Twiga Tracker Status Report

Greater Masai Mara Ecosystem, Kenya

Masai Giraffe (*Giraffa tippelskirchi*)

October 2025 – April 2026

In partnership with:

KENYA WILDLIFE SERVICE

WILDLIFE RESEARCH & TRAINING INSTITUTE

Discover Beyond

THE SAFARI COLLECTION

Overview

The Greater Masai Mara Ecosystem represents a critically important conservation landscape, home to globally significant wildlife populations, including the Masai giraffe (*Giraffa tippelskirchi*). Despite its ecological significance, the landscape is increasingly threatened by fragmentation driven by fencing and expanding infrastructure development. Left unaddressed, this fragmentation poses a serious risk to the functional connectivity and long-term ecological viability of the ecosystem. Investigating how fragmentation influences giraffe space use across the landscape will help guide effective conservation management at scale, while also advancing the broader understanding of multi-species connectivity and wildlife population viability. To assess giraffe movements within the ecosystem, 23 GPS satellite tail tags were deployed between 14 and 19 October 2025. This report presents an evaluation of GPS tracking unit performance, preliminary space-use metrics for the tagged Masai giraffe, and recommendations to support their conservation and management. This work is undertaken as a collaborative effort between the Giraffe Conservation Foundation (GCF), the County Government of Narok, the Kenya Wildlife Service (KWS), and the Wildlife Research and Training Institute (WRTI). The specific objectives of this project are:

- to assess Masai giraffe behavioural responses to fencing and habitat fragmentation.
- to examine Masai giraffe space use patterns and resource selection in the Masai Mara Ecosystem.
- to evaluate connectivity in an increasingly fragmented landscape.

Study Area

The Greater Masai Mara Ecosystem spans approx. 668,500 ha in the northeastern part of the Mara-Serengeti Ecosystem, located on the Kenya/Tanzania border (Figure 1). This diverse landscape includes the Masai Mara National Reserve (MMNR), community and private conservancies, the designated Pardamat Conservation Area, and adjacent unprotected lands without formal conservation status. The ecosystem is also home to approximately 1,600 Masai giraffe.

Tag performance and deployment duration

All 23 tail tags deployed remained active on 10 April 2026. Fix acquisition was consistent across all individuals, with between 3,962 and 4,227 GPS fixes recorded per animal (mean: 4,135 fixes, 23.5 fixes per day), indicating reliable tag performance thus far.

