



Grevy's Zebra Conservation in Kenya 2022

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

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Marwell Wildlife

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www.marwell.org.uk/conservation

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- Zoo de Montpellier
- Zoo Frankfurt
- Zoo Planckendael



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

Introduction

I am pleased to send you another report on our Grevy's zebra conservation activities. First of all, I would like to thank all our donors who 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.

Having come through the worst of the COVID pandemic, Kenya is now experiencing one of the most severe and longest-lasting droughts on record. They have so far missed four rainy seasons and wildlife and people are suffering. Thanks to the emergency funds we had set aside from donor funds, we are able to provide Grevy's zebra with supplementary feeds which also benefit other wildlife.

Under these terrible conditions, poaching of wildlife has – unsurprisingly – increased. The presence of our scouts can at times prevent poaching altogether or at least provide help if Grevys have escaped with bullet wounds.

Several projects and activities had to be delayed in 2021 and 2022 due to the relentless drought conditions. Our scouts have maintained their core work but many of them lost livestock. Herders could not attend teaching sessions as they had to take their families' animals far away to find food and water. Collaring of Grevy's zebra is on hold as the animals' body condition is weakened and we will have to allow them and the land to recover to full strength once the rains arrive. Nevertheless, we were able to make progress in several areas, mostly related to teaching and training as you will see in this report. We are hoping for rains this winter and will then go ahead with all our projects. 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 of this document contains a report of the activities of Marwell Wildlife and its partners regarding Grevy's zebra conservation in the past year. At the end of this section is a list of these partners and, as ever, please feel free to ask Tanya for any further information you might require.

In **Section B** we are presenting our proposed activities for 2022/23 together with their associated costs.

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

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. 2017).

International Studbook

The total number of Grevy's zebra in zoological organisations was 188.318.0 (506) in 117 institutions in 26 countries on 31st December 2021 (Langenhorst, 2022). 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>



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

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

Section A. Summary of Activities in 2021/22

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). We would like to thank you for your ongoing commitment, which makes our work in this area possible.

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).

Monitoring of Grevy's zebra

National Survey of Grevy's zebra/Great Grevy Rally

All data of the 2020 Rally have now been transferred to the Kenya Wildlife Service (KWS) and the Grevy's zebra Technical Committee (GZTC) will be looking at ways to analyse the dataset since the American colleagues have lost the funding needed to do this. Unfortunately, this means we still have no update on numbers and trends.

Grevy's Zebra Technical Committee

Drought Relief

Extreme drought conditions returned to Kenya in summer 2021 and are still ongoing a year later. The country has so far missed four rainy seasons and the situation is dire for animals and people alike. Once again, Grevy Zebra Trust (GZT) and Marwell Wildlife – with permission from KWS – have joined forces to deliver hay to those areas and water points where Grevy's zebra are gathering. Marwell was initially delivering hay at five sites in the Anderi and Kargi areas, feeding 20-30 individuals. By now we have added Lonjorin and numbers have grown to nearly 120 zebra, as well as some elephants, all using ~15 bales per night. This northern population is relatively small but is highly important as it holds the potential for expansion to the North and linking the Kenyan with the Ethiopian population. GZT is targeting about 500 Grevys further south (~18% of Kenya's Grevy's zebra) in the national reserves of Samburu, Buffalo Springs and Shaba. Their teams are working relentlessly, with three feeding vehicles, 10 dedicated people, and a vehicle with a KWS vet and driver dedicated to supporting weak individuals. Here, the hay also feeds several hundred Beisa oryx and almost 90 Cape buffalos. Marwell has been employing two Hay Monitors from the local communities (Lawrence Baro, Kargi, and Malmalwa Lekenit, Anderi) since summer 2021, visiting all sites daily (Pics.01 & 02). They are also monitoring the animals' body condition and the availability of forage and water for the remote herds. Supplementary feeding sites are monitored with camera traps (Pics. 03&04) so that we can track whether Grevy's zebra are using the hay and to what extent other species are benefiting.



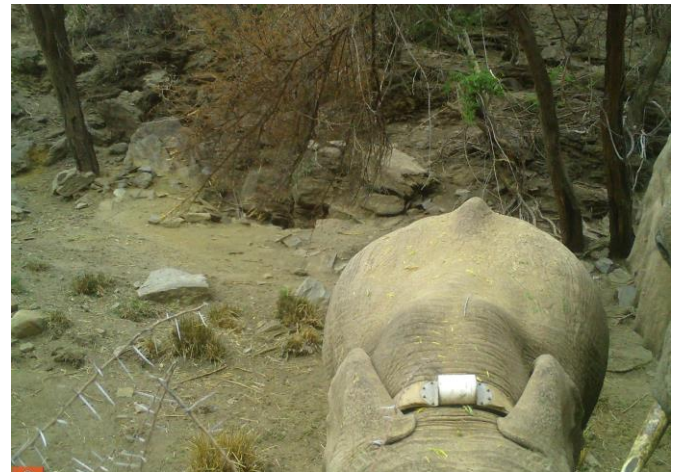
Pictures 01 & 02: Hay monitor, Mr Lekenit, loading his bike (left); Scout Mzee Satim placing hay at a waterpoint (right) © Marwell

In the far north, our teams also reported elephants feeding on the hay. Whilst in Kargi, hyena were captured by our camera traps peeing and pooping on the hay at feeding sites (Pics. 05&06). Enrita has secured another 1000 bales for the northern areas which should last us to the end of the year.

Thanks to these efforts, the overall mortality of Grevy's zebra in 2021 was much lower (33 Grevy's zebra carcasses found) than in the previous drought years of 2009 and 2017 where mortality was 97 and 121 respectively. We also attribute this survival to the fact that during most of the drought months in 2021, the Ewaso Nyiro River continued to flow providing unlimited diurnal access to water for lactating females in the national reserves, unlike in previous drought years when the river was dry and only a few pools were accessible. However, by now, the drought has been going on for so long that reports of death by starvation are much increased despite our best efforts. We will know the effect of this prolonged drought on the population in 2022 only when the rains return later this year or in 2023.



Pictures03 & 04: Grevy's zebra feeding in Anderi (2021) and in Kargi (2022) © Marwell



Pictures 05 & 06: A hyena peeing on hay in Kargi; elephant feeding in Anderi © Marwell

Emergency funds from our donors made this, undoubtedly, lifesaving work possible. With a continuous increase in fuel and hay prices, costs are spiralling out of control; e.g. GZT currently needing \$ 10,000 per week. We have provided funds to them to maintain the much larger populations in the south. The harshness and extreme duration of the drought has meant that our emergency funds are running very low now and we will work together with GZT on an emergency funding drive.

