

Research Newsletter



REPUBLIC OF KENYA



**WILDLIFE
RESEARCH
& TRAINING
INSTITUTE**

Discover Beyond



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The Wildlife Research and Training Institute (WRTI) is a state Corporation established under Section 50 of the Wildlife Conservation and Management Act No. 47 of 2013 (WCMA 2013). The headquarters is based in Naivasha, Kenya, with field centres and sub-centres located in key wildlife conservation areas across the country established to address specific agro-climatic research thematic areas as outlined below:



Southern Savannah Landscape Centre:

Based in Tsavo East National Park, with 5 sub- centres in Maasai Mara, Tsavo West, Nairobi and Amboseli, Ruma National Park.



Northern Savannah Landscape:

Located in Meru National Park, with sub- centre in Marsabit



Coastal and Marine Ecosystem Centre:

Located in Malindi with a subcenter in Shimba Hills National Reserve;



Montane/Forest Ecosystem Centre:

Based in Mweiga (Nyeri), with sub-centres in Kitale and Kakamega



Inland Waters and Wetlands Centre:

Located in Naivasha, with sub-centres in Kisumu and Lake Nakuru National Park.

Director/CEO'S Note



“ This edition builds on the strong foundation laid in our inaugural issue, reflecting the continued growth, innovation, and collaboration that define the institute’s work across Kenya’s diverse ecosystems.

Over the past months, our scientists and partners have demonstrated remarkable dedication in advancing

wildlife research, strengthening conservation practices, and supporting evidence-based decision-making. From long-term species monitoring to advancements in technology-driven wildlife tracking, this edition captures both the progress we have made and the challenges we continue to confront in safeguarding our natural heritage.

The second edition also highlights partnerships that contribute to our mission of generating high-quality data, building capacity, and promoting sustainable conservation solutions. These collaborations remain central to institute’s commitment to knowledge sharing and continuous improvement.

We hope that the stories, insights, and updates contained in these pages will inspire deeper engagement with institute’s programmes and foster a stronger sense of shared responsibility for wildlife conservation. As we look ahead, we remain committed to expanding our research footprint, strengthening training programmes, and empowering communities and partners in the stewardship of Kenya’s biodiversity.

Thank you for your continued support and interest in the work of the Wildlife Research and Training Institute.

**Dr. Patrick Omondi,
OGW**

Message from the Deputy Director- Research



“ It gives me great pleasure to present you the second edition of our newsletter, which comes at a particularly exciting and reflective moment for the Institute and the broader conservation community in Kenya. This edition captures two major milestones that underscore our collective commitment to evidence-based conservation and collaborative knowledge sharing.

First, I am delighted to reflect on the success of the second International Wildlife Scientific Conference held in Naivasha. The conference brought together researchers, practitioners, policymakers, and conservation partners from across the country and beyond, creating a vibrant platform for exchanging ideas, presenting cutting-edge research, and

strengthening networks. The quality of scientific contributions, the richness of discussions, and the diversity of perspectives demonstrated the growing depth of wildlife research in Kenya. For

the Institute, the conference reaffirmed our mandate as a hub for scientific inquiry, training, and innovation, and highlighted the importance of partnerships in addressing complex conservation challenges.

Secondly, this edition marks the release of the 2025 National Wildlife Census Results, a landmark achievement for Kenya's conservation sector. The census provides a critical snapshot of the status and trends of our wildlife populations, offering invaluable insights for policy formulation, resource allocation, and adaptive management. These results are not just numbers; they represent the culmination of rigorous fieldwork, inter-agency collaboration, and the dedication of countless professionals who worked under demanding conditions to generate credible and actionable data. The Institute is proud to have played a central role in the scientific coordination and analysis that underpin these national findings.

As we celebrate these achievements, I wish to commend all our staff, partners, and stakeholders whose tireless efforts continue to advance conservation science and practice in Kenya. Moving forward, the Institute remains committed to strengthening research capacity, promoting innovation, and ensuring that science remains at the heart of wildlife management and policy decisions.

I invite you to engage with the stories and insights shared in this edition and to continue partnering with us as we work together to secure a sustainable future for Kenya's wildlife heritage.

