



***Darwin Initiative for the Survival of Species
Final Report***

Black Rhino Conservation and Ecotourism Impacts in North-western Namibia

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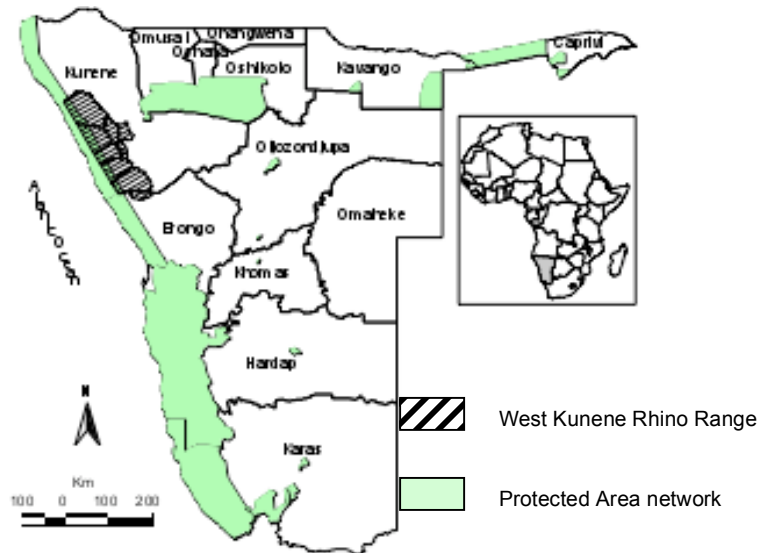
1. Darwin Project Information

Project Reference No.	162/11/005
Project title	Black Rhino Conservation and Ecotourism Impacts in North-western Namibia
Country	Namibia
UK Contractor	University of Kent
Partner Organisation (s)	The Ministry of Environment and Tourism (MET) & Save the Rhino Trust (SRT)
Darwin Grant Value	£110,103
Start/End date	01/04/2002 to 31/12/2004
Project website	http://www.kent.ac.uk/anthropology/dice/research/namibia_rhinos.html
Author(s), date	Nigel Leader-Williams and the late Mike Hearn, March 2008

2. Project Background/Rationale

The location of the project and the problem it addressed

This project was located in the Kunene region of north-west Namibia. Some 14% of Namibia's surface area is formally designated as protected areas. Among the most important wildlife within Namibia's PAs is the world's largest population of desert-dwelling black rhinos *Diceros bicornis bicornis*, now numbering ~800 which has been recovered inside Etosha National Park. However, much important biological diversity also remains on communal land outside Namibia's PAs. Among the important wildlife outside Namibia's PAs is a key population of ~140 desert-dwelling black rhinos located within the Kunene region. This population represents a unique ecotype within the desert-adapted sub-species. Furthermore, this is the last substantial population of any species of rhinos to survive outside a protected area in the world. Consequently, the Namibian government and international conservation community have accorded Kunene black rhinos a very high priority. For example, the IUCN/SSC African Rhino Specialist Group (AfRSG) has categorized the Kunene black rhino population as a Key 1 population (Emslie & Brooks 1999).



Map of Namibia indicating its position in southern Africa, its protected area network and the locality of the West Kunene Rhino range

A community-based conservation approach was initiated to recover Kunene rhinos in the early 1980's, following their reduction through poaching in the 1970's, and this approach was balanced by intensive field operations and strong law enforcement carried out by both governmental and non-governmental organisations. Among these were Save the Rhino Trust (SRT), a local Namibian NGO, and Namibia's Ministry of Environment and Tourism (MET). The measures that SRT and MET followed greatly reduced poaching of rhinos and also made a very positive contribution to wider biodiversity conservation objectives within Kunene. The Kunene black rhino population now serves as a strategic flagship resource both for the conservation of biological diversity and has considerable potential for improving livelihoods through ecotourism in the emerging communal conservancies in Namibia. Therefore, this project aimed to promote the long-term sustainability of the achievements of SRT and MET by assisting local communities with their development. A major part of this development included the expansion of the range of black rhinos into communal conservancies, in order to reconcile the biological management and conservation of Kunene's black rhinos with the goals of the national Community Based Natural Resource Management (CBNRM) programme. Consequently, this project sought to contribute towards addressing some new challenges that the Kunene area and its rhinos then faced including the need to:

- secure the long-term sustainability of monitoring programmes for Kunene rhinos;
- determine whether Kunene rhinos have reached ecological carrying capacity within their current range;
- examine the suitability of possible sites for reintroduction; and
- further integrate wildlife-related tourism and the aims of CBNRM with conservation objectives for black rhinos.

Project identification and development

The project aimed to address problems associated with monitoring of, and human

disturbance to, the desert dwelling black rhino population in Kunene. In order to improve the conservation management of this rhino population, the project aimed to build local capacity to monitor rhinos, and to undertake a study of rhino habitat suitability based on physical factors and potential disturbance posed by tourist activities. This study also aimed to improve current knowledge of both the biological and human-induced factors affecting the population growth and available range of black rhinos in Kunene. The project aimed to culminate with a workshop to disseminate all project information to key stakeholders and to incorporate this information into a new plan for managing rhinos in Kunene.

The need for the project was originally discussed between the Late Mrs Blythe Loutit, former Director of Namibia's Save the Rhino Trust (SRT), the Late Mr Michael Hearn, former Director of Research for SRT, and Professor Nigel Leader-Williams of DICE in the University of Kent, at the Fifth AfRSG meeting held in 2000. The project was subsequently developed with the other main stakeholders, including Namibia's Ministry of Environment and Tourism (MET), local communities and local tour operators. Thus, the project concept emerged as the product of a needs driven assessment from both community-based conservancies and MET. SRT has been responsible for collecting long-term rhino monitoring data in Kunene since the mid-1980s, but has lacked the capacity to fully analyse these data and therefore to investigate emerging key wildlife management questions. Furthermore, SRT was also limited in its ability to train Namibian conservation professionals and thereby ensure the long-term sustainability of its work. Hence, this project was identified both as a way of capitalising on past efforts, while also providing an exit strategy that involved local, rather than expatriate, expertise. It was anticipated that the multi-stakeholder approach of the project would reduce its dependency on individuals, thereby increasing its chances of success. Subsequently, letters of support were forthcoming from all project partners for the Darwin Stage 2 application.

3. Project Summary

Purpose and objectives of the project

The project followed a logical framework (Appendix V), and its purpose and outputs can be summarised as follows:

The project purpose was to develop a MET and community-driven conservation programme to improve both rural livelihoods and wildlife conservation prospects in the Kunene Rhino Range, thereby securing protection of mega-fauna and optimise black rhino growth rates in line with meta-population goals set for the Namibian black rhino population in its then newly revised Rhino Conservation Strategy of 2002.

The project outputs focussed broadly on: i) an assessment of black rhino habitat suitability and carrying capacity of current and past range areas; ii) an evaluation of the impact of human activities, especially tourism, on the distribution, movements and interactions of rhinos; and, iii) building the local capacity to coordinate wildlife monitoring and nature tourism development within Kunene. To achieve this, the project activities were to:

- i) Train two local coordinators to MSc level at DICE;
- ii) Train SRT, MET and conservancy field-staff;
- iii) Determine habitat suitability for black rhinos;
- iv) Draft a black rhino management plan;
- v) Assist with ongoing land use planning at all levels; and,
- vi) Disseminate project results in final stakeholder workshop.

Meeting the objectives

The proposed operational plan for completing the analysis of the data necessary to finalise the project changed drastically in January 2005, one month after the project had ended, following the accidental death of the Project Officer, Michael Hearn. Needless to say, the unexpected impact of Mike's death on the project was immense. Staff morale was low and both the Darwin Initiative project and SRT lost their dynamic Project Officer. The tragic loss of Mike Hearn was further compounded in SRT following the death from a long illness of Mrs Blythe Loutit, former Director of SRT, in June 2005. Her illness had greatly affected SRT's capacity to maintain its field operations. Furthermore, this capacity was further compromised because much the period during which she was ill coincided with period that Simson Uri-Khob, SRT's Director of Fieldwork, was away in UK training for his MSc. Taken in combination, this caused those of SRT's senior management remaining in the field, primarily Mike Hearn, to coordinate SRT's fieldwork activities rather than devoting all his time to fulfilling his research duties. Consequently, there were unavoidable delays in completing two of the final project objectives. The first delayed objective was the analysis of a combined rhino population dataset comprising data collected before the project (1990-2002) and data collected within the Darwin Initiative project. The second delayed objective was completing the production of a plan for managing black rhinos in the Kunene region, to be developed using the results mentioned above, at the final planning workshop of the project. The causes of these delays were discussed with the Darwin Secretariat following Mike Hearn's death and the Secretariat agreed that the Project Leader could have as long as necessary to complete the final project report.

Even prior to Mike Hearn's death, the planning of the final workshop had faced some delays. Originally scheduled for November 2004, this date proved to be unworkable because the Project Officer was unable to finalise a date within the project period, due to congested timetables among project partners in MET and SRT. The Darwin Secretariat approved the change of date for the final workshop, which was subsequently set for January 2005. However, this tragically proved to be the week after the Project Officer had died. Instead of attending the final workshop, the Project Leader went to Namibia to attend Mike Hearn's funeral. The Project Leader then went to Namibia in April 2005 to meet with MET and SRT project partners and hold a Steering Committee, to discuss how the project outputs could be completed following the death of the former Project Officer. As a result of this visit, the final Darwin workshop was re-scheduled and was held in Namibia in September 2005. The workshop brought together a range of political leaders and local community members from Kunene, the Director of Parks and the National Rhino Coordinator from MET, staff of SRT, wildlife tourism operators and the Project Leader. The workshop

included three working groups on:

- Management of Kunene rhinos in their current range;
- Considerations for reintroducing rhinos in their historical range: and,
- How can Kunene rhinos best provide benefits from tourism?

These working groups produced a range of recommendations that allowed charting of the future management of Kunene rhinos (see Attachment I). Several of these recommendations have since been implemented by MET and SRT, for example the reintroduction of probe male rhinos into two conservancies that lie within their historic range (see below in 5).

Several minor modifications were made during the project timeframe and these were all discussed with, and subsequently approved by, the Darwin Secretariat. These modifications included the slightly delayed appointment of the MET nominee to serve as Rhino Tourism Coordinator, which arose because the MET training committee required more time to find a suitable candidate. Nevertheless, Michael Sibalatani, Chief Control Wildlife Warden of Etosha and Skeleton Coast National Parks registered at DICE to train for his MSc in Conservation and Tourism in September 2003, which he completed on schedule and for which he gained a Distinction (see below in 4).

- Which of the Articles under the Convention on Biological Diversity (CBD) best describe the project? Summaries of the most relevant Articles to Darwin Projects are presented in Appendix I.

In fully engaging local communities in natural resource monitoring, management and conflict mitigation in the Kunene Rhino Range, in order to support conservation, poverty alleviation and sustainable use through tourism, the project mostly supported the implementation of Articles 7, 8, 10, 11, 12, 13 and 17 (see Appendix I).

- Briefly discuss how successful the project was in terms of meeting its objectives. What objectives were not or only partly achieved?

Many of the original outputs, except the final workshop, the final analysis and the final report (see above), were delivered on schedule, unchanged and all were delivered within budget. Numerous additional accomplishments have been achieved throughout the grant, which partly stems from this project's strong collaboration with its formal partners and wide collaboration with other related organisations and stakeholders. This approach helped to foster positive attitudes, perceptions and respect towards the work of the Darwin Initiative project, and its partners, among stakeholders in the Kunene rhinos (see below in 5).

The project has met, or partially met, the following key objectives:

i) Sustainable monitoring programme for the black rhino co-ordinated and run by Namibian staff: routine monitoring of the Kunene rhinos now falls under the direction of Simson Uri-Khob, SRT's Director of Research who was a Darwin Scholar and received his MSc training on this project (see elsewhere). The development of a funding stream to support SRT's monitoring programme through ecotourism was an important additional objective, as discussed later in this section.

ii) Capacity to make informed decisions regarding development of tourism and

management of black rhino: despite the delays due to not completing the final analysis of demographic and habitat data, capacity has been enhanced within the Kunene region to make the necessary decisions to biologically manage its rhinos, as evidenced by the recommendations of the Final Workshop held in September 2005 which have led to rhino translocations to conservancies within the historic range of rhinos.

iii) Better understanding of rhino conservation factors within the region: likewise, despite the delays due to not yet completing the final analysis of demographic and habitat data mentioned above, there is much better understanding of factors important in rhino conservation, for example of local support among local communities, of ways that rhinos can contribute to livelihoods while meeting conservation objectives, and even through the still interim analysis of factors that might limit the demographic growth of Kunene black rhinos (see below in 4).

- Have there been significant additional accomplishments?

