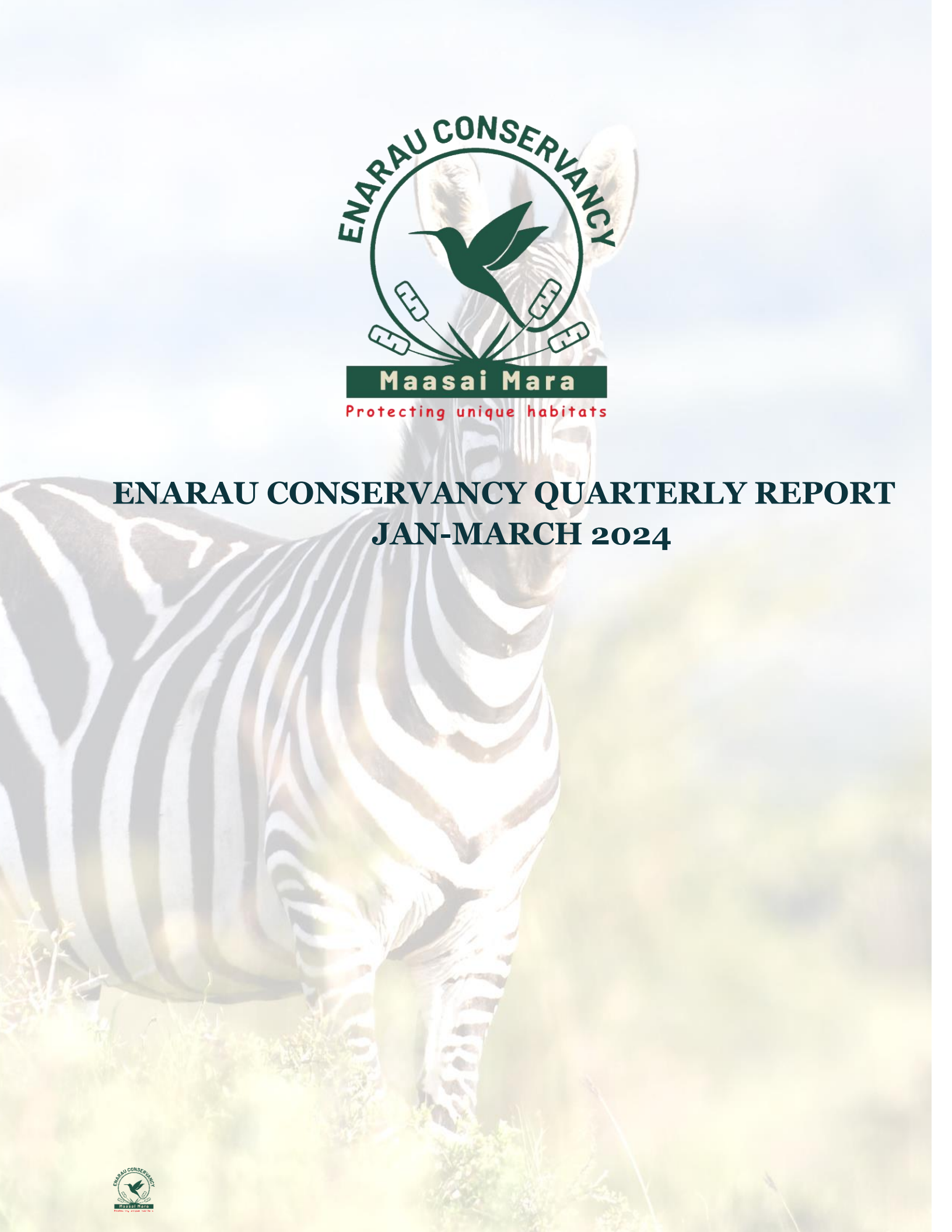

ENARAU CONSERVANCY QUARTERLY REPORT JAN-MARCH 2024

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Introduction

Enarau Conservancy, located in the heart of Kenya's Maasai Mara, is dedicated to biodiversity conservation and habitat restoration. With the backdrop of the region's natural landscape, the conservancy is committed to sustainable conservation practices. It undertakes various programs focused on research, restoration, technology integration, and community well-being. These programs are vital for addressing social and environmental challenges, and more so safeguarding the complex ecosystems that constitute parts of the greater Maasai Mara ecosystem. This report provides detailed progress of the programs undertaken by Enarau Conservancy to advance its conservation objectives. This involves developing and implementing research strategies using cutting-edge technology for monitoring applications, sourcing and propagating planting materials, and assessing and addressing the local community's needs. The four programs have been tailored to address the needs of the people and biodiversity within the Maasai Mara ecosystem.

Enarau Conservancy is guided by a five-year strategic plan that supports the implementation of our goals and objectives and enables us to measure our results and impact. It outlines the organization's vision, mission, values, and strategic pillars. This road map will help us stay on track within the scope of our work and allow us to assess our progress on the four strategic pillars.

Executive Summary

