

THE BARKING GECKO

December 2022

Volume 23, No.2



BATS

THE GALLERY

GREETINGS FROM THE CEO

GECKO RESEARCH

NEWS FROM THE SOUTH

THEN AND NOW

AN UNEXPECTED ENCOUNTER

NEWS @ NaDEET

INDEX

4	EDITOR'S INPUT
5	MESSAGE FROM THE CEO
6	WORD FROM THE WARDEN
8	GREETINGS FROM THE SOUTH
9	THEN AND NOW
10	GECKO RESEARCH
12	BATS ON NAMIBRAND
17	INTERESTING CAMERA TRAP PICTURES
18	LIFE EXPERIENCES
20	THE WOLWEDANS GALLERY
23	IMPROVEMENT AT THE FAMILY HIDEOUT
24	NEWS @NADEET
26	NAMIBRAND MOUNTAIN ZEBRA PROJECT
29	AN UNEXPECTED ENCOUNTER
30	PRO-NAMIB CARNIVORE STUDY

*"Heaven is under our feet
as well as over our heads."
- Henry David Thoreau,*



Quivertree (*Aloidendron dichotomum*) in the mountains

EDITOR'S INPUT LOOKING BACK AT 2022

*"Nature holds the key
to our aesthetic, intellectual,
cognitive and even spiritual
satisfaction."*

- E. O. Wilson

2022 has been an amazing year. We achieved a lot this year, hosting multiple groups of researchers, film crews and university students. We were able to experience some of our concessionaires' establishments and activities. We enjoyed every moment with staff and being in nature. It's a wonderful feeling to be ending this year with such a great team.

It is a privilege and delight to be part of NamibRand and to live and explore the desert. We continue to make excursions and take hikes in the landscape, to see and explore as much of the Reserve as possible.

From the desert, we wish you and your family a wonderful festive season filled with love, sunshine and laughter. We look forward to another great year in 2023.

Jessica Steyn



Sundown at Kwessi Dunes Lodge

Ballooning with NamibSky over Bushmankoppie



In the Nubib Mountains behind Draaihoek



MESSAGE FROM THE CEO

2022 has passed in the blink of an eye. Thankfully things on NamibRand have improved. Wildlife numbers have rebound significantly after two good rainy seasons and visitor numbers to the Reserve have recovered to almost pre-pandemic levels. Read the latest game count reports in the library section of our website at <http://www.namibrand.org/library.html>.

Although our income stream, revenue from park fees collected from visitors, has been restored we still have a long way to go before our debt is cleared. The NamibRand Nature Reserve is a non-profit NGO and in order to make it through the COVID-19 pandemic we had to take up loans to continue

our conservation work. We thus appeal to you to consider donating to the NamibRand Nature Reserve for the benefit of biodiversity and landscape conservation.

Our new warden at Keerweder, Jessica Steyn, and our new Operations Manager, Andre Steyn have settled in nicely. Jessica has been busy hosting a number of researchers on the Reserve. Of particular interest is the bat research conducted by Angela Curtis. Two new species have been added to our species list and you can read all about this fascinating work in this issue of the newsletter. Francois Becker, Chief Curator at the National Museum of Namibia, also spent some time on the

Reserve researching barking geckos. He has identified a new species of these iconic noisy geckos on NamibRand and his findings are also reported in this issue.

Andre has been enthusiastically transforming our headquarters at Keerweder with multiple projects, including the repainting of all the buildings. His work is breathing a new lease of life into the homestead.

We would like to take this opportunity to thank you all for your enthusiasm and ongoing support to the NamibRand Nature Reserve. We all wish you a great festive season and relaxing holidays.



Julius Hübel

Sunset at Keerweder

WORD FROM THE WARDEN

Jessica Steyn

The second half of the year was less busy with visiting researchers and film crews. However, it was still an interesting time.

Julius Hübel, a German exchange student completing his honours with the Namibia University of Science and Technology (NUST), worked with us for four months. He assisted staff with daily activities and conducted his own research for his degree requirements. With his experience in geographic

information system (GIS) he helped update NamibRand's map data. A group of NUST students visited Keerweder on their way to NaDEET for a week-long excursion and Julius joined them at NaDEET for the week. During the visit, Julius's evaluation was conducted by the lecturer and the other students gained an insight into the work done at NamibRand.

During the Klein Family's last visit to Draaihoek, they

photographed a track at their waterhole which was 20cm long and 3.5cm wide. There was a lot of speculation as to what animal made the track. Staff later sighted an oryx in the Draaihoek area with a long hoof, which hadn't been worn off, creating the strange spoor.



