryptic, semi-terrestrial primate of African tropical forests, whose persistence is increasingly threatened by habitat loss and fragmentation. Although listed as a CITES Appendix II species and not globally threatened, the species is locally considered Critically Endangered in Kenya due to severe habitat degradation. This study assessed the current population status, distribution, and threats to De-Brazza's monkeys in Kisere Forest, a remnant of the Kakamega Forest complex, during April 2022. The objectives were to: (i) assess demographic structure and spatial distribution, and (ii) evaluate long-term population trends and habitat fragmentation. Data were collected via systematic surveys conducted by two teams along riverine forest edges over a nine-day period, with GPS mapping, binocular observations, and interviews with local residents. Landsat and Sentinel-2 satellite imagery from 1973 to 2022 were analyzed using IMPACT and ERDAS Imagine software to assess forest loss and land-use changes. Results showed 63 individuals in 35 of 90 survey points, forming 24 groups and 11

solitary animals, with adults comprising 79% of the observed individuals. De-Brazza's monkeys were restricted to riparian corridors of Isiukhu and Nandamaywa Rivers, with a density of 6.8 individuals/km². Wilcoxon tests revealed no significant population change between 2008 and 2022 ($p = 0.5625$). Satellite analyses showed drastic habitat loss and fragmentation due to agriculture and settlement expansion. The species is now confined to a small, isolated forest patch surrounded by intense anthropogenic activity. We recommend immediate conservation actions including habitat restoration, protection of riparian corridors, and broader regional surveys in formerly occupied habitats such as Saiwa Swamp and Mt. Elgon to update the national status of the species.

Keywords: Biodiversity, Conservation, De-Brazza's monkey, Habitat fragmentation, Primate distribution

Implications of Carnivore Diet on Endangered Herbivores in Tsavo

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Abstract

Predation by carnivores can exert regulatory effects across ecological communities. Understanding carnivore diet is therefore essential for gaining insights into their ecology and conservation, as well as for assessing their influence on prey populations. Using scat samples collected between 2019 and 2023, alongside aerial survey-based estimates of prey abundance, we investigated lion prey consumption and preference in Tsavo, Kenya. Biomass models applied to prey frequencies in scats showed that over 85% of the lion diet comprised large ungulates weighing more than 150 kg. Although large ungulates were generally preferred relative to their availability, we found a marked preference for two endangered species—hirola and Grevy's zebra—both of which were reintroduced to Tsavo in the 1960s as part of *ex-situ* conservation initiatives. Our results suggest that lion predation may be disproportionately impacting these small but vital populations through apparent competition. The combination of selective predation and the high availability of alternative prey may be creating a predator-pit dynamic for hirola and Grevy's zebra. Our findings carry significant implications for understanding lion predation behavior and the broader ecological effects of predation on endangered species within a landscape of critical conservation value.

Keywords: African lion, Carnivore conservation, Grevy's zebra, hirola, predation ecology, predator-prey dynamics

Sub-Theme: Wildlife Populations Dynamics and Ecosystems Connectivity

Influence of Habit of Types on Elephant Behaviour and Distribution in Meru National Park, Kenya

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Abstract

This study investigated the relationship between different habitat types and the behaviour, group dynamics and temperament of African elephants (Loxodonta africana) in Meru National Park, Kenya. The Park is known for its diverse habitats, including open grasslands, shrublands, Combretum wooded grasslands, swamps, and riverine vegetation. These habitats play a crucial role in shaping the behaviour and distribution of wildlife, particularly elephants. Data for this study was collected between November 2022 and March 2025 through opportunistic elephant sightings along the existing park road network. Observations were conducted from vehicles to minimise any impact on the elephants' behaviour. For each elephant observed, the researcher recorded information on group type, group size, habitat type, and behaviours such as nervousness, aggression, or relaxation. In the southern part of the study area, dense Commiphora bush and remote roads limited intensive searches, while the rainy seasons hindered efforts due to impassable roads. Analysis revealed habitat-specific variation in elephant social structure and behaviour. In Open Savanna Grassland (29.1%, n=169), elephants were predominantly relaxed (95%, n=153). Shrubland (29.8%, n=173) also supported mostly relaxed individuals (90%, n=154), with frequent family groups (34.4%, n=51). Riverine Vegetation (7.1%, n=41) showed a higher proportion of bull groups with some nervous behaviour (7%, n=3) despite largely relaxed individuals (93%, n=37). Combretum Wooded Grassland (12.8%, n=74) hosted a balanced mix of family and bull groups, with dominant behaviours being feeding (63%, n=24) and walking (11%, n=11), and mostly relaxed temperaments (87%, n=60). The most common behaviour everywhere was feeding, indicating a primary focus on sustenance. Habitat-specific conservation is key to maintaining elephant behaviour and spatial ecology in Meru National Park.

Keywords: Behaviour, Conservation, Distribution, Habitat, Meru National Park

Measuring Changes in Biodiversity as Related to Managing Cattle in East and Southern African Savannas: Connections with Generating Carbon and Biodiversity Credits

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Abstract

The interest in sequestering carbon in soil has recently expanded because of an established ability to quantitatively predict soil carbon concentrations across large spaces and over decades of time. Such abilities allow carbon credits to be reliably produced and sold in public markets. In response, the Kajiado Rangeland Carbon Project (KRCP) was initiated in 2023 to generate carbon credits by using rapid rotational grazing of livestock across large areas of Kajiado County, Kenya. Other similar projects in East and southern Africa have followed. The predicted improvements in grassland habitat quality will conceivably improve biological diversity. Establishing baseline and measuring the changes in biodiversity is important for improving the value of carbon credits and being able to apply certain certifications from global registries as well as potentially using these improvements in developing biodiversity credits. To meet these needs, a comprehensive and replicable field methodology has been developed to quantify biotic indicators of interest across multiple study areas (i.e., Kenya, Tanzania, and Zambia). Surveys for quantifying biodiversity are embedded within a random stratified design that confidently predicts soil carbon concentrations. In addition to measuring carbon in soil, we quantified the vegetative community structure and diversity using randomly selected plots, the abundance and diversity of invertebrate indicators (e.g., dung beetles and grasshoppers), and the diversity and abundance in bird (using point counts and acoustic recording units) and mammal (using driving transects and recording high frequency calls for bats) communities. Sites were sampled for biodiversity during the April-May wet season, as this is when vegetation growth, insect activity, and breeding birds are most replicable. In total, throughout the three years of baseline surveys, we assessed vegetation and ground cover at 150 sites, deployed 908 pitfall traps for dung beetles, deployed 169 camera traps and 127 autonomous recording units (ARUs), conducted 581 bird point counts, and drove approximately 1,500 kilometers of mammal and raptor transects. Detections of species of special conservation concern designated as “trigger species” were generally similar across years but affected by the spatial difference in survey areas. For example, surveying close to Amboseli National Park resulted in increased detections of African Lion, African Savanna Elephant, and Masai Giraffe as might be expected. We observed 223 individuals of nine trigger species in 2023, and 429 individuals of eight trigger species in 2024. Results from 2025 surveys are currently being analyzed. The standardized methodologies that we have employed will be used to measure changes in biodiversity through species diversity and richness, but also through other important categories of composition, structure, and functionality measures such as with changes in reproductive success and home range size. These endpoints are anticipated to also be relevant for developing biodiversity credits. Ultimately the changes in biological diversity in response to improved grasslands will be quantified over decades of monitoring with the hope that they can be further used to develop biodiversity credits that can be sold in public markets with proceeds that can contribute to local wildlife conservation.

Keywords: Carbon, biodiversity, savannahs, cattle, Kenya

Modelling Univariate and Multivariate Spatio-Temporal Wildlife and Livestock Population Dynamics in Kenya

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Abstract

Effective assessment of wildlife and livestock population trends demands computationally efficient and robust spatio-temporal statistical models. For multiple species assemblages such as occurs on Kenya's rangelands, suitable frameworks are needed for single-species (univariate) and multi-species (multivariate) analyses that respect the distinctive features of aerial survey data—excess zeros, irregular sampling frequency, variable survey areas, non-normal distributions, over-dispersion, and numerous potential predictors. For univariate analyses, hierarchical Bayesian zero-inflated negative-binomial (ZINB) models estimated with integrated nested Laplace approximation (INLA) provide a principled way to accommodate these complexities. An alternative is component-wise functional gradient-descent boosting, which captures spatial and temporal structure while sifting informative predictors from many, often correlated, candidates. Because inference for boosting with correlated predictors currently lacks conventional p-values and confidence intervals, predictor importance is established through stability selection that controls the expected number of spurious selections.

When several species are analysed jointly, community-level basis-function models (CBFMs) offer a flexible multivariate extension. CBFMs replace conventional latent variables with a common set of pre-specified spatio-temporal basis functions, and treat the species-specific coefficients that weight these functions as random slopes. Structurally analogous to generalized additive models, CBFMs inherit efficient estimation techniques and enable rigorous inference on habitat use, residual inter-specific covariation, and spatio-temporal prediction of both species-level and community-level metrics. Together, these modelling approaches furnish an integrated toolkit for understanding and forecasting the coupled wildlife–livestock dynamics in human-dominated and protected landscapes that are critical to conservation and pastoral livelihoods in Kenya and elsewhere. We implement these models for the Kenya rangelands using long-term aerial survey monitoring data collected by Kenya's Directorate of Resource Surveys and Remote Sensing (DRSRS).

Primate Conservation in Green Urban Spaces: Population Status of Sykes Monkeys in Oloolua Forest, Nairobi, Kenya

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Abstract

Urban green spaces are crucial for biodiversity conservation, especially for primates facing habitat loss. This study assessed the population status of Sykes monkeys (Cercopithecus mitis spp. albo) in Oloolua forest, Kenya, a peri-urban habitat impacted by human activities. Urbanization and habitat degradation threaten Sykes monkeys through deforestation, pollution, and habitat fragmentation. This study aimed to (1) determine the population size and structure of Sykes monkeys in Oloolua Forest, (2) assess major threats to their survival, and (3) provide baseline data for conservation planning. A census survey using a line transect sweep count method covered 479.6 hectares of relatively undisturbed forest. We recorded 97 Sykes monkeys in five groups, comprising eight adult males, 46 adult females, 16 unknown adults, four juvenile males, four juvenile females, nine unknown juveniles, and 10 infants. The adult-to-juvenile-to- infant ratio was 7:2:1, suggesting a stable recruitment rate. Key threats included natural tree dieback (36%), plastic waste (25%),

glass waste (8%), tree cutting (8%), and metal waste (6%). Additional concerns were invasive plant species, fallen trees, and solid waste dumping. The findings highlight the urgent need for conservation initiatives, including long-term population monitoring, habitat restoration, and community engagement in sustainable forest use. Understanding primate-habitat interactions within Oloolua Forest is vital for informing conservation strategies in urban areas. Strengthening protection measures can help mitigate the ongoing biodiversity crisis and ensure the survival of primate species in this unique ecosystem.

Key Words: biodiversity, monkey, conservation, ecosystem, population

PARALLEL SESSION 5 – Kiboko Hall

Sub-Theme: Conservation Science, Practice and Technological Innovations

Using Semi-Circular Bunds and Restoration of Rangeland Vegetation in Naibung'a, Laikipia Kenya

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Abstract

Rangelands in constant use are unable to recover unaided. Naibunga lower conservancy in Laikipia has low vegetation cover. The soils, though deep and fertile, constantly suffer erosion, evidenced by gaping gulleys. Sub-surface soils exhibit low water infiltration and retention capacity. Limited soil water induces plant water stress, impacts germination, seedling recruitment and re-vegetation, leading to poor range conditions and low carrying capacity. In this study, we investigated rangeland recovery in six sites, following soil biomechanical treatments, using Semi-circular bunds (SCBs).Re-seeding the bunds using *Cenchrus ciliaris* and *Eragrostis superba* was aimed at providing forage, and stabilize the soil. This study was conducted in localities with semi-circular bunds namely; Lorubai, Burtany, Nkirashi, Losupukia, Munushoi and Loika. In each of the three sampling seasons, a total of 135 (20X 20 m) plots, and 270 (1x1 m) subplots were sampled. The results indicate a notable increase in species selected by the grazers and those sensitive to extreme moisture stress, e.g. *Justicia anselliana*. From analysis, Loika had the highest species richness in 20x20m in both wet and dry seasons (23 &28) while Burtany and Munuchoi had the lowest (13each) .But during dry season, in 20x20, Nkirashi had the lowest richness (9) where as in 1x1m quadrats, it had the highest richness (37) with Burtany being the least species rich (16). Subsequently, during the wet season, in 1x1m, Loika had the highest richness (45) while Lorubai had the lowest richness (33). Equally, the species were more diverse in the 20x20m in Loika (H=2.48). In 1x1m quadrats, Burtany had the highest diversity (H=2.89) while Munuchoi had the lowest diversity (H=2.42). The bunds thus optimize soil water storage, leading to an increase in the vegetation cover percentage, plant diversity and density, while reducing soil erosivity. Further assessments and monitoring is therefore recommended.

Keywords: Moisture stress, Rangeland restoration, Semi-Circular Bunds, Vegetation

Farmers' Knowledge of Pollinators: Understanding Their Importance in Pollination, Threats and Implication for Conservation in East Usambara, Tanzania

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Abstract

Pollinators play a vital role in sustaining food production and ecosystem health. Globally, pollinators are reported to be declining because of various threats, including habitat fragmentation. The East Usambara mountains of Tanzania are rich in biodiversity, including avian and insect pollinators; however, little effort has been devoted to understanding farmers' perceptions and knowledge about pollinators in this important fragmented ecosystem. Our study used structured questionnaires and Focus Group Discussions (FGD) to assess farmers' awareness of pollinators in three villages adjacent to Amani Nature Reserve. We also conducted pollinator visitation observations and pollen sampling by brushing trapped birds and insects. From our questionnaires and surveys, we noted varied pollinator knowledge among farmers, whereby butterflies (91.7%) and honey bees (81.7 %) (*Apis mellifera*) were the most recognized insect pollinators by most respondents, while solitary bees (93.3 %) (*Lasioglossum sp*) and hoverfly (*Syrphidae*) (90%) were the least recognized. The majority of farmers 114 (95%) were able to identify sunbird pollinators using traditional common names. Respondents confirmed limited knowledge of pollination, with only 12 (10%) reporting pollination as an ecosystem service offered by sunbirds. The most applied practices to promote pollinator conservation were tree planting, avoiding forest fires, environmental conservation and provision of conservation education to local communities. From our field observations and pollen sampling, we identified key pollinators for commonly grown crops including cloves, cardamon, banana and beans. Based on our results, we conclude that there is a need to promote community knowledge and awareness of the variety of pollinators, their behaviors, and their influence on crop productivity to ensure sustainable pollinator conservation.

