

- Black-footed Cat Working Group -
Report on surveying, catching and monitoring Black-footed cats (*Felis nigripes*)
on Benfontein Nature Reserve, Nuwejaarsfontein Farm, and Biesiesfontein in 2012

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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. The BFCWG owns a research vehicle (Toyota Hilux) for which the insurance, running and maintenance costs are administered by the McGregor Museum, Kimberley. The specialized equipment required for our research is also stored at the McGregor Museum. This year we made one joint trip to the two previous study areas: Benfontein Nature Reserve, near Kimberley, from 1–7 November, then to Nuwejaarsfontein Farm, south of De Aar, from 7–12 November and to a third potential study area, Biesiesfontein close to Victoria West from 12–15 November 2012. Alex Sliwa visited Benfontein from 15–19 July 2012, and Beryl Wilson has visited on several occasions.

Study Areas and Project Aims

1 - Benfontein Nature Reserve:

A nature reserve owned by De Beers Consolidated Mines, located 10 km southeast of Kimberley on the border of the Northern Cape and Free State Provinces in central South Africa. The majority of the 11 400 ha which consists of arid plant communities has been the subject of the first, and so far only, in-depth field study on the black-footed cat by A. Sliwa in the 1990s (1992–1998; Sliwa 2004, 2006, Sliwa et al. 2010). Benfontein NR receives average annual rainfalls of 450 mm.

2 - Nuwejaarsfontein Farm:

Situated 24 km south of De Aar in the Northern Cape Province, this sheep and game farm is owned by Sterrie Marais. The BFCWG visited the farm for the first time in February 2009. The 13 000 ha farm receives an average of 300 mm rain annually and the Karoo plant communities are fenced into 300–400 ha camps both sides of the secondary road parallel to and between the R348 and N10.

3 - Biesiesfontein Farm:

This sheep farm is situated 12 km southeast of Victoria West in the Northern Cape Province. Andrew Conroy Senior owns this 20000 ha farm, composed of typical Karoo habitat between the R63 road and the Brak River.

Project Aims: This project is part of a multidisciplinary effort to study the distribution, ecology, health, and reproduction of *F. nigripes* over an extended period. With the aim of repeatedly capturing black-footed cats (hereafter termed “bfc”) for biological sampling and radio-collaring for subsequent observation, several methods were employed to survey areas, previously known to hold bfc's. From November 2005 annual capture operations were conducted on Benfontein NR and from February 2009 also on Nuwejaarsfontein until the present visit. Eight reports are available on these periods by the authors and on the website www.black-footed-cat.wild-cat.org.

Methods:

(A) Spot-lamp searching: For a total of 14 nights (6 nights on Benfontein, 5 nights on Nuwejaarsfontein and 3 nights on Biesiesfontein) a 4x4 vehicle (2.4 litre Diesel Toyota Hilux Double cab or Toyota Landcruiser) drove a route of 20–80 km in length along dirt roads at a speed

of 20–30 km/h whilst looking for the characteristic bright eye-shine of cats. A minimum of two people stood on the open back of the vehicle operating two spotlights (1 million candle power / Lightforce® SL240 mm).

(B) Catching via searching and pursuit: Once bfc's were located by their eye-shine in the spotlights, their species identity was swiftly confirmed using 10x42 binoculars. If positively identified, they were pursued quickly by vehicle for a short distance, of between 100–600m until the cat squatted low on the ground in front of the stopped vehicle. One or two people with fish landing nets then netted the cats. On other occasions the cats would find a den system (dug by aardvark, ground squirrels or springhares) and were either captured by exposing them after digging, or were lost when escaping deeper into the den system. All accessible cats were subsequently anesthetized with an intramuscular injection of medetomidine, midazolam, and butorphanol and covered with a blanket to shield them from lights and sounds. This November we processed all 7 captured cats in the field. All animals were given complete physical examinations, had biological samples collected for disease and genetic studies, morphometric measurements obtained, and radio-collars fitted. The anaesthetic drugs were antagonized with intramuscular injection of atipamezole and naltrexone, and the cats then placed in a small plastic crate for recovery. All bfc's were released back into a den, close to their capture locations. A blanket was used to cover the den entrance, keeping them inside until they were fit to leave on their own account. A digital camera trap was set close to the den entrance to record the cat leaving the den. There were no complications associated with these procedures and all cats (n=6), but for the one left un-collared, were confirmed alive and well on subsequent nights using telemetry and visual verification.

(C) "Digging": This method was employed two times this year, where the den with the radio-collared bfc was carefully opened with a spade and via hand-digging. The still functioning radio-collars of three female bfc's (Paris, Ilse, Line) were exchanged. "Ilse" ran out of her hollow termite mound den into a positioned net, without any digging being necessary.

(D) Live-trapping: We operated 20 traps for 3 trap nights (8–10 November) on Nuwejaarsfontein and caught only a single pied crow (*Corvus albus*).