The project achieved a number of additional accomplishments within its objective of increasing local capacity to monitor and protect biodiversity beyond the Darwin Initiative grant period. These included:

- Establishing an educational centre in 2003 for the US-based Round River Conservation Studies at SRT's field-camp to host visiting American students to take part in research activities as part of their educational programme. This development was part of an exit strategy to ensure that SRT could carry out routine research once the Darwin project ended.
- Collaborating with a study to determine the feasibility of constructing a pedigree of the Kunene black rhino, to determine levels of reproductive skew amongst males. The study was carried out in collaboration with the University of Sheffield, UK, using DNA analysis techniques enhanced from studies conducted in Zimbabwe. Rhino paternity was assessed from dung samples collected during the monitoring patrols. These samples were used to assess male representation in the population and to then evaluate the feasibility of translocating males from the Kunene Rhino Range to other parts of the rhinos' range, in line with national meta-population goals. This study therefore aimed to provide a solid scientific basis to determine which males were the best candidates for removal. This study also aimed to compare the genetic variation of the Kunene rhino population with the other Namibian rhino populations and to determine the effective population size of the Kunene rhinos, based on a comparison of allele frequencies at two time intervals. The study showed that from the current genotyping of samples, at six loci, there were very low levels of polymorphism, which suggests significant inbreeding. Due to these low levels of variation, a further analysis was conducted using more loci to gain sufficient resolution to accurately assign paternity. Comparisons of different Namibian populations and fluctuations over time, using DNA extraction from skulls of black rhinos poached during the 1970's, will be used to investigate the impact of the population crash that occurred as a result of this poaching, when the population dropped from an estimated 300 to an estimated 60 individuals.
- Collaborating with the private sector Wilderness Safaris to enhance the sustainability of SRT's rhino monitoring activities through developing joint rhino tourism operations. Palmwag Rhino Camp offers rhino-tracking safaris on foot

from a high-end ecotourism camp, and is a joint venture between Palmwag Pty Ltd, of which Wilderness Safaris is a partner, and SRT. A portion of every bed night from guests at Palmwag Rhino Camp goes to SRT and supports all of the rhino monitoring, including vehicle costs and salaries of trackers, by SRT trackers in the Palmwag area. The level of tourist satisfaction from Palmwag Rhino Camp has been very high and almost all said that they would track rhinos in the Kunene again (see below in 4). The success of Palmwag Rhino Camp concession makes it a possible model for establishing similar operations in nearby conservancies. The joint venture camp has made a significant contribution to the running costs of SRT, has provided employment for several members of nearby conservancies and has improved community perceptions of wildlife (Matson 2005).

Publications and presentations

The Darwin Initiative project has received wide exposure through publications and presentations made throughout, and following the end of, the project. This exposure was achieved through a combination of: publications in the grey literature by the late Project Officer; of presentations in Namibia and elsewhere by the late Project Officer and, to a lesser extent, by the two Darwin Scholars; and of presentations that included aspects of the Kunene rhino work by the Project Leader. Because of the difficulties created by Mike Hearn's death, no publications have yet appeared in the formal scientific literature. However, plans are in hand to resolve this situation over the coming months.

The project has also received unplanned publicity following the deaths of Mike Hearn and Blythe Loutit. In March 2006, Save the Rhino International held a gala fundraiser, 'Desert Rhino' in London memory of Mike Hearn and Blythe Loutit of Save the Rhino Trust. Furthermore, Save the Rhino International continues to organise bicycle rides in Kunene to raise funds for SRT in Mike's memory (see Attachment 2).

4. Scientific, Training, and Technical Assessment

Research

Three main research studies were undertaken during the project, the first of which was led by the late Project Officer, Mike Hearn and the latter two of which formed the MSc dissertations carried out by the two Darwin Scholars, Simson Uri-Khob and Michael Sibatani. The research reported below for the Late Mike Hearn was begun before the Darwin Initiative project started, as part of SRT's ongoing monitoring of the Kunene rhinos, and a key aim of the Darwin Initiative project was to ensure the sustainability of this research by (a) analysing and writing up existing and new results for publication, and (b) ensuring in future it could be lead by building Namibian capacity. While Simson Uri-Khob has since taken over the running of SRT's research and monitoring in the field as their Director of Research, the research conducted during this Darwin Initiative phase has still not been fully analysed and written up for publication due to the difficulties created by Mike Hearn's death. The Project Leader will meet with MET's Rhino Coordinator, Pierre du Preez, and SRT's Director of Research, Simson Uri-Khob in May 2008 to determine the approach to completing this analysis and writing it up for publication. Meanwhile, in the interests of completing this final report, we include an earlier and interim analysis completed by Mike Hearn before his death.

i) Determine habitat suitability for black rhinos in Kunene

Research by the late Project Officer, Mike Hearn, concentrated on determining habitat suitability and other factors limiting the growth of the desert-adapted black rhino population in Kunene. The Kunene is naturally arid, and rainfall is low and extremely variable. Kunene experiences fog as well as extreme droughts. The soils of the area are generally coarse textured and contain a high proportion of gravel. The area contains several main catchments that run from east to west, including the Hoanib, Huab, Uniab and Koigab. However, there are no permanently flowing rivers, and both animals and people are largely dependant on ground water and natural springs. Little ground water is generally available in the west of Kunene, while more groundwater is available in the east. Terrestrial biodiversity increases from west to east, whereas terrestrial endemism increases from east to west. The area supports two major habitat types, comprising the Central Namib and Mopane Savannah, and there are six major habitat types of which two, *Euphorbia* basalt foothills and *Euphorbia* basalt plateau, are heavily used by black rhinos (see Figure 2).

The Kunene region is one of the least settled regions of Namibia due to its aridity and infertile soils. Historically, few people settled there, with the exception of small groups of Herero people, who later became known as the nomadic Himba. In 1907, northwest Namibia was incorporated into the greater Etosha Game Park, which extended from the Kunene River and Angolan border in the north, down to the Ugab River in the south. In 1970, the northwest region of Etosha Game Park was de-proclaimed as part of the infamous Odendaal Commission, and the region was used as homelands for the Damara, Herero and Himba people, and eventually for the Reimvasmaker people, by the South African apartheid regime (Owen- Smith 2002).

The Kunene Region was formed following Namibia's Independence in 1990. Several ethnic groups now occur in Kunene, but Hereros and Damaras make up the majority. The construction of the veterinary cordon fence further isolated the Kunene Region and became key in discouraging commercial livestock farming in later years. Nevertheless, the emerging conservancies contain a number of human settlements, and cattle and goats occur in growing numbers in some areas, where they increasingly compete with wildlife for access to waterholes.

Black rhino conservation is a priority for the Kunene. SRT was founded to monitor the Kunene black rhino population, while a community game guard system was established under the supervision of IRDNC (Integrated Rural Development and Nature Conservation) to ensure its recovery, following a severe decline due to poaching in the 1970s. In the late 1980s Palmwag, Etendeka and Hobatare Concessions were formed to further protect wildlife, and to provide tourism opportunities for the private sector. The Palmwag Concession now contains 70% of Kunene's black rhinos, and is considered a core area for this critically endangered, endemic subspecies. However, local communities cannot benefit directly from rhinos within tourism concessions.

Following Independence, Namibia adopted the concept of creating community conservancies in which local people took ownership of their natural resources, as its national approach to CBNRM. Of the conservancies bordering the Palmwag Concession, four fell within the then current range of the Kunene black rhino, namely Torra, Doro !Nawas, Purros and Sesfontein (Figure 1). These conservancies all have

joint venture agreements or partnerships with tourist companies, in order to facilitate the sustainable development of these conservancies.

Tourism developments placed an economic value on wildlife, and the industry has now become fundamental in the conservation of the Kunene's wildlife populations. As tourism has increased, there has been a shift in focus from accumulating livestock to downsizing herds in conservancies that have benefited from tourism. The development of tourism in communal conservancies has played a significant role in the empowerment of local communities, enabling them to protect, and to some extent utilise, wildlife resources. Tourism concessions play an important role in safeguarding source populations of black rhinos, but communal conservancies have vital roles to play in providing safe corridors and reserves for dispersing populations of black rhino. However, the black rhino population could face threats if irresponsible tourism activities are allowed to continue.

Due to the combined efforts of SRT, MET and local communities, the Kunene has now increased its population of black rhino from an estimated low of ~60 in 1977 to ~140 during the latest census (Hearn 2004). MET has identified the Kunene Region as a key areas for future range expansion of its black rhino meta-population. However, the black rhino population in Kunene has grown at a rate of 3.3% per annum since the 1990s, slightly less than the national target of 5%. In turn, this suggests the need for biological management of Kunene rhinos, given possible limitations to population growth.

Kunene black rhinos have larger home ranges than rhinos elsewhere due to the aridity of their environment (females: 114.52 km² to 441.2 km²). The movements of males appear dictated by access to resources and prospective mates. The distribution of black rhinos in the last 15 years suggests that they occur in two habitats significantly more than in the others: *Euphorbia* basalt foothills and *Euphorbia* plateau (Figure 2). Both habitats are characterised by the presence of *Euphorbia damarana* plants, which are a key food source for desert-dwelling black rhinos in Kunene (Loutit et al. 1987).

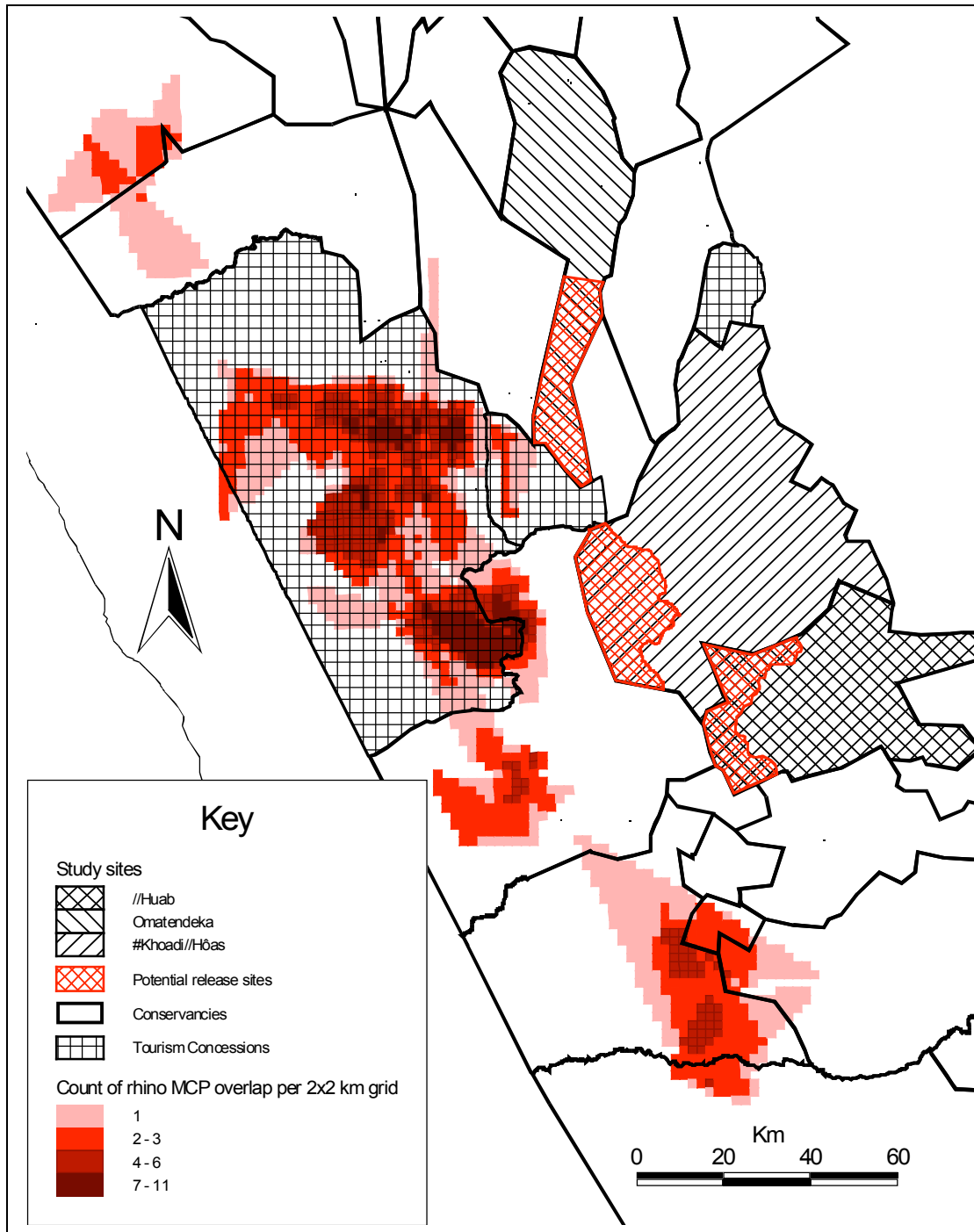


Figure 1: Distribution of black rhinos in Kunene within the current range in the early 2000s, expressed by the count of home range MCPs, and the location of potential release sites in conservancies that did not then contain black rhinos