Dr. David Ndeereh, PhD, HSC



Researchers from the institute presented a diverse range of applied research during the 2nd International Wildlife Scientific Conference, held from 23–25 September 2025 in Naivasha, Kenya. The conference brought together scientists, conservation practitioners, policymakers, and partners to share evidence-based insights addressing wildlife conservation, ecosystem health, and human-wildlife coexistence across Kenya and the wider region.

The studies highlighted the continued importance of protected areas as critical refuges for threatened species. Research on the Martial Eagle in the Maasai Mara showed that most suitable nesting habitat occurs within protected areas, where habitat quality, prey availability, and low human disturbance support breeding success. Similarly, significantly higher populations of the critically endangered Tana River red colobus and Tana River mangabey were recorded inside protected areas compared to unprotected community forests. In western Kenya, De-

Brazza's monkey was found to persist only within narrow riparian corridors of the fragmented Kakamega Forest, underscoring the urgent need for habitat restoration and landscape connectivity beyond reserve boundaries.

Wildlife health emerged as a growing conservation concern. A national review of dystocia in free-ranging giraffes documented an increase in reported cases over the past decade, potentially linked to habitat loss, nutritional stress, and climate-related droughts. While veterinary interventions improved adult survival, the absence of calf survival raises concerns for long-term population recovery. Advances in wildlife health management, including improved techniques, continue to strengthen adaptive diagnostics, disease surveillance, and capture wildlife management in Kenya. As wildlife increasingly shares space with people, studies on elephant behaviour in the Maasai Mara revealed higher injury and mortality risks in community conservancies and grazing lands

compared to national reserves. Elephants displayed defensive behaviours linked to perceived risk, highlighting both adaptive responses and the growing potential for human–elephant conflict. National-scale

applied research that informs conservation policy and practice, contributing vital knowledge for safeguarding Kenya’s wildlife and ecosystems in a rapidly changing world. Proceedings of the conference will be available



research further showed that while ecotourism can help mitigate conflict in some regions, it is not universally applicable, emphasizing the need for complementary strategies such as wildlife corridors, fencing, and early warning systems.

in the institute’s website.

by: Dr. Francis Gakuya

The application of remote sensing, GIS, and spatial modelling featured prominently across studies. In Tsavo National Parks, satellite imagery revealed extensive spread of *Prosopis juliflora*, while biological control significantly reduced *Opuntia stricta*. Along the coast, spatial analyses documented changing seagrass habitats in Lamu, with recent declines linked to human activities and climate stressors. Marine studies also demonstrated the effectiveness of ranger-led ecological surveys in monitoring coral reef health, while assessments of coastal community-based organizations highlighted the need for stronger institutional capacity to support sustainable livelihoods.

Together, these presentations demonstrate the institute’s commitment to multidisciplinary,



National Wildlife Census 2024/2025: Mapping Kenya's Wildlife for the Future

The 2024-2025 National Wildlife Census (NWC) report was officially released. Covering Kenya's major and ecologically important ecosystems including the Tsavo, Laikipia-Samburu, Maasai Mara, Amboseli-Magadi, Isiolo, Wajir, Garissa, and Lamu ecosystems

the area covered was 264,300 km², representing approximately 45% of Kenya's landmass (582,646 km²).

Both total and sample counts were applied based on ecosystem type and species distribution, with aerial operations recording a



cumulative flight time of 1,518.39 hours. Data collection employed a range of scientifically robust methods, including aerial total counts, Systematic Reconnaissance Flight (SRF) sample censuses, dung density surveys, individual rhinoceros identification, and ground counts. Method selection was guided by target species, habitat, and terrain. Population estimates and trends were generated through advanced spatial mapping using ArcGIS Enterprise, complemented by statistical analyses and modelling to ensure accuracy and reliability.

Over 30 species of mammals, birds, and marine species were counted across diverse ecosystems, including marine and inland wetlands, savannahs, woodlands, and forest landscapes. Among the large herbivores, the census recorded 42,072 African elephants, 2,102 black rhinos, 27,389 buffalo, 10,410 Maasai giraffes, over 30,000 reticulated giraffes and 1,388 Nubian giraffe. The current status of lion was estimated at 2,512 individuals.



