MEP July 2022 Report

Several elephant encounters from rangers in the field in July.

GENERAL

In July, Mara Elephant Project trained and deployed a new ranger team dedicated to protecting the "Forest of the Lost Child" (Naminina Enkiyio) otherwise known as the Loita Forest. We currently have two ranger teams operating in the Loita Forest, and due to increased security concerns, we've decided to launch a third in the Kisokon portion of Loita. MEP started the first dedicated Loita team of community rangers in 2019, and a second team was deployed in the southern section of the forest in 2020, thanks to support from Lori Price. Since then, the two teams have been working tirelessly to protect the forest from loggers, charcoal makers and poachers. The teams have also provided the community with jobs to protect their forest. Recruitment for these new rangers took place in early March and they've spent the last six weeks on MEP's campus going through training, all run in house by MEP. The ranger training covers various skills and knowledge including internal MEP standard operating procedures as well as first aid, field craft, how to conduct proper patrols and ambushes, maintaining a crime scene, communicating with the community as well as an overview of the laws of Kenya. MEP ranger Caren led the first aid training, Seargent Steven Ekeno instructed them on drill and discipline and Warden Jackson Maitai instructed the rangers in the classroom and on field exercises. Once they completed their training, the seven new rangers, all from a community in Loita, were deployed to increase protection for wildlife and communities in this area. We're extremely grateful to The Band Foundation for supporting this new team. Please welcome Eric Sarupa, Gideon Koti, Dickson Nyange, Mike Olomunyak, Nancy Nailantei, Brenda Moonka and Benson Sunkuli to MEP.

SECURITY, ANTI-POACHING & CONFLICT

In July, MEP rangers and researchers partnered with the Kenya Wildlife Service Vet Dr. Ndambiri from the Sheldrick Wildlife Trust Mara Mobile Vet Unit for six elephant treatments for injuries related to conflict. When people and wildlife share the same space, conflict arises, but we're grateful to have partners that work together to intervene.

The first treatment took place on July 8 when the MEP "Foxtrot" ranger team helped our partners with a female elephant treatment. Then, on July 9, a male elephant needed treatment for an arrow wound. On July 11, MEP's long-term monitoring (LTM) team was in the field monitoring elephants in Olare Orok Conservancy, when they spotted two injured elephants in need of veterinary intervention. The first was an injured female elephant within a herd of six and the second was a male elephant that had a swollen wound on the left side of his stomach. The KWS vet cleaned and disinfected the female's five arrow wounds and then moved onto the bull elephant's arrow wound on his stomach. Both treatments went well, and the elephants are recovering. Later in the month, on July 27, there were two injured elephants in collared elephant Chelsea's herd that the MEP "Foxtrot" ranger team identified and assisted with treatment. MEP alongside partners is committed to responding to conflict in the short-term all while finding long-term solutions to promote co-existence.

While MEP focuses on elephants, all other wildlife within our area of operation benefits from our ranger's presence. We received a call about a young male giraffe stuck in the iconic Mara River unable to move. The MEP mobile ranger team located at headquarters responded alongside Warden Jackson Maitai to attempt a rescue. Once they got to the scene, it was clear the young giraffe's feet were stuck under river rocks preventing him from getting out. The rangers all had to bravely venture into the iconic Mara River, home to crocodiles and hippos, and it took the entire team half an hour to finally release the giraffe from the rocks and get him on shore. He was inspected and found to have no injuries, and eventually got up and walked off unharmed. In July, there was also a hippo in need of assistance after he was discovered to have a spear sticking out of his back. The team got together to remove the spear.

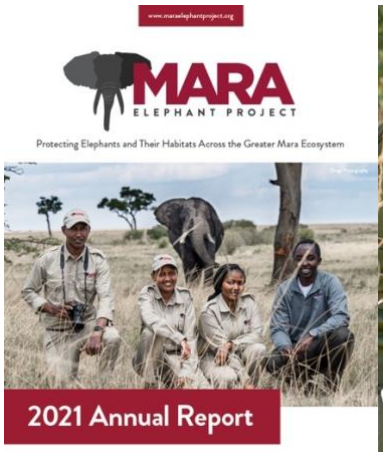
In July, there were 22 total snares removed by MEP rangers and partners as well as four bushmeat poaching suspects arrested and 1 kg of bushmeat confiscated. There were also 35 habitat destruction suspects arrested, two power saws confiscated, 590 posts, 181 pieces of timber and 15 illegally logged trees recovered in July. MEP rangers also destroyed 30 kilns and six sacks of charcoal during the month.