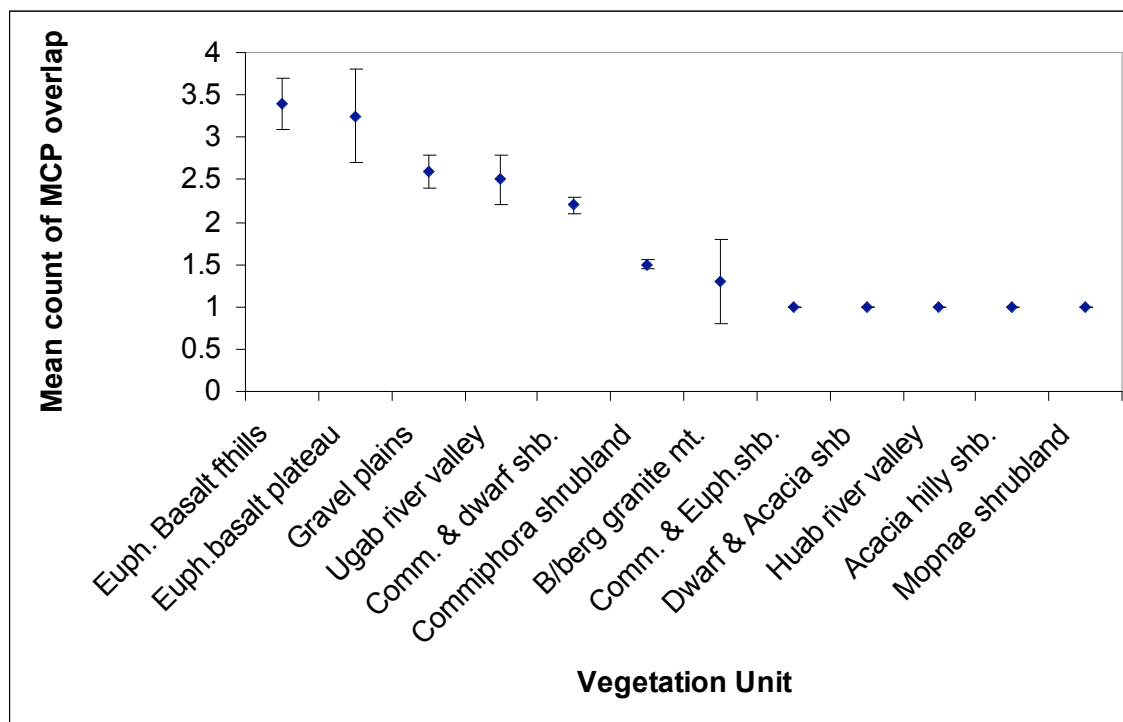


Figure 2: Rhino density per vegetation unit, expressed as the major vegetation unit per 2x2km grid square with one or more overlapping MCP's

The Kunene rhino range has been subdivided into eight ecological zones (Figure 3), based on their differing topographical and ecological characteristics (Table 1). Results from routine monitoring within those zones suggest that calving intervals are longer in areas of high human activity, such as the northern and southern parts of the black rhino range, outside of the Palmwag Concession (Table 2). This suggests that the distribution and performance of the Kunene black rhino population is affected by rainfall, browse availability, and particularly by human disturbance. Currently, the explanatory variables thought to most affect black rhino distribution include distance to water, followed by distance to human settlements, and then elevation. The importance of human disturbance warrants further investigation and suggests the need for much greater control of human activities in areas suitable for the Kunene black rhino. We expect that our completed analysis will provide further understanding of limitations to breeding, and a key to achieving this is to improve our understandings of black rhino habitat use in relation to biophysical characteristics and human activity.

Table 1: Main characteristics of the eight ecological zones (Figure 3) in the Kunene rhino range in the early 2000s

Zone	Zone size/km ²	Size of core rhino area/km ²	Major Vegetation Unit
1	4,787	1080.49	<i>Commiphora</i> dwarf shrubland of the escarpment region
2	2,530	515.93	<i>Euphorbia</i> basalt foothills and gravel plains
3	613	246.05	<i>Euphorbia</i> basalt foothills and plateau region
4	1,108	69.17	<i>Euphorbia</i> basalt foothills and plateau region
5	1,786	733.56	<i>Euphorbia</i> basalt foothills and gravel plains
6	1,500	732.43	<i>Euphorbia</i> basalt foothills and plateau region
7	3,112	1540.23	Gravel plains
8	5,561	943.79	<i>Commiphora</i> dwarf shrubland of the escarpment region

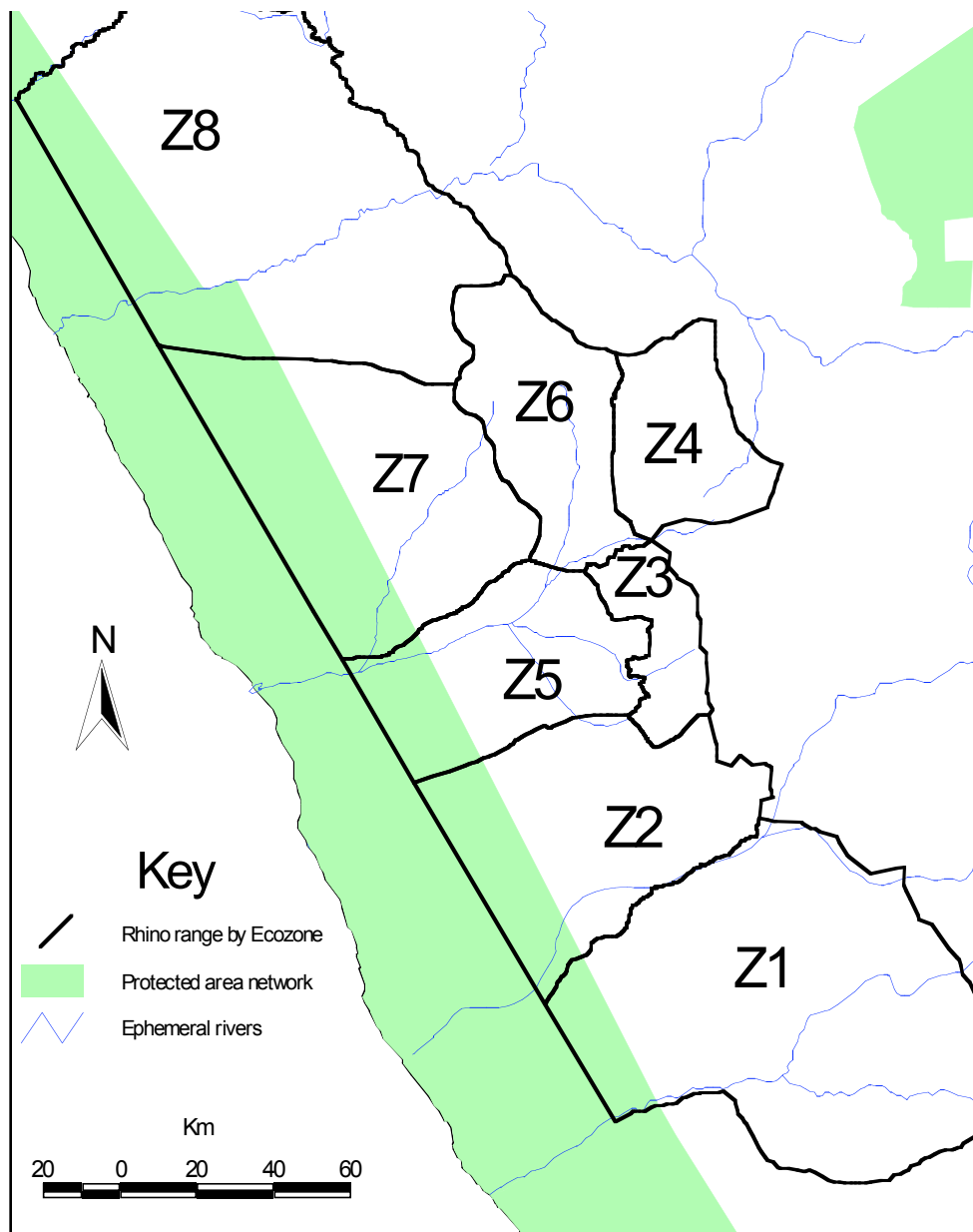


Figure 3: The eight ecozones occupied by black rhinos in Kunene in the early 2000's based on their differing topographical and ecological characteristics (Table 1)

Table 2: Rhino distribution and breeding performance within the eight ecological zones

Zone	Distribution 2001		Population structure 2001			Breeding performance 1990-2002		
	Core range area/km ²	Density km ²	Total Adults	E Class Juveniles	M:F sex ratio	Known calf deaths	Calves born	Calves/female/yr.
Z1	1080.49	0.008	9	0	0.80	4	8	0.149
Z2	515.93	0.021	8	3	0.83	3	10	0.188
Z3	246.05	0.041	7	3	0.67	0	11	0.306
Z4	69.17	0.029	2	0	0	1	4	0
Z5	733.56	0.018	9	4	2.25	0	10	0.210
Z6	732.43	0.046	24	10	1.18	3	28	0.242
Z7	1540.23	0.015	20	3	0.92	1	17	0.186
Z8	943.79	0.007	7	0	2.00	1	1	0
TOTAL	5861.65	0.019	86	23	1.23	13	89	

The Palmwag Concession has played an integral role in conserving this unique population of black rhino and should continue to do so if the Kunene population is to continue its recovery. The varying levels of impact from human activities still requires more research, but there is ample evidence that black rhinos are wary of human activity and will expend enormous energy moving long distances to avoid it (Berger 1997). Both livestock and irresponsible tourist activities can negatively affect black rhino movement (Berger 1997; Hearn et al. 2000; Hearn 2003). While a majority of these human impacts fall outside of Palmwag Concession, they overflow regularly into the concession, particularly in the north and south of the concession and along the eastern border. These are areas that require increased protection, monitoring, and control of livestock and tourists. Currently, there is little control of vehicle entry into the black rhino range, including Palmwag Concession.

The Kunene rhino range is accessible through 52 entry points, and large numbers of self-drive vehicles utilise the black rhino range (Table 3). Eight of these entry points lead directly into Palmwag Concession, the core of the black rhino population (Figure 1). The control of tourist activities on the border of Palmwag Concession is failing, particularly along the Hoanib River where self drive tourists and irresponsible tour operators access the concession undetected. There are many incidents in which these tourists have set up camps in sensitive areas of the Palmwag Concession and harassed black rhino by viewing them at close range. Any future land use zonation of the Palmwag Concession must consider these weak points on the border.

Table 3: Tourist vehicles entering the black rhino range in May 2001–Dec 2002 based on statistics from the Ugab Camp

Month	2001	2002
January	0	40
February	0	50
March	0	107
April	0	91
May	13	149
June	70	94
July	163	129
August	138	162
September	37	93
October	73	80
November	61	69
December	141	142
TOTAL	696	1,206

ii) The potential of safaris to track desert-dwelling black rhino as a form of community-based tourism in northwest Namibia.

Research by the Darwin Scholar, Michael Sibatani, concentrated on determining the feasibility of black rhino ecotourism in Kunene. Communities residing in communal lands of Namibia in the 1970s and 1980s were given no land rights or ownership of resources, including of wildlife (Owen-Smith 1986). However, the creation of conservancies in 1996 offered an opportunity for conservancy members to benefit from sustainable use of wildlife, including through tourism. The desert black rhino is a flagship species of the Kunene Region, and well-managed black rhino tourism may be one of the most sustainable options for conserving black rhino habitat and ensuring the viability of this species, given the lack of formal protection in the area. The economic value of an individual black rhino may be strongly influenced by the

number of tourists it attracts to a region, the willingness of a tourist to pay for rhino-focused tourist activities, and the number of jobs created in hosting and guiding interested tourists. Applying such tourism values to wildlife has proven successful in protecting many habitats and raising awareness for biodiversity conservation elsewhere (Goodwin 1996; Walpole & Leader-Williams 2001; Mishra et al. 2003). Community-based tourism has already been instrumental in recovering wildlife populations in the Torra Conservancy, and the Damaraland Camp in Torra was awarded the World Travel and Tourism Council Ecotourism Award in 2005. Extending this concept to the management of desert black rhino habitat could become an integral part of land management within emerging conservancies, especially as the current range of the black rhino is extended in future.

