Tshomarelo News, Nov/Dec. 1981

Obviously this is a grossly over-simplified example, and is at best approximate. It is further modified by several factors which are difficult to quantify - for example, the current vegetation condition and productivity will affect carrying capacity for zebra, as will the number of other grazers with similar habitat and food requirements as the zebra (eg. buffalo). The carrying capacity will furthermore not be static, but will change with rainfall, vegetation and herbivore changes.

The further one goes into determining the carrying capacity of a system, the more one realizes that it is a complicated and specialist field. Consequently it was decided that in the long run, it would be best to get specialist advice. Initially Professor Brian Walker of the Centre for Resource Ecology was consulted and provided preliminary figures, based on his experience in a variety of Southern African ecosystems. With these figures to go on, more time would be available for a more detailed study, and this was done by 2 ecologists from the Natal Parks Board, Peter Goodman and Roger Collinson. Both are specialists in the field of estimating carrying capacity, and they produced a report giving broad guidelines for animal introductions (The report is entitled "An assessment of range condition and large herbivore carrying capacity at Pilanesberg Game Reserve with guidelines and recommendations for management", and is available on loan from the Pilanesberg library to anyone interested).

Their recommendations and findings, in short, are as follows: 'Range condition is rated to be good on the hill slopes and summits but poor on the pediments and valley bottoms, the latter suffering from severe sheet and donga erosion. It is concluded that herbivore reproductive status and condition is healthy, and that most species show a strong preference for pediments and valley bottoms'.

'The potential carrying capacity of Pilanesberg for large herbivores is estimated to lie between 1 Animal Unit to 7 ha and 1 Animal Unit to 10 ha. However it is concluded that the present carrying capacity of the reserve is below the potential. Consequently, it is recommended that in order to achieve the ecological objectives, the reserve should initially not be stocked at a rate exceeding 1 Animal Unit to 15 ha. More specifically, it is recommended that this total stocking rate should be allocated to herbivore feeding classes in the ratio of 0,45 bulk grazers, 0,2 concentrate grazers, 0,2 mixed feeders and 0,15 browsers. For the individual species within each feeding class, upper limit guidelines for purchase and introduction are provided '.

'It is concluded that the goals of range management should be to maintain the *status quo* on hill slopes and summits, but to improve the basal cover, species composition and soil surface conditions on the pediments and valley bottoms. To achieve these goals, it is recommended that the hill slopes and summits should be burnt in spring, while fire should be excluded from the pediments and valley bottoms. As an alternative to burning, mowing is recommended for pediments and valley bottoms. With regard to water, it is recommended that no further waterpoints



be created, and that those already in existence should be restricted to areas with soils of low erosivity'.

'Finally, it is stressed that the recommendations made should be improved upon by the process of adaptive management, the success of which depends on a well planned monitoring programme'.

An important point to emphasize is that the current carrying capacity is <u>below</u> the potential (due to past veld mis-management) and that it can only improve with rest. The ideal situation would have been to exclude all herbivores for a period of 3 or 4 years, but unfortunately this is not possible - the current compromise is the best way of having one's cake and eating it.

For those conservationists who were under the impression that Pilanesberg was going to be an 'overstocked', ecological disaster, and run as a glorified zoo, we hope that these facts dispel your fears. For those prospective visitors to the park who, having read this article, are wondering whether they are going to see any game, read on - the next article gives an outline of those animals which have been brought in so far.

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## INTRODUCTION OF BLACK RHINO

The first Black Rhino to be released into Pilanesberg shifted irritably in the trailer as the door was opened. Then she thundered down the ramp into a confusing world to vent her feelings on the most obvious thing around - the big yellow Unimog parked nearby. Within two minutes she was off and disappeared into the bush in her new home, to be followed shortly afterwards by three others.

This was on the 25th September, when the first four Black Rhino, two adult females and two adult males, came from Umfolozi Game Reserve to Pilanesberg. This translocation is part of 'Operation Genesis', the exciting concept of starting a whole new park, of re-stocking this beautiful area with species that used to exist here and of managing it in a multi-use complex that maximises its value and crystallises a wide range of conservation and management possibilities in a single unit. The four Black Rhino were the first of seven that will be released into the Park in 1981 and we hope that they will be followed by more next year. There are already over 150 White or Square-lipped Rhino here, but they do not compete for the same habitat since white rhinos are grazers, eating grass, and black rhinos browse on twigs and herbs.

