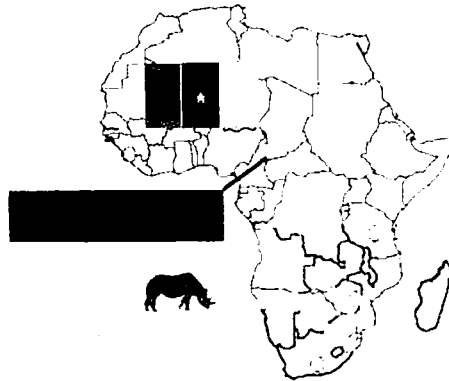




WWF CAMEROON BLACK RHINO LOCATION AND IDENTIFICATION PROJECT

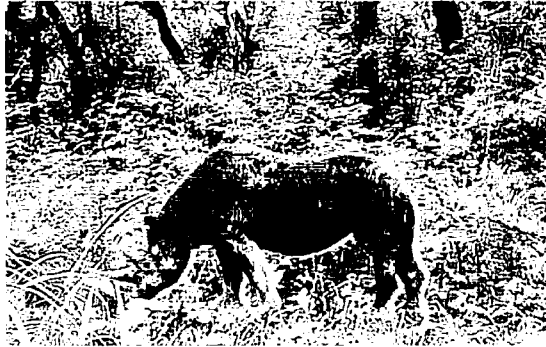
World Wide Fund for Nature
Cameroon Programme Office

Project Reference: CM0041.01



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Consultant

Final Report
August 2001



Summary: Since the 1960s, when the black rhino population in northern Cameroon was estimated to be close to 650 animals (Brett, 1998), there has been a steady decline in numbers. In 1996-1997 there were thought to be 10 black rhino left in northern Cameroon with probability of 8 unconfirmed animals (Brett, 1998); by 1998 estimates were of 7 black rhino with the probability of 5 animals unconfirmed (Planton, 1999). Since 1998 there has been no further monitor-

ing of rhino in the major rhino range areas although a low intensity survey (Weladjii, 1999) was carried out in 1999 but was unable to give any concrete figures for rhino numbers. In the year 2001, the western sub-species of black rhino (*Diceros bicornis longipes*) in Cameroon appears close to extinction.

Despite sound recommendations emanating from various reports (Brett, 1998), including the development of action plans (MINEF, 1992 and 1993, Meeting report (MINEF, WWF, IUCN/AfRSG), 2000), the decline continues with ongoing uncertainty as to numbers of rhino, their ages and sexes. In an attempt to clarify this situation, WWF-Cameroon in collaboration with MINEF (Ministry of Environment and Forests), IUCN/SSC and other NGOs, developed a project in early 2001 aimed at attempting to address these issues; a progress report has been submitted (Kock, 2001). This final report represents the closure of a 3 month consultancy in which the terms of reference required the tracking of rhinos to sight to obtain identification photographs, allowing a full description of animals, their ages and sex.

Despite walking over 600km in 266 hours from the 12th April to the 6th July, 2001, no fresh spoor nor other fresh rhino sign were detected but a rhino sighting towards the end of this consultancy, by a hunting zone tracker, was confirmed by the detection of fresh to recent spoor and browsing. Areas worked included the Makat Rhino Range Area (MRRA), the Kotape Rhino Range Area (KotRRA), the area south of Hossere Kourouk, the area south of the KotRRA in hunting zone (HZ) 17, and in a corridor between the two main rhino range areas, including HZs 24, 25 and 26. The failure to detect fresh spoor maybe due to several factors, including: very low black rhino numbers in a large wilderness area of >3000 km², very difficult terrain for tracking with poor definition of rhino spoor on uneven ground, progressively more frequent rainfall, both in intensity and duration, washing away spoor, and rapidly growing vegetation, especially bunch grasses, making spoor detection difficult. Although the finding of fresh spoor was problematic, over 40 sets of recent to old spoor (3-30+days) and spoor from year 2000 were detected; this indicates the presence of black rhino in the rhino range areas. A number of sets of spoor were detected outside of the accepted rhino range boundaries and in some instances multiple sets of spoor were seen by individuals which were confirmed by the location team. Due to the terrain it was impossible to distinguish rhino spoor by appearance, only by size. Based on this it is likely that there are 5 black rhino left in the areas worked, with the probability of 3 more animals. Failure to find fresh sign and, therefore, obtain identification photographs leaves the issue of age and sex unresolved.

Of major concern during this consultancy has been the detection of over 40 poaching

camps, including an active poaching camp and the apprehension of two poachers, one of whom was armed. Several sets of cable snares were detected along rivers and at salines. Five poaching camps were detected in remote areas of the MRRA, but the majority of illegal activity, 39 poaching camps detected, was in the KotRRA where no recent or old rhino spoor was found; this should be cause for concern.

In light of the difficulties experienced and the high level of illegal hunting, particularly in the KotRRA with little deterrent to discourage these activities, a decision will have to be made whether to 1. Abandon the western black rhino; this decision could be justified on the basis of indeterminate results from this consultancy, obviously low rhino numbers and the lack of any decisive decision making and implementation of plans and recommendations over the last decade, or 2. The alternate and more optimistic view would be to assume that the correct age and sex ratios exist within the group of 5-8 animals believed to survive and to develop a new, more aggressive phase of detection, immobilization and marking. The continuation of a photo identification phase followed by a capture phase is impractical and probably unattainable under current conditions in northern Cameroon; this should be abandoned.

Renewed efforts will have to be made to build a consensus amongst stakeholders in or close to the rhino ranges in order to develop a team building approach to rhino conservation; this will be a major constraint to any future conservation effort. If a decision is made to continue funding work on black rhino in northern Cameroon, than a combined immobilization and marking phase should be implemented. This would finally confirm the presence of rhino and their ages and sex. It is unlikely to be an easy phase with the likelihood of similar difficulties as experienced in this consultancy but with improved communications and mobile teams success maybe more likely. The future of the western black rhino in Cameroon, in 2001, is finely balanced.



Figure 1: Hossere Mbansi in the Hossere Makat Rhino Range Area. Hos. Mbansi has a place in the local village's mythology, a 1650 metre mountain that spums many of the violent storms that sweep down from the Adamaoua plateau in northern Cameroon





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1. INTRODUCTION

Despite several detailed action plans (MINEF 1992, 1993) being produced at various meetings over the last decade, with the ultimate goal of protecting the remnant populations of the Western sub-species of the black rhinoceros (*Diceros bicornis longipes*) in Northern Cameroon, little progress seems to have been made. This has led to the current situation of uncertainty regarding numbers of black rhinos, their ages, sexes and locations. In addition, there seems to have been little effort over the last decade by some of the key players in rhino conservation in northern Cameroon to build a level of consensus amongst the various stakeholders who live within or close to known rhino ranges; this may well be a key factor in the ultimate survival of the black rhino in northern Cameroon. This lack of consensus is also reflected in the unavailability of key black rhino information generated over the last decade by certain NGOs, within Cameroon institutions.

Recent missions and meetings (Technical Mission, 2000 and AfRSG, IUCN and WWF, 2000) have attempted to develop more focused action plans for protecting the Western black rhino. Despite a desire to move forward in 2000 and 2001, it appears that little concrete action was taken after strong recommendations by Brett (1998); Brett indicated that the situation was likely to be lost within 12-18 months without a concerted effort by all interested parties. Since 1998, it is likely that black rhino numbers have continued to decline.

Recent decisions and agreements made during a Cameroon Black Rhino Conservation Strategy Technical Mission, 13-15th November 2000 in Yaounde, included both short and medium term goals and the development of a "Conservation Vision for Cameroon's Black Rhino". Urgent priority actions required in the short term included:

1. All remaining rhinos must be individually identified, their age and sex determined,
2. Once identified, all remaining animals must be protected where they are at present through the deployment of extraordinary security efforts in the short term to ensure existence of an adequate founder population for the sanctuary in the medium term,
3. An appropriate site, with the necessary and sufficient habitat conditions, must be identified and secured in perpetuity,
4. That the Western black rhino, *Diceros bicornis longipes*, must be added to the "Plan d'action d'urgence", and lastly that,
5. A National Rhino Co-ordinator must be appointed and based in Garoua, with immediate effect, to help ensure that the actions outlined above are implemented as required.

In April 2001, WWF Cameroon in partnership with other NGOs, sponsored a 3 month consultancy by a rhino specialist with the overall aim of implementing recommendation 1. of the urgent priority actions outlined above. This final report represents the output from the "Cameroon Rhino Location & Identification Consultancy" carried out from the 12th April through to the 6th July 2001; details of Terms of Reference (TORs) may be found in Annex 1. This consultancy had been originally prioritized for the beginning of January 2001 but due a number of factors did not begin until early April 2001. This report is based on many hours of field work, discussions at all levels from Government, NGO, through to hunting operations and down to the grass-root village level. Available literature has been perused thoroughly and all information used to develop and implement the various phases of this consultancy.

After a short historical overview of the current status of the black rhinoceros in Africa, the report outlines the historical status and distribution of black rhinos in Cameroon up to 1999. Details of materials and methods used to carry-out the location and identification of black rhinos are given, but specific details of some of the preliminary work carried out has already been presented in a previous progress report (Kock, 2001). Results are presented based on three geographical areas in which extensive field work was carried out and include details of areas walked, the presence of black rhinos and illegal hunting activities detected. Difficulties and constraints to successful completion of TORs are presented in the



Conclusions. Conclusions are drawn from field information, intelligence gathering and a review of current knowledge; estimated rhino numbers for 2001 in northern Cameroon are presented in this section

Finally, detailed recommendations will focus on 1. Whether the current situation and status of the black rhinoceros is redeemable, 2. If point 1. presents a reasonably positive picture, what is needed for future location and identification of black rhino in northern Cameroon, 3. Future capture and marking and, 4. The development of a long term holding facility as a prerequisite before any other phases of a recovery plan are implemented.