Keywords: community awareness, conservation, ecosystem services, pollinators

Unveiling Temporal and Taxonomic Patterns in Biodiversity Datasets in Kenya: Identifying Trends, Gaps, and Opportunities for Future Research

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Abstract

Kenya's diverse landscapes support a wide array of species whose population dynamics and habitat connectivity are vital for ecosystem resilience and biodiversity conservation. However,gaps in biodiversity data limit our understanding of these dynamics across space and time. This study investigates temporal and taxonomic patterns within Kenya's biodiversity datasets, identifying key trends, data gaps, and opportunities for improving future research and conservation planning. Analysis of over 40,000 occurrence records reveals marked spatial biases, with most data concentrated in well-studied regions such as protected areas (e.g., Maasai Mara, Tsavo, and Laikipia), while northern and arid regions like Turkana and parts of the Ewaso Ng'iro North Basin remain underrepresented. Temporal biases are also evident, with data collection peaking between 2000 and 2010 during periods of heightened research activity and conservation funding. Since 2010, there has been a noticeable decline in new records, particularly in non-protected and community-managed areas. These spatial and temporal gaps limit our capacity to monitor population trends and assess habitat connectivity, particularly in ecosystems most vulnerable to land-use change and climate variability. Taxonomic analysis indicates a focus on large mammals and birds, with significant underrepresentation of functional groups such as invertebrates, amphibians, fungi, and freshwater species. This uneven data distribution restricts our ability to comprehensively assess ecosystem health and species movement across Kenya's ecological networks. This paper highlights the urgent need for targeted data collection efforts in under-sampled regions and taxa. It advocates for enhanced institutional collaboration, standardized data protocols, and long-term biodiversity monitoring to support conservation strategies that maintain and restore habitat connectivity and sustain wildlife populations across Kenya.

Keywords: Population Dynamics, Habitat Connectivity, Spatial Biases, Long-term Monitoring, Species Distribution

Real-Time Classification of Serengeti Wildebeest Behaviour with Edge Machine Learning and a Long-Range IoT Network

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Abstract

Globally, animal populations are facing increasing levels of environmental disturbance. Human activity, land-use change, and global warming are altering migration routes, space use, activity budgets, and the behaviour of many wildlife species. Understanding impacts on wildlife at a fine scale is essential to identify locations of increased disturbance, mitigate its effects, and predict potential population-level outcomes. In this work, we introduce a low-cost animal tracking system that integrates open-source electronics, edge machine learning, and an Internet of Things network to provide real-time information on the location and behaviour of animals. The system employs an on-board machine learning algorithm to identify distinct behaviours and then transmits classification outputs along with location data over a long-range network. The machine learning model had an overall accuracy of 84%, while the distinct behaviours classes namely grazing, lying, standing, and walking had accuracies of 94.08%, 89.22%, 79.93%, and 82.86%, respectively. We deployed the system on wildebeest (Connochaetes taurinus (Burchell, 1823)) in Serengeti National Park, Tanzania a highly social migratory ungulate population that is ecologically and economically vital to the region. Analysis of the transmitted data showed activity readings were consistent with location data and revealed biologically meaningful fluctuations in daily activity patterns such as reduced walking and grazing at night. Our system introduces a new dimension to studying animal behaviour and movement ecology by offering immediate insights into the behaviour and location of collared animals.

Keywords: animal behaviour, conservation technology, machine learning, remote tracking, wildebeest

Use of Remote Sensing in Monitoring the Status of Invasive Species in Tsavo National Parks – Case of Opuntia Stricta and Prosopis Julifora

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Abstract

Invasive species affect Kenya's biodiversity through degradation of ecosystems and habitats. The 7th schedule of WCMA, 2013 lists 38 species as invasive and their control and management recommended. *Prosopis juliflora* and *Opuntia stricta* pose significant challenges threatening biodiversity and ecosystem stability. The major objective of the project was to monitor the intensity and spread of the two invasive species using remote sensing. Specific objectives were; 1) to monitor the impact of cochineal beetle on *Opuntia stricta*; 2) to map the spread of *Prosopis juliflora* along Voi river into Tsavo East (TENP) and along Taveta- Tsavo West road; 3) to assess the impact of *Opuntia Stricta* on wildlife distribution; and 4) to recommend invasive species management interventions. Sentinel 2 imageries were analyzed in IMPACT tool and ERDAS Imagine softwares using spectral signatures for *Prosopis Juliflora* while Normalized Difference Vegetation Index (NDVI) values for *Opuntia Stricta* (2017 and 2024) were extracted. Classification results indicated massive spread of *Prosopis juliflora* into TENP along Voi river (2.45% of the area sampled) with higher densities around Voi Wildlife Lodge but decreasing establishment downstream. Outside the park, high invasion occurred up to Voi river bridge but decreased upstream. *Opuntia Stricta*, depicted reduced colonization. NDVI values indicated high values for 2017 (0.08) while that of 2024 was up to 0.02 implying a 75% decline. Wildlife distribution in 2017 avoided the *Opuntia stricta* colonized areas as compared to 2025 even distribution. *Prosopis Juliflora* is a threat to Tsavo habitats and ecosystems with Voi river accelerating its spread within TENP while at its initial stages especially along the fence line in TWNP. The cochineal has reduced the biomass of the *Opuntia* significantly in the TENP. However, remnant re-sprouts require mechanical removal. Experimental trials using Hack and hack squirt chemical control techniques will be used to manage *Prosopis juliflora*.

Keywords: Invasive species, Remote Sensing, Tsavo

Spatiotemporal Habitat Use and Home Range Sizes of Collared Lions (Panthera Leo) in Masai Mara Ecosystem, Kenya

Correspondence

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Abstract

Understanding the spatiotemporal dynamics of lion ecology is vital for effective conservation planning, particularly in human-dominated landscapes. This study examined the home range sizes and spatiotemporal habitat use by collared lions (*Panthera leo*) in Kenya's Masai Mara Ecosystem from 2016 to 2025 between Masai Mara National Reserve (MMNR) and adjacent community conservancies. GPS data were used to map lion movements, and home range analyses were conducted for adult males, adult females, and sub-adult males using ArcGIS Pro 3.2.0. Statistical analysis was performed in RStudio version 2024.09.1+394. Home range sizes were estimated using the Adaptive Local Convex Hull (aLoCoH) method, and habitat use was evaluated at two spatial scales: the core range (50% isopleth) and the general range (99% isopleth). Environmental variables and anthropogenic factors were analyzed using Resource Selection Functions (RSFs) and GIS-based techniques to determine their influence on habitat selection. Results showed that adult males and females exhibited more localized movements within protected areas, likely due to territorial behaviour and cub-rearing responsibilities. In contrast, sub-adult males displayed broader, more nomadic dispersal patterns, with individuals like Enesikiria (ENEfM1) and Enesikiria (ENEhM2) ranging beyond the study area. Statistical analysis revealed that adult female lions in the MMNR had significantly different home range sizes compared to those in community conservancies at both the 50% ($t = 3.3893$, $p = 0.019476$) and 99% ($t = 2.59846$, $p = 0.048339$) isopleths. Sub-adult lions did not show significant differences between the two areas (50%: $t = 1.07657$, $p = 0.330853$; 99%: $t = -4.47402$, $p = 0.655465$). Females had significantly smaller core ranges than sub-adult males ($t = -3.07735$, $p = 0.009985$), and at the 99% level, adult males and females also differed significantly ($t = 3.11817$, $p = 0.008885$). These findings underscore the role of sex, age demographics, seasonality and habitat type in shaping lion spatiotemporal behaviour.

Keywords: Lions, Home range, GPS Collars, Habitat use, Natural and Environmental Factors

Sub-Theme: Human Dimensions in Wildlife Conservation

Spotted Hyena, (*Crocuta Crocuta*) Demographics, Distribution and Human-Hyena Interactions in Meru Conservation Area

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Abstract

Pride of Meru Programme (POM) key objective is to ensure lion populations are safeguarded and protected in the long-term, monitored to understand their behaviour and interactions, and threats mapped and mitigated to reverse declines in the population among these is by addressing carnivore conflicts. Lions, Panthera leo and Spotted hyena, Crocuta crocuta share the same ecosystem and face similar threats. This study aims to understand C. Crocuta demographics, distribution and human-hyena interactions with a view to mitigating negative human-hyena interactions and move towards coexistence in Meru Conservation Area (MCA).

We adopt behavioural observation using opportunistic sightings of (C. Crocuta), tracking of spoors, recording of vocalizations and faecal observation and recording. We collect data using ArcGIS Survey 123.This monitoring has built a detailed database that contains information about the C. crocuta populations and human – hyena conflicts in the proximity of Meru National Park. Spotted hyena is the greatest cause of livestock loss from predation in the MCA. We reported C. crocuta mean annual livestock killing of n=82 domestic animals for the period June 2022 to December 2024. Sheep and goats (shoats) killed by (C. Crocuta) were n=228 for the period June 2022 to January 2025. Spotted hyenas are considered highly problematic for livestock farmers in Kenya due to their adaptability and hunting strategies: nocturnal, opportunistic predators with strong social structures. Spike in predation events has informed establishment of human-hyena mitigation tools, the predator deterrent lights and predator proof bomas.

Keywords: Crocuta crocuta, Meru Conservation Area, shoats, mitigation tools

People and Parks: Exploring the Human Dimension in Community-Led Wildlife Conservation

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Abstract

In recent decades, the Maasai Mara ecosystem in Kenya has witnessed the growth of community conservancies as an innovative model that links biodiversity protection with socio-economic development. Unlike traditional conservation models that often alienated local communities, community-led conservancies aim to integrate indigenous communities into the management, ownership, and benefit-sharing of natural resources. However, while ecological gains are widely celebrated, the human aspect—how communities perceive, engage with, and are impacted by conservation efforts—remains a critical area of research. This study explores the human dimension of conservation by assessing how community members interact with wildlife initiatives, perceive conservation goals, and benefit economically and socially from these programs. The primary objectives of this research were to assess the level and forms of local community participation in wildlife conservancy initiatives; evaluate community attitudes toward wildlife conservation and conservancy operations; quantify the socio-economic impacts of conservancies on local livelihoods; and identify existing challenges and potential pathways for improving community-led conservation models. This study utilized a mixed-methods approach combining quantitative and qualitative data collection techniques. Structured questionnaires were administered to 150 households across three key conservancies in the Mara region—Ol Kinyei, Naboisho, and Lemek. Respondents were selected through stratified random sampling to ensure representation across age, gender, and economic roles. In addition, 12 key informant interviews were conducted with local elders, youth leaders, conservancy staff, and tourism stakeholders. Quantitative data were analyzed using descriptive statistics and cross-tabulation, while qualitative data were thematically analyzed to capture perceptions and nuanced experiences. The research revealed robust community involvement and largely positive perceptions toward conservation: 78% of households reported direct or indirect involvement in conservancy activities such as ranger work, guiding, beadwork, or catering services. 83% of respondents viewed conservation efforts as beneficial, citing improved livelihoods, security, and infrastructure (e.g., schools, water points, and health dispensaries). Economic indicators showed that average household income had increased by 34% since the establishment of conservancies, with significant gains in households engaged in tourism-related activities. Youth employment rose by 41%, driven largely by roles as rangers, guides, and lodge support staff. Nonetheless, 61% of participants expressed concerns over grazing restrictions imposed by conservancy policies, and 45% reported livestock losses due to increased predator presence near protected areas. Gender disparities were noted, with women reporting fewer direct roles in decision-making despite their active involvement in income-generating projects. Community-led conservation in the Maasai Mara is a promising model for aligning biodiversity protection with rural development. The initiatives have generated significant economic benefits, increased local ownership, and improved community attitudes toward wildlife. However, challenges remain—especially in balancing land-use needs, addressing human-wildlife conflict, and ensuring inclusive participation across gender and age groups. To enhance sustainability, it is essential to: Promote transparent benefit-sharing mechanisms; Incorporate indigenous knowledge systems; Strengthen community governance structures; Provide targeted training and capacity-building programs; and Develop wildlife compensation and land-access frameworks to address local grievances. This research affirms that people are not just stakeholders but stewards in conservation. Their values, struggles, and aspirations must be placed at the heart of conservation planning and policy-making for long-term success.

Keywords: Community-based conservation, human-wildlife conflict, local participation, benefit-sharing, traditional knowledge

Navigating Human-Wildlife Conflicts Around Nairobi National Park: Causes, Trends, and Pathways to Coexistence

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Abstract

Human-wildlife conflicts around Nairobi National Park have persisted since the mid-20th century, posing significant challenges to both conservation efforts and local communities.

This presentation aims to analyze the long-term trends of these conflicts in both temporal and spatial dimensions. It also investigates how land use changes have influenced the frequency and nature of these incidents. To achieve this, data from the Kenya Wildlife Service (KWS) was used to track conflict patterns. Interviews were conducted with key stakeholders to gain insights into the evolution of these issues and were analyzed using qualitative content analysis with the assistance of MAXQDA software. Landsat satellite imagery from Google Earth was used to assess changes in land use and land cover over time, while secondary literature provided historical context dating back to 1940. Findings indicate a significant shift in both the type and intensity of conflicts, with recent years recording the highest number and greatest variety of incidents. The most commonly involved wildlife species include hyenas, primates, and lions. Satellite imagery revealed substantial land use changes, including increased urban development, decreased forest cover, and the expansion of grassland areas. The spatial distribution of conflicts has also shifted from the Kitengela area to Tuala, Sholinke, and the Empakasi regions. Additional contributing factors include frequent droughts, infrastructural development, population growth, and lifestyle changes. Based on these findings, there is an urgent need for adaptive strategies to alleviate pressure on Nairobi National Park. Key recommendations include strengthening stakeholder engagement, promoting sustainable and alternative livelihoods for neighboring communities, and establishing wildlife corridors to support long-term conservation. These measures are essential for fostering a sustainable coexistence between humans and wildlife in the region.

Keywords: Human-wildlife conflicts, land use changes, Nairobi National Park, trends

Centering Equity and Local Perspectives: Exploring Human Well-Being in Leopard Conservation Around Loisaba Conservancy, Kenya

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Abstract

Conservation efforts aimed at addressing sustainability challenges are hampered by insufficient engagement with the complexity of social processes that facilitate change in social ecological systems. The objective of this study is to examine community identified human well-being priorities in a Leopard conservation program around Loisaba Conservancy in Northern Kenya. We developed a holistic, locally grounded and equity-conscious well-being design that centers diverse local voices in assessing how nature contributes to multiple aspects of living well. We conducted focus group discussions with 8 different groups in 4 villages. Key human wellbeing priorities that emerged include livelihood security, perceptions of safety and reliance on natural resources. These results demonstrate vulnerable groups such as women and younger men perceive inequitable access to resources and community decision making in the conservation program. We recommend coexistence conservation strategies should focus on community wellbeing; target marginalized social groups, strengthen internal social cohesion and incorporate holistic values of nature in program development and evaluation.

