

- Black-footed Cat (*Felis nigripes*) Survey Namibia-

Report on surveying for Black-footed cats in southern Namibia, January 2019

Alexander Sliwa, Martina Küsters & Morgan Hauptfleisch

Introduction:



The Black-footed Cat Working Group (BFCWG) aims to conserve this rare cat species by furthering awareness and conducting multidisciplinary research on the species' biology. So far the group had concentrated in two study areas in central South Africa, however one of these has been suspended in November 2018. It became apparent that research and conservation on the species must also be extended to neighbouring countries and other habitats, if this is to become a truly international project. For this reason the three authors of this report undertook a survey in different Kalahari- and Nama-karoo vegetation types in southern Namibia between 21-28 January 2019.

Project Aims, Methods and Survey sites:

Project Aims: so far there have been no systematic surveys using proven survey techniques (Sliwa et al. 2018) conducted in Namibia with the main focus of recording black-footed cats (abbreviated as bfc hereafter). Once a promising conservation area, farm and region was found in Namibia, the aim is to start an intensive study on the species. Location records reported to Martina Küsters by farmers over the last 5 years have been invaluable to establish distribution of bfcs in Namibia and potential areas for future ecological studies.

The preparations for this trip started with coordinating dates that suited the authors, identifying survey areas for presence of bfcs in Kalahari type habitat and farms where bfcs have been reported to Martina Küsters (Küsters 2013, 2014) and Morgan Hauptfleisch, and contacting various landowners for recent sightings of bfcs. The co-ordinating and sourcing of equipment, including the 4x4 vehicle was made possible through Morgan and the Namibia University of Science and Technology (NUST). The vehicle had to be adapted to accommodate the spotters whilst standing on the back of the vehicle by installing a simple wooden railing for holding on.

Methods:

Spot-lamp searching: For a total of 8 nights a 4x4 vehicle (2.4 litre Diesel Nissan Hardbody or 4 litre Toyota Landcruiser) was used to drive a survey route of 37-117 km in length (Map 1.) along dirt roads at a speed of 20-40 km/h, whilst looking for the characteristic bright eye-shine of cats. The survey areas included 3 nights in "Kalahari-type", 3 nights in "mixed dwarf shrubland – Karoo type" in the surrounds of the Fish River Canyon and 2 nights in "Karoo-type" habitat on the farm near Grünau. A minimum of two people (3 maximum this trip) stood on the open back of the vehicle operating two spotlights (1 million candle power / Lightforce® SL240 mm). Additionally the driver of the vehicle and one of the spotters used 2 "Bubo" rechargeable spotlamps, for lighting the way and when dismounting the vehicle to identify carnivores on foot.

We decided to map /record all other carnivore species detected, mainly logged by Morgan Hauptfleisch using the 'Atlasing in Namibia' App (<http://www.the-eis.com/atlas/>). These carnivores included:

African wildcat (*Felis lybica cafra*), leopard (*Panthera pardus*), aardwolf (*Proteles cristatus*), black-backed jackal (*Canis mesomelas*), bat-eared fox (*Otocyon megalotis*), Cape foxes (*Vulpes cana*),

small-spotted genet (*Genetta genetta*), striped polecat (*Ictonyx striatus*) and yellow mongoose (*Cynictis penicillata*). We didn't see any caracals (*Caracal caracal*) during these surveys, although they were expected.

The survey vehicle was variously staffed by:

Dr. Alexander Sliwa, Curator, Cologne (Kölner) Zoo, Germany (sliwa@koelnerzoo.de),

Black-footed Cat Working Group (BFCWG) Project Leader.

Ms. Martina Küsters, field researcher BFCWG, Swakopmund, Namibia (kusters.m@hotmail.com)

Dr. Morgan Hauptfleisch, senior lecturer Namibian University of Technology (NUST), Windhoek, Namibia (mhauptfleisch@nust.na)

Ms. Stephanie de Lange Ecology manager, Gondwana Kalahari Anib Lodge

Mr. MJ Gerbers, farm manager of Kameelboom, Namibia

Mr. Mathias Tsameya, Warden, Gondwana Canyon Park

Survey sites:

Kalahari Anib: this eco-tourism property owned by Gondwana Collection forms part of the Dabib farm and is 4.980 ha in size, mainly composed of Kalahari tree and shrub savanna, situated 30 km east of Mariental. We drove the numerous well-maintained gravel roads twice on the night of 21.1.19 for a total of 103 km. The area receives 194 mm of precipitation annually.

