

# Namibia Programme – Quarterly Report

November 2017 – January 2018



At its 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 Northwest Namibia Programme, as well as our newly initiated country-wide giraffe assessments. If you follow our updates regularly, you might want to skip forward and give the background information a miss, but you might also find some interesting information that you were not aware of.

## Background

In partnership with University College Cork (UCD, Ireland) and the Namibian University of Science and Technology (NUST), GCF's Northwest 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. Our work focuses on the ephemeral Hoanib and Hoarusib Rivers and covers an area of approx. 4,500km<sup>2</sup>. The area extends from communal conservancies in the east (which support both wildlife and domestic livestock) into the Skeleton Coast National Park bordered by the Atlantic Ocean to the west.

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 programme here offers a unique and valuable opportunity to better understand this subspecies and, through what we learn, provide conservation and management support for other giraffe populations throughout Africa.

In addition to this long-term conservation research, we recently initiated country-wide assessment of giraffe. In this exciting new 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 for giraffe conservation in Namibia and Africa-wide.

### Northwest Namibia Data Collection

Since February 2016, 18 conservation research fieldtrips have been undertaken in our programme area in northwestern Namibia. Over the past three months we have continued to gather a wide range of data on the giraffe population, including individual records for each giraffe, observational data on herd composition, genetic biopsy sampling, range and movements, weather, browse, and vegetation including remote sensing of vegetation indices and ground-truthing of vegetation phenology.

We would like to extend a massive thanks to all the conservation supporters who have helped us in the field over the past few months to collect and input this data. Our team, in collaboration with the specialised teams at UCD and Senckenberg Biodiversity and Climate Research Centre (BiK-F, Germany), have now started in depth analysis of this large data set.

This analysis will have several different strands, each driven by specific research questions that have shaped the study.

### Genetic Data

Over the past five years our team has collected DNA samples of individual giraffe in the study population as the first step in better understanding their population genetics – who is related to who, and are they friends or not? These tiny tissue samples or 'biopsies' are obtained by 'shooting' each giraffe with a drop dart that includes a tiny barb. The dart falls out immediately, taking a piece of skin and fat with it, and can be picked up from the ground when the giraffe moves off. No drugs are required and no harm is done to the animals (just a little prick like an injection).

So far, we have collected over 100 biopsies from individually recognised giraffe – some of which were identified as early as 1998 and followed over the years. As such this genetic data can be paired with various behavioural data that we have collected for each giraffe over the years and it will hopefully make it possible to see what role genes play in determining specific behaviour and relationships.

However, collecting these biopsy samples is only the very first



step! These samples will now be sent to the genetics laboratory of our partner BiK-F in Germany. There the samples will be analysed and the results will hopefully help answer some of our research questions. In the interim there is lots to do. Our research population comprises >250 individuals, so it is back to the field to try for another 100 biopsies!

**Observational Data**

The focus of our fieldwork is not just biopsy darting – in fact, darting is done on top of collecting the all-important observational data. This data includes simple counting of giraffe during every trip, where they are seen, what they are browsing, who their offspring are and which individuals are spending time together.

This data is currently analysed to see what we can learn about giraffe grouping behaviour from these regular observations. While our results are still preliminary, some interesting patterns are emerging already.

For example, in our October report we mentioned that giraffe likely adjust group size to adapt to changing environmental conditions as well as seasonal preferences. This month we focussed our analyses on the composition of these groups, exploring whether there is a time of the year when males and females tend to aggregate. Giraffe are generally believed to remain largely sexually segregated in the wild, meaning that adult male and female giraffe usually spend time in separate groups, coming together only very briefly to breed. Higher rates of aggregation at a certain time of year could mean that giraffe are more likely to breed at this time, or that food scarcity forces them to come together to feed. Our preliminary results suggest that, in line with previous literature, giraffe do remain segregated year-round. This offers further evidence for the ‘roving male’ strategy, where males briefly search for females and if the time is right mate with receptive females before moving on again.

