

- Black-footed Cat Working Group -
Report on surveying and catching Black-footed cats (*Felis nigripes*)
on Nuwejaarsfontein Farm / Benfontein Nature Reserve in 2011
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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 required insurance, running and maintenance costs are administered by the McGregor Museum. The vehicle is used solely for black-footed cat related work. The specialized equipment required for our research is stored at the McGregor Museum, Kimberley. This year we made two joint trips to the two study areas: to Benfontein Nature Reserve, near Kimberley and to Nuwejaarsfontein

Farm, south of De Aar, in February and again in November 2011. Alex Sliwa visited Benfontein once again in June 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 SE 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 and his family. 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- 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 black-footed cats. From November 2005 annual capture operations were conducted on Benfontein NR until the present visits. Seven reports are available on these periods by the authors and on the website www.wild-cat.org.

Methods:

(A) **Spot-lamp searching:** For 6 nights in February (14.-22. – 2 nights failed completely due to being rained out) and 6 nights in November (1.-6.) on Nuwejaarsfontein and 5 nights in February (22.-27. - 1 night failed, strong rain) and 4 nights in November (7.-10.) on Benfontein a 4x4 vehicle (Toyota Landcruiser or 2.4 litre Diesel Toyota Hilux Double cab), 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. Two people stood on the open back of the vehicle operating two spotlights (1 million candle power / Lightforce® 240 mm) (Figs.1, 20).

(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 (see Fig. 22). 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 (Fig. 23), or were lost by the capture team when escaping deeper into the den system. All accessible cats were subsequently anesthetized with an intramuscular injection of ketamine, medetomidine, midazolam, and butorphanol and covered with a blanket to shield them from lights and sounds. After transporting them back to the research house, 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 atipamezole and naltrexone and the cats then placed in a small plastic crate for recovery. All black-footed cats 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 (Figs 18, 19, 24). Recently a digital camera trap was set close to the den entrance to record, when the cat left the den. There were no complications associated with these procedures and all cats were confirmed alive and well on subsequent nights using telemetry and visual verification.

(C) **“Digging”**: This method was employed three times this year, since most cats were captured following ground pursuits. The still functioning collar of one female bfc (Ilse) was exchanged twice this year. She ran out of her hollow termite mound dens into a positioned net, without any digging being necessary.

(D) **Live-trapping**: We operated 24 traps for 3 trap-nights (8.-11.Nov) and caught a female bfc (Paris) on the first night.

The captures via vehicles were variously staffed by:

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

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

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

Dr. Jason Herrick, senior scientist, National Foundation for Fertility Research (JHerrick@FertilityResearch.org)

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

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)

Dr. Adrian Tordiffe, Research Veterinarian, National Zoo of South Africa, Pretoria (adrian@nzc.ac.za)

Mr. Jonatan Borling, volunteering field assistant, Sweden

Results:

Trapping: We caught one female bfc (Paris) within her home range on the first night of three, operating 24 traps.

Spot-lamp searching:

Nuwejaarsfontein- we saw different black-footed cats on six occasions during the 12 nights of searching, of which we caught the one un-collared female “Line” and the previously collared female “Judy”. Thus we saw black-footed cats, on average, every second night (50% sighting success rate/night).

During these night drives we observed other carnivore species such as aardwolves (*Proteles cristatus*), and several groups of bat-eared foxes (*Otocyon megalotis*). Also Cape foxes (*Vulpes chama*), aardvark (*Orycteropus afer*), as well as porcupines (*Hystrix africae australis*), and spotted eagle owl (*Bubo africanus*). We saw African wildcats (*Felis silvestris lybica*) on two occasions, once a trio of kittens.

Benfontein- we saw 3 black-footed cat individuals during 9 nights of searching and caught all of them. Thus we saw black-footed cats unaided by telemetry every third night (33% sighting success rate/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 (2005-2010). During these night drives we observed other carnivores including numerous aardwolves, different individuals of black-backed jackals (up to 2 per night), Cape fox, small groups of bat-eared foxes, caracal, domestic/feral cats, and genet. Other nocturnal mammals seen included aardvark (at least 2 individuals, once 3 times in one night), porcupines and many springhares.

