



MINISTRY OF ENVIRONMENT AND TOURISM
Directorate Scientific Services
Etosha Ecological Institute

Enquiries: B. Kötting
Tel: +264 67 229854 PO Box 6 Okaukuejo via Outjo
Fax: +264 67 229853 E-mail: eei.staff@mweb.com.na

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Pauline Lindeque
Director: Scientific Services
P/Bag 13306
Windhoek

RE: Post-relocation movements of two collared lions inside and outside Etosha National Park

1. Adult male lion on communal land in the Omburu area north of Okaukuejo

Background:

This adult male lion (number 719 on the Etosha lion list) was branded on 3 September 1996 at Aus, approximately 30 kilometers east of Okaukuejo. He was originally classified as one of the lions belonging to the Homob pride (lion list of 1999), but at a later stage he was grouped with the Leeubron pride after frequently being sighted in that area together with the Leeubron lionesses (lion list of 2000). The lion's age was estimated to be 9.6 to 10 years during 2004.

Lions had been raiding stock for several weeks during early 2004 at the Omburu cattle post north of Narawandu. It was unclear how many lions were involved, but Etosha staff was certain there were at least four lions – a lioness with two sub-adult cubs, and the male mentioned above. On several occasions DPWM staff observed spoor of lions at a seasonal pan approximately 1.5 kilometers south of the kraal.



In an effort to solve the problem, DPWM and DSS staff went out on 24 April to immobilize one or more of the lions, and to return them back to the Park. The above-mentioned adult male could successfully be immobilized and collared during the night, after he caused the cattle to break out of the kraal and killed an ox about 30 metres from the homestead.

Left: The lion after immobilization, ready for transport back to Etosha National Park.

Below: The lion at Nebrownii after waking up.

Movements of the lion:

The lion was released at the Nebrownii waterhole early on Sunday morning, 25 April 2004. Sunday afternoon the lion was still observed at the same location where he had been released. Around 17h00 the lion started moving towards Okaukuejo, and it was noticed that he had a slight limp in his right back leg. All attempts at tracking the lion from the ground the next day



failed, and unfortunately no pilot was available at the time to track the animal from the air.

A DPWM team was sent to the Omburu area to ascertain whether or not the lion had returned to the area. In the early morning hours of 29 April, the team managed to chase away a lioness and a second lion they could not clearly identify from the kraal as they tried to catch a cow. That evening, staff tried to lure the lions to a springbok carcass at the village, but instead of coming to the bait, the lions went to drink at the seasonal pan south of the cattle post, where their tracks were found the following morning.

Later that day (30 April), the male lion was tracked by air to outside the Park – one kilometer from the temporary pan south of Omburu’s cattle post (Figure 2). It is not known with certainty how long it took the lion to return to the cattle post, but it is presumed that he covered the distance within two nights, and that he had returned to the village by 27 April. The direct route from Nebrownii to Omburu’s cattle post is 72 kilometers, but the route that the lion would have been more likely to take according to Dr. Brain would have been slightly longer – approximately 80 kilometers (Figure 1). This short period of time in which the lion is believed to have returned to the area in which he was caught is remarkable, especially if it is taken into account that the animal had a limp.

Ground staff radio-tracked the collared male, and eventually sighted him, together with another adult male, in the area where the radio signal was picked up from the airplane. The evening of 30 April staff made a second attempt at catching the lions, this time at the seasonal pan (thick bush did not allow for immobilization earlier that day). While waiting for the lions to come to the bait, two lions were heard roaring close-by in the direction where the two males had been sighted earlier that day, and one much further to the south (presumably

inside the Park). The radio signal of the collared male could also be picked up at the seasonal pan. After a while the roars of the two animals close-by sounded further and further apart, it appeared as if one of the males moved back to the Park.