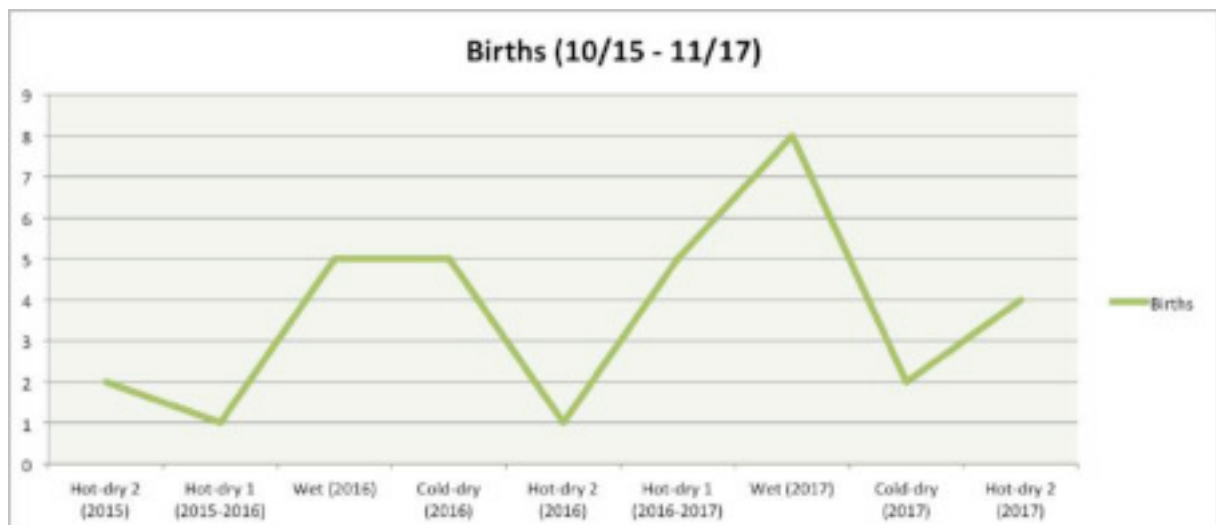


Figure 1: Observed giraffe births in study area.



However, this may not be the full story. Another way of looking at possible seasonal breeding patterns is to examine birth rates. While no seasonal breeding pattern has been reported for this population before, our preliminary results seem to suggest a pattern in giraffe births that corresponds with the rainy season (see Figure 1). This would of course be the wisest time for mothers to give birth, as the browse is most nutritious then and would allow for optimum lactation.

Up to now we believed that reproduction in Namibia's desert-dwelling giraffe was not seasonal. Any seasonal pattern would be very important to understand in terms of conservation. For example, as tourism levels continue to rise it may be possible to designate times when the number of cars or game drives should be limited to allow giraffe extra space for breeding and calving. While these results are only preliminary, we cannot wait to find out more!

### **New technologies**

Our team worked hard in 2017 to fit ten giraffe in the research area with our new solar powered GPS satellite tracking units. The data from these units is coming in thick and fast and we are very excited about the new things we can learn about giraffe behaviour by applying advanced statistical techniques. While we are keen to have a full year of data before we start the analysis, we are already learning a lot by simply following these giraffe online. Figure 2 shows the movement of three tracked giraffe over the past two weeks. Each colour represents a different giraffe and the dots show hourly location readings.

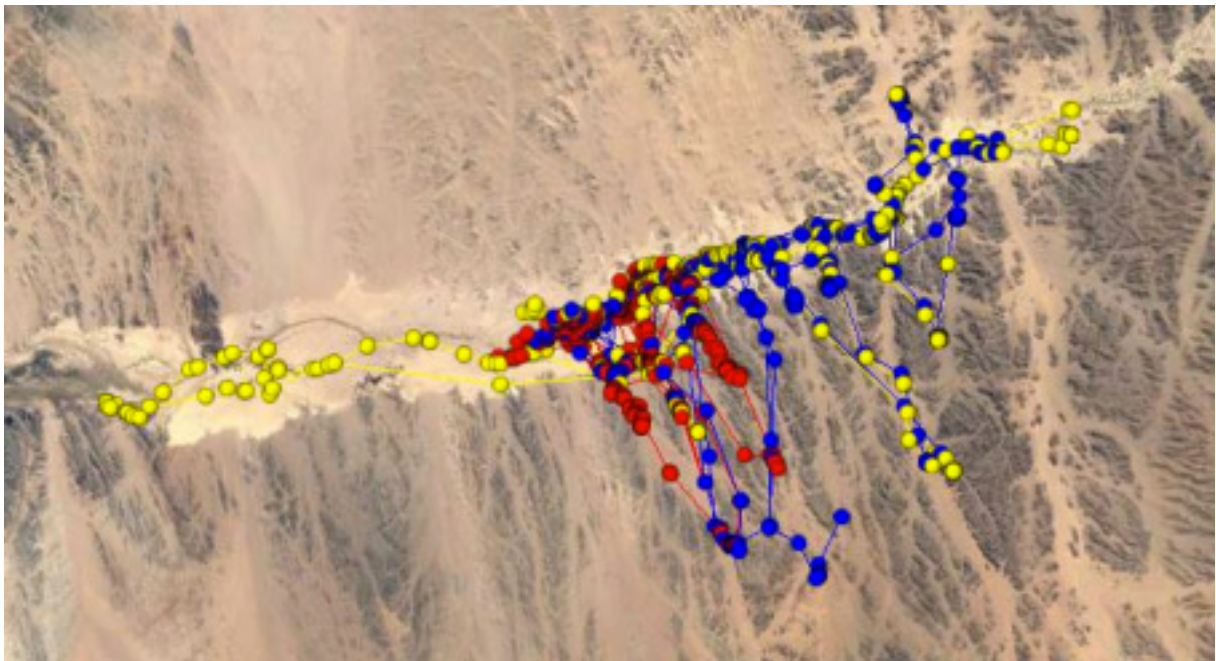
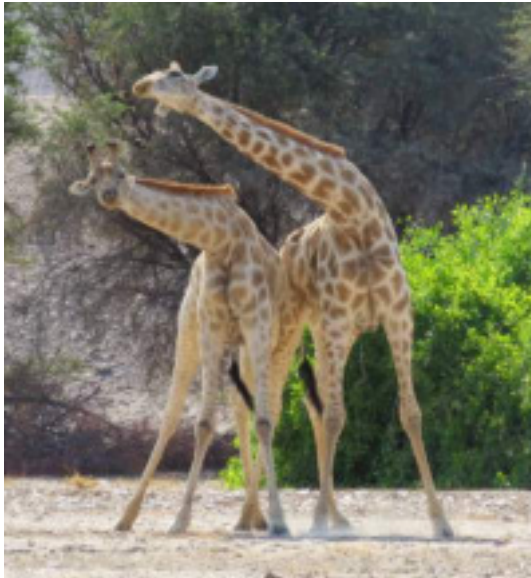