Keywords: social-ecological systems, Human-wildlife conflict, Human well-being, Equity, Wildlife conservation, Co-existence, Livelihood Security

Human-Giraffe Coexistence: Community Nature-Based Enterprises as a Basis for Somali Giraffe Conservation in Eastern Kenya

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Abstract

Human-wildlife conflict remains a major conservation and livelihood challenge across Africa. This study examines a nature-based mitigation strategy by assessing the economic viability of lime farming as a deterrent to giraffe crop-raiding in Garissa County, Kenya. We compared lime prices across three market channels (companies, local markets and middlemen) and analyzed the relationship between crop type and giraffe conflict frequency on 101 farms between 2022 and 2024. Statistical analysis showed that lime sold to companies yielded significantly higher returns than to local markets or middlemen. The mean price was 71.25 units (company) versus 43.33 units (local market), with a highly significant t-value of 17.888 ($p < 2.2e-16$). ANOVA confirmed significant price variation across market types ($F(2,105) = 375.5$, $p < 0.0001$). Tukey HSD tests showed that middlemen offered 35.56 units less than companies ($p < 0.001$) and 7.64 units less than local markets ($p < 0.001$). Lime farms generated higher monthly incomes than mango farms, with lime median income around 250,000 units versus 80,000 units for mango. Conflict analysis

revealed a strong inverse relationship between lime farm acres and giraffe conflict incidents. Mango farms experienced significantly higher crop-raiding (up to 20 incidents) compared to lime farms (typically 0–3 incidents), suggesting giraffes preferentially raid mango crops.

Keywords: Reticulated giraffes, natured-based enterprise, Crop raiding, Human-wildlife conflict, Lime farming.

Rotational Grazing with Cattle- Free Zones Supports the Coexistence of Cattle and Wild Herbivores in African Rangelands

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Abstract

African wildlife populations are declining at an alarming rate. To stop further population declines and restore ecosystems, more areas for wildlife are needed. Community-based conservation with wildlife-livestock coexistence in the vast rangelands of Africa presents a major opportunity. However, the efficacy of wildlife conservation in mixed land-use areas remains an outstanding question. To assess the ecological outcomes of land-sharing between regulated livestock herds and wildlife populations in African savannas, we assess how rotational cattle grazing affects 1) spatiotemporal dynamics of 15 large herbivore species, 2) plant community composition and 3) vegetation structure, in the Maasai Mara, Kenya. We found that rotational cattle grazing strongly affected the spatiotemporal habitat selection of wild herbivores, resulting in distinct lag periods with which different species are attracted to areas previously grazed by cattle. These lag periods were linked to functional traits, with body mass and herd size explaining 35% of the interspecific differences. Small to medium-sized herbivores with large herds select areas recently grazed by cattle, whereas large species with large herd sizes and small species with small herd sizes avoid recently grazed areas. We also found that livestock grazing affected plant communities, with significantly lower species richness, functional diversity and plant biomass in areas with high livestock-grazing pressure. Our results revealed that the effect of cattle on wild herbivores varies considerably among species, suggesting that cattle-wildlife interactions range from facilitation to competition. To maintain species that strongly avoid cattle, designated livestock-free zones remain essential, also in rotational grazing systems. Rotational grazing systems with regulated livestock densities present an important opportunity to better manage wildlife-livestock coexistence and thus improve wildlife conservation in African rangelands.

Keywords: Community-based conservation, cattle, grazing, wildlife-livestock coexistence

Sub-Themes: Integration of Conservation Strategies Across All Disciplines

A One Health Approach to Engaging Communities Better in Long-Term Elephant Conservation in Sagalla, Kenya

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Abstract

African elephant (Loxodonta africana) populations have declined from approximately 1.2 million in the 1970s to around 400,000 today. As a keystone species, elephants help maintain ecosystem balance. However, human-elephant conflict remains a persistent challenge, requiring collaborative cross-sectoral solutions. Governments must lead with long-term investment, while communities build resilience and adapt coexistence strategies. To support this, Save the Elephants introduced the Human-Elephant Coexistence Toolbox, outlining ten practical actions, including improving community health and food security. This presentation highlights the Sagalla Community Health Project, successfully integrating sexual and reproductive health (SRH) and elephant conservation messaging. Piloted in 2021 at Kirumbi Community Health Unit and expanded by 2024 to include Kajire and Bamako Units, the project reached over 2,200 households and facilitated 36 dialogue forums in 2024 through five structured stakeholder engagement forums with the Voi Gender Sector Working Group. These forums reached 3,250 men and 5,019 women with SRHR information, while elephant conservation awareness events recorded 2,191 female and 1,177 male attendees. Longitudinal assessments using CHASE Africa's tools showed significant progress: family planning uptake increased by 30% from baseline, while 16.5% more women reported having control over their reproductive health decisions. Knowledge of sexual and reproductive health and rights improved by 38%, and 46% more respondents recognized the connection between healthy families and elephant conservation. Among SRH users, 19% were accessing services for the first time, and 12% said they would recommend the services to others. Adaptation awareness campaigns engaged 500 male and 345 female youth. Four youth groups were supported to initiate conservation-friendly income-generating activities. The project shows that aligning responsive health services with conservation messaging through community-led structures builds trust, encourages informed choices, and supports long-term behaviour change. Using a One Health approach, communities engaged in open dialogue within safe, structured spaces, shaping more informed, collective action toward peaceful coexistence.

Keywords: Community dialogues, Community Health Unit, Human-Elephant Coexistence Toolbox, Multisectoral approach, Sexual and Reproductive Health

Long-Term Range Shifts of the Amboseli Elephants: A Multigenerational Perspective of Conservation Impacts on Elephant Family Occupancy and Dispersal Patterns

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Abstract

The ranging patterns and habitat use of African savannah elephants (*Loxodonta africana*) have garnered significant attention due to elephants' high conservation value and the substantial ecological and socioeconomic impacts of elephant space use. The elephant populations in Kenya's ASAL regions traverse over 500,000 km². The Amboseli population, although relatively small, has been extensively studied and has shown a steady increase in size over time, driven by successful community-led conservation initiatives, enhanced wildlife security. Since the late 1990s, the population has been able to disperse over an 8,000 km² cross-border ecosystem, which provides immense tourism value to Kenya. Previous research has demonstrated that Amboseli forms part of an open population, connecting the South Rift, Tsavo, and protected areas in Tanzania. In this study, we take a multigenerational approach to investigate range shifts, using elephant family occupancy of the "safe haven" central zone to which they were confined during the 1970s and 80s. For 13 elephant families classified as shifters, observations in the central study zone showed strong decline over years (R_s = -0.439, p <-0.001). Average visibility for these families declined from ~ 40% to 7-9% of observation time over 43 years, despite these families being large and successful (greater than 30 members as of 2024). We present these shifters in comparison to other non-shifting families, exploring the effects of droughts, family size and matriarch turnover to understand range shifts. Finally, we present multigenerational collaring data for three families over three and four decades. We use these complementary datasets to highlight how community protection and conservation efforts in Amboseli have enabled elephants to increase their ranges.

Keywords: elephant ranging, habitat use, community-led conservation, long-term monitoring

Perspectives on Giraffe Conservation Success in East Africa

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Abstract

In the past decade, giraffe (Giraffa spp.) conservation has received increased attention in part due to updated IUCN Red List assessments that highlighted the urgency of the plight of giraffe. The most recent assessments showed that giraffe populations in East Africa, encompassing three of the four extant species, had undergone precipitous declines in the preceding 35 years, with anthropogenic activities identified as the leading cause. As such, urgent conservation efforts were required to address the threats that Masai (Giraffa tippelskirchi), Nubian (G. c. camelopardalis), and reticulated (G. reticulata) giraffe face in the East African region. With support from the Giraffe Conservation Foundation (GCF) most of the East African giraffe range states (Kenya, Tanzania, Uganda, Ethiopia, Democratic Republic of the Congo and Rwanda) have drafted, launched and initiated the implementation of their first-ever national giraffe conservation strategies with the involvement and participation of diverse stakeholders ranging from NGOs, academia, governments, and communities. These important conservation tools have proven invaluable in the fight against the giraffe's silent extinction and generating robust datasets to aid management efforts. In this presentation, we demonstrate that multidisciplinary conservation research, collaborative partnerships, capacity building, and knowledge exchange have led to better understanding of giraffe ecology and management, as well as improved conservation outcomes. This is particularly important as giraffe populations and the threats they face have not traditionally received conservation attention compared to other charismatic megafauna. We present the opportunities and challenges in giraffe conservation in a region where a large portion of the wild population occur in human-dominated landscapes. Specifically, we showcase the levels of implementation of the various strategies by highlighting the strategic objectives that have led to better understanding of giraffe conservation across the East African region and others that require more attention. Our conservation research further demonstrates the importance of involving all stakeholders in securing a future for giraffe in Africa.

Keywords: Giraffe, conservation strategies, threatened species, wildlife management

Using EarthRanger to Understand Human-Elephant Conflict in Amboseli

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Abstract

To develop effective human-elephant conflict (HEC) mitigation strategies, it is essential to understand local community attitudes, tolerance levels toward elephants, and conflict hotspots. Each area where HEC occurs is unique, complex, and multi-layered, making it crucial to understand the social contexts and underlying drivers of conflict. This study conducted the first large-scale social survey using EarthRanger as a data collection tool, engaging over 3,000 respondents across seven group ranches in the Amboseli ecosystem. The survey provides a comprehensive baseline dataset that has directly informed the development of our programme strategy, ensuring

that interventions are tailored to community needs and specific HEC dynamics. The survey engaged 1,031 women and 1,950 men (including Morans), with 92% of respondents identifying as Maasai and the remainder representing various other tribes. The average age of participants was 42, ranging from 17 to 95 years old. Findings revealed that attitudes towards elephants vary significantly by community, gender, age, and education level. When asked about potential solutions, 36% of respondents identified elephant awareness training as the most helpful intervention, while 31% prioritised crop protection deterrents. As a community, the top concerns were reducing the risk to students walking to school (39% of responses) and ensuring the safety of people while grazing livestock (47% of responses). This survey marks the first use of EarthRanger for large-scale social data collection, demonstrating its potential for integrating real-time conservation technology with social science research. By identifying areas of high conflict and low tolerance, this study has laid the foundation for targeted coexistence interventions and evidence-based decision-making to promote human-elephant coexistence.

Keywords: human-wildlife conflict, coexistence, mitigation, Loxodonta africana, EarthRanger, community attitudes

Evaluating Biodiversity Functional Groups from Kenya Biodiversity Datasets: Insights Into Ecological Balance and Ecosystem Service Sustainability

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Abstract

Functional groups are critical components of ecosystems, playing essential roles in maintaining ecological balance and sustaining ecosystem services. This study evaluates biodiversity functional groups across Kenya's key ecosystems to provide insights into their contribution to ecological processes and long-term ecosystem service sustainability. Drawing on species occurrence data and functional trait analysis, the study categorizes species into groups such as pollinators, seed dispersers, herbivores, predators, and decomposers, assessing their distribution, abundance, and ecological roles. The findings reveal uneven representation and declining trends among key functional groups, particularly pollinators and decomposers, in areas experiencing land degradation. Functional redundancy is low in several ecosystems, increasing vulnerability to species loss and ecosystem service decline. Spatial analysis highlights critical regions - such as the Ewaso Ng'iro Basin and coastal forests - where the disruption of functional group dynamics poses significant risks to ecosystem health and community livelihoods dependent on these services. By integrating functional group assessments with biodiversity monitoring data, this paper underscores the importance of incorporating ecosystem function metrics into conservation science and practice. It emphasizes how the loss or decline of specific functional groups can compromise ecosystem resilience, affecting services such as pollination, pest regulation, nutrient cycling, and carbon sequestration. This study advocates for the integration of functional group analysis into conservation planning frameworks. It highlights opportunities for applying innovative monitoring technologies and functional trait databases to guide targeted conservation actions aimed at enhancing ecosystem stability and ensuring the sustainability of critical ecosystem services.

Keywords: Functional Groups, Ecosystem Services, Ecological Balance, Conservation Planning, Functional Trait Analysis

Sub-Theme: Conservation Science, Practice and Technological Innovations

Community-Led Approaches to Vulture Conservation in Southern Rangelands of Kenya: A Case of Nature Kenya's Model for Biodiversity Conservation.

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Abstract

Vulture populations across Africa are in rapid decline, largely due to wildlife poisoning, habitat loss, and human disturbance. Yet, vultures are umbrella species whose conservation initiatives can benefit other wildlife species particularly, carnivores. In response to the documented threats to vulture population in Kenya, Nature Kenya has implemented a multifaceted, community-centered vulture conservation program across the southern rangelands of Kenya, focusing on 5 wildlife poisoning hotspots. This program integrates livestock enclosure reinforcement, safe herding practices, rapid response to poisoning incidents, and continuous community awareness and education. Our approach emphasizes building local stewardship through building capacity of local community i.e. vulture volunteers, community rangers and vulture support groups (VSGs), while also strengthening data-driven conservation through monitoring tools like the Survey123 App. In collaboration with partners such as the Kenya Wildlife Service and other conservation organizations, distressed birds are rescued and rehabilitated, and poisoning incidents are swiftly decontaminated. Analysis of reported data between January 2020 and December 2024, indicate a 74% reduction in wildlife poisoning cases, and 27% increase in reported incidents of human wildlife conflicts to relevant authorities between January 2021 and December 2024. We present key outcomes and lessons learned from the program, highlighting the effectiveness of community-led conservation as a scalable model for safeguarding vultures and enhancing ecosystem health.

Keywords: Community-based conservation, Human wildlife conflict, Vultures, Vulture volunteers, Wildlife poisoning

Untangling Local Knowledge and Perspectives on Different Carnivores

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Abstract

Carnivores play a dual role in ecosystems, providing essential services while also driving conflict with local communities. Their presence leads to diverse perceptions, influencing conservation outcomes and management decisions. While most research has focused on the negative impacts of large carnivores, little is known about the perceived benefits or how knowledge shapes attitudes across multiple species. Additionally, species-specific biases have hindered comparative analyses, limiting conservationists' ability to develop inclusive strategies. This study examines the local knowledge and perceptions of carnivores by communities in Laikipia, Kenya. We conducted 661 structured interviews in March 2025 across community areas adjacent to wildlife conservancies. Results indicate very low local knowledge about smaller carnivores in Laikipia, with only one individual reporting the presence of serval, potentially indicating lower than expected population levels for some of these species, whilst large carnivores were reported regularly. To understand if this is an indication of population levels, or more cryptic behaviour of smaller carnivores the results will be compared with the species habitat use outputs from 60 camera trap stations deployed between February and May 2025. This research will provide critical insights to inform conservation strategies for carnivores of a variety of sizes that align with local perspectives, promoting coexistence. It also highlights a concerning gap in our knowledge for some species and provides valuable information for informing future research methods into smaller carnivores.

Keywords: attitudes, carnivores, local ecological knowledge, perceptions

Audio Data as a Tool for Wildlife Conservation and Management

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Abstract

Audio data are widely used in the study of marine mammals, but their use in the conservation and management of terrestrial mammals is less common. Here we review the types of information that can be gained from audio data, the technologies used to collect and analyze these data, and the potential applications for conservation and management of African wildlife. We highlight recent work by the Mara Hyena Project that uses audio data to derive new insights into the behavior and management of spotted hyenas, and conclude with potential future applications for carnivore management.

