MEP May 2022 Report

On May 7, the MEP "golf" ranger team monitored this herd of elephants that included young calves in Ol Kinyei Conservancy.

GENERAL

We wanted to start off by highlighting a key donor that funded the launch of a third ranger unit in the Loita. The Loita area is an extremely important operational area for MEP and a third team was needed to increase protection in this area. The Band Foundation supported the running costs for the team for a year, and we are extremely grateful for this support.

Training began the first of June. More to come on this.

SECURITY, ANTI-POACHING & CONFLICT

The MEP "Alpha" Sheldrick Wildlife Trust Mau De-Snaring Unit in the Mau Forest destroyed kilns, shutdown illegal logging sites and made arrests alongside Kenya Wildlife Service (KWS) inside the forest. On May 16, they found a bush buck trapped in a snare, and were able to successfully release him and remove the snare.

The MEP "Echo" ranger unit in the Loita Forest, sponsored by Lori Price, was busy protecting the forest and the wildlife that call it home over the last week of May. In one week alone, they had a bust that included 100 cedar posts then another with 200, and shutdown several illegal logging sites, made arrests and confiscated power saws. The Loita Forest, or "Naimina Enkiyio" (Forest of the Lost Child) is an extremely important area to protect, home to over 440 elephants, it covers an area of 500 km^2 (123,553 acres). The surrounding Maasai community is our ally in protection and our community rangers work tirelessly to ensure that wildlife and wild spaces remain.

The Nyakweri Forest in the Greater Mara Ecosystem is home to Fitz and his herd of 60 elephants: it's also at risk with increased levels of deforestation. The Mara Elephant Project "Foxtrot" ranger team is tasked with combatting the ever-increasing deforestation activities, mitigating conflict between the encroaching communities and the elephants that call this forest home and ensuring Fitz and his herd's protection to these threats. It's a big task for this team of Maasai men and women, and scenes like the one in these pictures are unfortunately all too common. On May 23, they were simultaneously destroying new charcoal kilns while moving Fitz and his herd

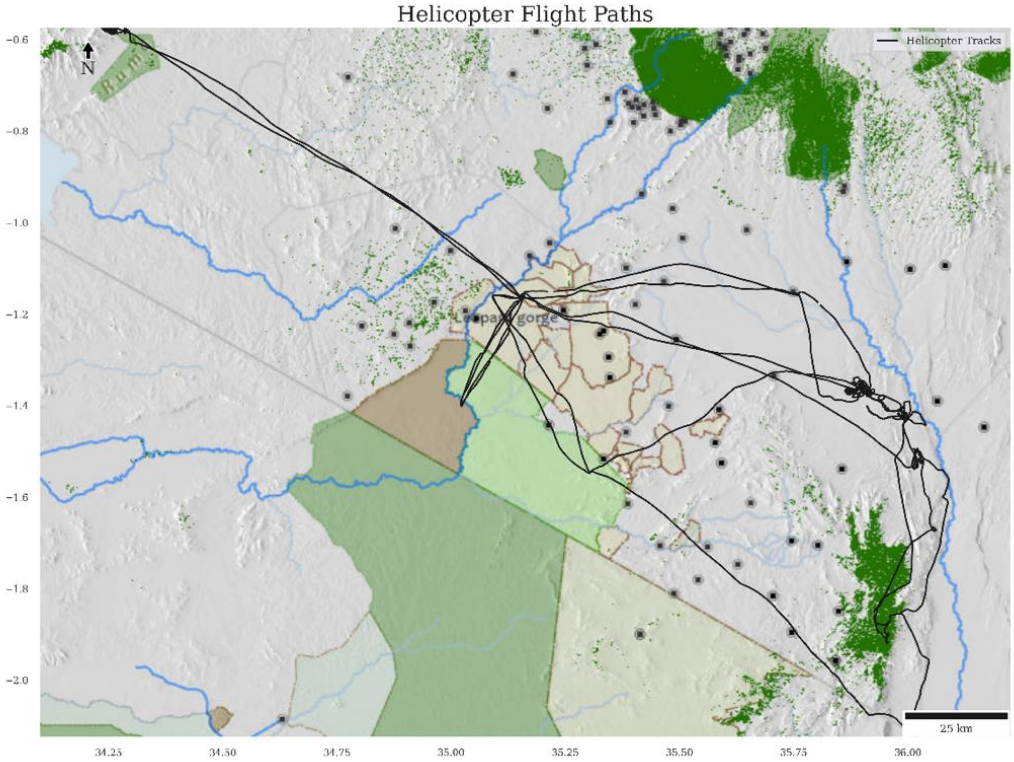
away from the devastated part of the forest. The good news is, we've partnered with Seedballs Kenya to distribute seedballs, charcoal balls with an indigenous seed inside, after we've encountered an area of the forest in need to regeneration. Once the elephants have been moved out, and the kilns have been destroyed, we distribute the seedballs and let nature do the rest.