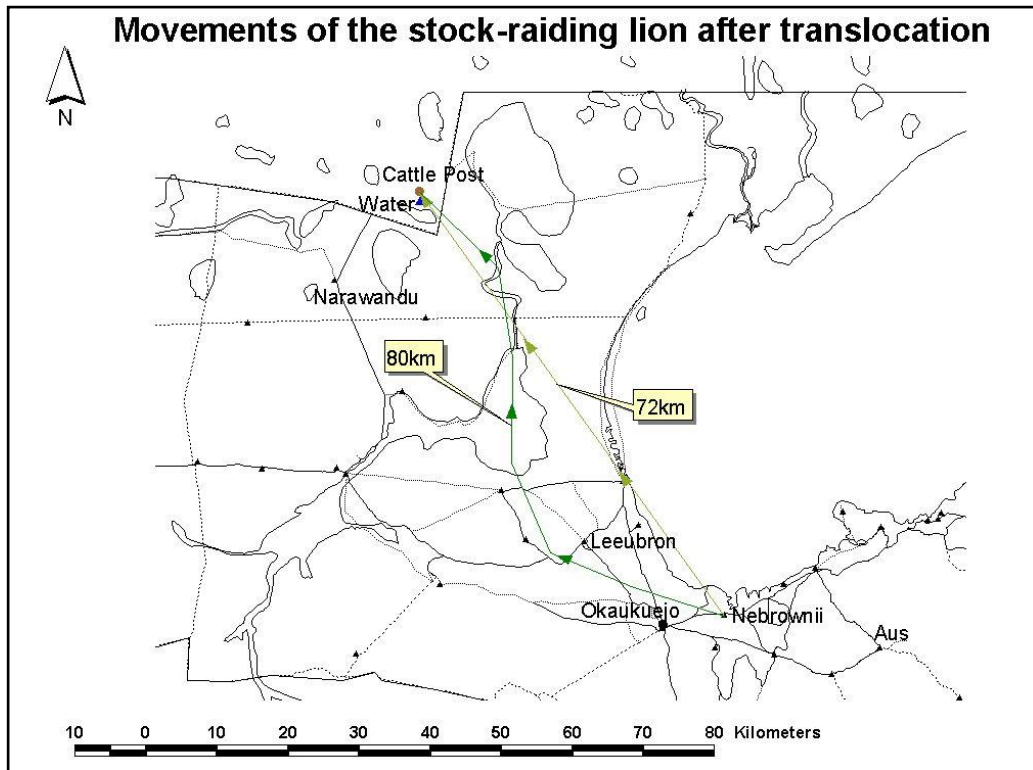


Figure 1: Movements of the lion after he had been captured at the Omburu cattle post and released at Nebrownii waterhole, 10 kilometers east of Okaukuejo.

After an unsuccessful night, the lions' tracks were followed the next morning. The tracks of one male could be followed back to Etosha, whereas the tracks of the second male were found outside Etosha leading along the northeast-southwest section of the Etosha fence east of the Omburu cattle post (refer to Figure 1). When staff managed to pick up a radio signal, it was certain that the collared lion was the one still outside Etosha. Due to thick mopane shrubs the lion could never be sighted, but a very fresh resting place was found, and according to the tracks the animal was running away from investigating staff. The exercise was called off temporarily due to the difficult terrain the lion occupied at the time.

The lion was tracked by air regularly from then on, and was found on several occasions (Figure 2):

1. On 6 and 10 May 2004 he was found inside Etosha National Park, 6 kilometers northwest of Narawandu, 5.5 kilometers south of the Etosha boundary fence. On both occasions he was seen together with a lioness and two sub-adult cubs (presumably the same lions that also roamed outside the Park in the Omburu area) on an Eland carcass.
2. On 18 May the lion was tracked to the area west of Otjivalunda Salt Pan 2 outside Etosha (2.5 kilometers north of the Etosha northern boundary).
3. On 26 May he was found 24.5 kilometers west of the Omburu cattle post, virtually on the fence line, but still inside Etosha.