Keywords: bioacoustics, animal communication, population management, spotted hyenas, biologgers

MapBook: A Standardized Method for the Analysis and Display of African Elephant (*Loxodonta Africana*) GPS Movement Data

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Abstract

Understanding wildlife movement across a particular landscape is crucial for effective conservation efforts and policy implementation. Near-real-time GPS wildlife tracking collars have enabled researchers, security personnel, and protected area managers to understand how different wildlife species interact with the surrounding ecosystem, and with human activities. In the case of the African elephant (*Loxodonta africana*), the mapping of tracking data has led to the identification of key corridors, connecting critical habitats for this keystone species; and to the identification of elephant movement metrics as indicators of anthropogenic risk. Here we propose a method to display key movement metrics in a collation of six maps per individual collared elephant - the MapBook. The MapBook shows: i) the overall tracks, ii) total home ranges, iii) track speed iv) rasterized average speed, v) day/night tracks and vi) seasonal home ranges. It is essentially a visual representation of an elephant(s)' spatiotemporal landscape use. This is a potential standardized method for displaying various wildlife GPS movement data as it gives a comprehensive understanding of how tracked wildlife utilize certain landscapes. The MapBook could be helpful for discussions on landscape planning and policy-making decisions, especially in human-dominated landscapes with no physical barriers between wildlife habitat and human settlements.

Keywords: African elephant, GPS, MapBook, movement data, tracking

Nubian Giraffe Conservation – A Success Story

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Abstract

Giraffe (*Giraffa* spp.) populations in Kenya face significant conservation challenges, most of which are human induced – loss of habitat, habitat fragmentation, poaching, and climate change. The Nubian giraffe (*G. camelopardalis camelopardalis*) has over the years lost much of its historical range and is currently restricted to relatively small and isolated populations in Ethiopia, Kenya, South Sudan, and Uganda. This northern giraffe subspecies is listed as *Critically Endangered* on the IUCN Red List. Here we summarise an assessment of historical and current population numbers, trends, and distribution of Nubian giraffe in Kenya. We reviewed published peer-reviewed research, wildlife authority records, and grey literature. Additionally, we interviewed landowners who manage Nubian giraffe populations on their land, as well as carried out systematic photographic surveys in two national parks and a reserve. Our findings reveal that after plummeting to an estimated 130 individuals in the wild in Kenya and facing near-extinction in the mid-1970s, the Nubian giraffe population has recovered significantly, reaching approximately 1,042 individuals distributed across 14 populations in Kenya. This conservation success is credited to focused management strategies, notably conservation translocations and enhanced population monitoring efforts. These findings and ongoing efforts are crucial for guiding targeted conservation strategies aimed at preserving key giraffe habitats and mitigating human-induced threats. By sharing these findings, we aim to facilitate informed discussions and collaborative efforts towards securing a sustainable future for Kenya's Nubian giraffe populations.

Keywords: Conservation research, Nubian giraffe, Population management, Translocation

Sub-Themes: Human Dimensions in Wildlife Conservation

Balancing Benefits and Burdens: Tourist Camps and Lion Conservation in the Maasai Mara

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Abstract

Wildlife tourism is a key economic driver in many countries globally, including Kenya where it significantly contributes to GDP and subsidises conservation in public and private protected areas. However, the rapid expansion of tourism infrastructure and activities can impair wildlife conservation and ecosystem functioning. Using spatially explicit lion densities and tourism accommodations data in protected areas, we examined the spatiotemporal effects of tourist camps on lion populations in the Maasai Mara, Kenya. Our analysis is based on annual three-month surveys conducted between 2014 and 2022, covering 2363 km² at a high spatial resolution of 0.25 km². Mean annual lion densities of lions >1 year old ranged from 16-21 lions 100 km-2, and camp kernel density ranged from 0-2300 m. We find the highest lion densities in areas without camps, while maximum lion density declined significantly with increasing camp density. These effects were independent of prey or vegetation. Moreover, newly established camps displaced lions, suggesting that current landscape and tourism planning does not maximise conservation outcomes in the Maasai Mara. Our results underscore the need for strategic planning of tourism activities to balance the benefits of wildlife tourism with the conservation of key species like lions. A more even distribution of tourism activity within and between protected areas may improve conservation outcomes while spreading the benefits of ecotourism more evenly across regions and communities.

Keywords: Conservation management, Lion conservation, Lion density, Maasai Mara, Sustainable tourism

Community Perceptions on the Enhancement of Avitourism Activities in Arabuko Sokoke Forest in Kilifi County, Kenya

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Abstract

Avitourism is an inter-connected nature-based tourism activity where its success or failure is determined by community involvement and perceptions. The purpose of this study is to evaluate local community perceptions on the enhancement of avitourism within Arabuko Sokoke forest through the adoption of community participation theory and mixed research design. The study targeted 7399 households located in four sub locations where 361 household respondents were sampled by use of stratified and random sampling techniques. The study utilized questionnaire, focus group discussion and observation as data collection methods. The study findings revealed that (63.2%) of the local community were involved in avitourism activities and the activities contribute 43.2% to their household livelihoods. The study findings further revealed that the local community had positive perception on the economic, political and social benefits accruing from avitourism at 74.2%, 69.7% and 66.3% respectively while 63.3% of the local community supported avitourism activities enhancement with 36.7% opposed it. The correlation between community perception and avitourism enhancement was fairly positive (⍰=0.001) as perception was observed to contribute 29.7% towards avitourism enhancement. The findings further revealed that the local community was highly willing (72.9%) to participate in the enhancement avitourism activities and programs. As Arabuko Sokoke forest exemplifies greater potentials for avitourism growth, this study recommends greater avitourism awareness and involvement of the local community to improve positive perception and boost avitourism growth in Arabuko Sokoke forest. This paper agrees with the theme of wildlife utilization and enterprises.

Keywords: Avitourism, Community, Enhancement, Involvement and Perception

Status of Wildlife Roadkill in the Ngorongoro Conservation Area, Northern Tanzania

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Abstract

Globally, roads traversing protected areas facilitate the transportation of goods and services. Still, they usually create some negative impacts, such as wildlife roadkill, which has occurred within the Ngorongoro Conservation Area (NCA). An 82 km stretch of gravel main road from Lodoare to Golini was used as the study transect to survey wildlife roadkill in NCA from October 2021 to October 2022 for four consecutive days, twice a day per month for ten months during the

wet and dry seasons, to document wildlife roadkill species and their spatial-temporal patterns in the area. The surveys started early in the morning, from 0700 to 1800 hours and employed direct and opportunistic encounter observation methods for data collection. A vehicle with a speed limit of 20km/hr was used during the survey. The results revealed that 85 individual wild animals with encounter rates of 0.016 animals/km belonging to 26 species, including 10 mammalian, 5 reptilian, and 11 bird species, were killed in the area. More birds (69.4%) than mammals (18.8%) and reptiles (11.8%) were found killed in the area. Additionally, the nightjar (Caprimulgus europaeus; 30.6%), followed by black rat (Rattus rattus; 7.1%) and chameleon (Chamaeleo chamaeleon; 3.5%), were the most frequently recorded killed species in the area. Furthermore, wildlife roadkills did not differ significantly between seasons ($p = 0.371$) and time of day (e.g., morning vs. afternoon; $p = 0.652$) but differed significantly between their body size (e.g., small, medium, and large; $p < 0.001$) and habitat types (e.g. grassland, woodland, shrubland, wooded grassland, forest; $p = 0.005$). The study recommends punishments and penalties for overspeeding drivers and installing cameras, speed limits, and signboards along the highway to alert drivers to reduce speed. Also, providing regular education to road users on the impacts of roadkill within the area is critical.

Keywords: Conservation, habitats, roads, vehicles, wildlife

Prey Exhibit Relaxed Antipredator Responses Due to Predator Exclusion Via Human Shielding

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Abstract:

Human activities affect landscape use by wildlife species, with many carnivores actively avoiding areas near humans. In human-occupied areas, habituation to human activity and prolonged release from fear of predation could therefore lead to relaxed antipredator behavior by prey species, which can be detrimental when predators become present again or if individuals are translocated to new areas with predators. Using Guenther's dik-dik (Madoqua guentheri) as our study species, we tested whether proximity to human settlement affected habituation to humans and, by extension, response to predation cues. We hypothesized that dik-diks living closest to humans would have shorter flight initiation distances and spend less time responding to predation threats than those that live farther from humans. We found that flight initiation distance and responses to both direct and indirect predation threats varied predictably with differences in human activity: dik-diks living in areas with more human activity had shorter flight initiation distances and spent less time responding to threats of predation than those living farther from humans. As human populations expand and increasingly coexist with large carnivores, increased human activity may increase susceptibility of dik-diks and other wildlife to their non-human predators. These results are particularly relevant for ecotourism in working landscapes and translocation of habituated animals.

Keywords: Human, wildlife, predators, activity, population

Ecotourism as a Spatial Strategy for Human-Elephant Conflict Mitigation: Opportunities and Limitations in Kenya's Heterogeneous Landscape

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Abstract

Ecotourism is often presented as a potential approach for mitigating complex conservation challenges, such as human-wildlife conflict (HWC) and illegal wildlife trade, by aligning economic benefits with biodiversity preservation. In Kenya, where human-elephant conflict (HEC) threatens both local communities and African savanna elephants, ecotourism holds promise to foster coexistence. However, ecotourism is not universally applicable in diverse landscapes. This study challenges the notion of ecotourism as a universal solution for HEC in Kenya's heterogeneous landscapes, highlighting areas where ecotourism is unlikely to succeed. Using species distribution modelling (SDM) with ensemble algorithms, RangeShifter, and GIS-based analytical hierarchy process (AHP) enhanced by large language modelling (LLM), an artificial intelligence (AI) tool implemented in GPT-4, we assessed elephant habitat suitability, potential for range expansion, HEC risk, and ecotourism feasibility. This AI integration facilitated literature synthesis, objective factor weighting, and scalable decision support for conservation planning. SDM identifies 50.1% (291,266 km^2) of Kenya's landmass as suitable for elephants, with a projected 91.1% elephant range expansion in 50 years. However, 51.1% of the country faces moderate to high HEC risk, driven by human population density, cropland expansion, and settlement proximity. At the same time, 63.6% of Kenya exhibits moderate to high ecotourism potential, overlapping significantly with HEC-prone zones. The Kajiado, Laikipia, Narok, Samburu, Taita Taveta counties were among the counties with more than 39% of their landmass under high ecotourism potential. While there is some overlap in counties with both high HEC risk and ecotourism potential, 19.1% (111,250 km2 of Kenya's landmass) in counties, such as Embu, Kirinyaga and Makueni, had low or marginal ecotourism potential, yet experiencing a high HEC risk. Population projections under Business-As-Usual, Ecotourism Potential, and HEC-prone scenarios estimate 52,286, 40,491, and 26,939 elephants, respectively, in 50 years. The study identifies geographical locations where ecotourism is not a suitable mitigation for HEC, necessitating alternative HEC mitigation strategies like wildlife corridors, electric fencing and AI-driven early warning systems. Moreover, to achieve its full potential, ecotourism needs to be supported by policies promoting habitat connectivity, equitable benefit-sharing, and sustainable agriculture.

Keywords: African elephants, ecotourism, human-elephant conflict, landscape heterogeneity, RangeShifter, species distribution models

Sub-Theme: Aquatic Ecosystems Conservation

Occurrence and Distribution of Aquatic Beetles All Over Africa Housed in the Natural History Collection at the National Museums of Kenya,

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Abstract

This is one of the outcomes of the project '*Freshwater Biodiversity Data of Rivers of Lake Victoria Basin*' Funded by JRS Biodiversity Foundation and implemented by the University of Florida in partnership with National Museums of Kenya. This dataset presents occurrence records of invertebrates housed in the natural history collections at the National Museums of Kenya. The specimens were collected over many years from within the Lake Victoria watersheds as well as from other regions of Kenya and Africa. The data was mined from invertebrate specimen labels collected from all over Africa. In addition, the project aims to sample the Rivers of Lake Victoria Basin in Kenya at different periods and in different localities. The dataset represents an occurrence of 4,143 beetles from the order Coleoptera, representing four major families- Staphylinidae, Dysticidae, Hydrophilidae and Ptilidae, with the family having recorded the highest Staphylinidae with 2377 and the lowest was Ptilidae with only 1. The occurrence was collected around 100 years with the earliest being captured at 1910 in the Arabuko forest and the latest in 2000 at Kakamega forest. About 90% of the occurrences were collected within East Africa with a majority from Kenya and few were collected from South Africa and East Africa. This work is significant since it can advise when planning future surveys, tracking the migration of species i.e invasive locusts, studying the phenology of species and for ground-truthing in case of changes such as climate change.

Keywords: beetles, occurrence, dataset

Baseline Assessment of Aquatic Resources in Laikipia National Reserve, Kenya

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Abstract

Wetlands and other aquatic resources play a critical role in the provision of ecosystem services including water, climate modulation and as biodiversity habitat. Laikipia National Reserve supports a rich array of flora and fauna including threatened species highlighting its ecological importance. The northern frontier has remained poorly studied particularly for the smaller taxa with most efforts directed to charismatic megafauna. Birds and herpetofauna serve as key ecosystem health indicators hence their presence help identify critical habitats for conservation. This baseline study aimed to assess water quality and the associated avian and herpertofauna diversity. Water parameters were measured in-situ using HANNA meter and analyzed in the laboratory using standard protocols. Birds were surveyed using point counts and opportunistic

sightings while visual encounter, pitfalls, drift fences and call records were used for herpertofauna. Results indicates that most sites met water quality standards for livestock and wildlife use while some shallow wells, springs and boreholes recorded TDS, conductivity and fluoride levels beyond the thresholds. Turbidity values were high in the rivers indicating high siltation from upstream run-off. The survey documented 199 avian species with wetlands recording (199) individuals of 24 species and 21 opportunistic sightings. Herpetofauna abundance and diversity was higher in the wetlands (76 individuals), followed by woodland (22) and lowest in grassland (17). Intact wetlands including Suguta Marmar and Kirimon recorded high abundance of aquatic species compared to degraded sites. Threatened bird species including the Grey Crowned Crane Balearica regulorum and Lesser flamingo Phoeniconaias minor as well as both Afro-tropical and palearctic migrants were recorded. The presence of species listed on Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) underscores the importance of the reserve in conserving migratory species. The study recommends regular monitoring, zonation and protection of wetlands, riparian and catchment areas through a multi-stakeholder approach to foster sustainability of conservation efforts.