Dabib Farm: despite intensive searching we decided to go survey the other portion of Dabib farm, across the road from Anib, which as we saw on satellite images had several extensive pans, which has proven as good habitat for bfc in South Africa. Despite 63 km of driving we didn't manage to see a bfc there either. In contrast to Anib we saw much fewer carnivores, particularly black-backed jackals, probably due to the fact that this is a working farm and predators who pose a threat to small livestock are persecuted. The area receives an average 194 mm rain annually, but was evidently in drought conditions at the current survey.

Kameelboom Farm: this extensive Kalahari Type sheep and cattle farm (5.168 ha) 35 km West of Aranos, was made contact with through one of Martina's contacts, Dana Joubert (a local farmer from Aranos who raises awareness for bfc in that area) . MJ Gerber, the farm manager accompanied us for the whole night. There we saw large numbers of bat-eared foxes, aardwolves, even Cape fox, however no bfc was spotted, despite our 39 km survey route.

Gondwana Canyon Park (3 nights): upon the generous invitation of Dr. Chris Brown we drove to Holoog area of the Canyon and met up with the Area Warden Mathias Tsameya, who joined us on the first and second night. As a mix of habitats, ranging from mountain veld, gravel plains, some Kalahari and also Karoo vegetation types, it presents a variety of habitats and is home to an amazing variety of wildlife, ungulates and also large predators like leopard (*Panthera pardus*) and cheetah (*Acinonyx jubatus*). This conservation area extends over 126.000 ha and receives an average of 100 mm annually and is well protected. We spotlighted for a total of 302 km in the 3 nights here.

Grünau 1-2: comprising 51.000 ha of Dwarf Shrub Savannah in Nama Karoo habitat, we surveyed the property of Kobus and Margaret van der Merwe on two nights for 92 km. The area receives 125 mm annually and is thus lightly stocked with sheep. A well maintained grid of sand roads traversed the property. The steep koppie Kirchberg would provide ideal conditions to acquire an initial radio signal of future radio-collared bfc.

Results:

Kalahari Anib, Dabib Farm, Kameelboom Farm: despite intensive searching on three consecutive nights (Map 1) we didn't manage to spot a bfc, while some of the habitat on Dabib, particularly close to the two larger pans looked very suitable, also indicated through the presence of several important bfc prey species like large-eared mouse (*Malacothrix typica*) and spike-heeled larks (*Chersomanaes albofasciata*) being present. We observed many other carnivore species, such as African wildcats, aardwolves, many groups of bat-eared foxes, Cape foxes, black-backed jackals, small-spotted genets. We also observed aardvark (*Orycteropus afer*) every night, porcupine (*Hystrix africae australis*) and spotted eagle owls

(*Bubo africanus*). Since the area has received well below the average rainfall in the preceding season, search conditions were ideal with little tall grass to mask potential sightings.

Gondwana Canyon Park (3 nights): Since we didn't have success with sighting a bfc in the Kalahari we decided to move south to the Fish river Canyon area and found accommodation and good spotting conditions on Gondwana Collections' property, stationed at the Holoog camp during the day. On our first night at 22:32 we saw eye-shine low to the ground, actually only 2.5 km from the Canyon Roadhouse. When approaching cautiously on foot Alex Sliwa confirmed that it was a juvenile or maybe even sub-adult bfc, crouched in a depression in the pale gravel and despite approaching up to 5 m again, also repeatedly together with the various team members were able to take many pictures (Figs. 15-17). This encouraged us and we took a long tour around, but didn't manage to see further bfcs, but numerous African wildcats, bat-eared foxes, jackals, genets and polecats surveying between the Canyon Roadhouse, Canon Lodge and Canon Village over all three nights. Early on the first night we spotted an adult leopard, probably male (Fig. 10) in the Holoog area. That same individual we saw on the 3rd night again, identified by its unique spot pattern on shoulder and throat, as well as a juvenile resting by itself on a cliff face at 3 AM (Fig. 11). The diversity and density of carnivores was surprisingly high.

Grünau (2 nights): Grünau N.O. farm (another farm owned by same farmer) was visited in 2013 by Martina, because the farmer Kobus van der Merwe had reported several sightings of bfcs. During this trip, we started with surveying another farm, Günau S.W. which is dissected by the B1 national road. Already on the first night on 27.1.19 at 22:46 we had a distant sighting of a bfc, which after a few minutes crossed over to the neighbouring farm, Kirchberg (Fig.19). Only 1.5 hours later at 00:30 now already on 28.1.19 we saw our second bfc, again fleeting, but unmistakable, via checking through binoculars, only 4.6 km to the south-south-east from the first sighting. On our second and last night at 22:00 we found a young adult male right next to the B1 and were able to watch and photograph him over the course of 45 minutes until we left him on our account (Figs.20-22). This sighting was about 7 km away from the ones the previous night. He didn't seem to be bothered by the lights of our vehicle and spotlamps, neither of those of passing trucks on the B1. On these two nights we saw aardwolves, bat-eared foxes, Cape foxes, polecats, however no jackals and caracals.