There were 13 incidents of conflict mitigated by MEP ranger units in July.

In July, MEP rangers covered a distance of 1,056 km on foot in the GME, MES rangers in Shimba Hills covered a distance of 48.8 km on foot and MEP rangers patrolled 13,347 km by car in GME and 768.8 km on motorbike.

COMMUNICATIONS & FUNDRAISING

We released the 2021 Annual Report in July and highlighted some of our achievements during our 10th year of operation. We celebrated World Ranger Day on July 31 and highlighted the launch of our newest ranger team in the Loita Forest. Thank you to everyone who joined us to shine a light on these amazing men and women.



We are delighted to announce that Asilia Africa is supporting MEP in 2022 with a $10,000 grant for the experimental farm. They have been a long-time supporter of our conservation efforts and we're so grateful. In July, MEP Trust in Kenya received $1,000 in donations and the Sidekick Foundation, Inc. dba Mara Elephant Project USA received $94,846.31 in donations. Thank you to Veronica Etzel, Robin Poppe, Stephen Cosentino, Carol Kauffman, Graham Bunch, Creative Financial Planning Inc., Jeanne Barron, Arthur Choate, J Clement, William Curran, Marcia Donley,

Alison Hoffman, Robert Maurer and John Schultz for your support in July. Additional thanks to our tourism friends who supported MEP in July, Abercrombie & Kent Kenya and Southern Cross Safaris. We had 22 entries in The Greatest Maasai Mara photo competition in July. Thank you to all of the photographers for supporting us.

A July entry form Malgorzata Kolling.