MEP's rapid response team alongside Assistant Senior Warden Jackson Maitai responded on May 26 to a herd of 10 elephants that included collared elephant Matali raiding a farm in the Ngosuani area of the Mara, not far from headquarters. They began their mitigation efforts in the afternoon, and they lasted well into the night. The farm was surrounded by a fence and filled with ripe maize (corn) and beans. The rapid response team used their vehicle, drums to make loud noises, torches (flashlights) for a bright light and firecrackers that combine both (and never hurt the wildlife). Finally, by 12:19 a.m. the next day, the elephants moved out of the area thanks to the team's efforts.

In May, MEP rangers covered a distance of 1,045 km on foot, 14,663 km by car and 2,716 km on motorbike in the GME. In May, MES rangers in Shimba Hills covered a distance of 90 km on foot.

HELICOPTER

Kenya Wildlife Service (KWS), the Wildlife Research and Training Institute (WRTI) and MEP collared a new female elephant in Naroosura, a high conflict area that is near where collared elephants Clara, Harriet and Natasha reside. The elephant named Audrey was collared to allow MEP and KWS rangers to react to conflict and study this female and her herd's movements through the area where the expanding human footprint has changed the landscape. KWS Vet Dr. Ephantus Ndambiri was joined on the collaring operation by MEP Conservation Officer Wilson Sairowua and the long-term monitoring (LTM) team with aerial support from CEO Marc Goss. The MEP leased helicopter was a critical tool to keep everyone safe on the ground while keeping this female's herd away from the collaring operation team.



COMMUNICATIONS & FUNDRAISING

We'd like to thank Explorers Against Extinction for their continued efforts to raise £10,000 to support the MEP Experimental Farm project in 2022. Additionally, James Lewin Photography and Pie Aerts Photography both sold prints to benefit MEP's core operations. Asilia Giving continues to be an important tourism partner, supporting us in May with a grant of $2,500 through MEP Trust in Kenya. The Sidekick Foundation, Inc. dba Mara Elephant Project USA received $152,154.28 to support MEP's operational efforts in May. We are very grateful to Curtis Collins, Ellen Shear, Debra Shearer, Joe Bachman, Mary Macquire, Lloyd Shulman, Mary Tunkieicz, Sharon Wehrle, the Robertson-Smith Charitable Fund, Jonathan Hart, Alison Hoffman, William Chambers, Michael Crawford, David Frankel, Iron Head Studios, Lillian Kraemer, Richard Litkenhaus, Marcy Mackinnon, Allan Montgomery, Kenneth Parks, Virginia Perez, William Quirple, Mary Tunkieicz, Lois Vaughan Christine Walter and Marian Weaver for their support in May. Thank you to Peter Sairowua, Ritik Dube, Tracy Miller, Nikhil Dodhia, Ivan Glaser, Stephen Underwood, Carl Lorenz, Tom Moore, Nili Gudhka, Sushil Chauhan and Julie Oldroyd for supporting us with your May entries in the Greatest Maasai Mara Photo competition sponsored by Angama Foundation.

A May entry by Julie Oldroyd.