Catching via searching and pursuit:

Nuwejaarsfontein- we caught no new black-footed cat in February (none was sighted), but exchanged the collar of “Ilse” by letting her run into a net draped over an opening of a hollow termite mound she used as a daytime shelter. However in November we caught an un-collared female “Line” and re-captured the collar-wearing (battery expired) female “Judy”. We also exchanged the collar of “Ilse” once again (net over opening of termite mound again!), so that her collar battery would not expire, as happened with female “Bora” and other females previously, when we would return a year later. Contrary to the winter field trip in 2010 we sighted cats on 4 more occasions. In three cases we pursued them, but the cats got away, either in long grass or rocky terrain. Thus we had only a 40% capture success.

Benfontein- out of the three sightings of cats, which we pursued, we captured all three black-footed cats, thus our capture “success” was 100%. One was a male kitten of 3-4 months, not collared because he weighed a mere 0,75 kg and the un-collared female “Roda” in February. Both cats were running on the dirt roads which were still passable on higher ground. Most roads around the pan were waterlogged and thus could not be driven during this time. In November we caught the long-term monitored male “Okko”, still wearing the PTT collar we fitted in April 2010, whose battery expired in May 2011. He managed to run into a den, but we dug him out. We saw the collared female “Thea” again on 11th November but had no capture team and gear ready to exchange her collar with expired battery. During these 2 trips we saw and captured a female caracal (*Caracal caracal*) (Fig. 22). We sighted and caught two feral/domestic cats (*Felis silvestris catus*) in the same general area, in the southeast of Benfontein (Maps 3 & 4). One was a possible hybrid between a domestic and African wildcat, the other a young melanistic domestic cat. Interestingly we caught the black-footed cat kitten the following night only 1200m from the latter.

Fate of black-footed cats collared in 2010 and 2011:

Female Thea: could not be heard any more in late January 2011. Her radio collar battery probably expired by then after 14 months running, but we saw her again for sure on 11th November. Unfortunately we did not have our capture gear with us, so did not attempt to catch her.

Male Vito: emigrated to the southeast, since we could not find him in February 2011, also due to soaked ground restricting driving. Later Jonatan Borling heard his signal from the N-8 Road on 29th March, then the mortality signal heard on 7th April and his corpse was recovered on 11th April in an advanced state of decay on Banksfontein, 1,5 km southeast of Benfontein by Jonatan Borling and Beryl Wilson (Map 4). No cause of death could be determined any more.

Female Bora: on Nuwejaarsfontein. Her collar battery failed likely after 9 months, since she could not be heard in April 2011 by Sterrie Marais and Piet Marais any more. In November her collar batteries were certainly expired after 16 months running. We may have seen her as one of the cats pursued in November.

Female Erica: Alex still heard her signal and saw her eye-shine on 31st October (waypoint Er600 on Map 4). Her collar expired in the week we went to Nuwejaarsfontein. Upon return the week after we did not hear her signal or saw her again.

Female Paris: Alex just heard her collar batteries expire on 31st October (he signal faded after 20 minutes of tracking). Luckily we later caught her in a live-trap we set within her home range on 9th November.

Female Roda: caught her in February, intensively monitored by Jonatan Borling, had one kitten in first week of March. Alex, Beryl and Chriszanne Burger monitored her until 15th July. She was likely killed by jackals on 17-18th July and her skull and chewed collar recovered at a jackal den.

Male Okko: the BFCWG captured adult male Okko as an adult (body mass=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 used: Sliwa, 2004). In May 2007 we radio-collared him and his collar has been 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 back on 10th November. His is now at least 7 years old, likely older, currently lean but fit and still roams the same large home range where we caught him previously.

Locating the radio-collared cats:

Nuwejaarsfontein and Benfontein - subsequent to their respective capture we attempted to acquire location fixes of all radio-marked cats in their dens during daylight each day, and then additional fixes during the course of the nights. Altogether 143 such fixes were obtained for the four cats on Nuwejaarsfontein (Map 1 + 2) and the five cats on Benfontein (Map 3 + 4), while searching several times for the signals of the different cats with expired collar batteries from elevated rocky outcrops (Koppies) on Benfontein and Nuwejaarsfontein. 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 Jonatan Borling (from 1st March – 12 June 2011; Erica = 181, Paris = 237, Roda = 254) and Chriszanne Burger over the whole year. We foresee that through further work by Sterrie and Pieter Marais and by Chriszanne Burger and Beryl Wilson, following our 2011 trips, additional location fixes will provide a clearer picture of the home ranges of individual bf-cats, especially of those recently caught for the first time.