This MSc dissertation focussed on the role of incentive-driven conservation as a strategy that can benefit both local communities, who bear the cost of living with wildlife, and the conservation of threatened species. More specifically, it assessed the feasibility of introducing rhino tracking safaris in conservancies within the Kunene region, based on the model established by Wilderness Safaris at Palmwag Rhino Camp (see above in 3). Data were collected on: (1) the impact of human-induced disturbance on rhinos tracked on foot by tourists accompanied by SRT scouts; (2) the levels of tourist satisfaction at the Palmwag Rhino Camp, which runs rhino tracking safaris in Palmwag Concession, where the majority of guests are on a guided tour of lodges in Namibia using light aircraft; (3) the potential market for rhino tracking safaris among other tourists visiting Kunene, where the majority of tourists are on either a “self-drive” safari, visiting the area in a hired vehicle, or part of a guided vehicle-based tour; and, (4) the perception of tour operators, the community, MET and NGOs to expand this new form of tourism venture.

Of the 66 tourist rhino tracking safaris assessed, 35% caused the displacement of the rhino, and in 89% of these cases wind conditions were not ideal, either because cross-winds were blowing or the rhino was downwind of the observers. Solitary animals were less likely to be displaced by the presence of observers than two or more animals (Figure 4). The greatest likelihood of displacement occurred when animals were found walking and feeding (Figure 5). Rhinos ran away on 18% of occasions, while rhinos walked away in 17% of occasions (Figure 5). Any long-term physiological and biogeographical impacts of displacement of rhinos by tourists could not be quantified during the study, and further research will be conducted by Round River Conservation Studies in collaboration with SRT.

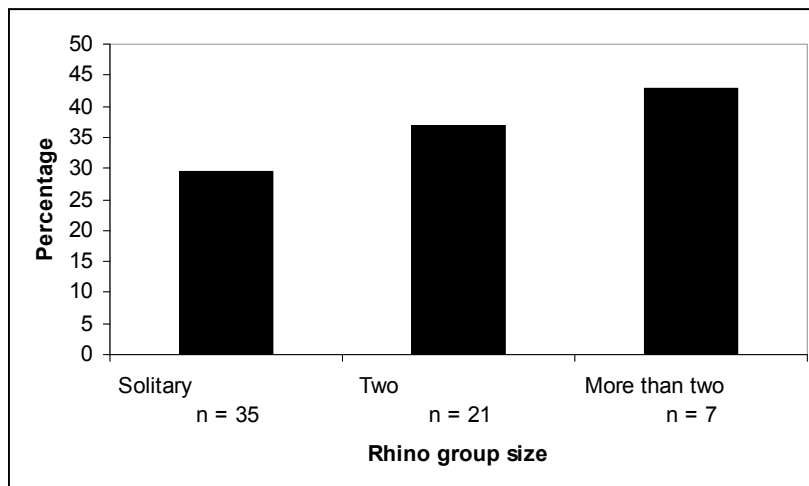


Figure 4: Percentage of times in which rhinos were displaced by the presence of observers, in relation to group size.

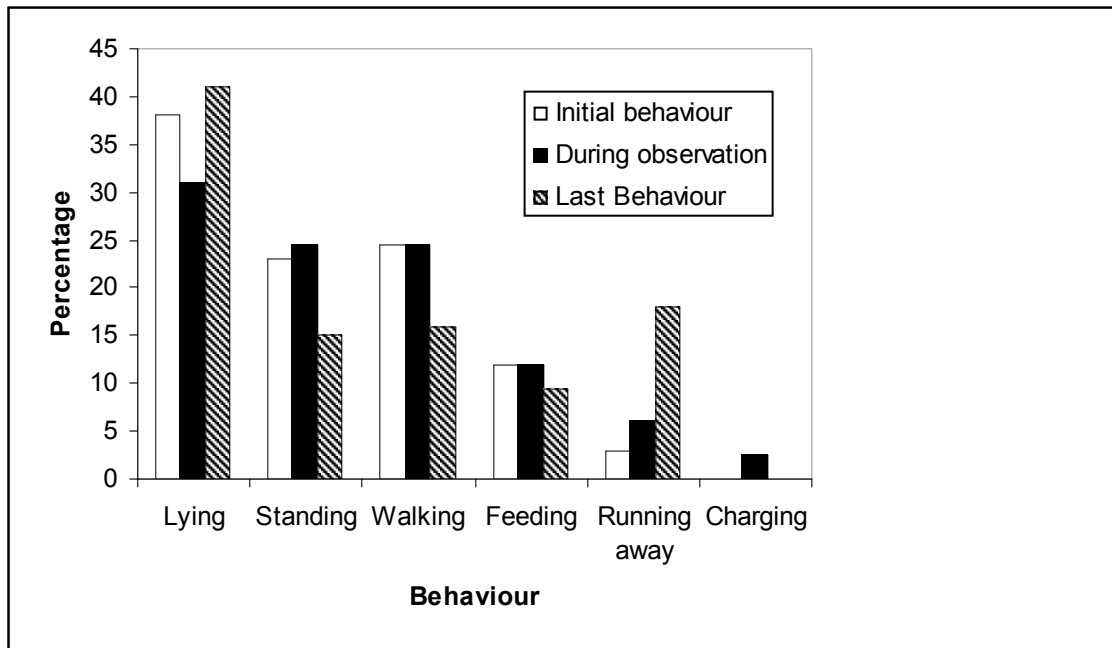


Figure 5: Changes in behaviour of rhinos from initial sighting to last observation during a rhino-tracking safari

On the rhino tracking safaris currently run at Palmwag Rhino Camp, most rhinos were approached at distances of 30–100m (66%), while far fewer approaches were from distances of less than 30m (3%), and over 100m (31%), respectively. Seventy four percent of observation periods lasted more than 30 minutes, while 26% were less than 30 minutes. Some 56% of all sightings were on five individuals (Diana and calf = 25%, Ben = 19%, Speedy, 5% and Micro = 7%). Rhinos were displaced by tourists on foot in 35% of all sightings (n=66), of which 11% took place upwind (where the rhino would not be able to smell observers), 47% were downwind and 42% were in crosswind conditions. Fifty percent of all the incidents where rhinos were displaced by observers took place >100m, 45% took place between 30-100m and 5% <30m. There was a difference between the rhinos' initial behaviour and the last observed behaviour in the presence of tourists on foot. The least likelihood of displacement occurred when animals were found lying down. The greatest likelihood of displacement occurred when animals were found walking and feeding. Rhinos ran away on 18% of occasions, while rhinos walked away in 17% of occasions. However, the long-term physiological impact of displacement of rhinos by tourists could not be quantified during the study.

The level of satisfaction of tourists visiting Palmwag Rhino Camp was very high. Ninety eight percent of respondents saw black rhino during their safari (n=50). Of these 79% were satisfied or felt the safari met their expectations. Fifty two percent of the sightings were at a distance of 30-100m, 38% were from >100m and 8% were from <30m. How close observers got to the rhino did not impact the level of satisfaction. Tracking black rhinos was not the only attraction that influenced the decision of tourists to visit the region. Desert scenery, use of local trackers (SRT staff), and benefits to rhinos were ranked to highly influence their decisions. Luxury camping was ranked to have played the least important role in influencing their decision.

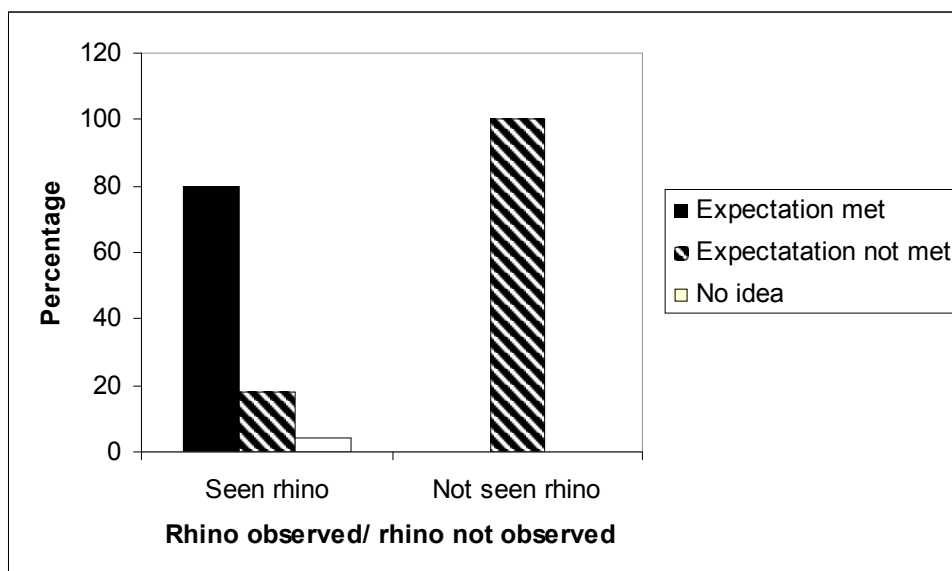


Figure 6: Comparison of tourist satisfaction levels after a rhino safari where rhinos were seen (n =49) and where they were not seen (n=1)

The survey of other tourists visiting the area suggests an additional market exists for rhino tracking safaris. To reflect the different markets attracted by these tourist camps, a figure for “willingness to pay” for rhino tracking safaris was based on the Palmwag Lodge day outing with SRT trackers (US\$150). Eighty six percent of respondents who did not undertake a day outing expressed the desire to track rhinos even if seeing rhinos during the safari is not guaranteed (n=24). Seventy one percent of respondents knew that Kunene has black rhinos, whereas only 29% were not aware of Kunene’s rhinos. There was no difference between those who already knew that Kunene had a population of black rhinos, and those who did not, on their willingness to track rhinos if a safari was offered. Thirty nine percent of respondents would not be willing to pay the current US\$150 charged by Wilderness Safaris at the Palmwag Lodge, while 61% indicated that they would definitely or possibly be willing to pay US\$150. Of those not willing to pay US\$150 9% would only be prepared to pay less than US\$50, while 27% would be willing to pay more than US\$50. Among this group there was again no single attraction that most influenced tourists’ decision to visit Kunene. The ranking of different attractions showed that camping and lodges were the least important, desert elephants ranked highest.

Conservancy members (n=134) from conservancies with high and low densities of rhinos, and with no rhinos were surveyed for their attitudes to rhino-based tourism. Most respondents in the three conservancies knew that Kunene Region is an important area for black rhinos. Respondents in ≠Khoadi //Hoas knew least about rhinos, and the current absence of rhino in ≠Khoadi //Hoas Conservancy explains this. Likewise, fewer respondents from ≠Khoadi //Hoas saw rhinos as an important tourism attraction. This too is not surprising as respondents from ≠Khoadi //Hoas derived least direct and indirect benefits from tourism. The closer proximity of residents from Torra and Doro !Nawas to tourism facilities and routes used by tourists gives them greater employment opportunities or access to markets for their products.

The results suggest rhino tracking tourism would be strongly supported by the community, NGOs and MET. With appropriate regulation, rhino tracking safaris could act as an incentive-based approach to reconcile development and national black rhino conservation goals in the region. Torra and Doro !Nawas conservancies already appear to have viable populations of rhinos that could be used to start rhino tracking

safaris. However, the high calf mortalities currently experienced in Doro !Nawas Conservancy, and attributable to a combination of ecological and anthropogenic factors, suggest that Torra might be the best conservancy in the current range of the black rhino to first offer rhino tracking safaris.

Based on this study, the recommendations include:

- Running any community-based rhino tracking safari through a partnership agreement between conservancies and private sector tour operators;
- Providing training to local communities, both to ensure safety of guests and minimal disturbance to rhinos;
- Integrating the monitoring of tourism impacts on rhinos in any partnership agreement to develop a MET and conservancy driven science-based protocol to minimise tourism impacts; and,
- Further investigating the possibility of upgrading the conservation status, or land tenure rights, for conservancy areas with the goal of ensuring appropriate control measures are in place and creating a climate that gives security for investors wishing to develop tourism facilities in the region.

iii) Attitudes and perceptions of local communities towards the reintroduction of black rhino into their historical range in northwest Kunene Region

Only a few conservancies in Kunene now support a population of rhinos (Figure 1), while ~70% of Kunene's rhinos remain occur within the Palmwag Concession. For reasons of both biological management and increasing opportunities for conservancy members to offer tourism opportunities, this research by the Darwin Scholar, Simson Uri-Khob examined options for reintroducing rhinos into their historic range.

Equally, conflicts can occur between local communities and other large mammals that cause a direct cost to local communities, or require large areas to be set aside to minimise disturbance, therefore increasing the opportunity costs to local communities. More specifically, this study examined the attitudes and perceptions of rural communities living in three different conservancies in the Kunene region of Namibia towards wildlife in general, and to the possible reintroduction of black rhino into these conservancies which all lie within historical range of black rhino (Figure 1). A questionnaire survey was undertaken to capture information on: (1) human demographics and socioeconomic data; (2) knowledge of wildlife amongst households that reside close to the current rhino range and those living in the middle of the conservancy; and, (3) the ecological and anthropogenic factors in these study sites.

