



Namibia Giraffe Conservation Programme

QUARTERLY UPDATE
August – October 2019



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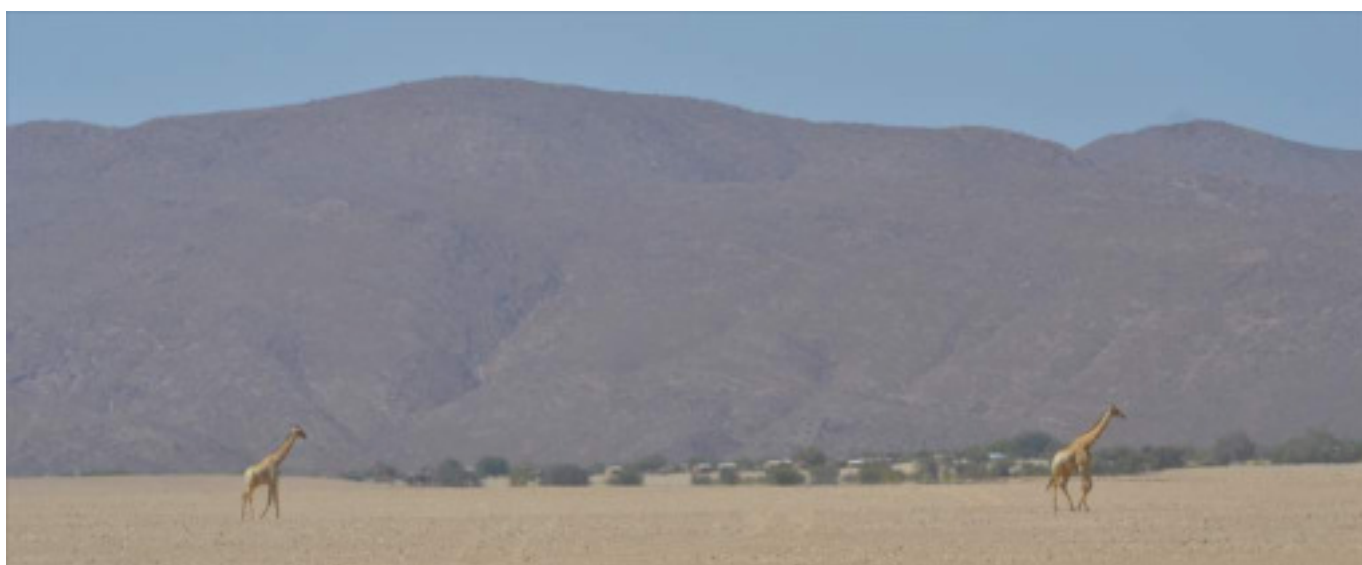


@Save_Giraffe



At our home base in Namibia, the Giraffe Conservation Foundation (GCF) runs a comprehensive programme across the country with a focus on giraffe conservation research and environmental education. While this report focuses on the conservation side, you can read more about the environmental education programme in the regular KEEP Update reports online at <https://giraffeconservation.org/programmes/keep/>.

The past few months have seen some exciting developments in our Namibia Programme. If you follow our updates regularly, you might want to skip forward to the brand-new updates and give the background information a miss, but you might also find some interesting information that you were not aware of.



Background

GCF's Namibia programme focuses on monitoring and supporting the long-term conservation and research of Namibia's desert-dwelling giraffe. These giraffe roam throughout the northern Namib Desert in the country's northwest. In 2019 our study area expanded to cover a total area of approximately 30,000km². Our work primarily focuses on the area south of the ephemeral Ensengo, Nadas and Khumib Rivers in the far north, down to the catchments of the Hoarusib and Hoanib Rivers. The area extends from communal conservancies (Marienfluss, Orupembe, Sanitatas, Okondjombo, Puros and Sesfontein Conservancies) in the east to the Skeleton Coast National Park bordering the Atlantic Ocean to the west.

Namibia is well-known for its successful community based natural resource management approach where local people gain management rights to their designated local land and natural resources including wildlife. Approximately 20% of Namibia's surface areas is managed and protected in such communal conservancies and over 46% of the country is under some form of private, communal or public conservation management. This collaborative conservation approach involving communal and private land as well as national parks has contributed to positive populations trends of most wildlife in the country.

