

# Q1 2024 UPDATED LION & CHEETAH FIGURES



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## MARA PREDATOR CONSERVATION PROGRAMME

We are pleased to present updated lion and cheetah figures from the 2023 survey period, which spanned from August 1 to October 31. This is our 10th consecutive year of providing accurate density estimates of lions and cheetahs.

## Lions

### New lion figures

Table 1 shows estimates for lion density, abundance, and sex ratio for lions over the age of one year in the Masai Mara (National Reserve and the surrounding wildlife conservancies) for 2022 and 2023.

The lion density decreased slightly but the lion abundance increased. This increase could be explained by the fact that we increased the study size in 2023 by adding three conservancies, **Nashulai**, **Olerai** and **Oloisukut**, and this will influence the overall estimates. All wildlife populations fluctuate naturally from year to year as illustrated in Figure 1. The 2023 figure is within the range of previous years. It is important to note that the 2015 is only preliminary.

Lions	2022	2023
Study area (km <sup>2</sup> )	2,581	2,713
Lion Density	18.04	16.68
Lion Abundance	468	480
Sex ratio (F:M)	2.23	2.08

Table 1: Lion density is given as lions/100km<sup>2</sup> > 1-year-old, lion abundance is lions > 1 year old, sex ratio is female to male.

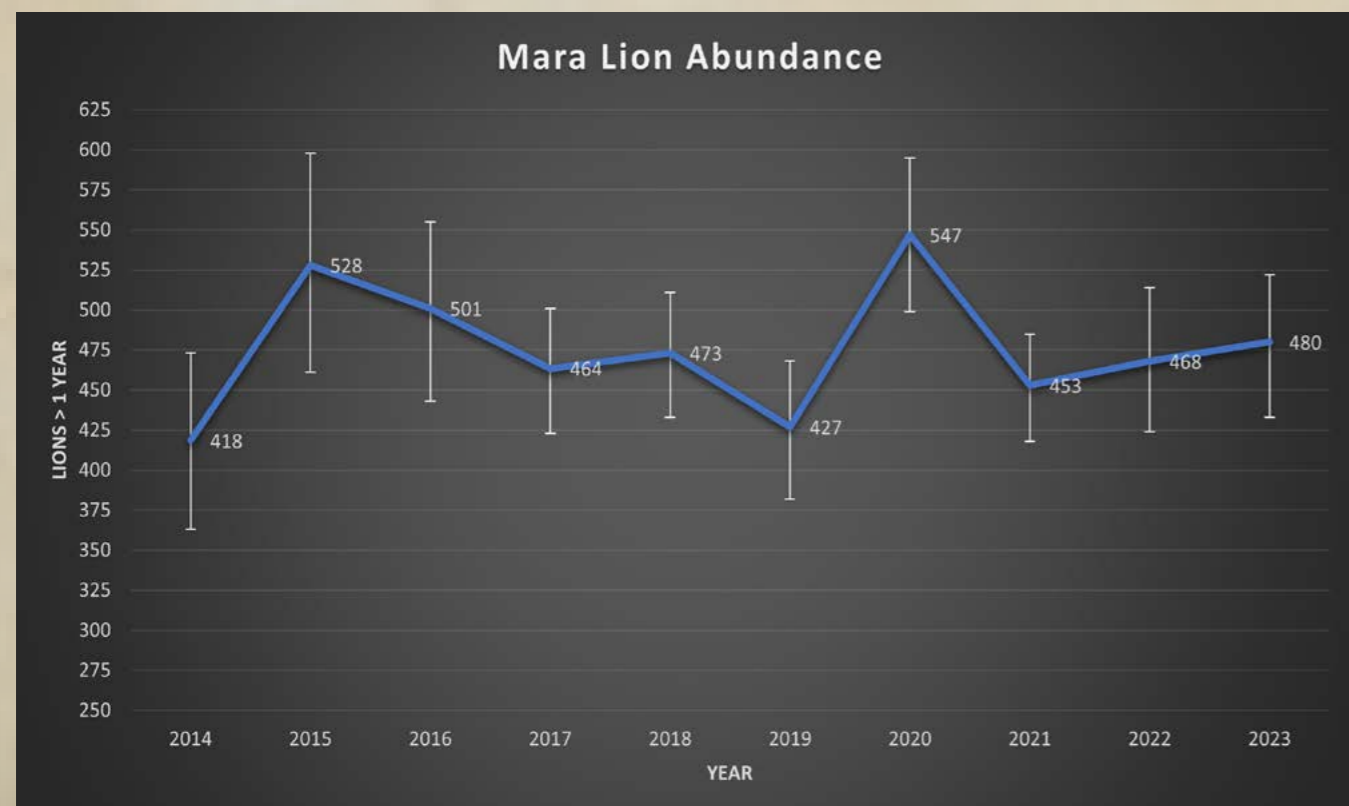


Figure 1. Mara lion abundance from 2014-2023. NB! 2015 figures are preliminary. Error bars represent the upper and lower limits.

Table 2 shows lion density and abundance for the respective management units.

Wildlife area	Abundance		Density	
	2022	2023	2022	2023
Enonkishu	9	4	30.24	19.96
Lemek	14	11	23.12	18.71
Mara North	61	51	20.80	16.94
Naboisho	44	47	20.77	22.86
Olarro North	4	2	14.14	6.29
Ripoi	8	4	14.14	6.69
Ol Chorro	10	5	18.23	8.33
Olderikesi	5	4	13.13	9.85
Ol Kinyei	14	21	20.71	31.34
Olare-Motorogi	36	36	24.66	24.20
Siana + Isaaten	3	4	10.29	6.93
Nashulai	-	6	-	15.45
Olerai	-	2	-	16.82
Oloisukut	-	14	-	14.56
Mara Triangle	83	92	17.52	19.28
MMNR	177	178	16.84	16.94

Table 2: Lion abundance and density for the different management units for 2022 vs 2023

During our survey period, **Oi Kinyei Conservancy** had the highest lion density, followed by **Olare-Motorogi Conservancy** and **Naboisho Conservancy**.

The 2023 lion densities can be viewed as a heat map as shown in figure 2.