The drought is bringing extreme hardship not only to wildlife but also people. Many of them have lost a lot of their livestock and are struggling to feed their families. This is leading to increased competition between wildlife and livestock and driving incidents of poaching up. Wildlife is putting themselves in ever more risky situations to access resources.

In response to this, a conservation partners' meeting was called in Baragoi. In attendance were GZT, Marwell and Northern Rangeland Trust, senior representatives from the police administration and Chiefs from Baragoi town. The meeting was aimed at strengthening collaboration in the areas of operation and discussing the way forward on the issue of increased poaching. The police administration urged the partners to swiftly report poaching incidents for their action and involve them in community meetings. You can read more on this under *KWS support & Anti-poaching* efforts further down.

GZ collaring

In late 2020 KWS asked the Grevy's zebra Technical Committee (GZTC) to collar more Grevy's zebra, especially 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. In addition, smaller scale projects at the county level are also in line for development. These infrastructure projects are recognised as the greatest emerging threat 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 blue print, 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.

A paper published this month, used the collar data gathered between 2010 and 2017 looked at habitat suitability and connectivity and was able to confirm the Grevy's zebra's reliance on water, with an apparent trade-off between habitat suitability and proximity to people (Smith et al., 2022).

Marwell still held three collars in storage from a previous project which have been refurbished. In addition, we purchased another seven collars and GZT has bought 13, so that a total of 23 collars has been manufactured and is awaiting deployment. While we had hoped to get the Go ahead from KWS in spring this year, the ongoing and extreme drought has for now stopped any such plans. The Grevy's zebra are struggling, and we do not want to risk any of them by adding stress through capture and collaring. With no meaningful rains forecast for the rest of this year, we will have to wait for the land and the animals to recover when they do eventually happen.



Pictures 07 & 08: Collared female at hay feed; two previously collared females in group © Marwell

Digital Stripe Pattern Identification Project

A new scout, Mr Yoona Loronyokie, was recruited to operate in the Kisima area in Samburu West County; initially, Yoona is collecting Grevy's zebra photos since the current priority here is for stripe ID, so we can get a near true number of Grevys using this area.

Owing to their uniquely identifiable stripe patterns, we can track individual Grevy's zebra using digital photographs and stripe recognition software, and this allows us to get exact numbers of animals seen in the area and avoiding double counting individuals.

Lewa Wildlife Conservancy is also using the database under the Marwell license for their monthly recordings and analysis.

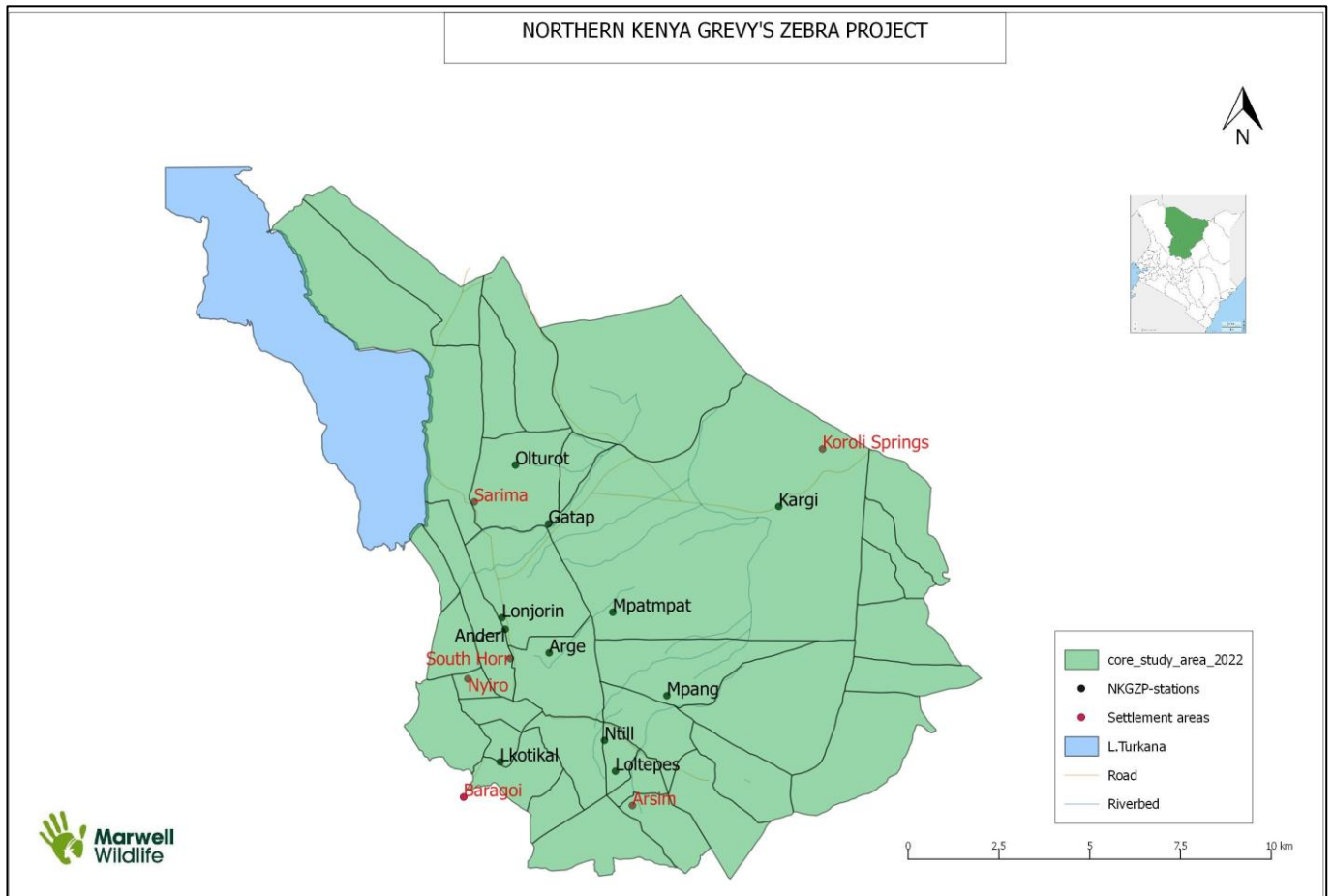
Currently there are 35,935 images in the database.