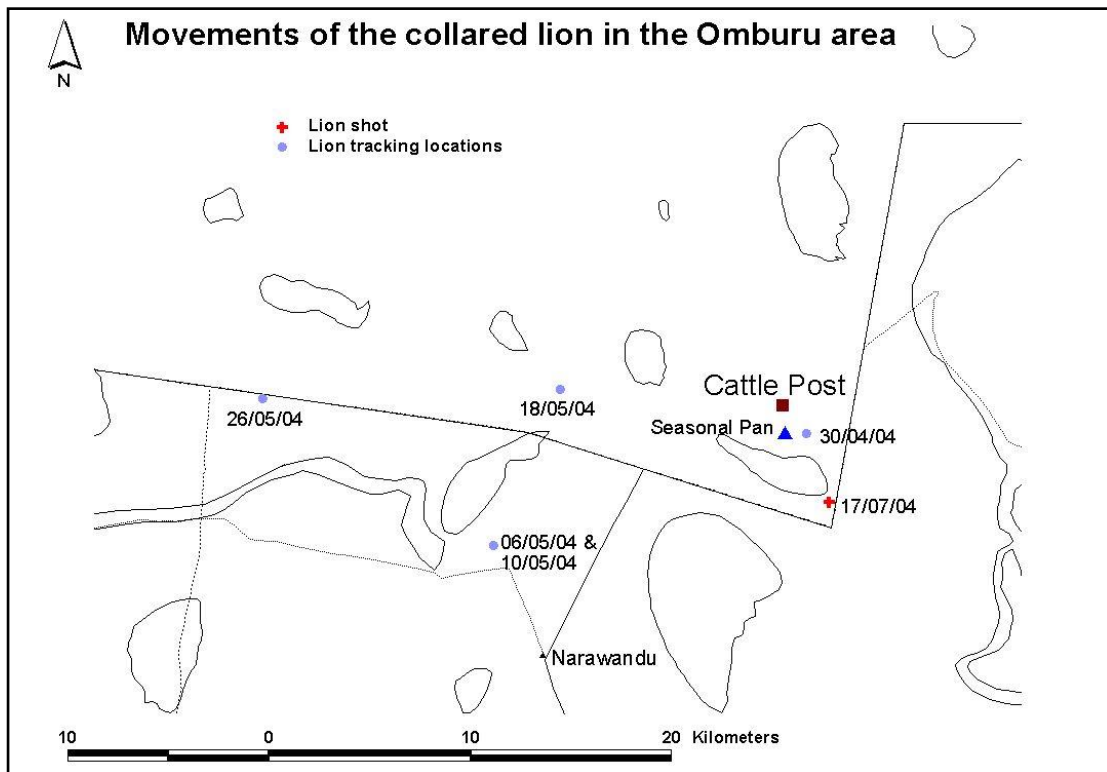


Figure 2: Movements of the lion in and out of the Park once he had returned to the Omburu area after his release at Nebrownii.

Results:

During early May permission was granted to have the adult male hunted by a trophy hunter, and the hunting party arrived on 9 May. When the animal was tracked to inside Etosha on 10 May, the hunters decided to remain in the Omburu area in case the lion would move out again. After an unsuccessful two-week period the hunters departed. Once the presence of the lion had been confirmed outside the Park again, the hunting party returned. The lion was tracked and sighted outside Etosha by the hunting party on 13 July, but no shots were fired. On 14 July the lion was again found, this time the hunter managed to fire a shot, which only wounded the lion. The hunting party continued to search for the wounded animal until 16 July, but they remained unsuccessful due to the fact that the blood trail had vanished, and the spoor was too difficult to follow due to the presence of tracks from other lions.

The decision was made to track the lion down with the aid of telemetry to prevent any further suffering. On 17 July the general location of the lion was determined with the aid of telemetry, and then the hunting party made an attempt at finding a fresh trail. After three hours of not finding a fresh track of the lion, the collar's signal could still be received from the same location, and it was presumed that the animal had died from its injuries. Staff and hunters went in on foot with the telemetry set to track the lion down. The lion was found alive and in the company of another adult male, presumably the same male it had been sighted with before. The hunter managed to shoot the collared lion dead about 200 metres from the Etosha boundary fence (for location refer to Figure 2), the second male returned to Etosha.

Financial implications for MET and the farmer:

a) Overtime and Subsistence & Travel

Table 1: Overtime and S&T claimed for the visits to Omburu cattle post.

Month	February	March	April	May	June	July	Total
Number of Omburu Visits	5	2	5	2	0	5	19
Number of Days in Field	11	7	16	7	0	19	60
Number of S&T Days	6	5	11	4	0	14	40
Number of Staff involved	13	4	20	6	0	15	58
Number of Staff to claim S&T	10	4	19	6	0	11	50
Total S&T claimed in N\$	2100.00	700.00	4130.00	840.00	0.00	3710.00	11480.00
Number of Rangers	2	1	7	2	0	4	16
Total Ranger OT Hours	29	12	101	24	0	88	254
N\$ for Rangers	623.48	410.88	2513.66	864.12	0.00	2604.42	7016.56
Number of Operator Drivers	0	0	1	0	0	0	1
Total O/Driver OT Hours	0	0	7	0	0	0	7
N\$ for O/Driver	0.00	0.00	132.07	0.00	0.00	0.00	132.07
Number of Scouts	3	2	5	1	0	4	15
Total Scout OT Hours	36	28	128	25	0	43	260
N\$ for Scouts	656.52	537.60	2456.74	629.54	0.00	899.69	5180.09
Number of Workhands	6	0	5	0	0	2	13
Total Workhand OT Hours	66	0	60	0	0	5	131
N\$ for Workhands	981.46	0.00	909.87	0.00	0.00	70.17	1961.5
Number of Labourers	2	1	1	1	0	4	9
Total Labourer OT Hours	32	6	25	21	0	115	199
N\$ for Labourers	369.12	78.20	281.88	255.21	0.00	1303.35	2287.76
Total OT claimed in N\$	2630.58	1026.68	6294.22	1748.87	0.00	4877.63	16577.98
						TOTAL	28057.98