With only a few millimetres of annual rainfall, the programme area is arid to hyper-arid and the wildlife is well adapted to this harsh environment. However, these conditions mean that many species survive at



the very edge of their adaptive abilities and as such the ecosystem is fragile and easily disrupted. Grazing for cattle and other livestock, increasing tourism in the region and historical poaching have led to some degradation of the environment and its wildlife. Nevertheless, it remains one of the most beautiful and remote refuges for Africa's remaining mega-fauna.

In this stark landscape of dunes and dry riverbeds, along with elephant, black rhino, lion, cheetah and numerous other species, live the desert-dwelling Angolan giraffe (*Giraffa giraffa angolensis*) – a subspecies of the Southern giraffe (*G. giraffa*). GCF's long-term giraffe conservation monitoring and research programme in this remote part of Namibia offers a unique and valuable opportunity to better understand this giraffe subspecies and, through what we learn, provide conservation and management support for other giraffe populations throughout Africa.

In addition to this long-term conservation programme, GCF also attempts to get a better idea of giraffe numbers throughout the country and we have embarked on a country-wide assessment of giraffe. In this exciting programme, we work closely with government and private land-owners throughout Namibia to better understand the numbers and population dynamics of giraffe in the country. By collaborating with partners, we not only determine giraffe numbers, but also increase education and awareness of giraffe conservation in Namibia and Africa-wide.



News from the field:

The drought continues its stranglehold on the country. The end of the third quarter had the first whispers of rain but it was barely enough to even measure on the rain gauge. The coming months will hopefully bring annual rains within the normal range and subsequent plant regrowth, but in the interim the landscape and wildlife continue to suffer. This is now the ninth year of drought in Southern Africa and it is noted as the worst one in over 90 years. In 2019, over 60,000 livestock perished and the Kunene Region is one of the hardest hit areas in Namibia. But despite all this bad news, the desert-dwelling giraffe and other wildlife continue to thrive and show increasing numbers.

This quarter, the GCF team travelled up the dry riverbed of the Marienfluss – all the way north to the Kunene River on the Angolan border in search of giraffe as part of an expanded survey. They noticed a



dramatic change from the previous trip just a year ago.

During a field trip at a similar time last year, our team observed livestock and Himba settlements throughout the Marienfluss conservancy. In stark contrast, this year most kraals had been abandoned and only a few hardy cattle and goats remained. The plains, covered by grass after good rains, offered nothing but sand and it was clear that drinking water was in short supply. Similar to previous expeditions to the far north, the team did not spot any giraffe north of the Ensengo River, and whilst the Marienfluss Valley had an abundance of food (*Salvadora*, *Vachellia* and *Senegalia* spp) and habitat for giraffe, the influx of Himba people and their cattle in previous years meant that most of the wildlife, including giraffe, avoided the area. Anecdotal reports suggest that giraffe and other wildlife somewhat abandoned the area at least five years ago. Now with less people and cattle around, it will be interesting to see if wildlife returns and at what rate.



Figure 1: Marienfluss Valley

As explained in the previous report, our monthly surveys feed into a larger study to assess the current conservation status of the Angolan giraffe in far northwest Namibia as part of the SCIONA project and the proposed Iona-Skeleton Coast Trans Frontier Conservation Area.

In an effort to help build the capacity of future conservation leaders throughout Africa and internationally, GCF provides financial and/or technical support and supervision to a host of African and international students. One of these students is Jackson Hamutenya, an MSc student at the Namibia University of Science and Technology, who is co-supervised by GCF Director Dr Julian Fennessy. Jackson is undertaking a feasibility study for the re-introduction of giraffe into Iona National Park (NP) in Angola. He recently travelled to Angola to assess whether the habitat in Iona lend itself to the introduction of giraffe.

Jackson's initial reports were positive and suggest that there is potential for future translocations of giraffe into the area. In contrast to the stark landscape south of the Kunene River, there appeared to be plenty of suitable vegetation for giraffe to feed on and even some open water after recent rains in the area. In addition to assessing habitat and vegetation, Jackson carried out a survey with local communities to get their views on giraffe returning to Iona. The response was positive throughout, not only from the



older generation who remember giraffe in the park, but also from the younger generation, many of who have never seen a giraffe.



