



# Monthly report of GPS satellite tagged Angolan giraffe (*Giraffa giraffa angolensis*) in northwest Namibia

September 2020

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In July 2019, Giraffe Conservation Foundation (GCF) and the Skeleton Coast Iona (SCIONA) project fitted seven Angolan giraffe (*Giraffa giraffa angolensis*) across northwest Namibia with solar-powered GPS satellite transmitters (ossi-units). The ossi-units were designed by Savannah Tracking Kenya with support from GCF and are attached to a giraffe ossicone. One young bull and six cows were tagged. Immobilisation of giraffe and fitting of the ossi-units were conducted by a Namibian registered veterinarian under the careful ethical consideration of GCF who have fitted more than 200 units/collars across Africa. Each unit transmits hourly location and temperature data by satellite. The data is then analysed to assess giraffe's habitat use and spatial ecology in the arid to hyper-arid Kunene Region.

This report provides information on preliminary data from 1 to 30 September 2020 and a brief comparison with last month's findings. Only five ossi-units currently transmit data as two stopped working in January (KT IRI2016-3223) and March (Jackson IRI2016-3141), respectively. All other five remaining ossi-units successfully transmitted data in September 2020 (see table 1. All data analysis was conducted in QGIS 2.18.28 using the coordinate referencing system WGS84.

As shown in fig. 1, movement pattern and habitat use of all giraffe appears to be similar to the previous month. Interestingly, all giraffe roamed in between two main rivers – the Sechomib and Khumib. Supergirl

(IRI2016-3220) and Dorothy (IRI2016-3222) remained in the lower Khumib River since August 2020, while the other giraffe moved across/between the two rivers (see fig. 1).

These rivers provide critical riparian vegetation which is the source of life for these large mammals (and others) occurring in the area, especially during the dry season. As the season gets drier, fewer trees with leaves are available in areas where giraffe roamed over the previous months. As such, they might be attracted to the evergreen plant species such as *Balanites* and *Boscia*, to mention a few.

Similar to August 2020, Ceratops (ST2010-2959) moved the furthest ~281.1 km; across the Sechomib and upper Khumib Rivers; followed by Marble (IRI2016-3218) ~163.5 km who moved from the upper Khumib River down to the Sechomib River near Orupembe. Tisa (ST2010-2958) moved ~180.7 km across the same areas, whilst Dorothy (IRI2016-3222) ~174.9 km and Supergirl IRI2016-3220 (~85.1 km) moved the least.