There was very strong support towards the reintroduction of rhino into the three conservancies, for a variety of reasons (Figure 6). Positive attitudes tended to be associated with education. The most support for the reintroduction of rhinos was in Omatendeka (93%), followed by //Huab (87%) and ≠Khoadi-//Hoas (80%). More respondents in //Huab (15%) were concerned about the possible danger that rhinos might pose and there was less concern in both ≠Khoadi-//Hoas (5%) and Omatendeka (5%) on this issue.

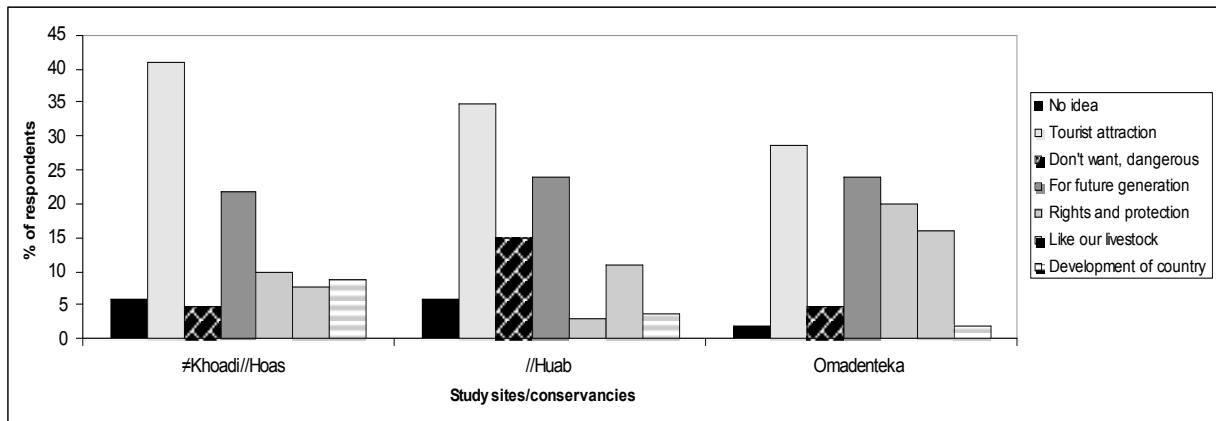


Figure 6: Reasons for supporting the reintroduction of rhino in three conservancies.

The majority of respondents in #Khoadi-//Hoas (57%), //Huab (73%) and Omatendeka (64%) felt that conservancy committees and community game guards should be responsible for wildlife monitoring in their conservancies. However, most respondents from #Khoadi-//Hoas (60%), //Huab (59%) and Omatendeka (64%) felt that law-enforcement should be the responsibility of the MET and Police, while the role of NGOs should focus on research needs and training. The perceived incentives derived from wildlife conservation appear to out-weigh direct and opportunity costs to communities in the three conservancies. Positive attitudes were associated with households that already benefit from the conservancy, and those who live next to conservancies with benefit sharing schemes. It was also found that respondents whose family members work in tourism related fields were very positive towards conserving wildlife (Figure 7). Education level, age, gender, occupation and which conservancy they are from were the most important factors that influence the attitudes of respondents towards conserving wildlife.

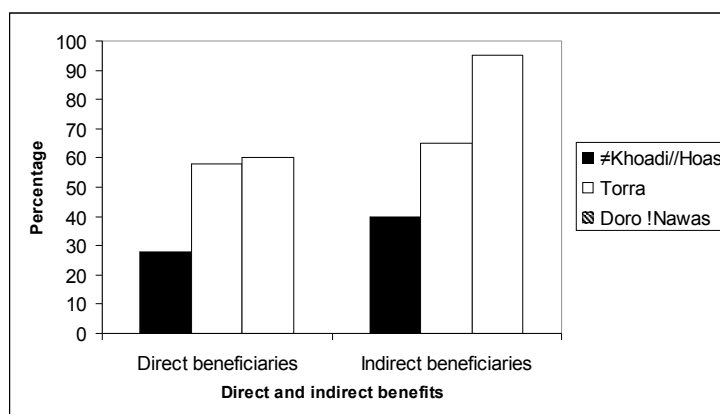


Figure 7: Respondents who benefit directly and indirectly from tourism in the three conservancies

However, some respondents were not in favour of conservation, since they receive no benefits from wildlife, and incur only losses to livestock and crops from wildlife, especially elephants and predators. Given the support for reintroducing rhinos into conservancies within the historic range of black rhinos, the potential release sites identified by respondents were then assessed for their habitat suitability (Figure 8), access to surface water (Figure 9) and the impact of human settlements in these areas (Figure 10), using some of the data deriving from work led by Mike Hearn (see above). The Klip River area of the #Khoadi-//Hoas Conservancy appeared the most favourable site biologically to consider for reintroducing rhino. Furthermore, the conservancy has zoned this area exclusively for wildlife.

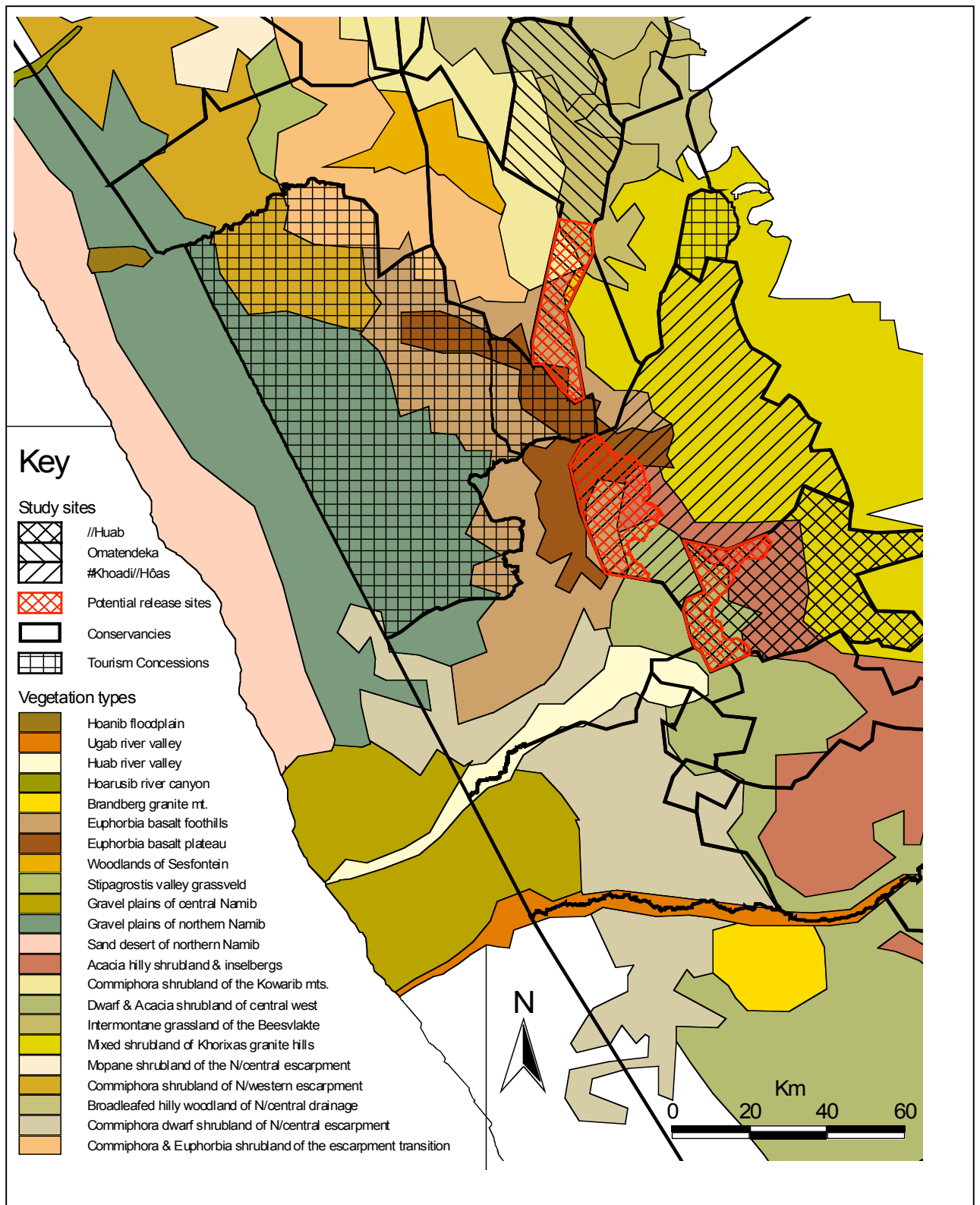


Figure 8: Vegetation types across the current and historic range of black rhinos, indicating habitat suitability within the possible reintroduction sites in three conservancies

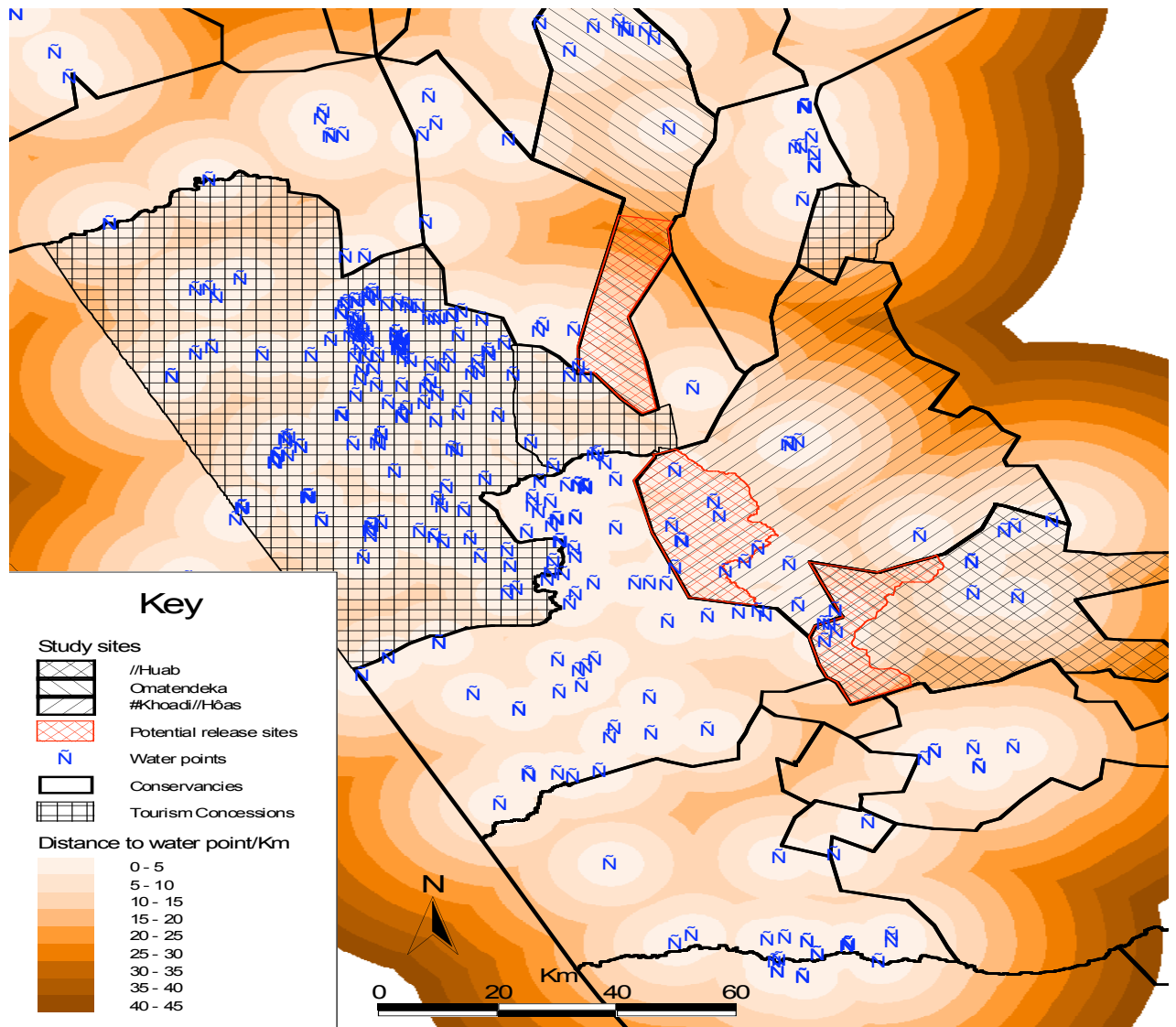


Figure 9: Distance to permanent springs across the current and historic range of black rhinos, indicating the availability of water close to or within the possible reintroduction sites in three conservancies

Based on these results, the eventual choice of the first site for possible reintroduction of black rhinos in Kunene poses a challenge for the decision-makers. This study of different social and biological factors that might impinge on the choice of site for possible reintroduction threw up contrasting results. From a habitat and disturbance perspective, #Khoadi-//Hoas emerges as the best area for reintroducing rhinos into their historical range. However, respondents in #Khoadi-//Hoas were the least supportive of the three conservancies studied regarding the proposal to re-introduce rhinos, and of the need for the conservancy to monitor its wildlife. Nevertheless, with 80% of respondents in #Khoadi-//Hoas in favour of reintroducing rhinos, and only 5% viewing rhinos as dangerous animals, decision-makers will need to weigh up the balance of biological and social factors in deciding for which conservancy to opt as the first site for reintroducing rhinos.