The National Wildlife Census 2024/2025 stands as a landmark achievement for Kenya's conservation sector. The data generated will play a critical role in informing wildlife policy, guiding resource allocation, strengthening protection strategies, and supporting adaptive management across the country's landscapes. The National Census 2024/2025 report advocates for stronger legal frameworks to integrate wildlife conservation into land-use planning, protecting corridors and recognizing conservation as a formal land use. It emphasizes sustainable financing via tourism reinvestment, reviving

dormant reserves, and supporting community conservancies. Science-based management is prioritized through modernized wildlife censuses, centralized data systems, and establishment of a national genetic repository. Finally, the report highlights long-term sustainability actions, including ecosystem restoration, clean energy promotion, sustainable aquatic resource use, and expanded conservation education to engage youth. To access the report, visit www.wrti.go.ke.

by **Dr. Fredrick Lala**



Kenya's Marine Megafauna: Protecting Our Ocean Heritage and Unlocking the

Marine megafauna plays a vital role in sustaining the health of Kenya's coral reefs and coastal ecosystems. Predatory species such as sharks and large fish regulate populations of smaller fish and invertebrates, preventing overgrazing and maintaining reef diversity. Marine herbivores help control algal growth, allowing corals to thrive and ecosystems to remain productive.

Recent marine aerial surveys mapped the distribution of key megafauna and revealed how seasonal changes and human activities influence their habitats. The Indo-Pacific bottlenose dolphin was the most frequently observed species, while dugongs were identified as the most threatened due to their dependence on fragile seagrass habitats. Marine megafauna are, particularly vulnerable to destructive fishing practices, which degrade habitats and increase the risk of accidental capture

Protected areas support higher densities of turtles, underscoring the importance of conservation measures. However, incidental capture in fishing gear remains a serious threat, especially for juvenile turtles. Kenya's coastal ecosystems, including mangroves, coral reefs, and seagrass beds, continue to face intense pressure from overfishing, pollution, habitat destruction, and climate change. These pressures are driving declines in marine species, threatening both biodiversity and coastal livelihoods.

Achieving Kenya's vision for a sustainable Blue Economy requires balancing economic development with environmental protection. Targeted conservation actions, stronger policies, and repeated surveys during key seasons, such as the Northwest Monsoon (September-October), are essential for



ecosystem management. Protecting marine megafauna is crucial not only for ecosystem health but also for the wellbeing of communities that rely on coastal resources.

By **Dr. Mohammed Said Said**

Healthy oceans support fisheries, tourism, and climate resilience, underscoring the need for coordinated action to safeguard Kenya's marine biodiversity.



When Forests Shrink, Conflicts Rise: Lessons from Mukogodo

Mukogodo Forest, a key dryland ecosystem in Laikipia, supports a unique interface of wildlife, livestock, and pastoralist communities. In recent years, rapid expansion of settlements, agriculture, and grazing has altered habitats and wildlife movement corridors, intensifying human–wildlife interactions.

The institute analyzed data on land use and land cover (LULC) changes from 2009 to 2024 using satellite imagery. Household surveys and community consultations were also conducted to complement the analyzed data. Results emanating from this study indicate that between 2019 and 2024, human activity zones expanded by 48.3 km² while forest cover declined by 27 km², contributing to increased encounters between people and wildlife. Elephants accounted for 75.9% of 3,112 reported conflict incidents, primarily involving property damage and perceived threats to human safety.

Spatial analysis revealed that conflicts are concentrated around settlements and degraded habitats. Community feedback highlighted rising conflict severity and limited confidence in existing mitigation strategies. Conflicts peaked during the cool, dry season, when forage and water scarcity drive wildlife closer to human settlements.

The study underscores the growing complexity of coexistence in arid and semi-arid landscapes. Findings point to the need for integrated land use planning, habitat restoration, and strengthened community-led mitigation strategies. The LULC maps, predictive models, and community insights generated by this research will inform county policies, enhance early-warning systems, and guide sustainable human–wildlife coexistence in Mukogodo and comparable ecosystems across Kenya.

by: **Mr. Israel Makau**

Safeguarding Vultures within Kenya's Renewable Energy Landscape

Kipeto Energy PLC operates a wind farm in Kenya that contributes to national power generation but has also recorded incidents of vulture collisions with wind turbines, particularly involving Rüppell's and White-backed Vultures. These collisions pose a serious threat to already endangered populations and highlight the need for targeted mitigation within wind energy landscapes.