The captures via vehicles were variously staffed by:

Ms. Beryl Wilson, zoologist, McGregor Museum, South Africa (berylwa@museumsnc.co.za)

Dr. Alex Sliwa, behavioural ecologist and zoo curator, Cologne (Köln) Zoo, Germany (sliwa@koelnerzoo.de).

Dr. Nadine Lamberski, zoo veterinarian, San Diego Zoo Safari Park, USA (nlamberski@sandiegozoo.org)

Dr. Adrian Tordiffe, research veterinarian, National Zoo of South Africa, Pretoria (adrian@nzg.ac.za)

Dr. Arne Lawrenz, zoo veterinarian, Wuppertal Zoo, Germany (a.lawrenz@zoo-wuppertal.de)

Dr. Sascha Knauf, research veterinarian, German Primate Center, Göttingen

Mr. Sterrie Marais, farm owner of Nuwejaarsfontein and Taaibosfontein, De Aar (info@karooexperience.co.za)

Mr. Pieter Marais, farm manager of Nuwejaarsfontein and Taaibosfontein, De Aar (maraispiet@gmail.com)

Mr. Andrew Conroy, farm owner Bisjiesfontein, Victoria West (andrewconroy38@gmail.com)

Ms. Chriszanne Burger, field assistant

Mr. Dylan Smith, research coordinator, Tswalu Kalahari Reserve (wildlife@tswalu.com)

Mrs. Theresa Smith, Tswalu Kalahari Reserve

Results:

Trapping: We caught no bfc or other carnivores during the 3 night of operating 20 traps (60 trap nights).

Spot-lamp searching and catching/exchanging radio-collars:

Benfontein: we saw 4 bfc individuals during 6 nights of searching and caught two of them (tried for 3; 1 was already radio-collared thus not attempted). Thus we saw black-footed cats unaided by telemetry

every 1.5 nights (67% chance of sightings /night). The entire area was part of the previous ecological study of Alex Sliwa from 1992–1998, and the same that we searched during previous capture trips. During these night drives we observed other carnivores including African wildcats (*Felis silvestris lybica*, 2 young), numerous aardwolves (*Proteles cristatus*), different individuals of black-backed jackals (*Canis mesomelas*, ~ 1 per night), Cape fox (*Vulpes chama*), small groups of bat-eared foxes (*Otocyon megalotis*), caracal (*Caracal caracal*), domestic/feral cats (*Felis catus*), and genet (*Genetta genetta*). Other nocturnal mammals seen included aardvark (*Orycteropus afer*, at least 4 individuals, twice 4 and once 3 seen in a single night!), porcupines (*Hystrix africaeaustralis*) and springhares (*Pedetes capensis*). One night we had to stop after only 1 hour of searching, when strong rain set in.

We caught two new cats on Benfontein, the young adult female “Tess” and a fully adult male “Bama” via the pursuit method. Thus our success rate was 67% out of 3 pursuit attempts. We also exchanged the functioning radio-collar of the female “Paris” via digging her out of her daytime den.

Nuwejaarsfontein: we saw bfcs on 4 occasions during the 4 nights of searching (didn’t search on 10 November), of which we caught one un-collared male “Piet”. Thus we saw a bfc once a night (100% chance of sighting /night). The three sightings without capture were all likely of the same cat in the same area. During these night drives we observed other carnivore species such as aardwolves, groups of bat-eared foxes. Also one jackal, Cape foxes, aardvark, as well as porcupines, and spotted eagle owl (*Bubo africanus*).

We caught one new cat on Nuwejaarsfontein, the young adult male “Piet” via the pursuit method. Thus our success rate was 25% out of 4 pursuit attempts. We also exchanged the functioning radio-collars of the females “Ilse”, when she ran out of her daytime shelter in a hollow termite mound and via digging the female “Line” out of her daytime den.

Biesiesfontein: we saw bfc on 2 occasions during the 3 nights, of which we caught a young female “Linda”. Thus we saw a bfc once every 1.5 nights (67% chance of sighting /night). Other carnivore species seen were African wildcats, aardwolves, Cape foxes, bat-eared foxes, genet, striped polecat (*Ictonyx striatus*).

We caught one cat on Biesiesfontein, a young female “Linda” that was too light for collaring (just below 1 kg). Thus our success rate was 50% out of 2 pursuit attempts.

Fate of black-footed cats last collared in 2011

Female Judy: caught her last in November 2011 after she went missing with an expired collar in February 2011. Unfortunately she was found dead by Piet Marais in July 2012. Her carcass looked emaciated, thus she might have died of starvation. She had been collared and monitored since November 2009 (>2,5 years).