Vulture nest with an adult and chick near the Losberg



View of the dunes near the Family Hideout

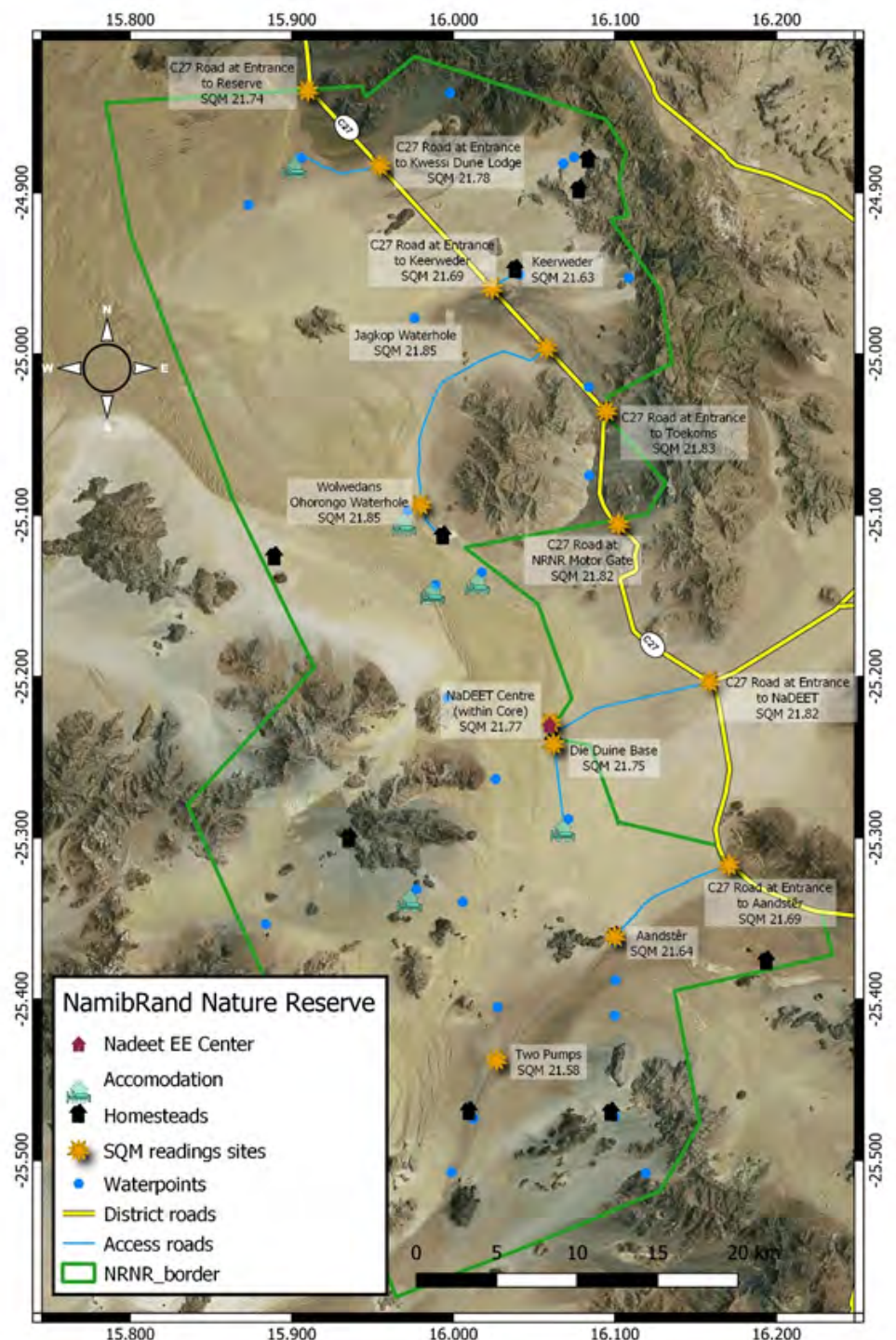


Visiting NUST students identifying trees at Keerweder

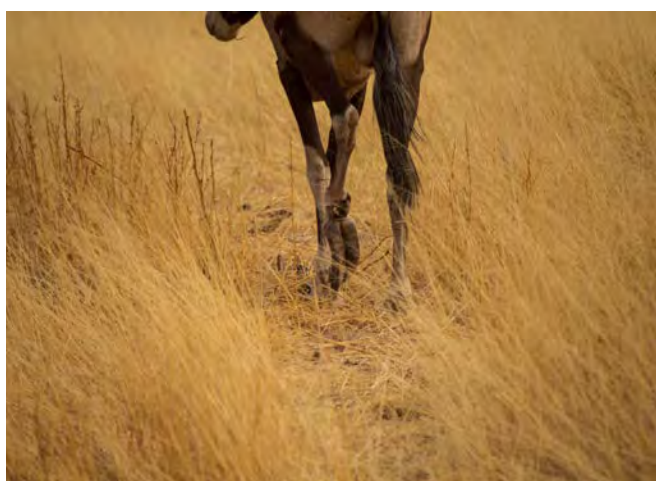
In October the annual aerial survey was conducted on the Reserve to identify vulture nests with chicks. Jessica had the opportunity to fly with pilot Peter Keil over NamibRand Reserve to identify three nests with chicks. Two of the chicks have subsequently been tagged. The other chick, who was still too small, is scheduled to be ringed later in December.

Early rain showers have given the land some much needed moisture after the dry season. The rain was patchy and the southern areas received more than the northern areas of the Reserve.

Dark sky readings were also undertaken in November. It was a long night for the staff, but the readings were fantastic and continue to confirm that we have a very dark sky.



Map of dark sky measurement points (SQM)



Oryx with long hoofs, left and right

GREETINGS FROM THE SOUTH

Martin Verwey

Due to good rains the south received over the last two seasons, there is more than enough grazing for the animals. Young oryx, springbok calves and zebra foals can be seen everywhere and game numbers are increasing. Plants that seemed to be absent for many years, during the drought, are growing again and blooming. We were blessed with three new giraffe calves in the last two years. Ostrich numbers are also increasing and some of the groups we counted had as many as 36 chicks.

The Aandstêr solar power system was recently upgraded from lead acid batteries to lithium iron batteries. This is a big improvement and now the generator only has to be run on cloudy days for water and electricity. This has resulted in a large savings in diesel and helps us to minimize our carbon footprint. The vegetable garden is producing enough vegies for all our needs.

On the 8 November, Holger Kolberg, from Vultures Namibia came to help Namibrand tag the Lappet-faced vultures chick identified in the aerial survey. Two chicks were ringed and tagged, but the third chick was still too small. Holger will return in December to ring and tag the last chick, and he plans to fit a GPS tracking device on the biggest chick at Aandstêr. We would like to thank the ProNamib Nature Reserve for sponsoring the tracker for this vulture. We look forward to being able to monitor its movements. The NamibRand team would appreciate it if any sightings of Lappet-faced vultures with identifiable tag numbers could be reported on www.vultures-namibia.com.

It is a huge privilege for us to stay at Aandstêr in the beautiful Namib. There is a saying, "if the red Namib Desert sand gets in to your shoes, you will always return to the Namib."



Edelweiss bloomed, but has since dried



Team at one of the vulture nests



Newly-tagged vulture chick



Cloudy skies in the Aandstêr area



Little desert thistle (*Blepharis grossa*) in bloom



Wild sesame (*Sesamum capense*) in bloom



March 2022



June 2022

Dune behind Wolwedans Village, looking east

THEN AND NOW

Jessica Steyn

Over the year the landscape changed dramatically with all the rain received. These pictures show the comparison during the rainy season to now, when everything is dry. It is interesting to see how much change happens in the landscape of the Namib Desert.



March 2022



June 2022

Jagkop looking north



March 2022



June 2022

Kokerboom Forest in the mountains, looking west

BARKING GECKOS

DIFFERENT CALLS, DIFFERENT SOILS - DIFFERENT SPECIES?

Francois Becker

The call of the barking gecko is an iconic sound of the Namib Desert. This unique genus was almost certainly born in the central Namib Desert, where all three species are still found: the Namib Barking Gecko, *Ptenopus carpi*, the Interdune Barking Gecko, *Ptenopus kochi*, and the Common Barking Gecko, *Ptenopus garrulus*. Two of these species can be found on NamibRand. The Interdune Barking Gecko (*P. kochi*) lives only in the softest dunes on the Reserve and has a fast call with many notes, almost like a maniacal cackle. The much smaller Common Barking Gecko (*P. garrulus*) has a slower call with around six notes, or pulses. The Common Barking Gecko is widespread and found throughout semi-arid southern Africa, through Botswana and the

Northern Cape to the northern reaches of Limpopo and perhaps even southern Zimbabwe.