Keywords: Aquatic resources, avifauna, herpetofauna, multi-stakeholder, water quality

Catastrophic Bleaching and Mortality of Corals in Marine Protected Areas in Kenya

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Abstract

Global climate change has caused significant fluctuations in Sea Surface Temperatures (SST), with far-reaching impacts on critical marine ecosystems, particularly coral reef ecosystems. Given the resultant increasing frequency of temperature-induced coral bleaching and mortality events, it is imperative to assess regional differences in coral vulnerability within Marine Protected Areas (MPAs). The fourth global marine heatwave of 2024 was particularly severe, resulting in widespread coral bleaching and mortality, even within protected reefs along the Kenyan coastline. In response to National Oceanic and Atmospheric Administration (NOAA) bleaching alerts, comprehensive surveys were carried out to measure spatial variations in bleaching intensity across MPAs located on both the southern and northern coasts of Kenya. Extreme Sea Surface Temperature (SST) anomalies, exceeding 32 °C and surpassing historical records by 2.5 °C, resulted in moderate to severe bleaching among 60% of corals and bleaching-induced mortality in 8.9% of colonies. Hard corals in the Kisite-Mpunguti and Mombasa MPAs on the southern coast exhibited more pronounced bleaching (87%) compared to those in Watamu and Malindi MPAs on the northern coast (70.6%). Conversely, the proportion of dead corals was substantially greater in the northern MPAs (Malindi and Watamu; 29%) than in those on the southern coast (12.9%). These initial observations following an intense heatwave indicate rapid bleaching and mortality across diverse coral genera, including species typically considered resilient (e.g., Porites massive). Such data are essential for projecting shifts in species composition within MPAs in response to ongoing climate warming and further guide restoration and mitigation measures necessary to ensure resilient coral reef ecosystems.

Keywords: Coral bleaching and mortality, Climate change, Coral communities, Marine protected areas, Kenya

Poster Presentations

Sex-Biased Dispersal in Vulturine Guineafowl (*Acryllium Vulturinum*)

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Abstract

Dispersal is a key ecological process influencing population dynamics, genetic diversity, and social structure in animal species. In many birds, dispersal is sex-biased, with one sex dispersing more frequently or over longer distances. This study examines the dispersal patterns of vulturine guineafowl (Acryllium vulturinum) to determine whether dispersal is biased toward males or females. The study was conducted in Laikipia, Kenya, where 300 tagged individuals were monitored and 120 were recorded as successful dispersers. Dispersal events were recorded using wing-tag resightings, and a Welch Two Sample t-test was used to compare dispersal rates between males and females. Preliminary results show a significant female-biased dispersal pattern, with females dispersing at a significantly higher rate than males ($p < 0.001$). This supports previous studies suggesting that inbreeding avoidance, resource competition, and mating strategies drive female-biased dispersal in birds. Additional analyses on group size effects, dispersal distances, and environmental influences are ongoing. These findings contribute to the broader understanding of avian dispersal ecology and provide insights relevant to conservation planning for social bird species.

Keywords: Dispersal, ecology, inbreeding avoidance, sex-biased dispersal, vulturine guineafowl

Assessment of Conservation Status of Endangered Vultures in Perching Cliffs of Northern Kenya.

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Abstract

The decline of vultures in the northern Kenyan cliffs, particularly within the Samburu ecosystem, is a critical conservation concern. This ecosystem is home to over six vulture species and more than 40 raptor species, including the largest breeding colonies of the endangered Rüppell's vulture. However, their populations are rapidly declining due to multiple threats: electrocution, collisions with high-voltage power lines, poisoning in foraging areas, and disturbances from rock climbing activities. Between 2018 and 2022, the cliffs became popular rock-climbing sites, resulting in significant disturbance to nesting vultures due to route drilling. With the help of the Mountain Club of Kenya (MCK) and Vulture Caretakers Volunteers (VCT), some control measures were put in place. Despite these efforts, threats from the Sodo–Moyale–Suswa High Voltage Power Line and poisoning persist. Surveys conducted between 2021 and 2024 by VCT and Crane Conservation Volunteers (CCV), with NABU support, recorded 224 vultures across six

species. Rüppell's vultures were the most numerous (52%), followed by hooded, white-backed, white-headed, lappet faced, and Egyptian vultures. These findings represent a 45% decline in the population at major breeding sites, including Poi, Loltiani, Moile, Lekuruki, Lepindira, and Ololokwe. Key conservation objectives include raising community awareness, regulating tourism activities near nesting cliffs, and promoting community-based conservation planning. Involving local stakeholders—such as pastoral leaders, community scouts, NGOs, and local governments—is vital. The use of mobile apps and community-based tools for reporting vulture sightings, carcasses, and poisoning is encouraged. The report recommends protecting nesting and foraging habitats, preserving traditional Samburu practices that support biodiversity, and ensuring communities gain economic benefits from conservation. These integrated approaches are essential to reversing the decline and ensuring the survival of vultures in northern Kenya.

Keywords: Awareness, community volunteers, vulture conservation and Northern Kenya.

Prevalence and Hotspot Areas of Roadkills and Impact of Vehicle Traffic Along Public Roads and Tracks Inside Wildlife-Protected Areas of Uganda

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Abstract

There is a growing global interest in the study of roadkill and road ecology, yet relatively few studies have been conducted despite the significant potential impact of roadkill on biodiversity. Roads influence ecosystems in two primary ways: indirectly, through habitat fragmentation, and directly, through animal mortality. Consequently, roads pose a serious threat to the survival of both individual animals and entire populations. In Uganda, the ongoing development of road networks within protected areas has raised concerns, with anecdotal evidence suggesting widespread effects on wildlife due to vehicle collisions. While some interventions have been implemented to mitigate these occurrences, they do not extend to all regions. This study aims to enhance the understanding of wildlife roadkill by identifying the prevalence and hotspots of roadkill incidents in relation to vehicle traffic, specifically within Queen Elizabeth National Park, Kibale National Park, and Murchison Falls National Park. Upon completion, this research will provide park management with valuable insights into the rates of wildlife roadkill in these three key areas and the factors contributing to such incidents.

Keywords: Roadkill, wildlife, Uganda, Park

Population and Habitat Survey of the Critically Endangered Tana River Red Colobus and Tana River Mangabey in the Lower Tana River, Kenya

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Abstract

Population survey and habitat monitoring are key to informed decision-making aimed at primate conservation and the protection of threatened biodiversity. The lower Tana River region, being a Key Biodiversity Area, is crucial for the survival of wildlife and people. The forest galleries along the river hold some of the world's critically endangered and endemic primate species: the Tana River red colobus (Piliocolobus rufomitratus) and the Tana River mangabey (Cercocebus galeritus). These primates face threats, mostly human activities, from naturally-induced impacts, leading to habitat fragmentation and loss. Frequent monitoring of the habitat and the critically threatened primate species is crucial to assess the habitat changes. Thus, we conducted a primate survey in forest patches between Hewani and Bubesa in the lower Tana River, an area left in the previous primate census. Using the KOBO app to collect data, we surveyed 33 forest patches using the sweep count method. We counted 288 individuals of the Tana River red colobus and 105 of the Tana River mangabeys, a decline from the last survey. We also counted 730 yellow baboons, 884 Sykes monkeys, and 271 vervet monkeys. The main threats were tree cutting, bushfires, natural dieback, snares, charcoal making, and invasive species. The findings revealed a decline in the population of the two critically endangered and endemic species and increased forest destruction. In conclusion, we advocate for increased community awareness of primates' plight and habitat restoration activities.

Keywords: Habitat survey, primate census, threats, critically endangered

Human Disturbance, Seasonality and Tree Cover Drive Hirola Antelope Calving Site Selection in Eastern Kenya

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Abstract

Calving sites selection of various wildlife species are influenced by a complex interplay of natural and anthropogenic factors. The hirola (*Beatragus hunteri*) is considered as the world's most endangered antelope with an estimated population size of less 500 individuals. Through a nine-year study (2012–2020), I mapped 140 calving site locations to understand the environmental, topographical and ecological variables shaping the decision-making process of hirola females during calving. While hirola breed throughout the year, majority of the calving predominantly occurs during the wet seasons (November-December and April-June), showcasing an adaptive reproductive strategy aligned with resource availability. However, I identified unusual clustering of calving locations, occurring away from settlements and roads but closer to water, ground water holes and the edge of the sanctuary electric fence. In addition, hirola prefer to calve in open areas and avoid area with dense tree cover. This research improves our knowledge and understanding of the reproductive ecology of the hirola antelope and highlights the importance

of restoring habitat for hirola to meet its specific needs. I recommend that the findings from this work be integrated in the hirola recovery strategy to improve survival and recruitment of juveniles and population growth in the hirola's native range.

Keywords: ungulate; hirola antelope; calving site selection; recruitment and survival

Activity Budget of Tana River Red Colobus (*Piliocolobus Rufomitratus*) in the Lower Tana River, Kenya.

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Abstract

Anthropogenic disturbances, including habitat degradation, fragmentation and loss, pose major threats to primates globally. High rate of human population growth has made some forest fragments in the lower Tana River region to face higher disturbances, yet these forests support the critically endangered and endemic Tana River red colobus (Piliocolobus rufomitratus). Habitat changes which affect the forest canopy that is their source of food and shelter disrupt their behavioral adaptations, particularly in disturbed regions. To understand these impacts, we studied two groups of Tana River red colobus: one in a less disturbed habitat (Mchelelo forest) and the other in a more disturbed habitat (Maramba forest). Our goal was to assess behavioral differences between these groups in varying disturbance levels. Using focal animal sampling, we collected behavioral data of both sexes from adults and juvenile individuals in the two sites. We found in both groups, resting accounted for most of the time (Mchelelo 52% and Maramba 51%) followed by feeding (Mchelelo 39% and Maramba 31%). The groups spent less time moving (Mchelelo 2% and Maramba 2%), on social interactions (Mchelelo 4% and Maramba 11%) and out of sight (Mchelelo 3% and Maramba 5%). There was a significant difference in feeding: w=339954, p=0.004, moving: w=235940, p=<0.001, and social interactions: w=170654, p=<0.001). Resting: w=331837, p=0.051 and out of sight: w=308923, p=0.242 did not show evidence of significant difference. These results provide valuable insights for primate conservation in human-dominated habitats. These findings can be used to inform the research of endemic and endangered animals in disturbed habitats and enhance the conservation practices and strategies aimed at advancing wild animal studies. We highly recommend monitoring of primate species in disturbed areas to increase primate conservation and habitat restoration.

Keywords: primates, endangered, disturbance, behavioural, habitat

Addressing Human-Elephant Conflict with Naibunga Lower Community Conservancy

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Abstract

Many efforts to mitigate human-elephant conflict (HEC) have focused on agricultural landscapes where crop-raiding is the driving source of conflict. Over recent years, HEC has intensified in areas that did not previously experience high rates of conflict, such as in the pastoralist regions of northern Kenya. There is an urgent need to develop strategies that address HEC in this lesser understood context, which can take the form of conflicts over water and browse, encounters during daily walking routes, and elephants entering human settlements. Data from participatory mapping sessions, focus group discussions, and a quantitative survey (n = 364) have generated insights that highlight key areas for intervention. In each unit of Naibunga Lower Community Conservancy in Laikipia County, Kenya, participants rated safety for children walking to school as the highest priority to concentrate efforts. When asked which types of intervention they were willing to try in the future, the top-rated response was deterrents to prevent elephant damages to household properties. Existing knowledge of elephant behavior was very high and techniques to avoid interactions with elephants while performing daily activities have been widely used. Attitudes toward elephants were mixed, but most respondents reported a belief that coexisting with elephants on the landscape is possible. This presentation will summarize these results and how findings are now being used to develop and pilot interventions aimed at avoiding dangerous interactions with elephants.

Keywords: human-elephant conflict, pastoralism, coexistence, human dimensions

Impact of Habitat Disturbance on Key Plant Foods and Foraging Behavior of the Tana River Mangabey (*Cercocebus Galeritus*) in the Lower Tana River, Kenya.

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Abstract

Tana River mangabey (*Cercocebus galeritus*), an endangered primate endemic to Kenya, faces habitat fragmentation and resource competition due to human activities. Understanding how key plant food availability and foraging behavior of Tana River mangabeys varies across different disturbance levels is crucial for conservation efforts. This study aimed to compare the key plant food species and the behavior of the Tana River mangabeys in two forest fragments with varying levels of human disturbance—Mchelelo (less disturbed) and Mkomani (highly disturbed). Using 50m by 50 quadrats plots and behavioral observations, assessed plant species

diversity, anthropogenic impacts, and behavior. We sampled a total of 43 plots (Mchelelo-21 and Mkomani-22). The results revealed that tree cutting (Mkomani-79.0%; Mchelelo-33.0%) and palm leaf harvesting (Mkomani-16.8%; Mchelelo-51.9%) were the most common human activities in both sites, with significantly higher disturbance in Mkomani. The most frequently exploited plant species included *Phoenix reclinata* (61.7%), *Polysphaeria multiflora* (11.3%), and *Lecaniodiscus fraxinifolius* (8.7%) in Mchelelo while in Mkomani forest *Lecaniodiscus fraxinifolius* (17.0%), *Phoenix reclinata* (16.9%) and *Thespesia danis* (10.6%). The comparison of human disturbance scores of the exploited plant species differed between the sites ($t = 3.81$, $df = 1$, $p < 0.001$). Behavioral comparison between the Mchelelo and Mkomani groups showed a significant difference in feeding ($t = 7.55$, $df = 1$, $p < 0.001$), moving ($t = 14.01$, $df = 1$, $p < 0.001$), and social interaction ($t = 13.49$, $df = 1$, $p < 0.001$). These findings show that increased habitat disturbance impacts the food species and the foraging behavior of the Tana River mangabey in disturbed, forcing mangabeys to adjust their foraging behavior and activity budgets. The findings highlight the urgent need for conservation measures to mitigate human-induced pressures on the Tana River mangabey's habitat and ensure its long-term survival.

Keywords: Tana River mangabey; Habitat disturbance; Key plant foods; Human impact; Conservation strategies

Laterality in Feeding Behaviour in a Population of African Savanna Elephants (Loxodonta Africana) in Northern Kenya

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Abstract

Laterality, the preferential use of one side of the body or appendages, is a key aspect of animal behavior studies, as it can influence behavioral syndromes and decision-making processes. Research on laterality has focused mainly on Asian elephants, with limited knowledge available on African elephants. This study aims to address this gap by evaluating lateralization in free-ranging African elephants *(Loxodonta africana)*. Specifically, we will examine (i) individual laterality in feeding behavior, (ii) correlations between laterality among different body parts (trunk, tusks, and limbs), (iii) laterality preferences reflected in tusk features such as notches/ breaks, (iv) population-level laterality bias, and (v) the influence of genetic-relatedness on laterality patterns. We will investigate these aspects of lateralization using focal follows of individually identified elephants as part of the Samburu elephant long-term monitoring project of Save the Elephants. Behavioral observations will be conducted during feeding bouts, with video footage analyzed to calculate the Laterality Index (LI) for trunk, tusk, and forefoot movements. Multiple elephants will be observed during the three 5-minute sessions across at least three separate days. Feeding events will be categorized as feeding (FF) and walking while feeding (WWF), noting the frequency of occurrences. Trunk usage will be categorized as linear (straight), anticlockwise (left), and clockwise (right). Tusks and feet laterality will be indicated as left or right side, with tusk morphology assessment conducted via photogrammetric techniques aimed at capturing the tusk length, notches, or breaks. Statistical analyses will include one-sample t-tests to assess individual differences in laterality, correlation tests to explore relationships between the LIs of different body parts, and one-way ANOVA to assess significant LI differences among body parts, followed by post-hoc tests for paired comparisons. We will also calculate the Tusk lateralization Index (TLI) to assess laterality in tusk wear, applying correlation tests to examine associations between LIs in different body parts and TLI. Population bias will be assessed by calculating average body LI with one-sample t-tests to determine the significance of body side preference. Correlation tests and linear regression will evaluate LI relationships among genetic relatives, followed by paired sample t-tests to detect differences in LI between mother-calf and sibling-sibling pairs. The study will provide insights into the behavior of wild African elephants, aiding conservation and management efforts in their natural habitats.