We have also planned for our new field assistant (see further down) to work on the backlog of camera trap photos which need sorting and assessing before they can be submitted to the Stripe ID software. Due to the ongoing drought, however, he is currently focussing on managing camera trap data from the supplementary feeding sites to identify how many individuals are using them and if animals are moving between different sites (Pics 09 & 10).



Picture 09 & 10: Identifying individuals from their unique stripe pattern and counting numbers from camera trap images © Marwell

The Northern Kenya Grevy's Zebra Project (NKGZP)



Map 01: Map of the NKGZP area in the north of Kenya © Marwell

Despite the ongoing challenges of the Covid-19 pandemic and the drought in northern Kenya our network of 24 scouts has tried to carry on with their patrolling duties as much as possible and have even increased efforts throughout 2021. All teams have improved for a while until the drought took its toll and scouts, understandably, concentrated on trying to survive the drought and moving their livestock in search of water and pasture.

Community-based monitoring, using SMART technology.

As reported last year (Langenhorst, 2021), our scout teams are using GPS enabled mobile phones with SMART* software and were updated to SMART Mobile and SMART Connect to collect patrol data and send them for analysis to our data hub in Nairobi. Since the intensive training session last summer and a refresher training in February this year, data quality is improving more and more.

Before the refresher started, Enrita and Lizbeth took time to show each team their patrol coverage over the last months and explained more about what is required of them. Later in the day, they commenced the 2-day long training. Most of the scouts are now confident handling and using the SMART Mobile app. As part of the training, they carried out an actual patrol of 6 km where the group was divided into 3 teams. This was to show the scouts the real distance they were expected to walk daily as many of them had no concept of 5-6 kilometres (Pics.11 & 12). Since then, one issue of scouts recording positions incorrectly has drastically reduced and this is reflected in the processing of data in Connect.

*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.



Pictures 11 & 12: Training patrol of 6km (left) and track recognition training (right) © Marwell

From now on, the scouts will be supported by our new field assistant, Sakimba, (see People and Capacity Building for more information) in set up and maintenance of the camera trap network as well as other technical and communication support. This provides a weekly or even daily field support rather than the monthly one that Enrita can offer.

The following infographic (Fig.01) shows a summary of the 2021 patrol efforts:

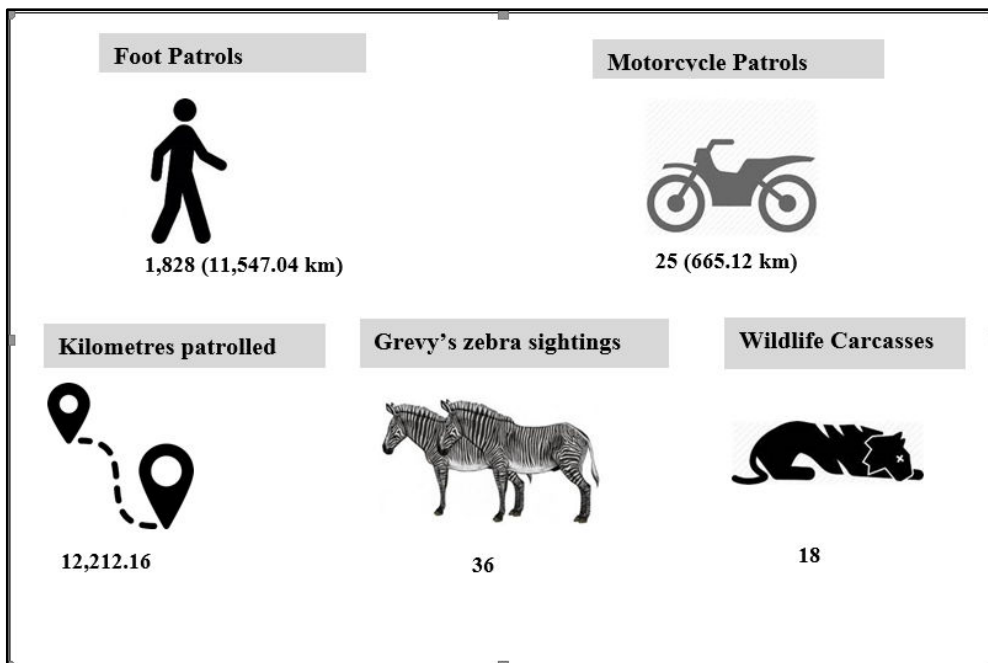


Figure 01: Infographic on SMART data results for 2021 © Marwell

Grevy's zebra sightings

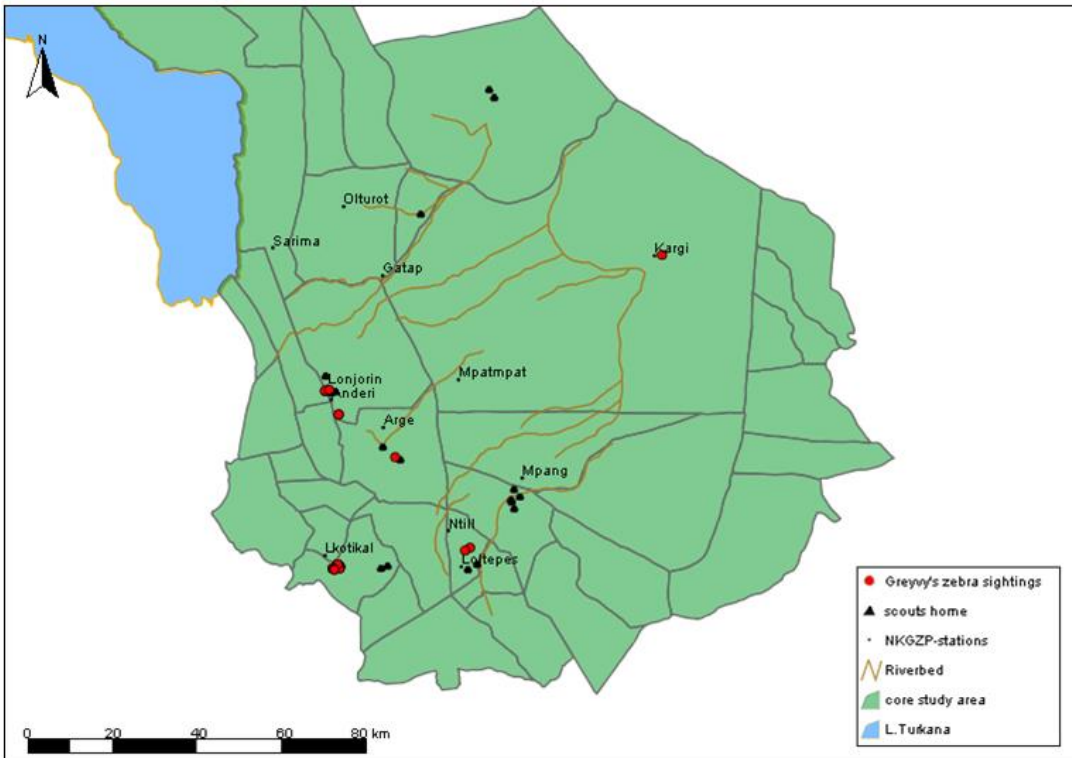
Thirty-six (36) observations of Grevy's zebra were recorded with a total of 35 Grevy's zebra and one group of adult males ranging between five and twenty individuals (see Fig. 02). The sum of the group sizes, however, does not indicate total number of individuals sighted due to the possibility of multiple sightings of an individual. While the number of observations in 2021 (36) were similar to those of 2020 (40) the sum of group sizes in 2021 (35) was smaller compared to 2020 (166).