However, as it turns out, the Common Barking Gecko may not be as common as previously thought. Wolf Haacke worked extensively on this species throughout the 1960's and 1970's, pointing out some differences in their calls and appearance across the range. Francois Becker, the Chief Curator from the National Museum, recently re-investigated this genus in his thesis, recording calls and analysing DNA samples from across the range of all three species. He noticed that *Ptenopus garrulus* populations on different soil textures have very different calls. The call is a signal that the male geckos use

to attract females of the same species. He tested the relationships of these different populations with each other using DNA, and found that *Ptenopus garrulus* is actually a "species complex", containing several distinct "forms", which are probably separate species. Each form seems to have a different call and different habitat preferences. Some live on hard soils, like gravel plains and silty floodplains, while others prefer softer, sandy places. Some prefer the fog-zone close to the coast, whereas others like the warmer, rainier climates further inland.

The animals found across the plains and on the lower dune slopes at NamibRand belong to one of these unnamed forms. This form is at home on the sandy plains along the edges



Unnamed gecko from NamibRand, affiliated to the Common Barking Gecko (*Ptenopus garrulus*)



Interdune Barking Gecko (*Ptenopus kochi*) from the NamibRand dunes

of the Namib Sand Sea, and is usually the only one found on the dune streets, or interdune plains. *Ptenopus kochi* is also a Sand Sea endemic, but prefers the softer sands on the dune plinth, or base, just before the steeper slopes. Travelling further south from NamibRand will bring you into contact with yet another unnamed form which prefers harder soils such as gravels, riverbeds, and floodplain silts. Travelling north past the Sand Sea will land you in the territory of a third form on the central Namib gravel plains, where it shares the habitat with the Namib Barking Gecko, *Ptenopus carpi*. Finally, if you go as far south as Luderitz or into the Sperrgebiet, you will find yet another different form roaming these foggy, diamond-scattered coastlines.

All these unnamed forms are currently lumped under the Common Barking Gecko, as a subspecies – *Ptenopus garrulus maculatus*. In fact, if these findings are correct, you will not find the Common Barking Gecko within the Namib Desert at all. True *P. garrulus* seems to be restricted to the Kalahari Basin and various sandy patches surrounding it, whereas the animals in the Namib actually belong to other, yet-unnamed species.

Sorting out the differences and naming the potentially new species is in process. One thing is certain though: even after a century of research, these loud little lizards still have secrets to uncover.

Francois S Becker

Chief Curator: Natural Science
National Museum of
Namibia, P.O. Box 147, Windhoek
Namibia
Tel: +264 61 276 835



Different extents of the yellow throat patches of the two species at NamibRand (only males have this, female throats are plain white)



Feather-like “fringes” on the toes of *Ptenopus kochi* to help them dig in the fine, loose sand (these are also present in other barking gecko species, but are less extensive)



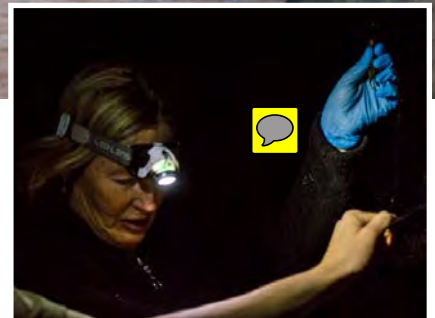
Barking gecko shown between fingertips for scale



Carrying equipment to the pools at Draaihoek



Jessica Steyn



Carefully removing a bat from the net

BATS ON NAMIBRAND

Angela Curtis

My name is Angela Curtis and I am from the Snake Park in Swakopmund. I visited NamibRand for a week from 12-16 September, to identify the bat species found on the Reserve. During my visit, I worked closely with the NamibRand staff to take a lightning look at the bats at three waterpoints in the northern part of the Reserve at Keerweerder, Draaihoek and Boscia.

To capture bats, a very fine mist net is used, which the bats are unable to detect using echolocation, but are able to sometimes see, especially if there is a full moon.

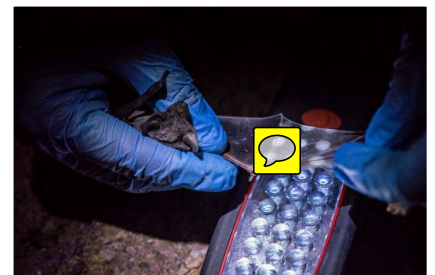
Unfortunately, the night of the 12 September was extremely windy, and netting was not possible. We were able though, to take some echolocation recordings. We were then able to net on the subsequent nights at Draaihoek (13th), Boscia (14th) and Keerweder (15th).

In total seven individual bats representing four species were caught. An eighth bat and fifth species was found dead in the storeroom underneath the water tank at Keerweder.

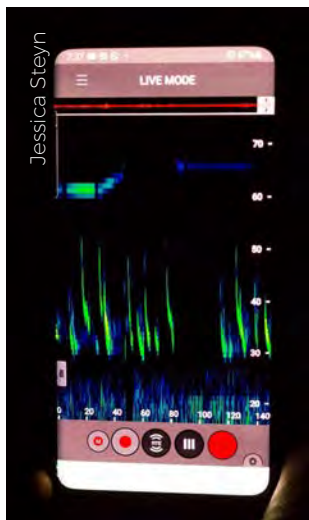
The bats captured were:
Draaihoek: *Sauromys petrophilus*, Robert's flat-headed bat.



Jessica Steyn



Taking wing measurements and assessing the wing bones by shining a light through the wings



A spectrogram on the phone and a long-term bat detector set up on a rock

Boscia: *Laephotis namibensis*, Namibian long-eared bat, *Cistugo seabrae*, Angolan wing-gland bat and *Eptesicus hottentotus*, Long-tailed serotine.

Keerweerder: *Sauromys petrophilus*, Robert's flat-headed bat and the dead bat was *Nycteris thebaica*, Egyptian slit-faced bat.

Once the bats are caught, I take various measurements and weigh each bat to help in identification, as some bat species can be extremely difficult to tell apart. I also looks at the joints between the wing bones to see if I can age the bat. In juvenile bats the ends of the bones have not yet fused, while they have fused in adults. It is very difficult to determine anything else about the age unless the bat is ringed or microchipped as part of a long-term study. The record for the oldest bat is for a 4g *Myotis* in Europe which was 44 years old.

When bats are studied, ultrasonic recorders are used to record their echolocation calls of bats. The echolocation calls of bats in this area can vary in frequency from 18kHz to 140kHz. The recordings are then run through a special software which gives a sonograph with the frequency and the variation of frequency in each call. This is then used to identify individual species, although sometimes different bats use a similar frequencies which can make identification quite difficult. I also use a handheld detector which I can plug into my phone for short periods of time while working to give immediate feedback about which species are active.