Movements of African Elephants (*Loxodonta Africana*) in the Tana River Region

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Abstract

GPS tracking enables researchers and conservationists to monitor individual elephant movements, understand habitat use, and assess landscape connectivity. This information is also vital for management and security. Save the Elephants and the Kenya Wildlife Service collared and tracked 14 elephants along the lower Tana River and in the Tana Delta between 2009 and 2023, to better understand elephant movements in response to anthropogenic risk connected with local insecurity issues, land use changes, and human pressures on protected areas. Here we present the results of this long-term tracking study. We found that elephants along the lower Tana were mostly concentrated inside the Tana River Primate National Reserve during the dry season - likely because the reserve offered the only access points to the river not obstructed by farms and settlements. However, elephants dispersed through nearby conservancies, southwest of the river, during the wet season - reaching unprotected areas along the boundary of Kilifi County. Dispersal movements usually started at high speed and at night, but elephants slowed down and became more diurnal as the distance from the river increased. This was likely due to the gradual decrease in the density of settlements, and thus in perceived risk, away from the river. As they are currently unprotected, wet season dispersal areas will need further conservation attention. We also found that the Tana seemingly acted as a major barrier to elephant movements to the East, except for a few identified crossing points. Nonetheless, there was a tendency for some elephants to occasionally use crossing points and visit the eastern bank, sometimes reaching Arawale National Reserve. There is thus potential for range expansion into that area, if properly secured. Finally, in 2016 we observed an exceptional exploratory movement of a bull elephant from the Tana River to Somalia and back. Although the status of elephants in Somalia is currently unknown, re-colonization might be possible from the Tana River population - if the security situation improves.

Keywords: Land-use, landscape connectivity, GPS tracking, dispersal

Utilization of *Opuntia stricta* as an alternative source of forage during drought.

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Abstract

In Laikipia North, rangeland degradation has intensified due to the rapid spread of an invasive species called *Opuntia stricta* which is encroaching on grazing lands. In Maiyanat Community Land, approximately 75% of the 6,400-hectare area is infested, which is a major threat to animals as they navigate in search of grass sometimes causing blindness when pricked by the spines. Besides, these spines have been proven to injure the mouth cavities and the digestive tracts of goats. In extreme cases, the reduction of grazing areas has resulted into livestock mortality during droughts. Eradication methods such as physical removal and mechanical control remain costly while biological control is slow, necessitating a shift to utilization as animal forage during drought. Laikipia Wildlife Forum with support from the Food and Agriculture Organization is carrying out a study aimed at assessing the performance of livestock fed on *Opuntia stricta*-based feed rations over an 84-day period. The data collected from the experiment will track parameters such as the weight gain/loss, levels of feed intakes and overall health of the livestock from each of the four treatments where animals receive varying formulations as follows:60% *Opuntia stricta* (slurry)+ 40% sawdust, 60% chopped *Opuntia stricta* + 40% sawdust, 80% *Opuntia stricta* (slurry) + 20% sawdust and 60% *Opuntia stricta* (slurry) + 40% hay. Preliminary findings indicate that livestock prefer slurry formulations over chopped cactus, with weight gain being recorded for animals

consuming 80% *Opuntia stricta* slurry formulation. The objective of the study is to demonstrate the economic utilization of *Opuntia stricta* in sustaining pastoral livelihoods while supporting national invasive species management efforts. The findings will be disseminated through technical reports, journal publications, community seminars to enhance adoption.

Keywords: Invasive species, *Opuntia*, Utilization, Pastoral economy, Drought

Monitoring Vegetation in Amboseli Over the Long Term for Informing Elephant Demography, Movements and Conservation

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Abstract

The Amboseli Elephant Research Project has studied and monitored the ecology, behavior, and population dynamics of elephants for the past 53 years, including vegetation monitoring for 41 years. The monitoring should serve as a basis for understanding forage availability underpinning population orocesses. This paper reports on variation in the abundance of herb layer vegetation through annual and longer term changes, and explores the ecological drivers and effects on the elephants of such changes. The standing biomass of grass in woodlands and swamp edges was recorded at ten fixed plots in Amboseli National Park, using a transect-based measurement technique. Plots have been visited twice yearly, at the end of wet and dry seasons, from 1984 to the present. A continuous record of daily rainfall has been maintained at the Elephant Research Camp in the middle of the Park. Grass abundance varied in response to seasonal rainfall, with higher peaks in wet periods and deeper troughs in dry periods and droughts. Since the early 2000s, the responsiveness of grass production to rainfall appeared to decline, under growing grazing pressure from livestock and wildlife. The livestock populations have become more resident and less seasonally mobile with a trend towards more permanent human settlements along the southern margin of the Park. Elephant demographic parameters, illustrated by the mortality of young and older animals, were associated with reduction in forage abundance on a seasonal basis and in drought periods. Longer term changes were also examined. Future directions will examine the relationship between forage biomass at ground-based sites and corresponding satellite data, extending to plant communities across the Amboseli ecosystem. Implications for elephant use of landscape corridors, in the face of human land use changes will be explored.

Keywords: ecological monitoring, elephant demography, movement corridors

Assessing Elephant Habitat Connectivity in Northern Kenya Using GIS Techniques

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Abstract

Wildlife corridors and dispersal areas play a critical role in the long-term survival of wildlife species by reducing adverse effects of habitat fragmentation. Corridors allow dispersal of individuals between large patches of remaining habitat allowing for long-term genetic interchange and recolonization of locally extirpated habitat patches. Land fragmentation poses a critical threat to survival of large-bodied mammals, such as the elephant (*Loxodonta africana*). The result is intensified human wildlife conflicts, negative attitudes and retaliatory killings. This study aims to establish structural connectivity by identifying potential elephant corridors linking Meru National Park, Nyambene National Reserve, Shaba National Reserve, and Buffalo Springs National Reserve using a spatial modelling approach based on a combination of environmental and human related factors. The variables used will be landcover and land use from sentinel 10m resolution imagery, elevation and slope derived from Digital Elevation Model (DEM) STRM 30m, water bodies, and human infrastructure. The variable map layers will be weighted based on suitability for elephant movement, whereby higher resistance values mean more difficulty for the elephants to move through, and lower values indicate easier movement. The weighted layers will be combined to create a resistance surface showing difficulty of elephant movements across the landscape. Least cost Paths and truncated corridors will be identified using Linkage Mapper tool in ArcGIS showing possible corridors and linkages between the four protected areas. Historical collared elephant movement data will be used to validate the model. The resulting corridor network can be used to inform conservation planning, land use zoning, and human wildlife conflict mitigation interventions. This research will contribute towards progressive policies on protection of critical habitats ensuring viable elephant populations in the landscape.

Keywords: Corridor, connectivity, linkage mapper, elephant

Roan Antelope Population Recovery Strategies. A Case Study of Ruma National Park,

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Abstract

The roan antelope (*Hippotragus equinus langheldi*) was once widely distributed across Eastern, Central, Southern, and Western Africa. Over the past four decades, the population of the East African subspecies in Kenya has steadily declined throughout much of its former range. Historically, roan antelopes were found in southern regions such as Masai Mara, north of Mt. Elgon and the Cherangani Hills, around Thika and Kitui, and east of the Chyulu Hills. Today, the subspecies is locally extinct across all these areas except for a small population in the Lambwe Valley within Ruma National Park. Numbers have dropped sharply, from an estimated 200 individuals in the 1980s to fewer than 30 today, making the roan antelope one of Kenya's rarest large mammals. Although classified as "Least Concern" by the IUCN due to its broad distribution in Africa, the roan antelope faces severe conservation challenges in Kenya. Population decline is mainly driven by predation (90%), with additional pressures from fire, poaching, encroachment, water scarcity, and

inbreeding (70% each), as well as disease and drought (65%). In response, the Wildlife Research and Training Institute and Kenya Wildlife Service, with partners, have launched targeted recovery efforts to ensure the species' survival. These efforts are guided by the National Recovery and Action Plan for the Roan Antelope (2020–2030), a ten-year strategy aimed at ensuring their population growth. Key strategies include creating a 5.6 km² predator-proof sanctuary, daily monitoring and veterinary care, controlling vector borne diseases like tsetse flies and ticks, managing grass biomass through burning and mowing, providing essential minerals and clean water, and conducting genetic studies to support the reintroduction of unrelated individuals into the population.

Keywords: Decline, Population, Reverse, Threat, Biomass

Crossing Lines: Community-Based Insights Into the Conservation of Wide-Ranging Carnivores at the Kenya-Tanzania Interface

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Abstract

Wide-ranging carnivores, such as cheetahs *Acinonyx jubatus* and African wild dogs *Lycaon pictus*, face increasing threats from habitat fragmentation, human-wildlife conflict, and uncoordinated cross-border conservation efforts. The Loita region in Kenya's Narok County serves as a critical ecological corridor for these species, yet local communities receive minimal tourism-related benefits compared to those near the Maasai Mara National Reserve. Integrating community knowledge with ecological data is essential for effective transboundary conservation strategies. This study aims to (1) document community knowledge of carnivore presence and cross-border movements, (2) assess perceived benefits and challenges associated with these species, and (3) co-develop locally informed conservation strategies. We employ a participatory methodology, including structured interviews, species identification exercises, participatory mapping, and camera trap deployment at den sites and key locations, guided by community representatives. To analyze data, advanced statistical methods in R, including generalized linear mixed models (GLMMs) will be used to evaluate factors influencing carnivore presence and human-wildlife interactions, accounting for spatial and temporal random effects. Spatial analysis, using packages like sf and sp, maps carnivore movement patterns and identifies high-conflict zones. Community perceptions are quantified through ordinal regression models, with variable selection via Akaike Information Criterion (AIC) to optimize model fit. Camera trap data will be analyzed using occupancy models in the unmarked package to estimate detection probabilities and habitat use. Although field data collection is ongoing, results will be available by the conference. Preliminary engagement indicates strong community interest in conservation despite limited economic incentives. The integration of local knowledge with robust statistical analyses is expected to reveal critical insights into carnivore ecology and human-wildlife dynamics, informing inclusive transboundary management strategies for ecologically vital yet under-recognized regions like Loita.

Keywords: Transboundary conservation, carnivores, community-based conservation, participatory methods

Promoting Wildlife Corridor Connectivity in the Wake of Infrastructural Development; A Case Study of the Standard Gauge Railway (SGR) in Tsavo Conservation Area

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Abstract

Wildlife corridors are essential for mitigating habitat fragmentation caused by linear infrastructure development in protected areas. In the Tsavo Conservation Area, home to the largest population of savannah elephants in Kenya, the Standard Gauge Railway (SGR) constructed in 2017, cuts through the ecosystem, dissecting the Tsavo National Parks for a distance of 133 km. An embankment and an electric fence on both sides are key features of the SGR infrastructure, funneling wildlife movement to about 41 underpass structures. Since 2016 we partnered with Kenya Wildlife Service and Wildlife Research and Training Institute to study wildlife underpasses usage, and environmental and anthropogenic factors affecting the success and frequency of SGR crossing events by different species. We found that multiple factors including the design of the underpasses (wildlife corridors, bridges, or culverts), height, proximity to roads, human settlement, water, and vegetation NDVI affected crossing rates of wildlife species. Elephants utilized all underpass types - underscoring the importance of these structures to them. Other medium to large-sized mammals frequently observed using the underpasses include zebras, baboons, buffalos, and dik-diks. Some underpasses were utilized by livestock more than wildlife: human activities in the underpasses affect free wildlife movement. Elephants, however, seemed unaffected by higher livestock crossing rates in some underpasses. We plan to deploy about 30 camera traps in the underpasses to understand the wildlife's crossing behavior further. As a unique study for Africa, this information is crucial for informing corridor designs for wildlife and park management decision-making as more mega-infrastructure projects emerge.

Keywords: Standard Gauge Railway, Wildlife corridors, Habitat fragmentation, Tsavo Conservation Area

Aerial Census of Large Mammals in Maasai Mara Ecosystem, 2024

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Abstract

The Maasai Mara Ecosystem (MME) is a key wildlife conservation landscape in Kenya and globally. It is also an important trans-boundary wildlife conservation ecosystem that strands the Kenya-Tanzania boundary to join the Serengeti Ecosystem. The region is known to be a key tourism destination world-wide and thus provides a substantial economic contribution locally and nationally. Despite the importance of wildlife conservation and tourism activities in the region, there are emerging challenges facing it particularly through expansion of agricultural lands, settlements and fencing thus blocking wildlife dispersal areas and migratory routes. It is for the above reasons that routine wildlife and habitat monitoring needs to be undertaken so as to detect any changes in time and facilitate application of effective corrective measures. One of the effective monitoring methods is through undertaking regular aerial censuses covering the entire ecosystem. Aerial censuses in the MME have been undertaken historically and is currently being undertaken after every three years. The current census was undertaken from 19th to 22nd

June 2024 and was the first event of the planned national wildlife census in the 2024-2025 period. The census covered a total area of 12,500Km^2 running through a National Reserve, Private and community conservancies, forests, community grazing and agricultural lands. The objectives of the census were to: (i) Determine and document the number of all large mammals including elephants, buffaloes, giraffes, among others within MME, (ii) Determine the spatial distribution of all large mammals including elephants, buffaloes, giraffes, among others within MME, (iii) Document the number and spatial distribution of elephant carcasses in the Mara ecosystem, (iv) Understand the trend in wildlife numbers in the MME, (v) Map human activities in the MME including logging, settlements, farming, and charcoal burning among others, (vi) Document the distribution and numbers of livestock (e.g. cattle, goats and sheep, donkeys and camels) and,(vii) Interpret the information obtained to guide management of elephants and other species. Five aircrafts (1 helicopter and 4 high fixed wing aircrafts) were used during the census that lasted six days. In a bid to embrace technology and innovation, the use of Earthranger App to transmit real-time tracking data was piloted during this census and is planned to be used during the subsequent censuses throughout the country. The App enabled the senior managers and event organizers to follow the flight paths on real time and be able to make any decisions or provide advice to the crews in time. The total count time during the census was 77 hours 42 minutes. This translated to a census search effort of 160.90km^2/hr. The results indicate that the MME still hosts a wide diversity of wildlife. A total of 13 species were recorded during the census. These were: common zebra (n = 29,195), wildebeest (n = 26,878), buffaloes (n = 8,878), impala (n = 6,101), Thomson gazelle (n = 5,162), Topi (3,908), elephant (n = 2,702), Grants Gazelle (n = 1,724), giraffe (n = 1,611), and eland (n = 1,012). The elephant population showed a slight increase from 2,595 individuals in 2021 to 2,702 elephants. The highest density of elephants was found in Mara Triangle (1.47 elephants/km^2) and Maasai Mara National Reserve (1.01 elephants/km^2). As well, buffalo population recorded an annual decline of 8.5 from 11,064 to 8,788 buffaloes counted in the same season three years ago. Giraffes and all other ungulates populations dropped too. Anthropogenic influences continue to mount pressure on the MME. Charcoal burning and tree felling (logging) continue to destroy wildlife habitat and important catchment areas. Furthermore, fencing of lands in this region is increasing and is fragmenting the landscape as well as impeding wildlife movement. Even then, over 400,000 and 200,000 herds of shoats and cattle were recorded during the census respectively. Free ranging pastoralism affords the best land use option for wildlife conservation in this region.