Grevy's zebra	Number of individuals sighted
Adult males	14 and 1 small group
Adult females	10
Foals	6
Lactating females	5
Juveniles	0
Total	≥35

Figure 02: Grevy sightings 2021 © Marwell

This could be attributed to the severe drought forcing the Grevy's zebra to move elsewhere in search of water and pasture. Worth noting is that the encounter rate per km was generally low throughout the year except in December when a large group was sighted in Lkotikal.

The Grevy's zebra distribution map below indicates that the majority were sighted in Anderi, Lkotikal, Loltepes and Lonjorin.



Map 02: Grevy's zebra distribution in 2021 © Marwell

Our scouts do not only record sightings of Grevy's zebra but all wildlife. With the exception of aardwolf, ostrich, spotted hyena and Grevy's zebra, the count of observations has increased over the last three years. This could point to better detection by the scouts as well as coverage of the operating area across this time. Worth noting is the continual increase of elephant, African wild dog, black-backed jackals, and cheetah observations across the three years since 2019. Dik diks were taken out of this display as their huge numbers (2019: 672; 2020: 1121; 2021: 1315) skewed the graph.

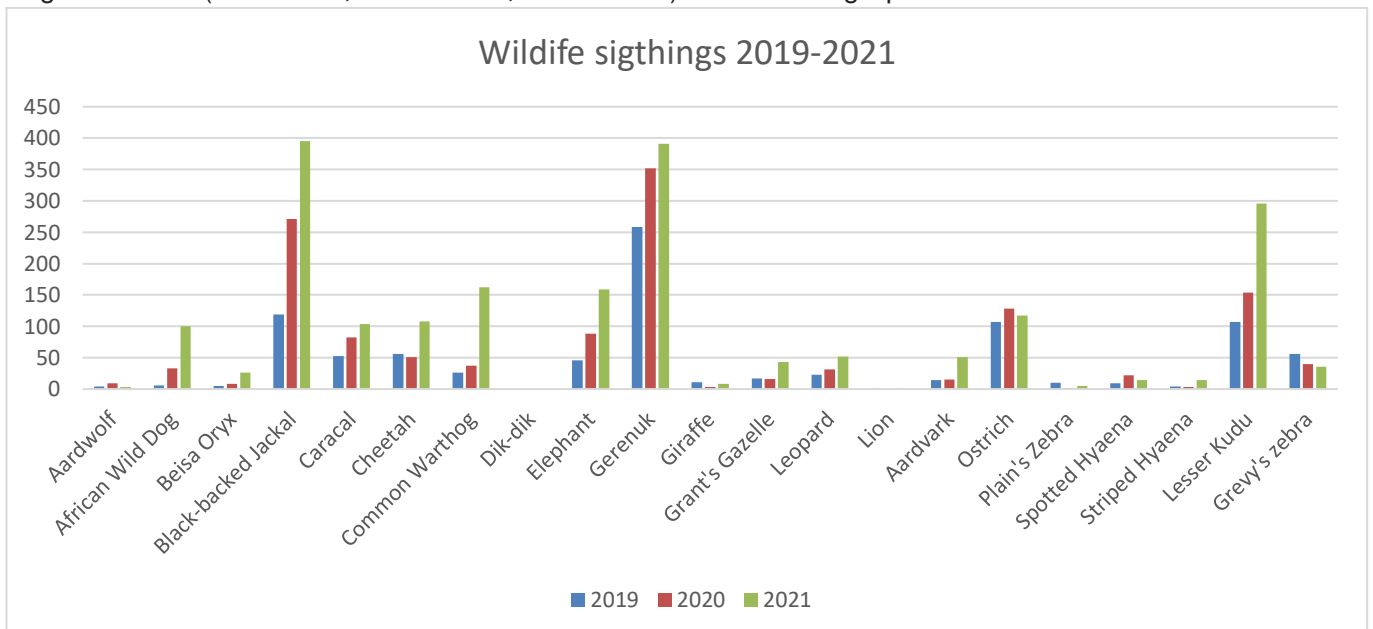


Figure 03: Count of observations of all wildlife species in 2019, 2020 and 2021 © Marwell