Enarau Conservancy has made significant progress in advancing its conservation objectives through a strategic approach that includes research, restoration, technology integration, and community Wellbeing. The Research Program undertook the following studies; developed a 3D- model of soil-eroded gullies in the Kooruti plains within the conservancy using drone technology, assessed soil health and quality of six selected sites within the conservancy, conducted a free prior informed consent with the community on field data collection on the use of Soundscape as a land degradation and ecosystem restoration monitoring tool, Mapped out eight line transects which will be used in tandem with high-resolution satellite imagery to monitor wildlife and livestock densities as a response to vegetation dynamics. These studies will provide valuable insights into biodiversity dynamics and inform targeted conservation and restoration strategies.

In the Restoration and Conservation Program, the conservancy has expanded its protected area by securing an additional 311 hectares of land creating a wildlife corridor that connects Enarau to the Mbokishi conservation area. This expansion further enhances the conservancy's efforts to protect critical habitats and maintain connectivity to the Greater Maasai Mara ecosystem.. The program has also implemented grazing management practices, propagated indigenous species, rehabilitated key habitats, executed defencing, and established a nursery structure.

The program on Technology advanced in obtaining grants for GIS licenses, acquiring high-quality photographic equipment, installing a digital weather station, and continuing the use of Earth Ranger for ranger efforts monitoring. The projects have improved the conservancy's monitoring and management capabilities.