The following are recommendations based on this census:

- Trans-boundary wildlife monitoring and censuses between Kenya and Tanzania should be harmonized in order to get a more accurate status of wildlife in the entire ecosystem given the trans-boundary elephant and other large mammal movements.
- Wildlife in the MME heavily depends on the dispersal region beyond the PAs. Therefore, key habitats and foraging areas outside the MMNR and existing conservancies need to be conserved through establishment of new conservancies – Mara Isinya, Naikara, Ilkerin, Naroosura, Mosiro and Nyakwer forest.
- Secure and maintain key habitat linkages and migratory pathways connecting Mara and Nyakwer forest, Mara – Siana – Naikarra – Naroosura – Mosiro, Mara – Siana – Loita along sand River and other corridors linking to the Mara - Olarro and Loita through Naikara hills.
- Human activities that negatively impact wildlife such as erection of fences, permanent settlement on wild animal corridors need to be controlled. This can be achieved by implementing Narok County Spatial Plans.
- Strengthen the institutional framework involvement in community conservancy approach community based initiatives. This will lead to securing more space for wildlife as communities reap benefits from conservation.

Dung Beetles and Grasshoppers as Indicators of Rangeland Health and Ecosystem Function: Baseline Metrics from Two Soil Carbon Projects in East Africa

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Abstract

The promotion of carbon sequestration is key in efforts to decelerate and mitigate climate change, but also has co-benefits for other aspects of ecosystems, including improved adaptation via increased resilience to drought due to increases in soil carbon. Over the next forty years of the Kajiado Rangeland Carbon Project and Longido and Monduli Rangeland Project, we aim to monitor changes in soil carbon storage and biodiversity as a result of the implementation of a rapid rotational grazing livestock management system. The initial step in this process is to establish a baseline for both soil carbon and biodiversity from which change over time can be assessed through periodic monitoring over the life of the projects as changes in grazing practices are implemented. Invertebrates that are expected to respond differently to changing grazing pressure and environmental conditions were chosen for detailed monitoring. Firstly, grasshoppers (Orthoptera) should respond to changing grass biomass and species diversity while dung beetles (Scarabaeidae, Geotrupidae) should respond to changing abundance and diversity of large mammals. Dung beetles were sampled using pitfall traps baited with fresh cow dung, while grasshoppers were sampled using both line-transect sweep-netting and timed random searches. All collected specimens were sorted and weighed by size-class and identified to the highest taxonomic level possible in both field and lab settings. Dung beetle trapping effort resulted in the deployment of 1,229 traps across 214 sites. Over 5,000 individuals were collected, representative of at least 10 tribes, and inclusive of multiple breeding/foraging strategies. Over 10,000 grasshoppers were collected across both capture methods, representative of more than 30 species. Invertebrate species richness and abundance varied across habitat types throughout each study area. Collections from these efforts are currently being digitally catalogued to produce a regional field guide to aid in future surveys and conservation efforts.

Birds as Indicators of Rangeland Health: Baseline Metrics from a Soil Carbon Sequestration Project in Kajiado, Kenya

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Abstract

Globally, many rangelands are being degraded due to overuse and exacerbated by climate change. As rapid rotational grazing of livestock is implemented across areas of Kajiado County, Kenya, as part of the Kajiado Rangeland Carbon Project (KRCP), carbon sequestration and biodiversity are expected to respond positively. Providing a relative measure of biodiversity with the power to estimate change over time is a requirement for effective conservation decision making. Additionally, identifying indicator taxa that might be predicted to respond to project activities is valuable when designing a long-term monitoring effort. We employed over 700 point count surveys across three years to assess baseline avian diversity, distribution and abundance across multiple environmental gradients in 1.5 million ha of arid to semi-arid savanna within

Kajiado County. Point counts were conducted using a randomly stratified transect method across 7 Maasai communities and timed to coincide with peak productivity in April-May. Over 6,500 individuals from 61 families were detected in 2023, with species richness ranging 7-30 (mean 19.34) across point counts, and Shannon-Weiner diversity values of 1.36-3.25 (mean 2.63). Communities differed significantly for both species' richness (ANOVA, $F_{6,210}=5.92$, $p<0.001$) and diversity (ANOVA, $F_{6,210}=3.55$, $p=0.002$). Four bird families that may respond to changing grazing patterns were selected for further occupancy modelling based on relevant ecological traits (e.g., diet, habitat preference) and high abundance and broad distribution across point counts. Indicator families include Ploceidae (n=1334 individuals, 89% of counts), Columbidae (n=822, 98%), Cisticolidae (n=250, 77%), and Alaudidae (n=250, 50%). With continued regular surveys planned for the proceeding 40-year lifetime of the project, including other associated biodiversity sampling, this dataset provides a valuable baseline to underpin predicting and quantifying change over time looking into the future.

Keywords: climate change, livestock, carbon, distribution, biodiversity

Preliminary Results of Acoustic Bat Surveys in Unexplored Regions of Kajiado County, South Eastern Kenya

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Abstract

Kenya is recognized as a biodiversity hotspot, but bats, a diverse and often overlooked group, remain poorly understood. It is, therefore, critical to conduct more comprehensive taxonomic studies and develop effective monitoring methods to gain insights into the biogeography, species richness, and abundance of bats. In 2023–2024, the Biodiversity Research Institute partnered with Soil for the Future Africa, Maasai Mara University, Bat Conservation International, the Wildlife Research and Training Institute, and local community members to conduct a long-term bat species diversity assessment in Amboseli Landowners Conservation Association, Eselenkei, Magadi, Kitenden and Amboseli areas of Kajiado County, Kenya. We investigated bat activity and species richness using non-invasive Passive Acoustic Monitoring (PAM) techniques. Preliminary analyses recorded 412,359 acoustic files, with 366,276 and 46,083 as noise and bat call files, respectively. Ongoing acoustic annotation of bat call files has revealed 20 species from 7 of the 11 Kenyan bat families. We stress the importance of a holistic approach to assessing the bat community in Kajiado County and beyond, along with training local conservationists in bat survey techniques. Additionally, to demonstrate bat diversity and importance at Amboseli National Park (ANP) and adjoining areas, we describe our 6-day workshop experience and rapid bat captures at ANP. The captures yielded valuable genetic, morphometric, and hand-release echolocation call data. The results will contribute to conservation, taxonomic assessments, and a Kenyan bat call library. According to our findings, bats are trigger taxa carbon and biodiversity credits. Continuous monitoring of biodiversity is essential for understanding population trends, identifying threats, and developing effective conservation strategies.

Key words: Biodiversity, Bats, Monitoring, Conservation, and Carbon-credit

Spatial and Seasonal Variation in Abundance and Diversity of Reptiles in Shimba Hills National Reserve, Kwale County, Kenya

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Abstract

Despite Africa having a large diversity of reptilian species, little is known about their distribution and taxonomy, which affects conservation efforts in many countries. This lack of knowledge contributes to the ongoing decline in African reptile populations and threatens the long-term sustainability of their ecosystems, such as SHNR. More research could contribute towards effective conservation measures, especially on the diversity and distribution of reptilian species in different habitats within SHNR; unfortunately, this information for SHNR is limited and incomplete. To add knowledge to the conservation efforts of reptiles in Keya, data was collected from key forest blocks of Shimba Hills National Reserve, that is, Makadara and Longo-Mwagandi, and supplemented with historical data from the National Museums of Kenya. Overall, the findings revealed that forest habitats supported significantly higher species richness and overall abundance compared to grasslands, which hosted a smaller number of sun-adapted and generalist species. The result also revealed that the transition zone between forest and grassland is an ecologically essential transition zone that often harbours unique reptile communities due to the blending of microhabitats. The analysis also showed a difference in counts between Day and night, suggesting nocturnal specialization in some species. Family-level analysis showed that *Gekkonidae* had broad habitat tolerance compared to *Chamaeleonidae*, which were primarily found in dense forests. The results of this study will provide critical information on the species composition, especially for the endemic and endangered reptile species, allowing for better protection of rare or endangered reptile species while also helping to identify critical areas of habitat that should be preserved.

Key Words: Reptile, Eastern Africa coastal forests, Conservation, Species richness, Endemic species

Sustainable Rangelands: Securing Northern Kenya Wildlife and Livestock Corridors

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Abstract

In Northern Kenya, livestock and wildlife species are facing threats to their natural habitats due to human population growth and infrastructural development. These are increasing the pressure on pastoralists, livestock and wildlife as they share space and available resources. Save the Elephants (STE), Wyss Academy for Nature (WA) and Resilient Approaches in Natural Rangeland Ecosystems (RANGE) project, University of Twente (ITC), aim to evaluate and secure the livestock and wildlife movement corridors to ensure there is connectivity between the fast-changing landscapes. The project aims to evaluate key challenges, future threats to connectivity and integrate viable rangeland management approaches in the Greater Ewaso Ecosystem;

which falls in the Isiolo, Marsabit and Samburu counties.A scientific analysis and modelling of elephant movement data collected from 1998 to 2023 shall be undertaken to characterise the existing corridors as identified and acknowledged by the local communities. Together with other datasets such as human settlements, we shall explore the extent of blockage of the corridors. The Samburu community practice transhumance, guided by seasonal availability of forage and water. Many species of wildlife also migrate seasonally, and they have to manoeuvre their way through a landscape increasingly altered by the effects of climate change, population growth and land degradation. The future of major movement corridors is dire and there is need to reopen and protect the migratory corridors. STE and WA have engaged local monitors; Mama Tembos, to monitor the corridors, also as a step to empowering women in conservation. Human-wildlife coexistence and sustainable development should be a priority to enable both development and conservation goals to be achieved. Proper management of the spread of human settlements should be undertaken to avoid further encroachments to the corridors. Along these measures, sustainable rangelands ensure resilient communities and its animal species.

Key words: connectivity, livestock, pastoralism, rangelands, wildlife

The Ecological Impacts of Elephant Disturbance in the Arabuko Sokoke Forest Reserve

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Abstract

Elephants are vital ecosystem engineers, increasing populations within this enclosed coastal forest are causing significant habitat modification, including tree uprooting and bark stripping, with poorly understood long-term consequences for forest regeneration, vegetation composition, and faunal communities. This research addresses this urgent knowledge gap by evaluating elephant disturbance effects on Arabuko Sokoke Forest's regeneration, species diversity, and community composition. The study will pursue four specific objectives: (1) assessing natural regeneration (seedling recruitment, survival, species) in disturbed versus undisturbed areas; (2) quantifying vegetation composition changes (species richness, abundance, structural variations); (3) assessing beetle community composition (diversity, densities across vegetation layers); and (4) assessing bird diversity and abundance shifts. A robust, multi-faceted methodology will be employed, including comparative field surveys, Global Positioning System-based elephant disturbance mapping with camera traps, and comprehensive faunal assessments using pitfall/light traps for beetles and bioacoustics/point counts for birds. Data will be analyzed using advanced statistical and Global Information System techniques to establish dose-response relationships. This research will significantly advance scientific understanding of cascading trophic effects and ecosystem resilience in human-modified landscapes. Its findings will provide crucial, evidence-based information for determining optimal elephant population levels and developing sustainable forest management practices. By translating rigorous scientific data into actionable recommendations for key stakeholders, this study aims to foster a sustainable balance between elephant conservation and the preservation of ASF's invaluable biodiversity and ecosystem functions, contributing broadly to global conservation discourse.

Keywords: Elephant disturbance, ecological impacts, biodiversity, keystone species, ecosystem resilience

Vocal Repertoire of Wild Cheetahs (*Acinonyx Jubatus*): Call Types, Acoustic Parameters and Contexts

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Abstract

Vocal signals are the essential form of communication in cheetahs. Cheetahs are highly social species and have rich vocal repertoire. They use vocalizations in a range of social contexts such as defense of territories, intraspecific aggression, joint feeding, courtship and mating, and especially mother–cubs communications. Previously, cheetah vocal repertoire was only described in captivity. This is the first study of vocal repertoire of chetahs in the wild. Wild-living cheetahs vocalize in mother-young groups, in male coalitions, during courtship behavior and during aggressive interactions with conspecifics and other animals, including kleptoparasites. The structure and behavioural context of 12 call types: 7 tonal (chirp, meow, squeal, chirr, hoot, howl and growl) and 5 non-tonal (purr, hiss, spit, fuff and grit) were investigated in adults older 4 years and cubs under 6 months of age. We discovered a new call type – grit, and discuss its parameters and context in details. In adults, all the 12 call types were present; in cubs, grit was not found. For classifying calls of adult and cub cheetahs, we used acoustic parameters: call duration, peak frequency and fundamental frequency, and also binary acoustic parameters with only two possible values (present/absent) of the fundamental frequency or rhythmic pulsation in the calls. Along ontogeny from cubs to adults the fundamental and peak frequencies of 7 tonal call types decreased, duration of 7 tonal and 3 non-tonal call types either did not change or increased. Pulse rate of chirrs, growls and purrs did not change with age. Structure of calls in adult cheetahs slightly differed between males and females. Only in 3 high-frequency tonal call types (chirp, meow and squeal), fundamental and peak frequencies of males were lower than in females. Call duration did not differ between sexes in all call types. A distinctive trait of cheetah vocalizations in comparison with other species of felids is an unusually high fundamental frequency of some tonal call types in both cubs and adults. Along ontogeny from birth to 4 years of age, chirps are becoming gradually lower-frequency and reach their low-frequency plateau at 4 years of age. Results from our study revealed that long-distance chirps of wild mature cheetahs encode sex, age and individuality, and can be used by conservationists as a non-invasive tool for estimating cheetah age in the wild, particularly at ages younger than 4 years.