To address this risk, the institute is working in partnership with Kipeto Energy PLC to better understand when and where collisions are most likely to occur. By tracking vulture flight heights, seasonal movements, and avoidance behaviour, the programme generates evidence to inform practical mitigation measures aimed at reducing turbine strikes on Rüppell's and White-backed Vultures.



Fund and the Kenya Bird of Prey Trust, identifies high-risk areas and periods, enabling targeted turbine shutdowns during peak vulture activity without significantly affecting energy production. By focusing on collision risk reduction, the initiative strengthens conservation networks, improves tracking of

nest outcomes, and integrates raptor data into energy planning. This science-based approach demonstrates how renewable energy development can be responsibly managed to minimize vulture mortality while supporting Kenya's transition to clean energy

by: **Dr. Monicah Mumbi**



Restoring Ecological Balance: An Ecological Assessment–Led Translocation of Maasai Giraffes to Naivasha Wildlife Sanctuary

The Institute’s researchers recently led an ecological assessment that informed the translocation of seven Maasai giraffes from Manara Farm to Naivasha Wildlife Sanctuary, supporting efforts to restore ecological balance. The assessment identified gaps in herbivore diversity and biomass that were limiting key ecosystem processes, including vegetation structure and nutrient cycling.

Using a species enrichment framework developed by the Institute, researchers determined that the low abundance of large browsing herbivores had altered habitat dynamics within the Sanctuary. The introduction of Maasai giraffes was therefore designed to re-establish natural browsing pressure, enhance vegetation heterogeneity, and improve overall habitat integrity as part of a broader ecosystem restoration strategy.

The translocation was guided by multidisciplinary expertise, with ecologists, wildlife veterinarians, and field specialists ensuring that animal handling

and movement aligned with ecological and welfare considerations. Pre- and post-translocation monitoring protocols were implemented to assess habitat use, foraging behaviour, and adaptation to local environmental conditions, providing data to evaluate ecological outcomes over time.

Building on this assessment-based approach, the researchers have recommended the phased reintroduction of additional native species, including bushbuck, lesser kudu, Grant’s gazelles, Thomson’s gazelles, and Maasai ostriches. Increasing functional diversity across herbivore guilds is expected to strengthen ecosystem resilience, support trophic interactions, and improve long-term ecological stability within the Sanctuary.

by: **Ms Lydia Manei**



Strengthening Conservation Research in Kenya's Northern Savanna Landscape

The institute expanded its presence in northern Kenya by establishing a field centre within Meru National Park. This strategic move enhances the coordination of research and ecological monitoring across the Northern Savanna Landscape, a region of critical importance for biodiversity, ecological connectivity, and pastoral livelihoods.

Situated within the Somali-Masai biome, the northern rangelands are sustained by key water sources such as the Ewaso Nyiro River and Lorian Swamp, which support wildlife, livestock, and local communities. The landscape is home to several iconic species, including Somali ostrich. It also hosts significant populations of endangered wildlife, such as black rhinos, savanna elephants, African wild dogs, lions, and cheetahs.

The Northern Savanna Landscape features vast open rangelands, protected areas, and an extensive network of community and private conservancies that allow for wildlife movement and ecological connectivity. However, the area faces mounting pressures from habitat degradation, fragmentation, drought, human-wildlife conflict, and insecurity.