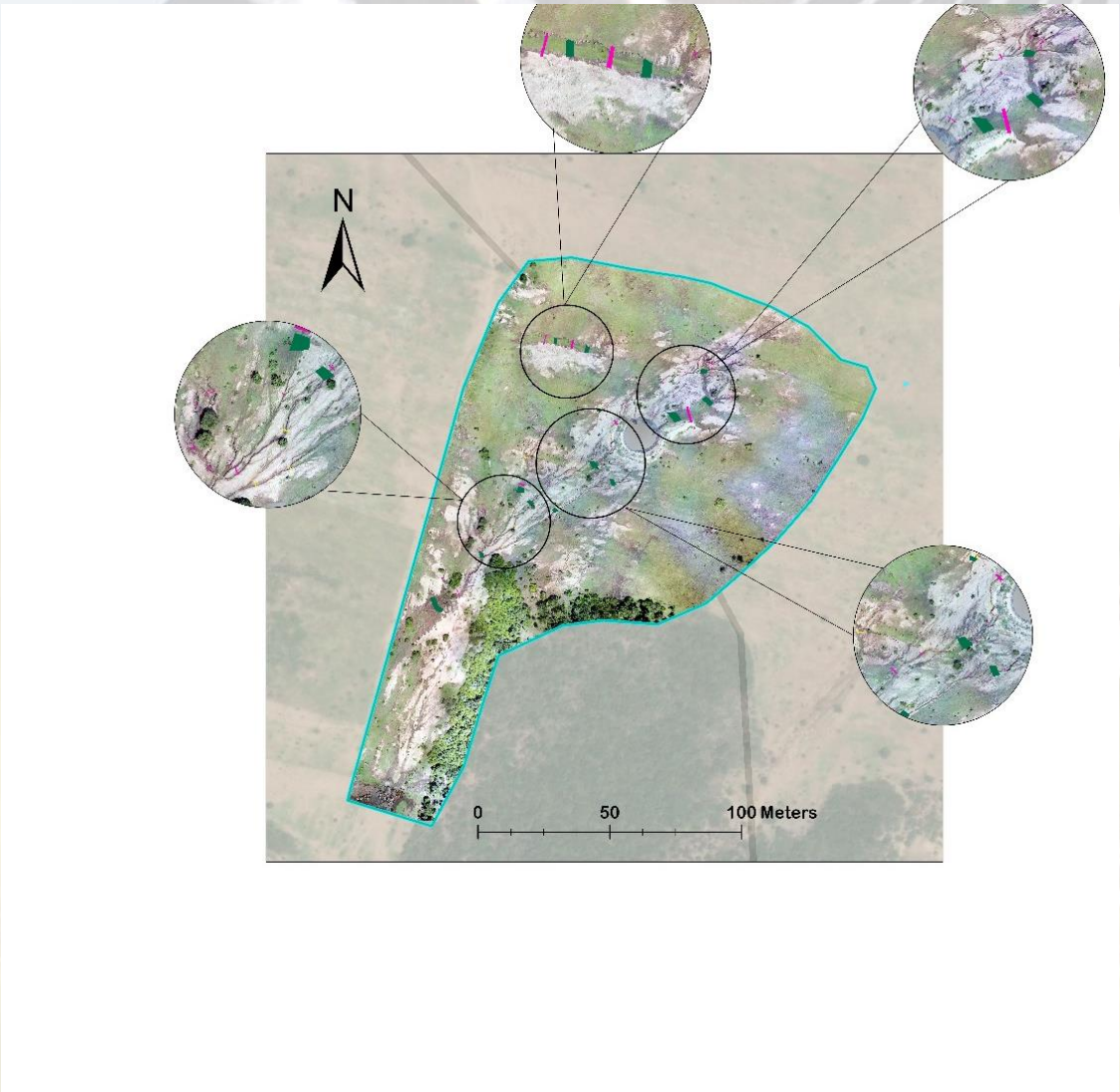
Furthermore, Enarau Conservancy places great importance on community well-being through partnerships with local organizations, community education initiatives, and the adoption of ethical research practices, such as Free, Prior, and Informed Consent (FPIC). By fostering collaboration and engagement, the conservancy aims to promote the coexistence of wildlife and communities while ensuring the sustainable management of natural resources.

Through its strategic pillars, Enarau Conservancy is on course to achieve its mission of protecting and restoring critical and unique habitats for nature and humanity contributing to the long-term ecological sustainability of the region.

1.0 RESEARCH

1.1 Unmanned Aerial Vehicles for Soil Erosion Assessment

Through a partnership with the Centre for Ecosystem Restoration Kenya (CERK) a student from Wageningen University, the Netherlands, was attached to Enarau Conservancy for three months. He developed a 3D model to assess soil-eroded gullies in the Kooruti plains, within the Conservancy. By utilizing drone technology, we were able to capture high-resolution images, which facilitated accurate mapping of degraded areas resulting from heavy rains and cow trampling. This research enhanced an understanding of gulley formation patterns and overland water flow, providing informed insights that will be used when choosing suitable restoration interventions designed to restore the gulleys and combat future erosion.