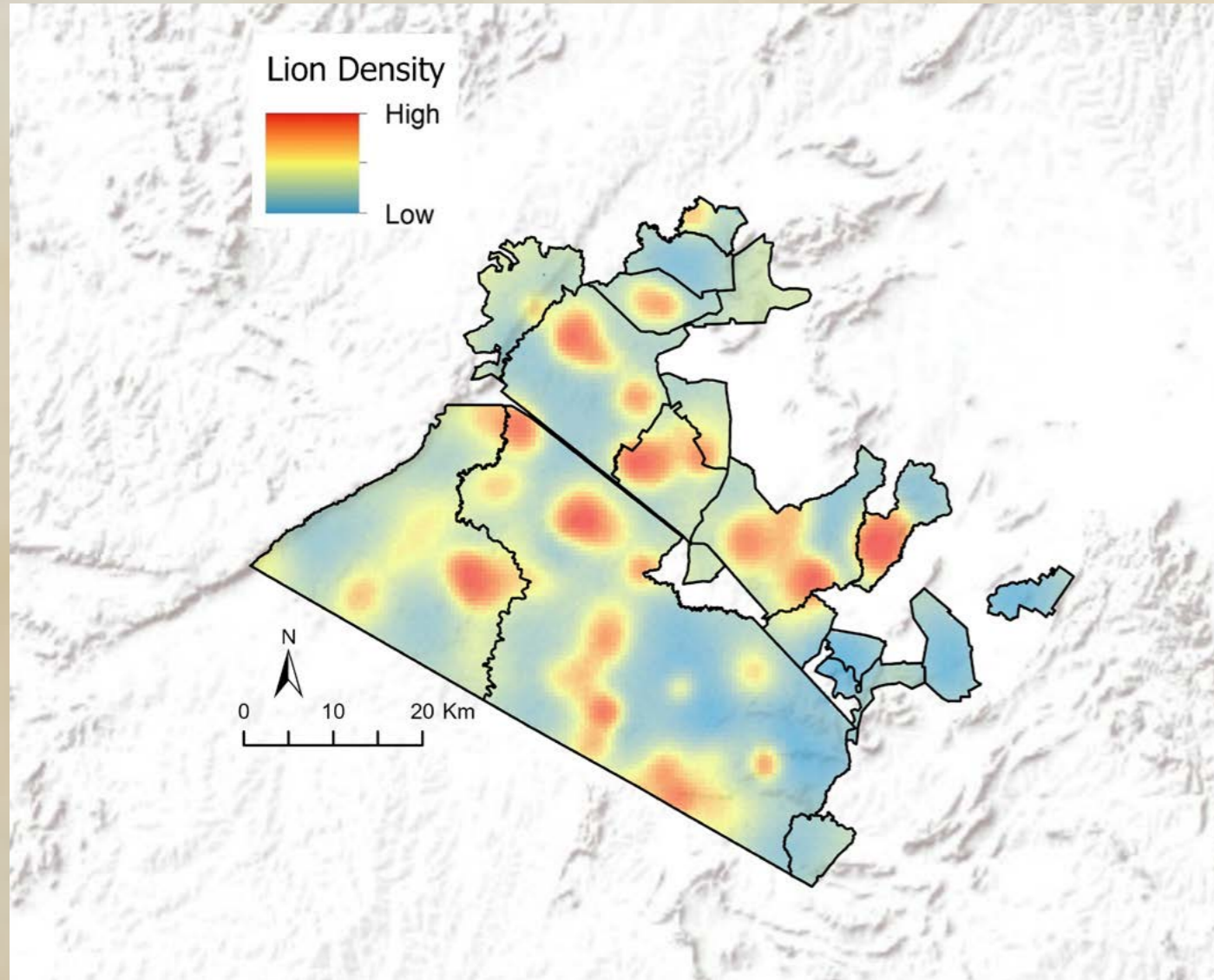


Figure 2. Lion density heat map.

This year's heat map shows elevated lion densities not only in core areas but also along the periphery adjoining community lands. These areas, with substantial human activity, are susceptible to increased human-lion conflicts stemming from livestock predation.

Hence, targeted lion conservation initiatives should prioritise regions where these density hotspots overlap with community areas.

Compared to previous surveys, a decline in lion density is observed on the eastern side of the landscape, warranting further investigation into potential causal factors. It is important that management strategies integrate data-driven approaches to effectively address evolving conservation challenges.

## Cheetahs

### New cheetah figures

Table 3 shows estimates for cheetah density, abundance, and sex ratio for independent resident cheetahs in the Masai Mara (National Reserve and the surrounding wildlife conservancies) for 2022 and 2023.

<b>Resident independent cheetahs</b>	<b>2022</b>	<b>2023</b>
Study area (km <sup>2</sup> )	2,581	2,713
Cheetah Density	0.88	1.03
Cheetah Abundance	23	28
Sex ratio (M:F)	1.65	0.82

Table 3: Cheetah density is given as independent individuals/100km<sup>2</sup>, cheetah abundance is for independent individuals, sex ratio is females to males.

The table reveals a notable rise in the Mara cheetah population, with an increase of five individuals observed between 2022 and 2023. It's essential to acknowledge that during this period, the study area was expanded. Consequently, while the total cheetah count rose, there was an evident decline in the female-to-male sex ratio, resulting in fewer adult females within the population. This trend is of considerable concern, given that females serve as the cornerstone of population growth. This observed decrease aligns with our on-the-ground observations.

We have conducted a comprehensive analysis of cheetah densities spanning the years 2014 to 2023, including biannual surveys from 2015 to 2018, as depicted in Figure 3. The availability of long-term datasets is paramount for examining population trends effectively. It is important to recognise that due to the inherently low population densities of cheetahs, coupled with small sample sizes, any sudden increase or decrease in cheetah numbers—such as during a disease outbreak—can lead to significant fluctuations within the population.