"Donga"

The four rhino had been caught on the 24th September in Umfolozi by the efficient, experienced Natal Parks catching team led by Ken Rochat and Rodney Henwood. Each rhino came from different parts of the Reserve, where it had been decided that certain quotas should be removed to conserve the habitat from over-use. Despite the distances involved and the time it took to measure and mark them, they were all in crates and ready to load onto the transporter by 3.15 in the afternoon. Then they were driven through the night straight to Pilanesberg to be released. The captures were most impressive. The rhino who was the first out of the crate in Pilanesberg also put on a show for the press photographers in Umfolozi. After Ken had darted her from the helicopter he drove her gently up the hill to the ridge where the ground crews were waiting. She appeared out of the bushes and into the clearing, where she walked groggily into a tree and stopped right in front of everyone! (She has since been named 'Piga picta', the Swahili for 'take a photograph').

The rhino are first sighted and darted from a helicopter. A mixture of the drug M99 and a tranquilizer Fentanyl is used, fired in a metal syringe from a powder or compressed gas-powered cap-chur gun. It takes 10 to 15 minutes for the drug to work and the rhino have to be kept in sight during that time, while the ground crews in open landrovers and the lorry with the crate race through bushes and trees, over bumps and through dongas to get to the rhino as fast as possible. The four rhino for Pilanesberg were having radio collars fitted around their necks so that they could be followed after release. These were put on with the invaluable help of Peter Hitchins, who has studied black rhino in the complex for 11 years. We also measured them and marked their ears with number coded holes around the edges. Once this work was finished, each rhino, with a rope round its



head and another round a hind leg was led to the crates and given an antidote before it was finally walked in. The crates were then winched onto the back of the specially designed lorry and taken to a big transporter. The third rhino caught, a big tough old male, walked right down into a deep donga before finally succumbing to the drug. He had to be turned around, with considerable effort and a Zulu chant for rhythm. Partially revived, he was walked some way back along the donga before a place was found shallow enough for him to walk out and into the crate. After capturing and translocating nearly 3 000 rhino , both black and white, the Natal Parks Board have dealt with virtually every situation that can happen, and this proved to be no great problem.

Tired after a day's catching we also drove the 12 hour journey up from Natal through the night. Then after the rhino had been released the business of following them to find out what happened next began immediately.

All these Black Rhino are being closely monitored to see how they behave after release. In particular we are trying to find out how much they move and what factors affect their movement, how soon they settle down to a home range or territory and what factors affect this, what they are eating and in relating the latter to what is available, to assess carrying capacity for the Park.

Black Rhino are an endangered species throughout Africa. In some countries as much as 90% of some populations have been lost over the last ten years. The main reason for this is poaching. Thousands of rhino have died so that their horns can be taken and sold for medicines in the Far East or dagger handles in the Yemen. Horns equivalent to over 2 500 rhino per year were traded on the international market each year at the end of the 1970's. There are only 10 000 to 17 000 Black Rhino left in Africa and the offtake is much heavier on some populations than others. These slowly reproducing pachyderms cannot compensate for such rates of loss. Numbers have been dropping rapidly everywhere except in southern Africa, but even here, the threat exists if measures are not taken to stop internal sale of rhino horn everywhere and tighten trade controls. The northern sub-species of the White or Square-lipped Rhino is in an even worse state. Only a few hundred remain in the wild and they have very little protection. The same strong conservation measures as were applied in southern Africa to protect the remaining southern white rhino earlier this century are needed now to rescue the northern ones from possible extinction.

Under these circumstances each individual rhino is extremely valuable, and it is sometimes necessary to use translocation as a method of rescuing rhino from areas where they have no viable future and moving them to a more protected area, or as a way of increasing the genetic viability of a very reduced population. The parks and reserves in most of the rest of Africa are not fenced. The techniques have not been used there for ten to twenty years. One has to consider carefully the cost effectiveness of setting up a translocation operation and to make very sure that it is successful and that the rhino once released

stay where they should be and live to reproduce. In Swaziland for example, of 60 rhino released, only about 12 remained in the reserve. The rest moved away and caused immense problems to themselves, the farmers and the wild life staff by travelling tens of kilometres over farmlands.

The reasons for translocations are somewhat different in southern Africa. Here the Black and White Rhino have increased under protection in the Umfolozi/Hluhluwe complex. The Black Rhino are at carrying capacity and the White Rhino threaten to over-use their habitat. Moving them to other protected areas throughout their former range serves the dual purpose of relieving pressure on their habitats in the complex and of reducing the potential vulnerability of having 'all your eggs in only one basket'.