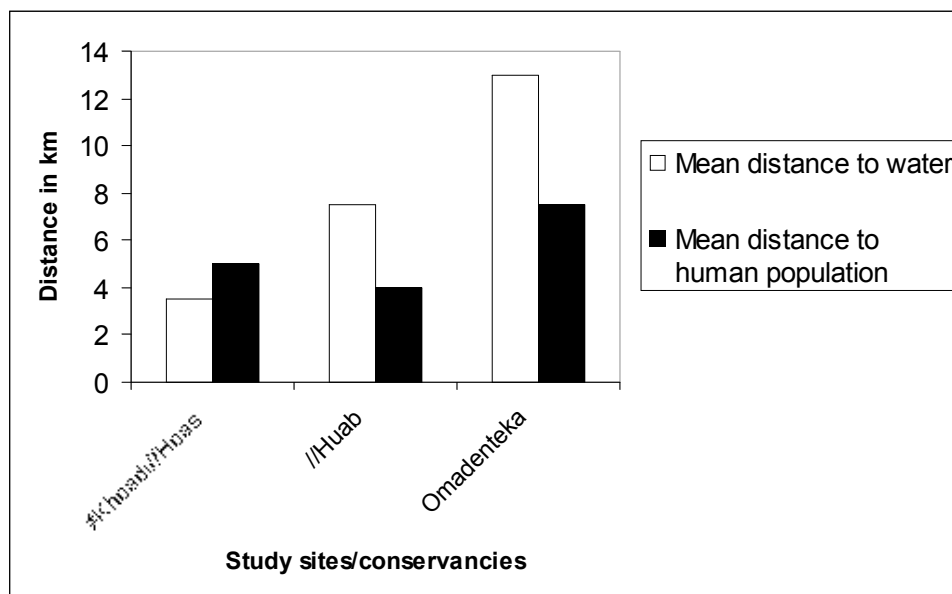


Figure 10: The mean distances to water and to human populations in each of the potential release sites within the three conservancies

Should //Khamas-//Hoas still emerge as the first choice, our recommendations include:

- Giving more attention to adult conservation education programmes, with exposure trips to see rhino in the current rhino range area;
- Encouraging young people to attend school since higher levels of education raises awareness and positive attitudes to conservation;
- Encouraging conservancies to aim at joint management of rhino across large units, based on the ecological feasibility of ensuring viable populations of black rhino. Focus should then be given to areas where there is good support from community level institutes; and,
- Developing an MET and Conservancy driven protocol for stakeholder participation in rhino management, to outline responsibilities for stakeholder groups in rhino management in the northwest.

Training and capacity building

Two local coordinators were trained to MSc level at DICE:

Project partner Simson Uri-Khob of SRT had not previously been to university and his previous training had been as a welder some two decades previously when a teenager! However, he had gained considerable hands-on experience in a decade working with SRT as Director of Fieldwork, which helped him progress from his initial registration for a Postgraduate Diploma to gaining an MSc in Conservation Biology with a Merit, a very creditable performance equivalent to a 2i were this a Bachelor level degree. Simson Uri-Khob has since been appointed SRT's Director of Research in succession to Mike Hearn, and in that sense has fulfilled a key goal of this project in that Namibian capacity has been built to run the rhino monitoring on a sustainable basis. Simson was made the Namibian Wildlife Foundation's Conservationist of the Year in 2006.

Tourism coordinator Michael Sibatani of MET had previously attended Namibia's Polytechnic where he graduated close to the top of his class. Likewise at DICE, Michael performance was at the top of the class, and he gained his MSc in Conservation and Tourism with a Distinction, equivalent to a First were this a Bachelor level degree.

A total of 26 SRT, MET and conservancy field-staff were trained in monitoring and identification of rhinos both during routine patrols to find rhinos, and during five year censuses. The materials used for training scouts in identification are those developed by AfRSG.

5. Project Impacts

Project purpose

- What evidence is there that project achievements have led to the accomplishment of the project purpose? Has achievement of objectives/outputs resulted in other, unexpected impacts?

Following agreements at the Final Workshop held in September 2005, biological management of the Kunene rhinos has begun. In line with recommendations made at the final workshop, MET initially captured males as probes.

Two such males were translocated from Ecozone 6 to ≠Khoadi-//Hoas in April 2006. One female dispersed to ≠Khoadi-//Hoas by herself in October 2006. MET then added a second female who had escaped from the western end of Etosha NP in January 2007, while another male continued to move in and out of ≠Khoadi-//Hoas by himself. As a result, ≠Khoadi-//Hoas now has a population of three translocated and two dispersing rhinos.

Likewise, two further males were translocated from Ecozone 6 to Omatendeka in May 2007. Three females and one male were moved from the western end of Etosha NP to Omatendeka in May 2007. As a result, Omatendeka now has a population of six translocated rhinos.

SRT Director of Research and Darwin Scholar, Simson Uri-Khob has provided training in rhino monitoring and security to conservancy members who have received translocated rhinos since the Darwin project has ended.

- To what extent has the project achieved its purpose, i.e. how has it helped the host country to meet its obligations under the Biodiversity Convention (CBD), or what indication is there that it is likely to do so in the future? Information should be provided on plans, actions or policies by the host institution and government resulting directly from the project that building on new skills and research findings.

The research and planning conducted with the widespread support of relevant stakeholders during this project has provided Namibia with a sound basis for implementing its obligations under CBD. The approach encompassed proposing biological management of a population, both to promote its rate of recovery and to spread the opportunities for benefiting from wildlife to communities in the historic range. The actions taken by MET to implement the recommendations arising from the Final Workshop are testament to the success of the project in terms of Namibia implementing conservation action in a timely and adaptive manner.

- Please complete the table in Appendix I to show the contribution made by different components of the project to the measures for biodiversity conservation defined in the CBD Articles.

The contributions of the project to the Convention on Biological Diversity have been reported above and in Appendix 1. Direct contributions through project partners to help Namibia meet its obligations include the following:

Articles 7, 8 and 12: Increased capacity of local communities, MET and SRT to monitor and manage wildlife and conflict, both locally and (in terms of SRT) across their portfolio. Increased capacity within SRT to train community members and MET rangers in enhanced monitoring and conflict mitigation techniques.

Articles 10 and 11: Increased incentives for conservation being provided by SRT and MET to local communities through training and employment of conservancy members; increased capacity of local communities to generate sustainable benefits from wildlife through ecotourism.

Article 13: Increased public education and awareness was generated through community outreach activities by SRT, MET, Round River and through scientific presentations and popular publications locally, regionally and internationally.

Article 17: There was substantial exchange of scientific and socio-economic information between the UK (DICE) and Namibia (local project partners) through training and field survey activities. The two DICE MSc dissertations produced within this project were in conjunction with the Namibian MET who received final copies of the scientific work.

Capacity building

- If there were training or capacity building elements to the project, to what extent has this improved local capacity to further biodiversity work in the host country and what is the evidence for this? Where possible, please provide information on what each student / trainee is now doing (or what they expect to be doing in the longer term).

The training of two Darwin scholars to MSc level has improved the capacity for biodiversity conservation in Namibia. The training has yielded a data collection system that can be used to inform management planning by SRT and MET, and that can be used by local tour operators. Both Darwin Scholars remain active in the field, with key responsibilities for conserving Namibia's desert adapted black rhinos and utilizing their benefits for tourism, in Kunene and Etosha, respectively.

Simson Uri-Khob is still employed by SRT. Since the end of Darwin project, and the tragic events that followed, he was promoted to Director of Research in succession to Mike Hearn. The training and experience gained through the Darwin project is anticipated to greatly help Simson take on his new responsibilities, which include maintaining the SRT database and running the field monitoring programme.

Michael Sibalatani is still employed by MET and remains Chief Control Warden of Etosha and Skeleton Coast National Parks, possibly the most senior field post in MET. This leaves him in charge of one of the most extensive wildlife areas in southern Africa, and one of the largest contiguous populations of rhinos globally, as well as the largest single population of desert adapted black rhinos.

Collaborations and social impact

- Discuss the impact of the project in terms of collaboration to date between UK and local partner. What impact has the project made on local collaboration such as improved links between Governmental and civil society groups?

The project resulted in regular contact between the Project Officer and a range of local stakeholders working in the Kunene rhino range. Many of these stakeholders also attended Steering Committee Meetings held in September 2002 in Windhoek, in December 2003 in Palmwag, in April 2005 in Windhoek, and the Final Workshop held in Grootberg in September 2005. Besides the community conservancies and the

project partners of SRT and MET, key stakeholders included:

- Community leaders, including Honourable Governor of Kunene Region and the King of Damaraland, Chief Justus Garoeb;
 - Integrated Rural Development and Nature Conservation (IRDNC), an NGO assisting with community development and wildlife management in northwest Namibia;
 - Worldwide Fund for Nature (WWF LIFE programme), an NGO assisting with community development across Namibia;
 - Namibian Community-Based Tourism Association (NACOBTA), an NGO assisting with tourism development in community conservancies in Namibia;
 - Palmwag Lodge Company, lease holders of the Palmwag Concession;
 - Wilderness Safaris Namibia, Managers of Palmwag Concession, Palmwag Lodge, Rhino Wilderness Camp and Damaraland Camp in Torra Conservancy;
 - Tourism companies utilising the Kunene Region, and self-drive tourists;
 - Round River Conservation Studies, a North American based environmental education programme that coordinates and sponsors wildlife research through an overseas education programme. This group is actively collaborating with Save the Rhino Trust in its research programme.
- In terms of social impact, who has benefited from the project? Has the project had (or is likely to result in) an unexpected positive or negative impact on individuals or local communities? What are the indicators for this and how were they measured?

A key success of this project was to secure and strengthen trust with local communities across the Kunene region. With the support and facilitation of IDRNC, the late Project Officer regularly attended formal conservancy quarterly planning meetings, as well as informal community meetings across the region throughout the project period. An integral part of this project's philosophy has been, where possible, to collaborate and support similar CBNRM projects across the Kunene region and the rest of Namibia. The support of local communities was reciprocated by the attendance of many community leaders and community members at the funeral of Mike Hearn, and at the Final Workshop held in September 2005.

6. Project Outputs

- Quantify all project outputs in the table in Appendix II using the coding and format of the Darwin Initiative Standard Output Measures.

Please note that this compilation may exclude outputs that followed submission of the Second Annual Report, as the Project Leader did not have access to relevant details following Mike Hearn's death.

- Explain differences in actual outputs against those in the agreed schedule, i.e. what outputs were not achieved or only partly achieved? Were additional outputs achieved? Give details in the table in Appendix II.

Until Mike Hearn's death, the project appeared to be on track to meet its objectives and to write up the research conducted during the project period. As discussed elsewhere in this report, this goal has yet to be achieved, although progress has been made following additional visits made to Kunene by the Project Leader since 2005.

- Provide full details in Appendix III of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website database.
 - How has information relating to project outputs and outcomes been

disseminated, and who was/is the target audience? Will this continue or develop after project completion and, if so, who will be responsible and bear the cost of further information dissemination?

Scientific publications arising from the project still need to be completed, and responsibility for this lies with the Project Leader, who has some private funding to meet these costs.

Changes to outputs

Reasons for not meeting all the final outputs have been elaborated elsewhere.

Additional outputs

Likewise, the additional outputs have been elaborated elsewhere. These are to complete the publication of the final workshop proceedings, which awaits one analysis, and to submit papers for publication in the scientific literature.

7. Project Expenditure

- Tabulate grant expenditure using the categories in the original application/schedule.
- Highlight agreed changes to the budget.
- Explain any variation in expenditure where this is +/- 10% of the budget.

There was an over-spend on staff salaries due to the move to a single pay spine.

The over-spend on international travel was compensated for by an under-spend on conferences, which allowed the Project Officer to spend more time in Namibia than originally planned and thereby support ongoing activities within both SRT and the project.

Exceptional items refer to an internal transaction at Kent that was made to correct a salary charge.