Pic 1: 3D Model of eroded gullies in Kooruti plain

1.2 Exploring the use of Soundscape as a land degradation and ecosystem restoration monitoring tool.

Through a partnership with CERK and Nottingham Trent University (NTU), a Ph.D. research topic was designed and developed, titling the use of soundscape as a tool for monitoring land degradation and ecosystem restoration. This upcoming research project involves applying the Land degradation and surveillance framework designed by Vagen and Winowiecki 2023, which requires a 10 by 10 kilometers research area, see Figure 1. The research intends to assess restoration success in Enarau Conservancy farmland as well as levels of land degradation in the adjacent areas. The research will involve placing acoustic recorders to record birds, bats, insects, and reptiles and then analyzing species characteristics throughout the study area. In addition to acoustics, soil and vegetation samples will be collected, as well as the use of transects to monitor birds and bats.

This research project holds the potential to enhance the conservancy's monitoring capabilities, employing innovative technologies to evaluate environmental changes and biodiversity trends

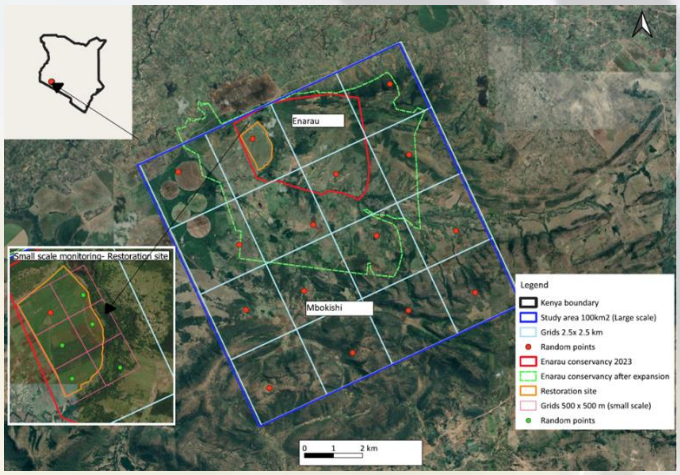


Figure 1: Map of the study area with the experimental grid over imposed.

Pic 2: NTU PhD Student showing the acoustic recorders to our research assistant

1.3 Assess ecosystem change in partnership with the Smithsonian National Zoo and Conservation Biology Institute.

Plans are underway to start a collaborative project with the Smithsonian National Zoo and Conservation Biology Institute. The project aims to monitor wildlife and livestock densities in response to vegetation dynamics, using high-resolution imagery and ground-truthing techniques. This initiative represents a significant step towards integrating cutting-edge technology into conservation practices, and it will promote data-driven decision-making processes.

Additionally, Enarau has partnered with the Smithsonian Institute to conduct baseline soil sampling at six selected sites within the conservancy. The samples were sent to South Africa for laboratory analysis, including chemical, biological, and physical analysis. The soil sampling sites at Enarau have been added to the global soil sampling sites for the Smithsonian and will be repeated every five years.

Pic 3: CERK and Smithsonian team collecting soil samples in the ex-arable farm

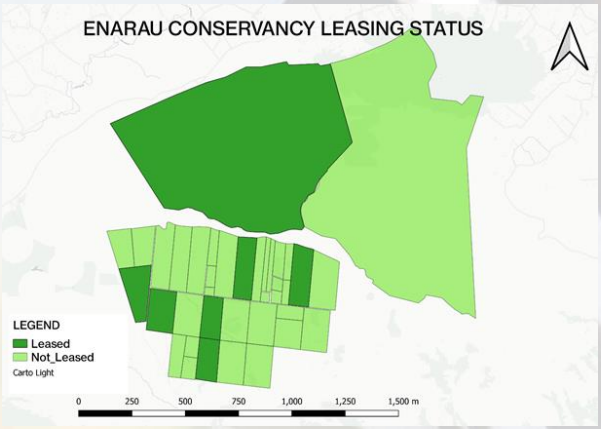
Pic 4: Enarau and Smithsonian team collecting soil samples in the ex-arable farm

2.0 RESTORATION AND CONSERVATION

2.1 Expansion of Conservation Area

In 2023, Enarau Conservancy faced the challenge of creating a wildlife corridor. However, we were able to secure funds to lease 404 hectares of land for the next five years. So far, we have successfully leased an additional 311 hectares of land to establish connectivity between Enarau and Mbokishi. This expansion will strengthen habitat connectivity, enabling wildlife to move more freely in response to localized rainfall patterns and vegetation changes, facilitating the movement of species, and promoting genetic diversity.