Male Okko: the BFCWG captured adult male Okko as an adult (2.0 kg) for the first time in November 2006 on Benfontein. With a body mass of a fully grown male he must have been at least 2 years old and resident (definition in Sliwa 2004) – a transponder was injected then. In May 2007, we radio-collared him and his collar was replaced in April 2008 and February 2009. In April 2010, we decided to replace his conventional VHF collar with a PTT collar by Sirtrack®. This collar stopped transmitting in May 2011. Luckily we caught him again in November 2011. Alex Sliwa saw him on 4 nights of tracking in mid July 2012, always close to the windmill at the koppie with the beacon (western side) on Benfontein. He was once more found alive in August 2012 by Chriszanne Burger and then found dead on 3 September 2012 (Map 2, skull sign). He must have been at least 8 years old, likely older, and roamed the same large home range for 5.5 years that we have monitored him.

Other: the other 3 females radio-collared on both study areas in November 2011 were found alive in November 2012 and their collars were replaced with new ones.

Locating the radio-collared cats

Nuwejaarsfontein and Benfontein: before and subsequent to their respective capture, Alex attempted to acquire location fixes (waypoints) of all newly radio-marked cats in their dens during daylight each day, and then additional fixes during the course of the nights. Altogether 78 such fixes were obtained for the 3 cats on Benfontein (Map 1) and the 3 cats on Nuwejaarsfontein (Map 3). The short duration of the field trip allowed only for the collection of a limited number of fixes, and thus to arrive at incomplete estimated ranges (Table 1). We were fortunate to receive help in acquiring additional fixes for the cats on Benfontein NR through field assistant Chriszanne Burger (Paris = 78, Okko = 23, Total = 101 waypoints, Map 2) over the whole year 2012. Since end of July 2012, field assistant Afke Timmermans collected fixes for the cats on Nuwejaarsfontein (Ilse = 59; Line = 152; Piet = 52, Total= 263 waypoints, Map 4). Sterrie Marais and his son checked the pulse rate of the radio signals when going out predator calling, so they can tell in what general area the radio-collared cats are staying and if they are alive. However, this doesn't provide data accurate enough for home range analysis. Chriszanne Burger tried to get onto Benfontein 2-3 times a week, depending on the veld condition (not too wet after rains) and availability of the field vehicle. All these location fixes provide a clearer picture of the home ranges of individual bfcs, especially on Nuwejaarsfontein.

Behavioural Observations of black-footed cats

Four cats were monitored in 2012 with varying intensity by our field assistants. Paris and Okko on Benfontein, and Ilse on Nuwejaarsfontein were already habituated from earlier trips. All 3 since more than 2 years. Alex Sliwa visited Benfontein in July for 4 nights and observed and photographed the two cats (Fig. 5 and 6). During the course of the November 2012 field trip, only Paris appeared well-habituated. All the other cats were still rather shy or not yet habituated, thus no behavioural observations were possible.

Reproduction: there were no juvenile cats or kittens caught, which could have helped calculating the reproductive period within 2012 in the study areas. Also no females could be determined with certainty to have given birth at an exact time. Female "Ilse" was due to give birth to 2 kittens in 2–3 weeks (pers. comm. N. Lamberski, A. Tordiffe), thus in late November 2012. Unfortunately this was not confirmed by our field assistant Afke Timmermanns on Nuwejaarsfontein.

Camera Trapping: Alex Sliwa employed one digital camera trap (Bushnell Trophy Cam HD), after every release of the captured cats into their subterranean dens. A video of "Ilse" leaving her den after waking from anaesthesia is available on www.black-footed-cat.wild-cat.org.

Exploring new study site: through the kind invitation by Andrew Conroy we were able to survey his property Biesiesfontein. We covered an area of 102 km² and drove 375 km on 6 routes during both daylight and night-time. It was very interesting to find a cured skin of a bfc (Fig. 17) with one of the property's guards who is living on site. His free ranging and emaciated dogs (Fig. 18) may be a threat to the bfcs.

Discussion and Conclusions:

Valuable data on censusing and catching black-footed cats have been collected again on this trip of the BFCWG on Benfontein NR, where the species was intensively studied between 1992–1998. We only captured 2 new cats (during 6 nights of spotting there). The other was a recapture of a female with a still functioning collar. We attained an even lower success rate on Nuwejaarsfontein with a single new cat captured and the daytime exchange of collars of two females through capturing them in their dens.

The sighting frequencies between the two established study areas during this trip were similar (see progress reports 2005 to November 2011 – downloadable as PDF files at www.black-footed-cat.wild-cat.org), with Nuwejaarsfontein having a slightly higher sighting frequency, although we aimed to sight and capture probably the same individual bfc there every night, however this individual always got away in a extensive den system. Over the years, the detection chance of bfcs was similar between the two sites as both have open habitats with good visibility, especially with this year's still short grass. During this trip, we only had to stop a single time after an hour of spotting, due to rain setting in, which is better than in the previous years. We also were able to drive unrestricted in all the areas, with no wet spots, since the rains had not set in yet in the first half of November.