From the echolocation recordings taken I identified *Tadarida aegyptiaca*, Egyptian free-tailed bat and *Rhinolophus damarensis*, Damara horseshoe bat and possibly *Neoromicia zuluensis*, Zulu serotine. Some more netting will need to be done to confirm the Zulu serotine species as its echolocation call

Top:
Robert's flat-headed bat,
Sauromys petrophilus



Right:
Egyptian slit-faced bat, *Nycteris thebaica*



Namibian long-eared bat, *Laephotis namibensis*, from the front and the back showing the long ears



Angolan wing-gland bat, *Cistugo seabrae*, and photo of the wing showing the gland

parameters overlap with those of *Cistugo seabrae*. Both species weigh approximately 4g and use similar echolocation calls so they may be mutually exclusive in the same niche. There is so much about bat behaviour, especially in the Namib Desert, which still needs to be discovered. This is what makes it such an exciting field to work in.

Most of these species are arid region specialists. Robert's flat-headed bat, *Sauromys petrophilus*, has a flattened skull just like its common name suggests. This is because they roost underneath the flakes of exfoliating granite. They often have little calluses and worn off fur in places from wriggling into narrow granite cracks. The flattened skull also makes it quite difficult for bat biologists to get a head length measurement as the calipers easily slip off the back of the skull. These bats have long narrow wings, are very fast fliers and hunt in open air, sometimes at quite high altitudes in a similar manner to swifts.

The Egyptian slit-faced bat, *Nycteris thebaica*, occurs over most of Africa, but those found in the Namib Desert are in the process of being classified into a new desert species, which will be called the Damara slit-faced bat. These are the Jedi bats, because they are often invisible to bat surveys. They have enormous ears which can hear the faintest noises from prey. They used to hear the mealworms in my office at Gobabeb and fly in to investigate when I was working at night. They are called whispering bats because they have a very soft echolocation call which is very difficult for the bat detectors to pick up, although they have no problems detecting the echoes with their giant ears. These bats have broad wings which makes them extremely agile, although not very fast and difficult to catch in nets. In the Namib Desert they prey on scorpions, spiders, and moths. In wetter areas they have been observed eating tadpoles and small frogs.

The Namibian long-eared bat, *Laephotis namibensis*, is endemic to the Namib Desert and nearly endemic to Namibia. It also has long ears and a very soft echolocation call. It is very seldom caught and considered quite rare although its IUCN status is Least Concern because it has a wide distribution within the Namib. We know very little about this species, so it should be classified as Data Deficient. We caught two within five minutes at Boscia which was very special indeed.

The Angolan wing-gland bat, *Cistugo seabrae*, is associated with arid areas and seems to be found away from human settlements where Zulu serotines, *Neoromicia zuluensis*, are often found. As the common name suggests, these bats usually have glands between the forearm and the last phalange on each wing, although sometimes there is only one or occasionally none. If there are no glands in the wings, they are extremely difficult to differentiate from Zulu serotines in the field as differences in

dentition (which help with identification) are only visible on a skull. The purpose of the glands in the wings is still a mystery.

The long-tailed serotine, *Eptesicus hottentotus*, is quite a large bat at roughly 16g. It is associated with dry areas in Southern Africa and seems to prey mainly on beetles.

The Damara horseshoe bat, *Rhinolophus damarensis*, is also endemic to the Namib Desert. All horseshoe bats have a horseshoe shaped nose leaf surrounding their nostrils. Horseshoe bats echolocate through their noses, unlike most other bats which echolocate through their mouths. These bats often hunt from a perch. The horseshoe shape nose-leaf can be cupped and moved to direct the echolocation call in different directions. These bats have broad wings and are very agile, but not very fast. They are usually associated with cluttered environments with lots of vegetation or small spaces between rocks.

The last bat identified was the Egyptian free-tailed bat, *Tadarida aegyptiaca*. These bats are the ultimate survivors. They have long narrow wings and fly very fast, often at high altitudes. Other species in the same genus have been recorded hunting at heights of over a kilometre. They hunt on the wing like their cousins, Robert's flat-headed bats. Egyptian free-tailed bats are found everywhere. They thrive in cities, but are equally comfortable in the country across all types of environments, provided they have suitable crevices in which to roost. Water is not strictly necessary and often obtained from prey although they are occasionally found drinking.



Egyptian slit-faced bats, *Nycteris thebaica*, taken at Arnhem

From this data the team came up with some interesting questions to look at further and extend the project. Why do some species favour certain waterholes? Is it due to roost proximity? Could it be water quality? Could accessibility of the water source be a factor as each species has different manoeuvrability and flying capabilities? Could it be the prevalence of prey animals? Or could updrafts caused by the cliffs aid the open-air foraging species? Is the activity constant year-round or is it seasonal? Could some species be following ephemeral resources? Could it be a combination of factors?

Some other questions were also raised after the netting. All three

of the Robert's flat-headed bats caught were quite small and either juvenile or just reaching adulthood. This raises some questions. Where are the adults? Could they be flying around and not getting caught? Or could they have moved off to breeding grounds and left the juveniles to mature? Other bat researchers have noticed that often only male Robert's flat-headed bats are caught which might mean that the females have moved off to a maternity environment. So little is known about bat behaviour. It is extremely unusual to catch two Namibian long-eared bats at the same time. Could NamibRand have a large healthy population of this very rare species? Only further research will be able to answer some of these questions.

The first species list below was the existing list for NamibRand.

Previous Species List

Bats species of NamibRand	
Scientific name	Common name
<i>Hipposideros caffer</i>	Sundevall's leaf-nosed bat
<i>Nycteris thebaica</i>	Egyptian slit-faced bat
<i>Rhinolophus fumigatus</i>	Rüppell's horseshoe bat
<i>Rhinolophus clivosus</i>	Geoffroy's horseshoe bat
<i>Rhinolophus darlingi</i>	Darling's horseshoe bat
<i>Rhinolophus denti</i>	Dent's horseshoe bat
<i>Eptesicus hottentotus</i>	Long-tailed serotine bat
<i>Eptesicus capensis</i>	Cape serotine bat
<i>Myotis seabrai</i>	Angola hairy bat
<i>Laephotis namibensis</i>	Namib long-eared bat
<i>Tadarida aegyptiaca</i>	Egyptian free-tailed bat

Some of the names have changed and will likely be changing again as bat taxonomy is quite volatile. The updated list is below, including the addition of *Sauromys petrophilus*, Robert's flat-headed bat.