The printing budget was intended to print the final workshop report, but the workshop was delayed by events in Namibia. Meanwhile the University returned this sum to the Darwin Initiative as unspent during the project period. [Nevertheless we intend to publish this final report when one further set of analysis has been completed].

Item	Budget	Expenditure	Difference (%)
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8. Project Operation and Partnerships

Involvement with local partners

Three main local partners worked on the project: SRT, MET and local communities from the conservancies. All partners were closely involved during project development and implementation. As a result, plans required little modification during project implementation. Throughout the project, there was on-going collaboration to maintain partner commitment and interest. All partners adhered to their agreed roles within the project lifespan. SRT was involved in running the project in-country and was involved in rhino monitoring, protection and awareness raising with the local community partners. MET were involved in coordinating the project and providing technical advice and government support. Local communities and conservancies remained strong partners across the project area and this enabled SRT/DICE to increase their involvement with the community representatives during the project.

Collaborations with other projects and institutions

- How many local partners worked on project activities and how does this differ from initial plans for partnerships? Who were the main partners and the most active partners, and what is their role in biodiversity issues? How were partners involved in project planning and implementation? Were plans modified significantly in response to local consultation?

The Project held a Steering Committee Meeting each year, to which key community leaders and all stakeholders in Kunene were invited, and many indeed attended. Round River and its students proved a helpful source of research assistance.

- During the project lifetime, what collaboration existed with similar projects (Darwin or other) elsewhere in the host country? Was there consultation with the host country Biodiversity Strategy (BS) Office?

There were no similar Darwin projects in the host country with which to collaborate. However, this Darwin project worked closely with other projects that sought to promote CBNRM in Namibia, for example IDRNC.

- How many international partners participated in project activities? Provide names of main international partners.

The late Project Officer interacted with IUCN-SSC's AfRSG and the SADC Regional Rhino Programme through assessments of vegetation and habitat quality, in order to standardise approaches across southern Africa.

The late Project Officer and the Project Leader took part in working groups at successive AfRSG meetings on ways that communities can influence community-based conservation of rhinos.

- To your knowledge, have the local partnerships been active after the end of the Darwin Project and what is the level of their participation with the local biodiversity strategy process and other local Government activities? Is more community participation needed and is there a role for the private sector?

Project partners have remained very active following the end of the project, as evidenced by translocations of Kunene rhinos out of their former current range into two conservancies within their historic range, and the ongoing training of conservancy members who have received founder populations of rhinos.

9. Monitoring and Evaluation, Lesson learning

There were no external Darwin evaluations of the project during its lifetime. Nevertheless, the late Project Officer continuously oversaw project activities, and used the logical framework and agreed outputs and milestones for guidance. Furthermore, the Project Officer spent more time in Namibia than originally planned due to illness of senior staff in SRT. When the Project Officer was not in Namibia there was regular communication with the host country coordinator, Simson Uri-Khob, and to a lesser extent the MET partner, Michael Sibalatani. The Project Leader joined the project for two weeks each year for Steering Committee meetings and field visits to assess project performance and provide guidance for future planned activities. He has also visited Namibia on three occasions since the project ended, in order to resolve issues related to Mike Hearn's death. Financial monitoring was provided through external auditing conducted by the University of Kent's Finance Office.

Baseline data, milestones and indicators

The baseline data collected during this project comprised both biological and social data, as already discussed in Section 4.

The ongoing increase in black rhino numbers in Kunene serves as a biological indicator of the success of the approach followed by MET, SRT and others in Namibia, which has now hopefully been enhanced by an increase in Namibian capacity to run SRT's ongoing research as a result of this Darwin project. The baseline biological data collected during this project included routine data on population performance from routine monitoring patrols, and 5-yearly census data both of which can be used to monitor long-term population trends of rhinos.

Questionnaire surveys were administered to local communities and conservancies, which can be used to monitor changes in attitudes and perceptions towards the conservation management of rhinos.

Baseline data were also collected on the impacts of an emerging and novel form of ecotourism, undertaken through tracking rhinos on foot as part of SRT's routine monitoring of rhinos, as well as tourist satisfaction with the product. These data will provide any new operations that begin within the conservancies as opposed to the Palmwag Concession to measure their impacts.

Main problems and evaluation

At the start of Project Year 3, we did not foresee any reason why all the forthcoming milestones could not be completed in full and to schedule (see Second Annual Report of May 2004). However, with the unexpected loss of the Project Officer, it has not yet been possible to complete the milestones for the data analysis and formal scientific publications that should arise from this project, while the proceedings of the Final Workshop outlining agreements to future plans for managing rhinos in Kunene was delayed. Until that point, activities directly related to our milestones were mainly being completed successfully, apart from the cases discussed above.

- Please explain your strategy for monitoring and evaluation (M&E) and give an outline of results. How does this **demonstrate** the value of the project? E.g. what baseline information was collected (e.g. scientific, social, economic),

milestones in the project design, and indicators to identify your achievements (at purpose and goal level).

The baseline information collected to monitor and evaluate the success of this project at goal and purpose levels has been described above. This project was able to partner a much longer-term process to recover a critically important population of rhinos living outside a protected area, in order to make two key interventions: first, to build capacity and allow Namibia to encourage nationals rather than expatriates to move into key roles in this long-term effort; and second, to allow analysis of a long-term data set to provide Namibia with the ability to make timely decisions regarding conserving this population of rhinos in Kunene. Both interventions were achieved (although one remains to be completed), thereby fulfilling the goal of the Darwin Initiative. Furthermore, the project has been able to influence decisions that both seek to improve the biological management of Kunene rhinos and to widen opportunities for local communities to benefit from those rhinos. Future monitoring of the rates of recovery of Kunene's rhinos, and of local attitudes towards those rhinos, will determine whether the purpose of the project has been achieved over the longer-term.

- What were the main problems and what steps were taken to overcome them?

The main problem has been the loss of the Project Officer, which the Project Leader has found very hard to overcome. The Project Leader has travelled to Namibia on three further occasions after the project had ended to attempt to resolve outstanding issues with databases, analyses and completion of outputs. The Project Leader is grateful that the Darwin Secretariat gave him as long as necessary to resolve these outstanding issues and see the key scientific findings published, which he and the project partners are determined will happen.

- During the project period, has there been an internal or external evaluation of the work or are there any plans for this?

There has been no evaluation of the project.

- What are the key lessons to be drawn from the experience of this project? We would welcome your comments on any broader lessons for Darwin Initiative as a programme or practical lessons that could be valuable to other projects, as we would like to present this information on a website page.

The key problem facing the successful completion of this project could not have been anticipated, as discussed throughout this report.

10. Actions taken in response to annual report reviews (if applicable)

- Have you responded to issues raised in the reviews of your annual reports? Have you discussed the reviews with your collaborators? Briefly summarise what actions have been taken over the lifetime of the project as a result of recommendations from previous reviews (if applicable).

Not applicable.

11. Darwin Identity

- What effort has the project made to publicise the Darwin Initiative, e.g. where did the project use the Darwin Initiative logo, promote Darwin funding opportunities or projects? Was there evidence that Darwin Fellows or Darwin Scholars/Students used these titles?

The project made a concerted effort to publicise the Darwin Initiative wherever appropriate:

- The Darwin Initiative logo was included in numerous presentations, ranging from international to local, and including 'Reconciling objectives of biological management and CBNRM: the desert-dwelling black rhino in Namibia' at the 2002 Annual Meeting of the Society for Conservation Biology conference; and presentations to many international tourist groups visiting Palmwag Rhino Camp.
 - Training was provided to conservancy members, as well as SRT scouts, under the Darwin Initiative banner.
 - The Darwin Initiative logo was used on the Project Officer's vehicle and on reports that originated from activities in the project. The logo was displayed in SRT's Field Camp at Palmwag and was seen by all tourists who were brought to the camp on their way to track rhinos at Palmwag Rhino Camp.
 - Steering Committee members, and attendees at the final workshop, local-community members and tourists in Kunene were also exposed to the Darwin Initiative as a result of project activities.
 - Both Darwin Scholars use their titles and association with Darwin with pride (see Cover Photograph).
-
- What is the understanding of Darwin Identity in the host country? Who, within the host country, is likely to be familiar with the Darwin Initiative and what evidence is there to show that people are aware of this project and the aims of the Darwin Initiative?

All the project partners and stakeholders in rhinos in Kunene were aware of the Darwin identity, and of the distinctive contribution this project made to rhino conservation and development in Kunene.

- Considering the project in the context of biodiversity conservation in the host country, did it form part of a larger programme or was it recognised as a distinct project with a clear identity?

This Darwin Initiative project was well embedded in long-term efforts by SRT and MET to conserve rhinos in north-west Namibia. However, the project made an increasingly distinctive contribution to linking benefits from wildlife to local development within the emerging conservancy programme, using the flagship species for the region.

12. Leverage

- During the lifetime of the project, what additional funds were attracted to biodiversity work associated with the project, including additional investment by partners?

The UK project staff from DICE worked closely with SRT to write proposals that supported the expansion of fieldwork activities, and to secure costs that were not

covered in the Darwin Initiative budget:

- US\$33,700 from US Fish and Wildlife Service to support fieldwork costs for monitoring and perceptions towards conserving desert dwelling black rhinos in NW Namibia.
- US\$20,000 from UNDP Small Grants Program to cover costs of the two Darwin Scholars returning to Namibia to undertake the research for their MSc dissertations during May to July 2004.
- US\$10,000 from SADC Regional Rhino Program to cover costs of biological management workshop held in May 2004.
- GB£225,000 from host partners, donors such as David Shepherd Wildlife Foundation and Save the Rhino International to cover vehicle costs, fieldstaff salaries and general running costs for SRT.
- What efforts were made by UK project staff to strengthen the capacity of partners to secure further funds for similar work in the host country and were attempts made to capture funds from international donors?

See above.

13. Sustainability and Legacy

- What project achievements are most likely to endure? What will happen to project staff and resources after the project ends? Are partners likely to keep in touch?

The work of the late Project Officer is continuing through the training that Simson Uri-Khob received as Darwin Scholar during this project. As noted elsewhere, Simson has now replaced Mike Hearn as SRT's Director of Research. Following the Final Workshop, the Project Leader returned to Namibia for three weeks during the summer 2006, to continue work with Uri-Khob on data analysis. He also met with MET's Rhino Co-ordinator, Pierre du Preez at CITES in July 2007 and plans to meet Uri Kolb and MET co-ordinator at the AfrSG meeting in June 2008 and return again to Kunene in summer 2008. Meanwhile, a DICE post-doctoral researcher has recently been undertaking further data analysis. The aim of these post-project activities has been to ensure the eventual publication of the scientific work led by Mike Hearn.

- Have the project's conclusions and outputs been widely applied? How could legacy have been improved?

The project legacy is ongoing, as evidenced by the translocations that have made to new conservancy areas following the Final Workshop. Nevertheless, the Project Leader is concerned that the wider dissemination of the work has not been more rapid.

- Are additional funds being sought to continue aspects of the project (funds from where and for which aspects)?

Additional funds have been sought from private sources to ensure that the scientific work referred to above is completed.

Other unplanned legacies have resulted from the accidental death of Mike Hearn. For example, the Michael Hearn Internship Programme has been started at Save the Rhino International with support from the Linbury Trust, and additional support from the Ashden Trust, the JJ Charitable Trust and the Mark Leonard Trust. This internship programme is aimed at highly motivated school leavers or recent graduates wishing to pursue a career in conservation. Each year, the programme offers one intern the opportunity to work for Save the Rhino International. The 10th month is spent with

staff from Save the Rhino Trust in Namibia, one of the field projects that SRI supports.

14. Value for money

- Considering the costs and benefits of the project, how do you rate the project in terms of value for money and what evidence do you have to support these conclusions?

The project is considered to have been very cost-effective. The budget that the project sought from the Darwin Initiative was mainly spent on two key lines. The first was to pay the salary of Mike Hearn, who was then seconded to Save the Rhino Trust as Director of Research. With his salary covered, Mike Hearn was then able to leverage additional money (see above in 12) to support and extend SRT's ongoing work, in particular to encompass the social side, as well as to run SRT's field operations. The second line was to cover the costs of building capacity for two Namibians to undertake their MSc training. Both have critical positions in black rhinoceros conservation in Namibia, one the Warden of Etosha National Park with its large population of rhinos, and the other now Director of Research for SRT, out of necessity following Mike Hearn's death but still part of a planned progression to ensure greater sustainability in SRT, with national replacing expatriate expertise. The approach followed in this project shows the benefit of slotting into an existing long-term process and seeking to provide it with a more sustainable future as part of a project's exit strategy, rather than starting a project from scratch and also needing to provide an exit strategy in the 2-3 year lifespan of most most 'projects'. The downside of this approach could have been to lessen Darwin Initiative exposure, but this certainly was not the case in this project, where Darwin was mentioned regularly as playing a pivotal role in conservation in Kunene. SRT continues to run after the personal tragedies that its staff have suffered and moves are now underway, both to spread the benefits that can derive to communities from rhinos more widely, to implement biological management of the source population of Kunene rhinos.