RESEARCH & CONSERVATION

Director's Update

May was a very busy month for the MEP research team and we had many visitors. At the start of the month, I hosted a small group to sketch out some initial ideas on a report about the situation in Nyakweri forest detailing the destruction and loss of habitat for both elephants and pangolins. Iain Douglas-Hamilton and George Wittemyer from Colorado State University visited to review both MEP's ElephantBook and Ecoscope software platforms. We also hosted Sara Beery and Arjun Subramonian for a few days and had meetings around current and future work on ElephantBook.

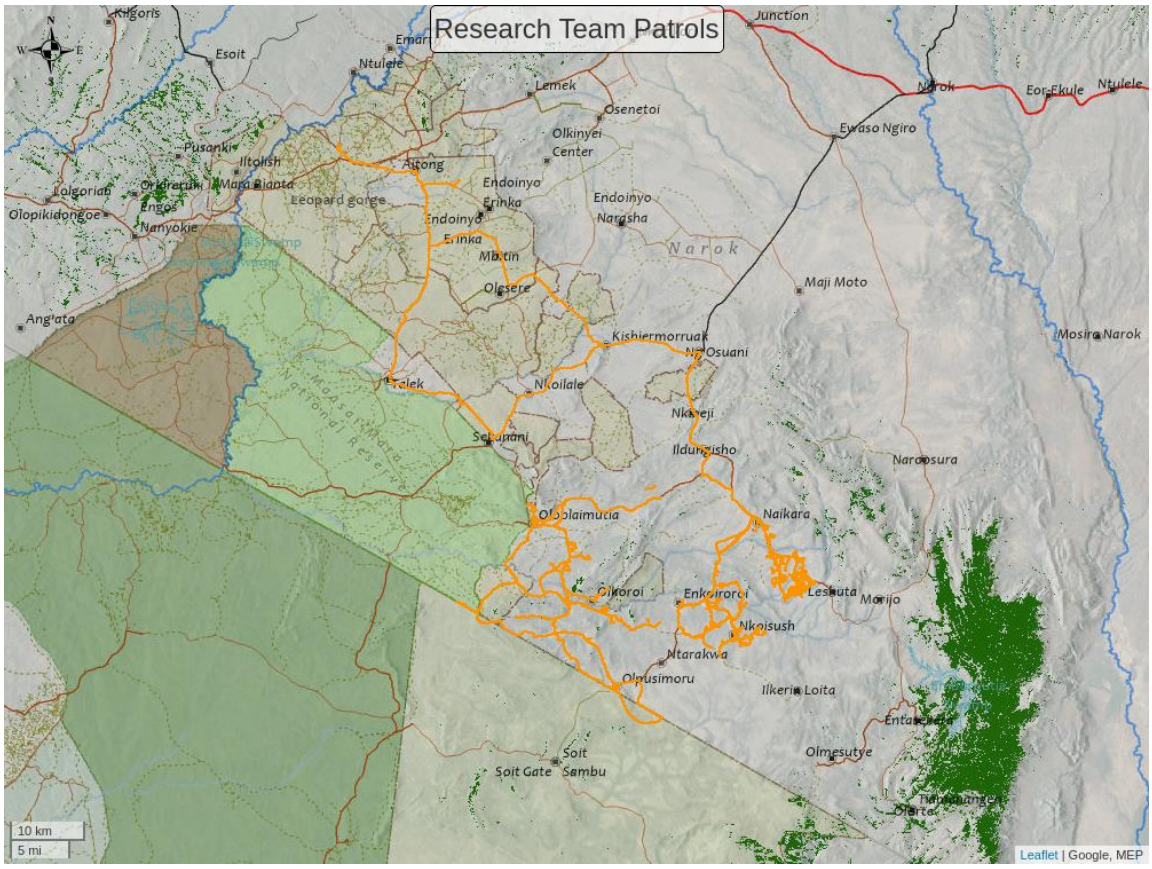
Two Wildlife Training and Research Institute (WRTI) graduates arrived at MEP to start a 6-month internship programme in conservation technology supported by AI2. They will be learning all about EarthRanger, Elephantbook, Ecoscope, ArcGIS and mobile field apps and other

technologies MEP is building/using. Catherine Villeneuve arrived at the beginning of May from the University of Laval, also generously sponsored by AI2, to help us look at the application of machine learning methods to the behavioural classification of elephant movement data. Catherine is also contributing to MEP's Ecoscope code library for analytics.