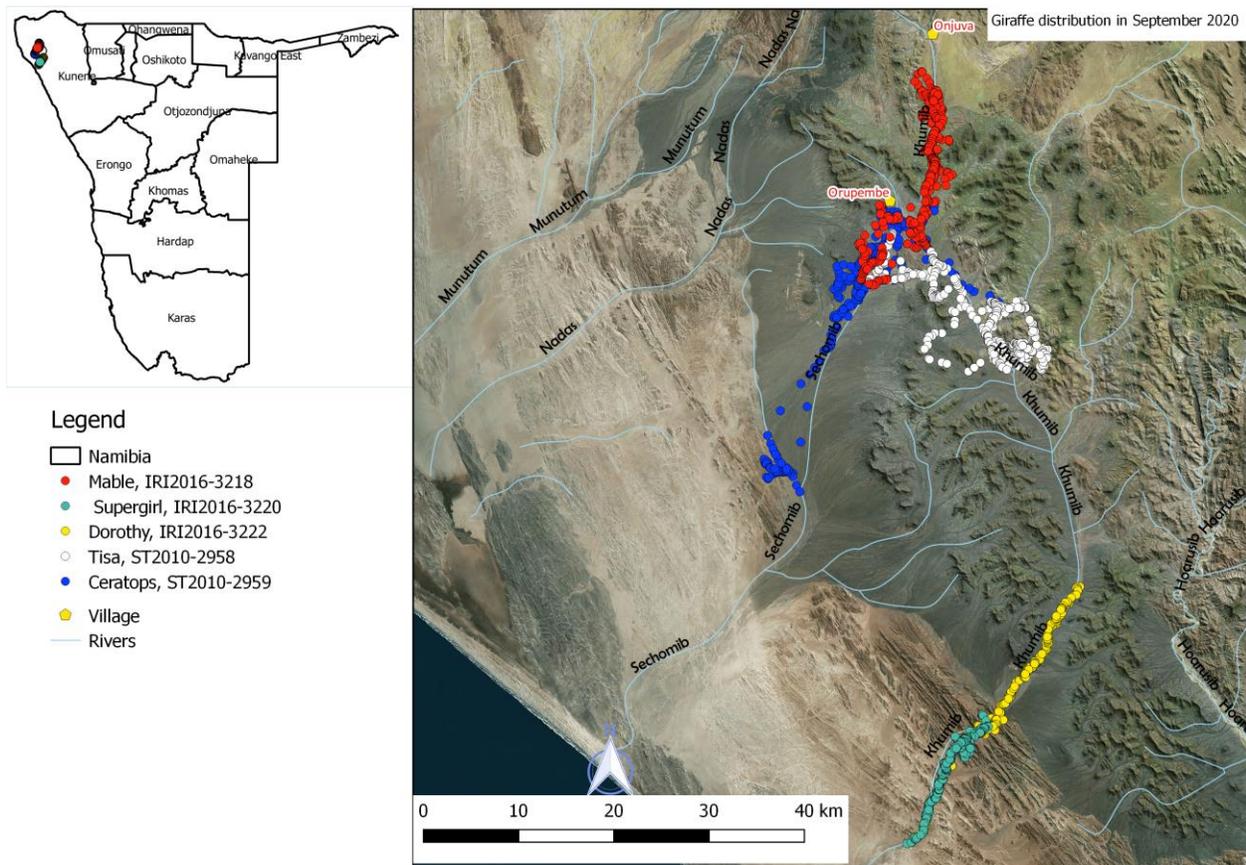


Figure 1: GPS satellite tagged giraffe movements in northwest Namibia during September 2020



**Legend**

- Marble, IRI2016-3218
- Supergirl, IRI2016-3220
- Dorothy, IRI2016-3222
- Tisa, ST2010-2958
- Ceratops, ST2010-2959
- Place
- ▲ Village
- Rivers

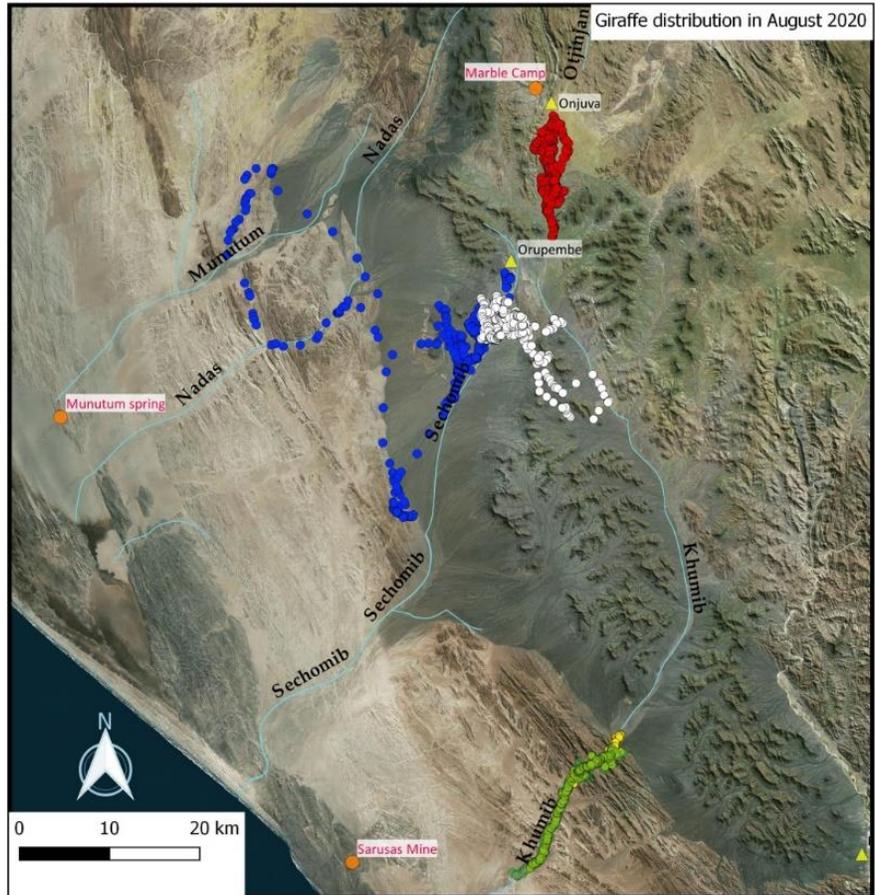


Figure 2: GPS satellite tagged giraffe movements in northwest Namibia during August 2020

All individuals moved a little more on average in September (188.86 km) when compared to August 2020 (187.1 km) – see distances travelled in table 2.

