



Grevy's Zebra Conservation in Kenya 2022/23

Report & funding proposal prepared for
supporters & members of the
Grevy's zebra EEP conservation projects



Tanya Langenhorst

EEP Coordinator & International Studbook Keeper for Grevy's zebra

Lizbeth Mate

Project Manager, Kenya

Enrita Naanyu

Leader Northern Kenya Grevy's Zebra Project

Marwell Wildlife

September 2023



www.marwell.org.uk/conservation

Acknowledgements

We would like to thank the following for their ongoing and very generous support during 2022 and 2023 and all those who responded to our emergency call:

AG Zoologischer Garten Köln,
Association Francophone des Soigneurs-Animaliers (ASFA)
Bioparc Zoo de Doué la Fontaine,
DierenPark Amersfoort Wildlife Fund

Drusillas Park

Fondazione Bioparco di Roma,
Givskud Zoo – Zootopia,
Kolmården Foundation,
Marwell Wildlife
Ouwehand Zoo Foundation,
Parc Zoologique et Botanique de la Ville de Mulhouse,
Stichting Wildlife,
Touroparc Zoo,
Terre de Félines,
West Midland Safari Park Ltd.,
Wilhelma, Zoologisch-Botanischer Garten Stuttgart,
Zoo de la Palmyre,
Zoo de Montpellier

Zoo du Bassin d'Arcachon,
Zoo Frankfurt,
Zoo Planckendael,
Zoologischer Garten Berlin AG,
and many wonderful individual donors



Cover: Grevy's zebra stallion, N.Kenya © Marwell
This page: Grevy's zebra, Kisima, Kenya © Marwell



Introduction

A very warm welcome to the 2022/23 report on our Grevy's zebra conservation activities. The last year has seen one of the worst droughts ever in Kenya and it also showed, once more, how the zoo community and the Grevy's zebra EEP are standing together to fight for the survival of this beautiful zebra. So, firstly, a huge thank you to all our longstanding, loyal supporters and also to all those who came to the rescue just this once. You make it possible that we carry on with our activities and enable us to conserve Grevy's zebra and other wildlife while raising awareness and improving the lives of local communities.

Thanks to the emergency funds you delivered and the lessons we have learned during the drought, we should be well prepared for the next drought. While we all hope this will be some time away, we can be sure that it will happen again.

Several projects and activities had to be delayed in 2021 and 2022 due to the relentless drought conditions but our scouts have maintained their core work. In spring 2023 we were also able again to provide teaching sessions to children who cannot attend school which was highly appreciated. Collaring of Grevy's zebra - on hold for nearly two years due to the drought- did eventually happen in September this year. The KWS teams deployed 20 collars and you can read more about this in the report.

We are hoping for rains this winter, making the lives easier for wildlife and people alike. Our Kenyan team and I would like to thank you for staying with us and providing much needed funds year after year. Thank you!!

Section A. Summary of Activities in 2022/23

In this section we provide an overview of the work we have carried out towards Grevy's zebra conservation over the last year. Together with our partners from the Grevy's Zebra Technical Committee (GZTC) and with your financial support we have provided crucial monitoring, cooperation with communities, emergency interventions, and support for the Kenya Wildlife Service (KWS) and the national conservation strategy.

In **Section B** we are presenting our proposed activities for 2023/24 together with their associated costs and I hope you will find time to read it.

Groups and organisations mentioned in this report are:

EWCA = Ethiopian Wildlife Conservation Authority

GZT = Grevy's zebra Trust www.grevyszebratrust.org

GZTC = Grevy's zebra Technical Committee

KWS = Kenya Wildlife Service www.kws.org

Lewa or LWC = Lewa Wildlife Conservancy www.lewa.org

MW / Marwell = Marwell Wildlife www.marwell.org.uk/conservation

NRT = Northern Rangelands Trust www.nrt-kenya.org

PU/Princeton = University of Princeton www.princeton.edu/~equids/people.html

WRTI= Wildlife Research and Training Institute www.wrti.go.ke



National developments

National Conservation and Management Strategy for Grevy's zebra in Kenya

All our work is in support of the Grevy's Zebra Recovery and Action Plan (2017-2026) (KWS, 2017). A face-to-face meeting of all parties is planned for autumn 2023 to review progress on the current Grevy's zebra strategy. Marwell have been asked to lead on this, supported by Grevy's Zebra Trust, Kenya Wildlife Service, Princeton University and the Wildlife Research and Training Institute.



Pictures 01 & 02: GZT delivering hay in the national reserves © GZT

Grevy's Zebra Technical Committee

Drought Relief

The main focus during the last year was the emergency support delivered to Grevy's zebra and our communities. Five consecutive failed rainy seasons (2020-2023), resulting in one of the most severe droughts experienced in Kenya for close to 40 years, took a terrible toll on landscape, wildlife, and people. At the same time the global economic situation changed and costs of everything, but especially food and fuel increased hugely.

GZT and Marwell had joined forces in 2021 to deliver hay to locations frequented by Grevy's zebra, mostly at water points. This continued into 2022 and even early 2023. Marwell was feeding in the far north: Anderi, Kargi, Lonjorin and, later, Gatap. GZT established feeding operations in Buffalo Springs, Samburu and Shaba national reserves.



Pic.03: Grevy's zebra at Marwell feeding site © Marwell



Pic.04: Marwell hay monitor loading hay © Marwell

In a huge effort, GZT teams were able to feed an average of 500 Grevy's zebra daily for 141 days. Of these, 45% were lactating females and foals, 23% were non-lactating females, 8% were pregnant females, 20% were bachelor males and 4% were territorial males. They distributed 24,000 bales of hay, 600 bales of lucerne (alfalfa grass), 1,200 kgs of lucerne pellets, and 1,930 kgs of nutritional supplements. Their teams drove a total of 34,000 kms to deliver feed to Grevy's zebra herds. As a result, an average body condition score for most Grevy's zebra was maintained, thereby significantly reducing potential mortality.

Marwell employed Hay Monitors from the local communities and some of their scouts at their feeding sites to monitor the Grevys, hay usage, and replenish the hay daily. Camera traps were also deployed to monitor nightly activities at the feeding sites, including other wildlife that was benefitting from the hay. Hay was purchased through GZT and delivered to the far northern region. While numbers of individuals were far lower in the north than in the GZT areas, these individuals are crucial as a potential link between the Kenyan and Ethiopian Grevy populations. At the height of the drought, Marwell was feeding 70-80 Grevy's zebra in Anderi; 40 in Lonjorin; 60 in Gatap and 20-30 in Kargi. They also provided hay to some KWS wardens to feed the Grevys local to their stations. Overall, 2400 bales of hay were delivered.

The huge quantities of hay and lucerne needed as well as fuel, vehicles, and people to move it all meant that the situation became financially unsustainable just for GZT and Marwell alone. GZT contacted Marwell Wildlife for help with an emergency call for donations from the European zoo community. The European *Ex situ* Programme contacted the Grevy's zebra holders. Online donation pages were set up and the zoo community, including individual keepers and private people, rallied round and donated quickly and very generously, securing the feeding efforts in Kenya and potentially helping the core population of Grevy's zebra survive these terrible times.

We cannot thank you enough for this incredible response. There is a good chance that this action has saved the Grevy's zebra core population from disappearing.



Pic.05: Lactating female and her foal feeding on emergency hay in national reserve © GZT

As the drought tightened its grip, Marwell received reports of extremely weak Grevy's away from feeding sites. A small team was established to drive into remote areas and look for starving and exhausted Grevys to give hay and water, for example in the desert.

In some areas, GZT and Marwell scouts were patrolling together to find Grevy's zebra that needed immediate help. This was supported by the local KWS warden with a vehicle while Marwell provided the fuel. Some Grevys were so desperate they approached people and livestock, something totally unheard of. Communities suffering terribly from the drought themselves were sharing the little water they had with Grevys, leading to previously unseen sights (Pic 06). Help was coming from KWS wardens, the Milgis Trust, local project workers and the communities themselves. It was heartening to see how everyone pulled together to save these beautiful zebras.



Pic.06: Grevy's zebra drinking in daylight and in presence of people and livestock © Marwell

The drought also had a terrible effect on the people and their livestock, of course. Many of the herders in our communities spent many months away from home trying to find forage for their families' livestock. Many animals were lost despite these efforts.

Some help was given to the people in the worst hit areas by the government and aid charities. The Governor of Samburu County provided first help with 2,547 bags of maize flour and 2,520 litres of cooking oil destined to drought-stricken areas in Samburu North and East.

Food rations were donated by Campwell Industries LTD and distribution organized by the Samburu County Tourism and Wildlife Management Department and KWS Samburu Office. Marwell paid the fuel cost to transport the rations to Maralal.

Both, GZT and Marwell provided some bales of hay to the communities for their livestock as well as to some KWS outposts in the Grevy range.

The KWS Marsabit warden Mr. Njuguna Ngujiri delivered 160 bales of hay to our scouts at Gatap and Olturot and gave each area 80 bales of hay plus 200 litres of diesel fuel to pump water from the dams to the troughs in both areas. He also requested Marwell to share camera trap photos of hay feeding in the two areas for him to feedback to KWS Nairobi HQ.

In March the rains came – at last. The relief felt by everybody was palpable. By the end of the month most areas had received plenty of rainfall and the pressures of the drought were receding. Enrita sent a few teams out to search for Grevy’s zebras to assess their body condition after the rains and where they had moved to. Since the rains started Grevy’s zebra had not been observed to come to Anderi to drink as they clearly found enough water and pasture in the desert. All of the northern Kenya landscape is quite green now.