Moreover, the landowners removed fences on 100 acres of land to enhance habitat connectivity and reduce habitat fragmentation within the conservancy.

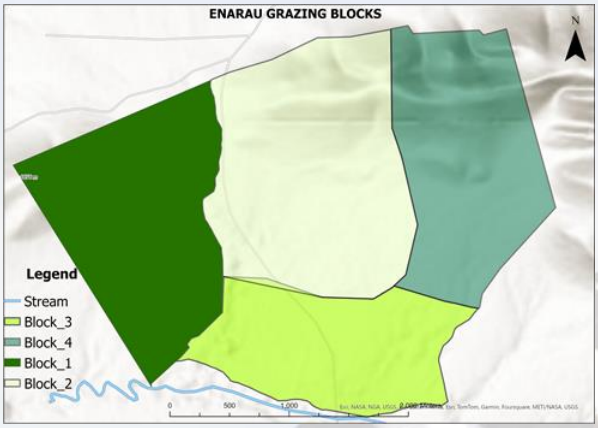


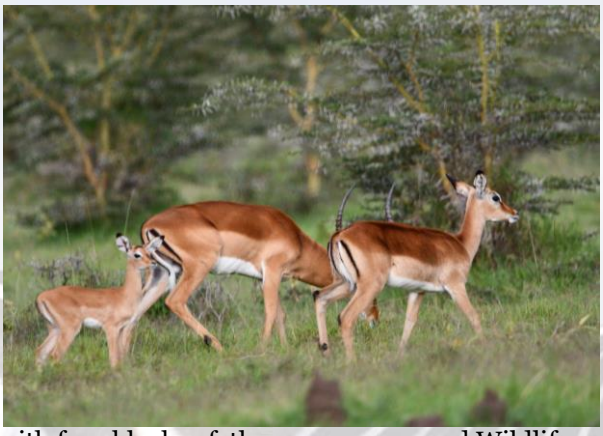
Pic 5: The Map of the Enarau Conservancy showing leased and potential areas for leasing

Pic 6: The corridor opening has resulted in a thriving wildlife population, as evident in the image

2.3 Grazing Management Plan

To combat habitat degradation and enhance ecosystem resilience, the conservancy has implemented a grazing management plan. The plan consists of four grazing blocks, Blocks 1, 2, 3 & 4, See Pic 5, below for detailed information. Block 4 is the most degraded while blocks 1 & 2 have been thriving since the inception of the conservancy. The sizes of the grazing blocks are as follows: - Block 1 - 600 acres, Block 2 - 640 acres, Block 3 - 401 acres, and Block 4 - 500 acres. Rotational grazing is being practiced and that has effectively managed grazing pressures and mitigated adverse effects of overgrazing on the overall health of the conservancy's habitats.