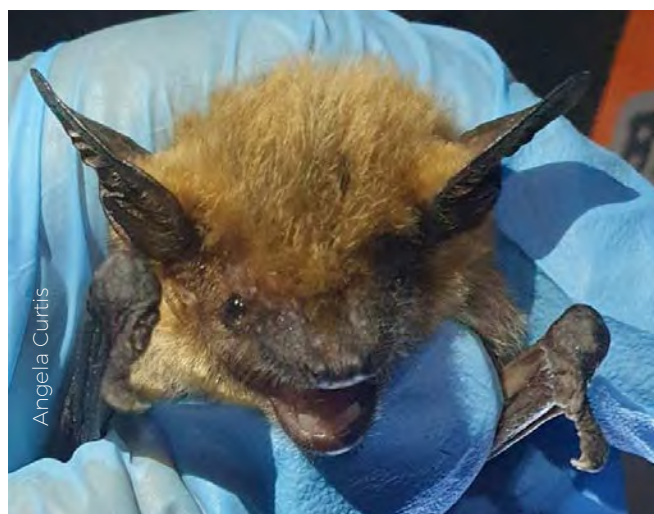


Damara horseshoe bat, *Rhinolophus damarensis*

Updated Species List

Bats species of NamibRand	
Scientific name	Common name
<i>Hipposideros caffer</i>	Sundevall's leaf-nosed bat
<i>Nycteris thebaica</i>	Egyptian slit-faced bat
<i>Rhinolophus fumigatus</i>	Rüppell's horseshoe bat
<i>Rhinolophus clivosus</i>	Geoffroy's horseshoe bat
<i>Rhinolophus damarensis</i>	Damara horseshoe bat
<i>Rhinolophus denti</i>	Dent's horseshoe bat
<i>Eptesicus hottentotus</i>	Long-tailed serotine
<i>Neoromicia capensis</i>	Cape serotine
<i>Cistugo seabrae</i>	Angolan wing-gland bat
<i>Laephotis namibensis</i>	Namibian long-eared bat
<i>Tadarida aegyptiaca</i>	Egyptian free-tailed bat
<i>Sauromys petrophilus</i>	Robert's flat-headed bat

I suspect that *Neoromicia zuluensis*, Zulu serotine may be found and added as a species after more netting. It would also be good to concentrate on the horseshoe bats. Three of the species which are on the list do not officially occur in this area. These are *Rhinolophus fumigatus*, *R. clivosus* and *R. denti* although I have caught *R. denti* at Gobabeb, so perhaps the official range could be extended even more. If they can be confirmed at NamibRand it would mean a very large range extension. Bats are a very specialized animal and species can be extremely difficult to identify. Even specialists sometimes misidentify species.



Long-tailed serotine, *Eptesicus hottentotus*

INTERESTING CAMERA TRAP PICTURES



A kudu (*Tragelaphus strepsiceros*) bull at Moringa



Ostrich (*Struthio camelus*) family at Porcupine



Warthog pair (*Phacochoerus africanus*) at Porcupine



A clan of three spotted hyenas (*Crocuta crocuta*) at Porcupine



A pair of Black-backed Jackel (*Canis mesomelas*) at Moringa



A group of Lappet-faced vultures (*Torgos tracheliotus*) at Verweg



Hartmann's mountain zebra (*Equus zebra hartmannae*) at Verweg



Cheetah (*Acinonyx jubatus*) at Porcupine



A pale chanting goshawk (*Melierax canorus*)



A spooked Oryx (*Oryx gazelle*) at Verweg

LIFE EXPERIENCES

Julius Hübel

The NamibRand Nature Reserve gave me the opportunity to live and work on the Reserve as an intern for three and a half months. This internship gave me insight into the daily functioning of a nature reserve. During this time, I learned a lot and had valuable experiences that I will take forward into my future life. I am very grateful for the opportunity I was given to join the NamibRand team.

As part of my studies in Geography, which I am completing in Germany, I spent a year in Namibia studying in Windhoek at the Namibia University of Science and Technology (NUST) and gaining practical experience as an intern. During this year, I've been able to turn my theoretical knowledge of nature conservation into application in the real world.

I really enjoyed my time as an intern because everyone around me encouraged me, supported me and taught me a lot. I am happy to have met Jessica and Andre Steyn. Without them, the time in the NamibRand Nature Reserve would certainly not have been the same. And I can't forget about Leia, their playful dog, who made my time even more pleasant.

Before I started my internship at NamibRand, I had many expectations, but I couldn't really imagine the actual work. It is only

in retrospect that I can say that my expectations were exceeded, because the work is more diverse than I thought. In addition to the routine tasks such as checking water holes and repairing them, I've also learned how to master unforeseeable challenges. I was particularly impressed by the improvisation needed to achieve results, which always played a major role in the work. Coming from a more urban world in Europe, it was interesting to learn how to work in the middle of nowhere. Repairing a water pipe can be very challenging without a hardware store nearby to get suitable spare parts. In addition to field work, I also worked with geographic information systems (GIS) to create and update maps of the Reserve. I enjoyed these office-based tasks just as much as working in the field.

I also undertook a small research project for my studies at NUST. My project compared the conventional game count method with aerial game count methods using a drone. The project focused on counting larger animals. I would like to thank Jessica, who supported me with the planning and implementation of the project.

I will always have very fond memories of my time at the NamibRand. Not only did I learn a lot for my studies and future professional life, but I also had experiences that enriched my personal life. And then, of course, there is the unique landscape, which I was able to enjoy anew every day. I have learned to love and appreciate this beautiful piece of the Namib Desert.



Beautiful view during a hike with Jessica and Andre



Martin Verwey

Helping with the vulture ringing



Jessica Steyn

Field work for my research project with the support of Leia



Jessica Steyn

In the dunes with Andre and Leia



Jessica Steyn

Preparing the nets to catch bats

THE WOLWEDANS GALLERY RAISING WASTE-CONSCIOUSNESS FROM DESERT TRAIN

Reinhold Mangundu & Lisa Scriven

Around the world, billions of people consume unconsciously with little regard for the harmful effects that excessive consumption and production have on the natural environment and our collective well-being. At Wolwedans, we invite and nurture a shift in these habits towards more conscious behaviour, including how we use and dispose of natural resources.

The Gallery, housing Wolwedans' waste management activities, is an ideal location in which to raise awareness about these patterns of consumption,

bringing attention to the volume of material that is produced and discarded, often needlessly. Through collection and careful sorting of waste, we are able to identify the value and utility in these materials, resulting in opportunities for re-use, repair, and recycling (as well as learning what we can refuse to buy in the first place). This understanding helps reduce the burden we place on natural resources in order to produce new goods from scratch.

Our step-by-step aim is to influence a shift away from linear economy behaviour

patterns of produce, use, discard, and repeat, towards a more sustainable, circular economy path. By challenging ourselves to see the potential in each discarded item, we will begin to create a new reality – one in which our focus as a community creates cleaner, healthier places to live.