The jackal density on Benfontein was the same (low) as during the November 2011 trip year, and we saw only one on Nuwejaarsfontein. We saw African wildcats, feral/domestic cats as well as a caracal on Benfontein, which may cause competition/disease transmission and predation to black-footed cats. Due to the short time periods the group spent on both study areas, we were not able to make a reasonable judgement of the population sizes. The populations seem to be holding on. It is interesting that we seem to catch and see mostly the same individuals again, although there is occasional dispersal of subadults ("Piet" – pers. comm. A. Timmermans, Feb 2013) and mortality of breeding adults, Judy and Okko. The deaths of these two individuals were both interesting and simultaneously frustrating. The cause of death could not be determined clearly, as both were not found within an easily determinable time period, being so infrequently monitored. Their death was detected by the changing of the signal pulse rate, caused by the mortality sensor (no movement within 12 hours triggered the mortality mode). Both small bodies were desiccated by the dry winter climate and no necropsy could be performed.

This year, we have unfortunately no records of successful breeding in any of the study areas. As in the past the short capture field trip doesn't allow to compare estimated range sizes to those of the past field trips. Home range size development, especially for new animals collared, is highly dependent on the number of locations collected over a minimum of several months for each individual cat and on its reproductive cycle in this period (Molteno et al. 1998, Sliwa 2004; Sliwa et al. 2010).

The short insight into the movements of the young adult female "Tess" was interesting. In the early morning hours after of her capture she crossed the busy national road N-8. The "jackal-proof" boundary fence of Benfontein, the bare tarmac surface of the road and bare security strips along both sides were crossed to reach the neighbouring farm "Susanna". Although she spent the remaining 3 days of our field trip on that side she later has crossed back to Benfontein (C. Burger, pers. comm.). The habitat on "Susanna" looks similar to Benfontein, and there have been sightings of bfcs there in the past (B. Wilson; C. Anderson pers. comm.). Thus the population of Benfontein is contiguous and there is exchange of bfcs with neighbouring properties. We hope that there will be no road casualties!

Altogether the trip was successful, though with the capture success similar or lower to that of previous field trips, with less favourable climate. We continued with our decision to radio-collar any captured bfcs large enough (> 1 kg) in order to get repeated biological samples during future trips and allowing for the comparison of home ranges to the sizes estimated by Sliwa (2004). Chriszanne Burger, Afke Timmermans, Sterrie Marais and Pieter Marais will be able to collect more location fixes and listen to radio signal frequencies on a regular basis for each of the six radio-collared cats in 2013.

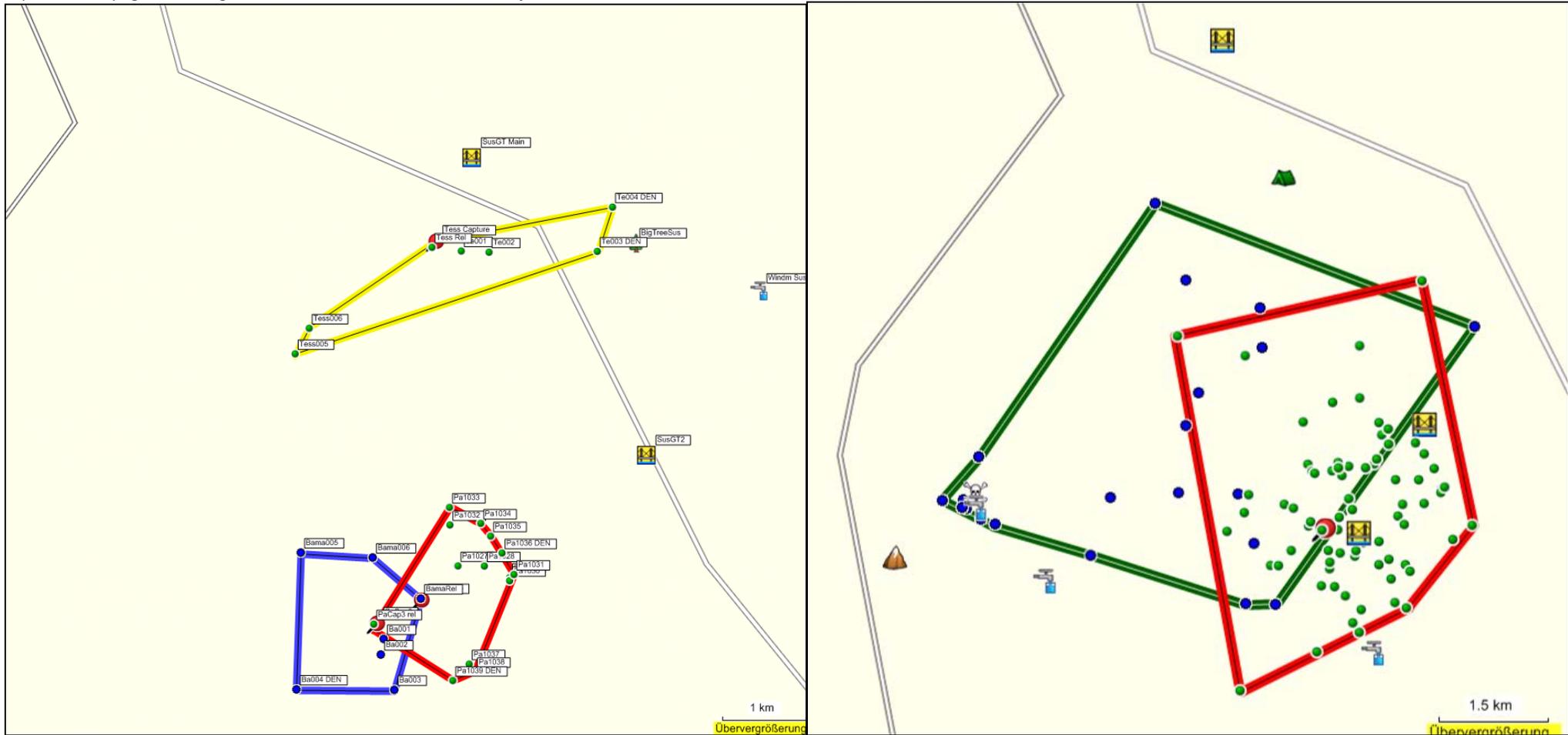
Exploring a potential new study site close to Victoria West, on Biesiesfontein, with similar sighting and capture frequency compared to the two long-term study areas gave us hope for establishing a comparative study site with yet other climatic and veld management related conditions for bfcs.

