

BLACK RHINO MONITORING
PILANESBERG NATIONAL PARK

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INTRODUCTION.

Because black rhino sightings collected by the game scouts during 1991/92 were deemed inadequate and as there was still two adult females and three youngsters to be marked the black rhino monitoring project was carried out again in 1993.

The identikit-project that commenced in 1989 and 1990 (Hansen and Lindemann, 1989 and 1990) and continued as a photo-monitoring program in 1991 and 1992 (Hansen & Lindemann 1991, Lindemann & Hansen 1992) is now in its 5th year. Following last years recommendations, this years black rhino project was carried out after the game-count. As in previous years darting was conducted by the veterinarian Dr. Robert Keffen.

Recognising that poaching can soon become a real threat and that it is likely to hit the white rhinos first, it was decided this year to investigate how many white rhinos in the Pilanesberg are identifiable.

METHODS.

Previously all flying was done in a Bell 47 helicopter, but this year a Hughes 300 was also used. With the exception of three afternoon flights, flying was done in the mornings. In searching for black rhinos advantage was taken of Helicon looking for buffaloes in the same period. Two black rhinos were found and photographed during the count.

7 Hughes 300 flying hours were spent over four days between 24th and 27th of August, and 12,8 Bell 47 hours over four days from 29th of August to 2nd of September. In addition 2 Hughes 300 hours were spent on 8th of October to find and dart one young rhino (No.33).

The film used were HP5 (400 ASA) in a Canon 650 camera with a 100-300 autofocus zoom-lens or an EOS 5 with a 80-210 autofocus zoom-lens. To obtain maximum resolution colour negative film was tried for pictures taken on the ground of white rhinos. This proved not to be necessary for identification purposes and black and white pictures were developed.

RESULTS

Numbers:

35 black rhinos were found during the helicopter search. Of these 34 were photographed. This includes the six calves that have been born within the last year. Only two females and one male was not found, no. 10, 32 and 34. Female no. 32 was not seen last year either and needed to be ear-notched as well as male no. 34 that had left his mother early at two years of age.

However no. 33 that could be confused with no. 34, were ear-notched and all black rhinos are therefore still individually recognisable.

The total number of black rhino in the park is now 38. (In case no. 32, Phoso, has a calf the number could be 39.) This is 5 more than last year. One old male, no. 8, Van Gogh that last year was recommended for hunting died in December, and six calves have been born.

Sex ratio:

Table 1: Females and males according to age classes.

Age classes:	Females	Males
A 0 - 6 months		41. Olehile
B 6 m - 1 year	39. Bone Pele 42. Boitumelo	37. Mpofo 38. Martini 40. Matshobane
C 1 - 2 years		34. Molefi 36. Catalino
D 2 - 3 years		28. David 33. Hughey
E 3 - 6 years	6. Zita 10. Kumi 14. Totolina	2. Dudu 4. George
F over 6 years	9. Gijima 11. Mkuzi 12. Filana 13. Dongalina 17. Suzy 18. Dengezi 19. Bahati 27. Piga picha 30. Impia 32. Phoso	16. Bob 20. Hooked Nose 21. Scar 23. Hansa 29. Vere 31. Kimbea

The adult sex-ratio is 6 males to 9 females (Females are regarded as sub-adults until they have produced a calf, males as subadults as long as they are found in the company of an adult male). Including sub-adults the ratio is 13 males to 16 females.

Of the six calves that have been born since last September two are confirmed as females (the first females to be born since the project started in 89) three are males and for one the sex has not yet been established. The total number is still in favour of males with 19 males to 18 females (plus the one unknown).

Location and movements:

Most of the adult rhinos were found in areas where they were expected to be. "Hairy ear", her calf and "Bruce",

had temporarily moved into the EEZ, but were later found within their normal home ranges. One male no. 16, "Bob", was found as expected in Legkraal, but two days later he was seen in Welgeval towards Ruighoek dam. This indicates that he is still trying to find a suitable territory.

Age at first calving:

For estimation of the population development (Hansen & Lindemann, 1990), the age at first calving was assumed to be 7 years and the calving-interval 3 years.

One young female "Zita", no. 6, born at the end of 87 or beginning of 88 produced her first calf in April 93, which gives an age at first calving of about 5,5 years only. Two other females that previously was thought to be 8 and 9 at first calving is now believed to have been 6,5 years and 8 years. On average for the 3 females this is just under 7 years.

Interval between calves:

Of the 6 births this year 5 were produced by females that have already had more than one calf. One female (No.17) that produced a calf in April 91 had a new calf just two years later in April 93. Two females had calving-intervals of 2,5 years, one had 3 years and one 3,5 years. On average this gives a calving interval of 2,75 years, which is below the average 3,5 years that was calculated for all females in the park.

Darting exercise:

Two black rhinos were darted and ear-notched. However, one was No. 16, that caused problems last year and therefore never was notched properly. Both animals had transponders put into each horn and one under the skin. Three other animals that needed notching could not be found: The elusive female No. 32, a young male No. 34 who has left his mother at the early age of two years and another young male No. 36 who is still with his mother. The female no. 17, which is also a clean animal, could not be notched, because she has a new calf.