Pic 7: Map showing the grazing management plan with four blocks of the conservancy and Wildlife

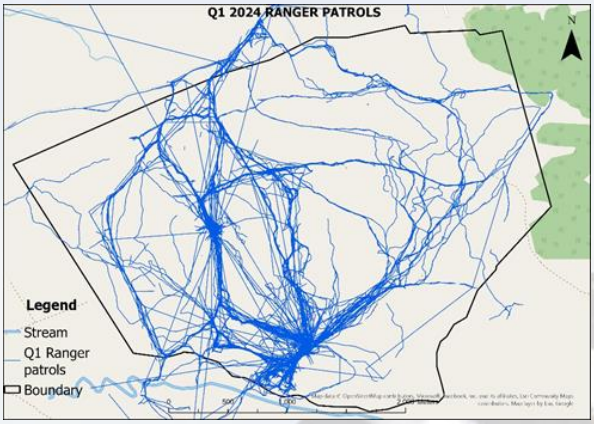
2.4 Tree Nursery

In collaboration with local partners, The Conservancy's restoration team has propagated 5200 seedlings across 18 different indigenous species. This restoration program will provide native planting materials for habitat restoration thus enhancing biodiversity in the Maasai Mara landscape.

Pic 9: Fig tree seedlings propagated in our tree nursery

2.5 Rangers update

Our team of eleven Rangers is safeguarding the conservancy's rich biodiversity by combating illegal activities. Through vigilant patrols conducted around the clock, both day and night, they have covered a distance of 1,620 kilometres for this Quarter. Our rangers are committed to preserving the unique habitats of Enarau, which in turn contributes to the conservation of the greater Maasai Mara ecosystem.



Pic 10: Q1 rangers patrol tracks

Pic 11: Enarau ranger patrolling within the conservancy

2.6 Rehabilitation of Kipukeri Spring and Nursery Shade Structure

The rehabilitation of Kipukeri Spring has been completed to support the development of the nursery. This guarantees a reliable water source for propagating indigenous trees. Additionally, a shade structure has been constructed for the tree nursery to enhance the growth and survival rates of the seedlings.

Pic 12: The shade for a tree nursery, enhancing seedling propagation

Pic 13: IMARA program coordinator inspecting the water quality of the just completed spring rehabilitation

2.7 IMARA Team Visit

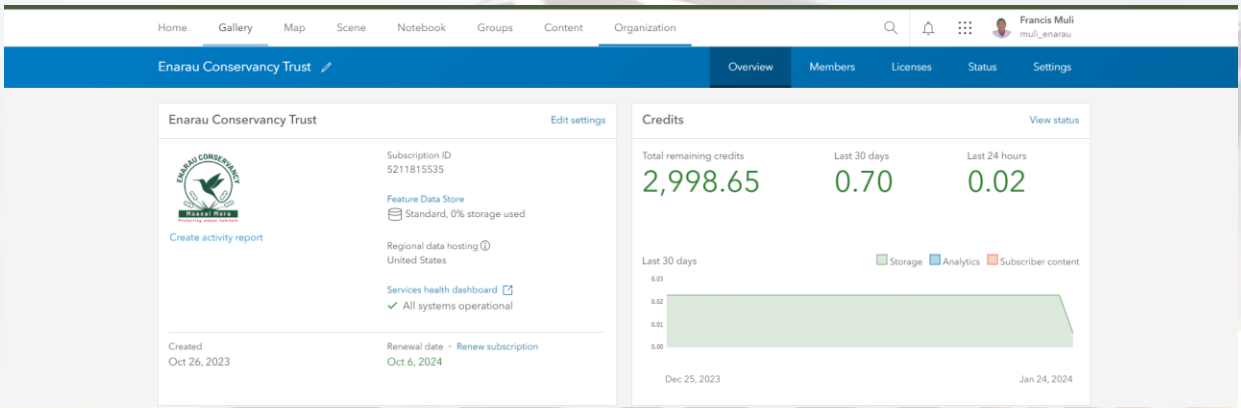
During the first quarter, the IMARA Team, which consists of NRT, MMWCA, WORLD VISION, and other members, conducted a site visit to Enarau. The purpose of the visit was to assess the progress of the nursery development and Kipukeri spring rehabilitation funded by the consortium, these initiatives are aimed at supporting the restoration program in the region. The team inspected the rehabilitated spring, the growth of seedlings in the nursery, and the quality of water discharging from the spring. The findings from this visit will guide the development of future strategies for sustainable natural resource conservation efforts in the area. Below, you will find a collection of photos documenting the visit, including images showcasing the nursery development and Kipukeri spring rehabilitation.