Behavioural Observations of black-footed cats:

3 cats were intensively monitored by our Swedish field assistant Jonatan Borling. Paris and Erica were already habituated from the 2010 trip. Alex Sliwa visited Benfontein in June for 3 nights and could observe all 3 females. During the course of this field trip we tried to improve on the habituation of all cats and they provided us with interesting observations. The cats on Nuwejaarsfontein (Ilse, Bora, Judy, Line) also significantly improved in habituation, but the period was too short to observe them for longer on a visit to them while they were hunting at night.

Reproduction: we recorded 4 of our females with kittens. We either saw the kittens already hidden in burrows (Ilse's in February and Paris' in November), or two of females (Roda and Erica) gave birth shortly afterwards our joint field trip in early March.

Camera Trapping: Alex Sliwa regularly employed one digital camera trap (Reconyx HC600 HD Hyperfire), with little success in February, but excellent successes in November.

Discussion and Conclusions:

Valuable data on censusing and catching black-footed cats have been collected again on these short trips of the BFCWG on Benfontein NR, where the species was intensively studied between 1992 -1998. We only captured 2 new cats (during only 9 nights of spotting there) the remaining were recaptures of cats with expired collars. The spotting frequency was similar to those during the previous field trips (see progress reports 2005- July 2010 – downloadable as PDF-files on www.wild-cat.org). The difference to the July 2010 trip was that we captured only one unmarked female and a kitten.

The sighting frequencies between the two study areas during this trip were reversed during the two trips in 2011, in February no new black-footed cat was seen or captured on Nuwejaarsfontein, while we saw and caught two cats on Benfontein. In November we saw many more cats on Nuwejaarsfontein than on Benfontein. We assume that the chance of detection was similar between the two sites as both have open habitats with good visibility. In general the spot-lamp searching has been greatly hampered in both study sites in February due to the exceptional rains, which started in January, continuing through our capture trip in February and keeping on into June. More than double the average rainfall was received during this year, turning the roads and veld into mud and making many roads through short grass with former good visibility impassable. Due to the rains most former short-grass-areas grew longer and thicker grass. An interesting aspect for the February trip was also, that the only bfcs we caught we detected and caught while they ran on dirt roads. A behaviour that is not normally commonly shown (Sliwa, 2006, Sliwa et al. 2010) has been altered due to unusual weather patterns.

The jackal density on Benfontein seemed lower during this year and we saw none on Nuwejaarsfontein. We saw African wildcats again on Nuwejaarsfontein and saw feral/domestic cats as well as caracal on Benfontein, which may cause predation and competition/disease transmission to black-footed cats.

Due to the short time periods the group spent on Benfontein we were not able to make a reasonable judgement of the population. However, with all the individuals seen and partly radio-marked cats on Benfontein, there are probably more in areas of long grass, the population seems to be holding on. It is interesting that we seem to catch and see mostly the same individuals again, although there is occasional mortality of dispersing subadults (Vito) and even breeding adults (Roda). We have unfortunately no records on the fate of the three kittens of Erica (2) and Roda (1), although the latter was seen on 12th June with her kitten (~ 3 months old, obs. J. Borling), before she was killed a month later. The brevity of the time spent during the field trips does not allow us to compare estimated range sizes to those of the past years field trips. With 3 females with small kittens in February/March their ranges would have been anyway smaller than usual, as when suckling kittens female range size is significantly reduced (Molteno, Sliwa & Richardson, 1998). Only on the last day of field work we re-captured adult male Okko and exchanged his PTT-collar to a VHF-collar, enabling us to compare his range size to previous years.