Figure 2: Iona National Park in Angola.

The GCF team continued their regular surveys of giraffe in the larger programme area. The team normally goes into the field for two weeks at a time and they log over three thousand kilometres of road, track and trail. In addition to surveying the Khumib, Nadas, Hoarusib and Hoanib Rivers, the team regularly explores other areas where local partners and community members had reportedly seen giraffe. Most recently, the GCF team explored the Hartmann's Valley after supposed giraffe sightings there. While they found some signs of giraffe in the Hartman's Valley and Marienfluss conservancy, no giraffe were sighted. It is possible that giraffe only move there seasonally or transit through these areas, however, given the vast size of the programme area, it is also possible that the team simply did not encounter giraffe this trip – while they were possibly hiding in plain sight. There were plenty giraffe in the other dry riverbeds of the surveyed rivers. The team spotted many of the regular inhabitants including three new calves and even some new adults that are either visiting or might have moved into the area recently.

See Table 1 for the number of individual giraffe sightings by river for the last quarter.

**Table 1:** Individual giraffe sightings by river/region in the Northwest of Namibia (August-October 2019)

	Male	Female	Juvenile (sex unknown)	Total
Hoanib River	53	33	7	93
Hoarusib River	81	66	6	153
Far North (including Khumib, Nadas and Ensengo Rivers)	21	21	3	45
Total	155	120	16	291

Most recently, the GCF team spent time looking at the original survey data that was collected by Dr Julian Fennessy during his PhD research in 1999-2003. The team merged the old photo database with the never survey images. The process of identifying giraffe visually based on photos can be difficult especially if the photo is blurry or the giraffe did not stand in a perfect position for an ID photo. The team used some artificial intelligence help by using a photo ID programme called *Hotspotter* (<http://cs.rpi.edu/hotspotter>). With the help of this additional 'pair of eyes' and many diligent and patient hours at the computer screen, they managed to weed out any duplicates in the database and we now have one consolidated giraffe ID database for NW Namibia. As a result, we have identified 411 unique individual giraffe in the survey area and the number still continues to grow.

Table 2: Numbers of individually identified giraffe in Northwest Namibia (October 2019)

	Male	Female	Juvenile (sex unknown)	Total
Hoanib River	72	70	14	156
Hoarusib River	80	68	8	156
Far North (including Khumib, Nadas and Ensengo Rivers)	57	33	9	99
Total	209	171	31	411

Once all duplicates were removed, it emerged that over 30% of the original giraffe that were first identified in 1999-2003 are still alive and sighted regularly. Three of these giraffe have in recent years become part of our Adopt-a-Giraffe programme and now have quite a following, namely Coffee Bean, Eros and Windy. If you want to read regular updates on these giraffe and our other adoptees, why don't you adopt a giraffe and through this adoption also support our work financially?!

<https://giraffeconservation.org/adopt-a-giraffe/>

When we last spotted Windy she showed visible udder development and we suspect that she is pregnant and will give birth soon. The team will be on the lookout for her and hopefully her new calf on future survey trips.