RESEARCH & CONSERVATION

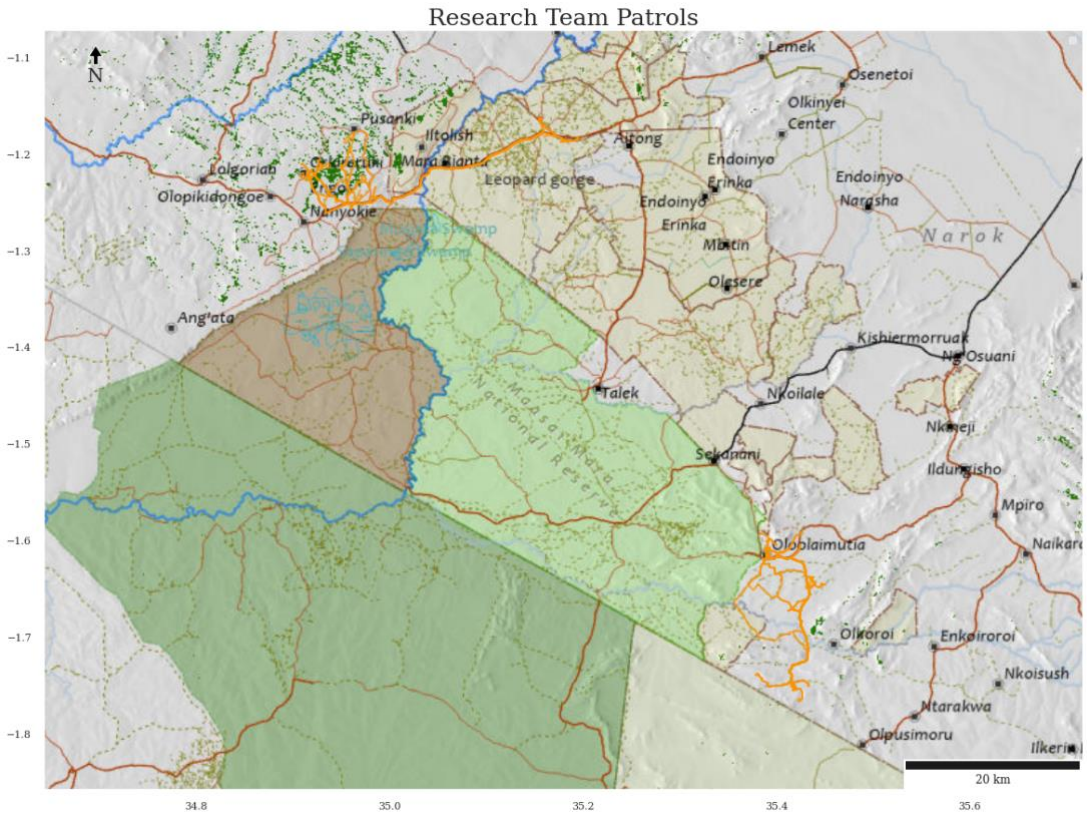
Director's Update

The highlight for July was that we open-sourced our 'Ecoscope' conservation data analytics platform (https://ecoscope.io/en/latest/). Ecoscope is a python library for performing various data analytics, ranging from simple to advanced, using tracking data coupled with remote sensing and geospatial data sources. It powers all of the outputs found in this monthly report for example. We hope that by making Ecoscope open-source a wider range of developers and users can benefit and contribute to the project. Ecoscope is under active on-going development.

A new paper (Lovschal et al. 2022 *New land tenure fences are still cropping up in the Greater Mara*) was published by researchers at Aarhus university about the ongoing fencing issue in the Mara. MEP contributed data and some analyses to the paper.

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	June	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	June	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
2022	June	23.4	12.6	8.3		44
2022	July	0.8	10			10.8
	Total (kms)	1,420.4	523	3,877.3	113.78	5,959.1



Movements (orange tracks) of MEP's three field assistants during June. All of our field assistants are working on mapping fences, roads and landcover ground-truthing points using motorbikes and our TerraChart app. They recorded km of 10.8 km of fences and 0 LCC points in July.

MEP Experimental Farm

General Update

The month of July was characterized by cold and dry weather, our crops were mainly irrigated to sustain them, and they have generally done well. We had showers once at the end of the month and we are hoping the coming month will be much better.

We had two main visits this month, Peter Knights from WildAid who covered the work Mara Elephant Project is doing in the experimental farm and drones. We also had a visit from Ramona Murugu, a student at Caltech. The experimental farm manager Abigael Pertet spent two weeks with the Olderkesi Development Project looking at the possible ways MEP can work with the farm project at Olderkesi to empower the said community and reduce human wildlife conflict as well as apply the research work from the experimental farm.

The Olderkesi Farm Project.

Experimental Farm SITREP:

Date Time	Plot Id	Type of Crop	Details
2022_07_02	S2-1-2.1	Maize/Chili/Cover-crop	Group of Helmeted guinea fowl, uprooted all the maize in this plot laving chili and sunflower growing well
2022_07_02	S2-1-3.1	Maize/Sunflower/ Cover-crop	
2022_07_08	7-13.1	Lemon Grass	This plot has continuously been eaten by hippos and through it regrows the few uprooted plants will require a replant
2022_07_08	9-14.1	Wheat	Hippos entered the plot from one edge eating a few crops
2022_07_08	11-13.1	Sweet Potato	The vines and all the leaves have been eaten by hippo
2022_07_08	10-8.1		
2022_07_08	10-1.1	Lemon Grass	A few straws were eaten by a hippo
2022_07_08	S2-1-1.1	Maize/hives	Most of the maize have been eaten by hippo as they were already long
2022_07_13	11-13.1	Sweet Potato	A hippo eat some vines at the edges of the plots
2022_07_11	10-11.1	Chili	12kgs of Chili has been harvested
2022_07_11	11-9.1	Sukuma	A total of two kilograms of Sukuma have been harvested and taken to HQ
	9-4.1		
2022_07_11	8-15.1	Managu	A total of one and half kilograms of Managu was harvested and taken to HQ
	6-12.1		
2022_07_11	7-9.1	Coriander	2.5kgs has been harvested and taken to HQ
2022_07_11	1-9.1	Peas	A total of three kilograms of peas were harvested from the three plots and all were taken to the research camp
	5-2.1		
	4-6.1		
2022_07_11	1-5.1	Chili	A total of 32kgs of red chili was harvested all have been left drying at the experimental farm
	4-11.1		
	7-3.1		
	8-7.1		
2022_07_13	11-10.1	Managu	Hippo eat a few leaves of the Managu plot
2022_07_13	S2-1-6.1	Maize/Sunflower/intercrop	The grown maize has been eaten by hippos
2022_07_13	9-14.1	Wheat	