The techniques however are similar throughout Africa and we and the rhino can all benefit from consolidating some of the accumulated experience and in further investigating some of the questions. We are approaching this in two ways. The IUCN (International Union for the Conservation of Nature & Natural Resources) African Rhino Group has called on the experience of the relevant people to write chapters for a handbook on rhino capture, translocation and related techniques. Secondly, investigations of what happens after translocation and release are being promoted (some long range monitoring for example is being carried out in the Kruger National Park by Anthony Hall-Martin).

Despite 3 000 rhino translocations throughout Africa in the last 20 years, very little work had been done to follow up what happens after release and to be able to answer the questions being asked on the best type of release methods and ways of ensuring success.

Pilanesberg provides an ideal opportunity to do this. The first rhino are being released into completely virgin rhino territory. The next ones will be released into the park where Black Rhino have already established ranges, so both situations can be tested. It is possible to test different release methods. The first were captured, transported and released directly. The next three rhino to come are being held in bomas at Umfolozi and will be kept briefly in bomas in Pilanesberg prior to release. This will allow us to test whether the latter method may be less traumatic and allow them to settle quicker by being used to the area and food and having a central point to locate around. Later it may be possible to test the relative value of holding at either the release or the capture end, and to see if release at night, or with the rhino's own dung spread around an area is more effective in localising it. In the context of the ecological classifications already done by Tinley and the detailed ecological monitoring that is being carried out by David Peddie and the Centre for Resource Ecology of Witwatersrand University, it is easy to relate habitat use by the rhino with food and water availability and to measure what they are eating. I am therefore carrying out a short monitoring study of these released rhino , which we hope to extend in various ways next year, with the ultimate objectives of:



a). Providing guidelines to optimise the success of rhino translocations throughout Africa, and

b). gathering information on habitat use and feeding to assess carrying capacities within Pilanesberg.

This latter also links with studies of browsers in Pilanesberg being done by Deboran Kelso.

To find the rhino in the bush of Pilanesberg it is necessary to radio track them. The Peoples Trust for Endangered Species and the S.A. Nature Foundation are providing funds towards radio transmitters and receivers, while the Endangered Wildlife Trust has also helped and World Wildlife Fund has generously allowed use of a vehicle. Each rhino is therefore equipped with a radio collar marked with a coded pattern of metal tags to make identification easy for anyone who sees a black rhino and can report on its position. The collar sends out a continuous bleeping signal. This can be picked up by a receiver and aerial, if one is in direct line of sight with the rhino . This is not as easy as it sounds amongst the hills and valleys of Pilanesberg, which block the signals until you are in the same valley as the rhino. Even the final stages of tracking the rhino on foot can have its amusing sides. What was once an innocent looking thicket becomes ominous when the receiver is going hysterical with bleeps, but peer as hard as you like and listen for sounds of breaking branches and no sign of the rhino can be detected. So you advance cautiously round the deceptive thicket and suddenly come face to face with a surprised black rhino! Detecting what he was eating at the time suddenly takes lower priority than reacting to what he is going to do next!

So far some interesting results are emerging. After their initial burst into the Park, the rhino have moved somewhat less than I expected. One male, 'Mhlolokhazana', with numerous old scars and a torn right ear, spent the first night in a valley north-east of the release site. He then moved into a small thicket-filled valley by the northern Bakgatla Gate for three days, and has now established himself in the dry river valley with two dams of permanent water that runs between the Bakgatla Gate and Pilanesberg. Here he is starting to leave territorial markings.

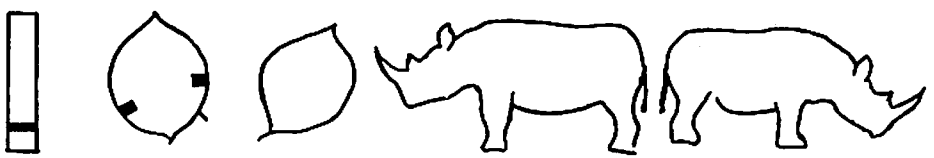
The other male (known as 'Donga' since he was the one to get stuck in the donga at capture) moved west and is using the valley that leads from Pilanesberg to Ruighoek. The females have moved more, sometimes overlapping with 'Mhlolokhazana's' range, sometimes up through the valleys east of the release site. All are almost invariably using thorn thicket or riverine thicket, usually in areas of more than 50% cover. Two kilometres is the maximum distance from water that any have been recorded. There are indications that two, possibly three of them have been restrained from further movement by the presence of the fence around the reserve. We cannot know how far they might have moved had it not been there. Much of the browse vegetation is in fresh green flush, but much of what they appear to be favouring is older growth, particularly that of *Acacia caffra*.