2. HISTORICAL DISTRIBUTION AND NUMBERS OF THE WESTERN BLACK RHINOCEROS (*Diceros bicornis longipes*) IN NORTHERN CAMEROON

2.1 Overview of black rhinoceros distribution in Africa and illegal hunting of this species

There are four recognized subspecies of black rhino in Africa including *Diceros bicornis longipes*, the western subspecies. All subspecies have been decimated by poaching since the 1970 and 1980s with numbers plummeting from an estimated 65,000 to less than 3000. The international trade in rhinoceros horn has been well documented as the leading factor driving the world's rhinoceros towards extinction (Nowell et al, 1992). In many areas of Africa the species has been eliminated; populations remain in Kenya and Tanzania in east Africa, and several southern African countries have healthy or recovering populations. As of 1997 there were a total of 11,065 rhino of both species (white and black), with 2599 black rhinoceros remaining throughout Africa (Emslie and Brooks, IUCN/SSC AfRSG, 1999). The Cameroon population is regarded as the most threatened with extinction.

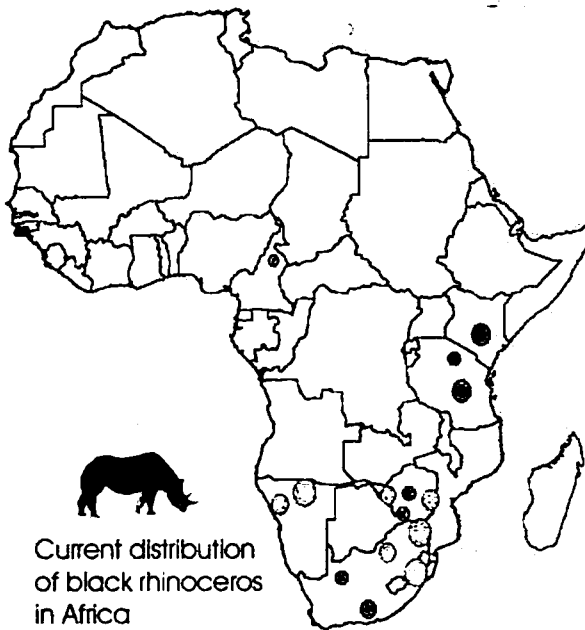


Figure 2: Approximate distribution within the African sub-continent of viable populations of black rhinoceros (*Diceros bicornis*). The larger the circle, the greater the estimated population

It is clear from experience with certain countries in Africa, such as Zimbabwe, that without a focused and aggressive rhino protection and anti-poaching strategy, rhino numbers will continue to decline in the event of continued illegal hunting. Any such strategy must have a strong component involving local communities, hunting and safari operations and other stakeholders. In those countries who have adopted strong measures and involved various key stakeholders, rhino survive and illegal hunting has ceased; the

last know black rhino to be poached in Zimbabwe was in 1994.

Many of the recommendations made over the years to save the western subspecies of black rhino in Cameroon have been based on experiences from east and southern Africa.



2.2 Historical status of the western sub-species of black rhinoceros in Cameroon

Estimates of total numbers of black rhino in Northern Cameroon has varied from 650 in the 1960s to the early 1970s (Flizot in Brett, 1998) to 100-200 in the 1980s (Cumming and Jackson, 1981) to 10, with eight probable or unconfirmed animals in 1997 (Emslie and Brooks, IUCN/SSC AfRSG, 1999; AfRSG, 1998; Planton and Walter, 1997). The decline of this sub-species has primarily been due to poaching but also due to a reduction in habitat from human encroachment activities. Although the poaching pressure on the western sub-species in Cameroon has never approached the levels seen in east and southern Africa; due to the marginal habitat, already low densities have been placed under significant pressure by a continued steady decline due to illegal hunting. In addition, the varied estimates of numbers of black rhinos reflects the difficulties in providing accurate population numbers for this species under the rugged and varied terrain of northern Cameroon. Indeed, this consultancy questions the methods used historically to determine the numbers of black rhino in northern Cameroon and their accuracy (see 5. Conclusions, 5.2 Rhino numbers in northern Cameroon).

Knowledge of the status of the Cameroon rhino population over the last decade has been largely derived from work by Planton (Walter, 1996; Planton and Walter, 1997, Planton, 1999) and WWF-sponsored surveys in 1996 and 1997. It is interesting to note that despite a decade of work by Planton through the Garoua Wildlife School and French Cooperation (FAC), the author of this report has been unable to locate substantive information on work carried out by Planton from within the main wildlife institution (MINEF) and other NGOs in Cameroon involved in rhino conservation; Weladjii (1999) also makes this observation. It is likely that some of this information is available through the AfRSG offices but this information is not available where it matters most and the need is greatest.

In 1997, only 10 rhino were confirmed (Emslie and Brooks, IUCN/SSC AfRSG, 1999; Brett, 1998) in known rhino ranges. These groups of rhinos (1-4 animals) occupied a range area estimated at 3200

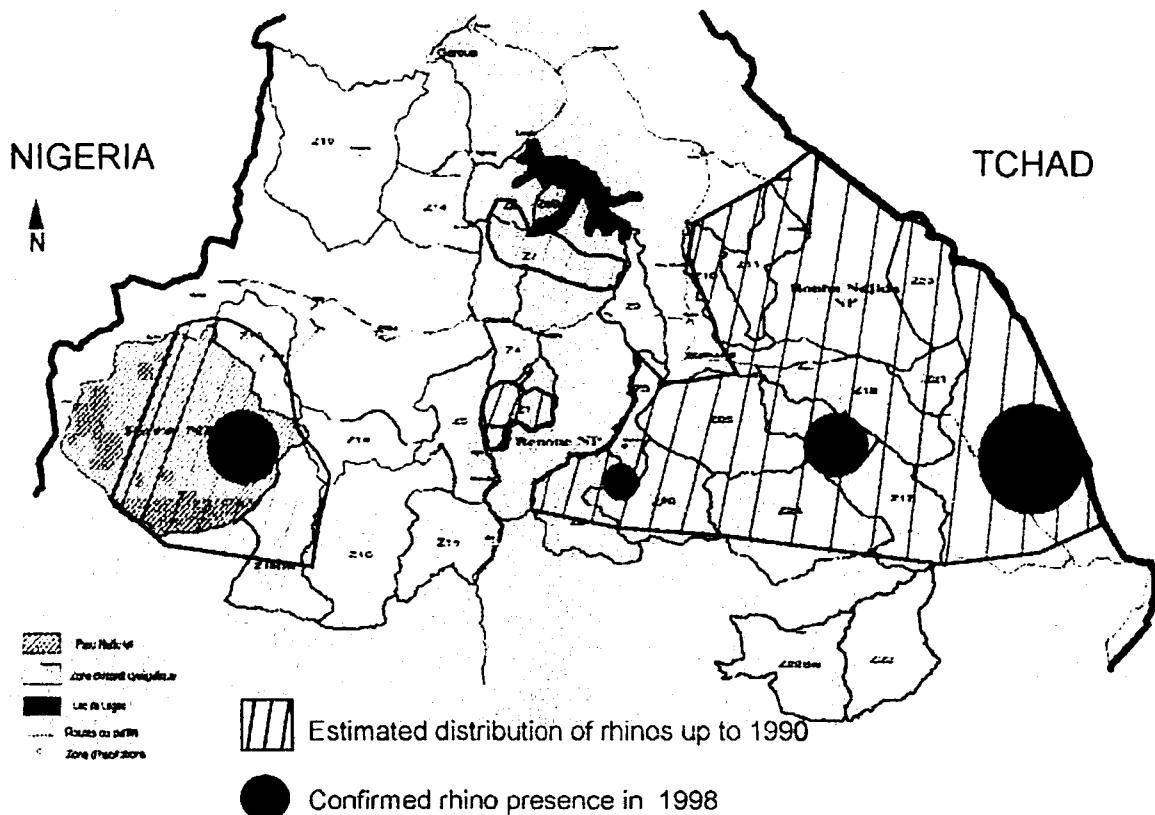


Figure 3: Distribution of black rhinos in northern Cameroon between 1980 and 1998 (according to Planton, 1999)



km², covering roughly 13% of the total area (25,000km²) encompassing all isolated groups. There were thought to be breeding groups of rhinos in the Hossere Makat and Hos. Kotape areas. Figure 3 presents a graphic illustration of rhino distributions up to 1990 and confirmed rhino presence in 1998 according to Planton (1999); by the end of 1998, seven rhino had been confirmed in the rhino ranges with five more unconfirmed.

Weladji (1999) reported on a WWF-CPO sponsored survey in several rhino range areas, notably Faro National Park (NP), south-west of Benoue NP, HZ 5, 17, 18, 22, 24, 25, Adamaua province and the Hossere Makat area. Not all areas were physically surveyed due to security concerns; in these areas villagers or hunters were interviewed. The report is somewhat confusing in terms of rhino spoor seen and aged but the majority of spoor located were from the previous season with only two aged as recent (< 2 weeks) in the Hossere Makat area. Since this low intensity survey, no further work has been carried out in known rhino ranges in northern Cameroon, adding to the uncertainty on rhino numbers, their ages and sex.

Despite the reduction in rhino numbers due to illegal hunting, it is clear that the carrying capacity for black rhino within the main vegetation type (Sudano-guinean, broad-leaved woodland and wooded savannah) in known rhino ranges in northern Cameroon is generally low at 1 rhino per 20km² (Brett, 1998). This consultancy supports Brett's comments with the observation that quality habitat is generally lacking and good to excellent habitat patchy, rhinos would appear to have to move from islands of habitat within the rhino ranges. Interestingly, good to excellent rhino habitat was noted out of the accepted rhino range boundaries of Hossere Makat and Hos. Kotape. It is not clear how the rhino range boundaries were originally determined.

Maps of Hunting Zones (Figure 4) and areas worked are presented (Annex 3, Figures 20-23). Tabular summaries of all walks, rhino spoor and sightings can be found in Annexes 2, 4 and 5.