Unfortunately, Vincent Lenkoko – the head of our LTM team – resigned from his position to return to guiding at a local lodge. We wish Vincent all the best in his new role and appreciate all the work he did to get the LTM team to where it is now. The LTM team got some great photos of individual 932, a newly identified male elephant in Ol Kinyei Conservancy.

Year	Month	Electric	Other	Wire	De-fenced	Total (kms)
2019	November	48.27	-	18.35		66.62
2019	December	81	-	59		140
2020	January	111.16	4.64	124.71		240.51
2020	February	101.62	1.17	33.99		136.78
2020	March	48.59	0.14	59.76		108.49
2020	April	19.78	0	10.38		30.16
2020	May	24.75	1.88	41.18		67.81
2020	June	15.19	1.48	107.88		124.55
2020	July	37	-	52.76		89.76
2020	August	60.12	7.52	40.08		107.72
2020	September	126.95	7.15	221.44	15.18	370.72
2020	October	109.05	10.57	218.99	1.78	340.39
2020	November	101.2	24.52	153.12	13.88	292.72
2020	December	62.99	9	190		261.99
2021	January	87.9	19.4	121.09	5.2	233.59
2021	February	79.2	22.9	175	-	277.1
2021	March	20.3	7.4	147.92	8.6	184.22
2021	April	80.2	31.05	96.4	2.3	209.95
2021	May	40.3	23.6	296.5		360.4
2021	June	37	44.8	214.2	2.7	298.7
2021	July	21	33.6	138	63.6	256.2
2021	August	14.03	48.7	159.8	0.44	222.9
2021	September	19.2	34.8	218.1	0.1	272.2
2021	October	21.7	17.9	109.5		149.1
2021	November	5.6	7.9	169.9		183.4
2021	December	-	0.6	86.4	-	87

2022	January	13.3	28.9	182.6		224.8
2022	February	1.8	24.5	54		80.3
2022	March		43.3	168.7		212
2022	April	7.3	21.5	133.6		162.3
2022	May	0.1	46.6	65.5		112
	Total (kms)	1,396.2	500.4	3,869.3	113.78	5,904.3



Movements (orange tracks) of MEP's three field assistants during May. All of our field assistants are working on mapping fences, roads and landcover ground-truthing points using motorbikes and our TerraChart app. They recorded 112 km of fences and 24 LCC points in May.

MEP Experimental Farm

General Update

This month, the Experimental Farm launched several new activities and had some great visitors. The rains were off during the beginning of the month, but the last week, like all over the country, we experienced average rainfall. Last month, we purchased heirloom seeds and this month a kitchen garden and nursery structure using shade nets was built. We have planted 27 different herbs and vegetables as well as five different varieties of tomatoes, sweet peppers and hot peppers. After the crops yield, we can re-produce the seeds that can be re-used in our farm unlike the hybrid seeds. This month we added three more camera traps at the farm. We are having a good amount of predation and adding cameras was essential to capture images for our research.

Figure 1, 2 & 3: Heirloom seeds in the nursery/ kitchen garden structure.