Home Range (HR) preliminary results were estimated using the Animate plugin in QGIS to determine HR at 50% and 95% Minimum Convex Polygon (MCP) for each individual as well as the total population. The 50% MCP provides standard deviation core HR, while 95% provides the average HR. Home ranges of giraffe in September 2020 were generally larger than in August 2020. Similar to August 2020, Ceratops had the largest HR of ~573 km<sup>2</sup> at 95% MCP, followed by Tisa ~163.5 km<sup>2</sup> and Supergirl had the smallest HR at ~19.5 km<sup>2</sup>. All giraffe had HR overlap. Ceratops, Tisa and Marble overlapped in the Sechomib and Kumib Rivers close to Orupembe, while Supergirl and Dorothy overlapped in the lower Khumib River (see fig. 3). All giraffe combined had an average core HR of ~1,108.0 km<sup>2</sup> which was smaller than August 2020 calculated at 50%, and ~1,581.0 km<sup>2</sup> at 95%; also smaller than last month (see fig. 5 & 6). For the rest of the HR records see table 2.

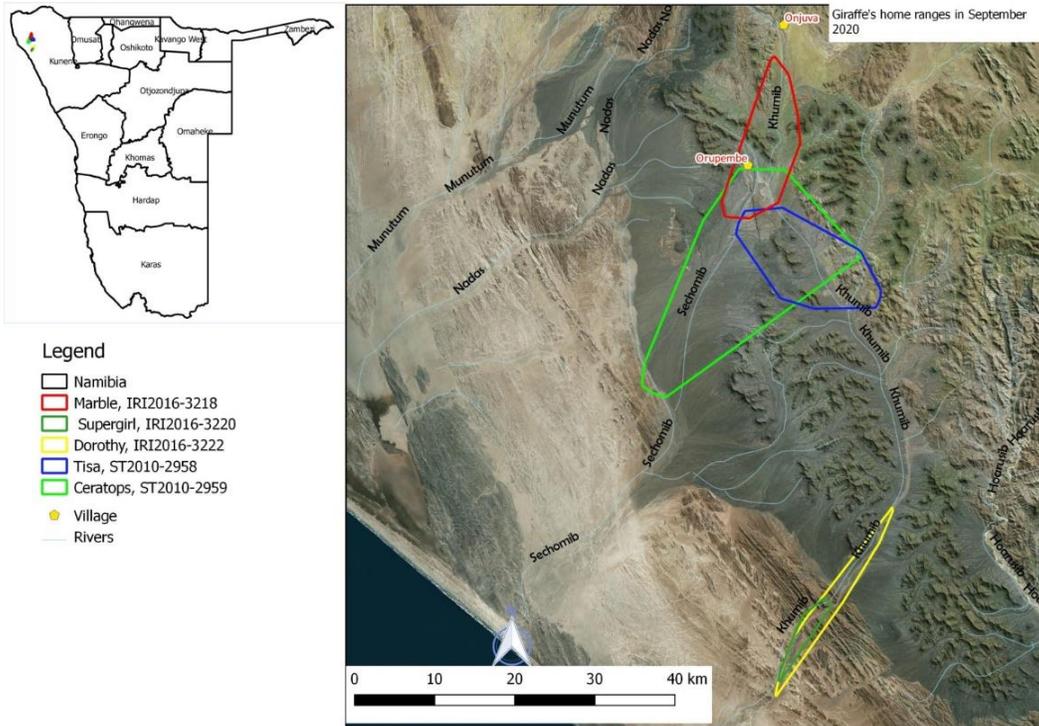


Figure 3: GPS satellite tagged giraffe's individual Home Range using 95% MCP in northwest Namibia during September 2020