Pics 07 & 08: Landscape recovering in the north © Marwell and in the national reserves © GZT

Valuable lessons have been learned from the feeding efforts. As the drought went on for such a long time, it became clear that it was not enough to just provide hay, but the animals needed mineral and other nutritional supplements given their poor body conditions. As GZT who have vets in their teams were already experienced with this, they very kindly agreed to pass on their knowledge to the Marwell feeding teams (Pics.09-12).



Pics 09-12: GZT team training Marwell hay team in mixing and applying nutrients and minerals © Marwell

GZT facilitated the training and procurement of the nutrients while Marwell took care of food and accommodation (camp site). Between 21st and 25th Feb, our field assistant Sakimba, hay monitors and some Marwell scouts joined GZT at Anderi for training on mixing of feed additives to hay for improved nutrition for the Grevy's during the low forage season. Body condition scoring was also taught to the trainees and how to identify ill Grevy's and reporting them for medical attention.

The cooperation of Marwell and GZT during this very difficult time led to a much closer collaboration. Lizbeth and Enrita had regular meetings with them to update each other on drought in the areas we are operating, reports of any Grevy's zebra mortalities, updates on nutritional supplement application and hay stock from hay monitors, and, lastly, plan for possible areas of collaboration.

In November Enrita attended a partner's workshop organized by GZT to share their work for the whole year and provide feedback to their ambassadors on their data quality and get inputs from partners like Marwell.

In December, Sakimba attended a stakeholder workshop planned by GZT in Baragoi town. The workshop was focused on conflict resolution discussions and conservation conflict transformation. The main objectives of the workshop were to identify key stakeholders working towards peace in El Barta, Baragoi area, and to discuss ways in which this can be achieved.

Conflict resolution became particularly important. During the drought, poaching of wildlife including Grevy's zebra increased drastically in the far north. Further south, wildlife is somewhat protected through the national reserves. The KWS Senior Warden for Maralal County had requested that Marwell and GZT provide a scout each to monitor the zebra groups and report any cases of injuries to Grevy's zebra as well as human-wildlife conflicts that arise. This allowed quick intervention, at times leading to veterinary care of the poached Grevys or prosecution of the poachers (Pics.13 & 14).

The KWS wardens are crucial to any wildlife incidents that are reported by our scouts. They are in constant communication with the vet and our office, liaising with us on every matter and lastly providing us with security during our field trips.



Pictures 13 & 14: Poached Grevy's zebra and the KWS vet team treating it © Marwell

Monitoring of Grevy's zebra

National Survey of Grevy's zebra/Great Grevy Rally (GGR)

A Grevy's Zebra Technical Committee (GZTC) meeting was held on 18th November 2022. Key outcome of the meeting was to delay the next GGR to 2024 due to the drought that resulted in poor body condition of Grevy's zebra. It was also agreed that a long planned collaring exercise should be further delayed for the same reason, but that planning should continue to be ready when the circumstances allowed.

The first GZTC meeting of 2023 in April was organised after the rains had arrived and landscape and animals were beginning to recover. A date was set for GGR to take place on January 27th and 28th 2024. All GZTC members were asked to begin fundraising for the event; as well as the analysis of an expected 90,000 photos.

This survey should give us an insight into how the drought has affected the population as a whole and by area.

GZ collaring

Following the extreme drought that lasted from 2021 into 2023, the rains, when they came, lead to the recovery of the landscape and the Grevy's zebra body condition. Finally, GZTC were in a position to carry out the collaring of 18 Grevy's zebra as requested by KWS back in 2020.

The purpose was to collar Grevy's zebra in areas of the LAPSSET* corridor, a large-scale linear infrastructure project that forms part of Kenya's growth and development plan. It currently is in the design phase and will cut directly through Grevy's zebra habitat in northern Kenya. These infrastructure projects are recognised as one of the greatest emerging threats to the Grevy's zebra population in Kenya. Through the use of satellite-telemetry, we aim to identify which habitats are critical for Grevy's zebra distribution, dispersal and movement, and why these areas are important. We will use this information to mitigate the threats to the species by informing planning and conservation management decisions for Grevy's zebra and their habitat at local and national scales.

*The Lamu Port-South Sudan-Ethiopia Transport (LAPSSET) Corridor is a flagship project for Kenya under its development blueprint, Vision 2030. It includes a standard gauge railway, crude oil pipeline, electricity transmission line, highways and a 100km-wide LAPSSET economic zone, which cut directly across core Grevy's zebra habitat. See below maps (Figures 01 & 02)

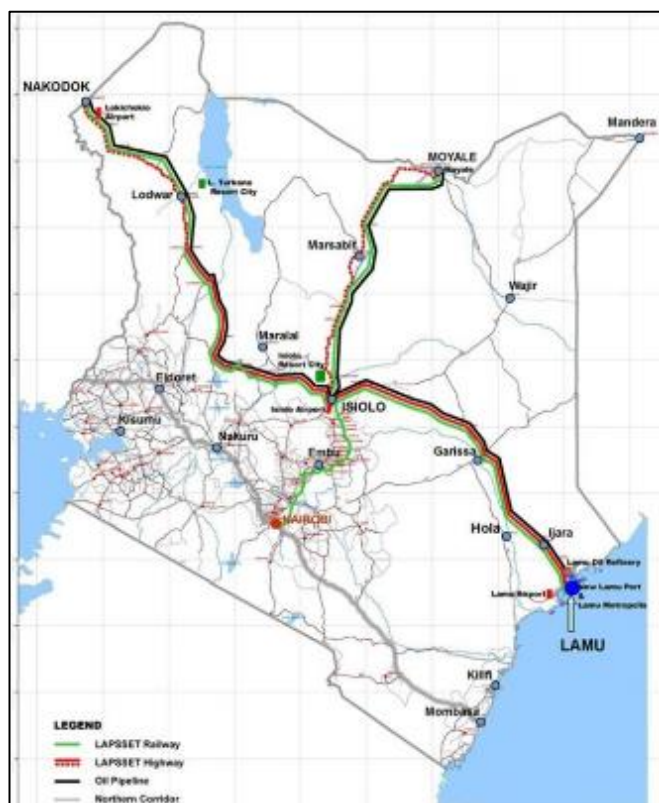


Fig.01 LAPSSET corridor © public domain

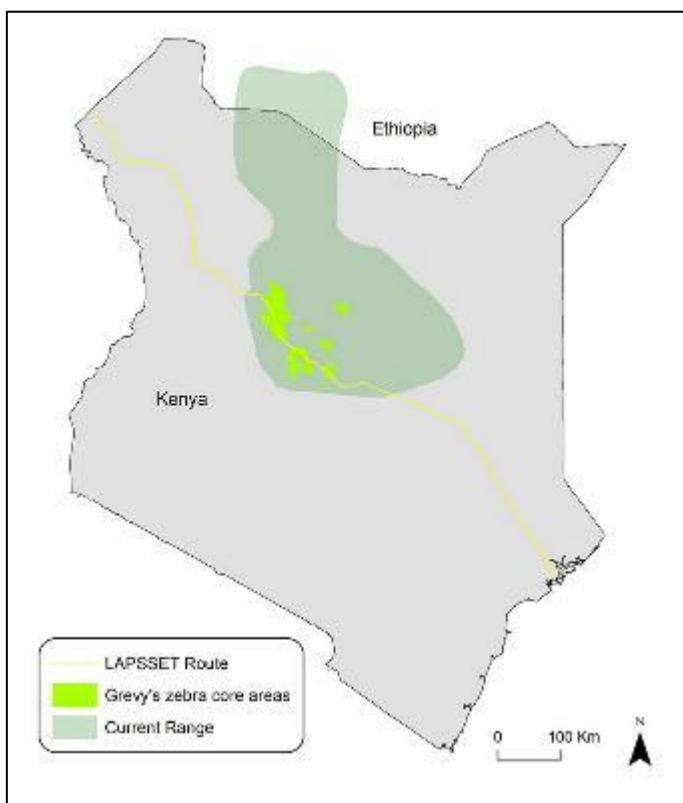


Fig. 02: simplified crossover Grevy's zebra core & corridor © GZT



Pic.15: Collaring team approaching Grevy's zebra for darting © Marwell

A collaring team was put together comprising members of KWS (vets, scientists, security personnel), WRTI (scientist), Marwell Wildlife (scientific supervision, photography) and GZT (locating Grevy's zebra, scientific data collection, photography). Members of the communities where collaring took place were also involved. In just eight days, the teams managed to collar 20 Grevy's zebra. They started at daybreak each day and finished before 11.00 when the temperatures got too high and any sedation of Grevy's zebra at this point would have made the situation very risky for the animals' recovery.



Pics16 & 17: Vets preparing to dart Grev's zebra for collaring © Marwell



Pic.18: Grevy's zebra sedated for collaring



Pic.19: Field assistant Sakimba recording data © Marwell



Pictures 20 & 21: GPS collar and attachment © Marwell

Every team member was assigned a role, so that the animal was never down more than 10 minutes. First of all, the vets would check over the Grevy, before proceeding to put on the collar (Pics.20&21). At the same time others would take photos of the stripe pattern, the hooves, teeth and, of course, all activities.

We also took this opportunity to collect as many biometrical data as possible: blood and faecal samples, temperature, measurements of body parts etc. were all recorded so we can learn more about this species (Pics. 22-25).

