Progress report for the project Empowering Communities and Enhancing Biodiversity Monitoring to Strengthen Conservation of the Grey Crowned Crane

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Introduction

Kapkatet Wetland in Kericho, Kenya, is a protected area owned by the government and recognized as an important place for wildlife. It is home to the endangered Grey Crowned Crane (*Balearica regulorum*) as well as many plants, birds, and insects. Even though the wetland is protected by Kenyan laws, including the Wetland Conservation Policy (2025) and EMCA (1999), it faces serious problems. Farming, overgrazing by livestock, pollution from nearby tea Plantations and invasive plants like eucalyptus are harming the wetland. These activities have damaged habitats, lowered water levels, and reduced food for animals. These problems not only put wildlife at risk but also affect the local community that depends on the wetland for their livelihoods. This project seeks to protect Grey Crowned Cranes and restore Kapkatet Wetland through community engagement, scientific monitoring, and sustainable livelihood initiatives.
Activities include mapping invasive and native vegetation, assessing invertebrate diversity, raising awareness in schools and community, and promoting eco-friendly enterprises like apiaries, eco-guiding, and basketry using wetland reeds. We call on the community, landowners,and partners to join this effort to conserve the wetland, safeguard biodiversity, and support sustainable livelihoods. Together, we can ensure Kapkatet Wetland remains a thriving ecosystem and a source of life for generations to come.

Activity Summary:

i. Reconnaissance trip

The main purpose of the reconnaissance trip to Kapkatet Wetland was to get a clear, first-hand understanding of the area before starting the full project. It helped the team see the condition of the environment, identify major threats, observe the types of plants and animals present, and understand practical issues like how easy it is to access the site and how the local community is involved. This early visit made it easier to make informed decisions, improve the project plan, and ensure that the conservation activities are practical, well-focused, and effective.

On 15th December 2025, accompanied by my supervisors, we visited Kapkatet Wetland, the site of my research project titled "Empowering Communities and Enhancing Biodiversity Monitoring to Strengthen Conservation of the Grey Crowned Crane."

Stakeholder engagement:

We held a productive meeting with key local stakeholders, including:

- The Chief of the location
- The Assistant Chief

- Village Elders
- Two "Miji Kumi" members (community policing members)

Figure 1: Local community leaders and University of Kabianga staff during a field visit to Kapkatet Wetland. ©Paul Onyango Machoni

Key Issues Raised:

The community leaders shared several challenges affecting the Kapkatet Wetland and its biodiversity:

- Encroachment: Expansion of human settlements and farming activities too close to the wetland by local villagers.
- Climate change-During the dry season, water volume in the wetland is greatly reduced. This affects the wetland ecosystem.
- Seasonal Burning-Regular burning of Wetland areas during the dry season, which results in the death of Grey Crowned Cranes and other wildlife.
- Lack of awareness/community involvement- Locals lack understanding on the importance of the wetland, conservation efforts are hard to sustain. When asked if any community-based conservation programs or previous research had been conducted in the area, they confirmed that none exist to date

- Lack of local county government support and policy enforcement-weak implementation of environmental laws allows destruction to continue. Insufficient outreach and educational programs to sensitize the community on the importance of conserving the Wetland and protecting its species.
- Illegal harvesting of Resources-This includes cutting of papyrus and hunting of the birds like the grey crowned cranes on the wetland.
- Overgrazing-There were cows grazing on the wetland. This damages vegetation and compact soil.
- Pollution-There were cars washing premises near the wetland, another one was under construction whose drainages were directed onto the wetland. This could get chemicals onto the wetland.

The second visit to the wetland involved a meeting with 40 community members, aimed at educating and raising awareness about the importance of wetlands. We discussed key roles such as water purification, water storage and supply, biodiversity support, flood control, climate regulation, and livelihood support. The conversation also addressed human activities that negatively impact the wetland. We highlighted how our partnership with the community can help tackle the challenges facing Kapkatet Wetland, with the goal of safeguarding its ecological integrity and protecting wildlife, including the endangered Grey Crowned Crane.

Figure 2: A photo taken during the community awareness meeting at Kapkatet ©Paul Onyango Machoni, 2026

DATA COLLECTION

Documenting some of the threats facing the Kapkatet wetland

During the field visit, several environmental threats affecting the integrity and functionality of the wetland were observed and documented, as outlined below:

Pollution and waste management

There was a noticeable presence of solid waste materials deposited within the wetland. This is an evidence of improper waste disposal practices by the surrounding community. These pollutants are likely originating from nearby human settlements. Such contamination may degrade the quality of water, harm aquatic organisms, and disrupt ecosystem balance.