Pic 14: IMARA/World Vision team site visit to Enarau Conservancy

3.0 TECHNOLOGY

3.1 A Decade-Long Commitment to GIS Licensing

Esri's Conservation Solutions grant program offered Enarau Conservancy a 10-year no-cost ArcGIS pro license. Esri is a leading provider of Geographic Information System (GIS) software. This software enhances the conservancy's management to leverage state-of-the-art GIS technology, enabling spatial data analysis, mapping, and visualization. Thus, enabling the management to make informed decisions from proper monitoring of conservation efforts.



Pic 15: ESRI GIS Licences granted to Enarau

3.2 Procurement of a High-Quality Camera

A high-quality camera, a Nikon D7500, and a Sigma lens, of 150-600mm were acquired to enhance visual data for research, monitoring, and communication purposes.

The photographic equipment has enabled the capturing of detailed images, facilitating suitable documentation of ecological features, wildlife sightings, and conservation activities.

Pic 16: Nikon D7500 and Sigma 150-600mm lens

3.3 Installation of a Digital Weather Station

Enarau Conservancy received a solar system funded by the Give Power Project, through the One Mara Carbon Project under the Maasai Mara Wildlife Conservancies (MMWCA). The project has enhanced wildlife monitoring through the implementation of Earthranger technology in the conservancy. Additionally, as part of the One Mara Carbon project, a state-of-the-art digital weather station has been installed. This weather station plays a vital role in the provision of real-time climate data which will be used to implement adaptive management strategies, thereby ensuring the preservation of biodiversity in the face of ever-changing environmental conditions.

Pic 17: Digital weather station and a power station funded by the Give Power Project through the One Mara Carbon project under MMWCA

3.4 Continued Utilization of Earth Ranger

Enarau Conservancy has been utilizing Earth Ranger for monitoring ranger efforts, and wildlife species diversity. The tool has enabled the management to have real-time tracking of ranger movements, collection of wildlife data, and monitoring of illegal activities and human-wildlife conflict activities. By using this tool, the manager can easily identify where to direct resources toward combating illegal activities such as bush hunting, deforestation, and illegal grazing. The ongoing use of Earth Ranger demonstrates Enarau Conservancy's commitment to using technology-driven solutions for the conservation of its habitats and species.