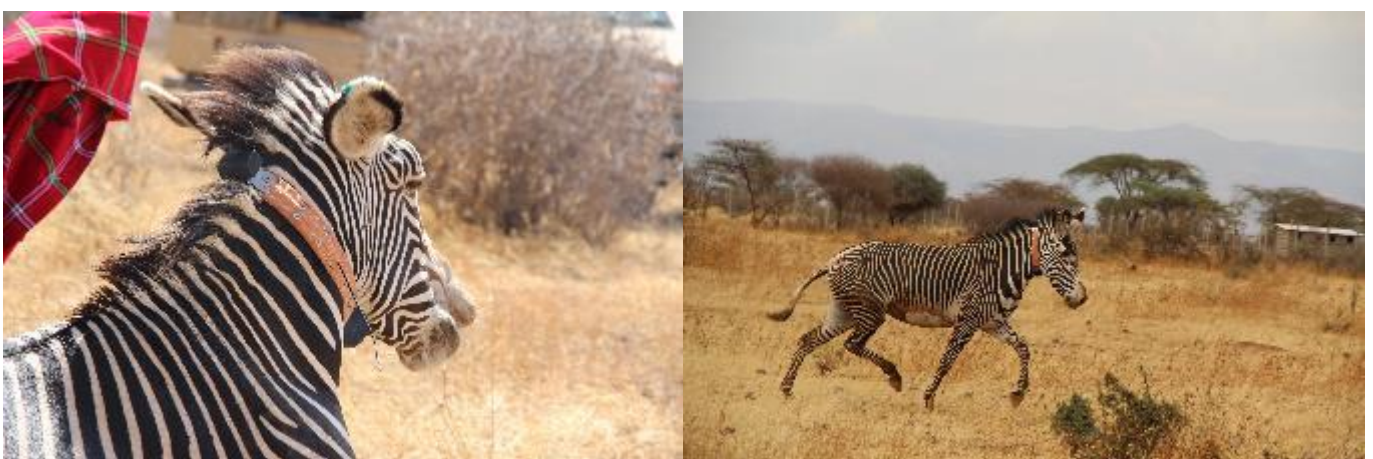


Pics 22 & 23: vets measuring vital body parameters © Marwell



Pics. 24 &25: collection of biometrical data © Marwell

Another four collars should have been deployed in the El Barta area where we know Grevy's zebra occur, but we don't know much about their connection to other areas and populations. Due to the animals being very skittish here and the ground conditions very difficult to manoeuvre, so far only two collars have been put on Grevy's.



Pics. 26-29: Grevy's zebra following collaring and reverse of sedative © Marwell

GZT are using the EarthRanger (ER) platform to visualize the almost real time movement of the Grevy's zebra. The link to this platform has been shared with Marwell.

Digital Stripe Pattern Identification Project

Photos of the uniquely identifiable stripe patterns of Grevy’s zebra allow us to get exact numbers of animals seen in the area and avoiding double counting individuals.

Since he joined us, Sakimba has restarted data entry of images from camera traps for the Stripe ID database. This had been on hold since 2019 due to lack of capacity. Images taken during the supplementary hay feeding have taken priority and all hay feeding images from camera traps have been sorted. Of those, 350 are good enough quality to be added to the database.

Currently there are 37,193 images in the database.

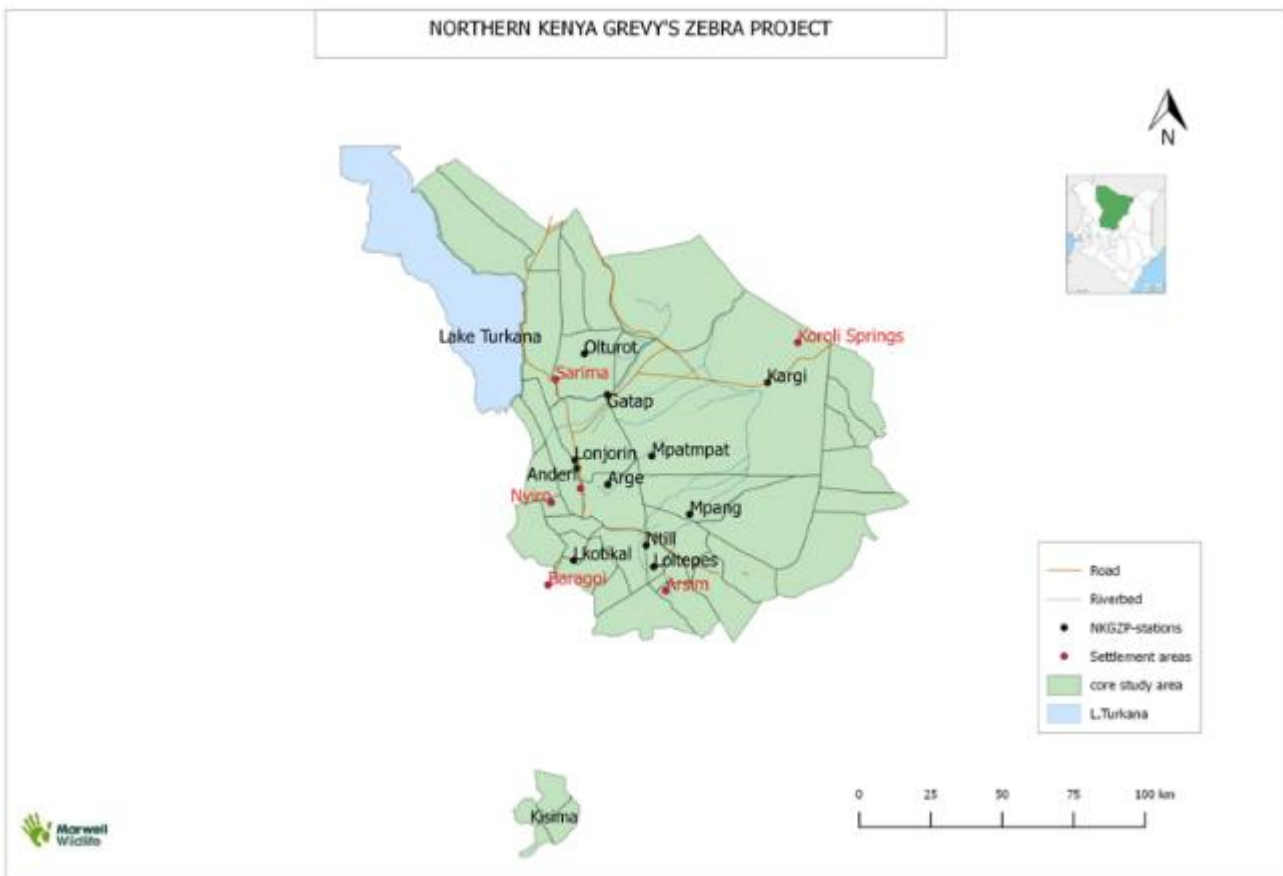
Future of national stripe ID database

The stripe ID database has been in a suboptimal state for several years now. GZT, Lewa and Marwell are all still collecting images and storing them in the old Access Database ExtractCompare (Conservation Research Ltd., Hiby, 2010) that was first introduced in 2006. While the programme does generally a good job, it is not cloud based and requires a lot of manual work and therefore time to input data. Data is stored on external hard drives that need to be moved from user to user.

Over the years we have looked at alternatives, but a variety of technical and financial issues have caused delays.

Ultimately, the plan is to switch all stripe ID tools to just one. We mentioned a few years ago an application called WildBook (www.wildbook.org). It is already being used during the Great Grevy Rallies. Until now it was not suited to be used by all partners in Kenya due to some technical requirements. GZTC is now preparing a proposal to establish, maintain and service a fully functional system and to provide Kenya with a secure, easy to use database for the future. More on this in Part B below.

The Northern Kenya Grevy’s Zebra Project (NKGZP)



Map

Fig 03: Map of the NKGZP area in the north of Kenya © Marwell

Community-based monitoring, using SMART technology.*

Despite this being a very difficult year for both wildlife and communities, our 24 scouts (6 women ,18 men) delivered improved data quality and patrol coverage. This is largely due to the extra support they are receiving from our field assistant, Sakimba Lesolyia. He has worked closely with the field teams providing timely feedback, troubleshooting field related issues in between field visits, and data entry.

*SMART (Spatial Monitoring and Reporting Tool, <https://smartconservationtools.org>) is an open source and freely available software application. This software makes it possible to collect, store, communicate and analyse scout-collected data on wildlife, illegal activities, patrol routes, and management actions to understand where efforts should focus, and evaluate scout performance.

The following infographic (Fig.04) and maps (Figures 05 & 06) show a summary of the 2022 patrol efforts:

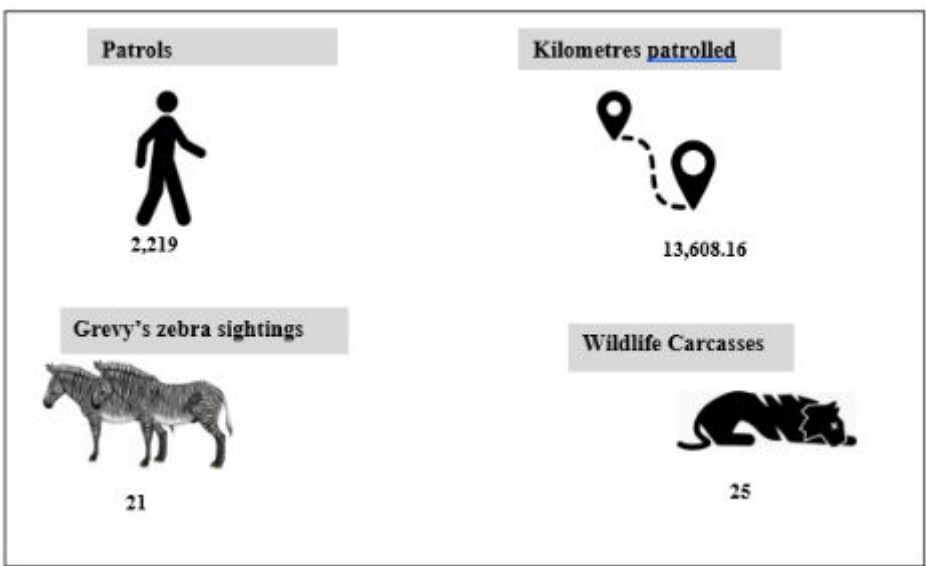


Fig.04: Infographic on SMART data results for 2022© Marwell

Motorcycle patrols have nearly disappeared as they were of no value at all to data collection. There was a further increase by 20% and 11% increase in patrols and distance respectively. Patrol distance and number of hours patrolled were consistent throughout the year although patrol hours fluctuated.