The Omburu cattle post was visited 19 times from February to July 2004, and staff spent a total of 60 days there in an attempt to resolve the problem. An approximate amount of N\$ 11 480.00 was claimed for S&T, and N\$ 16 577.98 of overtime was claimed by DPWM staff (the overtime is an exact figure from DPWM overtime summaries, whereas the S&T is an estimate determined from these summary sheets). Table 1 reflects the details of the money claimed for the problem animal control in the Omburu area alone. It has to be mentioned that

these figures reflect the minimum, because not all staff members claimed S&T and overtime for every visit.

b) Kilometer and fuel costs

Approximately 6 000 kilometers were driven in six months, which adds up to almost N\$ 7 000 at the Government Garage kilometer rate of N\$1.16 per kilometer for standard LDV 4x4 pick-up trucks. The approximate cost for fuel for all the trips combined is just in excess N\$ 4 500.00, which is payable by Government Garage (Table 2).

An aircraft was used on five occasions to track the male lion. A total of five hours were flown, and at a cost of N\$ 700.00 per hour, it adds up to N\$ 3 500.00. Thus, the total transport costs which MET had to cover are N\$ 10 500.00.

Table 2: Kilometer and fuel costs for the visits to Omburu cattle post.

Month	February	March	April	May	June	July	Total
Number of Omburu Visits	5	2	5	2	0	5	19
Number of Days in Field	11	7	16	7	0	19	60
Return trip km's: Okaukuejo to Omburu	222	222	222	222	222	222	
Sum of return trips	1110	444	1110	444	0	1110	4218
Average daily km's travelled in Omburu area	30	30	30	30	30	30	
Sum of km's travelled in Omburu area	330	210	480	210	0	570	1800
Total km's	1440	654	1590	654	0	1680	6018
Km Cost: GRN Garage kilometer rate (1.16)	1670.40	758.64	1844.40	758.64	0.00	1948.80	6980.88
Fuel Cost (average of 5 km/L x N\$3.86/L)	1111.68	504.888	1227.5	504.888	0	1296.96	4645.9

c) Livestock losses to the farmer and compensation from the lion trophy

At least eleven cattle from the Omburu cattle post were lost to all the lions roaming in the area. At an average cost of N\$ 2 500.00 per head of cattle, the farmer lost a total of N\$ 27 500.00. The lioness and her two cubs continued to move out of Etosha to the Omburu area, therefore greater losses could be

expected. An amount of N\$ 15 000.00 was paid by the hunter to Mr. Bull, the farmer, for the lion trophy.

d) Animals shot for bait

Two adult male springbok were destroyed in Etosha and used as bait to lure the lions in for immobilization.

e) Other remuneration involved in the trophy hunt

An undisclosed amount was received by MET for the lion trophy. The fee charged by the Big Game hunter leading the hunts is not known.

2. Adult female lion on commercial farm Vêrweg east of Namutoni

Background:

It is not certain where this unmarked lioness originated from, but according to the farmer of Onguma, Mr. D. Bartlett, the lioness and her four cubs were frequently sighted on farms Onguma and Vêrgenoeg (Figure 3). Lions have been roaming on those two farms almost on a permanent basis for many years, and many cubs have been born on the farms. It is very likely that these cubs (and maybe even the mother) were born outside the Park, and therefore the farming area was an established part of their home range. Most of their time would have been spent on the farms, with occasional visits to Etosha.

The lioness and her cubs (one male and three female cubs) were sighted on farm Vêrweg, which is two farms (\pm 19 kilometers) away from the Etosha boundary

fence, during the beginning of October 2004. On 7 October 2004 Dr. Van Coller, the farmer of Vêrweg, shot one of the female cubs.