Consciousness, defined as the “state of being aware of and responsive to one’s surroundings,” has been a relatively recent addition to Wolwedans’ 5C Sustainability framework and is an essential focal area to positively influence our relationships with the planet and each other.

We encourage our team, guests, and business partners to be more mindful of what they do, why they do it, and how they live and engage. In so doing, we hope to inspire a new way of thinking and being. In line with this, our vision for The Gallery is that it grows into a centre of excellence and innovation, offering solutions for greater consciousness in how we manage solid waste, not only in the Namib Desert, but also perhaps throughout Namibia and beyond.

As part of this work, Wolwedans hosted London-based artist and



Diego Ferrari

Plastic interacting with land, air and two human bodies

photographer Diego Ferrari to run a participatory art project with staff members and trainees. The project entitled 'From the Invisible to the Visible,' aimed to support and strengthen waste-consciousness using photography as an interface.

The Project: From the Invisible to the Visible

Contribution by Diego Ferrari

During my two week-long residency with the Wolwedans Foundation in Namibia, I worked on the project 'From the Invisible to the Visible,' using the materials of plastic, the four natural elements, performance and photography. This body of work is in perfect alignment with the values and the aesthetics of the Foundation's Arid Eden Project, which seeks to establish an entirely sustainable and happy community for Wolwedans.

In an age of mass production and consumption, plastic bags have colonised our homes since the 1960s. Now plastic has permeated the ocean and every corner of our natural environment, including human tissue, and is evolving into a global environmental crisis.

Since I started working with plastic, I look at the distinction of nature and culture differently. I see it from the point of view of an in-progress historical and social crisis, in which nature and plastic waste have fused at both the planetary and microbiological scale. This forces us to consider the duality and opposition between nature and culture differently.

I call my approach creative activism. I collaborate closely



Two portraits hanging in front of the glass crusher



Teamwork makes the artwork

with communities in my work, including my teaching practice. For this project, I worked with vocational trainees from both the hospitality and horticulture courses offered by the Wolwedans Desert Academy. Their input is key to the images you see here. They are subjects, performers and co-creators. I was impressed with how they rose to the challenge of working with an artist and taking on board the themes my work addresses.

Another guiding idea of this

project was the invisible turning into the visible. Photography allows abstract and metaphorical elements to become literal and noticeable. The four elements are air, water, fire and earth. With the Desert Academy participants, we used these elements and expanded our notion of the natural into four related dimensions: Air, Light, Time and Stillness.

In the images, plastic becomes the interpreter between all these elements, moving between them, allowing new ideas and

extending our senses into the boundaries between humanity and non-human nature – animals, plants, landscape, sky, geology, air – to become appreciable in a lyrical and provocative way. The goal is to ask us all to consider how we are in dialogue with nature in an era of global environmental crisis.

About the Artist

Diego Ferrari takes an interdisciplinary approach to photography as a response to nature and culture, and the human footprint in the natural environment. His photographic work investigates the relationship between the body, space, the materiality of plastic and the environment. Ferrari sees an act of photography as not only leading to the output of an image, but also as performance.

He creates each image using actual materials, often attached to his body. With these he makes interventions in the landscape, using the natural elements of air and water as well as recycled plastic bags, along with his own ingenuity.

His aim is to create something that goes beyond an ordinary image to become visual constructions that broaden our consciousness of nature and culture.

He is a Senior Lecturer for photography at Kingston University in London. He also works with art institutions and organisations such as Mies van der Rohe Foundation, Barcelona Pavilion, Elisava University of Barcelona, and in partnership with Vila Casas Foundation. Diego lives and works in London and Barcelona.



The washing bay with a facelift



Images installed in the Gallery, top and bottom

IMPROVEMENTS AT THE FAMILY HIDEOUT

Mandy Brückner

The Family Hideout has been working hard to arrange some noteworthy improvements to our product.

Reception

At reception we have added an MTC repeater and would like to thank NaDEET for providing the power for it. Due to this permanent power connection, the Hideout can now offer cellphone signal to our guests at reception and more reliable Wi-Fi.

Farmhouse

At the farmhouse a Calore Gijon

free-standing wood-burning closed fireplace has been installed in the lounge for those wintry desert nights.

Campsites Orion and Venus

At the Orion and Venus campsites, we added wooden decks to the outside of the ablution blocks and underneath the wash-up sinks. The sand had blown away to such an extent that only the tallest of our camping guests could do the washing up. We would like to thank our expert carpenter/engineer, Nikolai (who also built our popular campsite Jupiter), for the extra seating he built.



Campsite Orion with the new deck and Nikolai, Johanna and baby Lionel



MTC repeater at Die Duine reception



New Calore stove in the Farmhouse lounge



Campsite Orion with new seating and deck



Campsite Venus with new deck and bench and Family Gilck

NEWS @NADEET



Festus Gonteb learners colouring local biodiversity booklets



Danie Joubert learners working with Tippy Taps



CGEE University Students solar cooking

Viktoria Keding, Theofilia Ndahalele & Tuliwilka Shihepo

NaDEET Centre Programmes

After a short winter school break the second half of the year has been very active at the Centre. Two new schools visited the centre – Acacia Primary School and Gammams Primary School. A local Hardap Region school, A A Denk Memorial, visited NaDEET Centre for the seventh time, led by two teachers that are also part of our professional development programme for teachers, Teach for ESD (Education for Sustainable Development). The Centre also welcomed more returning schools including St Paul's College and the DHPS, both from Windhoek, as well as Danie Joubert Primary School from Mariental. Rössing Uranium Mine sponsored a second school group. This school is Willem Borchard Primary School from Okombahe in the Erongo Region. Rössing initially sponsored Willem Borchard, but due to COVID-19 restrictions, the school was unable to travel to the Centre. NaDEET made an outreach visit to the school during COVID-19 and Rössing generously extended their sponsorship for this year's trip. NaDEET greatly appreciates the sponsorship of local companies as it builds relationships in communities, with NaDEET and with the NamibRand Nature Reserve. NaDEET would like to thank Rössing for its full sponsorship of the Willem Borchard group –they covered all costs for the school, including transport.

Two university groups also visited NaDEET Centre. For the second time the Natural Resources Management (Nature Conservation) students from the Namibia University of Science and Technology (NUST) included NaDEET as one of their excursions for their Environmental Education Module. The international exchange programme, Centre for Global Education and Experience (CGEE), brought a group for an extended weekend. The Centre is also expecting one more community

group from the Zambezi Region before it closes for the summer season.

During the year many guests of NamibRand tourism establishments from around the world have also visited NaDEET Centre for an hour-long tour. The visitors are always very impressed by our bustling Centre “in the middle of nowhere”. We welcome all visitors to see us at work.