Discussion and Conclusions:

Valuable data on censusing bfcs in Namibia has been collected on this first scouting trip of the BFCWG. With a total of 4 different individual bfcs sighted, one in the Fish River Canyon Park and 3 in only two nights on the Grünau S.W. farm, rendering the latter as the most promising site for establishing an intensive study area for bfcs. Altogether the sighting frequency of 4 bfcs per 8 nights surveyed provides a 50% chance of a sighting. When taking Grünau S.W. by itself a sighting of 1 and 2 cats each per night this reached a 150% chance of bfc sighting per night, which is well comparable or above to sighting frequencies attained over the past 10 years in the two long-term study areas of South Africa (Sliwa et al. 2017, 2018). Interestingly the sighting of the sub-adult bfc in the Canyon Park is proof of a breeding population of bfcs in this protected area, although it may be only at low densities. Measuring the distance to the consecutive sightings on Grünau S.W. farm, it shows that these are only 44 km away, well within reach of a dispersing young adult bfc from the Canyon or even an adult male with an extensive home range. Chances are that these populations are linked or continuous. It would be highly interesting to intensively study individuals of both populations and see where they link or if it is a continuous population. In comparison to the two South African study sites with averages of 450 and 300 mm precipitation annually, Grünau S.W. receives only 125 mm annually, so it is expected that home ranges and ranging behaviour of bfcs will be more extensive than previously published (Sliwa 2004). The study of the diet of bfcs in this area would be interesting, applicable in general to the lower rainfall areas

of the bfc's distributional range (Sliwa 2006), which would concern large expanses of habitat in Namibia, Botswana and also parts of South Africa.

At the same time it would be highly interesting to also capture and radio-collar some of the numerous African wildcats in the Canyon area, to see how the two small cat species interact, compete or separate in their ecology, as has been proposed by Sliwa, Herbst, Mills 2010. Through capturing bfcs for radio-collaring one could also investigate the prevalence of the lethal disease of AA Amyloidosis (Terio et al. 2008; Zimmermann et al. 2011), and its existence and distribution in Namibia, opening possible collaboration on securing the global population via gene banking and possibly in the future, artificial insemination.

The survey field trip was highly successful, despite a slow start via searching in less proven habitat of Kalahari and then moving on to proven suitable Nama Karoo habitat types.

The BFCWG will attain the necessary permits for capturing and fitting bfcs with small, high powered and long-term tested radio-collars on farmland in the Grünau area. A return of the team would be possible in late 2019.

The black-footed cat will be included in the Red List Assessment of carnivores in Namibia (Küsters, *in review*) and the species listed as Protected or Specially Protected under the new Namibian "Protected Areas and Wildlife Management Bill / Act" (in review). This will enable better conservation action and more focused research. Farmer involvement and co-operation will remain the most important part of future research on bfcs in Namibia, as most of its distribution falls within private farmland.

Acknowledgements: We thank the Faculty of Natural Resources and Spatial Sciences of the Namibian University of Technology (NUST) for providing the field vehicle and fuel for this survey. We operated under the NUST Research Certificate RCIV0003218.

We thank the land owners of Anib Kalahari Reserve (Gondwana Collection), Dabib and Kameelboom, for access to their properties, as well as Anib Kalahari Reserve for free use of the camping site, refreshing in the pool and lodging and facility use at Holoog Ranger Station (Gondwana Collection). We are indebted for the ecology manager of Anib Kalahari, Stephanie de Lange; MJ Gerbers of Kameelboom farm; Mathias Tsameya of Gondwana Canyon Park for active surveying participation and guiding us. A special thanks to Margaret and Kobus van der Merwe for access onto Grünau S.W. farm and the highly generous use of the beautiful accommodation at Namgate Guest House. All farmers are acknowledged that have over the years reported sights of bfcs and who continue to conserve this unique wild cat of in arid parts of Namibia. Some funds for fieldwork, like food and equipment purchased (Lightforce Blitz 240L; bulbs) came from Cologne (Kölner) Zoo through donations by Ch. Ritzen, K. Stellmacher, T. Mennig, A. Brüggemann & Koch Gang; Olaf Goldbecker (charity-kalender.de) - all Germany; The International Society of Endangered Cats (ISEC), Canada, provided funds for equipment as well. We sincerely thank our respective employers for supporting us and granting us leave from our busy work schedules to carry out this field work.