We will return to Benfontein NR, Nuwejaarsfontein Farm and potentially Biesiesfontein for further capturing and sampling of wild black-footed cats in late 2013.

Acknowledgements: We thank Sterrie Marais, his wife Ilse and son Pieter for their holistic support of this capture trip to Nuwejaarsfontein. Not only did Sterrie and Pieter drive and man spotlamps on the Toyota Landcruiser every night, they also helped with the capture of "Piet". In addition they covered all the running costs of this vehicle and provided the use of their spotlamps. We are especially indebted for their provision of our beautiful, tranquil and comfortable lodging at Taaibospoort entirely for free, again. Likewise, we thank De Beers Consolidated Mines and the Diamond Route for permission to work on Benfontein NR and the use of the research house for accommodation and lab facilities. Ecology Division of De Beers who gave us permission for the sampling, and supported us in employing the pursuit and live-trapping method. We thank Finlay Markham, Benfontein's Manager, for his swift support in fixing the technical problems at the research house. Funds for fieldwork came from Cologne (Köln) Zoo (dedicated donation by Mr. and Mrs. Stock, support of Alex Sliwa), Zoo-Verein Wuppertal e. V. (friends of Wuppertal Zoo), Tierarztpraxis Dr. Lore Marholdt, Leverkusen, Germany, Le Parc des Félines / SOS Félines & Co. Nesles (Paris, France); Ebeltoft Zoo (Ree Park), Denmark; Zoological Association of America (ZAA), Punta Gorda FL, USA; EFBC Feline Conservation Center AAZK, Rosamond CA, USA; Project Survival Cat Haven, USA (donation by Carden School, Fresno CA). The International Society of Endangered Cats (ISEC) - Canada Branch, gave generous funds for radio-collars and vehicle running costs. Afke Timmermanns' upkeep and lodging in De Aar was supported by funds donated to Alex Sliwa by Ree Park Ebeltoft, Denmark and Le Parc des Félines / SOS Félines & Co., France. Further generous funding was also received from a private donor, Mr Ralph Christie, which supported the running costs and field work in the Kimberley area. We sincerely thank our respective employers for supporting us and granting us leave from our busy work schedules to carry out this field work.