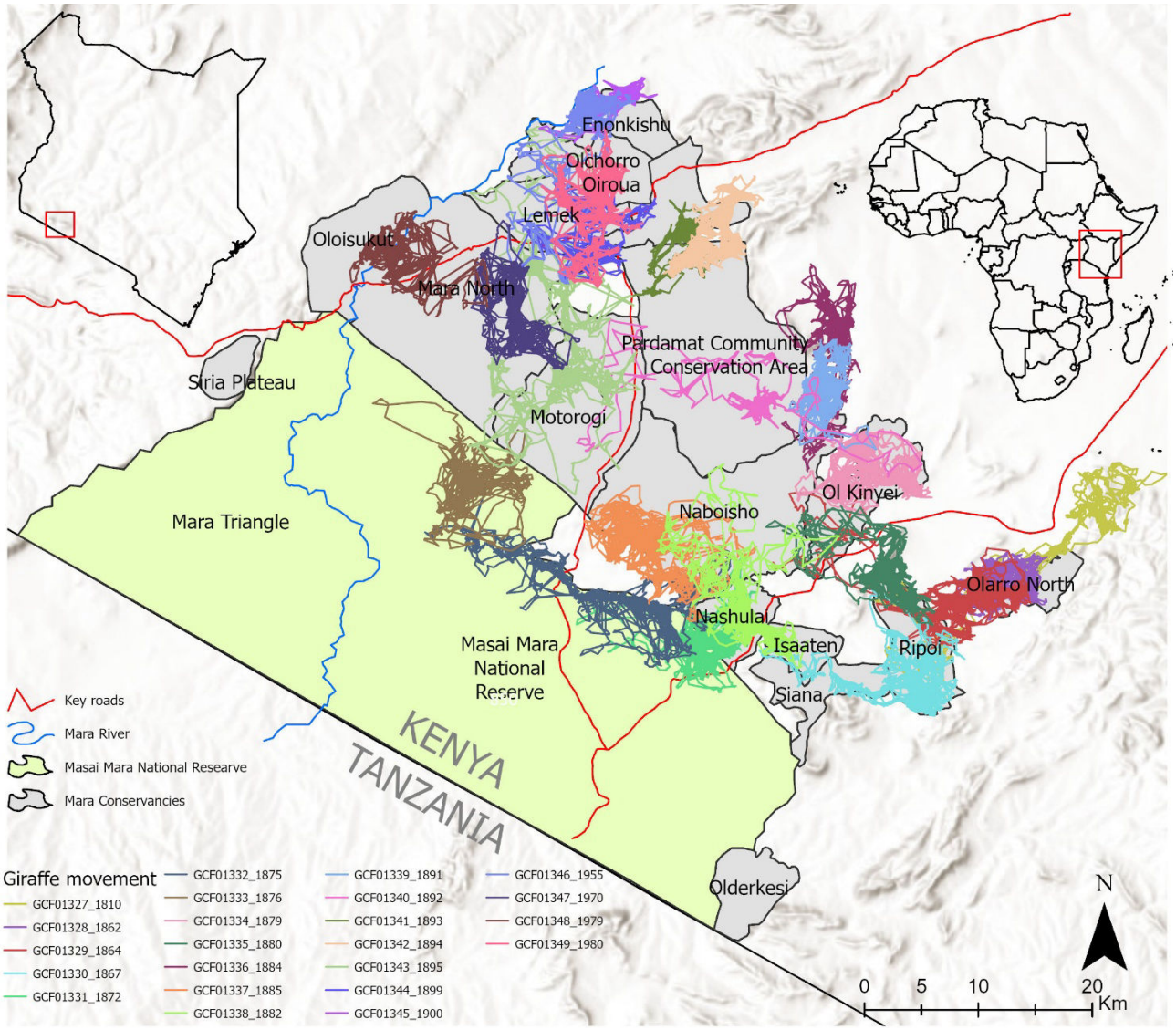

Figure 1: Map of movement patterns of Masai giraffe that were tagged in the Greater Masai Mara Ecosystem in October 2025. Movements are shown up to April 2026.

Giraffe movements

Tagged individuals travelled a mean cumulative distance of 1,064 km (range: 754-1,369 km). Males (n=8) ranged more extensively than females (n=15), averaging 1,149 km compared to 1,019 km for females. The two most mobile individuals were GCF01329_1864, a male tagged in Ripoi Conservancy (1,369 km), and GCF01328_1862, a female tagged in the neighbouring Olarro North Conservancy (1,284 km). At the other end of the spectrum, GCF01327_1810, a male also tagged in Olarro North Conservancy, and GCF01346_1955, a female tagged in Enoonkishu Conservancy, recorded the shortest cumulative distances at 817 km and 754 km respectively.

Home range

Total home ranges (95% KDE) varied across tagged individuals, ranging from 18.50 km² (GCF01345_1900, female, tagged in Enoonkishu Conservancy) to 246.06 km² (GCF01343_1895, male, tagged in Lemek Conservancy), with an overall mean of 74 km². Males occupied substantially larger home ranges on average (102.5 km²) than females (58.8 km²). The same pattern was also reflected in core use areas (50% KDE), which averaged 18.4 km² and 9.93 km² respectively (overall mean: 12.88 km²; range: 2.94 - 42.97 km²). The most spatially restricted individuals were GCF01345_1900 in Enoonkishu Conservancy among the females and

GCF01339_1891 in Pardamat among the males, with core areas of just 2.94 km² and 5.54 km² respectively. In both cases, fencing is a likely contributing factor: GCF01345_1900 spent considerable time within the fenced Naretoi Estate in Enoonkishu, while GCF01339_1891 ranged predominantly within Pardamat Community Conservation Area, which is characterised by high levels of fencing.

Table 1: Summary of Masai giraffe movement data collected in the Greater Masai Mara Ecosystem from October 2025 to April 2026.