	5-15.1		Plots of wheat that were almost ready for harvested were vandalized by hippos
2022_07_15	1-13.1 4-2.1 6-5.1 9-9.1	Okra	A total of 34kg of over matured Okra were harvested, there is less consumption of okra at the area so most of them overstay at the plots while looking for market
2022_07_17	1-2.1	Lemon Grass	Elephants eat and uprooted a few lemon grass crops
2022_07_17	2-3.1	Cucumber	Elephants huge footprints stepped on a few germinating cucumber crops and killing a few
2022_07_17	2-4.1	Beans	The growing beans were stepped by elephants destroying them
2022_07_17	2-8.1	Potatoes	Elephants stepped on the potatoes and uprooted some
2022_07_17	3-2.1	Rosemary	Two crops were munched by the elephants leaving the cud on the ground
2022_07_17	4-4.1 9-11.1	Spinach	Completely destroyed by elephants
2022_07_17	5-9.1	Carrot	A few crops uprooted by elephants
2022_07_17	5-10.1	Lemon Grass	Elephants eat the lemon grass though they haven't uprooted the whole plant
2022_07_17	6-3.1	Potatoes	Elephants uprooted some of the potato crops
2022_07_17	6-6.1 10-8.1	Sweet Potato	Completely destroyed by elephants
2022_07_17	S2-1-6.1	Maize/Sunflower/intercrop	All the maize crops were eaten by elephants
2022_07_18	6-6.1 10-8.1	Sweet Potato	A total of 55kgs of sweet potatoes roots were harvested this was after elephants destroyed two plots completely
2022_07_22	5-3.1 7-6.1 5-3.1	Carrot	Monkeys have continuously uprooted the carrots crops and eating
2022_07_22	2-5.1		
2022_07_22	1-8.1	Lavender	A hippo passed through the plot making one lavender crop to fall down due to a push of its weight
2022_07_23	2-4.1 3-9.1 4-7.1 6-13.1	Beans Beans Beans Beans	For the 4th and the 5th time the beans plot were replanted after most of the crops were affected by cold and did not grow to maturity
2022_07_23	1-9.1 4-6.1 5-2.1 9-10.1 11-3.1	Peas	All the peas plots were harvested and replanted for the 4th time
2022_07_25	8-7.1 10-11.1 7-3.1 1-5.1 4-11.1	Chili	A total of 27kgs of chili were harvested from all the plots, they are being sundried a the experimental farm
2022_07_26	8-15.1	Managu	2kgs of Managu was harvested and was taken to HQ
2022_07_26	1-13.1 4-2.1 10-14.1	Okra	They were all uprooted after they started drying and replanted for the third season

2022_07_30	7-6.1	Carrot	A total of 27kgs of carrots were harvested from this plot despite a few having been uprooted and cut by the monkeys
2022_07_30	7-9.1	Coriander	An incomplete harvest of 6,5kgs was done on this plot for coriander and taken to HQ
2022_07_30	8-15.1	Managu	2kgs of Managu was harvested and taken to HQ

Figures

Elephants and hippos captured on our camera traps at night predating on crops.

Two plots of wheat completely predated by hippo.

Sweet potato plot before and after it was completely predated by elephants.

Climate Report

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

Date Time	Precipitation (ml) Rain gauge 1	Precipitation (ml) Rain gauge 2 (200m^2)
2022_07_29	2.4	2

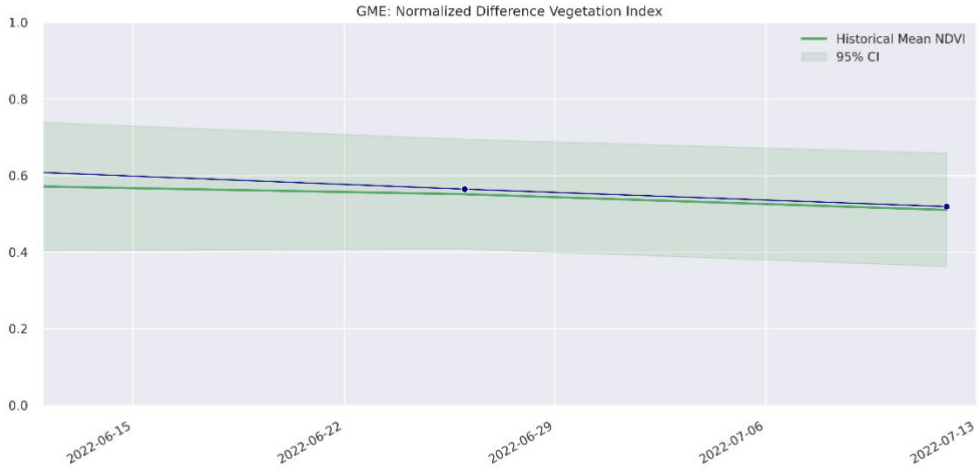
Tracking Manager Report

Collared elephant sightings from July: Polaris, Chelsea and Fred.