## B L A C K  R H I N O  I D E N T I K I T

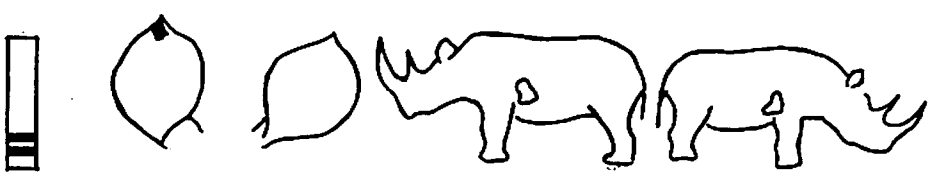
Released: 81.09.25 Location: 362 355 Ramp opposite elephant boma.

Total: 4 (2 males, 2 females) Origin: Umfolozi G.R. 81.09.24

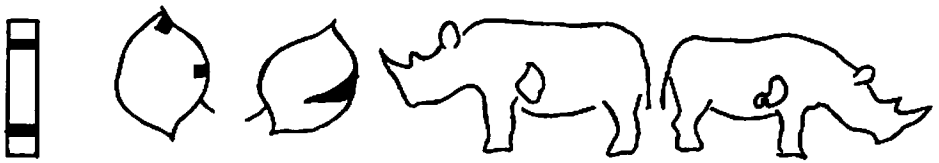
COLLAR BANDS | EARS R | EARS L | HORN SHAPE, SCARS, LESION SHAPES ETC



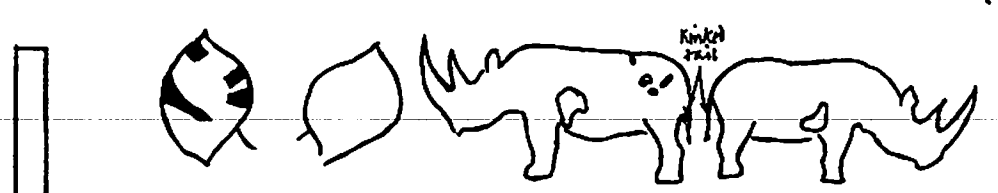
No: 4 Adult female. Name: "Dengezi" (nickname Debbie)



No.: 5 Adult female. Name: "Piga picha" (nickname SABCTV)



No: 6 Adult male. Name: "Donga" (nickname Rodney)




Please report location, dates and times of any sightings, and activity (of the rhino).



The next three Black Rhino , an adult female, a sub-adult male who was with her when caught, and an adult male who will have the scars of old horn wounds from a recent encounter, will be held for a few days in the bomas at Pilanesberg before being quietly released. To keep a close watch on so many rhino we may even be able to do some radio tracking from the air with the help of Rustenburg Paging, Paul Dutton and possibly Total, who subsidised the cost of the rhino transports for Pilanesberg.

It is a historic time to be re-establishing Black Rhino in an area where they had last been recorded over a hundred years ago. Once again the Rhenosterspruit (Rhino Stream) has Black Rhino along it. But it is only part of the exciting concept of being able to re-create a wild area full of animals and to be able to approach all aspects of conservation, management and education simultaneously in one unit. It is a new venture for a new Republic but one in which the whole conservation world is interested.



Pete Hitchins (right) and Rodney Henwood (NPB) fitting collar

# TSHOMARELO NEWS

NATURE CONSERVATION IN BOPHUTHATSWANA

No 2 December 1981

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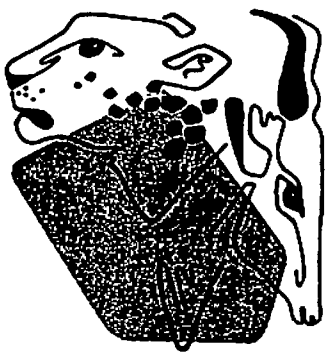
Tshomarelo News is the bulletin of the Pilanesberg Game Reserve, Bophuthatswana.

This publication aims to keep interested people informed about activities and ongoing projects in the reserve.



# TSHOMARELO NEWS

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