Etosha MET staff, in collaboration with veterinarian Dr. M. Jago, managed to trap the adult female in a cage trap on 14 October. The intention was to keep the lioness in the cage to lure the cubs in for immobilization, but being trapped stressed the animal excessively and she had to be released prematurely. The lioness was branded and collared, and released on 15 October at Okerfontein in Etosha National Park, approximately 56 kilometers west of the location where she had been captured (Figure 3). Eventually, the veterinarian managed to immobilize and brand the cubs, and they too were released at Okerfontein on 16 October.

Movements of the lions:

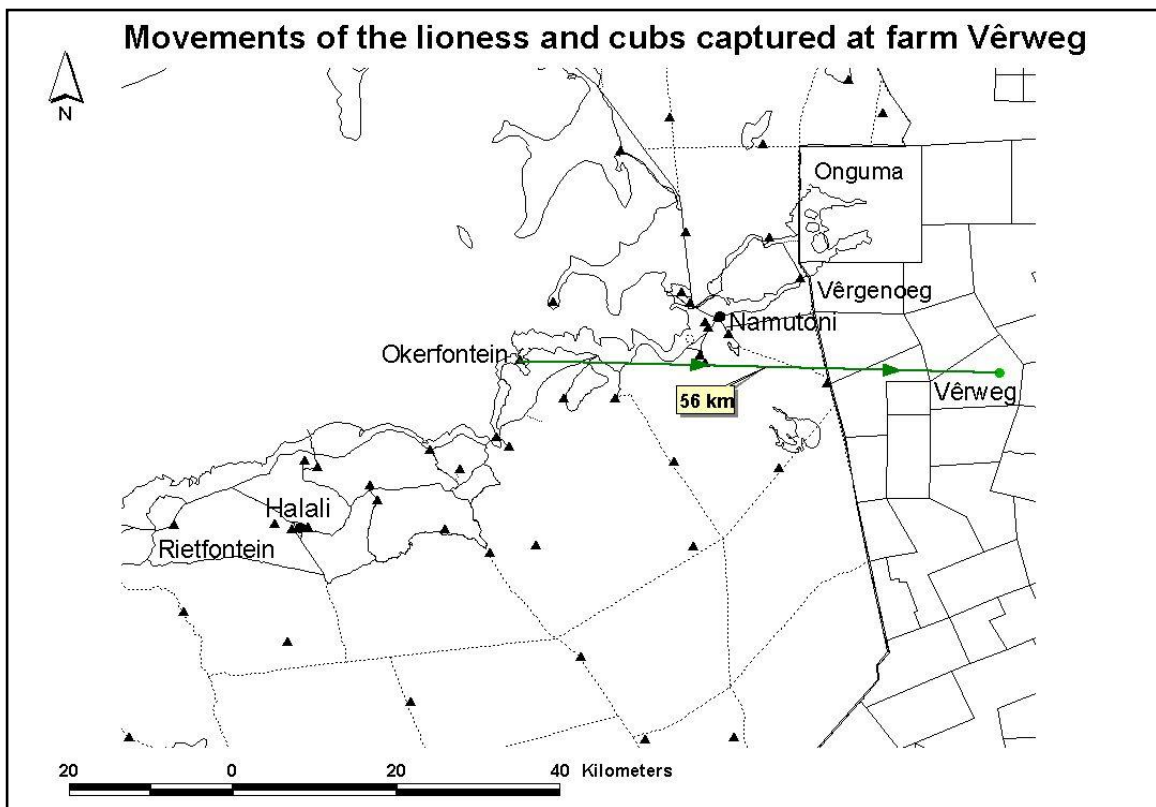


Figure 3: Movements of the lioness after she had been captured on farm Vêrweg and released at Okerfontein, 56 kilometers to the west of the location where she was caught.

On 20 October 2004 the mother of the cubs was sighted on a cow carcass on farm Vêrweg, at the location where she had been captured (Figure 3). It is not known how long it took the lioness to return to the farm, but it is presumed that she returned there very quickly (within one or two nights) in search of her cubs. The location of the cubs remained unknown at that stage, but on 28 October the cubs were reported to be back on the farm.

Results:

The adult female lion was shot dead by a trophy hunter on 21 October, one day after she had returned to the farm. It is unclear who granted permission for the lioness to be trophy hunted.