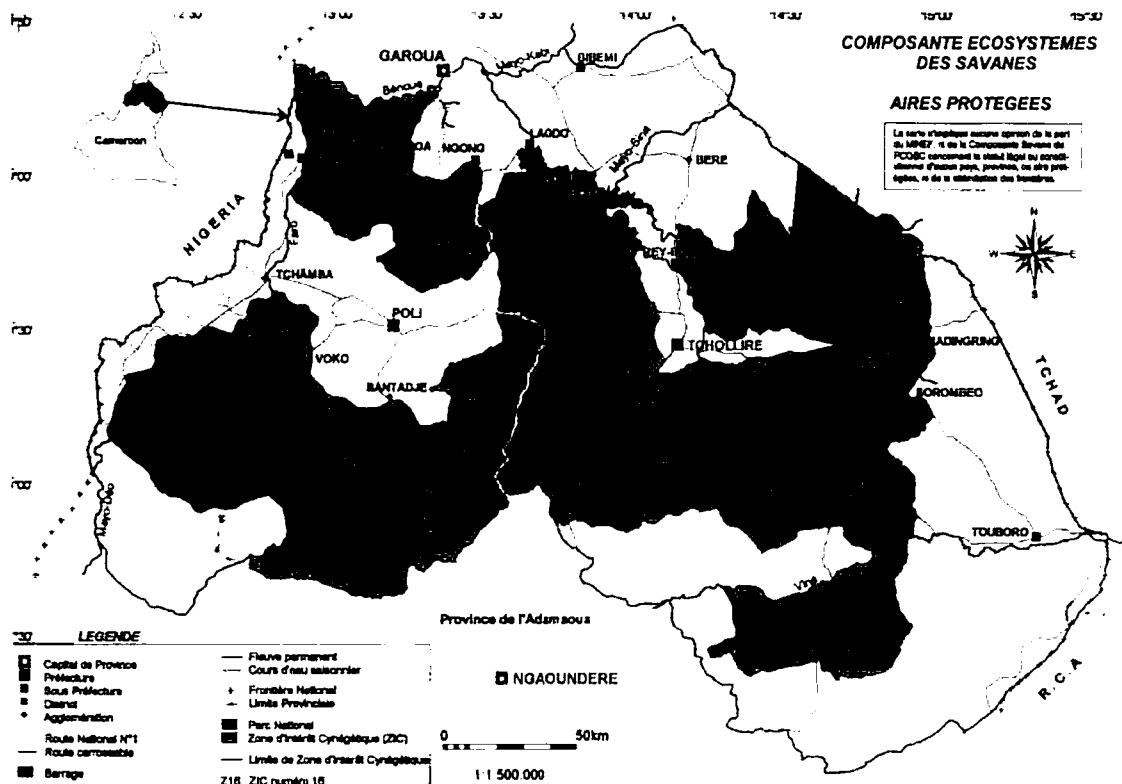


Figure 4: National Parks (NP) and Hunting Zones (HZ) located in northern Cameroon. Key HZ areas related to historic and current distribution of black rhino include 1, 2, 3, 4, 5, 7, 10, 11, 12, 17, 20, 21, 24, 25, and 26 (Brett, 1998)



3. MATERIALS AND METHODS USED ON THE WWF RHINO LOCATION AND IDENTIFICATION PROJECT

The Cameroon Location and Identification project was entirely a ground based operation, utilizing historical and current knowledge and information to search for rhino spoor on the ground or signs associated with browsing or other black rhino behavior. Unlike other previous survey efforts, this project required the tracking of individual rhino to sight and photographing each one to allow individual age and sex determination; the use of paid local trackers and informants would be required to achieve this. Provision of clear and distinctive identification photographs (as and where possible using a digital camera or freeze-frame digital video) of each and every identified rhino to the Chair of the IUCN/SSC African Rhino Specialist Group for verification was part of the TORs.

The main team tasked with carrying out this consultancy has been outlined previously (Kock, 2001) and a list of staff members, *pisteurs* or trackers and porters is given in Annex 6. Basic materials used on this project included the following:

- Digital video camcorder (Sony DCR-TRV11E),
- Software for interfacing with a laptop computer (Picture Gear 4.1®),
- Geographical Positioning System (Garmin 12XL) with remote aerial,
- GPS software for interfacing with a laptop computer and allowing plotting of track-logs (MapSource®),
- Binoculars (Nikon),
- 35mm camera, (Nikon F4),
- Laptop computer (Toshiba 2180 CDT),
- All-Weather Line Rule Spiral Notebook,
- 1:200 000 Carte du Cameroun, specifically Rey Bouba, Poli and Ngaoundere.

The success or otherwise of this project was very dependent on the *pisteurs* or trackers ability to detect rhino spoor, whether it was fresh or old, and detect other signs of black rhino behavior. Therefore, a highly skilled and motivated tracking team was a prerequisite. Porters were employed to carry water during walks and other supplies and equipment when on extended, remote walks away from base camp.

Climatic conditions required the team to be cognizant of water availability especially in temperatures exceeding 40 deg C, especially in April and early May.

The location team would either walk from base camp or be driven to a preset location to begin a particular walk. Most walks started at 0630 to 0700 and ended at 1300 to 1500hrs. The duration of the walks were dependent on the terrain, weather conditions, including ambient temperature. Tracking wild animals is best carried out in the early hours of the morning when the sun is low and shadows present, with contrast enhanced. By midday tracking becomes more difficult and with high ambient temperatures the concentration of trackers begins to waver. The location team had a particular

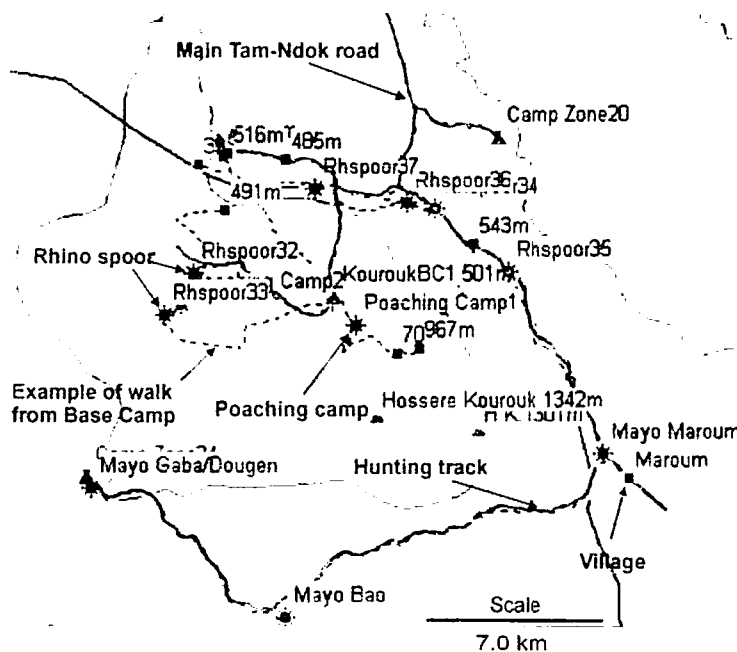


Figure 5: Example of map generated by Map Source[®] following down-loading of GPS track log data. Map of Hossere Kourouk area with hunting tracks and plots of several walks carried out in this area. Red circles represent rhino spoor located; orange circles represent unconfirmed spoor



hierarchy whilst walking with the trackers in front, followed by an armed Game Guard then the consultant. The rest of the team would follow, 50 meters behind the main group. In the case of walking down or up rivers, the team would split to either side of the river.

Each walk was track logged using a Garmin 12XL GPS with an external aerial, the track setup was on automatic for greater efficiency in recording a track walked. Each track log was transferred to a Garmin software program, Map Source® on a Toshiba laptop where it was plotted in both Lat/Lon hddd° mm' ss.s" and Lat/Lon hddd dddd° (see Figure 5). GPS waypoints, separate from the track logs, were imported and overlaid on the track log plots. Each file was also exported as a text delimited file into Microsoft Excel® for further plotting in a GIS program. Due to logistical and time constraints walks were not plotted onto maps for this report.

The following were searched for to indicate rhino presence:

1. Rhino spoor, which was immediately aged and then assessed for measurements. Spoor was classified according to four criteria:

- Fresh (within 12-24 hours),
- Recent (within 1 month),
- This Season (2001), and
- Last Season (2000).



Only fresh spoor would be tracked, although the trackers believed under certain conditions that 3 day old spoor could be followed; this was dependent on rainfall, the presence of other large mammals such as buffalo and elephant, and the terrain,

2. Evidence of feeding or browsing,

3. Any rhino dung or urine,

4. Areas used by rhino for resting and areas used by rhino for rubbing such as trees.



Location of rhino spoor and other signs was immediately recorded on a Garmin 12XL GPS and notes taken in an all weather line rule spiral notebook (*Rite in the Rain*, J.L. Darling Corporation, Tacoma, Washinton 98424-1017, USA). This notebook was essential to data recording and could be used under all environmental conditions including fording rivers without loss of data. Other points recorded included water (rivers or mayos, streams, pools, springs, mud-wallows and salines. A saline was a salt/mineral lick with or without water, usually a spring or seep), other animal species, poaching camps and other evidence of illegal hunting activities, interesting vegetation including good rhino habitat, thickets and high density of *Acacia* sp., and elevations (in meters). If considered appropriate digital photographs were taken of rhino spoor and other interesting features encountered. Photographs of rhinos spoor were problematic due to poor definition in many instances, including the adverse effects of rain.

Digital photographs were taken of areas worked to illustrate terrain and vegetation; several photographs were taken of each area and these were "stitched" together using Corel Photopaint® and are presented as composite pictures (see Annex 3, Figures 20-23).

4. RESULTS

4.1 Preamble and Summary

Success in tracking rhino to sight and then obtaining photo-identification was dependent on locating fresh rhino spoor or sighting an individual rhino by chance during early morning by vehicle or whilst walking. Locating fresh spoor was a task allocated to the *pitseurs* or trackers employed by the team. Rhino spoor (Figure 7) is unique in its presentation and the black rhinoceros is a Pterisodactylid or three-toed mammal. Therefore, the spoor presents with 3 nail impressions as the main feature; front spoor is often larger than hind foot spoor due to the extra weight bearing experienced by the front leg.



Figure 6: Hippo spoor in a river bed with features that may result in confusion with rhino spoor. In this instance loss of definition between toes two and three gives the impression of a single front nail. Following this spoor will confirm the presence of 4 toes. Hippo spoor tends to be 3-4 cm longer than an average adult rhino spoor (28cm versus 24cm)

Figure 7 : Rhino spoor, note prominent front nail and impressions of side nails, clearer on the right side than left

Confusion can occur with hippo spoor (Figure 6) but a good rhino *pisteur* will have no difficulty in distinguishing spoor between these mammals.

During the period 12th April to 6th July 2001, the team walked for 266 hours (Average 6:03:03 per day, max=8:40:36, min=3:29:24) covering a distance of 603.26 km (Average per day=13.7 km, max=25.6, min=7.2) (Annex 2, Table 2). Forty four walks were conducted over this period covering very varied terrain and through various climatic conditions from heat to heavy rainfall. The maximum elevation climbed was 1650m and this represented the highest mountain in the area, Hossere Mbansi (see Figures 1 and 20).