The ear-notches that was punched as holes last year has closed in most cases. Fortunately, the animals that can be mistaken because of this are of different sexes except for the females no. 1, "Hairy ear" and no. 18, "Dengezi", who live in very different areas. The two males that were notched this year had larger holes put in to prevent the tissue to grow.

The files:

The four identikit-files have been updated, and new photos have been enclosed for all animals except four.

Sightings:

85 sightings (involving 110 animals) has been entered by the game scouts on green cards between 1.10.92 and 1.8.93. Of these 69 are certain, 12 probable, 2 could be, and 2 unknown. (In comparison it could be mentioned that at Lapalala with 10.000 ha and 9 black rhino, the 5 game

scouts collect between 25 and 35 confirmed sightings a month).

4 animals have not been seen at all, 7 have been seen only once, 11 have been seen 2-4 times and 6 have been seen 5 or more times. Only one of the 6 calves born this year was found by the game scouts.

1991/92 there were 87 sightings of variable quality. Only 10 were certain, so the quality of sightings done by the game scouts have improved. However the quantity is not consistent. Between 1 April and 1 August only 15 sightings have been entered, of which 4 is of No. 3 in the Environmental Education Zone. Since 1st August there have only been 2 sightings.

The white rhinos:

4 white rhinos that were identifiable were found during the helicopter survey. The ground work done by Hansen and Lindemann between 19.9 and 13.10 produced 70 sightings of which 10 more white rhinos were identified.

Of 77 sightings (89 animals) 14 were identifiable. Photos have been taken of 13 animals.

The survey shows that it is possible to get good identification photos from the ground.

DISCUSSION:

The main objective for any conservation body that holds black rhino should be to maximize reproduction (Brooks, P. M. 1988). There is no doubt that Pilanesberg has too many black rhino males to achieve this target.

Since 1990 four old males have been lost either from old age or from fighting. Therefore hunting of old black rhino bulls that were past breeding was recommended in 1991 and again in 1992. Recognising that the hunting issue is very controversial and probably will not take place in the near future, it is now necessary to decide what to do with the excess males.

At present there are 6 adult males. Two of these are old and could be hunted. There are 3 bulls of the age 7-9 years, which are not breeding at the moment and 4 youngsters (3-4 years). In addition there are 6 male calves that were born in 1991 and later.

4 to 5 males could be moved to another reserve - for example Madikwe - where they could be kept until females were available.

Recognising that it can be fatal to put young males in with males that are already established it should be estimated how many males the area can carry and all should be moved at the same time. Also the males should be young animals as it could take some years to obtain females.

The black rhino is highly endangered. Numbers in Zimbabwe, which was called the last stronghold, are steadily decreasing due to the poaching pressure.

In Pilanesberg each black rhino is identifiable. This gives unique opportunities for collecting valuable data as well as increasing management possibilities and

security. If the project is not continued on a regular basis, much of the information collected over the last five years could be lost. With long living animals like the rhino it is only after some years of monitoring that the vital information occur.

Intensive monitoring over a few months, supplemented by the game scouts sightings for the rest of the year has worked efficiently since 1989. It is important to continue the black rhino project considering that poaching can be expected within the next few years. Black rhino sightings could be used as an indicator for the game scouts patrolling performances.

The black rhino population of Pilanesberg could play a major role in the conservation of this highly endangered species. Unfortunately at present neither national nor international conservation bodies seem willing to provide sufficient funds to expand the project.

RECOMMENDATIONS:

1. It is recommended that the photo-identification management project should be carried out again in 1994:

a. there are still two adult females to be ear-notched as well as the two youngsters that could not be found this year.

b. there is one calf from 92 as well as 3-5 calves that are born in the first half of 1993 that need to be ear-notched next year.

If the project is postponed until 95, there is a risk of losing the identity of some young animals that might leave their mothers early, as was the case for one calf this year.

2. To get maximum reproduction, it is recommended that 4-5 of the younger males are moved out of the Pilanesberg to another park where there are no black rhinos and kept on their own until females are available.

3. Recognising that the hunting of black rhino is too big a task for Bop Parks to take on alone, it is recommended that UNEP's special envoy for rhinos (Esmond Bradley Martin) should be contacted and deal with the issue. The aim would be to get consensus from the conservation bodies on the hunting issue, or in alternative ways solve the problem with surplus males.

4. As game scouts are not yet producing enough sightings, it is recommended that the project before next year or in conjunction with next years survey is extended to train a monitoring team responsible for collecting information about rhinos and other monetary valuable species.

5. It is recommended to use the smaller helicopter (Hughes 300) as it is more cost effective.

6. To save expensive helicopter hours, it is recommended that more effort is put in by the game scouts during the project, so missing animals can be found.

7. It is recommended that a special effort is put in by the game scouts to find no. 32, "Phoso", and no. 34 "Molefi" and that no. 27, "Piga picha" is closely monitored as she looks old.

8. As poaching will probably hit the white rhinos first, it is recommended, that a greater effort is put into white rhino monitoring. The white rhino are an important financial asset and it could be beneficial if more were identifiable as this would make it possible to work out the population using the computer program "Rhino 1.2". Bop Parks must decide how much funding can be put into such an effort. The cost of darting and ear-notching each animal is estimated to be around R 1500,-.

9. It is recommended that the rangers from Kwa Maritane, Bakubung and Tsukudu are involved in collecting data on the white rhino.

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