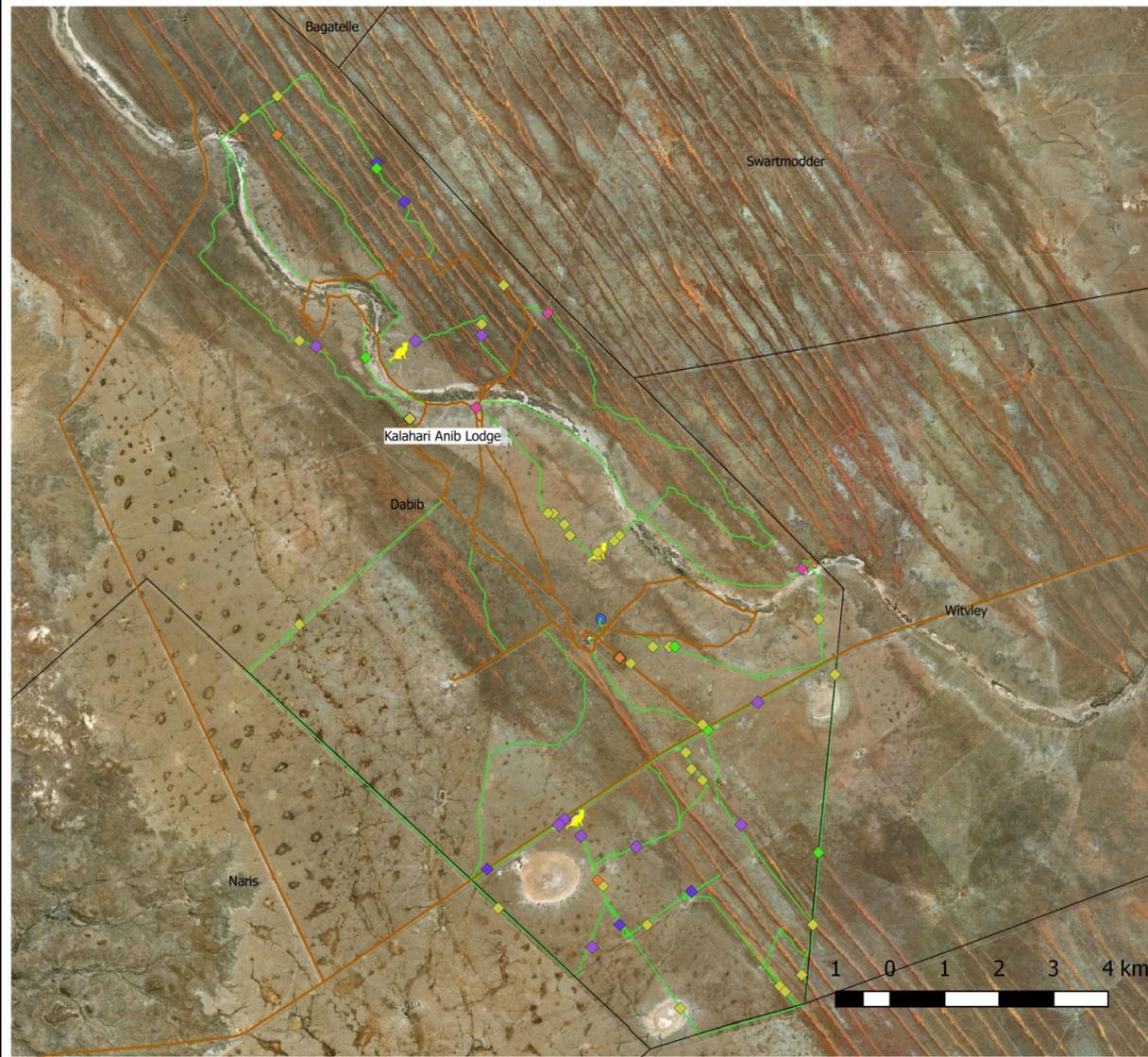
References:

- KÜSTERS, M. 2013. Distribution and conservation status of the Black-footed cat *Felis nigripes* in Namibia. Unpublished progress report. Ministry of Environment and Tourism, Windhoek.
- KÜSTERS, M. 2014. Distribution and conservation status of the Black-footed cat *Felis nigripes* in Namibia. Unpublished progress report. Ministry of Environment and Tourism, Windhoek.
- Küsters, M. *in review*. Conservation assessment of *Felis nigripes*. In: Pallett, J. (ed) *in prep*. The Red List Mammals of Namibia.