Despite extensive coverage of the two main rhino range areas and between these areas, no fresh spoor was located in 3 months of work; the freshest spoor was 3 days old (varying between 3 days and 30+ days old). Spoor detection became increasingly difficult as work progressed due to the onset of the rains in May and with increasing frequency and intensity into July. On seven occasions recent signs of browsing were detected but, in general, despite the distance walked and areas covered, the location and identification project was characterized by a lack of rhino behavioral signs including the presence of dung. This is in marked contrast to the author's experiences in Zimbabwe during the dehorning program in the 1990s. Due to the pressures of illegal hunting, a dehorning program was approved by the wildlife authorities in 1992. The program's goal was to dehorn all black rhino in Zimbabwe in an attempt to deter poachers. Methods used to locate rhino involved ground based tracking with fixed-wing and helicopter support; the ground based work was very similar to that conducted in northern Cameroon in 2001. Despite low numbers of black rhino in certain areas in Zimbabwe, no problems were experienced in detecting rhino presence through spoor, browsing and dung scrapes. The difference in northern Cameroon may be due to the following:

- Very low black rhino numbers in a large wilderness area of >3000 km²,
- Very difficult terrain for tracking with poor definition of rhino spoor on uneven ground,
- Progressively more frequent rainfall, both in intensity and duration, washing away spoor,
- Rapidly growing vegetation, especially bunch grasses, making spoor detection problematic,
- Questionable quality of the trackers employed. As no fresh spoor was detected, the ability of the *pisteurs* was not tested to the extreme but there were a number of occasions when the author was disappointed with the trackers *modus operandi* and inability to distinguish hippo spoor from rhino spoor.



The presence of rhino in the rhino range areas has been confirmed in 2000/2001 by physical sightings. In the last week of June, an adult rhino was seen by a *pisteur* from HZ2 crossing a road in the Hossere Makat rhino range area close to the Old Bandjoukri village; this was confirmed by a WWF team and the project team in the form of fresh to recent spoor, browse signs and a series of tree rubbing posts in good rhino habitat. An unconfirmed sighting of an adult rhino was made by a road team and *pisteur* from HZ25 in January 2001, in the region of Old Doukia village and Hossere Bandoume. The team received several unconfirmed sightings of rhino spoor in the Hossere Kourouk and south of Hossere Kotape in November 2000 and May 2001; the notable aspect of these was the presence of a group of three animals (two adults and one sub-adult) in both the November 2000 spoor and May 2001 spoor possibly indicating the same animals.

In terms of information from professional hunters and their staff, there were major discrepancies related to hunters comments that no rhino had been detected in their zones for several years, to credible information from hunting zone *pisteurs* of rhino spoor and sightings, to confirmation by the project team of recent rhino presence in hunting zones. This reflects the lack of consensus building between the various stakeholders in the rhino range areas, a lack of communication between hunters and their field staff (unintentional or intentional) and ignorance by the hunters of the potential value of black rhino within their hunting zones in terms of the sustainability of their operations. What is clear, though, is that rhino numbers have declined and rhino sign are no longer seen in many areas. Many *pisteurs* were able to show the project team the location of the last rhino sighting they made in their hunting zones; for example, the last sighting in HZ20 was made in 1996/1997 by a *pisteur* who had worked in HZ20 for 45 years. The following sections (Sections 4.2, 4.3, 4.4 and 4.5, also see Annex 3) will present details of the areas worked and summarize the findings in terms of rhino presence. Section 4.6 will summarize the findings in terms of illegal hunting activities.

4.2 Hossere Makat and Hossere Mbansi, including hunting zones 2, 3 and 26

The Makat rhino range area (MRRRA) (Figure 8 and Annex 3, Figure 20) lies south of Benoue National Park (BNP) in HZ 2, 3 and 26; the size of the area is approximately 370 km² (Brett 1998). The MRRRA is defined by the Mayo Kout to the north west, west, and south west, the Mayo Luo to the east, the Mbansi escarpment to the south and the Doudja-Mbao-Tchollire road to the north and north west. Figure 20 demonstrates the main geographical features and limits of the MRRRA as viewed from the north west corner of the Mbansi escarpment at approximately 1500m (N7 56 59.6, E13 59 05.9). Brett (1998) describes the distribution limits to this rhino range to be reasonably clear; work carried out in 2001 does not support this with evidence of rhino outside of the accepted rhino range boundaries. In 1998 there was evidence of at least 4 animals in the MRRRA with at least one adult breeding female (Brett 1998; Planton, unpublished); it is not clear as to how rhino numbers and the sex of one animal was determined. The MRRRA habitat is a mix of mature *Terminalia* and *Isobertinia* woodland (see Figures 9 and 10) with richer riverine thickets along seasonal rivers including the Mayo Kout, Luo and Kohn. Most

good rhino habitat is patchy but a number of dense thickets of *Acacia ataxacantha*, *A. Polycantha* and *Mimosa pigra* occur outside of the MRRRA boundaries and are not associated with rivers; these thickets occur on hillsides. Numerous salines, springs, permanent and seasonal pools occur throughout the area; water is not a limiting factor for rhino in northern Cameroon.

During the months of April, May and July 2001 the project team operated from 4 base camps within the MRRRA; all base camps were located within or on the boundaries of the MRRRA (Figure 20). Twenty four walks were conducted in the MRRRA over a period of 136 hours covering 298.5km; four of these walks were outside the boundaries of the MRRRA and these followed the Mayo Luo towards its source in the Mbansi plateau. Three walks were conducted onto the Mbansi plateau (1650m) and two to the south of the Mayo Kout as it begins to enter the Mbansi escarpment, these walks may lie outside the accepted MRRRA boundaries; the total area covered by the team was approximately 700 sq km. Table 2, Annex 2 provides a summary of walks conducted and whether rhino spoor was detected on any particular walk; Table 3, Annex 4 provides a summary of all confirmed rhino spoor with details on age and whether browsing was present.



Figure 9: Broad-leaved woodland and wooded savanna dominated by *Terminalia macropetra*, *Burkea africana* and *Isoberlinia doka*. *Terminalia macropetra* illustrated here.



Figure 10: Broad-leaved woodland and wooded savanna. *Isoberlinia doka* illustrated here.

Spoor was also detected by a small team operating out of Doudja in late May, whilst the project team was working in the Hossere Kotape area. Spoor of two animals, one large spoor that was recent and a smaller set of spoor that was 24 hours old were documented; these were not confirmed by the team leader but the findings are consistent with those previously documented. The smaller spoor was separated by a distance of 14 km from a similar sized spoor seen in late April, north of Hossere Makat.

Finally, several sets of spoor (Rhino spoor 24-29) were located along the Mayo Luo, east of Hossere Mbansi in late April. One of the *pisteurs* made the comment that he knew of 5 rhino that lived in this valley (which is out of the accepted MRRA) in 1997; these spoor were classified as recent.

4.3 Hossere Kourouk, including hunting zones 20 and 25

The Hossere Kourouk area (HKoA) is not included within the Hossere Kotape rhino range area (KotRRA) as defined by Brett (1998). This area covers approximately 138 sq km and is dominated by a large mountain (Hossere Kourouk, 1325m) to the north (Figure 8 and Annex 3, Figure 21). A number of rivers drain from the mountain to the Mayo Gaba in the north; these rivers have some excellent rhino habitat. The area lies to the immediate west of the Tam-Ndok road that runs north-south and is within the western boundary of HZ20 and the south east corner of HZ25.



Figure 11: Rhino spoor 37, one of the clearest spoor found and only 4-5 days old

The area was searched due to some intelligence reports of rhino presence and good rhino habitat. One base camp was established close to the Mayo Djimket, six kilometers north of Hos. Kourouk. A total of five walks were conducted in this area covering 68.8 km in 34 hours. Two sets of rhino spoor were located, with Rhino spoor 37 (Figure 11) one of the most recent in terms of age and well defined. Unfortunately, it could not be followed due to disturbance by buffalo and elephant. The other spoor



Figure 12: Excellent rhino habitat along the Mayo Djimket close to Hossere Kourouk, with *Acacia* thickets in gallery forest, springs and mud wallows



was recent and related to the unconfirmed sighting of 3 sets of recent spoor crossing the Tam-Ndok road on the 5/05/2001 (see Table 5, Annex 5). Other sets of spoor from last season (2000) were seen to the west of the Hos. Kourouk area towards the Mayo Gaba. Despite the presence of some excellent rhino habitat, relatively little rhino sign was detected but there had been heavy rainfall prior to the teams arrival in this area in late May. A dry period from 22/05 to 28/05 allowed the team to detect some recent rhino spoor as indicated above.

It is clear that there are 2 rhino moving through this area (spoor seen indicating a large and smaller animal) with the possibility of 2 other animals. Movement seems to be in a south-east to north-west direction.

4.4 Hossere Kotape and Hossere Kombemeri, including hunting zones 12 and 20

The Hossere Kotape rhino range area (KotRRA) as defined by Brett (1998) occupies an area of 380 sq km and encompasses hunting zones 12 and 20 (see Annex 3, Figure 22). The area is defined by the Mayo Rey to the north, the Tam-Ndok road to the west, the southern boundary of HZ20 to the south, including the Mayo Maroum, and a boundary south to north in the middle third of HZ12; again it is not clear as to how these boundaries were determined. The KotRRA had been determined as one of two areas with a breeding group of rhino. Surveys were carried out in 1996 and 1997 (Walter, 1996 and 1997) and the findings were considered promising. The area has suffered from significant security problems in the past with armed banditry present. Numerous sightings were made in 1996 and 1997 of groups of rhino (Brett, 1998); as of April 2001 the KotRRA was still a high priority for WWF and MINEF.

Six walks were conducted in the KotRRA covering 90.2 km in just over 39 hours. The walks were conducted around the two main mountains, Hossere Kombemeri and Hos. Kotape, and along two rivers, the Mayo Noudel and Kotape. The KotRRA area had many areas of good to excellent rhino habitat with several *Acacia* thickets, extensive gallery forest, numerous salines and mudwallows; several areas of groves of *Gardenia aqualla* were noted. No rhino spoor was located from either 2001 or 2000 in this rhino range area nor were any other signs of rhino presence detected. Of particular note was the level of illegal hunting in this area (see 4.7 Details of Illegal Hunting Activities for All Areas).