NaDEET Base

After winter, the garden at NaDEET Base has also started flowering and producing vegetables to add to our meal programme at the Centre. As part of our approach to sustainable living, all staff members are involved in the garden. We have also begun selling produce to visitors and baking bread in our solar oven on order.

The NamibRand Tree Planting Project, which started in 2020 during the COVID-19 pandemic, continues. Our Interns for ESD conducted follow up research to determine the survival rate of the trees. Although more trees succumbed to the harsh desert conditions than we hoped, the project has provided many interesting lessons and will help shape our future projects. For this year’s planting season, we will focus on trees closer to the homestead that we can protect while they are still vulnerable to drought and insect plaques.

Interns

We are very proud of our Interns for ESD who will be graduating at the end of November. Throughout this year they have had an intense learning opportunity combined with practical experience. A highlight was for the interns to take their knowledge into the field to visit teachers at schools around the country that are part of our professional development programme for teachers.



Willem Borchard Primary School exploring the desert

This programme was funded by the ProNamib Trust.

NaDEET is also finally receiving international interns again via our programme partners. Simon is our new Weltwärts volunteer from Germany, and he will be a part of the NaDEET Centre team for one year. NaDEET Centre also welcomed an intern from Hollard, Emma, who is studying Ecology and Wildlife at Yuverta MBO Velp and will gain her practical experience with us.

NaDEET Urban Sustainability Centre

Our Urban Centre at the coast is able to reach a different group of schoolchildren that normally would not be able to travel to the south. Our three-day programme has been very well received and school children are eager to participate. For our first year of full operation (after the challenging COVID-19 years), we had a total of 25 school groups visit. The Urban Centre team had the opportunity to share its work at the annual Environmental Education Association of Southern Africa (EEASA) conference in August in Windhoek.

THE NAMIBRAND MOUNTAIN ZEBRA PROJECT

**Prof L. M. Gosling, Newcastle University, UK and
Namibia Nature Foundation, Windhoek**

The mountain zebra project started in 2010 following a conversation with Nils Odendaal about the aims and practicality of monitoring and investigating mountain zebra on NamibRand. The problem for the Reserve was that the road transect method being used to monitor plains game, including the resident Burchell's zebra population. This method is not suitable for mountain zebra, because they often move to inaccessible terrain, particularly the Nubib Mountain range along the eastern fringe of the Reserve. Groups move out onto the plains to drink at waterholes or graze (particularly when rains produce a green flush,) but they retreat to higher ground to rest and may then be missed in counts.

The mountain zebra project uses techniques that overcome these problems. The key to the alternative techniques is that they are individual-based. Instead of counting or sampling numbers in various types of census techniques (air and road transects), the individual-based technique uses a bottom-up approach of identifying individual animals and then combining individual records over time to reconstruct the population or to carry out mark-recapture estimates. Of course, the success

of such techniques depends on being able to recognize individuals and being able to sample entire populations. Fortunately, mountain zebra are particularly suitable on both counts.

The stripe patterns of individual mountain zebra are as distinct as human fingerprints. When I started studying mountain zebra, some years earlier, in Gondwana Canyon Park, the population was very small following years of persecution by farmers. With small numbers it was possible to simply photograph the zebra and check new photographic records by looking through a photograph ID library. As the population increased following protection efforts, this became too time-consuming. I developed a bar code system where stripe variants were coded (simple, y-shaped, tree-shaped, etc.) and used the filter function in Excel to eliminate possibilities in new photographs (see Gosling, 2019a). This technique has now proved successful in identifying individuals in several large populations, including the NamibRand population. At the time of writing, there are 1,208 individuals in the NamibRand ID library, although not all of these are still alive and some may have moved elsewhere.

A question we need to ask is: is it possible to sample the entire population? Fortunately, mountain zebra are water dependent and prefer to drink at least once a day when possible. This means that when their sources of drinking water are identified, it is feasible to sample the entire population by placing camera traps at these points. There are a small number of natural springs in NamibRand, but most water sources are artificial water holes supplied from boreholes. These sources complicate the interpretation of mountain zebra ecology, but they simplify the sampling of the mountain zebra population using camera traps. Three to eight cameras have been consistently deployed in the northern part of the Reserve between 2010 and 2021. They are checked and maintained by NamibRand staff, currently Jessica and Andre Steyn and their staff. The average number of individual mountain zebra identified each year over this 12 year period is 366 \pm 19 (mean \pm SE).

Another key element of the mountain zebra project in NamibRand is that it is long-term. This reflects the fact that mountain zebra, like most equids are long lived. To understand their population ecology it is



Drinking at the Moringa waterhole. The second animal from the left is the male NR078m, first identified in 2010 when already an adult, so at least 13 years old when photographed here.

necessary to consider all stages of their life. This needs to be studied under different environmental conditions, particularly following different levels of rainfall which is a key factor in a semi-desert habitat. Birth rates and patterns of survivorship are important objectives because these are key to identifying what factors limit the population. As the study progresses some individuals are identified when young and can be assigned birth years. This means that the study population increasingly includes known age animals and, at the time of writing, there are 330 of these (27%) out of the 1,208 animals in the ID library. There are many interesting life histories. For example, NR039f, was under six months old when first seen in 2010 and has been seen regularly

at the Moringa and Porcupine waterholes, most recently in the present year at the age of 12 years. Ultimately these records will be incorporated into age-structured population models which can be used for management purposes including assessment of population viability.

In the meantime, mountain zebra numbers can be assessed by combining individual records to reconstruct and thus monitor the population. This is a retrospective process where any past year includes animals seen in that year plus additions from animals that must have been alive by inference from observations in other years. For example, an animal seen in 2020 and 2022 must have been alive in 2021

even if it was not seen in that year. An adult (i.e. over two years old) that was first seen in 2022, must have been alive in 2020 and 2021. However, the year totals that result, do not mean these animals were all on NamibRand. Some may have been on adjoining properties and this may be the reason they were not observed in a particular year. These reconstructed numbers are then the population that use NamibRand at some point in their lives, but who are not necessarily present at any one time. I call this the 'source population'. The estimate of numbers in the source population must exclude years in which the reconstruction is incomplete and so it is restricted to the period 2011 to 2019. The average over these nine years

is 626 \pm 17 with no indication of any trend. The source population of mountain zebra, roaming over northern NamibRand and neighbouring properties, appears to be broadly stable. The reasons for this is one of the objectives of the current study.