Pictures 13 & 14: Grevy's zebra sightings during scout patrols © Marwell

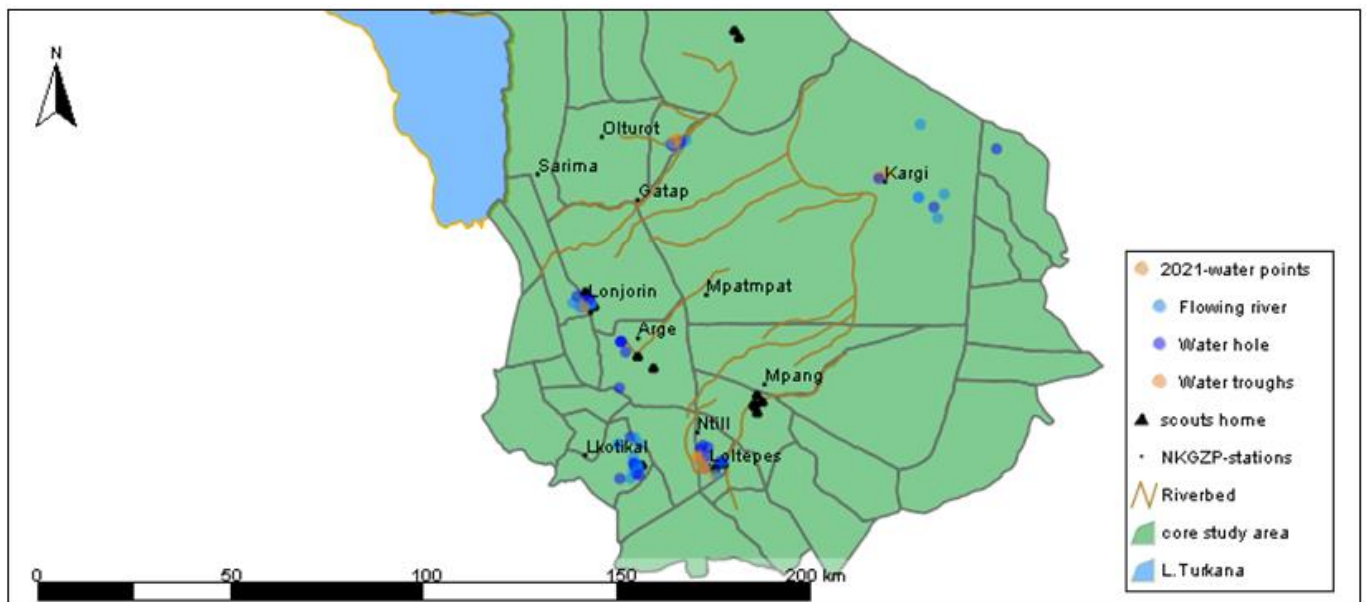
Carcass sightings

The scouts note down the location, species, approximate age, and cause of death of any carcass they find if it can be verified at all.

Of the 18 recorded carcasses, only nine could be verified by the photograph that accompanied the carcass sighting. Of those nine verified carcasses, six were either fresh or recent while the rest were old. There was one Grevy's zebra carcass recorded in 2021, the cause of death being predator attack by a hyena as the zebra was initially injured and hence vulnerable to attack.

Water

To get an understanding of the types of water sources found in the operating area, a mapping exercise of identified sources was undertaken from July '21 and the scouts indicated whether these sources had water or not. The map below gives preliminary information of the location of the sources that contained water. Further work needs to be done to better understand the dry and wet season sources. Since there has been no rain for well over a year, it might be some time before we can confirm wet season water.



Map 03: Map of water sources in the NKGZP area © Marwell

Achievements

The project has used SMART for wildlife monitoring since 2017 and in 2021 the following were achieved:

- Migration from manual downloading of data on a monthly basis to sending data using the internet to SMART Connect which significantly improved the rate of feedback of analysed data for management decisions
- Training and migrating 22 scouts from CyberTracker to SMART Mobile which is a newer modern application - not an easy move given the literacy challenges of the scouts. Results show general improvement since training; we are expecting even better data following the literacy training.
- Expanded operations northwards to Kargi
- Together with the use of camera traps monitored supplementary hay feeding of Grevy's zebra during the drought season
- Mapping of water sources

SMART development and updates

As explained above, all our scouts' GPS phones were updated to SMART Mobile. As this is more technical than the previous software and does require a degree of literacy which our mostly illiterate scouts do not have, we initiated literacy and numeracy training for our entire scout network. This took place in July 2022 and you can read more about it under **People and Capacity Building – Training**. Since November 2021 GZT has also been using SMART Mobile after a successful migration from CyberTracker. This will make it possible at some point for GZT, Marwell and potentially Lewa, maybe even Ewaso Lions, to all use the same sequence and collect the same data in their respective areas allowing easy comparison and merging of data for all Grevy areas.

Lizbeth who is a member of the SMART community forum, has been invited to attend further training. The SMART partnership is currently planning a regional SMART training in Kenya aimed at building capacity of SMART users across Kenya and neighbouring countries as part of a broader programme for SMART use across Africa.

Scout barazas (meetings)

The February baraza was a first opportunity for Dr Phil Riordan, Head of Conservation Biology, Marwell, UK, and the scouts to meet since before the pandemic. Phil went to the field with Lizbeth and Enrita, thanked the scouts for their unwavering work through the pandemic and drought and was able to answer many questions. As usual the teams reported their experiences, successes and any problems over the last quarter, and all discussed possible solutions (Pic. 15). The most remote scouts were provided with portable solar chargers, so they can charge their phones at home rather than having to walk for miles to the nearest charging point (Pic. 16).



Pictures 15 &16: Scout baraza in Feb.22 (left) and Portable solar chargers allowing scouts to charge at home © Marwell

KWS support & Anti-poaching efforts

In 2021, the Kenya Wildlife Service Senior Warden for Maralal County requested Marwell Wildlife and GZT to support monitoring of Grevy's zebra in Ltugai Conservancy (Samburu Central) and Mugie Conservancy (Laikipia North) by providing a scout each to monitor the groups and report any cases of injuries to Grevy's zebra as well as human-wildlife conflicts that arise. Enrita and a colleague from GZT went on patrol in those areas. With the help of the KWS senior sergeant who accompanied the patrol, we have now recruited one scout, Mr Yoona Loronyokie (Pics.17 & 18). Yoona had been volunteering for some time, giving information to the KWS office in Maralal on the movement and wellbeing of the Grevy's zebras in the area. We are pleased to have him join our team of scouts. For now, he is mostly taking photos of any Grevys sighted to allow us a better assessment of numbers in this region. He will begin patrolling with a GPS phone at a later stage.



Picture2 17 & 18: Yoona Loronyokie



A keen runner, Yoona ran the Lewa marathon under the Marwell logo in June.© Yoona Loronyokie

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.

In October, Yoona reported that he had sighted an injured Grevy's zebra in Nentoto area (Maralal), limping in pain. Nentoto is an unfenced group ranch in Samburu West (MAP XX). The KWS Deputy Warden in Maralal Headquarters called the KWS vet unit and they responded very quickly and immobilized the zebra for treatment the same day. The animal was easily located and darted. The vet team cleaned the wound, treated the Grevy's zebra with antibiotics to prevent further infection and injected him with painkillers (Pics.19 & 20).



Pictures 19 & 20: Grevy's zebra being darted & (RH) the vet team examining the animal before treatment © Marwell.