Although presence of black rhino was confirmed outside the boundaries of the KotRRA, it is unlikely that any rhino remain within the boundaries. It is possible that animals within the KotRRA have moved out due to the severe illegal hunting pressures in this area or some have been poached since 1996/1997.

4.5 Hossere Agba and Ndakara, Mayo Kotape and Maroum in Hunting Zone 17

Hossere Agba lies to the east of the Mayo Kotape, south of the KotRRA and in hunting zone 17; Hos. Ndakara lies further south and forms the edge of the Adamoua plateau which stretches east to west across northern Cameroon. Three rivers flow to the north in this area, the Mayo Kotape, Mayo Noudel and Mayo Maroum. The Agba area is approximately 300 sq km and is bounded to the north by the boundary of HZ20, to the south and east by the Adamoua plateau and to the west by the Mayo Maroum and Tam-Ndok road.

This area is outside the accepted Kotape rhino range area defined by Brett (1998); it was explored due to intelligence reports of rhino presence. A base camp was established at the HZ17 hunting camp on the Mayo Noudel. Four walks were conducted from this base camp covering 59.7 km in 27 hours and one extended vehicle trip covering 43.5 km. The vehicle trip explored several salines and springs for rhino presence; good rhino habitat was seen in several locations especially close to the escarpment of the Adamoua plateau. The walks were conducted along the base of the escarp-



Figure 13: Hos. Agba area looking to the west with Hos. Kourouk in the distance (to the right of the picture). The Adamoua plateau lies to the south (to the left of the picture)



ment and along several of the rivers. One set of rhino spoor was located, (Rhino spoor 39, large adult spoor) but had been badly effected by rain; it was recent with evidence of browsing on an *A. polycantha* and a shooting *K. africana*. Rhino spoor 38 was unconfirmed spoor related to November 2000; the *pisteur* for HZ17 had detected a set of spoor from 3 animals, two adult and one sub-adult/calf (Annex 5, Table 5). The area was visited and the sighting had been along a game trail through very good rhino habitat. There was speculation that this spoor might be related to rhino spoor 34 seen on the Tam-Ndok road in May 2001.

Villagers and *pisteurs* from Maroum confirmed that this area, historically, had several rhino. But, as in the KotRRA, several poaching camps and cable snares were discovered (see 4.7 Details of Illegal Hunting Activities for All Areas).

4.6 Mayo Dougen, Hossere Gourbo, Mayo Oldiri, Old Doukia and Hossere Leme, including hunting zones 24, 25 and 26

Due to the presence of rhino outside of the rhino range area boundaries it was considered that there may well be movement of rhino between the two main areas, namely MRRA and KotRRA. Intelligence reports had indicated the sighting of rhino and detection of spoor within HZ25. A walk was, therefore, carried out between the two rhino range areas passing through HZs 24, 25 and 26.

This walk began on the Tam-Ndok road close to the eastern side of Hossere Kourouk and followed the Mayo Dougen to HZ24 hunting camp on the Mayo Gaba. It continued to the south of Hossere Ndongon towards Hos. Gourbo and then north west to the Mayo Oldiri; from the Mayo Oldiri the team walked in a north easterly direction over Hossere Boudeme, to the site of the Old Doukia village. We then turned west, walking over the Hos. Leme (Figure 14 and see Annex 3, Figure 23), crossing the Mayo Oldiri and

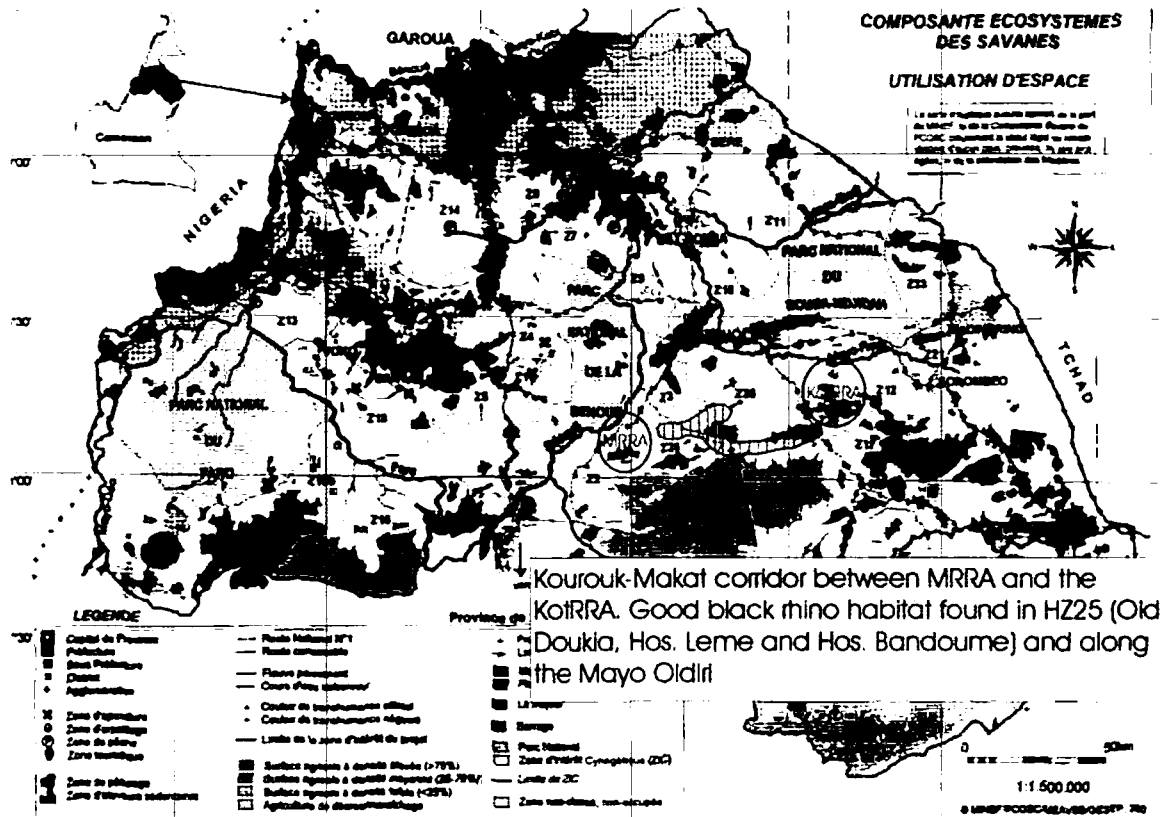


Figure 14: Kourouk-Makat corridor extending between MRRA and KotRRA. This area was walked over a period of 5 days following the Mayo Dougen to HZ24 hunting camp, then to the Mayo Oldiri and areas south of Hos. Bandoume and Hos. Malougou, then to HZ26 hunting camp on the Mayo Luo. Several areas of good rhino habitat were seen, with an unconfirmed report of a rhino sighting in January 2001 near the Old Doukia village



finishing at HZ26 hunting camp. The walk covered 5 days and 86 km and covered vary varied terrain. No fresh or recent rhino spoor or signs were found but the Old Doukia village area had good rhino habitat. In January of 2001, the *pisteur* (HZ25) who accompanied us on this walk had seen a rhino in this area and confirmed this by spoor. The team did not have time to explore some of these areas in detail but further good rhino habitat was found on Hos. Leme and excellent habitat along the banks of the Mayo Oldiri. It was clear that significant rainfall had fallen along the route walked with the likelihood of any recent spoor being washed away or modified significantly. The corridor between MRRA and KotRRA needs further exploration especially to the south and southwest.

4.7 Details of Illegal Hunting Activities for All Areas

In the initial phases of this project, five poaching camps were located in the MRRA, of which 4 were for meat smoking and drying from large mammals. These were located in remote areas of the upper Mayo Kout and on the Mbansi plateau; this caused concern amongst the team as the majority were recent i.e. in 2001. This was reported in a progress report (Kock, 2001) but during the subsequent months in the Kourouk, KotRRA and Hos. Agba areas, over thirty nine poaching camps or illegal activity were discovered (Figures 15a and b, 16 and 17). These were classified as follows:

Description of camp or activity	Number*	Comments
Active poaching camp,	1	Physical evidence of illegal activities
Poachers, physically apprehended,	2	Live poachers
Fish and small mammal poaching	1	Small racks with evidence of hoofs etc.
Fish poaching	10	Small racks, may also be for sm.mam.
Large mammal poaching (without a shelter),	22	Large racks
Large mammal poaching (with a shelter),	4	Large racks with well constructed shelter
Traditional snares	8	Cable snare plus log
Multiple snares around saline	1	Seven snares located around 1 saline
Traditional snare plus poached animal	1	Cable snare plus dead animal
This season	34	TS=Poaching camp or activity since the
Last season	10	beginning of 2001; LS=2000

*Number of incidences, or camps or illegal activities detected. For example, 2 live poaching activities were detected, including the apprehension of 2 poachers, one armed as one incidence

A summary of all poaching camps and illegal activities is given in Table 1. The situation in the KotRRA was the most worrying aspect of this rhino location project, with no rhino sign detected in an area which



Figure 15a : Poaching camp along the Mayo Maroum, large meat rack and a well constructed shelter indicating that this camp had been semi-permanent for a period. It was established in 2001 according to the *pisteurs* and MINEF game guard



Figure 15b : Burning of poachers camp by a MINEF game guard

had a number of confirmed sightings in 1996/1997, the illegal activity was literally out of control. On one section of the Mayo Kotape just north of Hos. Kotape, the team found five poaching camps, two of which were active or very recently active (i.e. people apprehended or ashes of fire warm) and apprehended



Table 1: Summary of poaching camps and other illegal activities located within the MRRA, KotRRA, Hos. Kourouk, Hos. Agba and the MRRA/KotRRA corridor in April, May and June, 2001