- Olbricht, G. & Sliwa, A. 1997. In situ and ex situ observations and management of Black-footed cats *Felis nigripes*. International Zoo Yearbook 35: 81-89.
- Sliwa, A. 2004. Home range size and social organisation of black-footed cats (*Felis nigripes*). *Mammalian Biology* 69: 96-107.
- Sliwa, A. 2006. Seasonal and sex-specific prey composition of black-footed cats (*Felis nigripes*). *Acta Theriologica* 51: 195-204.
- Sliwa, A., Herbst, M. & Mills M. 2010. Black-footed cats (*Felis nigripes*) and African wild cats (*Felis silvestris*): a comparison of two small felids from South African arid lands. Case study 26, p.537-558. In: Macdonald, D.W & Loveridge, A.J (eds.). *The Biology and Conservation of Wild Felids*. Oxford University Press: 736.
- Sliwa, A., Wilson, B., Küsters, M., Lawrenz, A., Eggers, B., Moresco, A., Marais, P. & Marais, S. 2017. Report on surveying, catching and monitoring Black-footed cats (*Felis nigripes*) on Benfontein Nature Reserve, Nuwejaarsfontein and Taaiboschpoort Farms in 2016. Technical report pp. 16. [ONLINE] http://koelnerzoo.de/images/pdf/Zeitschriften/Sliwa_Wilson_Report_SA_2016.pdf
- Sliwa, A., Wilson, B., Küsters, M., Eggers, B. & S. Marais. 2018. Report on surveying, catching and monitoring Black-footed cats (*Felis nigripes*) on Benfontein Nature Reserve, Nuwejaarsfontein and Taaiboschpoort Farms in 2017. 16 pp. <http://www.koelnerzoo.de/images/pdf/Zeitschriften/Sliwaal-2018-Report-Felis-nigripes-Work-SA2017.pdf>
- Terio, K.A., O'Brien, T., Lamberski, N., Famula, T.R., & MUNSON, L. 2008. Amyloidosis in black-footed cats (*Felis nigripes*). *Veterinary Pathology* 45(3):393-400.
- Zimmermann, P.A., Lawrenz, A. & Sliwa, A. 2011. Untersuchungen zu Amyloidose und Akute-Phase-Proteinen bei Schwarzfußkatzen (*Felis nigripes*). *Tierärztl. Umschau* 66, 364 – 368. In German with English abstract.

Table 1: Places of night surveys, date surveyed, distances covered and time taken during 8 nights.

| Place | Date | Distance (Km) | Time (HH:MM) |
|-----------------|------------|---------------|--------------|
| Anib | 21.01.2019 | 103 | 06:22 |
| Dabib | 22.01.2019 | 67,6 | 05:51 |
| Kameelboom | 23.01.2019 | 38,9 | 03:21 |
| Canyon1 | 24.01.2019 | 117 | 06:25 |
| Canyon2 | 25.01.2019 | 86,8 | 05:53 |
| Canyon3 | 26.01.2019 | 97,9 | 06:46 |
| Grunau1 | 27.01.2019 | 55,1 | 04:52 |
| Grunau2 | 28.01.2019 | 36,6 | 04:26 |
| Total: 8 | | 602,9 | 44:00 |