Key words: Acinonyx jubatus, acoustic communication, vocal repertoire, behavioral context

Room to Roam For Elephants

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Abstract

In the historical past, the range of African elephants is reported to have been contiguous and to have extended across most of Africa. Over the last two hundred years, this range has shrunk significantly. This is because of elephant habitat encroachment by among others agriculture, human settlements and infrastructure. From the Great Elephant Census of 2013-2016 and other sources, one can identify ten major landscapes for elephants in East and Southern Africa. These landscapes are now disjointed and separated from each other. While indeed these landscapes can be reconnected into their original contiguous state, the more urgent task for now is to enhance the connectivity inside each of these landscapes. This is the objective that the International Fund for Animal Welfare has set out to achieve through an initiative dubbed Room to Roam (R2R).

R2R is an ambitious and urgent undertaking for Africa's surviving savannah elephants and the human communities with which they share the land and its resources. The method that is being used under R2R is one of securing a network of connected critical landscapes that enable wildlife and people to flourish. This calls for forging lasting partnerships with communities, traditional leaders, governments, private sector and non-governmental organizations. While indeed the bulk of the work required to enhance connectivity in all the identified ten landscapes is still undone, a useful beginning has been made in Kenya, Malawi, Zambia and Zimbabwe. IFAW believes that if all players in the conservation community and including development partners can join hands, it will be possible to significantly enhance elephant habitat connectivity in East and Southern Africa. This will create room for elephants to roam into perpetuity.

Keywords: Connectivity, elephant, habitat, landscape, Room to Roam

Enhancing Human-Wildlife Coexistence Through Agroecology and Participatory Rangeland Management in the SOKNOT Landscape.

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Abstract

The Southern Kenya-Northern Tanzania (SOKNOT) transboundary landscape hosts rich biodiversity and pastoralist communities whose food security and livelihoods face threats from land degradation, unsustainable land use, and climate variability. WWF-Kenya, through the Africa Food Future Initiative (AFFI), promotes innovative agroecological and participatory rangeland management approaches that link biodiversity conservation with improved food production, nutrition, and livelihood resilience. The landscape suffers from severe land degradation due to overgrazing and invasive species, unsustainable farming practices causing soil erosion and deforestation, climate variability affecting water availability and pasture productivity, increased human-wildlife conflicts, limited market access, and weak governance among local farming and pastoral communities. WWF-Kenya has advanced agroecological innovations such as permaculture, kitchen gardens using water-efficient vertical sacks, and energy-efficient cookstoves, supporting hundreds of households by enhancing soil fertility, reducing deforestation, improving nutrition, and increasing income through diversified food production. Participatory Rangeland Management around Amboseli National Park has helped restore about 2,500 hectares of degraded rangelands using earth bunds, retention ditches, reseeding, grazing rest, and Farmer Managed Natural Regeneration (FMNR). This has improved forage availability critical for livestock productivity and food security. Over 70 hectares of forage banks have been established to support dairy production, and 1,600 hectares infested with invasive species have been rehabilitated via community-led efforts, strengthening pastoral food supply chains. Strengthened local cooperatives have improved produce aggregation, market access, and governance systems, enabling farmers to better sell produce and livestock products, enhancing incomes and food system resilience. These integrated interventions yield sufficient biomass to sustain over 500 cattle for six months, reduce human-wildlife conflict, and improve ecosystem services vital for sustainable food production. The community-driven, climate-adaptive approach offers a scalable model harmonizing nature-positive agriculture, ecosystem restoration and local governance to support pastoralist livelihoods, food security, and iconic wildlife conservation in rangeland landscapes.

Keywords: Agroecology, Nature-Positive Agriculture, Soil Health, Pastoralist Livelihoods, SOKNOT Landscape

Balancing Energy Development & Conservation: A Case Study of Biodiversity Risk Mitigation and Restoration in Oil & Gas Surveys.

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Abstract

Rapid infrastructure and extractive industry expansion across biodiversity-rich landscapes in East Africa poses growing risks to ecosystem integrity. The mitigation hierarchy; avoidance, minimisation, restoration, and offset offers a practical, sequential framework to balance development and conservation goals. Aligned with IFC Performance Standard 6 (PS6), which emphasizes biodiversity protection and ecosystem services through adaptive management and early ecological screening, this paper presents a survey-driven methodology using high-resolution habitat and species data to guide impact mitigation. In a hypothetical oil and gas survey through a Kenyan wildlife corridor, we used biodiversity surveys and GIS mapping to identify ecological hotspots. This informed avoidance measures, including re-routing seismic lines, and minimisation through manual clearance, low-impact equipment, controlled detonations, and existing access routes. A Habitat Restoration Plan was subsequently developed, incorporating indigenous seed stock to rehabilitate disturbed zones following exploration activities, thereby supporting the recovery of native vegetation and the restoration of habitat functionality. Preliminary projections indicated a 60% reduction in direct habitat disturbance compared to the original design, with improved landscape connectivity validated through post-survey monitoring. This integrated, multi-disciplinary approach highlights the importance of early biodiversity data in shaping extractive project design and its alignment with international best practice, including IFC PS6 and adaptive management for measurable conservation outcomes. This abstract highlights lessons from biodiversity assessments across East African projects, demonstrating how GIS mapping, stakeholder engagement, and metric-driven mitigation enable RSK Biocensus to deliver ESG-aligned development that safeguards ecosystems, accelerates permitting, and supports long-term conservation.

Keywords: Avoidance, Biodiversity, Mitigation, Restoration, Oil and Gas

MIGRAZE – An Individual-Based Model for Migratory Systems in Ungulate Species

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Abstract

Understanding the dynamics of migratory systems under global change is essential for effective land use and conservation planning. MIGRAZE is an individual-based ecological model designed to simulate the interactions between ungulate migration and food availability and land use in semi-arid regions. Here, focusing on the wildebeest. The model is based on the Serengeti–Masai Mara ecosystem, where approximately 1.3 million wildebeest migrate annually, following opposing gradients of grass biomass and nitrogen content. MIGRAZE integrates this behaviour by simulating movement of super-individuals using the stochastic movement simulator to make the step selection. The direction of the movement is chosen based on land cover type, grass biomass and grass nitrogen content in their perceptual range. Vegetation dynamics incorporates rainfall patterns and the accumulation of dry matter to simulate green grass growth during the rainy season. Additionally, MIGRAZE allows for the implementation of diverse land use and conservation scenarios, as well as varying population dynamics parameters. It offers a powerful tool for exploring how migratory systems of ungulates respond to climate and land-use change, with a case study focusing on the Serengeti–Masai Mara ecosystem.

Keywords: individual-based modelling, movement modelling, ungulate migration, *Connochaetes taurinus*

Ecosystem services on agro-ecosystems: local community perception, valuation and conservation in Irate River basin, Kenya.

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Abstract

Ecosystems provide benefits including provisioning, regulating, supporting and cultural ecosystems services. Provisioning ecosystem services are sold in the market and face no degradation risks. Other ecosystem services are not monetized; their value is not captured in markets and receive little prominence in strategies and policies. Agroecosystems provide provisioning but deliver other ecosystem services as well. Non-marketed ecosystem services are not well understood and get low value. To increase their value and reverse loss, farmers' understanding must be improved. The study assessed farmers' perception, changes and valuation of regulatory and supporting ecosystem services in tea and coffee farms. Farmers were randomly selected for group discussion and valuation exercise. Contingent Valuation Method was used to estimate willingness to pay. Farmers perceived regulatory (58.2%) more than supporting (41.8%) ecosystem services. Water holding capacity (30.3%) and soil erosion control (27.1 %) were most perceived. Reduction in

regulatory ecosystem services was significant in coffee (U=13.5, p<0.005) and tea farm (U=20.0, p<0.005). Stated money value for regulatory ecosystem services was 32,040 and 20,784 USD in coffee and tea farms respectively. The monetization improved farmers' perception and value of ecosystem services. The money value can be used to earn extra income through payment for ecosystem services programmes.

Keywords: Agroecosystem, Ecosystem services, Contingent valuation, Willingness to pay, Payment for ecosystem services

Ecological and Socio-Economic Impacts of *Ipomoea Hildebrandtii* Invasion in Kajiado County, Kenya

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Abstract

Invasive plant species are a major threat to biodiversity and livelihoods. This study was conducted to assess the ecological and socio-economic impacts of *Ipomoea hildebrandtii* invasion in Kajiado County, Kenya. Transects were laid across habitats occupied by *Ipomoea hildebrandtii* at different levels of invasion (high, moderate and low) and within each habitat, plots measuring 20 by 50m were established mature trees and shrubs enumeration. Sub- plots of 5.0 by 5.0 m and 10.0 by 10.0 m were nested for seedlings and saplings counts, respectively. Climate data accessed through datasets from the Coupled Model Intercomparison Project (CMIP) phases 6 (CMIP6) was used to compare the current and future spread of *Ipomoea hildebrandtii* under two scenarios namely SSP126 and SSP585. Soil samples were also collected from areas experiencing different levels of *Ipomoea hildebrandtii* colonization (high, moderate and low) at a depth of 30 cm and taken to laboratory for analyses for pH, organic carbon, phosphorus and potassium. Standard soil analyses protocols were applied. Household interviews using semi-structured Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) were used to collect data on socio-economic impacts of *Ipomoea hildebrandtii* invasion on local communities. Results indicated the area under *Ipomoea hildebrandtii* doubled between 2016 and 2025. The species richness and diversity were low in areas with dense populations of *Ipomoea hildebrandtii* and there was a strong negative correlation between natural regeneration and *Ipomoea hildebrandtii* invasion (r=-0.993). The quantity of carbon sequestered in *Ipomoea hildebrandtii* invaded areas was six times lower compared to uninvaded areas. Soil pH, phosphorus and potassium were negatively affected by *Ipomoea hildebrandtii* invasion. *Ipomoea hildebrandtii* invasion has led to reduced pasture resulting in total economic loss estimated at KES 1,093,803,194.05 per annum. The findings provide a basis for developing strategies to manage *Ipomoea hildebrandtii* and reduce its impacts on biodiversity conservation and livelihoods.

Keywords: Biodiversity; Invasion; *Ipomoea hildebrandtii*; Kajiado; Livelihoods

Conservation Education Programs and Biodiversity Loss: A Systematic Review in Kenya and Tanzania

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Abstract

Conservation education programs have been recognized as effective tools for promoting biodiversity conservation by increasing participants' knowledge, attitudes, perceptions, and behavior. This systematic review examines the existing literature on the effects of conservation education programs on biodiversity conservation. The reviewed articles are from Scopus database between 2013 to 2023years and those in East Africa. A total of 16 articles were included in full review and 62.5% are from Tanzania and 37.5% from Kenya. Both highlights the positive impacts of these programs on participants' knowledge and awareness of biodiversity, fostering a lifelong interest in conservation. The shift in participants' perceptions from negative to positive plays a vital role in their commitment to biodiversity conservation. This includes a total of 450 people in Tanzania and 280 people in Kenya as per the articles reviewed. Furthermore, these programs have shown effectiveness in promoting behavior change, empowering participants to engage in pro-conservation actions.

However, the review also identifies limitations, including the limited availability of relevant literature due to the failure of subscription to relevant databases such as Web of Science and the exclusion of studies from other languages. To address these limitations, future research should consider utilizing multiple databases and language experts. Also, we recommend that conservation education programs include early implementation, incorporation into school curricula, and the use of a combined approach with multimedia tools. Moreover, allocating sufficient funds for sustainability, particularly in low-income countries, is crucial. Overall, conservation education programs have significant potential to promote biodiversity conservation by shaping positive attitudes, behaviors, and long-term engagement among individuals and communities.

Keywords: Biodiversity Loss, Conservation Education, Kenya, Tanzania, Program, Systematic Review

Seasonal Variation in Elephant Movement Patterns: Analysing the Role of Migratory Corridors in Habitat Connectivity in Kenya

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Abstract

Migratory corridors are vital for maintaining habitat connectivity and enabling wildlife to move freely between fragmented habitats. They play a crucial role in supporting biodiversity, reducing human-wildlife conflict, and allowing species to adapt to environmental changes. This study investigates the seasonal variation in elephant movement patterns within the Lewa Wildlife Conservancy (LWC) between 2014 to 2023 and examines the relationship between rainfall variability and elephant movement patterns. We collected data on elephant movements using infrared motion-sensored camera traps strategically placed within key migratory gaps.

Additionally, historical rainfall data was retrieved from the LWC database to analyse its impact on movement patterns. Camera trap data was analysed by tallying crossing events at each migratory

gap. Data was analysed using chi-square and Generalised Linear Model (GLM) in R software, with a significance level set at □<0.05 for all statistical tests. Our results demonstrate significant differences in elephant crossings between the wet and dry seasons at all monitored migratory gaps ($p<0.05$). Notably, during the wet season, there was a marked movement of elephants from higher to lower elevations and vice versa ($p<0.05$). Rainfall emerged as a significant predictor of elephant crossings at the migratory gaps ($p<0.05$). These findings underscore the critical importance of migratory corridors in supporting elephant populations and highlight the urgent need for their protection and conservation to mitigate habitat fragmentation and reduce human-wildlife conflicts. Conservation strategies should prioritize securing these corridors, ensuring access to essential resources and promote coexistence.

Key words: corridors, camera traps, migratory gaps, habitat

Survival and Predation Risk in Grevy's Zebra (Equus Grevyi) Foals: Insights from the Lewa-Borana Landscape, Meru-Laikipia, Kenya

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Abstract

The Grevy's zebra (*Equus grevyi*), listed as Endangered by the IUCN, has experienced a 54% decline in its population over the past three decades, with fewer than 3,000 individuals remaining. The primary drivers of this decline include predation pressures, habitat loss, and degradation, resulting in a fragmented population concentrated in northern Kenya. This study investigated the survival of Grevy's zebra foals within the Lewa-Borana Landscape (LBL) in Meru-Laikipia County, Kenya, to identify the most vulnerable age class and assess the role of predation by large carnivores. Between January 2022 and July 2024, monthly vehicle-based total counts were conducted to monitor foals' presence. Individual foals encountered were photographed on the right side of their belly and later identified via stripe pattern recognition using the National Stripe Identity Software. Concurrently, predator diet composition was assessed through scat analysis, with samples collected during systematic lion (*Panthera leo*) and spotted hyena (*Crocuta crocuta*) surveys. Over the 31-month study period, 169 foals were recorded; however, only 35% were consistently re-identified in subsequent surveys, suggesting substantial early mortality. The 0–3-month age class emerged as the most vulnerable to mortality. Scat analysis revealed that Grevy's zebra hair occurred in 10% of predator samples, indicating a notable contribution of Grevy's zebra to lion and hyena diets. These results highlight the critical need for conservation interventions that address predation risk to enhance juvenile survival and support long-term population recovery of *E. grevyi* in the LBL.

Keywords: Equus grevyi, juvenile mortality, predator-prey dynamics, scat analysis, survival, foals





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