Date	GPS Reading	Area	Comments	Time
23/04/2001	N7 58 59.8 E13 57 20.2	Makat	Poached hartebeest captured in cable snare. very recent	TS
11/05/2001	N7 56 47.7 E13 55 11.1	Makat	Racks for fishing upper Mayo Kout, near the Mbansi escarpment	LS
11/05/2001	N7 57 52.4 E13 53 57.5	Makat	Large racks (for large mammals), Mayo Kout in hills west of Mbansi	TS
11/05/2001	N7 57 46.2 E13 54 45.3	Makat	Large racks plus lean-to shelter, Mayo Kout near to base camp 3	TS
11/05/2001	N7 56 45.7 E14 00 20.4	Makat	Mbansi plateau. near thick riverine vegetation, well hidden	TS
15/05/2001	N7 58 05.2 E13 54 13.0	Makat	Racks for fishing near upper Mayo Kout	TS
22/05/2001	N8 07 02.0 E14 28 58.7	Kourouk	Mayo Djintere close to H. Kourouk. excellent rhino habitat	TS
23/05/2001	N8 07 33.7 E14 24 42.8	Kourouk	M. Djoum, tributary of M. Gaba. large racks	TS
08/06/2001	N8 13 44.3 E14 38 59.0	Kotape	M. Kotape close to H. Kotape. close to large area of gallery forest	TS
09/06/2001	N8 16 21.4 E14 35 31.2	Kotape	Old racks along M. Kotape	LS
09/06/2001	N8 16 29.6 E14 35 39.5	Kotape	Active poaching camp with 4 people fish and small mammals	TS
09/06/2001	N8 16 35.3 E14 35 36.7	Kotape	Racks for fishing plus ashes, M. Kotape	TS
09/06/2001	N8 16 47.4 E14 37 10.5	Kotape	Apprehended 2 poachers, one armed with a 12 gauge	!!!
09/06/2001	N8 16 43.7 E14 35 36.6	Kotape	Large racks plus warm fire recently left or abandoned	TS
11/06/2001	N8 16 43.5 E14 35 37.0	Kotape	Large rack near west end of H. Kombemeri	TS
12/06/2001	N8 11 55.4 E14 38 57.7	Kotape	Mayo Kotape south, large rack	LS
12/06/2001	N8 14 10.1 E14 33 57.2	Kotape	Mayo Kotape south, large racks	TS
12/06/2001	N8 11 04.5 E14 39 18.5	Kotape	Fish poachers, small racks	TS
12/06/2001	N8 11 43.4 E14 39 11.7	Kotape	Large racks, Mayo Kotape south towards Adamaou plateau	TS
12/06/2001	N8 11 22.5 E14 39 17.7	Kotape	Large racks, Mayo Kotape south	TS
13/06/2001	N8 09 23.6 E14 31 51.1	Kotape	Fish poachers, small rack	LS
13/06/2001	N8 12 23.1 E14 32 19.9	Kotape	Large racks near Mayo Noudel, HZ20HC	TS
16/06/2001	N8 07 15.9 E14 39 40.5	Kotape	7 cable snares, traditional around 1 saline	TS
16/06/2001	N8 05 55.3 E14 40 21.1	Kotape	Large rack from earlier this season	TS
16/06/2001	N8 03 40.3 E14 45 43.3	Kotape	Large rack near saline, H. Agba and upper Mayo Kotape area	LS
17/06/2001	N8 01 27.9 E14 46 46.9	Kotape	Large racks	TS
17/06/2001	N8 02 32.5 E14 45 52.9	Kotape	Large racks, recent probably April 2001. Buffalo skull located	TS
18/06/2001	N8 07 35.2 E14 33 48.0	Kotape	Evidence of snare, no wire just log along Mayo Maroum	TS
18/06/2001	N8 07 46.5 E14 34 19.5	Kotape	Fish poachers, small rack along Mayo Maroum	TS
18/06/2001	N8 05 45.3 E14 34 19.0	Kotape	Large rack along Mayo Maroum	TS
18/06/2001	N8 07 41.0 E14 34 25.6	Kotape	Evidence of snare, no wire just log along game path. Mayo Maroum	LS
18/06/2001	N8 07 16.0 E14 36 13.2	Kotape	Evidence of snare, no wire just log along game path, Mayo Maroum	LS
18/06/2001	N8 06 54.1 E14 37 32.3	Kotape	Fish poachers, small rack along Mayo Maroum	TS
18/06/2001	N8 07 03.4 E14 36 56.9	Kotape	Snare specifically for leopard, log no wire along Mayo Maroum	TS
18/06/2001	N8 06 53.6 E14 37 39.8	Kotape	One cable snare, traditional close to M. Maroum along game trail	TS
18/06/2001	N8 05 44.1 E14 39 07.0	Kotape	Shelter plus large rack near Mayo Maroum, well constructed	TS
18/06/2001	N8 06 55.6 E14 36 53.3	Kotape	Large rack plus 3 traditional wire snares found in camp	TS
18/06/2001	N8 06 53.5 E14 37 17.7	Kotape	Fish poachers, small rack	TS
18/06/2001	N8 06 31.3 E14 37 56.8	Kotape	Fish poachers, small rack	TS
20/06/2001	N8 05 24.3 E14 44 32.8	Kotape	Fish poachers, small rack along Mayo Kotape north of H. Agba	TS
20/06/2001	N8 05 41.5 E14 43 18.7	Kotape	Shelter plus large rack along M. Kotape north of H. Agba	LS
20/06/2001	N8 05 38.6 E14 43 12.8	Kotape	Large rack along Mayo Kotape near H. Agba	LS
25/06/2001	N8 04 37.5 E14 14 22.9	Makat/Kot	Large rack	TS
26/06/2001	N8 08 54.5 E14 13 15.0	Makat/Kot	Shelter plus large rack	LS

Key: Last season=LS (2000); This season=TS (2001)



Figure 16: An active fish and small mammal poaching camp on the Mayo Kotape



Figure 17: Traditional cable snares; seven were found around one saline in the Hos. Agba area



two poachers on the east side of Hos. Kotape, one of whom was armed with a modified 12 gauge shotgun. These individuals had two cartridges, one of bird shot, the other a modified cartridge with a heavy lead ball embedded in the front; this was capable of killing a buffalo or rhino.

The extent of illegal activity within the prime rhino range areas was of considerable concern to the location team and there appeared to be little deterrent in the form of anti-poaching operations either by MINEF or the hunting zone staff. The latter do carry-out anti-poaching activities during the off season but to a limited extent; these activities appear to be ineffective.

5. CONCLUSIONS

5.1 Difficulties and Constraints Experienced

Some of the earlier difficulties and constraints were outlined in the progress report for this consultancy (Kock, 2001). The TORs for this consultancy required the location and photo identification of individual black rhino within rhino ranges in northern Cameroon; these TORs were unlikely to be fulfilled under the current conditions within the rhino ranges due to a number of factors. The prime difficulty was the finding of fresh rhino sign in the form of spoor; tracking to obtain photo identification requires spoor that is less than 12-24 hours old. The team walked over 600km and covered all likely areas in terms of rhino presence. To reiterate, the absence of fresh signs and spoor could be due to a number of factors including:

1. Low rhino numbers in an area covering over 3000 km²,
2. Marginal rhino habitat with good to excellent habitat forming small islands within the broad leaved and wooded savanna. This means rhinos are continuously on the move. They would, therefore, move long distances through these habitat areas to satisfy nutritional requirements,
3. Lack of any territorial behavior due to low rhino numbers.

It is likely that the team, as single unit, was unable to catch-up to rhino as they moved through the rhino range areas and discovery of fresh spoor or a rhino sighting would be by chance alone. This was amply demonstrated by the sighting of a rhino by a tracker from HZ2 crossing the Doudja-Tchollire road in late June, 2001. Additional factors that made fulfillment of TORs difficult include:

1. Extremely difficult terrain for tracking and spoor identification,
2. The onset of the rains in early May, with increasing frequency and duration through to July,
3. Rapid growth of vegetation through June and into July,
4. Lack of aggressive tracking by many of the *pisteurs* or trackers employed and lack of experience in reading rhino signs.

Annex 2, Table 2 demonstrates the effects of the onset of the rains in terms of spoor location. In April several sets of recent spoor were located in the MRRA but from the onset of the rains, with the exception of some dry spells, fewer sets of spoor were located throughout the areas searched. In some instances, spoor was found but individual sets had been badly effected by rain and subsequent runoff. Retrospectively, of critical importance in this consultancy, are the difficulties of ensuring that the same animals, following identification, were not tracked twice or even a third time. With the difficult tracking terrain this would have been a severe constraint. The same issue surfaced in Zimbabwe during the dehorning campaign in the 1990s. Early on, trackers would often follow the same animal only to find it had already been dehorned. The dehorning team eventual developed a nail notching system, which under Zimbabwe tracking conditions, allowed the trackers to see a notch within a few hundred meters. This system is unlikely to work in northern Cameroon with the ground conditions experienced.

Section 5.2 gives an estimate of current rhino numbers in the areas worked in northern Cameroon but with the lack of fulfillment of TORs the issue of age and sex is still unresolved. The author of this report



believes that the "Cameroon Rhino Location & Identification Consultancy" needs to be modified significantly if further work is to be carried out on trying save and consolidate the remanent black rhino population in northern Cameroon (see 6. Recommendations).

5.2 Current estimates of black rhino numbers in Northern Cameroon

With the lack of monitoring of the prime rhino range areas from 1998 onwards, numbers of rhino were unknown at the beginning of this consultancy. Estimates in 1996-1997 gave an estimated number of 10 animals, with a probable eight others unconfirmed (Brett, 1998). In 1998 estimates were of 7 animals with 5 unconfirmed (Planton, 1999); based on experience gained during the 2001 consultancy, the author questions how the estimate of 8-10 animals was obtained. This is due to the difficulty of distinguishing spoor other than by size; it was not possible to distinguish spoor within a class size by appearance.