Following reports of poachers in the Sarima area, Enrita requested help from GZT and the KWS officer who, supported by local wind turbine workers, went looking for two Grevys who had been shot. One animal could not be found, but a very lame male Grevy's was seen walking with difficulties after being shot on his left leg. The GZT team and KWS officer in charge in South Horr visited the scene and found the Grevy's zebra in too much pain and with permission from KWS the animal was euthanized. On several occasions, elephants have also been found poached. In January two male elephants were killed by unknown poachers in Latakweny. No tusks were taken as the poachers ran away for fear of getting caught after realising there were scouts and people around and the KWS warden organised the retrieval of the tusks.



Pictures 21 & 22: Female Grevy's zebra with deep wound © Marwell

A female Grevy's zebra (Pics 21 & 22) was spotted with a big wound and treated by KWS vets after our scouts reported it. She has been seen since and Yoona informed Enrita that the female was a lactating mother. She is doing well, and the foal is quite big by now.

Conservation Outreach

In autumn last year, schools were finally able to fully reopen. Enrita was greeted warmly during her outreach sessions.

In September, Lewa Wildlife Conservancy offered to support 50 students from one primary school in our project area to attend a 3 day fully funded trip to visit the conservancy. We were honoured to have been chosen for this and Enrita offered the opportunity to the head teacher, Peter Lesiila, of Anderi Primary School and their wildlife club patron. They were very happy to accept this invitation. Enrita selected Anderi Primary School based on several factors: The school's academic performance (They came first in Samburu North in last year's national exams), their commitment to environmental sustainability, the support and active involvement of students and school administration in our outreach work, and their role as pioneers of our programmes.

The visit was hugely enjoyed by the students (Pics 23-26). This year we are offering this opportunity to another two schools, where 48 pupils and two teachers will be experiencing the wildlife and conservation activities at Lewa Wildlife Conservancy. If funds allow, we would like to offer more trips like this to other schools in the coming year(s).



Pictures 23,24,25 & 26: Anderi school children during visit to Lewa © Peter Lesilla

We are planning to continue working closely with teachers so that they may assist Enrita in implementing and guiding students on environmental activities in schools. We believe that through our sessions students become aware of their actions and how they impact the environment around them.

Our main goal of the education programme is to change the traditional attitudes of Samburu toward their environment and strengthen national pride in conservation in Samburu ecosystems and Anderi Primary School leads the way.

During her November trip, Enrita had a session with Kargi Primary school students for the first time. This takes the number of schools regularly visited to nine. Enrita briefly introduced the work Marwell does in Kenya and also met up with grade 5 and 6 students to discuss wildlife clubs and Grevy's zebra conservation. She was very impressed by two boys in Class 6 who knew a lot about Grevy's zebra and their characteristics. She agreed with the teacher to start regular sessions in the next month.

On 12th February 2022, Enrita was invited to speak at Lpartuk Mixed Day Secondary School in Maralal about Grevy's zebra conservation in Northern Kenya. Their teacher explained afterwards that the students are planning on setting up a wildlife and environmental club at the school. 20 students attended from across Forms 1-4, eight of them girls. After class they toured Samburu Bird Sanctuary and Kisima dam (Pics. 27 & 28) to learn more about wetlands and Enrita taught them how to set up camera traps to monitor Grevy's zebra and other wildlife



Pictures 27 & 28: Enrita (middle) with some children from Lpartuk school during their visit to Kisima dam © Marwell

In July this year Enrita was invited by Lpartuk School to hold a follow-up session to discuss and teach the students about Human Wildlife Conflict (HWC). Enrita asked the area’s KWS warden for support on this as he is much better placed to answer any questions about this subject matter. The county’s conservation educator, Linah Cheronu, provided an introduction to the mandate of KWS and the importance of conservation, KWS Officer Jane Bari explained the meaning and types of human-wildlife conflict and discussed ways to minimise conflict, and KWS Sergeant Yasin Abubkar took students through the process of compensation, so they can inform their community should such an incident occur (Pics.29 & 30).



Pictures 29 & 30: Enrita (right pic, middle) and KWS staff (Jane Bari, Yasun Abubkar & Linah Cheronu) © Marwell

Lchekuti / Herders Outreach

We had hoped that sessions for those children who are not attending school (Lchekuti) would also restart before the end of 2021. However, it has been a very tough time for Samburu community herders since this drought has lasted for two consecutive periods by now. This has led to extreme hunger and mass displacement where livestock are moving to far away areas to search for pasture and water. One of our female scouts told us that it has been one year now since she saw her little brother who left in June last year together with the family’s livestock to find pastures in Isiolo. They were informed recently that he has moved even further, to Laikipia. Any educational sessions for these children were therefore impossible, of course.

People and capacity building

New appointments

In late February, Enrita and Lizbeth held interviews for a new field assistant position. Two candidates stood out above all others and, in the end, both were recruited. Sakimba Lesoloyia and Jones Lenasalon have university degrees but, unusually, want to remain in their local communities. The new role will be supporting scouts, communities, and tackling a backlog of camera trap images for stripe ID.



Over three days in March, Enrita and Lizbeth trained the assistants in data entry of camera trap data, SMART desktop and SMART Mobile application. They developed work plans and discussed the roles and responsibilities. The much more frequent support the assistants can provide within their communities, will further improve data collection and data quality.

By August, Lenasalon had decided that his new role was not right for him and to move to an altogether different area. Sakimba (Pic.31), however, is developing very well and we have high hopes for him. He is from a Samburu community in Baragoi, Samburu North. He studied for a Bachelor of Science in Agroforestry and Rural Development at Kabiaga University.