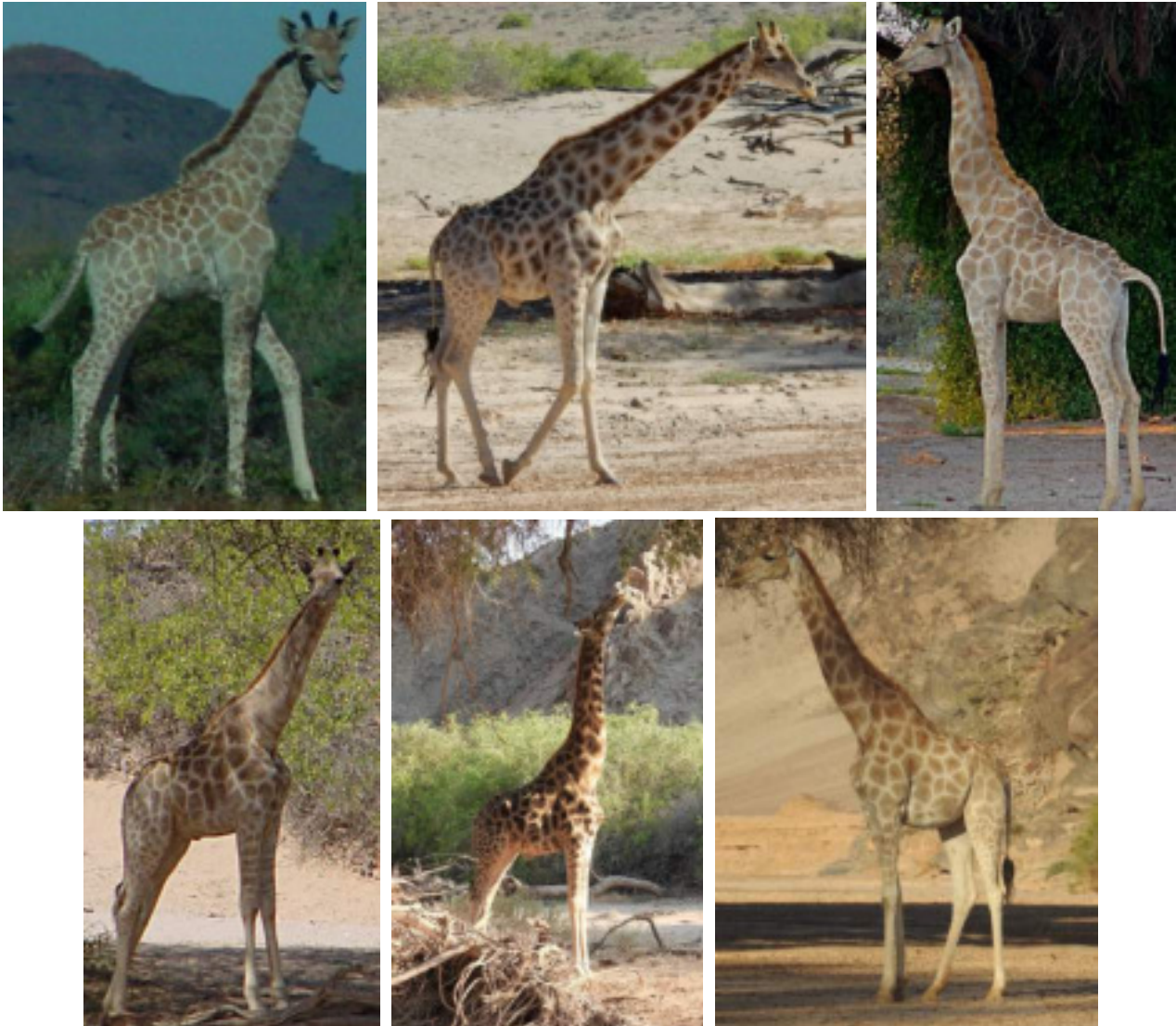


Figure 3: From top left clockwise: Coffee Bean (2000), Coffee Bean (2019), Windy (2000), Windy (2019), Eros (2000), Eros (2019).

When a new calf is found in the survey area, the team tries to determine the mother and estimate the calf's age at the first sighting. Female giraffe often creche their calves with subadults (both male and female) while they travel further in search of suitable food. As such, we cannot automatically assume that a female we see with a calf is the mother unless female and calf are isolated. To age a calf, we use a number of indicators including ossicone development. Giraffe calves are born with the ossicones lying flat on their head and they only erect after about two weeks. Young calves also have lots of fluffy hair on top of their ossicones. Another indicator is the shape of their bellies: newborn calves have flat bellies and will only become slightly rounded after a few weeks. The umbilical remnant usually falls off between 2-4 months of age. It is very difficult to sex young giraffe too – the best way to determine their sex is to watch them urinate: if they pee forward, they are female and if backwards, they are male.

Every time our team goes into the field, they make some exciting new discoveries. Recently they spotted a female giraffe with a new calf and when looking closer they noticed that both giraffe shared a very unique and similar looking arrow-shaped spot in almost the same location on their bodies. A recent paper



by Lee et al. suggested that calves may inherit coat pattern traits from their mothers. (D.E. Lee et al. 2018. Seeing spots: quantifying mother-offspring similarity and assessing fitness consequences of coat pattern traits in a wild population of giraffes (*Giraffa camelopardalis*). PeerJ 6: e5690; doi: 10.7717/peerj.5690).