Dr. R. Marais from the MET Game Capture unit was tasked with capturing the lion cubs once they had returned to the farm. Dr. C. Brain assisted with the

capture. The plan had been to keep the cubs in Etosha until a suitable buyer could be found. On 4 November two of the cubs were sighted on the farm (one female and the male), and Dr. Marais managed to immobilize the male. It was kept there in a cage trap in order to attract the female, she however refused to come to bait, and to date could not be captured. Eventually the veterinarian was forced to release the male cub into the enclosure at the Namutoni horse stables. It was presumed that the third cub had died.



Left: The immobilized male cub in the cage trap.

The sub adult male (the cubs are estimated to be between 8 and 12 months old) is currently still being kept at the Namutoni horse stables and fed with springbok carcasses on a weekly basis.

Right: Dr. C. Brain busy administering ointment to the eyes of the lion cub after immobilization



On 10 December 2004 two lion cubs, believed to be the “Vêrweg cubs”, were sighted at the Rietfontein waterhole in the Halali area by an Okaukuejo Ranger. A week later, the same two cubs were again sighted at Rietfontein, this time by tourists. This would mean that the third cub survived and managed to join up with its sibling. Mr. Bartlett from farm Onguma however claims to have seen the two cubs on his farm, also on 10 December. It would appear that these cubs were not the same cubs seen at Rietfontein, simply due to the distance between Onguma and Rietfontein – approximately 85 kilometers in a straight line. Furthermore, the cubs Mr. Bartlett saw, were a male and a female. The Okaukuejo Ranger claims to have seen brands on both animals, whereas Mr. Bartlett stated that one of the cubs was branded but the other cub unbranded, however with severe scars. Since the observations in December 2004 no more sightings of the cubs were reported, and the mystery of whether or not the two female cubs are alive and together, and also where they are if they are still alive, remains.

Financial implications for MET and the farmer:

a) Overtime and Subsistence & Travel

An approximate amount of N\$ 6 300.00 of overtime was claimed by five Namutoni DPWM staff (2 Rangers, 2 Scouts and one workhand). The amount of S&T claimed was approximately N\$ 4 200.00. The amount of overtime and S&T claimed by the Chief Warden present during the investigation is not known. The S&T and overtime claimed by Etosha DSS staff (one veterinarian and one C/Warden) who assisted in the capture of the lion amounted to N\$ 204.00 and ± N\$ 4 000.00 respectively.

b) Kilometer and fuel costs

DPWM staff drove approximately 620 kilometers during October and November to and on farm Vêrweg. At the Government Garage kilometer tariffs of N\$ 1.24 and N\$ 1.44 for a Toyota Hilux pick-up and Toyota Land Cruiser respectively, it amounts to N\$ 824.00. The approximate cost for fuel, payable by Government Garage, is N\$ 620.00. Etosha DSS staff used two vehicles, and drove approximately 950 kilometers. This amounts to N\$ 589.00 for kilometers at a tariff of N\$ 1.24 for the Government Garage vehicle, and N\$ 405.00 of fuel for the 30-series vehicle.

c) Livestock losses to the farmer and compensation from the lion shot

The farmer lost one pregnant cow and two calves to the lions. At a rate of N\$ 2 500.00 per head of cattle and N\$ 1 000.00 per calf, the total loss amounts to N\$ 5

500.00. The amount paid to Dr. Van Coller by the trophy hunter remains undisclosed.

d) Animals shot for bait and lion food

One Burchell's zebra, one blue wildebeest and one springbok were shot in Etosha and used as bait on farm Vêrweg.

In the period from 6 November 2004 to 26 January 2005, 13 springbok were shot to feed the caged male cub.

e) Veterinary fees

MET had to make use of the services of a private veterinarian, Dr. M. Jago, to capture the lioness and cubs on farm Vêrweg. Dr. Jago spent a minimum of three days on the farm. The amount paid to Dr. Jago is not known.

Dr. R. Marais, MET Game Capture veterinarian, and one of his subordinates spent four days on the farm in order to capture the lion cubs once they had returned to Vêrweg. The approximate amount spent on drugs, fuel, S&T and overtime for the Game Capture veterinarian and his staff member is N\$ 4 000.00.

f) Other costs

The amount of ammunition used for bait and also for food shot for the caged lion cub is not known. Also, kilometers and fuel costs for hunting springbok for the lion cub have not been calculated.

Yours faithfully,

Birgit Kötting

Science Warden: Etosha Ecological Institute