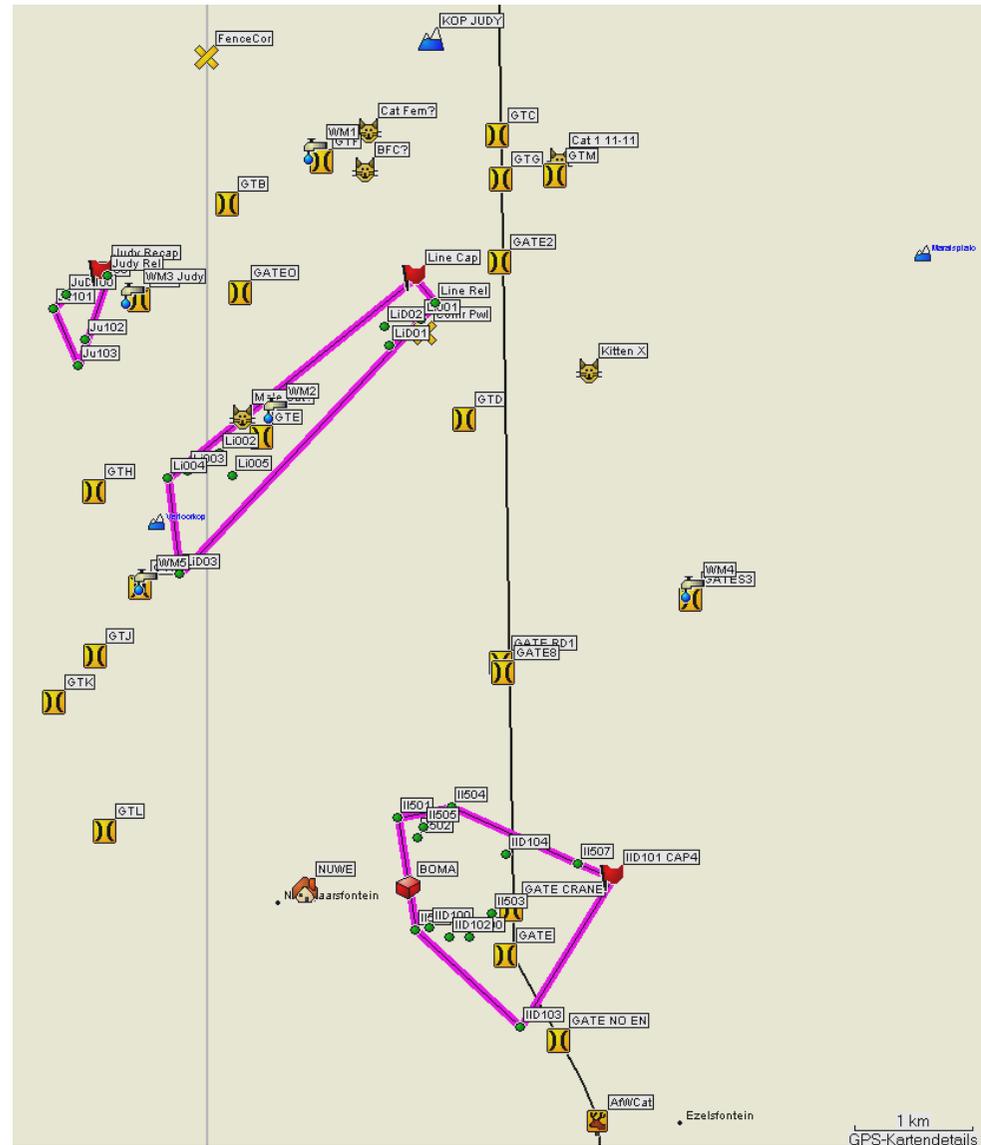
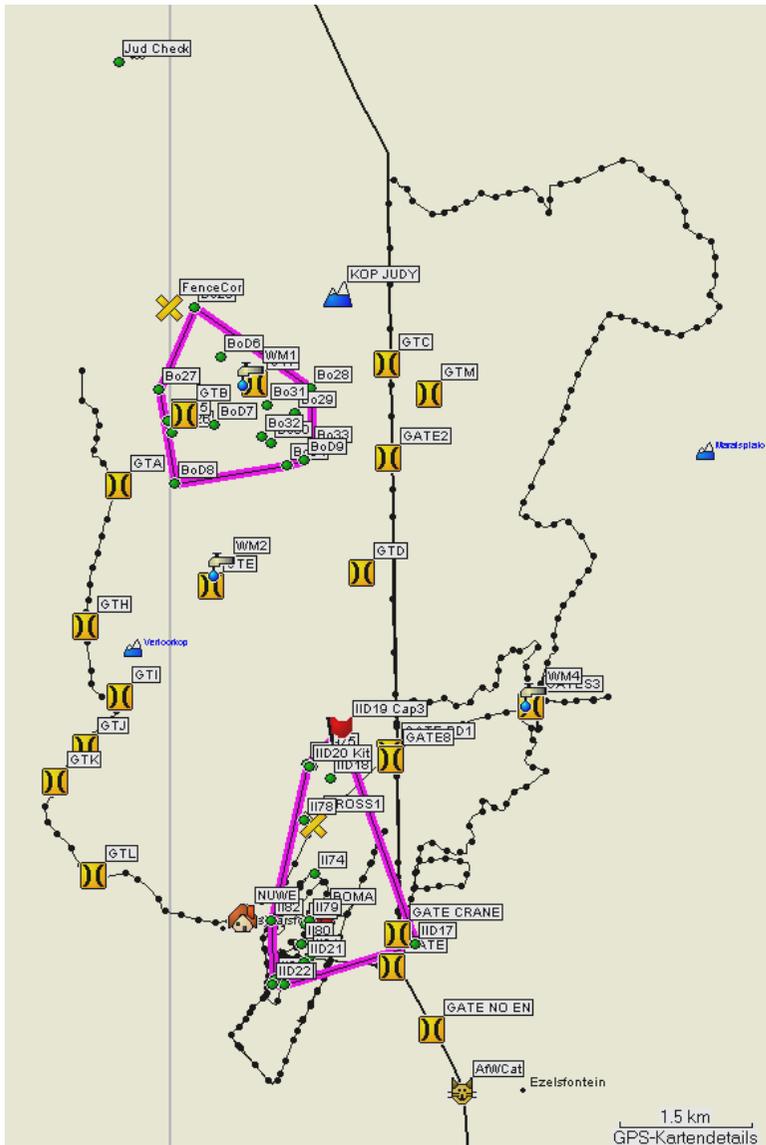
Altogether the trips were successful, though with the capture success lower or similar to those obtained during previous field trips. We continued with our decision to radio-collar any captured bf-cat that was large enough (> 1 kg) in order to get repeated biological samples during future trips and allowing for the comparison of home ranges to the sizes estimated by Sliwa (2004). Chriszanne Burger, Beryl Wilson, Sterrie Marais and Pieter Marais will be able to collect more location fixes on a regular basis for each of the five radio-collared cats.