Grevy's zebra sightings

Twenty-one (21) observations of Grevy's zebra were recorded with a total of 37 Grevy's zebra and one large group of more than 20 adult males. While the sum of the group sizes does not indicate total number of individuals sighted owing to the possibility of multiple sightings of an individual the total for 2022 and 2021 (35 and one small group of more than 5-20 observed) remain similar. The number of observations in 2021 were less than that of 2021 (36) indicating that the scouts came across Grevy's zebra less in 2022 than in 2021. The group sizes are significantly lower than those of previous years like in 2020 (166) and this could be attributed to the drought that has pushed the Grevy's zebra to other areas in search of water and pasture. It is concerning that the number of observations of lactating females is higher than that of foals, but it is unclear what caused the difference in observation.

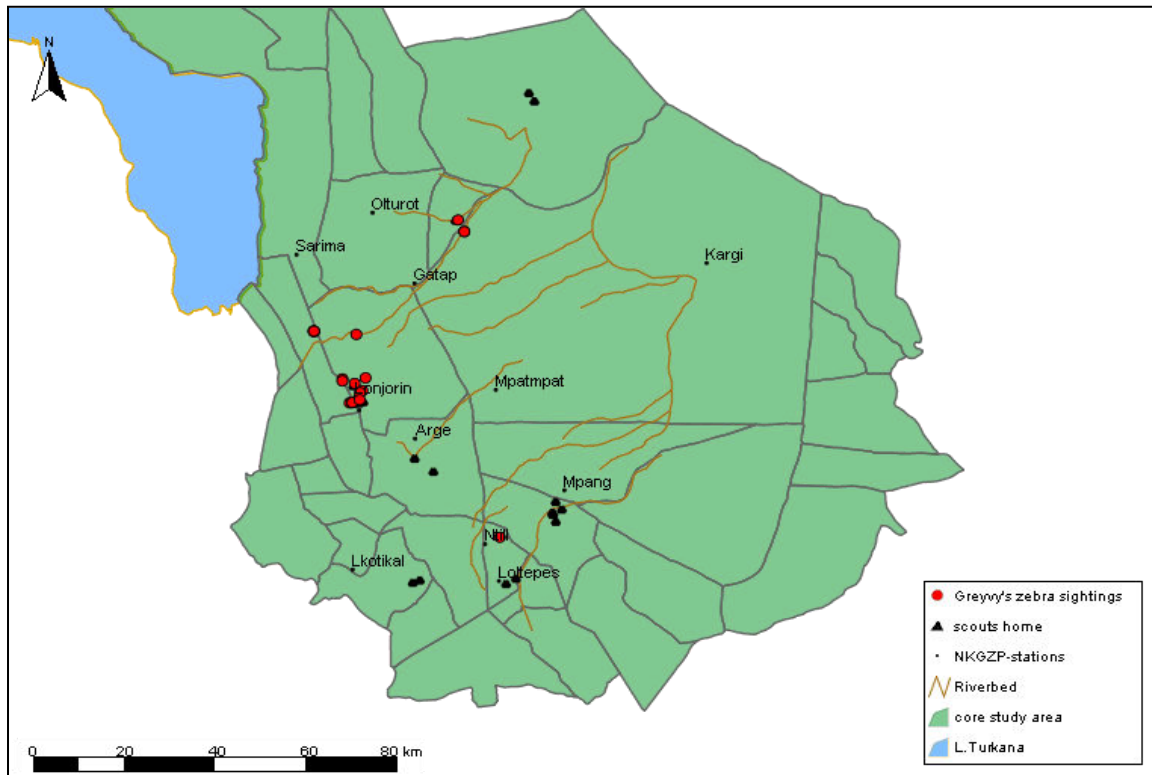


Fig 05: Grevy's zebra distribution in 2022 © Marwell

The majority of Grevys were sighted in Anderi, Lonjorin, Gatap and Olturot areas, a slight shift to the north compared to the previous year (Fig.05).

Our scouts record sightings of all wildlife they encounter during their patrols. In 2022 they recorded a total of 20 species, a slight increase on 2021. Despite this, observations of African wild dog, black-backed jackal, cheetah, lesser kudu and Grevy's zebra were noticeably fewer. The most sighted carnivore was the black-backed jackal (327 counts of observation) similar to 2021, and the most sighted herbivore remain dik-dik (1349 counts of observation). Generally, there has been an increase of wildlife observations over the last four years.

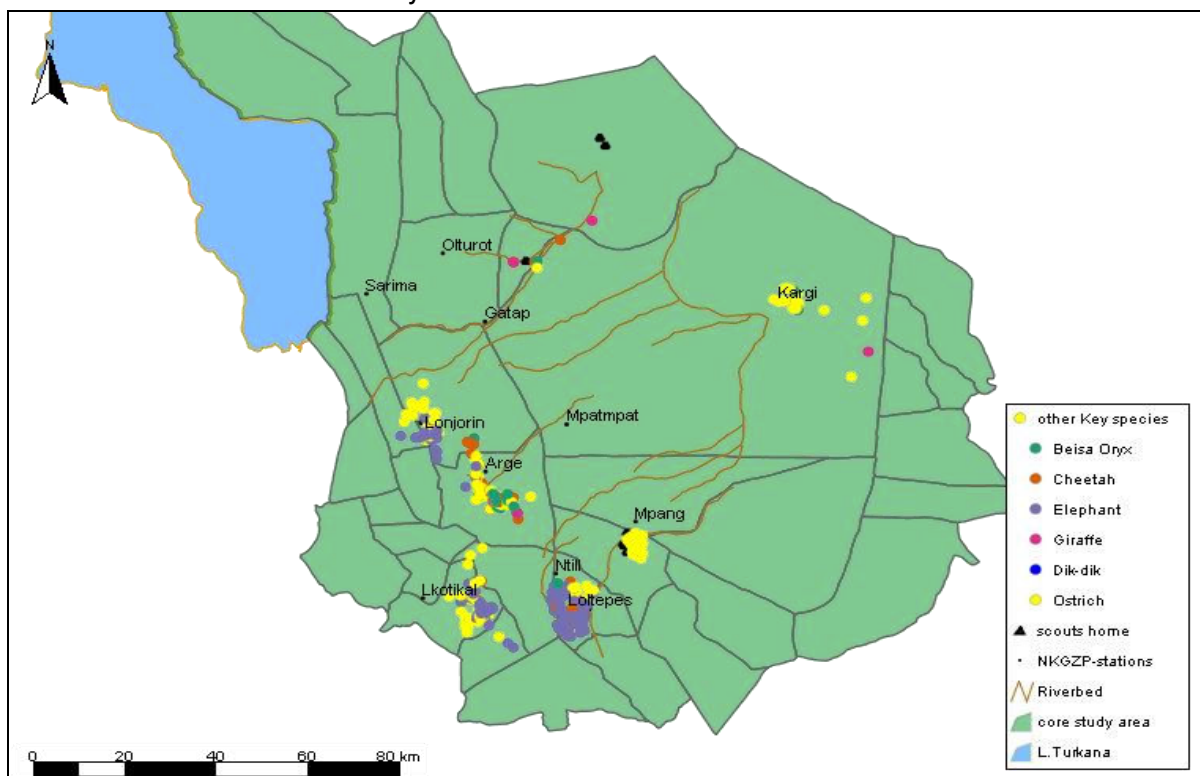


Fig.06: Wildlife distribution for selected species in 2022 © Marwell

In 2021 we placed a new scout, Yoona Loronyokie, on request of KWS in Kisima (see map 01) to find out more about the Grevy's zebra there. The animals in the area live in close proximity with people. This is evidenced by pictures of animals taken with homesteads and livestock grazing at the background in most of the pictures. What he also reports is that the zebra are threatened by human activities as injuries are often seen in the images. Their body score condition is not near optimal levels even after enough rains. This is something Enrita will address with the warden and possibly the communities around Maralal to improve the situation. This September, Yoona has also begun normal scout patrols and data collection.

Carcass sightings

There were more carcasses recorded in 2022 (25) than in 2021 (18). Most were of Grevy's zebra, ostrich and lesser kudu. Known Grevy's zebra deaths were nine (9). The deaths occurred within Anderi, Lonjorin, Gatap, Olturot and Sarima. Causes of death were poaching and possible starvation due to the drought. There have been several reports of ostrich being poached, mostly in Olturot area. There has also been a rise in observations of bush meat hunting of Grevy's zebra and Dik-dik attributed to the drought and ostrich for feathers for cultural rites for Turkana communities.

Community sensitization meetings in some of these areas were held in 2023.

SMART development and updates

As explained in previous reports (Langenhorst, 2022, 2021), all our scouts' GPS phones were updated to use SMART Mobile.