Experimental Farm SITREP*: May 2022*

Date Time	Plot Id	Type of Crop	Details
2022_05_02	1-4.1	Sweet Potatoes	Replanted for the 5th time after it was eaten by elephants
2022_05_2	2-4.1	Beans	Replanted for the fourth time after it was eaten by elephants
2022_05_11	1-5.1	Chili	A total of 3kgs of produce was harvested in this plot
2022_05_11	11-9.1	Sukuma	2kgs of Sukuma was harvested from this plot
2022_05_11	1-2.1	Lemon Grass	A hippo ate a few crops in this plot
2022_05_11	1-7.1	Maize	The cows from the neighboring community eat tips of the maize in this plot
2022_05_11	2-2.1	Spinach	Spinach leaves was eaten by cows
2022_05_11	2-6.1	Wheat	A few rows in the middle of the plot were eaten by hippo
2022_05_11	3-9.1 4-7.1	Beans	Affected by insects
2022_05_11	10-1.1	Lemon Grass	A few crops have been eaten by hippo eaten have regrown
2022_05_11	11-14.1	Cabbage	Hugely affected by insects
2022_05_11	S2-1-3.1	Maize/Sunflower/Cover crop	Tips of maize eaten by cows
2022_05_11	S2-1-4.1	Maize/Ditch	Maize germinating are being uprooted by monkeys
2022_05_21	7-11.1	Potatoes	Replanted for the fourth time after it was harvested
2022_05_21	9-6.1	Potatoes	22kgs were harvested and it was replanted for the third time
2022_05_21	S2-1-1.1	Maize/hives	Replanted for the second time after it was eaten by monkeys
2022_05_21	S2-1-2.1	Maize/Chili/Cover crop	The chili prepared at the nursery were ready and the plot was planted for the first, the chili was planted around the plot as a cover crop
2022_05_21	S2-1-5.1	Maize/Chili/intercrop	The chili prepared at the nursery were ready and the plot was planted for the first, the chili was planted alternating with Maize as intercrop
2022_05_21	10-10.1	Wheat	After it was complete vandalized by elephants, it was replanted for the 4th time
2022_05_23	3-4.1 4-8.1 8-15.1 6-12.1	Managu	The seedlings were ready from the nursery, and they were transplanted to the plots, this is the second time of planting since the farm started for this three plots
2022_05_23	2-3.1	Cucumber	

	5-7.1		The two plots were planted after all five plots were vandalized by elephants, we decided to plant two plots due to high yield and low market for each the other plots will plant at one month interval
2022_05_23	2-5.1 8-13.1	Carrots	They were replanted the third time after it was harvested
2022_05_21	1-2.1	Lemon Grass	A few pieces eaten by hippos
2022_05_21	2-7.1	Sunflower	Birds feeding on the seeds
2022_05_21	3-6.1	Lemon Grass	One crop uprooted by hippo fighting at the plot
2022_05_21	3-9.1	Beans	Affected by insects
2022_05_21	3-10.1	Sunflower	Birds are eating most of the sunflower seeds
2022_05_21	3-11.1	Sukuma	Aphids are affecting Sukuma leaves, making them to curl inwardly and making holes
2022_05_21	4-4.1	Spinach	Hippos eat a few spinach leaves; they are also affected by insects making holes in the leaves
2022_05_21	4-5.1	Ginger	Hippos fought in the plots destroying a few ginger crops
2022_05_21	4-7.1	Beans	Some are drying due to the cold while others have been affected by aphids (insects)
2022_05_21	5-3.1	Carrot	The germinating carrots have been stepped by hippos; this could cause them not to grow
2022_05_21	6-13.1	Beans	Some are drying due to the cold while others have been affected by aphids (insects)
2022_05_21	8-5.1	Maize	A few maize crops have been uprooted and the top eaten by vervet monkey
2022_05_21	9-12.1	Maize	They are more than a meter of height, but they are affected by worms as well rust virus traces can be observed
2022_05_21	10-3.1	Sunflower	Some of the flowers have been eaten by birds
2022_05_21	11-1.1	Maize	Vervet monkeys eat most of the maize that will require replant
2022_05_21	11-12.1	Sunflower	Some of the flowers have been eaten by birds
2022_05_21	11-14.1	Cabbage	Hugely affected by insects, most will be uprooted
2022_05_21	S2-1-6.1	Maize/Sunflower/intercrop	Cows eat a few maize that had started growing
2022_05_21	1-6.1 5-14.1 7-4.1	Capsicum	A total of 7kgs of yield has been harvested from the three plots, all were taken to the HQ
2022_05_21	6-14.1	Coriander	A total of 9.5kgs were harvested from this plot throughout the month, it's a complete harvest
2022_05_21	1-5.1 4-11.1	Chili	A total of 7kgs of chili was harvested from this plot
2022_05_24	4-3.1 6-11.1 8-6.1 11-2.1 1-12.1	Garlic	All replanted for the second time after it was harvested, the harvest was used as the seeds for this planting
2022_05_24	1-11.1 8-1.1 9-17.1	Onion	Replanted for the second time after it was harvested
2022_05_24	3-1.2 4-9.2	Eggplant	All replanted for the second time, the first time all died except one plot

	7-5.2		
	10-5.2		

Figures:

Figure 4,5,6,7, 8 &9: Rosemary, Tree Tomato, Tea Tree, Peppermint and Lavender are just a few of the crops that have had zero predation.