Picture 31: Sakimba Lesoloyia © Marwell

Training

Scouts – literacy training & banking

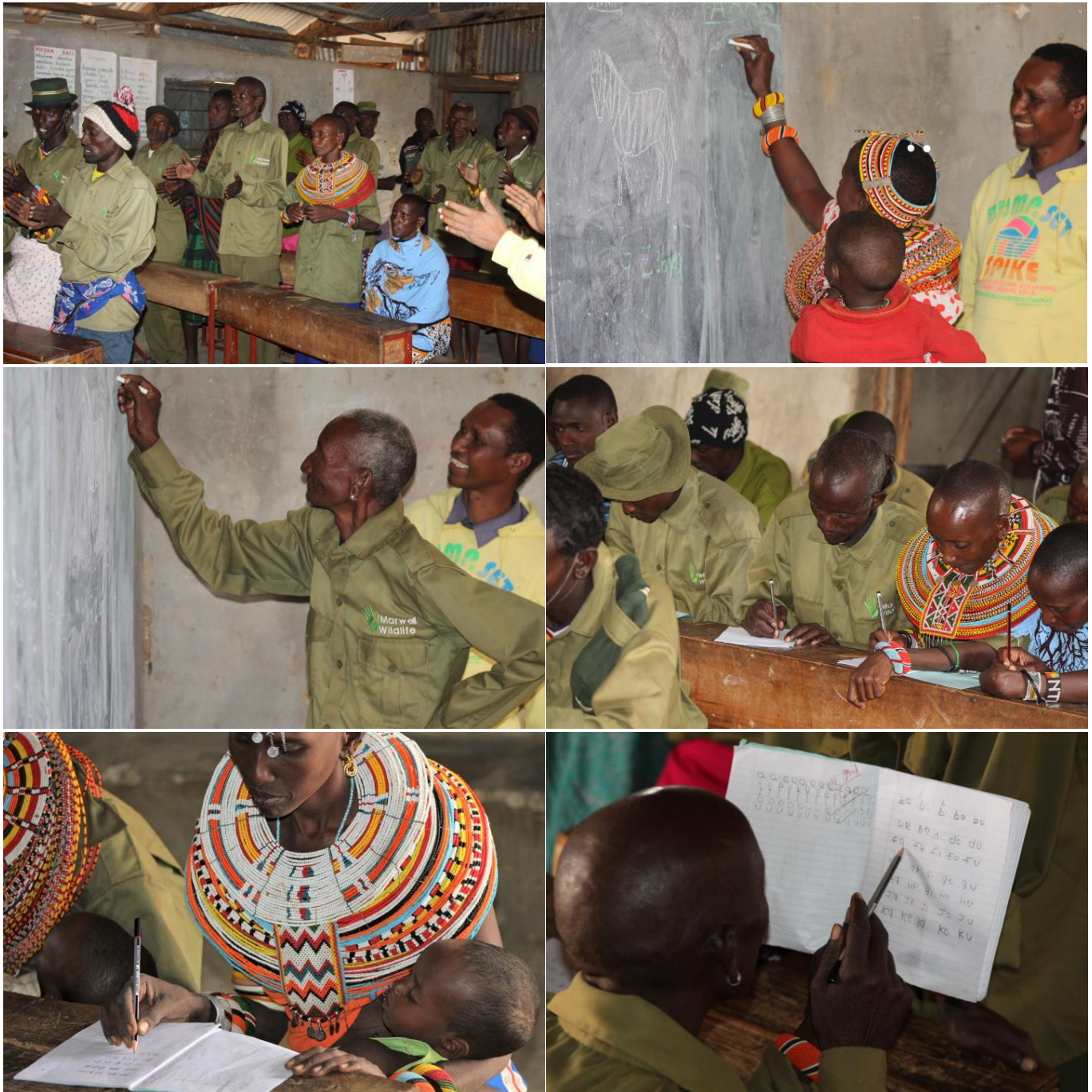
In July, the long awaited literacy training for our scouts took place.

Two teachers from the local communities were employed to teach basic reading, writing, and numeracy skills. Over a four day period, using song and dance as well as more conservative methods, the scouts, men and women, some with their babies in arms, took their first steps in the world of literacy (Pics. 32 & 33 this page, 34-39 next page). Most of them had never held a crayon or pencil before in their life and yet, they wrote on the black board in front of their applauding colleagues. All of them enjoyed the training greatly. The teachers suggested that all scouts get books & pens so they can practise their new learned skills. They also asked Enrita to source A-Z posters with animal pictures, so they are more relevant to the rural scouts than the posters commonly used in city primary schools.



Pictures 32 & 33: Scouts during their first ever school class © Marwell

Over the next three months the teachers will follow up with them individually. During the baraza in September, another four day session is planned to further the scouts' literacy and numeracy. Already, Lizbeth and Enrita see this exercise as such a success that they have asked if it can be repeated next year.



Pictures 34-39: Our scouts during their numeracy and literacy training, babies included © Marwell

Enrita also arranged for a member of a Savings and Credit Cooperative Society (SACCO) to visit the scouts in the field and discuss with them how to open accounts. Unlike standard banks, SACCOs accept people even if they do not earn above a certain threshold. They also provide extra benefits such as loans. Since Enrita herself has an account with a SACCO, the scouts trusted the organisation. Loans are new to all of them, and they are very happy about Marwell's help with banking and literacy training. This will allow them better opportunities and independence in their daily lives.

Solar panels

Our Kargi scout team has been reporting major issues with power to charge their work phones. We have therefore moved one of our large solar panels that was in an area which already had good charging points and installed it in Kargi (Pics. 40 & 41). Our female scout Mogor has agreed to be the caretaker and was shown how to use the charging systems and ensure they are in good working order. Further to

that, the elder representative (Mr Satim, Milgis Trust Scout) and Mogor signed letters acknowledging receipt of the equipment. The community, and especially the scouts, were excited and we hope this installation will bring them many benefits.



Pictures 40 & 41: Installation of solar panel in Kargi (left) & training Mogor in charging system maintenance © Marwell

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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 technical and 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 seven organisations all committed to conserving Grevy's zebra, including: Grevy's Zebra Trust (GZT), Lewa Wildlife Conservancy, Marwell Wildlife, University of Princeton (DZ), 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 Ilsley 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.

B. Proposed Activities for 2022-2023

The pandemic is followed by an incredibly harsh and long lasting drought which has made life for our scouts rather difficult and is, of course, impacting the conservation work. We have tried to reconnect with people where we work and bring some activities that were on hold due to Covid restrictions back on track. Monitoring of the highly vulnerable, small populations of Grevy's zebra in remote and under resourced areas continues and our current focus is on enabling them to get through the drought. While outreach sessions have begun again, some children like the herders can still not be reached as they had to go long distances from home to find resources for their families' livestock. We were, however, able to bring 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.

Despite all the hardship, our colleagues and their communities are determined to carry on with their work and to conserve the Grevy's zebra throughout these difficult times. 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.

We are all hoping and praying for the rains to come this winter and providing much needed relief to people and animals alike as well as the habitat they all share.

The support we receive from the EEP and the wider EAZA community is critical to this effort, lifesaving this 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 scout teams work in eleven different communities – monitoring Grevy's zebra and other wildlife through an extensive network of camera traps as well as foot patrols on which they collect data using GPS enabled phones and simple observation techniques. 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 now rolled out SMART Connect and SMART Mobile to our scouts. They are receiving regular training on this to keep updated and we have seen an improvement on data quality already over the last year. The faster data transfer means that we are now able to respond to any urgent issues in the field that arise from the data much quicker than previously.