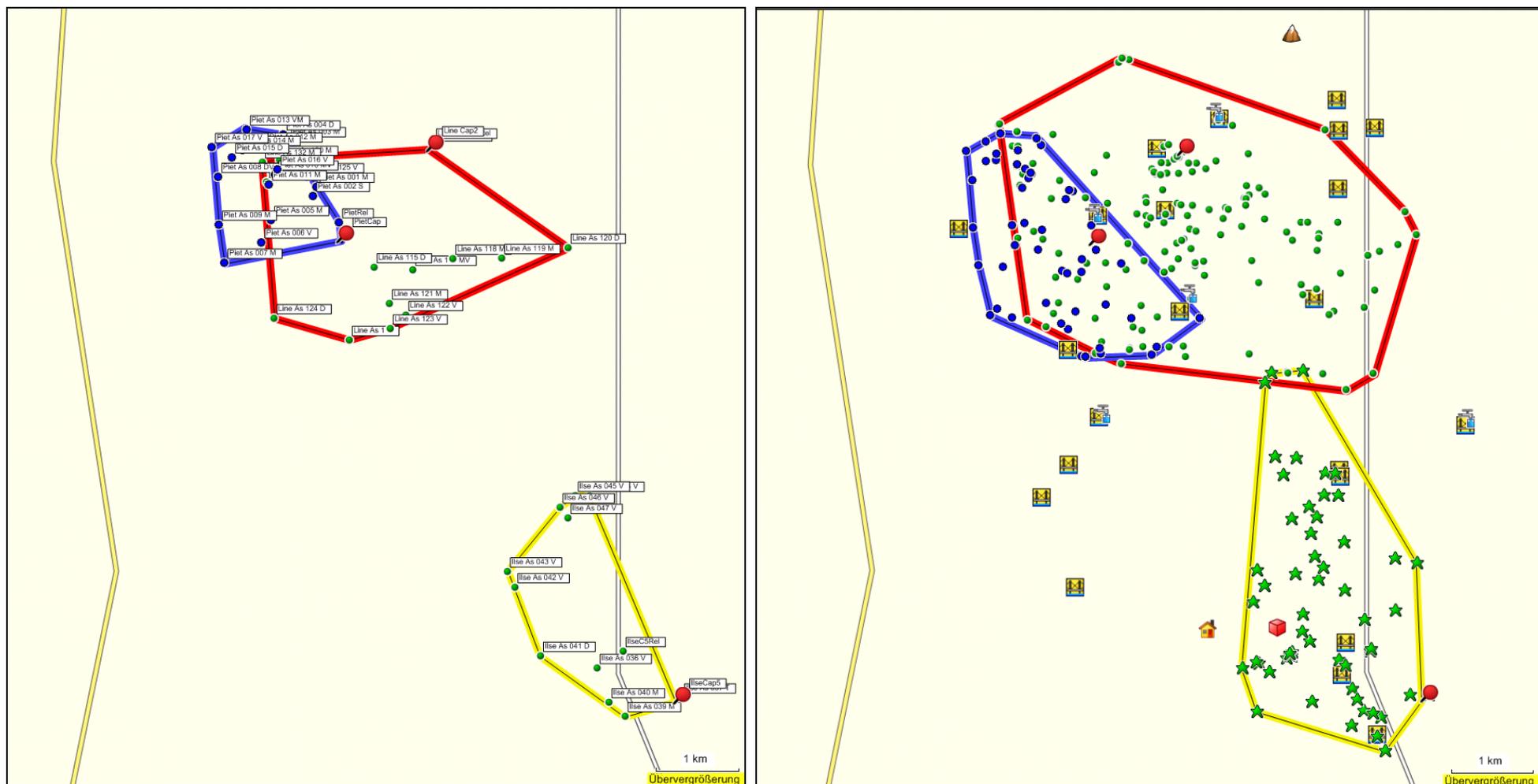
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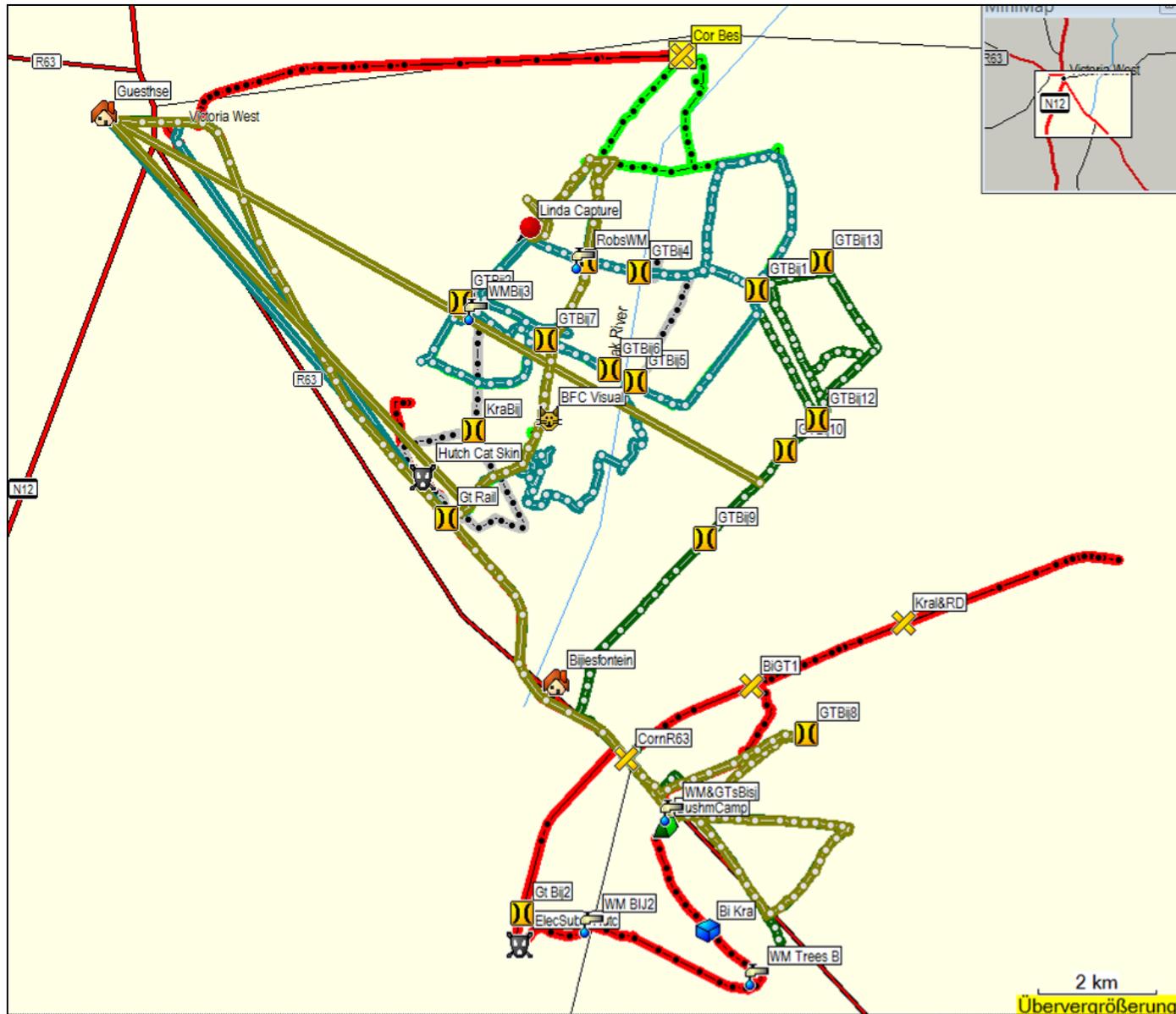
Map 1: GPS map of Benfontein NR, with minimum convex polygons (100% MCP) encompassing the locations of the 3 radio-collared cats collected during the field period November 2012. Female “Paris”= 2,1 km² (n=15) in red polygon, female “Tess”= 2,2 km² (n=8) in yellow polygon, male “Bama”= 2,1 km² (n=8) in blue polygon. Land marks, gates and capture location (red beacons) of the black-footed cats. Female Tess crossed the N-8 and roamed onto the neighbouring farm Susanna, then later returned to Benfontein.