Carnivore sightings:
Kalahari Anib Game Park
and Dabib Sheep Farm

Legend

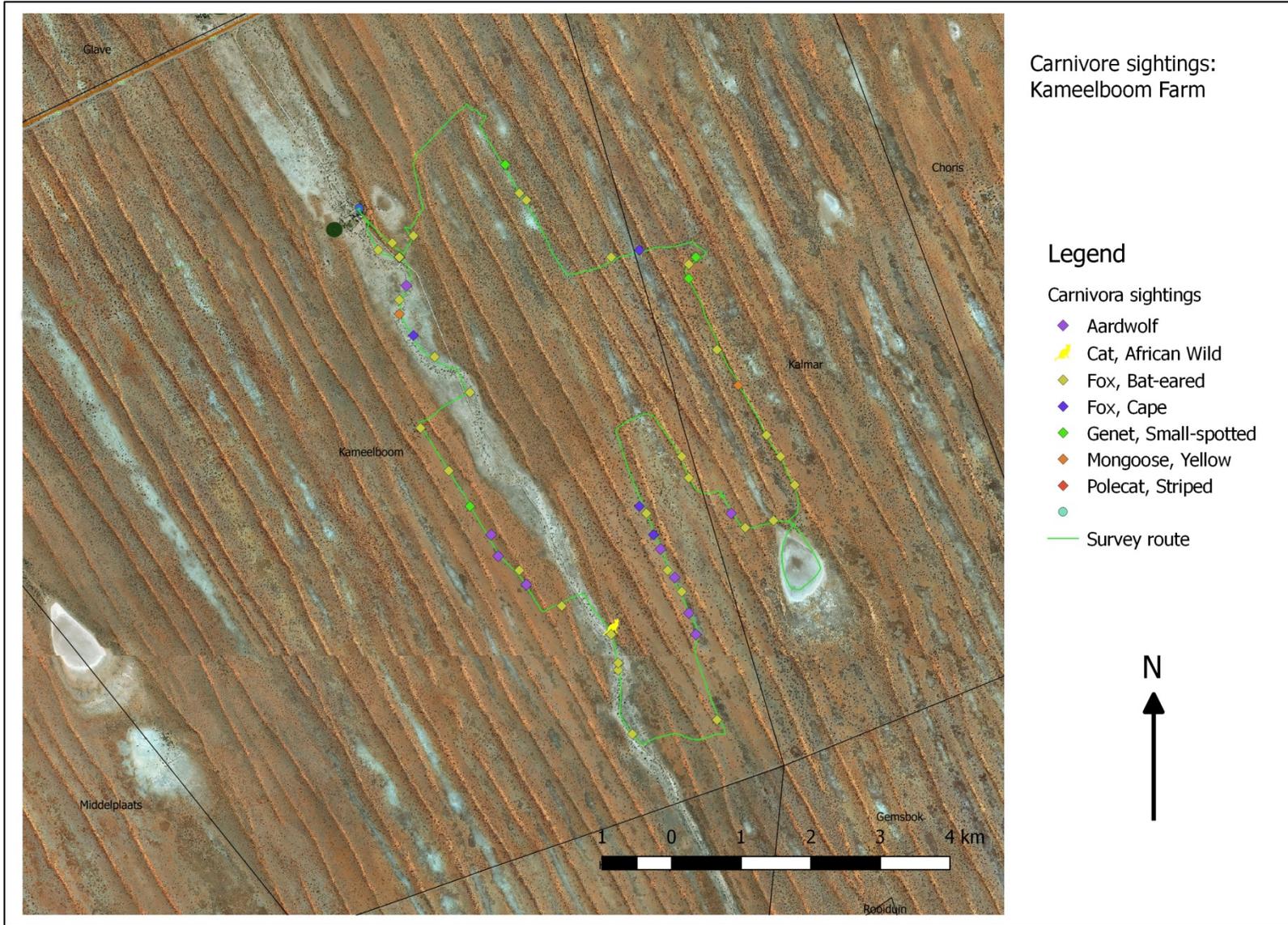
Carnivora sightings

- ◆ Aardwolf
- ◆ Cat, African Wild
- ◆ Fox, Bat-eared
- ◆ Fox, Cape
- ◆ Genet, Small-spotted
- ◆ Jackal, Black-backed
- ◆ Leopard
- ◆ Mongoose, Yellow
- ◆ Polecat, Striped
- Survey route