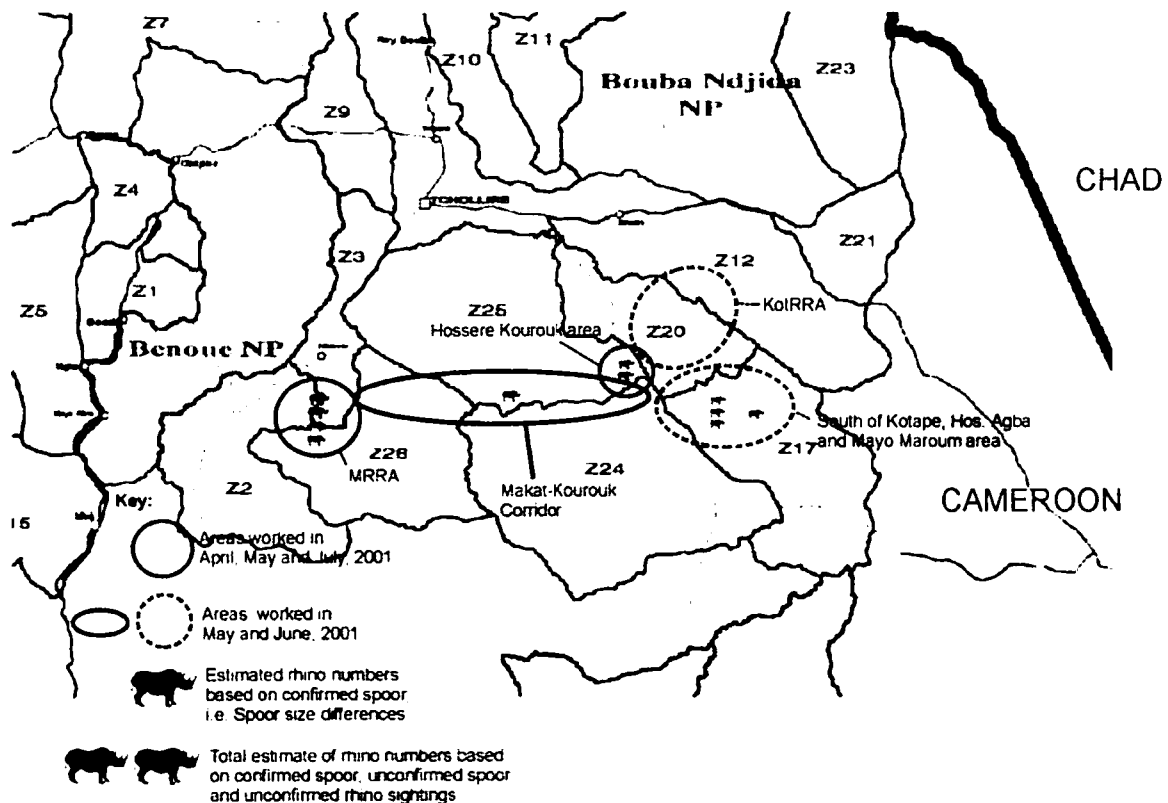


Figure 18: National Parks (NP) and Hunting Zones (Z) in northern Cameroon. Illustration of areas worked in April, May, June and July 2001. Estimates of possible rhino numbers are given for the areas worked based on recent spoor seen and spoor size, unconfirmed spoor and unconfirmed sightings.

Based on this and the examination of over 40 sets of spoor in the MRRA, Kourouk and Hos. Agba areas, it is only possible to estimate a total of 5 rhino in these areas and this number should be interpreted with caution. This is based on two size classes of spoor i.e. large 24-26cm; small 21-22.5cm. It is likely that there are more rhino present, particularly of the large spoor class (i.e. adult animals) but this would be pure guessing. Figure 18 gives a graphic representation of the estimated numbers of black rhino left in the areas searched by the team during April, May, June and July, 2001.

What is clear, despite the failure to resolve the issue of age and sex and despite continued pressure from illegal hunting, several rhino remain within the rhino ranges and outside of the accepted ranges.



6. RECOMMENDATIONS

There are a number of options open to the decision makers in deciding the future of the western subspecies of the black rhino in northern Cameroon based on the findings from this consultancy. It is clear that a *laissez faire* attitude, which may well have originated from the lack of consensus and team building amongst stakeholders and a singular approach by certain individuals, has prevailed throughout the last decade. This has resulted in the current precarious position of the western black rhino.

As recently as 1998, Brett sounded a warning in his report "Development of a recovery plan for the western black rhinoceros (*Diceros bicornis longipes*)" (WWF Cameroon programme office, Brett, 1998) and he stated that "It should be stressed that there is no fall-back position available should the proposed Rhino Project and effective protection for at least one key rhino group not be established by the end of 1998". He further states "The reality must be faced that unless there is strong motivation for rhino conservation within Cameroon, and political will at a level high enough to effect necessary changes within the operation of the government wildlife authority within the next two years, then *D.b.longipes* is certainly doomed" Three years down the road little seems to have changed and it is likely that the numbers of black rhino have continued to decline based on the work of this location and identification consultancy. *But despite this, there are still a number of black rhino remaining (possibly 5-8 animals) in the hunting zones of northern Cameroon.*

Therefore, the following are a number of recommendations that need to be considered by the decision

1. The pessimistic view would be to abandon any further work on these animals and leave them to their fate; if illegal hunting ceased the population would probably slowly grow, unless demographics prevented this. This would seem to be a reasonable option based on all the information to date, demonstrating a lack of implementation of various plans, recommendations, *continued absence of an effective law enforcement effort (which is critical)* and low rhino numbers.

Alternatively, if we assume that there are at least five animals left with the possibility of 3 or more, location and capture/marketing of these animals may produce the necessary five animals (Meeting report (MINEF, WWF, IUCN/AfRSG), 2000); Technical Mission, November 2000) of the correct sex and ages for a consolidation phase. Therefore, if the decision makers were reluctant to follow recommendation 1 and adopted a more optimistic view, the following would be recommended:

2. The author of this report believes that the the ultimate success or otherwise of any further work on locating black rhino will be dependent on improving communications in the rhino range areas. The acquisition of one or two mobile repeaters with a base station and four mobile radios would greatly enhance the team's ability to locate rhino. A repeater station could be established on H. Makat (970m) or H. Mbansi (1650m) and H. Kombemeri (752m) or H. Kourouk (1342m) in the rhino range areas. If at all possible, the consultant would recommend further work, with the key area of communications in place, be undertaken in January, February, March and April, 2002 with ground protection and monitoring of the Makat and Kourouk/Agba/Kotape areas through the rest of 2001.

Further field work, once a communications system is in place, should involve 2-3 mobile field units operating remotely from a base camp. A rapid reaction team would be on stand-by at base camp constantly monitoring and plotting the movements of the mobile teams. This would increase coverage and the chance of locating fresh spoor; once fresh spoor is located, the reaction team can respond immediately.

Components within recommendation 2 are critical to success, but it is unlikely to be sustainable if the programme is based on a location and photo identification as one phase, then capture and marking or capture and relocation as the next phase. This is due to the considerable difficulties experienced by the author in locating fresh spoor in 2001. Regardless of whether communications are improved and mobile teams deployed, the terrain and difficult tracking country will be a major obstacle to success.



Therefore, the author recommends that:

3. The idea of photo identification be abandoned in favour of a location, immobilization and marking phase. This would reduce the time required to identify and relocate animals, simplify logistics and reduce wear and tear on equipment and personnel. The marking of individual animals with radio-telemetry would eliminate the difficulties in identifying different sets of spoor and allow an accurate determination of numbers of animals and their ages/sex. This phase would not be easy but ultimately would allow an endpoint to be reached more rapidly and with greater accuracy.

If the phase of capture and relocation were ever to become a reality, based on the success (or otherwise) of a marking phase, then a number of considerations need to be taken into account. Under the current situation in northern Cameroon the only feasible way of ensuring a successful capture and relocation is to mark all animals with radio-telemetry; without this, time and logistics would preclude the use of helicopters and fixed-wing aircraft. Once animals are marked then a helicopter and fixed-wing could be deployed for a short period of 1-2 weeks. Capture of animals for relocation would involve darting from a helicopter and recovery either by a heavy lift helicopter to a crate or recovery by sledding to a crate using a 4 wheel drive truck such as a Uni-Mog. There are extensive networks of hunting tracks in the rhino areas which would allow access for recovery purposes. This would not be possible with all rhino and the nature of the terrain in certain areas would require a heavy-lift helicopter to be on stand-by.

Finally, if recommendation 3 were to be adopted the author recommends that the decision makers consider the construction of a rhino holding facility with pens and large outside yards in Benoue National Park. This facility would be designed to hold 5-8 black rhino for 1-2 years following their capture, soon after the completion of the marking phase. The consolidation of rhino in a facility of this nature would allow the development of a final sanctuary phase to be carried out in a more controlled manner. The presence of western black rhino in a holding facility is likely to impact on Government, NGOs and other donors more effectively; law enforcement would also be less problematic.

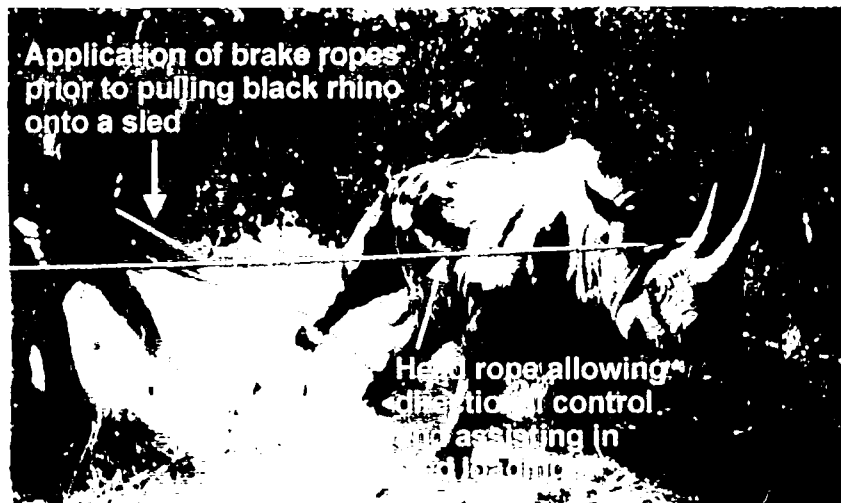


Figure 19: Example of walking a black rhino (*Diceros bicornis*) under etorphine to a sled prior to loading onto the back of a Uni-Mog. Capture operation carried out in Zimbabwe in the early 1990s in the Chete Safari Area near to Lake Kariba. Any operation in northern Cameroon would require experience in walking black rhino out of difficult terrain



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Further valuable advice and support were given by Dr Steve Osofosky, Dr Pete Morkel, Raoul du Toit and Dr Rob Brett.