Map 2: GPS map of Benfontein NR, with minimum convex polygons (100% MCP) encompassing the locations of the 2 radio-collared cats collected over the entire year 2012. Female “Paris”= 16,2 km² (n= 78), male “Okko”= 19,9 km² (n=23). The place where he was found dead on 3rd September is marked by a skull sign.



Map 3: GPS maps of Nuwejaarsfontein Farm, with minimum convex polygons (100%MCP) encompassing the locations of 3 radio-collared cats collected during the field period November 2012. Female “Ilse” in yellow polygon (2,9 km², n=13), female “Line” in red polygon (5,9 km²; n=17), and male “Piet” in blue (1,8km², n=19)

Map 4: GPS map of Nuwejaarsfontein Farm, with minimum convex polygons (100% MCP) encompassing the locations of the 3 radio-collared cats collected over the entire year 2012 (starting July 2012). Female “Ilse” in yellow polygon (7,4 km²; n= 59), female “Line” in red polygon (15,5 km², n= 152, and young male “Piet” in blue polygon (4,8 km², n= 52). There is strong overlap between “Line” and “Piet”.



Map 5: GPS map of Biesiesfontein and surroundings. All routes taken driven between 12-14 November 2012 (6, total 375 km), the capture location of young female “Linda” and other possible cat sightings and landmarks and gates are shown.

November 2012 Benfontein



Fig. 1: Exchanging radio-collar and sampling female "Paris". (D. Smith)



Fig. 2: Releasing female "Paris" into a den. (D. Smith)



Fig. 3: Processing female "Tess". (D. Smith)



Fig. 4: Male "Bama". Interesting vertical strip on midflank! (A. Sliwa)



Fig. 5: Male "Okko" in July 2012. Then still looking healthy. (A. Sliwa)



Fig. 6: Female "Paris" in July 2012 with luxurious winter coat. (A. Sliwa)

November 2012 Nuwejaarsfontein



Fig. 7: Capture team with "Piet". (P. Marais)



Fig. 8: Setting 20 live-traps on Nuwejaarsfontein – unfortunately without success for 3 nights. (A. Sliwa)



Fig. 9: Field vehicle at dawn when collecting location fixes. (A. Sliwa)



Fig. 10: "Piet" hiding amongst bushes at sunset. (A. Sliwa)



Fig. 11: "Piet" – taking "flight". (A. Sliwa)



Fig. 12: Alex with "Line". (B. Wilson)