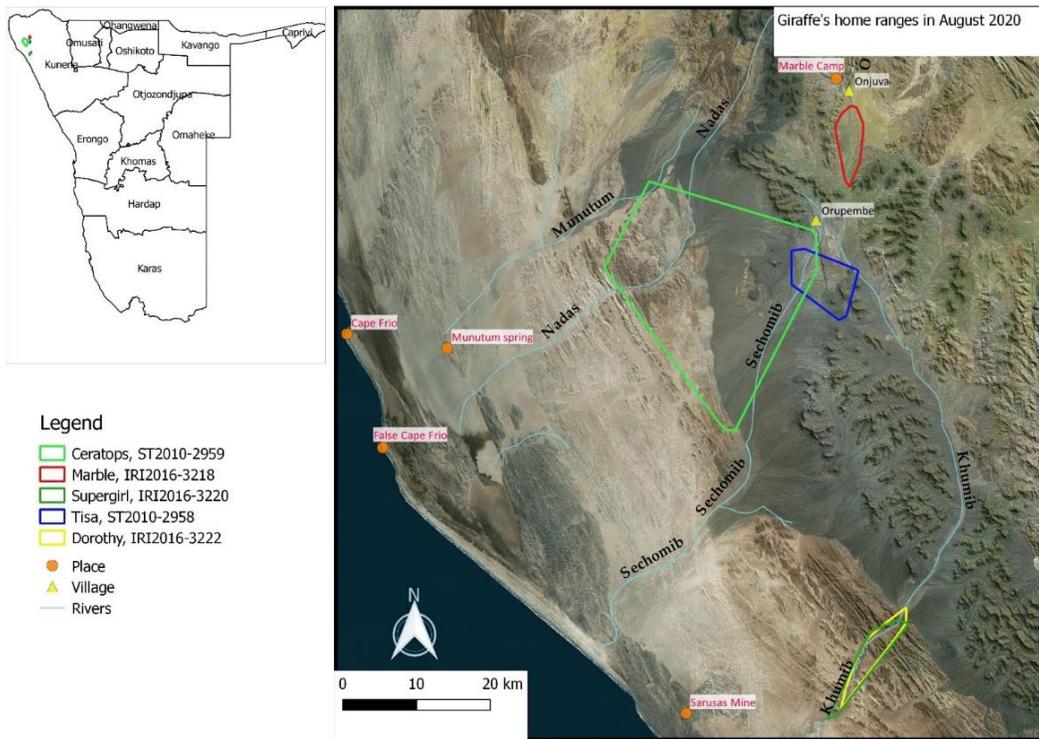


Figure 4: GPS satellite tagged giraffe's individual Home Range using 95% MCP in northwest Namibia during August 2020

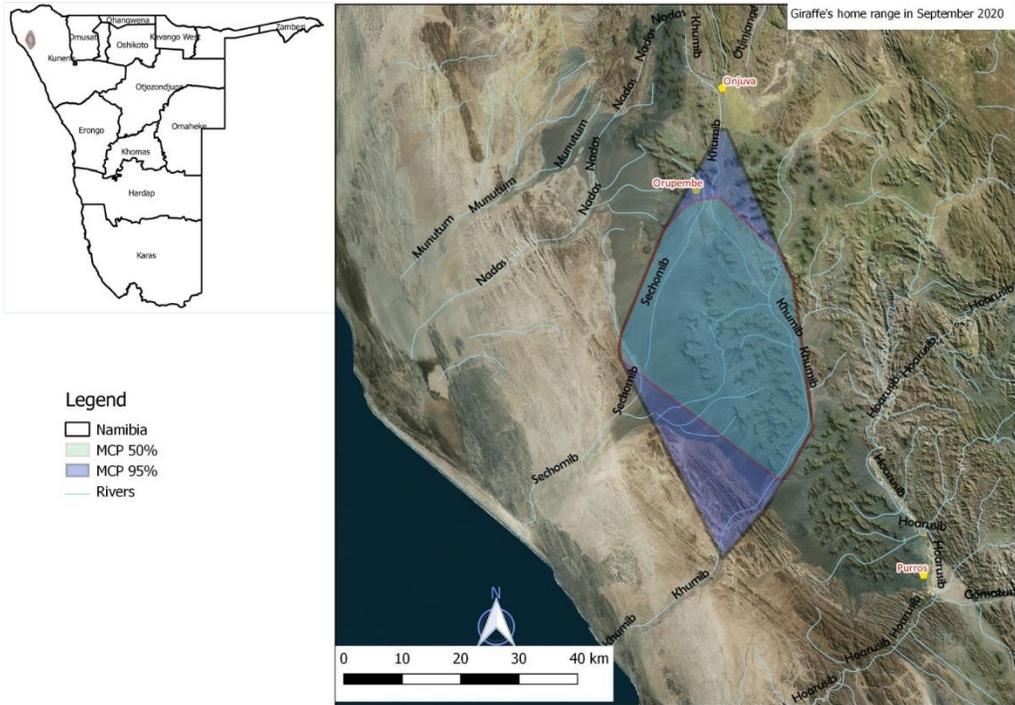


Figure 5: All GPS satellite tagged giraffe's combined Home Range using 50% and 95% MCP in northwest Namibia during September 2020