Giraffe ID	Sex	Start Date	Stop Date	Duration (Days)	Fixes	Steps (km)	KDE 50 (km^2)	KDE 95 (km^2)
GCF01327_1810	Male	14/10/2025	10/04/2026	178.17	4,170	817.10	12.55	121.57
GCF01328_1862	Female	14/10/2025	10/04/2026	178.13	4,047	1,284.30	10.83	32.28
GCF01329_1864	Male	14/10/2025	10/04/2026	178.00	4,158	1,369.19	19.54	103.85
GCF01330_1867	Female	14/10/2025	10/04/2026	178.00	4,197	929.90	15.58	86.68
GCF01331_1872	Female	15/10/2025	10/04/2026	177.17	4,063	1,271.83	9.66	56.64
GCF01332_1875	Male	15/10/2025	10/04/2026	177.17	4,217	1,322.24	38.14	167.97
GCF01333_1876	Female	15/10/2025	10/04/2026	177.12	4,195	1,024.19	5.92	50.65
GCF01334_1879	Female	15/10/2025	10/04/2026	176.92	4,227	1,007.18	15.15	60.25
GCF01335_1880	Female	15/10/2025	10/04/2026	176.58	4,212	865.12	9.00	53.17
GCF01336_1884	Male	16/10/2025	10/04/2026	176.08	4,217	1,007.56	10.73	64.46
GCF01337_1885	Female	16/10/2025	10/04/2026	176.08	4,065	1,254.33	17.69	82.40
GCF01338_1882	Female	16/10/2025	10/04/2026	175.92	4,152	1,142.07	8.15	83.13
GCF01339_1891	Male	17/10/2025	10/04/2026	175.13	4,142	1,155.96	5.42	25.39
GCF01340_1892	Female	17/10/2025	10/04/2026	175.21	4,108	827.65	3.13	67.34
GCF01341_1893	Male	17/10/2025	10/04/2026	175.17	4,143	1,036.88	6.72	28.45
GCF01342_1894	Female	17/10/2025	10/04/2026	175.12	4,137	1,019.60	10.17	37.15
GCF01343_1895	Male	18/10/2025	10/04/2026	174.25	4,146	1,221.01	42.97	246.06
GCF01344_1899	Female	18/10/2025	10/04/2026	174.21	4,153	1,252.37	9.38	58.04
GCF01345_1900	Female	18/10/2025	10/04/2026	174.17	4,152	850.48	2.94	18.50
GCF01346_1955	Female	18/10/2025	10/04/2026	174.13	4,066	754.04	8.54	89.46
GCF01347_1970	Female	19/10/2025	10/04/2026	173.21	4,103	905.35	13.73	54.30
GCF01348_1979	Female	19/10/2025	10/04/2026	173.21	3,962	889.62	9.04	52.68
GCF01349_1980	Male	19/10/2025	10/04/2026	173.12	4,074	1,261.32	11.25	61.88

Several individuals demonstrated highly concentrated use of a single land-use (Figure 2). GCF01333_1876 (female) recorded 99.6% of all fixes within the MMNR, the highest degree of land-use fidelity observed. Similarly, GCF01347_1970 (female) spent 97.1% of the tracking period within Mara North Conservancy, and GCF01340_1892 (female) recorded 94.8% of fixes within Pardamat Community Conservation Area. In contrast, several individuals used multiple properties for example, GCF01343_1895 (male), which also had the largest home range, distributed fixes across seven distinct properties, including Olare Motorogi (47.8%), Mara North (35.1%), and Lemek (4.6%). Three individuals had a large proportion of their fixes outside of the Conservancies and MMNR; GCF01327_1810; 92.1% and GCF01336_1884; 90.9%. Overall, Naboisho Conservancy, Mara North Conservancy, and Pardamat Community Conservation Area were the most frequently used properties, appearing in the fix distributions of 11, 9, and 9 individuals respectively.

These patterns highlight the nature of their movement across the ecosystem and underscore the importance of coordinated, multi-land-use conservation management to maintain functional connectivity for the species.