The Kenya team has been using SMART 6.3 since July 2021. The SMART Partnership has made improvements to the application, and this necessitated an upgrade to SMART 7 to ensure we can continue to effectively monitor the wildlife through patrolling. SMART 7 has a new User Interface with over 1000 new icons; enhanced mobile data collection; a SMART Collect function that can be used for Citizen Science and other improvement. In July 2023 the SMART Partnership supported Marwell with a new SMART Connect server, which they continue to offer free of charge.

One of the biggest improvements in SMART 7 is the fact that the database manager can now make changes to the data collection tool remotely and transfer to the scouts' phones. All it requires is that the scouts access reliable internet and refresh their configurable model.



Pic.30: Enrita explaining SMART 7



Pic.31: Lizbeth discussing new SMART interface © Marwell



Pic.32: Enrita during camera trap training © Marwell



Pic.33: Enrita & Scouts on wildlife drive © Marwell

Between 7th and 11th August 2023, the entire Kenya Marwell Wildlife team were at Ewaso Lion's Kids camp. The objectives for the trip were to migrate from SMART 6.3 to 7; conduct SMART refresher training for the older scouts and introductory training for two new scouts (Pics.30 & 31); camera trap set up training (Pic.32); and provide feedback to the scouts on the data collected and reports made for the first half of the year. All this was achieved successfully, and all involved then spent time on wildlife drives for further team building and wildlife exposure (Pics. 33-36).



Pictures 34-36: team building – wildlife puzzles and the Kenyan type of egg & spoon race © Marwell

Discussions between the Ewaso Lions and Marwell SMART database managers led to a breakthrough with one ongoing issue during data collection. Due to literacy challenges, the Marwell manager has been loading each of the scouts' phones with their specific team number and members of their team until now, which was both tedious and prone to errors. The Ewaso Lions scouts are also illiterate but were able to recognise their names on their phones. When challenging the Marwell scouts on this, about half of them could identify their names and team number and the other half, not wanting to be left behind, also learnt how to recognise their names on the phone.

Consequently, we intend to ask their literacy trainer to focus on reading and writing their names. (see more on literacy training under **People & Capacity Building**).



Pic.37: Views during the scout exposure tour © Marwell

In November 2022 Enrita and Lizbeth attended an EarthRanger conference in Naivasha, Kenya. It was an opportunity to meet many partners such as Grevy's Zebra Trust (GZT), Savannah Tracking (who provides our collars), Lewa Wildlife Conservancy, Save The Elephants (STE), Ewaso Lions, Kenya Wildlife Service (KWS) and many others. They attended a variety of workshops and presentations, but key was one discussion on integration of SMART with EarthRanger. We are watching developments in this area.

Aside from GPS phones, our scouts maintain a network of camera traps. This year we began a further collaboration with Milgis Trust in the Gatap and Olturot areas to enhance camera trapping. We were providing camera traps and fuel while Milgis Trust offered a community scout and paid their salary. Marwell has by now recruited their own scout into this area.

Community meetings & Scout barazas (meetings)

Our Kenya team holds quarterly meetings with all scouts so they can exchange experiences and learn from another (Pics.38 &39). During the last baraza of the year, Enrita and Lizbeth usually present the team that has best delivered throughout the year with a reward (either a goat or some money). In 2022 eleven scouts were chosen for their performance in different categories (20 patrols and above; consistency in recording camera trap data; best kept field equipment).

The scouts were also presented with new uniform which they were very happy about as it lifts their standing in their communities and with scouts from other organisations (Pics.40 &41).

This baraza in Kargi was followed by a meeting with the elder representatives, and with the Kargi Chief and Ward Administrator.



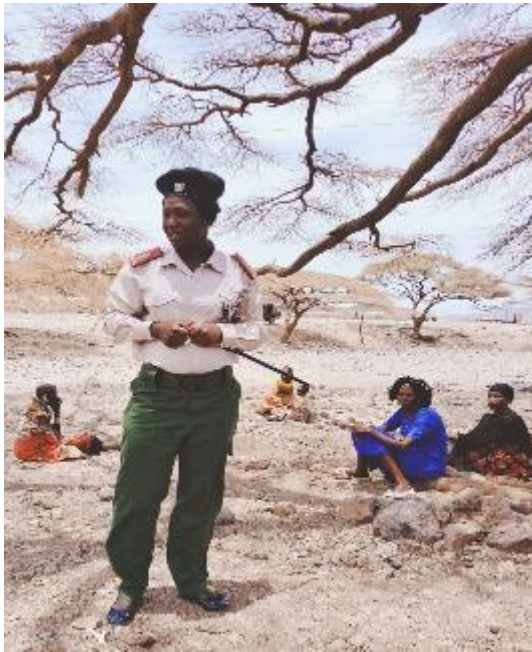
Pictures 38 & 39: Enrita & Lizbeth update scouts; Baraza in the evening © Marwell



Pictures 40 & 41: Scouts proudly presenting new uniform & Enrita (l) and Lizbeth ® with two lady scouts © Marwell

In March this year, a community meeting was convened in Sarima Village to speak with the Turkana community on Grevy's zebra conservation and security of wildlife around the area. This was necessitated by an incident last year where a Grevy's zebra was shot by members of the community. Present in the meeting was the Sarima chief, Beatrice Ewoi (Pic.42), Sarima ward administrator Elizabeth Ngimat (Pics 43 &44), Lonjorin Chief Lenasalon (Pic.45), KWS Marsabit Warden Njuguna, Sergeant Lelesiit, Mr Abdi Salat (South Horr KWS ranger), and Veronica Nyaboka (KWS ranger). The chief of this female lead community, madam Beatrice, agreed that security issue is a collective responsibility that everybody must embrace. She assured the Marwell team of full community support to conserve and fight the criminals and informed them, now that she got three community members recruited as National Police Reservist (NPR), she will work and ensure wildlife are safe. She also requested Marwell Wildlife to employ two scouts in the area when funds allow. In addition, she voluntarily appointed one of the NPRs at the meeting, Edapal Losike, to be a link between the Marwell team and the community, providing feedback on whereabouts of wildlife in the area. The Community also raised issues of increases of human-wildlife conflict in the area and they wanted to know more on how to deal with such cases. The KWS Marsabit warden took them through the process of compensation in case of attack by wildlife.

These kinds of meetings increase the cooperation and feeling of inclusion and ownership of communities, leading to better awareness of the threats to wildlife and its protection.



Pic.42: Sarima chief Beatrice Emoï;



Pic.43: Sarima ward administrator Elizabeth Ngimat and Enrita © Marwell



Pic.44: Sarima administrator



Pic.45: Chief Lenasalon addressing community © Marwell

KWS support & Anti-poaching efforts

We have grown our working relationship with KWS and they have consistently supported the team with security during field trips and engaged the scouts to improve their patrol effort and discipline.

- In January, Maralal KWS officers accompanied Enrita and Sakimba to the field to attend a meeting with Sivicon community on the rise of wildlife poaching, especially dik-dik and ostrich.
- Following rainfall and the return of livestock to the region, reports of insecurity and high tension increased. Gabra rustlers were seen in Arabal, Falham and Kurkum (one of the hay feeding sites in Kargi) areas and meetings for preparedness were held amongst the community. Olturot also saw cases of insecurity, due to fear of Boranas coming to steal livestock.
- In April, KWS Marsabit and Samburu County partnered with Marwell Wildlife to undertake several community workshops in Gatap and Olturot areas. One of the core functions of KWS is to provide wildlife education and extension services to the public so they support wildlife conservation. They therefore held sessions to discuss different issues facing conservation and challenges emerging in day-to-day life. The changing lifestyle has led communities to disconnect from matters of conservation of wildlife and its habitat. Marwell's belief is that through education, empowerment and collaboration everyone can play a role in conserving and protecting our environment. The warden encouraged the community to consider establishing a conservancy or conservation committee managed by them so that other partners can work with them with ease.

Conservation Outreach

Following the school closures during the pandemic and further restrictions during the drought months, Enrita, assisted by Sakimba, was very keen to progress the school outreach programme as well as exposure trips for children.

School Exposure Tours & Conservation Clubs

- On 17th to 19th November Sakimba accompanied 41 students and 4 teachers from both Lonjorin and Arge primary schools to Lewa Conservancy for an exposure tour sponsored by Marwell Wildlife #9Pics.46-49). These kinds of trips started in 2021 and have been a big success with all schools involved. They introduce many children to wildlife for the first time and give them the chance to see wildlife conservation in action.



Pictures 46 & 47: school children during exposure tour © Marwell



Pictures 48 & 49: School children during at Lewa Wildlife Conservancy education centre © Marwell

- On 24th to 26th November, Enrita took Lpartuk mixed day school for a motivational tour to Lewa Wildlife Conservancy. This tour included 39 students and 7 teachers. The trip was partly sponsored by the school and partly by Marwell Wildlife.
- In March Enrita and Sakimba visited Anderi Primary School to follow up on progress of their wildlife club since their trip to Lewa in 2021. Rather impressively, the school has recently installed a greenhouse (Pics.50-52), sponsored by the Lake Turkana Wind Power project, and it is thriving despite the tough drought. The students have planted different types of vegetables in the greenhouse with produce consumed by the students and staff. They also prepare compost, have installed school litter bins and have planted different trees around the school compound, with each student assigned three trees to take care of and ensure they are watered every day.



Pictures 50-52: greenhouse Anderi Primary school, children caring for vegetables © Marwell

- Another student exposure tour went to the Lkotikal area – Keleswa and Farakoren Primary school (22 children, 2 teachers) observed wildlife, especially Grevy’s and plains zebra, and waterpoints where wildlife come to drink.