We will return to Benfontein NR and Nuwejaarsfontein Farm for further capturing and sampling of wild black-footed cats in mid to late 2012.

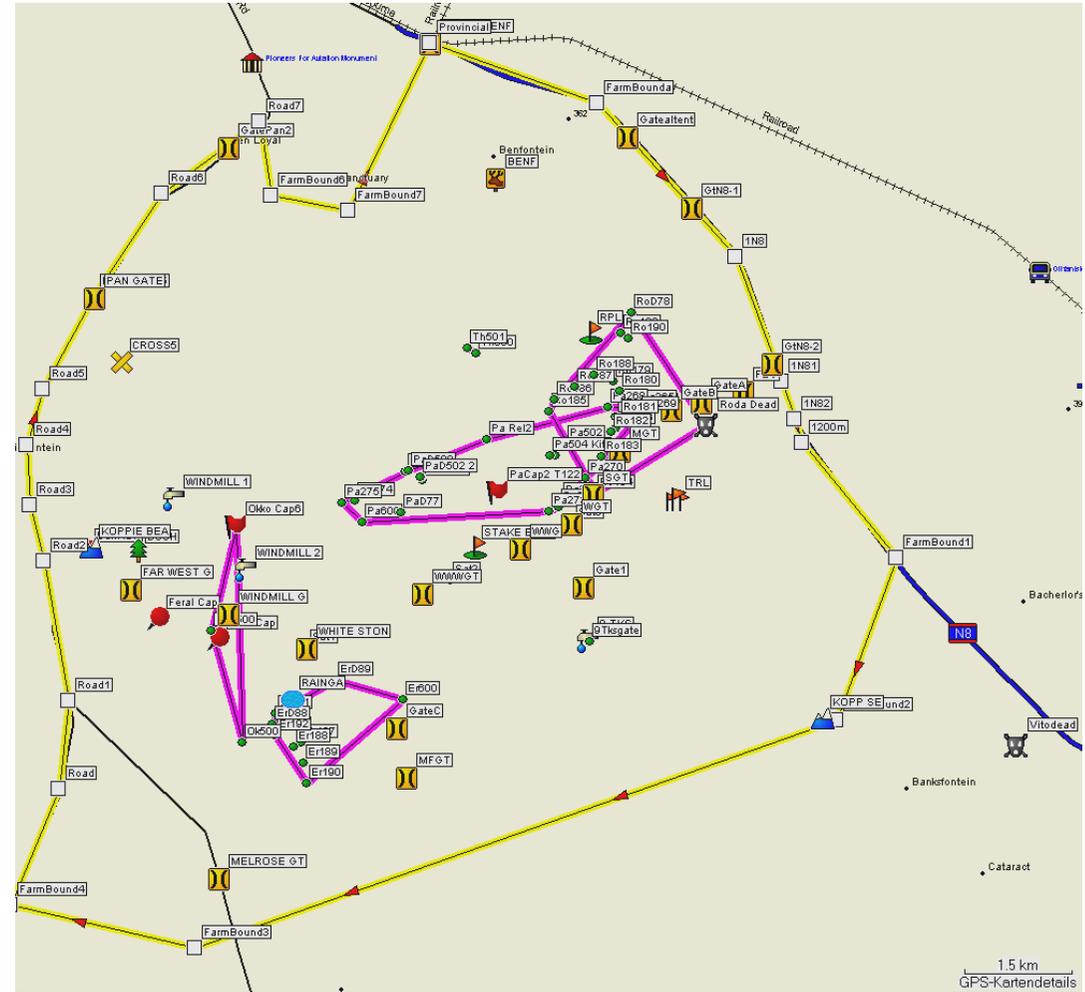
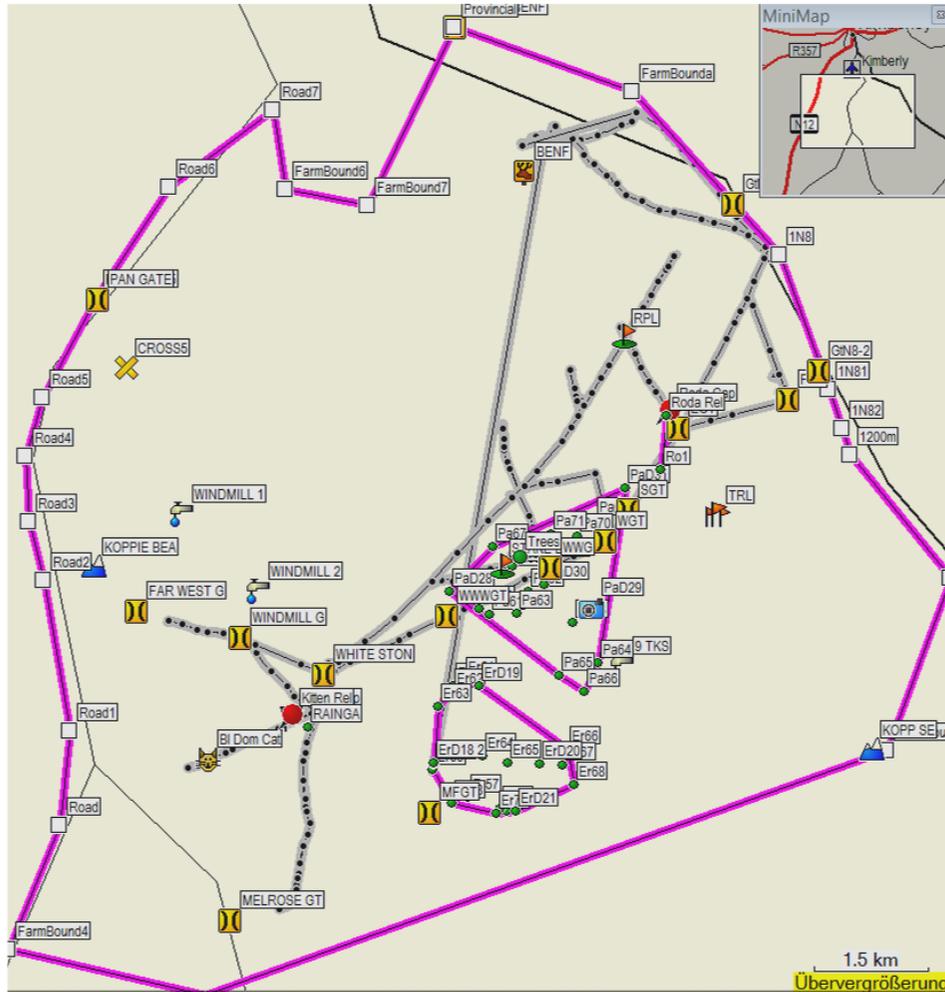
Acknowledgements: We thank Sterrie Marais, his wife Ilse and son Pieter for their holistic support of our capture trips to Nuwejaarsfontein. Not only did Sterrie and Pieter drive and man spotlamps on the excellent Toyota Landcruiser field vehicle (owned by Mr. van Aswegen) every night, they also helped with the capture and processing of the cats. In addition they covered all the running costs of the vehicles, provided the use of the spotlamps and much needed coffee breaks in the middle of the veld in the late hours of the night. We are especially indebted for their provision of our tranquil, beautiful 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 and for pulling our field assistant out of the mud. Funds for fieldwork came from Cologne Zoo (dedicated donation by Mr. and Mrs. Stock), Zoo-Verein Wuppertal e.V (friends of the Wuppertal Zoo), , Tierarztpraxis Dr. Lore Marholdt, Leverkusen, Germany, Parc-des-Felines, Paris, France; Ebeltoft Zoo (Ree Park), Denmark. The International Society of Endangered Cats (ISEC)- Canada Branch, gave us generous funds for radio-collars and vehicle running costs over all these years. We sincerely thank our respective employers for supporting us and granting us leave of absence from our busy work schedules to carry out this field work.