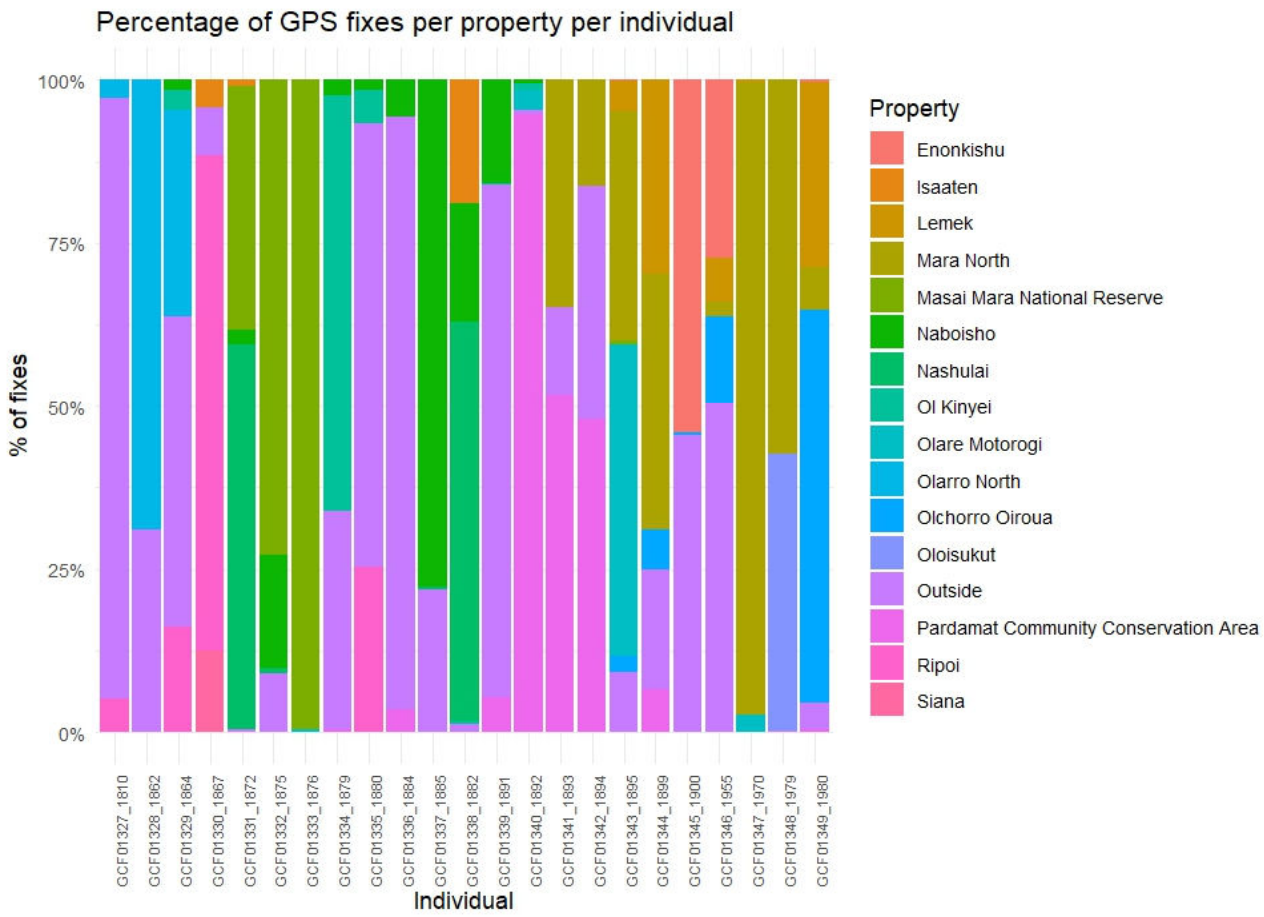

Figure 2: Land-use of Masai giraffe in the Greater Masai Mara Ecosystem from October 2025 to April 2026. Stacked barplots represent the percentage of total coordinate fixes in each property for each individual.

Way forward

This report provides a foundational evidence baseline for informing landscape-level conservation and management of Masai giraffe across the Greater Masai Mara Ecosystem. The ranging behaviour documented here, with individuals regularly moving between conservancies, MMNR, and areas beyond, reinforces the need for coordinated management across property boundaries. No single conservancy or protected area encompasses the full range of any tagged individual.

The considerable variation in home range size observed among individuals highlights that landscape connectivity is experienced very differently across the population. Individuals with large home ranges, particularly males, are likely most exposed to the risks posed by fencing and other anthropogenic pressures.

Continued GPS tracking through the subsequent seasonal cycles will be important for capturing temporal variation in space use allowing for more robust analyses. If a continuation of the study is considered beyond the life of the current tags, priority should be given to retagging individuals with the most ecologically informative ranging patterns, particularly GCF01343_1895 and GCF01332_1875, to ensure continuity of data for the individuals contributing most to our understanding of giraffe movement across the ecosystem.