Pictures 53 & 54: Enrita teaching about wildlife, especially Grevy’s zebra © Marwell

Lchekutis / Herders Outreach

The herders (children who look after their families’ livestock and cannot attend regular school sessions) have missed out on education for several years. Unlike the schools, they did not restart conservation education sessions after the COVID pandemic as the drought forced them to move long distances away from home to search for water and pasture for their animals. It was therefore a great relief for them and Enrita to begin sessions again when the rains allowed them to return home.

In May, we conducted an outreach session with 28 herders from Keleswa (12 herders) and Anderi (16 herders). The children talked about implications of the drought for livestock, wildlife and themselves and their families back at home (Pics.55 &56).



Pictures 55 & 56: Enrita discussing conservation and drought with herders © Marwell

Although most of these herders had never stepped foot in a classroom before, they are very wise using traditional knowledge passed down to them from older generations. They look at clouds first thing in the morning and at the moon to predict weather which mostly aligned with their predictions.

The herders contributed a lot of thoughts to the session including:

- Importance of elders setting buffer zones for better grazing management
- Embracing conservation
- Improvement of phone network coverage - saying a better network allows them to send messages or photos home or to Enrita easily for quick response in case of emergency.
- Illegal guns to be taken by government to reduce insecurity.
- One herder also added that if their families could embrace farming and selling of fresh vegetables and fruits as an additional source of income rather than depending on livestock alone, this would help their mothers to venture into business and earn extra cash.
- The children showed a strong preference towards education (most herders said they would provide education of their future children and change of career). One girl who is not allowed to go to school said: *I have realized now that the only thing you won't lose is education; everything will die except education.*

World Environment Day at Hadad Primary School

In June 2023, Sakimba travelled to Kargi to attend World Environment Day at Hadad primary school (Pics.57-60). A variety of trees were planted in Kargi and Hadad primary schools. The day was full of activities that created awareness and encouraged action for environment protection by both community and students. The day started off by planting 200 seedlings donated by Kenya Forest Service (KFS) nursery in Maralal station. Afterwards the students entertained guests and community members who came for the celebration. The students presented skits and songs they had prepared on importance of growing trees and general environmental education. Finally, they closed the day with litter collection in Kargi town, this year's theme being "Solution to plastics pollution" under the campaign #BeatPlasticPollution.



Pictures 57-60: Hada Primary school activities during World Environment Day © Marwell

People and capacity building



Pic.61: the late Lmediru Lekarato © Marwell

Obituary

It is with deep sadness and heavy hearts that we report the death of our Mpatmpat scout, John Lmediru Lekarato, who passed away on 26th August. He suffered from Malaria earlier in the year but seemed to have recovered. He then started to complain about abdominal pain and when Enrita took him to the hospital for further check-ups and medication, a CT scan showed a large mass in his abdomen. He was referred to a Nairobi hospital for specialist treatment but despite Enrita's best attempts to convince him otherwise, he decided to return home. He died a short time later. Lekarato leaves behind two wives and 12 children. Marwell has provided his family with financial support for the next two years.

Field Assistant

Sakimba Lesolyia who joined us in March 2022 as a field assistant has proven to be a very valuable addition to the team. His support of the scouts in the field has improved data collection and he very often can relieve Enrita on school exposure trips. He also takes most of the photos you can see in this report. We think he will go a long way with us.



Pictures 62 & 63: Sakimba downloading data and explaining results to scout © Marwell

In November 2022, Sakimba attended Trainers of Trainers (ToTs) Training on Participatory Rangeland Management hosted by Nawiri, an organization working in the three constituencies of Samburu County, with an aim of eradicating acute malnutrition in the county.

Scouts' Literacy Training

As reported last year, we have begun literacy and numeracy training for our scouts in July 2022. Most of them were illiterate and counting with numbers is not part of their culture. Using the SMART phones and recording sightings, however, requires a certain understanding of numbers and a level of literacy, hence this new training. All scouts very much enjoy these sessions and learning new skills. They had requested for more training on a regular basis if funds allow. We are therefore trying to arrange days with the teacher two-three times a year and scouts are given homework to practise between sessions.

Following their baraza in December 2022, a first refresher took place as all scouts were already in one place together (Pics.64&65).



Pictures 64 & 65: numeracy training in Kargi © Marwell

A further full day session with the teacher was arranged in March under a tree in a lugga in Loltepes (Pics 66-67). The teacher came to follow up on their previous assignment and to deliver an introductory numerical session for scouts to learn more about recognizing and writing numbers. Most of the scouts

are doing very well and they can write numbers 1-100 and also speak and understand them. We were also impressed that they could write their names too.

As you will have read under the SMART report, the training is paying off already, improving use of data recording tools.



Pictures 66 & 67: Numeracy and literacy training in a lugga © Marwell

Meeting Attendance

Lizbeth, Enrita and Sakimba are all attending the first Wildlife Scientific Conference held by WRTI in September 23 under the theme: “Use of Wildlife Science for enhanced Biodiversity Conservation and improved Livelihoods”. In 2020 KWS transferred all current research and wildlife training function to the new The Wildlife Research & Training Institute (WRTI). This was established with the understanding that the wildlife research agenda needs to be more focused to provide reliable scientific information on emerging wildlife conservation and management challenges. See more in the donor report 2020/21 (Langenhorst, 2021)

Infrastructure

Storage Container



Pic. 68: Hay storage container in Anderi school grounds © Marwell

After many delays, first due to drought, then due to flooding, a dedicated hay container has been delivered and installed in the grounds of Anderi Primary School in May 23. We have transferred the hay and nutritional supplements that remained from hay feeding to the store. This means we always have hay available at short notice in this remote area.

Solar panels

We provided all our scouts with mobile solar chargers last year. They did work well and were particularly useful in the very remote areas where scouts cannot access charging points regularly.

Once the rains returned, however, Ntill and Mpatmpat scouts reported that phone charging was a problem as the mobile solar chargers could not function very well due to the frequent rains. This made patrolling and recording their sightings impossible on some days. Due to the nature of Kenya’s climate, this situation did not last long, but we are considering other options to avoid further interruptions in data collection.

Water trough

Following discussions with chiefs in Anderi as well as plumbers and receiving a viability report from the National Environment Management Authority (NEMA), Enrita is now procuring materials to install a permanent water trough in Anderi by the end of the year. This will serve mostly Grevy's zebra and other wildlife, but the community will also benefit.

The Status of Grevy's Zebra (*Equus grevyi*)

Wild Population

The most recent assessment of a national survey in Kenya found approximately 2,800 individuals in January 2018 (Rubenstein et al., 2018) and it was estimated that 230 individuals might be left in Ethiopia.

The Grevy's zebra has been assessed in 2016 by the IUCN as Endangered A2acd ver 3.1 (Rubenstein, Low Mackey et al. 2016).

International Studbook

The total number of Grevy's zebra in zoological organisations was 178.300.0 (478) in 117 institutions in 24 countries on 31st December 2022 (Langenhorst, 2023). The European *Ex situ* Programme (EEP) and the Species Survival Programme in North America manage the majority of these animals, while Japan coordinates a studbook for eight institutions. Together, these populations provide a genetically and demographically healthy back up to their wild counterparts. For more details see the international studbook here <https://www.marwell.org.uk/conservation/achievements/studbooks>

References

- KWS (2017). Grevy's Zebra Recovery and Action Plan (2017-2026). Kenya Wildlife Service, Nairobi, Kenya.
- Langenhorst, T., 2023. International studbook for Grevy's zebra 2022, Marwell Wildlife, Winchester, UK.
- Langenhorst, T., Mate, L. and E.Naanyu (2022). Grevy's Zebra Conservation in Kenya 2022 Report & funding proposal prepared for supporters & members of the Grevy's zebra EEP conservation projects. Marwell Wildlife, Winchester, UK.
- Rubenstein, D., Low Mackey, B., Davidson, Z., Kebede, F., King, S.R.B., 2016. *Equus grevyi*., The IUCN Red List of Threatened Species 2016: e.T7950A89624491. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T7950A89624491.en>. Downloaded on **05 April 2017**.

Please also read the funding proposal (Appendix B) which provides more details on our plans.



The photos in this report have been compressed for distribution by email. If you require higher resolution images, please contact Tanya on TanyaL@marwell.org.uk.

Our Grevy's zebra conservation colleagues and partners

Marwell Wildlife works closely with Kenyan conservation partners with whom it develops joint conservation programmes. Our key partners – listed alphabetically – are described briefly below:

Grevy's Zebra Technical Committee (GZTC)

The Grevy's Zebra Technical Committee is a steering committee with a mandate from KWS to evaluate implications of technical recommendations for Grevy conservation before implementation, develop intervention protocols, set monitoring standards and procedures, and evaluate their implementation and effectiveness, reviewing all Grevy's zebra conservation, management and research proposals.

The GZTC is a collaboration among organisations all committed to conserving Grevy's zebra, including: Grevy's Zebra Trust (GZT), Lewa Wildlife Conservancy, Marwell Wildlife, University of Princeton (PU), Northern Rangelands Trust (NRT), and Kenya Wildlife Service (KWS).

Grevy's Zebra Trust (GZT)

The Grevy's Zebra Trust (GZT) has been established to address the urgent need to conserve Grevy's zebra in the community rangelands of Ethiopia and Kenya. GZT has become an integral part of the GZTC.