The tragedy of Mike Hearn's death is still keenly felt, and the analysis he started still remains to be completed. With ongoing goodwill between SRT, MET and DICE, we plan to complete that analysis in his memory.

Appendix I: Project Contribution to Articles under the Convention on Biological Diversity (CBD)

Please complete the table below to show the extent of project contribution to the different measures for biodiversity conservation defined in the CBD Articles. This will enable us to tie Darwin projects more directly into CBD areas and to see if the underlying objective of the Darwin Initiative has been met. We have focused on CBD Articles that are most relevant to biodiversity conservation initiatives by small projects in developing countries. However, certain Articles have been omitted where they apply across the board. Where there is overlap between measures described by two different Articles, allocate the % to the most appropriate one.

Project Contribution to Articles under the Convention on Biological Diversity		
Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	0	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	20	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation	20	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation	0	Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity	10	Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures	10	Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	20	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).

13. Public Education and Awareness	10	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts	0	Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources	0	Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of Technology	0	Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information	10	Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol	0	Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Total %	100%	Check % = total 100

Appendix II Outputs

Please quantify and briefly describe all project outputs using the coding and format of the Darwin Initiative Standard Output Measures.

Code	Total to date (reduce box)	Quantity	Detail (← expand box)
Training Outputs			
1a	Number of people to submit PhD thesis	0	
1b	Number of PhD qualifications obtained	0	
2	Number of Masters qualifications obtained	2	MSc in Conservation Biology (Uri-Khob) MSc in Conservation and Tourism (Siblatani)
3	Number of other qualifications obtained	0	
4a	Number of undergraduate students receiving training	-	[Round River Conservation Studies students from US]
4b	Number of training weeks provided to undergraduate students	-	[Round River Conservation Studies students from US]
4c	Number of postgraduate students receiving training (not 1-3 above)	0	
4d	Number of training weeks for postgraduate students	0	
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(i.e not categories 1-4 above)	4	Full-time SRT staff on protocols for collecting ecological data
6a	Number of people receiving other forms of short-term education/training (i.e not categories 1-5 above)	26	SRT, MET and conservancy staff during 2-month census and ongoing patrols
6b	Number of training weeks not leading to formal qualification	12	Training during census and ongoing patrols
7	Number of types of training materials produced for use by host country(s)	1	Work with AfRSG and MET to develop training materials
Research Outputs			
8	Number of weeks spent by UK project staff on project work in host country(s)	~120	~110 weeks: Project Officer 10: Project Leader
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	1	Final Workshop Proceedings [in draft: still awaiting completion of one analysis: see Attachment 1]
10	Number of formal documents produced to assist work related to species identification, classification and recording.	0	
11a	Number of papers published or accepted for publication in peer reviewed journals	0	
11b	Number of papers published or accepted for publication elsewhere	0	
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	0	
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	1	SRT's Rhino monitoring database enhanced by data collected during project
13a	Number of species reference collections established and handed over to host country(s)	0	
13b	Number of species reference collections enhanced and handed over to host country(s)	0	

Dissemination Outputs		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	2: SADC workshop in May 2004; Final workshop in September 2005
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	>5: SCB 2002, RMG 2003, SCCS 2005, AfRSG x 2
15a	Number of national press releases or publicity articles in host country(s)	2: Namibia
15b	Number of local press releases or publicity articles in host country(s)	0
15c	Number of national press releases or publicity articles in UK	0
15d	Number of local press releases or publicity articles in UK	1
16a	Number of issues of newsletters produced in the host country(s)	0
16b	Estimated circulation of each newsletter in the host country(s)	0
16c	Estimated circulation of each newsletter in the UK	0
17a	Number of dissemination networks established	1: Steering Committee
17b	Number of dissemination networks enhanced or extended	1: Conservancy Quarterly Planning Meetings
18a	Number of national TV programmes/features in host country(s)	0
18b	Number of national TV programme/features in the UK	Really Wild Show; The Holiday Programme
18c	Number of local TV programme/features in host country	0
18d	Number of local TV programme features in the UK	0
19a	Number of national radio interviews/features in host country(s)	1
19b	Number of national radio interviews/features in the UK	0
19c	Number of local radio interviews/features in host country (s)	1
19d	Number of local radio interviews/features in the UK	1
Physical Outputs		
20	Estimated value (£s) of physical assets handed over to host country(s)	0: No assets were budgeted under this Darwin project
21	Number of permanent educational/training/research facilities or organisation established	1: Round River Conservation Studies Centre
22	Number of permanent field plots established	1: Palmwag Rhino Camp
23	Value of additional resources raised for project	~£300,000

Appendix III: Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website Publications Database that is currently being compiled. Mark (*) all publications and other material that you have included with this report

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)
MSc dissertation *	Uri-Khob, S. 2004. Attitudes and perceptions of local communities towards the reintroduction of black rhino (<i>Diceros bicornis bicornis</i>) into their historical range in northwest Kunene Region, Namibia	N/A	DICE: postgraduate secretary
MSc dissertation *	Sibalatani, M. 2004. The potential of safaris to track desert-dwelling black rhino as a form of community-based tourism in north-west Namibia.	N/A	DICE: postgraduate secretary
Edited book*	Hearn, M et al. 2008. Stakeholder Workshop on Biological Management Options for the Black Rhino in North-west Namibia.	To be finalised	Final Workshop Proceedings: to be finalised
Presentation	Hearn, M. 2005. Population performance of black rhinos in Kunene.	N/A	Presentation to Final Workshop (to be updated and published in Final Workshop Proceedings)
Presentation	Sibalatani, M. 2005. The potential of safaris to track desert-dwelling black rhino as a form of community-based tourism in north-west Namibia.	N/A	Presentation to Final Workshop (to be published in Final Workshop Proceedings)
Presentation	Uri-Khob, S. 2005. Attitudes and perceptions of local communities towards the reintroduction of black rhino into their historical range in northwest Kunene Region, Namibia	N/A	Presentation to Final Workshop (to be published in Final Workshop Proceedings)
Presentation	Hearn, M. et al. 2002. Reconciling objectives of biological management and CBNRM: the desert-dwelling black rhino in Namibia.	N/A	Presentation to 2002 Annual Meeting of SCB
Report	Hearn, M. 2004. The 2002/2003 census of black rhino in the Kunene and Erongo Regions	Unpublished: SRT and MET	Confidential
Report	Hearn, M. & Kruger, B. 2004. Proceedings of stakeholder workshop on biological management goals for black rhino in North West Namibia.	SADC Regional Programme for Rhino Conservation	SADC RPRC website

Report	Hearn, M. 2003. Assessment of Biological and Human Factors Limiting the West Kunene Rhino Population.	SADC Regional Programme for Rhino Conservation	SADC RPRC website
Presentation	Hearn, M. 2002 The Kunene Black Rhino: Management on Communal Conservancies.	AfRSG 2002 Meeting	Confidential: AfRSG proceedings
Presentation	Hearn, M. et al. 2002. Reconciling objectives of biological management and CBNRM: the desert-dwelling black rhino in Namibia.	Talk at 2002 SCB Annual Meeting	Abstracts of 2002 Annual Meeting of SCB: DICE/SCB
Presentation	Hearn et al. 2002. Reconciling objectives of biological management and CBNRM: the desert-dwelling black rhino in Namibia.	First DI Steering Committee, Windhoek	
Presentations	Leader-Williams, N. Incentives for conservation (includes Namibian work)	Many seminars in UK and overseas	
Poster	Uri-Kohb et al. 2007. Attitudes and perceptions of local communities towards the translocation of black rhino in Northwest Namibia	Poster to 2007 Annual Meeting of SCB	www.nmmu.ac.za/scb/posters.htm
Poster	Muntifering, J. et al. 2007. Characterising and predicting rhino disturbance: utility of applying a novel modelling approach to inform non-invasive tourism policy in Namibia	Poster to 2007 Annual Meeting of SCB	www.nmmu.ac.za/scb/posters.htm
Poster	Muntifering, J. et al. 2007. Linking resource selection function models and population parameters to identify black rhino core breeding and priority recovery sites	Poster to 2007 Annual Meeting of SCB	www.nmmu.ac.za/scb/posters.htm
Website	Anon. 2001-2008.	Save the Rhino Trust website	http://www.namibweb.com/srt.htm

Appendix IV: Darwin Contacts

To assist us with future evaluation work and feedback on your report, please provide contact details below.

Project Title	Black Rhino Conservation and Ecotourism impacts in North-western Namibia
Ref. No.	£110,103
UK Leader Details	
Name	N. Leader-Williams
Role within Darwin Project	Project Leader
Address	DICE, University of Kent, Canterbury, CT2 7NR, Kent
Phone	
Fax	
Email	
Other UK Contact (if relevant)	
Name	[The Late Mike Hearn]
Role within Darwin Project	Former Project Officer
Address	
Phone	
Fax	
Email	
Partner 1	
Name	Simson Uri-Khob
Organisation	Save the Rhino Trust
Role within Darwin Project	Partner, Darwin Scholar
Address	Save the Rhino Trust, Khorixas, Namibia
Fax	
Email	
Partner 2 (if relevant)	
Name	Pierre du Preez
Organisation	Ministry of Environment and Tourism
Role within Darwin Project	Partner, National Rhino Coordinator
Address	
Fax	
Email	

Appendix V: Logical Framework

<i>Project summary</i>	<i>Measurable indicators</i>	<i>Means of verification</i>	<i>Important assumptions</i>
<p>Goal</p> <p><i>To assist countries rich in biodiversity but poor in resources with the conservation of biological diversity and implementation of the Biodiversity Convention</i></p>		<p>Legislation and policy in place to enable appropriate protection of areas rich in biodiversity in line with CBD criteria</p> <p>Management plans endorsed by government and local level institutes</p> <p>Increased resources made available by host county to reach conservation goals</p>	<p>Continued political stability in the country and support from government for the conservation of biological diversity</p> <p>Continued development of appropriate CBNRM programmes that ensure community commitment to sustainable natural resource management</p>
<p>Purpose</p> <p>The development of a MET and community-driven programme that contributes to improving livelihoods and conservation in the region</p> <p>Secure protection of mega fauna and optimise black rhino growth rates in line with metapopulation goals of the national population of black rhino.</p>	<p>An increase in wildlife numbers in the project area</p> <p>Increased benefits to communities to enrich livelihoods</p> <p>Land use plans that make provision for black rhino</p>	<p>Annual census and monitoring data captured and analysed</p> <p>Diversity of stakeholders is increased</p> <p>Social surveys to see that future benefits to stakeholders are increased and a value is placed on rhino by local communities</p>	<p>No increase in poaching</p> <p>Continued community support for conservation and tourism in the project area</p> <p>Continued support from regional government departments for mega fauna conservation</p>
<p>Outputs</p> <p>A sustainable monitoring programme for the black rhino co-ordinated and run by Namibian staff</p> <p>Capacity to make informed decisions regarding development of tourism and management of black rhino</p> <p>A better understanding of rhino conservation factors within the region</p>	<p>Established monitoring teams operating in the area</p> <p>Improved monitoring programme for black rhino</p> <p>Appropriate development of tourism enterprises that minimise the disturbance to black rhino</p> <p>Ongoing growth of the black rhino population</p>	<p>Measure number of days patrolled and catch per unit effort</p> <p>Number of recognisable animals recorded over one year</p> <p>Measures of tourism impact and of occupancy of lodges and campsites</p> <p>Indicators population health analysed and growth at least 5%</p>	<p>Commitment by all partners to implement project</p> <p>Provision of sufficient resources by partners</p> <p>Continued political stability in the region to allow maintain tourism growth</p> <p>No increase in poaching of black rhino</p>
<p>Activities</p> <p>Train two local coordinators to MSc level at DICE</p> <p>Train SRT, MET and conservancy field-staff</p> <p>Habitat suitability study</p> <p>Draft black rhino management plan</p> <p>Assist with ongoing land use planning at all levels</p> <p>Disseminate results</p>	<p>Agreed number of trainees complete training and have skills to implement</p> <p>Measured availability of preferred food plants, productivity, and tourism impacts, and these related to population demography data over time</p> <p>Land use plan drafted</p> <p>Workshops held</p>	<p>Staff reports, certificates, graduation of MSc students at DICE</p> <p>Data collected and analysed using a GIS and other investigative tools</p> <p>Documents drafted and results of workshops documented</p>	<p>Commitment from partners to supply project staff</p> <p>Data collected by project officer made available for analysis</p> <p>Commitment from partners during and after the project period</p>