Figure 10 & 11: Sunflower predated by birds, and one covered with shade-net to protect from birds.

Figure 12 & 13: A plot of cabbages and a cabbage predated by aphids.

Climate Report

Table 2: 1 MEP's Experimental Farm Rainfall Recording May 2022

Date Time	Precipitation (ml) Rain gauge 1	Precipitation (ml) Rain gauge 2 (200m^2)
2022_05_23	11.2	7.8
2022_05_24	5	3
2022_05_26	3.2	2
2022_05_28	28	23

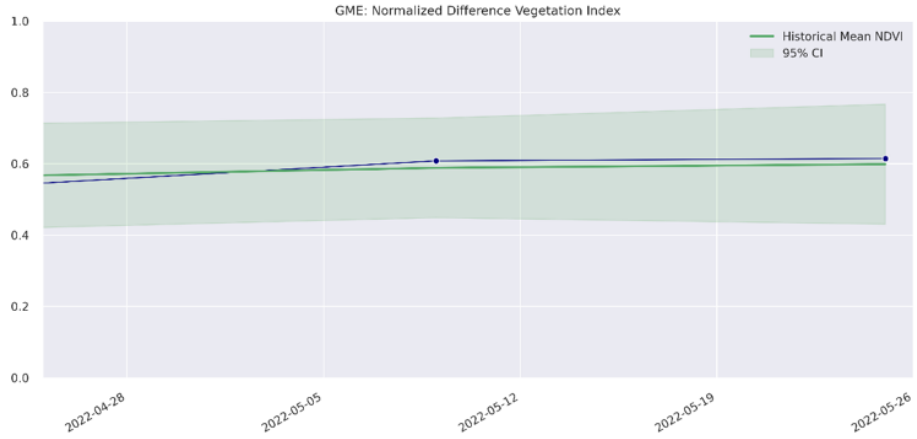
Tracking Manager Report

On May 6, the Mara Elephant Project "Golf" ranger team monitored collared elephant "Indy" sponsored by the Indianapolis Zoological Society and her herd of over 70 elephants while out on patrol. They were all enjoying a drink in Olarro Conservancy. It's important for rangers to monitor collared elephants while on patrol to check for any injuries sustained from conflict and to note herd size and the overall health of the collared elephant and their herd. We were happy to see collared elephant Indy and her family doing well.

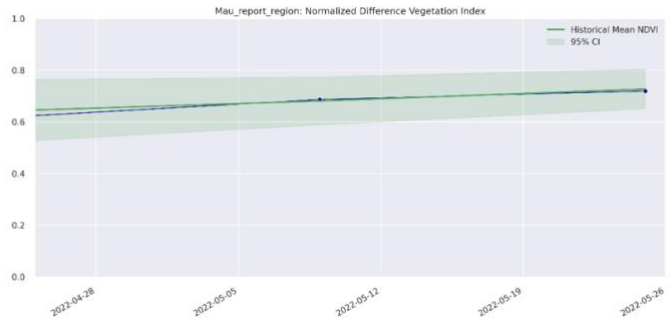
ENVIRONMENT: NDVI

Normalized Difference Vegetation Index (NDVI) is a measure of plant photosynthetic activity. Higher NDVI indicates the plant is greener. The blue trend line shows the current value while the green area shows the 95% distribution of values centered around the green trend line from values measured back to February 2000.