Kenya Wildlife Service (KWS)

The KWS is the country's statutory wildlife body and is ultimately responsible for the conservation of Grevy's zebra. In partnership with KWS, Marwell Wildlife and the EEP have contributed significantly to the development and execution of the national Grevy's Zebra Conservation Strategy.

Lewa Wildlife Conservancy (Lewa or LWC)

The Lewa Wildlife Conservancy holds some 20 percent of the world's remaining free-ranging Grevy's zebra and hosts a dynamic research programme. Marwell continues to support Grevy's zebra monitoring and research within Lewa, and many of the projects planned by the GZTC will be carried out in collaboration with the Lewa Research Department (LRD).

Milgis Trust

The Milgis Trust is a non-profit organisation founded by wildlife conservationist and safari guide Helen Douglas-Dufresne and her partner Peter Ilesley to sustain the wildlife, habitat and the pastoral peoples' way of life in northern Kenya.

In January 2010 the Trust approached Marwell with a request to establish wildlife monitoring within the Milgis ecosystem and has since become a close partner in our NKGZP.

Northern Rangelands Trust (NRT)

NRT supports the development of community conservancies. Marwell has partnered with NRT to implement a programme of training and capacity building to strengthen wildlife management within all member-community conservancies. In addition, it has co-developed a system for wildlife and vegetation monitoring which is being introduced to a selection of conservancies.

University of Princeton (PU)

University of Princeton have collaborated on a number of Grevy's zebra conservation activities, most notably the Great Grevy's Rally and analysis of the photos collected during the survey. They are also heavily involved in the stripe ID project, which is hosted at Mpala Research Centre in Laikipia thanks to Princeton's close association there.

Wildlife Research and Training Institute (WRTI)

WRTI was delinked from KWS to address the need to provide coordinated wildlife research and comprehensive data to inform scientific based solutions that inform policy decisions, management approaches, and create innovative wildlife-based products and services in the wildlife sector.

B. Proposed Activities for 2023-2024

While our main focus for much of the last year has been emergency feeding of Grevy's zebra, and the incredibly harsh and long-lasting drought made life for our scouts rather difficult, we have done a lot of work to reconnect with people and bring some activities that were on hold due to Covid and then drought restrictions back on track. Monitoring of the highly vulnerable, small populations of Grevy's zebra in remote and under resourced areas continues. We are now analysing all the data and photos we collated during the drought and will learn from the findings on body condition, nutritional supplements and timing/location of hay feeding to be better prepared for the next drought. Another area we are very keen to bring back on track is the education of school children and, very importantly, the herders who have missed out on so much over the last four years. We are delivering training in literacy and numeracy to our scouts, providing them with important life skills but also enabling the use of more modern technology for our monitoring work.

Cooperation with the Kenya Wildlife Service and Grevy's Zebra Trust are very close now and this goes a long way to overcome political, social and security challenges which are inevitable parts of our work in Kenya. Working with and supporting our communities throughout the hard times is also paying off as they are more and more aware of conservation issues and are increasingly engaged with our work as they can see the benefits for themselves.

The support we receive from the EEP and the wider EAZA community is critical to this effort, even lifesaving during the last year, and we hope that you will continue with us in this important conservation work in the field next year.

Northern Kenya Grevy's Zebra Project

1. Grevy's zebra monitoring & SMART technology

Our 24 scouts (6 women and 18 men) work in 11 different communities – monitoring Grevy's zebra and other wildlife through daily foot patrols on which they collect data using GPS enabled phones and simple observation techniques. They also service an extensive network of camera traps. We are managing a SMART database that allows us to record and analyse a wide variety of parameters which help us to understand the movement & behaviour of Grevy's zebra in the landscape as well as other wildlife. To improve the quality of data and the speed with which we receive the information, we have recently upgraded SMART Connect and SMART Mobile to the latest application, SMART 7, to ensure we can continue to effectively monitor the wildlife through patrolling. Our scouts, new and established ones, are receiving regular training to keep updated and we continue to see improvements on data quality.

The old Access-based stripe ID database is still being used to identify number of individual Grevy's zebra in areas previously not monitored and it is helping us to identify how many animals were making use of the hay feeding during droughts as well as monitoring if animals move between the sites. Our field assistant has completed recording a backlog of pictures for the database that accumulated during the Covid years. Our partners, GZT and Lewa, are also still using the database, as our Extract/Compare software is currently still the only one all partners can access and contribute to. We are preparing to transfer to a different programme as you can read under Point 4.

Conservation Impact

Both the Stripe ID database and the SMART data are cost-effective means of monitoring movement, distribution and abundance, and behaviour of Grevy's zebra, as well as other wildlife, threats and the performance of individual teams. Our Field Assistant provides fast and invaluable feedback to the scouts on their data gathering and performance. Our Database Manager analyses all data for ongoing management as well as timely response to any emergency situation.

| 1. Grevy's zebra Monitoring & SMART technology | | £ |
|---|--|---------------|
| 5000km for vehicles @ £ 0.49/km to cover travel to, from and within field sites | | 2,450 |
| 6 x full time scout @ £ 77/month, over 12 months | | 5,544 |
| 18 x community scouts (men and women) average £45/scout/month, over 12 months | | 9,749 |
| <i>Equipment</i> | | |
| 4 x SONY compact cameras @ £ 230 | | 920 |
| 12 x replacement camera traps @ £ 185 | | 840 |
| 12 x new phones @ £ 180 | | 2,160 |
| <i>SMART Connect/Mobile maintenance:</i> | | 1,260 |
| 12 x server fees @ £57/mth | | 684 |
| 12x 13 databundles @ £8/mth | | 1,248 |
| | | 24,855 |

2. Peace and Conservation Education in Northern Kenya

Providing the next generation with Conservation Education was high on the agenda following the interruptions during the pandemic. We have revived community relations and ramped up our outreach programme following the pandemic but also in light of increased poaching incidents during the extreme drought. Our scouts have a dual function as they serve as conservation and peace ambassadors in their own communities as well as between communities. Providing our scouts with access to learning, banking and bringing funds to the communities supports whole families and shows the communities the value of wildlife and its conservation. This in turn increases their cooperation with us as well as KWS for the benefit of wildlife.

The conservation education work covers teaching school children and sessions for pre-school children, 'herders' (children not in school) as well as a variety of adult groups; While school groups have begun their classes again following the pandemic, the herders were still unable to attend sessions due to the ongoing drought. This took them long distances from their home areas as they tried to find forage for their families' livestock. In May 2023, Enrita was at last able to meet with this group of children again and is very keen to make up for lost time. Despite their young age, the children are very aware of the importance of school time and the fact that they are missing out on vital education that could determine their future lives.

Building on the success of exposure tours over the last two years, we are sponsoring several more schools to attend one- and three-day trips to wildlife conservancies as many children have never seen the wildlife their communities share the landscape with. We have found that these experiences raise the children's awareness and enthusiasm for wildlife conservation. Many of them initiating conservation clubs and environmental activities when they return to their schools.

Conservation Impact

Through community engagement we have sensitized a large and remote population of pastoral people to the relevance of conservation and the importance of wildlife to their health and welfare. Improved social security and an understanding of the role of wildlife and environment provide clear grounds for coexistence of regional communities. This in turn secures habitat and resources that wildlife and people depend on for survival. Exposure of school children to wildlife and its conservation will bring along the conservators of the future.

| 2. Peace and Conservation Education in Northern Kenya | | £ |
|--|--|----------------------|
| Field expenses and transport (£ 660/month) | | 7,920 |
| Community meeting (men & women) once a year | | 109 |
| Outreach for schools/herder @ KES 10,000/quarter | | 222 |
| Outreach for adult groups @ KES 5,000/trimester | | 83 |
| Baraza (scouts, elders & community members @ KES 128,000/quarter | | 2,842 |
| | | <u>11,176</u> |
| <i>Equipment</i> | | |
| Camera/video camera | | 350 |
| Speakers for Projector | | 90 |
| | | <u>440</u> |
| <i>Herders kids Camp (5 days)</i> | | |
| Food @ KES 40,000 | | 294 |
| Transportation cost @ KES 60,000 | | 440 |
| Cook and camp assistant @ KES 10,000 | | 74 |
| Contingency 10% | | 81 |
| | | <u>888</u> |
| <i>Wildlife exposure outing (~ 3 schools)</i> | | |
| 3 x Bus hire @ KES 40,000 | | 667 |
| Food KES 50,000 | | 280 |
| Contingency 10% | | 95 |
| | | <u>1,042</u> |
| Total | | <u>13,546</u> |

National Strategy Fulfilment / GZTC Activities

3. Great Grevy's Rally

The National Grevy's zebra census using stripe ID software and citizen science participation will take place on the 27th and 28th of January 2024. This Rally will represent the fourth data point in a series of surveys. Crucially, it will give us an idea of how the Grevy's zebra population weathered the drought and if our combined feeding efforts have made a difference. Apart from providing verifiable population size data, it also presents a unique opportunity to observe a major proportion of the population in a short, two-day, time period. This allows us to gauge population health by estimating body condition and to calculate its vital rates including sex ratios and foal survival. Once again, we are involved with this hugely important event and hope you will be able to contribute to its success.