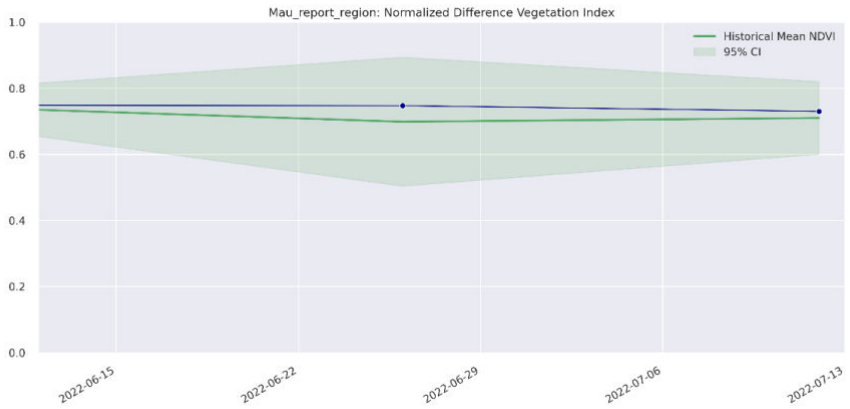
ENVIRONMENT: NDVI

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.

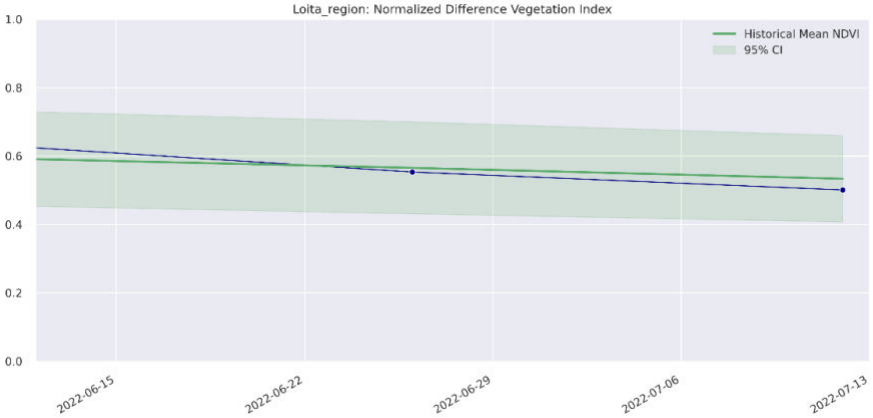
Greater Mara Ecosystem (GME)