Figure 4: Mother Zorba (left) and calf Zora (right) share a similar arrow-shaped spot

Our ever-increasing giraffe database includes herd GPS location, individual images, family relations and DNA samples when possible. We hope that all this information will help us learn more about family relations and social networks of giraffe.

The importance of GPS satellite movement data

To save giraffe in Africa, we need to gain a better understanding of where giraffe live, where they move and how they use their habitat. GCF has partnered with Smithsonian Conservation Biology Institute, San Diego Zoo Global and Senckenberg Museum as part of our Africa-wide initiative *Twiga Tracker*, which aims to track a minimum of 250 giraffe across their range with innovative GPS satellite solar units. The new tracking technology was first tested in Namibia and so far, we have deployed over 115 ossi-units on giraffe in Chad, DRC, Kenya, Namibia, Niger, Uganda and Zimbabwe.

In our last update, we reported that an additional seven giraffe were fitted with GPS ossi-units in the far north as part of the *Twiga Tracker* programme, bringing the total number of GPS-tracked giraffe in the northwest survey area to 22 animals. All individuals are doing well, and we continue to collect fascinating data on their movements, and we see interesting differences between males and females. Jackson, currently our only remaining male with an ossi-unit, had it fitted in the Nadas River, north of the Khumib River in July 2019. He is typically found in the Nadas River or further north, traveling long distances at a time. In a two-week period, he roamed over 80km covering a large area of the Nadas River, plains, and mountains and walked all the way up to the Ensengo River. In contrast, females generally have a different agenda. While females tend to travel the same distance as their male counterparts, they typically stay in their 'home river' and often only move 10-15km up and down the same area. Males tend to travel longer distances looking for females to breed.

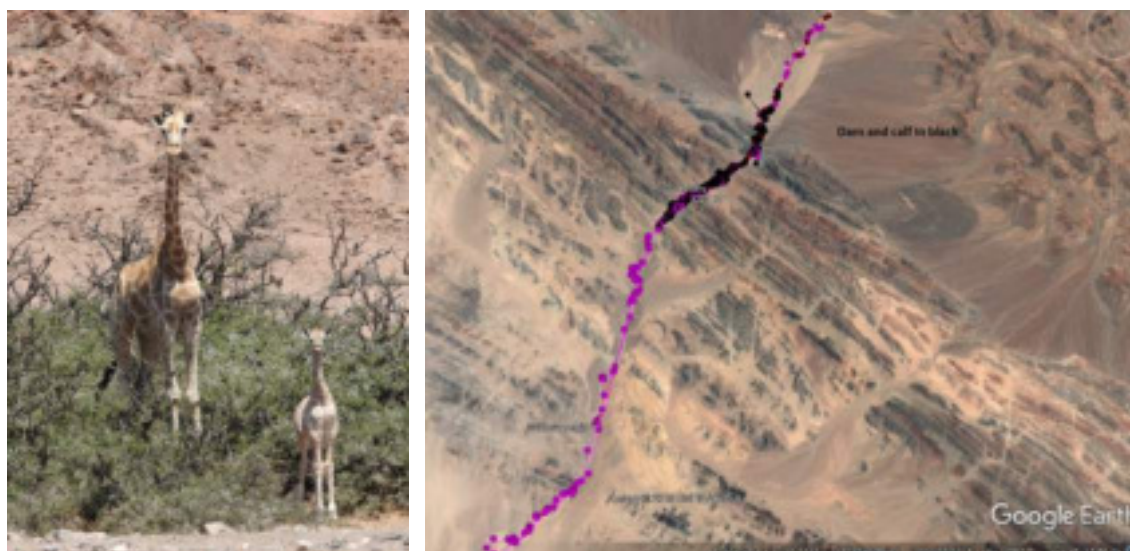


Figure 5: Dorothy with her calf (left). Movement data from Dorothy and her calf (black dots) compared to Supergirl's movement in the same time period (purple dots).