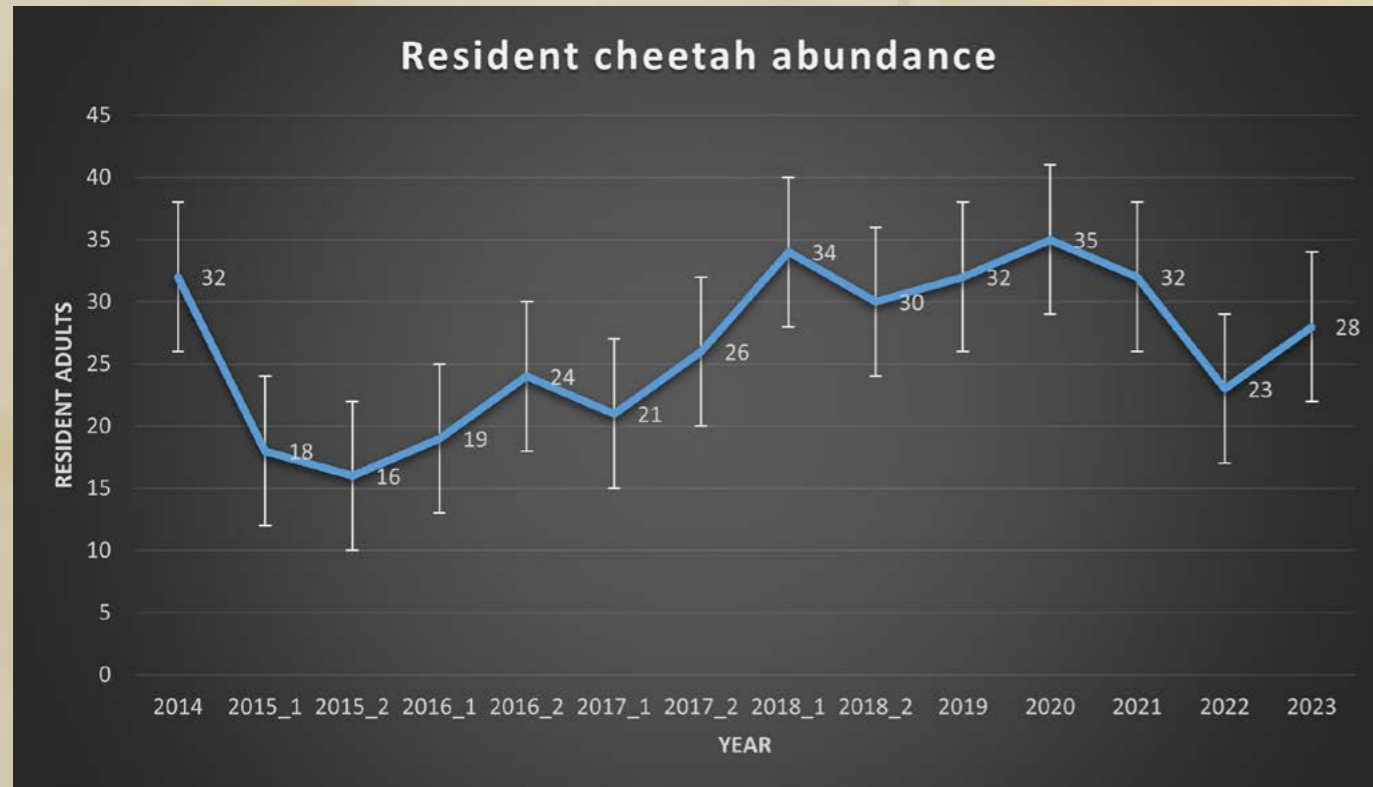


Figure 3: This graph shows cheetah abundance (error bars represent standard deviations) from 2014-2023. There was one survey in 2014 and from 2019-2023 (01August-31October), and two surveys in 2015-2018 (01February-30April & 01August-31October).

As with the lion data, we have produced a cheetah density heat map illustrated in Figure 4.