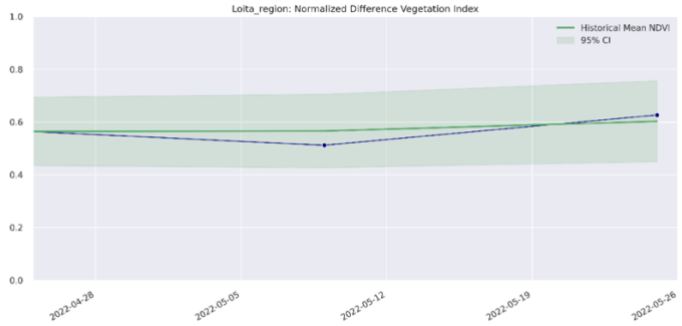
Greater Mara Ecosystem (GME)



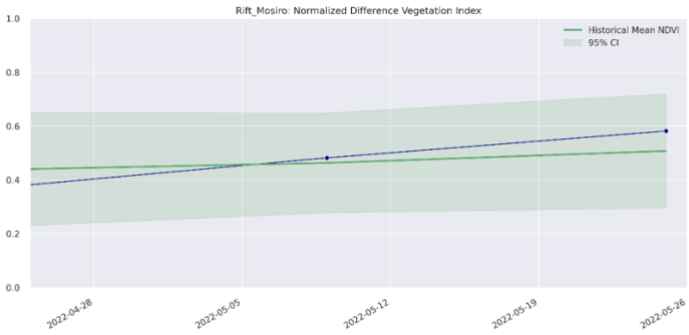
Mau Forest

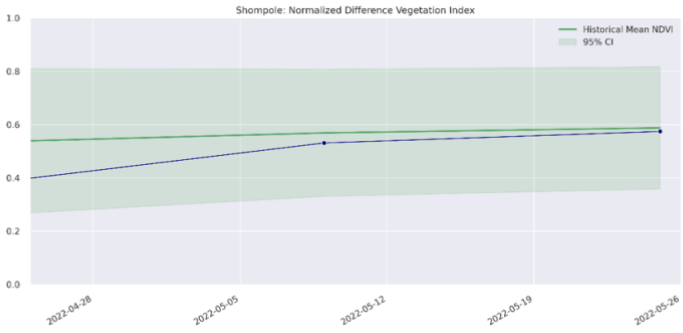


Loita

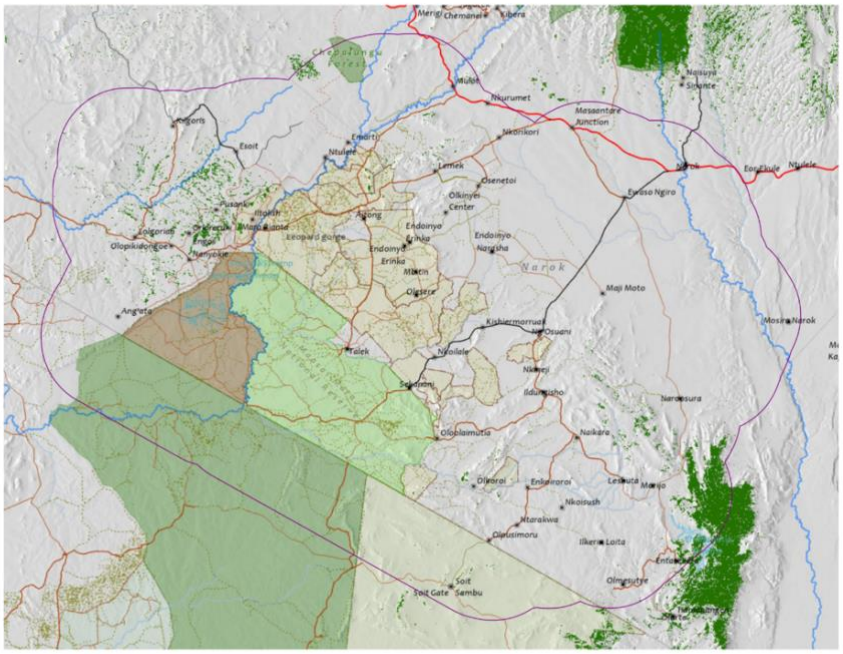


Rift Valley





ENVIRONMENT: Burn/Fire Areas



Red blocks indicate burn areas as measured by NASA's FIRMS dataset during the period May 1 - June 1, 2022. Accessed through Google Earth Engine.