Figure 2: Giraffe tracking data in northwestern Namibia.

So far, we are delighted with the quality of the data, and in collaboration with several partners, we are now also working on a scientific publication detailing the evolution of giraffe tracking units over the past four decades. Hopefully through this publication others can learn from our journey, and perhaps the units can even be modified for other animals to help conservationists and managers learn more about other species that are difficult to track, and/or live in areas that are difficult to access.

While our new tracking units are generally working well successful we also had some draw-backs – the joys of cutting edge research and development. Over the last few months, we have 'lost' three units





that were fitted to male giraffe. We can only assume that the unit placement on the ossicones means that these male giraffe have damaged or lost them during bouts of 'necking' (hitting each other with their ossicones in competition for sexual dominance and access to females). We are currently working on a modified and more robust design to overcome this problem, and hopefully our efforts back on the drawing board will work out in the field.

### **Educational opportunities**

While the conservation research goals of the programme are paramount, we also provide valuable environmental education opportunities for people living in the area or showing an interest in getting more involved in hands-on giraffe conservation. We are regularly joined by members of the local communities who check out what exactly we are doing in the field.

Amazingly, over the past 18 months we were joined by over 70 passionate conservation supporters from 14 countries. Next month we are delighted to welcome a new group of giraffe enthusiasts including a Namibian student who is working on her MSc dissertation at NUST under the co-supervision of GCF. We are looking forward to seeing many new faces (and a few returning ones!) in the coming months.

### **In the Media**

As always, we have also worked hard to get the word out about our programme and giraffe conservation in general. While we are not yet allowed to say more, there were certainly a lot of cameras in the field in November and we are hoping to see some of northwest Namibia's giraffe gracing TV screens later this year – check in for more information on this soon!



In the meantime, here is a link to a recent online article featuring our giraffe conservation programme: <https://journalistontherun.com/2017/12/13/giraffe-conservation-in-namibia/>

### **Country-wide Giraffe Assessment**

January has been both exciting and busy with GCF starting a new Namibian initiative. The GCF team has been joined by two new members from New Zealand who are volunteering with us for a year. Eager to get started on all things giraffe, they have embarked on a trip south to survey numerous properties for giraffe. Overall, the aim is to survey as many properties in Namibia as possible to get an accurate account of numbers, population dynamics and distribution and ultimately to help better inform giraffe conservation and management in the country. This trip to the south of Namibia is hopefully only the first of several trips around the region to survey giraffe.



Before embarking on this adventure, this new survey team was first trained in off-road driving and giraffe survey methods. Working closely with Okapuka Ranch for over a year now, we have developed a good understanding of giraffe numbers there and have an ideal training ground just before our front door. The team spend a day together with Okapuka’s Namibian intern to align survey methods and data capture, including individual ID photos, sex, herd size, GPs location and more.

Each property owner will receive a survey report as well as individual ID sheets for all their giraffe. This will hopefully not only form a useful giraffe management tool for each property but will also provide much needed data on giraffe numbers and distribution in Namibia.

The surveys were started in style at Gondwana Collection’s Kalahari Anib Lodge, east of Mariental. The property currently has 16 giraffe including a very cute young calf, which was only 10 days old at the time of the survey. Together with the lodge staff, each giraffe was identified, herd data collected, reported and files completed before moving on. We would like to thank Gondwana Collection for their hospitality.

**Looking Ahead**

The next few months are set to be action packed and we are busy making sure all equipment is field-ready, including our new field vehicle for the Northwest Programme, which will hopefully experience a good wet season of running rivers and new adventures! We are excited to see where the giraffe with the new GPS satellite solar units are moving and to push forward with the analysis for the first two publications based on the last two years of data collection.



In the south, the ‘tour’ will take our team through much of the southern part of the country working closely with different land owners and managers from the Kalahari in the east to the Atlantic Ocean in the west – and everywhere in between. Increasing our understanding of giraffe numbers and distribution will be fascinating and help us understand their current conservation status, and property owners/managers to get a handle on their animals and consequent management.

Stay tuned for more news from Namibia as we look forward to keeping you updated.