The number of mountain zebra actually present on the Reserve at any one time is best estimated using a mark-recapture technique, or, in this case, sight-resight. This involves identifying a sample of individuals in an initial period of camera trapping, leaving a gap of a week or two and then checking what proportion this group are animals seen in a second period. Estimates to date, conducted in 2010 and 2011 were 178 \pm 9 and 235 \pm 14 animals. The average of these two estimates, 207, is about 33% of the source population, suggesting that about two-thirds of the wider population are likely to be outside the Reserve at any one time. However, mountain zebra are famously mobile and such numbers will clearly vary in relation to environmental

conditions, especially rainfall and its distribution, and more estimates are needed to understand these patterns of movement.

Mountain zebra are classified as Vulnerable under the IUCN Red List scheme because, as shown in the 1980s, their numbers can decline catastrophically in sustained droughts (see Gosling, et al, 2019b). A population of only 600-700 is one that needs to be watched carefully. The main lesson for the conservation of mountain zebra from different areas of Namibia, and from the extreme reduction that occurred in the early 1980s, is that animals of this species need to be able to move flexibly to small patches of food in dry conditions. Such movements may occur over large distances and the wide expanses of NamibRand, plus fence-free access to neighbours, who share informed conservation objectives, are vital for their long-term conservation.

Acknowledgements

I am grateful for the support and collaboration of Nils Odendaal

and Danica Shaw, Ann and Mike Scott, Quintin and Vanessa Hartung, Murray and Lee Tindall, the current wardens, Jessica and Andre Steyn and their colleagues at Keerweder, to Dennis Hesemans at Namib Sky Balloon Safaris on the Farm Geluk and the staff of Sossusvlei Desert Lodge. Thanks also to the Directors of NamibRand for permission to carry out this work and to the Rufford Foundation, the Whitley Fund for Nature, the Gaia Nature Fund, Montpellier Zoo and the Namibia Nature Foundation for financial and other support.

References

- Gosling, L. M. (2019a). Using stripe patterns to monitor Hartmann's mountain zebra. Pp 64-65. Conservation and the Environment in Namibia. Published by Venture Media for the Namibia Chamber of Environment.
- Gosling, L.M., Muntifer, J., Kolberg, H., Uiseb, H. & King, S.R.B. (2019a). *Equus zebra ssp. hartmannae*. The IUCN Red List of Threatened Species 2019: e.T7958A45171819.



Breeding group drinking at the Porcupine waterhole. Stripe patterns remain constant and so once a foal is photographed it can be identified and followed throughout life. This photograph was taken by one of our new Browning cameras, donated by the Gaia Nature Fund.



Jessica Steyn

AN UNEXPECTED ENCOUNTER

Jessica Steyn

Leopard watching from behind the rocks



Jessica Steyn

Leopard disappearing up the koppie



Jessica Steyn

Leopard giving one last look

On the 13 October, Julius and I headed out early to the Porcupine waterhole to work on his research project for NUST. It was like any other morning. We did the small game count for his project, counting zebra, springbok and oryx. As we approached the waterhole, Julius shouted from the back of the vehicle that he saw something running. There were indeed two animals running away from the waterhole. Julius initially thought they were cheetah, but when we got closer, it was two leopards! I immediately grabbed my camera from behind the seat, and we then approached them slowly in the vehicle. They had disappeared into the rocks on the koppie at Porcupine. It took us a while to find the leopards, but with Julius spotting from the back of the car, it was easier. We found one of them watching us from behind the rocks. This leopard watched us for a while and then getting bored, he slowly walked up the rocks and disappeared. We didn't see the second leopard, but we were sure he was carefully watching us from somewhere.

NEWS FROM PRO-NAMIB CARNIVORE STUDY

Sebastian Amukoshi

(All camera trap photos are property of the ProNamib Nature Reserve Carnivore Survey)

A camera trap study can be best viewed as a collection of data for decision making that will facilitate moving an ecosystem to a more desirable state. ProNamib undertook a study to unobtrusively observe what is happening in the area. Carnivores are challenging to observe and study, especially within the pro-Namib environment where species are nocturnal, have large home ranges with secretive habits and fear humans due to persecution.

From May to December 2022, camera trap stations were set at 75 sites. The study was divided into three blocks and a rotational system was used to survey each for two months. Sites were identified by placing a 2.7×2.7 km grid over the sampling area. Camera traps were set 50 cm above the ground. They were also positioned to optimize the detection probability of the targeted species. Habitat modification was done to optimise camera trap performance because obstruction can modify habitat, change behaviour and effect detection probabilities. Occasionally, a camera-check

was done after every 15 days to change batteries and for troubleshooting.

So far, we have captured numerous wildlife species, including apex species such as leopards and spotted hyaenas which were captured roaming alongside the Nubib Mountain border, as well as alongside large riverbeds on the ProNamib Nature Reserve. Another top predator captured is none other than the fastest land animal – the elusive cheetah. They were detected alongside riverbeds and on plains roaming during

different times of the day as well as marking their territories.

One camera trap station in particular, captured a rare sighting – three Hartmann's mountain zebra on Vrede. Three other stations captured caracals which are one of the most elusive species to be recorded. Moreover, during the day another camera captured a highly nocturnal species, a striped polecat in a sandy riverbed. Aside from the carnivores, ungulates such as steenbok and klipspringer were often sighted as well.



Camera trap station (two camera traps) set facing opposite each other to avoid flash interference



Conducting a camera check – replacing batteries



A cheetah walking in a large riverbed



A rare sighting of mountain zebras on Vrede between mountains and dunes



A caracal posing for the camera



Aerial view of Jagkop



A Horned adder (*Bitis caudalis*), found in Keerweder garden



A stampede of Burchell's zebra (*Equus quagga burchellii*) at Vista



View down into the valley behind Wolwedans



Jessica Steyn

View onto Keerweder from Nubib Mountains



Jessica Steyn

Aerial view of Sentinel Mountain and Moringa Valley



Jessica Steyn

Moringa tree (*Moringa ovalifolia*)
standing strong on
Bushmannkoppie



Klipspringer (Oreotragus oreotragus) family in the koppies at Gorassies

The editors would like to thank all the contributors to this edition of the Barking Gecko. Many thanks to Vicky Human for her support and layout skills.

This newsletter is for our readers, friends and colleagues of NamibRand. We welcome any ideas, input and feedback you may have.

KINDLY NOTE:

Photographs are under copyright and may not be reused without the permission of the photographer.

Editors:

Jessica Steyn, Warden
& Danica Shaw
NamibRand Nature Reserve Office
PO Box 131
Maltahöhe, Namibia
Phone: +264-63-683 026
Email: jessica@namibrand.org

Head Office:

76 - 68 Frans Indongo Street
PO Box 40707 Windhoek, Namibia
Phone: +264-61-224 882
Email: info@namibrand.org
Website: www.namibrand.org



If you wish to subscribe to the Barking Gecko, please contact the editor at the above address. Note that previous issues of this newsletter are available on the NamibRand website.