Dorothy, a female giraffe who was recently fitted with an ossi-unit, was noted to be pregnant and estimated to be in her third trimester. Giraffe have a 14.5-15-months gestation period (pregnancy) so the third trimester is approx. five months long. In October, Dorothy was spotted with her new calf in the dry riverbed of the Khumib River. The team estimated that the calf was only about two weeks old based on the still flat ossicones and visible umbilicus. Since giving birth, we have followed Dorothy's movements closely online with the help of Google Earth. We have noticed that she is keeping an even smaller range than usual, only utilising a span of approximately 8km and sticking strictly to the riverbed. In comparison, another tagged female (Supergirl) who is often spotted in the company of Dorothy continues to maintain a larger range of approximately 15km along the riverbed. It looks like new mums might make different choices when looking after a young calf.

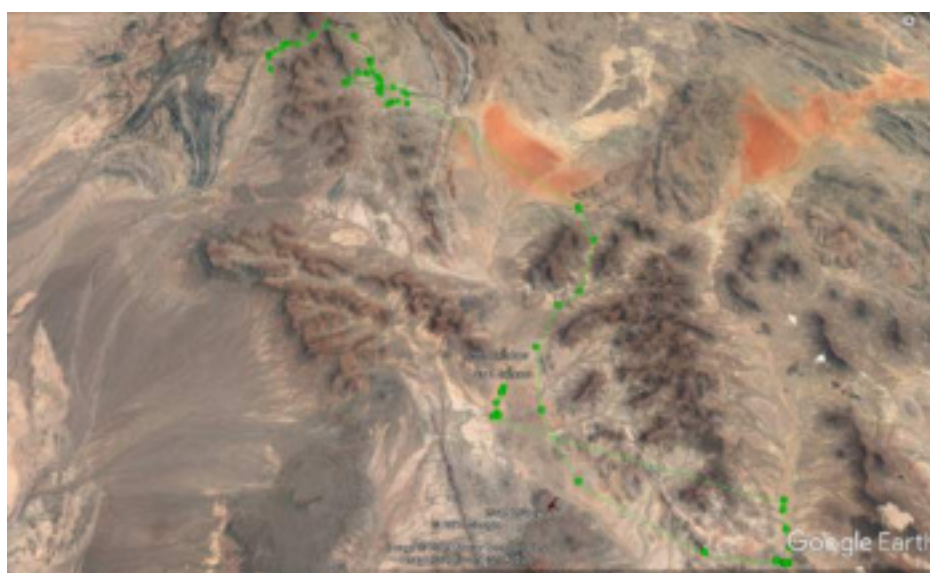


Figure 6: Male giraffe movement in NW Namibia.



With 22 ossi-units in the area we are starting to get a clearer picture of where giraffe range and how they intersect with other giraffe and humans. It would be most interesting to gain more information about male giraffe movements, but unfortunately, the technique of fitting a solar-powered GPS-satellite unit to the ossicone does not work that well with male giraffe. They tend to damage the units when necking/fighting for dominance with other male giraffe. We have fitted several male giraffe with units in the past but with limited success. So, we are back to the drawing board looking for different ways of tracking male giraffe, either by strengthening the current units or finding a totally different design. This data would be important to help us understand the different movement patterns of male and female giraffe and just how much they move between the different river systems.

Also as part of the Twiga Tracker initiative and in collaboration with our partners at the Namibia University of Science and Technology (NUST) and Natural Selection Safaris, GCF fitted GPS satellite units to four giraffe in Etosha Heights, a privately-owned reserve bordering the southwest of Etosha National Park (NP).

This giraffa data will also be used by a NUST project that collects movement data from a range of species both in Etosha NP and Etosha Heights to compare wildlife movements in different land uses. In 2020, we are planning to fit additional ossi-units to giraffe in Etosha Heights as well within Etosha NP to also look at comparative giraffe movement data between the park and a private game reserve. Etosha Heights and the western part of Etosha NP are at the eastern-most extend of the Hoanib River catchment and this data might help us answer one of our research questions, whether giraffe in this arid system move in relation to the rainfall gradient of the river and its catchment and importantly, do they pre-empt rain or move after the rain has come.

Overall it has been another amazing quarter of new and long-term collaborations with great partners and we are looking forward to ending the year with a final survey in 2019. As the temperature rise in NW Namibia, we will take a short break from field research and prepare for another busy year in the bush. So far, our team has eight surveys planned for 2020, which will be assisted by conservation supporters from around the world. 2020 promises to become another busy and exciting year for GCF and giraffe conservation, so stay tuned for more news from Namibia soon.

Thank you for your support!