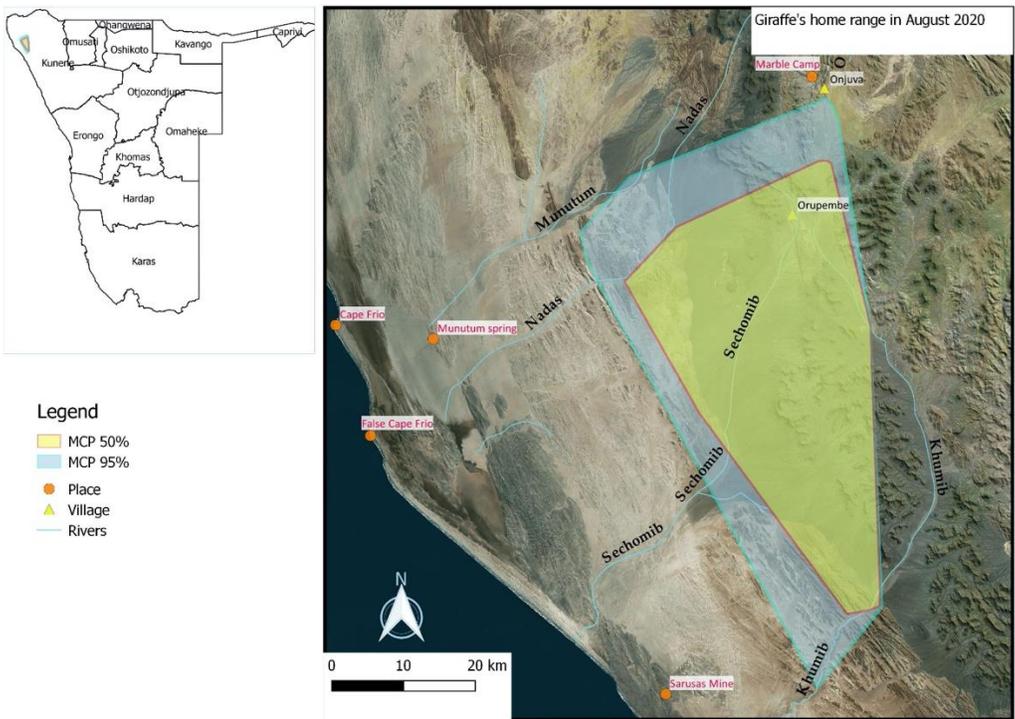


Figure 6: All GPS satellite tagged giraffe's combined Home Range using 50% and 95% MCP in northwest Namibia during August 2020



## Acknowledgements

We acknowledge the Giraffe Conservation Foundation (GCF), SCIONA project and Namibia Chamber of Environment (NCE) for financial supports and other valuable support. We also express our special appreciation to game guard colleagues in the Orupembe Conservancy.



Table 1: Data transmission of GPS satellite tagged giraffe in northwest Namibia during September 2020

ID/Date	1	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Mable IRI2016-3218 (Female)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Supergirl IRI2016-3220 (Female)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Dorothy IRI2016-3222 (Female)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Tisa ST2010- 2958 (Female)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Ceratops ST2010-2959 (Female)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Table 2: Distance travelled by each GPS satellite tagged giraffe in August & September 2020

ID/Date	August 2020		September 2020	
	Distance travelled (km)	Home ranges (km <sup>2</sup> )	Distance travelled (km)	Home ranges (km <sup>2</sup> )
Marble IRI2016-3218 (Female)	167.8	28	222.5	125.1
Supergirl IRI2016-3220 (Female)	148.0	37	85.1	19.5
Dorothy IRI2016-3222 (Female)	154.0	30	174.9	56.3
Tisa ST2010-2958 (Female)	175.7	56	180.7	163.5
Ceratops ST2010-2959 (Female)	290.2	573	281.1	422.1



## Appendix