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Map 1 & 2. GPS maps of Nuwejaarsfontein Farm, with minimum convex polygons of females “Ilse” (Feb: 11,1 km² =100% MCP, Nov:1,9 km²), female “Judy” (Nov: 0,2 km², 100%MCP), and female “Bora” (Feb: 2,4 km², 100% MCP) and female “Line” (Nov:1,4 km²) collected during the field periods in February and November 2011. Land marks, windmills and gates, and capture location (red beacons) of cats are also shown. The researcher track taken to find “Judy” on the neighbouring farm by foot is in dark blue. There was no overlap between any pair of these 3 females during our tracking period.



Map 3 & 4. Two GPS maps of Benfontein Farm, with minimum convex polygons (100% MCP) encompassing the locations of the 4 radio-collared cats collected during the 2 field periods. Female “Paris”(Feb: 3,1 km², Nov: 3,3 km²), female “Roda”(Feb: 0,05 km², Nov: 2,9 km²), and female “Erica”(Feb: 2,2 km², Nov: 1,3 km²) in the south and male Okko (Nov: 0,6 km²). There was some overlap between Roda and Paris. Land marks, gates and capture location (red beacon) of the black-footed cats.

February 2011 Nuwejaarsfontein



Fig.1. Capture Team in February
(B. Wilson)



Fig. 2. Capture Team rained out (B.Wilson)



Fig 3. Checking for Judy's signal from a rock outcrop (A.Sliwa)



Fig 4. Working on "Ilse" (A. Sliwa)



Fig 5. "Ilse's kitten, ~ 6 days old (A. Sliwa)



Fig. 6. Endoscope showing kitten in termite mound (A. Sliwa)

February 2011 Benfontein



Fig. 7. Benfontein Pan in flood –taken from microlight plane
(B. Wilson)



Fig. 8. Beryl wading through long grass
(A. Sliwa)



Fig. 9. Access road washed away
(A. Sliwa)



Fig. 10. On excursion to the southern “dry” parts of Benfontein
(A. Sliwa)



Fig. 11. Alex checking for the signals
(B. Wilson)



Fig. 12. Female “Roda” heavily pregnant on 27 Feb.11.
(A. Sliwa) She gave birth on 3rd March – 5 days later

November 2011 Nuwejaarsfontein



Fig. 13. "Ilse" in the waking-up kennel (A. Sliwa)



Fig. 14. Black-footed Cat Team with "Line" (P. Marais)



Fig. 15. Camera Trap setup at "Ilse's" release den (A. Sliwa)

Camera Trap pictures from Nuwejaarsfontein



Fig. 16. "Ilse" leaving release den after anaesthesia (A. Sliwa)



Fig. 17. "Ilse" leaving for the nights hunt (A. Sliwa)



Fig. 18. "Line" leaving release den after anaesthesia (A. Sliwa)



Fig. 19. "Judy" sitting in her release hole. (A. Sliwa)

November 2011 Benfontein



Fig. 20. BFCWG team in gear on Benfontein
(Photo:?)



Fig. 21. Arne applying the lure
(A. Sliwa)



Fig. 22. Arne and Adrian Tordiffe with captured caracal female
(A. Sliwa)

Camera Trap pictures from Benfontein



Fig. 23. Checking and digging for "Okko"
(B. Wilson)



Fig. 24. "Okko" leaving release den
(A. Sliwa)



Fig. 25. Paris' kittens, ~4 weeks old
(A. Sliwa)



Fig. 26. "Okko" hiding in shallow den next day.
(A. Sliwa)

Table. 1: Body measurements, range size and remarks on 10 black-footed cats with 11 captures on Nuwejaarsfontein and Benfontein, in 2011.