Conservation Impact

With this fourth rally event we are now able to provide reliable population estimates and accurate population structure figures for the species. Every subsequent rally but also observations throughout the year, improve and expand our knowledge on trends in population performance and survival. The Rally is thus a strategic tool that will guide conservation planning and management going forward. Conservation effort and the mobilization of resources can now be more effectively planned and managed, resulting in greater effectiveness of conservation activities. The results of the Great Grevy's Rally highlight the critical importance of access to grazing and water within a secure environment for Grevy's zebra. Historically, Laikipia County was not a natural part of the Grevy's zebra range; however, today it is supporting over half of Kenya's Grevy's zebra population due its healthy rangelands. This tells us that the Grevy's zebra is a sensitive and reliable indicator of ecosystem health.

| 3. Great Grevy's Rally 2024 | £ |
|--|---------------|
| Mileage for 4 vehicles @ GBP 0.49/km for 3420km | 6,703 |
| Transport and training for those handling cameras | 350 |
| Food supplies & camping fees for Marwell teams, local volunteers, security | 1,190 |
| Extra driver | 80 |
| Security for plane | 102 |
| Contingency 10% | 843 |
| Contribution to the organisation of the GGR Event | 2,000 |
| | 11,268 |

4. Kenyan National Grevy's Zebra Wildbook Database

Since 2006, Marwell, Lewa and GZT have used the Access Database ExtractCompare (Conservation Research Ltd., Hiby, 2010) programme to extract and identify individual stripe patterns of Grevy's zebra. While the programme still does a good job, it is not cloud based and requires a lot of manual work and therefore time to input data. Data is stored on external hard drives that need to be moved from user to user putting it at high risk of losing parts of the dataset.

Work on other, cloud-based, identification programmes has been going on for several years, and GZTC has worked with WildMe and their Wildbook algorithm during the Great Grevy's Rallies since 2016. However, these rallies require highly technical computer science engagement and significant supporting labour that has previously spanned multiple institutions, mainly in the US, and previous funding has dried up. Recent technical developments at WildMe have demonstrated that the manual effort at the heart of the GGR image analysis can be reduced by more than 90%, illuminating a path that will end with a more complete, efficient and easily used Wildbook system. Our goal, therefore, is the creation of a usable and tested machine learning platform applicable for low cost, rally-style events, as well as continuous and on-demand long-term monitoring of the Grevy's zebra in Kenya.

The costs for this work include software and user interface development time, purchase of a dedicated data computing and database server, in-person training, and hiring of scientific and technical staff in Kenya. The total cost is for a comprehensive effort that will result in a complete national database, and an employed scientific and technical staff in Kenya.

Conservation Impact

Once fully established the Stripe ID database will be a truly national software system running in Kenya, by Kenyans to curate and manage a national Grevy's zebra database. It will be a cost-effective means of monitoring movement, distribution and abundance of Grevy's zebra and will not only include data from the GGRs but others collected throughout the year allowing almost real time population census, changes in species ranges, analysis of movement patterns in conjunction with collar data and a growing knowledge of life data for wild Grevy's zebra.

| 4. Kenyan National Grevy's Zebra Wildbook Database | £ |
|--|---------------|
| Contribution to Merge all GGR data and transition to Wildbook V2 @ US\$ 5,000 | 4,106 |
| Training of technical staff - running scripts; Wildbook V2 user interface @ US\$ 5,000 | 4,106 |
| Contribution to Kenyan data manager and system person @US\$ 10,000/annum | 8,211 |
| Contribute to Purchase and configuration of dedicated database server | 8,211 |
| Total | 20,528 |

People and Capacity Building

5. Literacy and Numeracy Learning for the Scouts

The SMART technology we supplied to our scout network is ever changing and improving. It does require a certain levels of numeracy and literacy. Most of our scouts were, however, illiterate. Since summer 2022 we provide two annual formal sessions by hiring a primary school teacher. In 2023 the focus is more on numeracy since counting the way we do in western society is not part of the culture in Kenyan communities. Teaching this skill should improve data reporting considerably as numbers will be much more precise. All the scouts are very engaged and complete their “homework” between formal sessions to practise their new skills. We would very much like to continue this development as it not only helps with data collection but does improve the day-to-day life of our scouts. It makes them far more independent people, encourages further learning and allows them to care for their families better in an increasingly modernising world.

| 5. Literacy/numeracy learning scouts | £ |
|--|------------|
| 2 x Pre-school teacher stipend @ KES 13,000 | 147 |
| 2 x Food for the scouts & teacher over 5 days @ KES 38,000 | 422 |
| Teaching and Learning materials during sessions @ KES 25,000 | 139 |
| Total | 708 |

6. Solar panels

Our scouts have to recharge their phones frequently to keep them operating. Due to their remote locations, access to charging sources has always been a challenge. Several teams currently have portable solar chargers to allow charging in the field. However, these chargers take a long time and often have technical issues. In some communities we have installed large solar panels on either a communal building or the house of an elder where they can be used not only by our scouts but by others as well. This has bought us a lot of goodwill in the communities. In two particularly remote areas, Keleswa and Mpang, as well as in Maralal where our field assistant lives and does most of his data work, we would now like to install the more robust larger panels to provide the scouts and FA with a more reliable source of energy making sure they can complete data collection more regularly. Having the panels on the house of elders, ensures that they are guarded, and access is given fairly to those who need it.

Conservation Impact

Better access to charge their phones will enable the scouts to carry out their patrols more regularly providing better quality data. Allowing the communities to benefit from the solar panels when not in use by the scouts improves their daily life and makes them appreciate wildlife and their habitat more as they derive direct benefits from working with us and the scouts.

Providing the field assistant with a more reliable source of electricity will allow him to sort, manage and transfer large sets of data without the very frequent interruptions through power cuts in his area which are currently slowing him down considerably. More timely data delivery to our data manager in Nairobi allows faster analysis and response times to resulting outcomes.

| 6. Solar Panel Installation three communities | £ |
|---|------------|
| 3 x Big solar panel(80watts) @ KES 30,000 | 167 |
| 3 x Inverter @ KES 60,000 | 334 |
| 3 X Batteries @ KES 30,000 | 167 |
| Installation accessories and labour for solar panel @KES 36,000 | 200 |
| | 868 |

For a summary of the funding proposal see the next pages

Summary of funding proposal Grevy's zebra conservation 2023/24

Northern Kenya Grevy's Zebra Project

| 1. Grevy's zebra Monitoring & SMART technology | | £ |
|---|--|---------------|
| 5000km for vehicles @ £ 0.49/km to cover travel to, from and within field sites | | 2,450 |
| 6 x full time scout @ £ 77/month, over 12 months | | 5,544 |
| 18 x community scouts (men and women) average £45/scout/month, over 12 months | | 9,749 |
| <i>Equipment</i> | | |
| 4 x SONY compact cameras @ £ 230 | | 920 |
| 12 x replacement camera traps @ £ 185 | | 840 |
| 12 x new phones @ £ 180 | | 2,160 |
| <i>SMART Connect/Mobile maintenance:</i> | | 1,260 |
| 12 x server fees @ £57/mth | | 684 |
| 12x 13 databundles @ £8/mth | | 1,248 |
| | | 24,855 |
| 2. Peace and Conservation Education in Northern Kenya | | £ |
| Field expenses and transport (£ 660/month) | | 7,920 |
| Community meeting (men & women) once a year | | 109 |
| Outreach for schools/herder @ KES 10,000/quarter | | 222 |
| Outreach for adult groups @ KES 5,000/trimester | | 83 |
| Baraza (scouts, elders & community members @ KES 128,000/quarter | | 2,842 |
| | | 11,176 |
| <i>Equipment</i> | | |
| Camera/video camera | | 350 |
| Speakers for Projector | | 90 |
| | | 440 |
| <i>Herders kids Camp (5 days)</i> | | |
| Food @ KES 40,000 | | 294 |
| Transportation cost @ KES 60,000 | | 440 |
| Cook and camp assistant @ KES 10,000 | | 74 |
| Contingency 10% | | 81 |
| | | 888 |
| <i>Wildlife exposure outing (~ 3 schools)</i> | | |
| 3 x Bus hire @ KES 40,000 | | 667 |
| Food KES 50,000 | | 280 |
| Contingency 10% | | 95 |
| | | 1,042 |
| Total | | 13,546 |

Continues on next page

National Strategy Fulfilment / GZTC Activities

| | |
|--|---------------|
| 3. Great Grevy's Rally 2024 | £ |
| Mileage for 4 vehicles @ GBP 0.49/km for 3420km | 6,703 |
| Transport and training for those handling cameras | 350 |
| Food supplies & camping fees for Marwell teams, local volunteers, security | 1,190 |
| Extra driver | 80 |
| Security for plane | 102 |
| Contingency 10% | 843 |
| Contribution to the organisation of the GGR Event | 2,000 |
| | 11,268 |
| 4. Kenyan National Grevy's Zebra Wildbook Database | £ |
| Contribution to Merge all GGR data and transition to Wildbook V2 @ US\$ 5,000 | 4,106 |
| Training of technical staff - running scripts; Wildbook V2 user interface @ US\$ 5,000 | 4,106 |
| Contribution to Kenyan data manager and system person @US\$ 10,000/annum | 8,211 |
| Contribute to Purchase and configuration of dedicated database server | 8,211 |
| Total | 20,528 |
| People and Capacity Building | |
| 5. Literacy/numeracy learning scouts | £ |
| 2 x Pre-school teacher stipend @ KES 13,000 | 147 |
| 2 x Food for the scouts & teacher over 5 days @ KES 38,000 | 422 |
| Teaching and Learning materials during sessions @ KES 25,000 | 139 |
| Total | 708 |
| 6. Solar Panel Installation three communities | £ |
| 3 x Big solar panel(80watts) @ KES 30,000 | 167 |
| 3 x Inverter @ KES 60,000 | 334 |
| 3 X Batteries @ KES 30,000 | 167 |
| Installation accessories and labour for solar panel @KES 36,000 | 200 |
| | 868 |
| Overall Total | 71,774 |