The new research centre will strengthen research coordination, enhance monitoring, and support evidence-based conservation interventions to safeguard this ecologically and socially vital landscape.

by: **Ms Martha Nzisa**



TRAINING & CAPACITY BUILDING

Preparing for Ramsar Accession: Ethiopia Learns from Kenya's Lake Naivasha

The institute Inland Waters and Wetlands Ecosystems Research Centre (IWWRC) recently hosted a government delegation from Ethiopia on a technical learning mission to Lake Naivasha, a Ramsar Site of International Importance in Kenya. The visit aimed to promote regional knowledge exchange and to support Ethiopia's efforts to strengthen its national framework for sustainable wetland management. Since Ethiopia has not yet ratified the Ramsar Convention on Wetlands, the delegation sought to learn from

Kenya's extensive experience in applying Ramsar principles and implementing effective wetland governance systems. The programme combined technical presentations by institute researchers with field visits around Lake Naivasha, providing the delegation with practical insights into Ramsar-aligned wetland management. Through these activities, the

delegation observed firsthand how scientific research is integrated with community-centred conservation approaches and policy-driven

interventions. This practical exposure highlighted both the challenges and successes of Kenya's wetland management experience, offering valuable lessons to inform Ethiopia's draft legislation and ongoing capacity-building initiatives.

Overall, the visit underscored the institute's role as a regional centre of excellence in wetlands research and capacity development, while strengthening cross-border collaboration. The Ethiopian delegation gained practical knowledge to help address gaps in national wetland governance, laying a strong foundation for sustainable wetland management and future international cooperation, including potential accession to the Ramsar Convention.

by: **Ms Jacqueline Bernard**



The institute has entered into a Framework of Collaboration with the University of Helsinki and the Taita Research Station to advance cutting-edge research, policy-relevant knowledge generation, and capacity development in Kenya. This strategic partnership seeks to strengthen biodiversity

monitoring, conservation, restoration, and sustainable management through evidence-based decision-making; promote an integrated One Health research approach that balances the health of people, animals, and ecosystems; investigate emerging zoonotic and animal diseases of



public health and conservation concern; monitor land-use changes and assess their impacts on wildlife using remote sensing and other innovative technologies; study sources and sinks of greenhouse gases and evaluate climate change

impacts on infectious disease dynamics; examine human-wildlife interactions using interdisciplinary social science approaches; and build institutional and human capacity through targeted training, mentorship, and knowledge exchange.

Written by: **Dr. Fredrick Lala**



The Institute Contributes to Collaborative National Wild Bird Avian Influenza Surveillance

The institute participated as a partner in Kenya's 2025 national wild bird surveillance for Avian Influenza Viruses (AIVs), a multi-agency initiative coordinated by the Directorate of Veterinary Services (DVS) alongside the Kenya Wildlife Service (KWS), National Museums of Kenya (NMK), Washington State University (WSU-GHK), with funding and technical support from the U.S. Centers for Disease Control and Prevention (CDC).

The collaboration aimed to strengthen early detection and preparedness for avian influenza through coordinated monitoring of migratory and resident wild birds.

Surveillance was conducted at major waterbird sites, including Lakes Victoria, Nakuru, Amboseli, Elementaita, and Naivasha. The institute contributed ecological expertise, field sampling, and species documentation, working closely with partners to support integrated data collection and reporting through the Kenya Animal Biosurveillance System (KABS). Laboratory testing confirmed the presence of low-risk Influenza A viruses, providing important baseline data to support national biosecurity, early-warning systems, and coordinated disease risk management.



by: **Dr. Francis Gakuya**



Recognition of Doctoral Achievement by Institute Researchers

The Institute formally recognizes and commends three researchers who have attained the Doctor of Philosophy (PhD) degree, a significant milestone in their academic and professional careers.

Dr. Monica Mumbi completed her PhD on factors influencing *Panthera leo melanochaita* population dynamics in Kenya, contributing to improved conservation planning and species management.

Dr. Sospeter Kiambi earned a PhD in Biodiversity Management, focusing on human–elephant coexistence in a post-ivory ban landscape, strengthening strategies for sustainable human–wildlife coexistence.

Dr. Priscillar Mutungi earned her PhD earlier in 2025 on the use of endophytic microorganisms to enhance plant resilience to salinity, pests, and diseases, supporting ecosystem restoration efforts.

In addition, she completed her postdoctoral studies at the International Centre for Genetic Engineering and Biotechnology (ICGEB) in Cape Town, South Africa, where her research focused on microbial bioprospecting for sustainable agriculture and industrial biotechnology, particularly the development of bio-stimulants from endophytic bacteria to improve crop resilience, nutrient uptake, and stress tolerance.



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