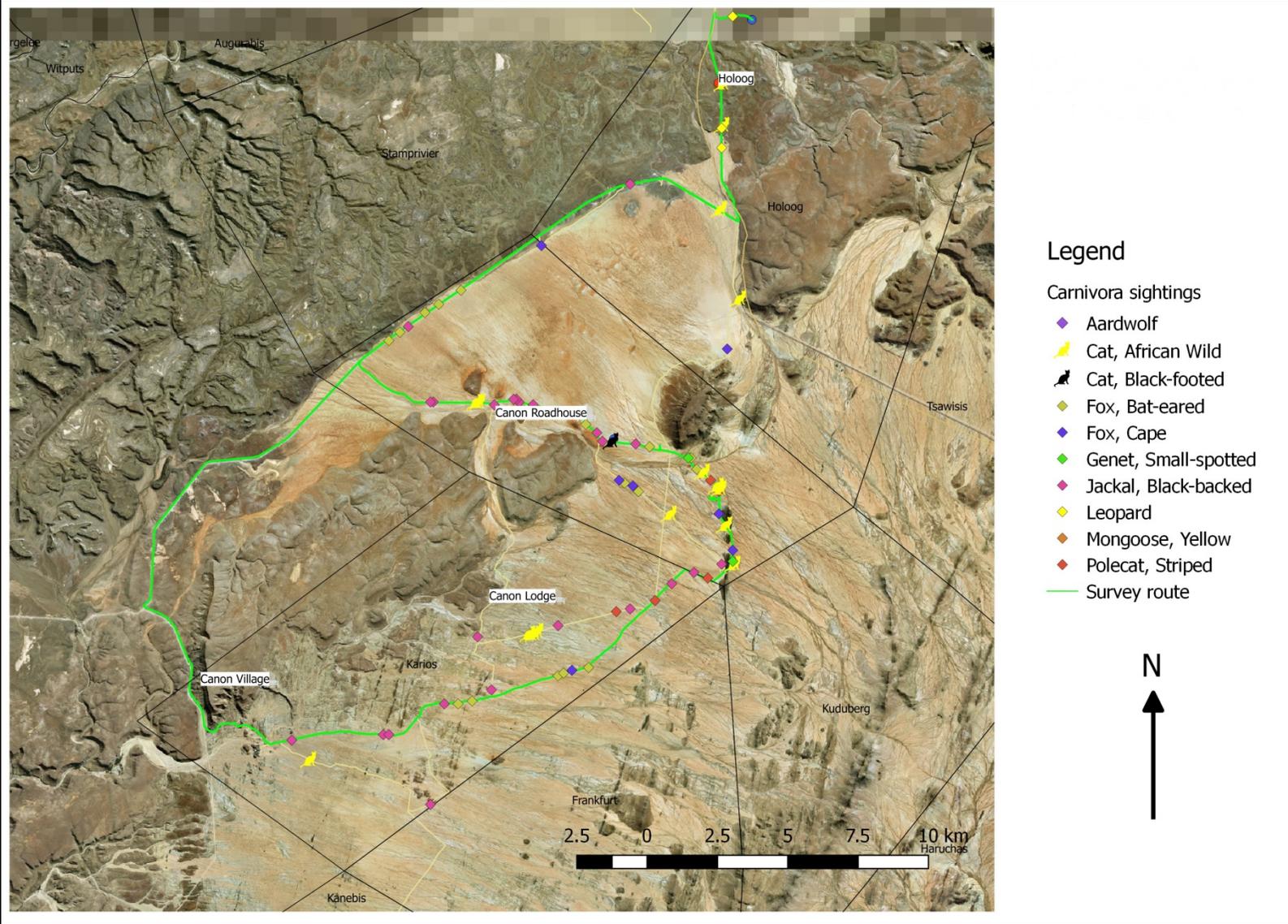
N



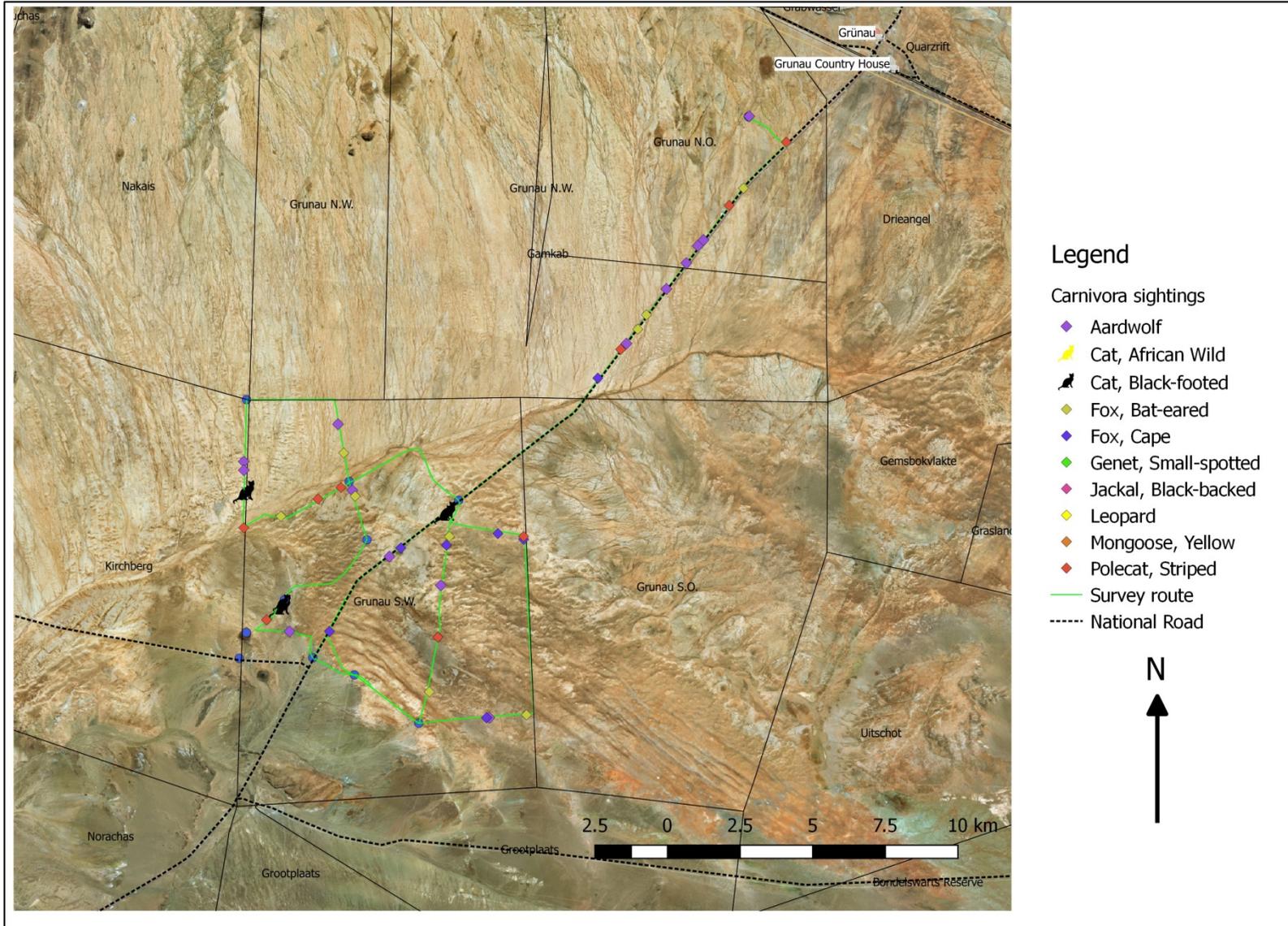
Map 1: GPS map of Kalahari Anib Game Park and Dabib Sheep Farm, east of Mariental, Namibia. Survey routes driven and carnivore sightings made on 21. and 22.1.19.