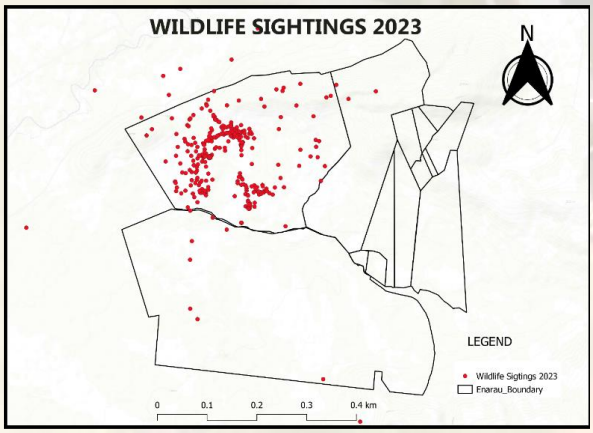


Fig 2: Map of wildlife sightings in the Conservancy

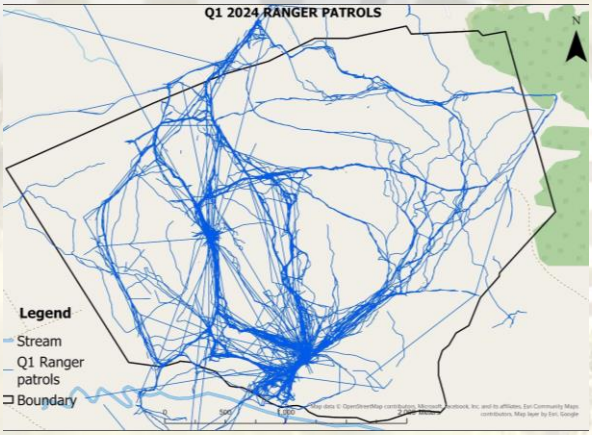


Fig 3: Map of rangers patrol tracks extracted from Earth ranger

4.0 COMMUNITY WELLBEING

4.1 Mapping of Water Sources and Health Facilities

In collaboration with the Maa Trust, an intern from the Centre for Water Technology (CEW) in the Netherlands conducted a study to map the water sources and evaluate their quality. He also assessed the state of infrastructure in these water sources and their proximity to nearby villages. The study aimed to identify the needs and gaps for safe and clean water for people residing within and outside the conservation area. The findings of the research will guide where the next water infrastructure should be placed to provide clean and safe water to these people. Additionally, health facilities were also mapped to understand gaps in the area. The results of this mapping exercise will help in identifying the next steps to be taken, such as the establishment of a health facility in the area, to improve the health and well-being of the people living in the area.


Pic 18: The Maa Trust (TMT) Intern and his assistant mapping water sources in Enarau and Laila area

4.2 Community Education and Sensitization

In collaboration with the Maasai Mara Wildlife Conservancies Association (MMWCA), we educated the community on the social, environmental, and economic benefits of biodiversity conservation. In the upcoming quarters, we plan to implement outreach programs and community engagement initiatives in collaboration with key partners who are actively involved in such initiatives.


Pic 20: MMWCA Governance team sensitizing the local Community to lease land for the creation of a wildlife corridor that connects Enarau to Mbokishi

4.3 Free, Prior, and Informed Consent (FPIC)

In preparation for field data collection for a Ph.D. project on the use of soundscapes as a tool for monitoring land degradation and ecosystem restoration, a student from Nottingham Trent University obtained Free, Prior, and Informed Consent (FPIC) from Enarau's primary stakeholders. This was done to ensure that the research process respects the perspectives and rights of the community, promoting ethical and collaborative research practices.

Pic: FPIC session with community members on the upcoming research and water sources mapping

5.0 CHALLENGES

Enarau Conservancy has made notable progress in its four strategic pillars, however, it has faced challenges that hindered the smooth implementation of these programs. The key challenges include:

- Lack of proper working Office space
- Lack of decent staff accommodation units
- Ongoing cultivation on the eastern sides
- Our current annual lease fee per acre is half less compared to Mbokishi Conservancy lease rates and the surrounding cultivated lands.
- Limited human resource capacity for the implementation of the research pillar i.e implementation of the Enarau scientific plan
- Human-wildlife conflict; crop raiding by elephants and Zebras, Livestock attacks by predators,
- Poor network service providers have hindered proper communication and sometimes smooth real-time tracking
- Limited expertise in our board of Trustees

Conclusion

In conclusion, the Enarau Conservancy has achieved notable progress toward its conservation goals by adopting a multifaceted approach that includes research, restoration and conservation, technology, and community well-being.

The Research Program has conducted various studies that have provided valuable insights into biodiversity ecosystem dynamics.

The Restoration and Conservation Program has protected critical habitats and maintained connectivity within the Greater Maasai Mara ecosystem through the expansion of protected areas and the opening of wildlife corridors. The program has also reduced degradation caused by overgrazing through the implementation of grazing management practices.

The use of technology, such as ArcGIS, Earthranger, digital photograph camera,s, and digital weather stations, has further improved monitoring capabilities and guided decision-making processes.

Lastly, the conservancy's focus on community well-being through partnerships, education initiatives, outreaches, and ethical research practices highlights its commitment to promoting community-wildlife coexistence and sustainable resource management.t.