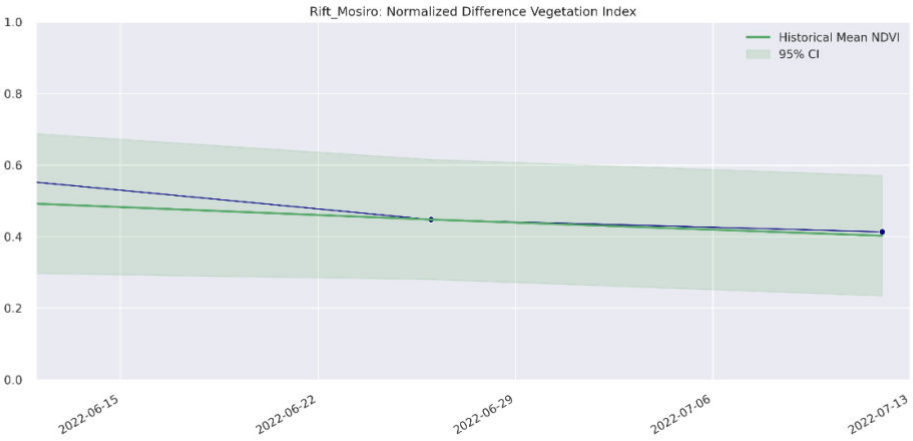
Mau Forest

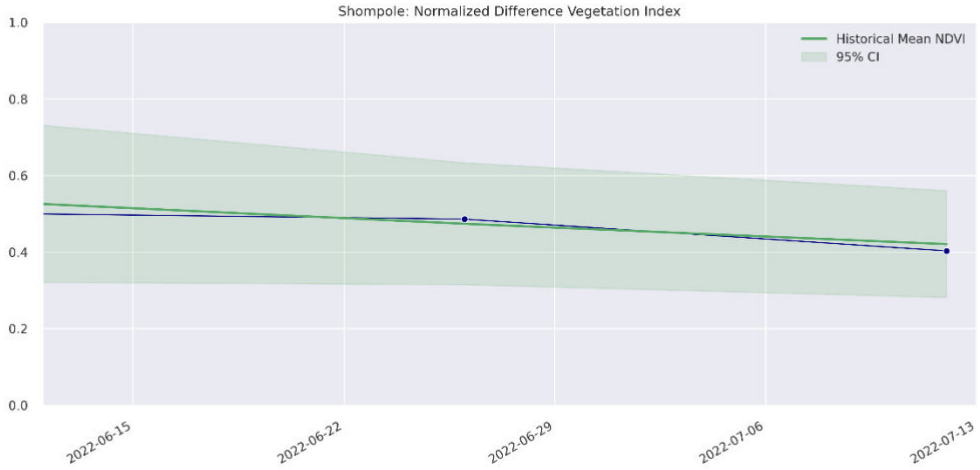


Loita

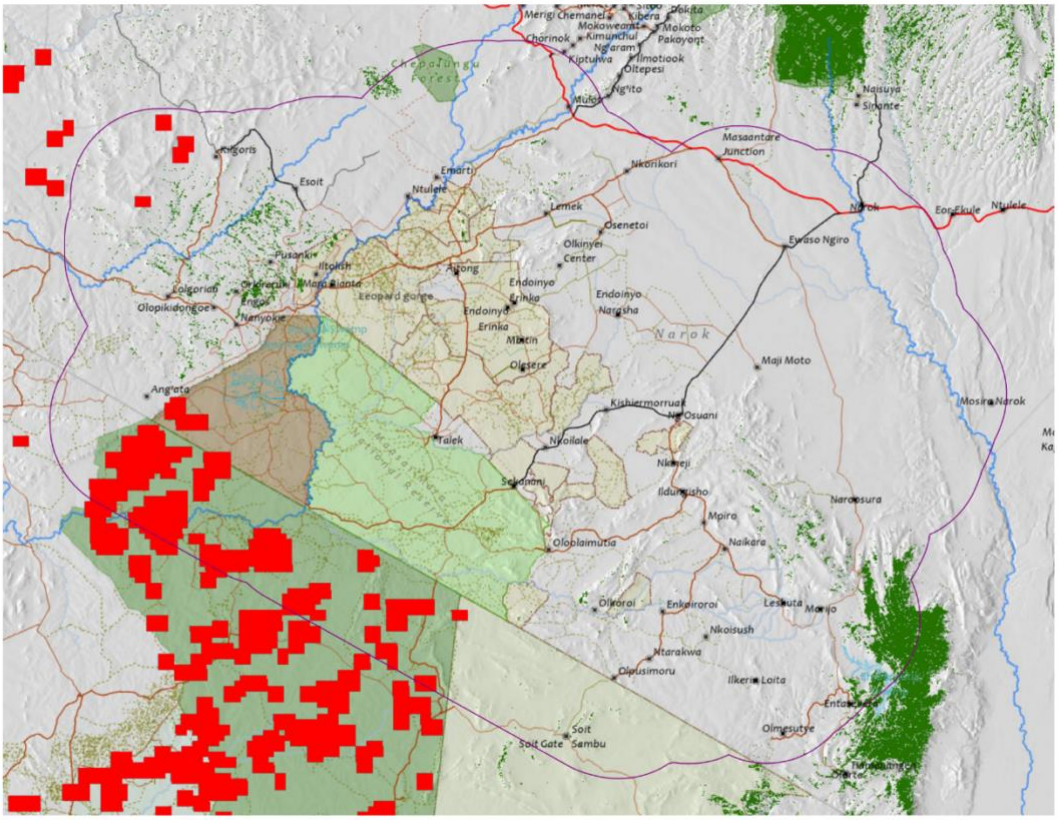


Rift Valley





ENVIRONMENT: Burn/Fire Areas



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