Map 2: GPS map of Kameelboom Farm, west of Aranos, Namibia. Survey route driven and carnivore sightings made on 23.1.19.



Map 3: GPS map of Carnivore sightings at Gondwana Canyon Park: Survey routes driven and carnivore sightings made in 3 nights between 24.-26.1.19.



Map 4: GPS map of Carnivore sightings on Günau S.W. farm: Survey routes driven and carnivore sightings made on 27. and 28.1.19.



Fig. 1: Expedition start at NUST, Windhoek (student passing by).



Fig. 2: Setting out at Kalahari Anib, on our first nights (self release A.Sliwa).



Fig. 3: Campsite at Anib Gondwana. Shade was prime real estate, but what a great spot! (A.Sliwa)



Fig. 4: Team with MJ Gerbers on Kameelboom farm (self release A. Sliwa).



Fig. 5: Team with Mathias Tsameya at Gondwana Canyon Park (M.Küsters).



Fig. 6: Authors atop Kirchberg Koppie, on Grünau S.W. Farm. Incredible wind and view of the surroundings (self-release A.Sliwa)

January 2019: other carnivores and rare species sighted, vista



Fig. 7. Black-backed jackal (*C. mesomelas*) in Gondwana Canyon Park. In beautiful body condition with ample food sources and no persecution (A. Sliwa)



Fig. 8: African wildcat (*F. l. cafra*) in Gondwana Canyon Park (A. Sliwa)



Fig. 9. Small-spotted genet (*G. genetta*) (A. Sliwa)



Fig. 10: 2nd sightings of adult (male?) leopard (*Panthera pardus*) near Holoog

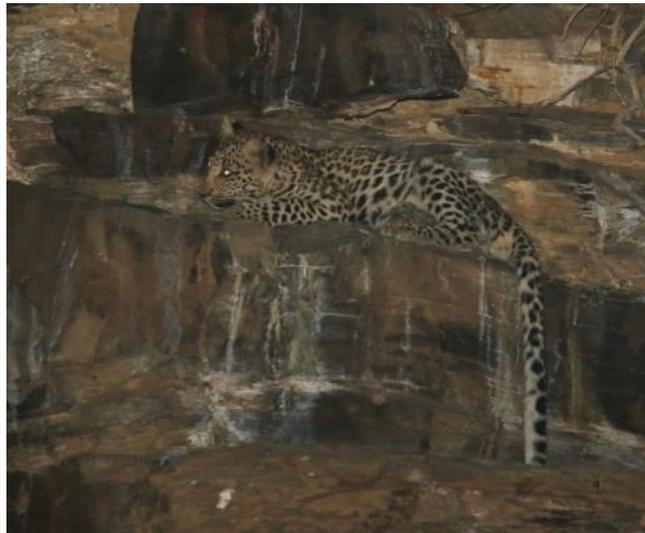


Fig. 11: Subadult leopard in rock face close to Holoog camp, in Gondwana Canyon Park (A.Sliwa).



Fig. 12: Ludwig's bustard (*Neotis ludwigii*) male Gondwana Canyon Park, another rare species protected in this area (A.Sliwa)



Fig. 13: view from Kirchberg Koppie, Grünau S.W. (A.Sliwa)

Black-footed Cats seen in Namibia in January 2019



Fig. 15: 1st sighting of juvenile bfc, Gondwana Canyon Park (A. Sliwa)



Fig. 16: Mathias Tsameya lighting for photography of 1st bfc (A. Sliwa)



Fig. 17: Bfc 'hiding' in a shallow pit in the gravel (A. Sliwa)



Fig. 19: Distant but unmistakable 1st record of bfc near Grünau on 27.1.19 (A. Sliwa)



Fig.20: 3rd sighting near Grünau. Initially surprised, but later relaxed young male (A. Sliwa)



Fig.21: Same young male bfc as in Fig. 20 (A. Sliwa)



Fig. 22: The young male stalking (A. Sliwa)