Date	16.2.11	24.2.11	27.2.11	3.11.11	4.11.11	5.11.11	9.11.11	10.11.11	not captured	not captured	not captured
Name (also on Map)	Ilse	Crack	Roda	Ilse	Line	Judy	Paris	Okko	Thea	Bora	Erica
No. captured	Cat 1 11	Cat 2 11	Cat 3 11	Cat 4 11	Cat 5 11	Cat 6 11	Cat 7 11	Cat 8 11	Cat 09	Cat 1 10	Cat 4 10
Sex	F	M	F	F	F	F	F	M	F	F	F
Age	Adult	Juv	Adult	Adult	Adult	Adult	Adult	Adult	Adult	Adult	Adult
Microchip #.	6895136	6C68EC4	6CB-AA37	6895136	6C67333	6C660DE	6CAA4FF	6895205			
Mass (kg)	1,50	0,75	1,47	1,45	1,19	1,06	1,15	1,85			
Ear (cm)	-	-	4,50	4,70	4,70	4,50	4,80	4,4			
Shoulder (cm)	22	-	24	23	22	23	23	25			
Total Length (cm)	56	-	55	55	55	55	56	62,5			
Hind foot (cm)	8,4	-	8,6	8,46	8,40	8,25	8,60	9,20			
Front foot (cm)	1,9	-	1,80	2,00	2,00	1,70	1,80	2,10			
Tail (cm)	17	-	17	15	16	17	17	19			
Neck (cm)	11	-	10	11	11	10,5	10,5	14			
Canine UR (cm)	0,76	-	0,93	0,80	0,87	0,93	0,91	1,00			
Canine LR (cm)	0,71	-	0,76	0,65	0,72	0,80	0,79	0,80			
Canine UL (cm)	0,82	-	0,86	0,76	0,88	0,90	0,88	1,05			
Canine LL (cm)	0,64	-	0,76	0,64	0,70	0,75	0,77	0,91			
Testes (cm)	/	-	/	/	/	/	/	/			
*No. fixes collected in 2011	18	-	3 + 14	13	10	7	18 + 23	9	2	15	20 + 9
Total Range (100%) in 2011	2,8 km ²	-	0,05 + 2,9 Km ²	1,9 km ²	1,4 Km ²	0,2 km ²	3,1 + 3,3 km ²	0,6 km ²	-	2,4 Km ²	2,2 + 1,3 km ²

*only fixes taken by BFCWG members (A.Sliwa, A. Lawrenz) during the field periods. Many more fixes collected by Jonatan Borling, Chriszanne Burger and Beryl Wilson.

Remarks:

- 1) Ilse (Cat 1 11): just given birth, lactating – single kitten max 6 days old (eyes still closed), female in excellent conditions, ticks and lots of fleas – exchanged radio-collar – Nuwejaarsfontein.
- 2) Crack (Cat 2 11): juvenile male –ran in the road in short grass, full milk dentition, black nose pad, still dependent on mother, fine condition, some ticks on ears, has eaten recently – not collared – Benfontein.
- 3) Roda (Cat 3 11): adult female, heavily pregnant and thus only capable of slowly running on a road, gave birth to 2 kittens next week, 4 previously used nipples, teeth slight tartar but unchipped, killed by Jackals in July, Benfontein.
- 4) Ilse (Cat 4 11): 3 abdominal masses - pregnant (~ 4 weeks to go), nipples not recently plucked. In good condition, has eaten. Some fleas and ticks. Left den 30 min after depositing her (camera trap set up). Nuwejaarsfontein.
- 5) Line (Cat 5 11): adult female, good condition, well-used nipples. Radio-collared on Nuwejaarsfontein.
- 6) Judy (Cat 6 11): adult female, wore expired radio-collar and was recaptured very close to first capture on 9th Nov 2009; normal condition with sleek fur, well-used nipples, currently not pregnant. Nuwejaarsfontein.
- 7) Paris (Cat 7 11): adult female, collar expired in first November week! Recaptured in trap within her known home range, thin, radio-collared, has two 4-week old kittens seen on 11.11.11 – photographed by camera trap. Benfontein.
- 8) Okko (Cat 8 11): adult male, PTT (Argos satellite) collar expired in May 2011, recaptured close to 2nd windmill at koppie, old but fit, now at least 7 years old (captured as adult Nov 2006), Benfontein.
- 9) Thea: adult female, last signal on 8.1.11, later seen in April and recently on 11.Nov. in her home range, not captured, Benfontein.
- 10) Bora: adult female, monitored in Feb, last heard by Sterrie and Piet Marais in April, not found again in November (collar expired ?). Nuwejaarsfontein
- 11) Erica: adult female, monitored extensively in February, then through to June by Jonatan Borling, June by Alex Sliwa, from July Chriszanne Burger, last seen 31st October (Alex), collar expired the week after, not recaptured.