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Figure 3: A photo showing wastes disposed in the Kapkatet wetland

Water use and hydrological interference

Water pumps installed for water harvesting directly from the wetland was observed. Over obstraction of water has the potential to alter the wetland's natural hydrology, reduce water levels, and affect dependent species that depend on this habitat.

Car wash activities

A car wash facility located near the wetland was identified as another source of pollution. Wastewater from the facility drains directly into the wetland. This introduces detergents, oils, and other harmful chemicals into the wetland, contributing to water pollution and toxicity.

Livestock grazing

The presence of grazing cattle within the wetland area was evident. Overgrazing can lead to vegetation loss, soil compaction, and increased erosion all of which degrade the wetland ecosystem.

Encroachment

Construction of residential houses and car washing facility encroaching into the wetland was observed. Additionally, cultivation of crops such as maize within the wetland area was also observed. These activities lead to habitat destruction, reduced wetland size, and changes ecosystem functions.

Human activities

There was fishing by local children indicating community dependence on the wetland resources for sustenance and livelihood.

Figure 4: Grey crowned crane in Kapkatet wetland
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Biodiversity observations

i. The presence of grey crowned cranes was recorded, suggesting the ecological importance of the wetland. As a species sensitive to habitat disturbance, its presence underscores the need for conservation efforts to protect and restore the wetland ecosystem.

Figure 5: A photo showing an invasive plant species at the Kapkatet wetland.

ii. The presence of invasive plant species was observed within Kapkatet Wetland. Thee invasive species may outcompete native vegetation, leading to a decline in biodiversity and alteration of the wetland's natural ecosystem functions

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Documenting invasive plants to the wetland

The vegetation survey recorded 11 plant species across 20 plots, with most species classified as having a high risk of invasiveness. *Grevillea robusta, Solanum incanum, Melissa officinalis*, and *Ocimum gratissimum* were among the most widespread and abundant species across the sampling plots. *Caesalpinia decapetala, Eucalyptus globulus,* and *Lantana camara*, all highly invasive species, showed high occurrence in several plots, indicating significant potential for habitat alteration. Only *Lantana trifolia* was classified as having a moderate invasiveness risk. The dominance of invasive plant species

suggests increasing ecological pressure on the habitat, which may negatively affect native biodiversity and habitat quality for species such as the Grey Crowned Crane.
The table below summarizes the invasive plants recorded in 20 plots of 10 x 10 m

Table 1: Invasive plants recorded in 20 plots of 10 x 10 m

Plant species	Plot1-4	Plot 5-8	Plot 9-12	Plot 13-16	Plot 17-20	Risk of invasiveness
Acacia mearnsii	5	8	12	2	5	High
Caesalpinia decapetala	11	5	20	15	2	High
Eucalyptus globulus	8	16	21	13	18	High
Grevellia robusta	24	7	6	21	7	High
Lantana camara	4	12	4	22	16	High
Lantana trifolia	1	7	2	4	9	Moderate
Melissa officinalis	17	14	21	12	19	High
Ocimum gratissimum	13	11	12	9	14	High
Solanum incanum	23	15	17	12	19	High
Solanum acueastrum	12	5	1	7	13	High
Vachellia xanthophloea	9	13	6	9	15	High

Animal species sampled in Kapkatet Wetland

A total of 16 arthropod prey categories and one annelid group were recorded across the 20 sampled plots. Ants (308 individuals) were the most abundant prey item, followed by leafhoppers (105) and grasshoppers (62). Aphids were observed in several colonies, indicating localized abundance. These findings suggest that the habitat provides diverse and abundant invertebrate prey resources that can support the feeding ecology of the Grey Crowned Crane.
A summary table for annelids and arthropods recoded is the wetland

Table 2: Annelids and arthropods recoded is the wetland

Animal group	Common name	Scientific name	Number collected in 20 plots
Annelids	Earthworms	*Lumbricidae* spp.	22

Arthropods	Grasshoppers	*Caelifera* spp	62
	Leafhoppers	*Cicadellidae* spp.	105
	Plant bugs	*Miridae* spp.	15
	Ants	*Formicidae* spp.	308
	Butterflies	*Lepidoptera* spp.	16
	Water bugs	*Hemiptera* (Aquatic spp)	9
	Water beetles	*Coleoptera* (Aquatic spp)	11
	Ladybirds	*Coccinellidae* spp.	26
	Dung beetles	*Scarabaeidae* spp.	8
	Mealy bugs	*Pseudococcidae* spp.	32
	Spiders	*Araneae* spp.	43
	Aphids	*Aphididae* spp.	Several colonies
	Damsel flies	*Zygoptera* spp.	34
	Dragon flies	*Anisoptera* spp.	21
	Millipedes	*Diplopoda* spp.	32
	Centipedes	*Chilopoda* spp.	12