Fig. 13: Nuwejaarsfontein at sunrise. (A. Sliwa)

November 2012 Biesiesfontein



Fig. 14: Veld of Biesiesfontein, a promising new study area. (A. Sliwa)



Fig. 15: Beryl with bfc skin at guard post – first proof of presence. (A. Sliwa)



Fig. 16: Domestic dogs of guard on Biesiesfontein – a potential threat for bfcs? (A. Sliwa)



Fig. 17: Subadult female “Linda” with pale ground colour coat. (A. Sliwa)



Fig. 18: Release refuge for “Linda” – a rock slab. (A. Sliwa)



Fig. 19: The team with our kind hosts on our last evening – when we caught “Linda”. (A. Sliwa - self release)

Table. 1: Body measurements, range size and remarks on 9 black-footed cats with 7 captures on Benfontein, Nuwejaarsfontein and Biesiesfontein in 2012.

Date	3.11.12	4.11.12	6.11.12	7.11.12	8.11.11	9.11.12	15.11.12	<i>not captured</i>	<i>not captured</i>
Name (also on Map)	Paris	Tess	Bama	Piet	Ilse	Line	Linda	Okko	Judy
No. captured	Cat 1 12	Cat 2 12	Cat 3 12	Cat 4 12	Cat 5 12	Cat 6 12	Cat 7 12		
Sex	F	F	M	M	F	F	F	M	F
Age	Adult	Adult	Adult	Adult	Adult	Adult	Subadult	Adult	Adult
Microchip #.		6CB9358	6CAC2B8	6896330			6CB899B		
Mass (kg)	1,55	1,04	2,00	1,48	1,32	1,13	0,97		
Ear (cm)	4,80	4,60	5,10	4,90	4,60	4,80	4,20		
Shoulder (cm)	22	24	26	24	22	22	22		
Total Length (cm)	57	54	62	59	55	55	51		
Hind foot (cm)	8,80	8,60	9,2	9,00	8,10	8,30	8,30		
Front foot (cm)	1,90	1,80	2,30	2,20	2,10	1,90	1,78		
Tail (cm)	17	17	18,7	18	17	15,5	14		
Neck (cm)	11	10	14,5	12	11	11	10		
Canine UR (cm)	0,89	0,90	1,00	0,91	0,77	0,82	0,76		
Canine LR (cm)	0,70	0,76	0,84	0,90	0,69	0,67	0,72		
Canine UL (cm)	0,90	0,84	10,02	0,93	0,78	0,82	0,80		
Canine LL (cm)	0,75	0,76	0,80	0,80	0,68	0,67	0,68		
Testes (cm)	/	/	1,6 x1,5	-	/				
No. fixes collected in 2012	78	8*	8*	52	59	152	None	23	None
Range (100%) in 2012	16,2 km ²	2,2 km ²	2,1 km ²	4,8 km ²	7,4 km ²	15,5 km ²	-	19,9 km ² -	None

*only fixes taken by BFCWG members (A.Sliwa) during November 2012. Many additional fixes collected by field assistants Chriszanne Burger and Afke Timmermans.

Remarks:

- 1) Paris (Cat 1 12): very good condition. All canines still unchipped, slight tartar on carnassials. Must have eaten within past 2 hrs since a lot of fat in serum. Dug her out of her den at 16:20 – exchanged radio-collar – Benfontein.
- 2) Tess (Cat 2 12): young adult female. Fair condition, red nose pad, adult dentition, unused nipples. Caught close to Bushman's Fountain on East side of Benfontein close to N8. Radio-collared. Moved across to Susanna Farm in the night.
- 3) Bama (Cat 3 12): adult male, good condition, unchipped canines, small nicks in both ears. Caught him after 700m south of West Gate on Benfontein, radio collared.
- 4) Piet (Cat 4 12): young adult male, fair condition, unchipped canines, some tartar on carnassials, radio-collared on Nuwejaarsfontein. Uses similar area as females Line & formerly Judy.
- 5) Ilse (Cat 5 12): adult female, good condition, left canines slightly worn, nipples not active. Double pregnancy – due in 3 weeks, few ticks and fleas. Exchanged radio-collar on Nuwejaarsfontein.
- 6) Line (Cat 6 12): adult female, thin, canines unchipped, nipples not recently used. Radio collar exchanged on Nuwejaarsfontein.
- 7) Linda (Cat 7 12): young adult female, 7-8 months old. Adult dentition, slight tartar on carnassials, pale ground colour. Biesiesfontein Farm, Hutchinson, Karoo – new potential study area. Not collared since below 1 kg body mass!
- 8) Okko: adult male, seen close to windmills in mid July 2012, found dead on 3 September 2012, Benfontein. Oldest black-footed cat recorded in the wild.
- 9) Judy: adult female, collared November 2011; no waypoints taken since; found dead and in July 2012, Nuwejaarsfontein.