The stripe ID database is currently 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 are making use of the hay feeding we are offering as well as monitoring if animals move between the feeding sites.

Our new field assistant has begun work on the 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. Work on other, cloud-based, identification programmes has stalled, and we are now looking for new opportunities to find an alternative that works in Kenya and can continue the national database.

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 Database Manager provides fast and invaluable feedback to the field teams on data gathering, unusual sightings and analyses all data for the benefit of management.

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
5 x new phones @ £ 180	900
5 phone charging cables @ £ 10	50
3 x Solar chargers for phones and other equipment @ KES 3,500	70
<i>SMART Connect/Mobile maintenance:</i>	
12 x server fees @ £57/mth	684
12x 11 databundles @ £8/mth	1,056
	20,503

2. Solar panel installation Keleswa and Mpang

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, we would now like to instal the more robust larger panels as well to provide the scouts 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.

2. Solar Panel Installation Keleswa and Mpang	£
2 x Big solar panel(80watts) @ KES 16,000	234
2 x Inverter @ KES 40,000	586
2 X Batteries @ KES 30,000	440
Installation accessories and labour for solar panel @KES 22,000	161
	1,421

3. Peace and Conservation Education in Northern Kenya

Providing the next generation with Conservation Education had almost completely come to a halt during the pandemic. Reviving community relations and ramping up our outreach programme was one of our priorities when lockdown came to an end. 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 banking and bringing funds to the communities supports whole families and shows the communities the value of wildlife and its conservation.

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 the school groups started their

classes again a year ago, the herders have almost completely disappeared from their home areas as they are moving long distances to find forage for their family livestock. They are missing out on a lot of support from Enrita, so when the rains come and the land recovers, she is planning on some very focussed trips with those children.

This year we are sponsoring several schools to attend a three-day exposure tour to Lewa Wildlife Conservancy which has been very successful in 2021. For next year, Enrita is aiming to take three schools on wildlife exposure tours in other regions as many children have never seen the wildlife their communities share the landscape with. We are hoping to make this a regular event exposing as many children to wildlife and conservation action as possible.

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.

3. 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		293
Outreach for adult groups @ KES 5,000/trimester		110
Baraza (scouts, elders & community members @ KES 52,000/quarter)		1,524
		<u>9,956</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
Branded kangas @ KES 20,000		147
Transportation cost @ KES 60,000		440
Cook and camp assistant @ KES 10,000		74
Contingency 10%		96
		<u>1,050</u>
<i>Wildlife exposure outing (~ 3 schools)</i>		
3 x Bus hire @ KES 30,000		221
Food KES 40,000		294
Contingency 10%		52
		<u>567</u>
Total		<u>12,013</u>

4. Literacy and Numeracy Learning for the Scouts

The new SMART technology we supplied to our scout network last summer requires certain levels of numeracy and literacy. Most of our scouts were, however, illiterate. Many of them had never held a pen or a crayon. We therefore hired two primary school teachers to provide our scouts with their first school lessons ever. Five days in July saw 22 scouts learning to write and read as well as count. All of them did very well and greatly enjoyed learning these new life skills. Another session will be held in November, and they have all been given home work in the meantime. By now they can all write their name and are proud to do so. They are incredibly keen and have asked for more sessions which we would very much like to provide.

The new life skills our scouts are learning, literacy/numeracy as well as access to banking, makes them far more independent people, encourages further learning and allows them to care for their families better in an increasingly modernising world.

4. Literacy/numeracy learning scouts	£
2 x Pre-school teacher stipend @ KES 10,000	147
2 x Food for the scouts & teacher over 5 days @ KES 35,000	515
Teaching and Learning materials during sessions @ KES 25,000	184
Books for practising in between lessons @ KES 48,000	353
	<hr/>
	1,199

5. Hay storage in Anderi

Feeding supplementary hay to the Grevy's zebra is now an activity we have to undertake almost every other year. Climate change is the driving factor behind the ever harsher and longer droughts. When the decision is made to start feeding, hay is purchased from the south of the country and delivered to the far north where it is stored over many weeks. So far, the Anderi Primary School has very kindly lent us one of their rooms to store our hay. This has been a huge help. However, they have asked if we can find an alternative solution, so they are not losing a classroom for long periods of time to hay storage. They have very generously offered that we can use an area in the school grounds (for free) where we can put down a solid base and put a large storage container that will hold the hay.

This will allow us to always have some hay in store so that we can start feeding without delay if and when it is needed as it does not need to be shipped all the way from Nairobi fist.

5. Hay store Anderi	£
Purchase of container @ KES 300,000	2,205
Slab construction -material and labor @ KES 80,000	588
Transportation of container @ KES 80,000	588
Contingency 10% @ KES 46,000	338
	<hr/>
Total	3,718

6. Drought Emergency Fund

Severe droughts and the need for supplementary feeding seem to occur every other year now or even alst for two years as is currently the case. The emergency fund has demonstrated its value several times already when critical supplementary feeding is required to stave off starvation and keep lactating mares alive in the harshest seasons. With the increasing variability in climate conditions and unpredictability of rainfall we need to ensure that we are ready to react immediately and at short notice when feed is required.

The experience over the last six or seven years have led to a well-oiled cooperation with GZT in applying for feeding permits from KWS as well as hay procurement and delivery. As long as the funds are available, our teams can provide all that is needed to keep the Grevy's alive through these hard periods. The current drought has depleted our reserves and there is still no end in sight, so emergency funds urgently need to be replenished.

Conservation Impact

Critically affected lactating females are supported with food during times of need and by preventing the loss of foals, entire year class cohorts are saved from starvation during harsh droughts.

This would otherwise interrupt the recruitment cycle and increase the overall decline in the population.

Depending on severity of drought, many tens to hundreds of individuals may be saved. Drought preparedness is a key part of the strategy to conserve the National Grevy's zebra herd.

6. Drought Emergency Fund	£
2100x bales of hay @ KES 420 (~ for 4 months)	6,173
2 x vehicle hire for transport of hay @ KES 60,000	880
2 x hay monitor fees @ KES 10,000/mth for 4 mth	588
2 x bike fuel hay monitor @ KES 5,000/mth for 4 mth	294
emergency back up (to be held in reserve)	4,000
	11,935

For a summary of the funding proposal see the next pages

Summary of funding proposal Grevy's zebra conservation 2022/23

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emergency back up (to be held in reserve)	4,000
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Overall Total	50,789