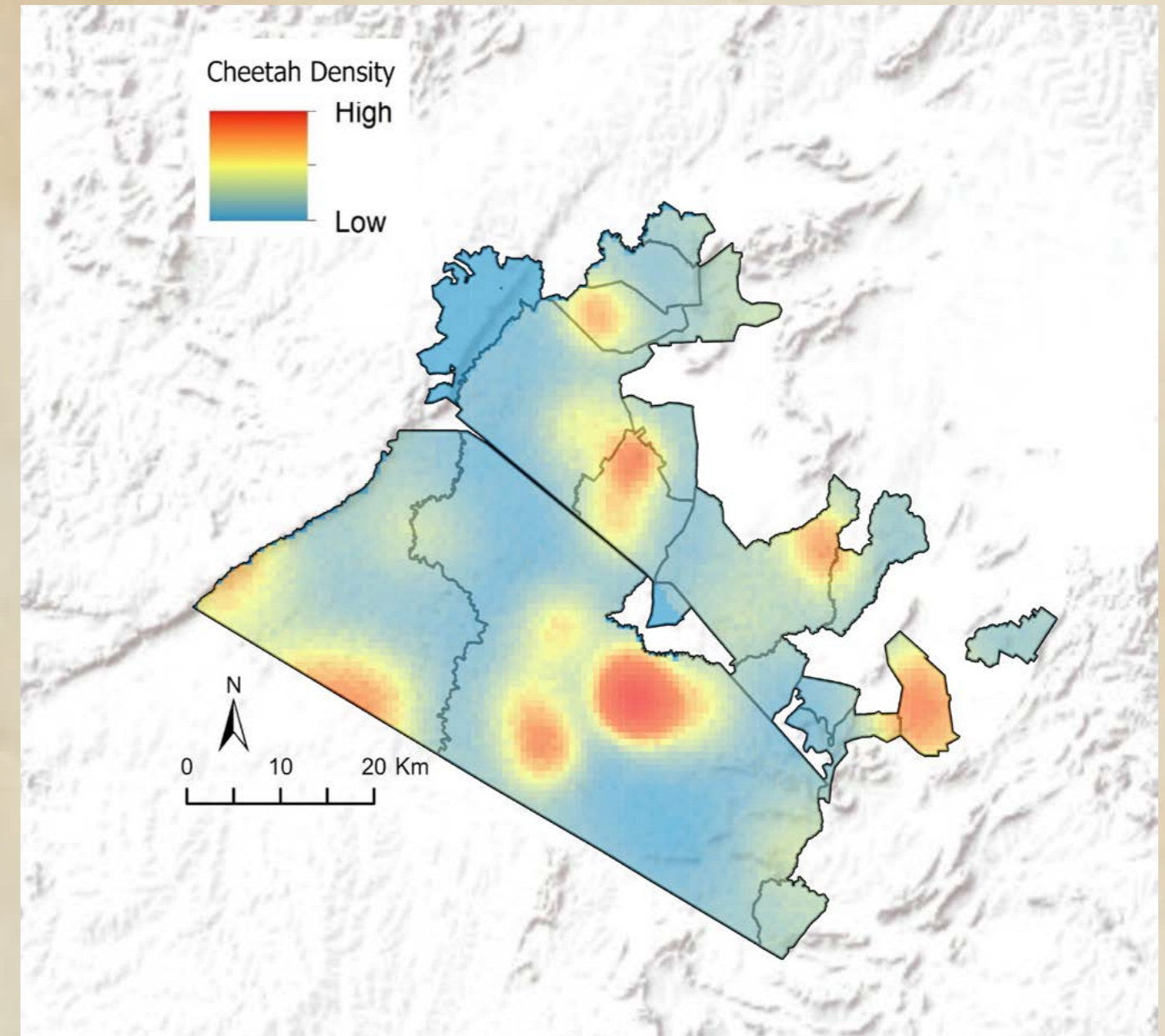


Figure 4. Cheetah density heatmap

Our observations frequently uncover new cheetah individuals inhabiting the eastern regions of the Mara, including **Ripoi Conservancy**, a pattern clearly illustrated in the heatmap analysis. This suggests the presence of an additional cheetah population source situated to the east of our primary study areas, from which these new individuals are likely originating.



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