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9. ANNEXES

ANNEX 1: TERMS OF REFERENCE

Cameroon Rhino Location & Identification Consultancy

Over a period of four months (from April 1st through July 31st, 2001), the Consultant will:

1. Lead the last survey effort to locate and identify the remaining Western black rhinos in the areas of Hossere Makat, Hossere Kotape, Mayo Vaimba and north of Boubandjidah National Park,
2. Using the help of paid local trackers and informants, track the individuals to sight and photograph each one to allow individual age and sex determination,
3. Provide a 2 monthly written update (May and June) on progress to Dr. Martin Tchamba (WWF Cameroon Program Office) for further transmission to the projects Technical Supervisor, Dr. Holly Dublin (WWF African Rhino Program Office); Dr. Martin Brooks (IUCN/SSC African Rhino Specialist Group); Mr. Denis Koulagna (MINEF) and Dr. Sue Mainka (for further distribution to agreed individuals within the IUCN network),
4. Provide clear and distinctive identification photographs (as and where possible using a digital camera or freeze-frame digital video) of each and every identified rhino to the Chair of the IUCN/SSC African Rhino Specialist Group for verification,
5. Provide detailed maps of the location of the remaining identified rhinos to the Chair of the IUCN/SSC African Rhino Specialist Group to use at his discretion to further the conservation of the species,
6. Upon identification, provide the approximate location of the remaining rhinos to allow the establishment of security coverage for these individuals in-situ for such time as it takes to determine the status of all remaining individuals and, if the minimum requirements are met, until they can be moved to a new sanctuary in Cameroon,
7. Produce a final, limited-distribution report¹ detailing the location and identification survey effort in its entirety, including:
 - a full description of the identified animals, their sex and approximate ages,
 - detailed maps of the locations of the remaining, identified animals,
 - a full description of the survey itinerary and locations searched (with geo-references of the boundaries of each of the areas searched),
 - details of the specific considerations for the marking or capture of each rhino identified to assist in future operations,
 - the names of valuable, skilled and trustworthy trackers and informants and their contact details,
 - a detailed accounting of the amounts paid, and to whom, for information leading to the location or identification of the remaining rhinos,
8. Provide an in-depth debriefing to the Chair of the IUCN/SSC African Rhino Specialist Group to allow a technical "go/no go" judgement regarding any further steps to protect and conserve the Western black rhinos in Cameroon.

¹ = distribution list:

¹Dr. Martin Brooks (IUCN/SSC African Rhino Specialist Group)

Mr. Denis Koulagna (MINEF)

Dr Holly Dublin (WWF African Rhino Program Office)

Dr. Martin Tchamba (WWF Cameroon Program Office)

Dr. Sue Mainka (for further distribution to agreed individuals within the IUCN network)



ANNEX 2, TABLE 2: SUMMARY OF ALL WALKS CARRIED OUT IN H. MAKAT, H. KOUROUK AND H. KOTAPE AREAS AND BETWEEN RHINO RANGES DURING APRIL, MAY, JUNE AND JULY, 2001.

Date and Day	Area walked	Time (Hr:min:sec)	Distance Walked	Rhino spoor	
APRIL					
12/04/2001 Thursday	Close to base camp (BC) 1, Hos. Makat	3:29:24	7.2	Yes	Period with no rain
13/04/2001 Friday	From BC 1 east, to old Mbaou village	4:22:30	9	Yes	
15/04/2001 Sunday	From BC 1 NW to M. Kuot, return SW	5:56:00	13.1	Yes	
16/04/2001 Monday	Base of Hos. Makat on north side	5:29:15	10.9	Yes	
17/04/2001 Tuesday	Over west portion of Makat, then NW	5:25:55	10.6	Yes	
18/04/2001 Wednesday	Valley west of Makat, M. Kohn then N	6:26:22	17.4	Yes	
20/04/2001 Friday	Walked Hos. Makat to summit	6:20:00	11.8	Yes	
22/04/2001 Sunday	Area east of Mbansi, long valley	6:13:44	11.2	Yes	
23/04/2001 Monday	Close to Mbansi escarpment	5:08:29	11.2	No	
24/04/2001 Tuesday	Edge of Mbansi towards the east	6:01:00	13.7	Yes	
25/04/2001 Wednesday	Mayo Luo towards source, Mbansi	5:51:29	15.4	No	Rain
MAY					
04/05/2001 Friday	North of H. Makat, Old Mbaou village	6:48:28	16.5	No	Rain, heavy at times
05/05/2001 Saturday	Base of H. Makat on north side, to east	6:29:11	13.65	Yes	
07/05/2001 Monday	Mayo Kout near Doudja, upstream	6:02:14	13.15	Yes	
08/05/2001 Tuesday	South side of H. Makat to east, M. Luo	6:19:36	16.3	No	
09/05/2001 Wednesday	Circular route close to HZ26 HC, M. Luo	4:53:29	13.7	No	
11/05/2001 Friday	Upper Mayo Kout, hills to the south	7:18:50	14.9	No	
12/05/2001 Saturday	North of BC3 then east to base of Mbansi	6:03:00	15.6	No	
14/05/2001 Monday	Climbed Mbansi escarpment from BC3	4:00:00	7.8	No	
15/05/2001 Tuesday	Walked the Mbansi plateau	5:45:00	10.5	No	
16/05/2001 Wednesday	Returned from Mbansi via M. Kuot source	5:00:00	10.2	No	
22/05/2001 Tuesday	From base camp K1 down M. Djimket	7:30:40	18.6	No	Dry period
23/05/2001 Wednesday	From BCK1 up M. Djimket to H. Kourouk	7:25:24	14.3	No	
24/05/2001 Thursday	Near M. Gaba, along M. Djoum, HZ25	6:26:18	13.8	Yes	
26/05/2001 Saturday	Tam-Ndok road, down M. Djintere	6:40:59	9.3	Yes	
28/05/2001 Monday	M. Djintere downstream, H. Hodak	6:08:03	12.8	No	Increasing frequency and intensity of storms
JUNE					
08/06/2001 Friday	From BCK2 down M Kotape, H. Kotape	7:38:49	14.6	No	
09/06/2001 Saturday	Continued down M. Kotape, circ. H. Kot.	7:03:54	16	No	
11/06/2001 Monday	Around Hos. Kombemeri SW of H. Kot.	8:40:36	22.7	No	
12/06/2001 Tuesday	From BCK2 to M. Kotape then upstream	6:11:02	15.4	No	
13/06/2001 Wednesday	Team walked M. Noudel from HZ24HC	5:16:31	10.8	No	
14/06/2001 Thursday	Team walked upstream M. Noudel	4:49:52	10.7	No	
17/06/2001 Saturday	Base of Hos. Ndakara, HZ17	6:03:38	10.3	Yes	
18/06/2001 Monday	T/Ndok road, M. Djinwake to M. Maroum	8:38:14	18.6	No	
20/06/2001 Wednesday	Saline nr. M.Gaba to M. Kotape, down R.	5:06:23	13.86	No	
20/06/2001 Wednesday	Saline to base of Ngassao Noum, M. Kot.	7:10:18	17	No	
23/06/2001 Saturday	T/Ndok road, west down M. Dougen	5:00:23	19.2	No	
24/06/2001 Sunday	M. Dougen, HC24HC then H. Gourbo	6:16:50	16.6	No	
25/06/2001 Monday	NE of H. Gourbo to Mayo Oldiri	5:03:00	12	No	
26/06/2001 Tuesday	M. Oldiri, H. Malougou, Old Doukia	5:19:23	12.6	No	
27/06/2001 Wednesday	Old Doukia, Hos. Leme, M. Oldiri, HC26	7:46:23	25.6	No	
JULY					
4/07/2001 Wednesday	Old Bandjoukri through Sopen habitat	05:04:33	7.5	Yes	
5/07/2001 Thursday	Old B. to M. Kout, M.Kohn to Doudja	07:14:09	20	No	
6/07/2001 Friday	Lasseri road thru' hills to Old Band.	04:14:59	7.2	No	
TOTALS		266:14:17	603.26	15/29	



ANNEX 3: PHOTOGRAPHS OF THE RHINO RANGE AREAS WORKED



Figure 20: Composite picture of the MRRRA seen from the north-west corner of the Mbansi escarpment at 1500m. The view looks northwards and is dominated by Hossere Makat (970m) situated to the right of the centre of the main picture. In 1998 there were estimated to be four rhino using this area (Brett, 1998 and Planton, unpublished) and one was thought to be a breeding female



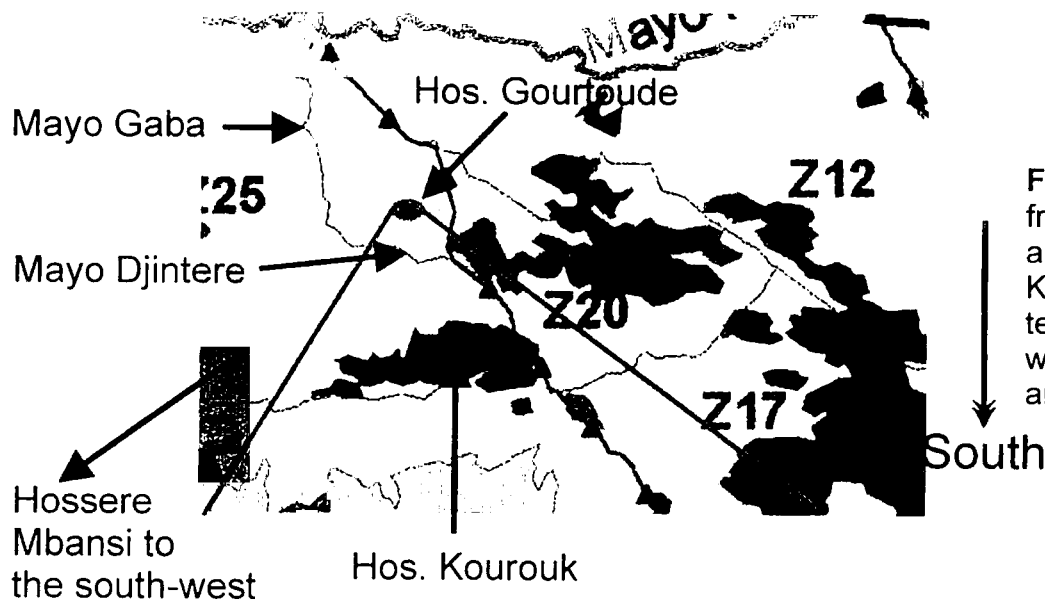


Figure 21: View of Hossere Kourouk taken from Hos. Gourfoude to the south. The area in the foreground and towards Hos. Kourouk is the area worked by the project team. Recent (3-5 day old) rhino spoor was found close to the Mayo Djintere in an area of good rhino habitat

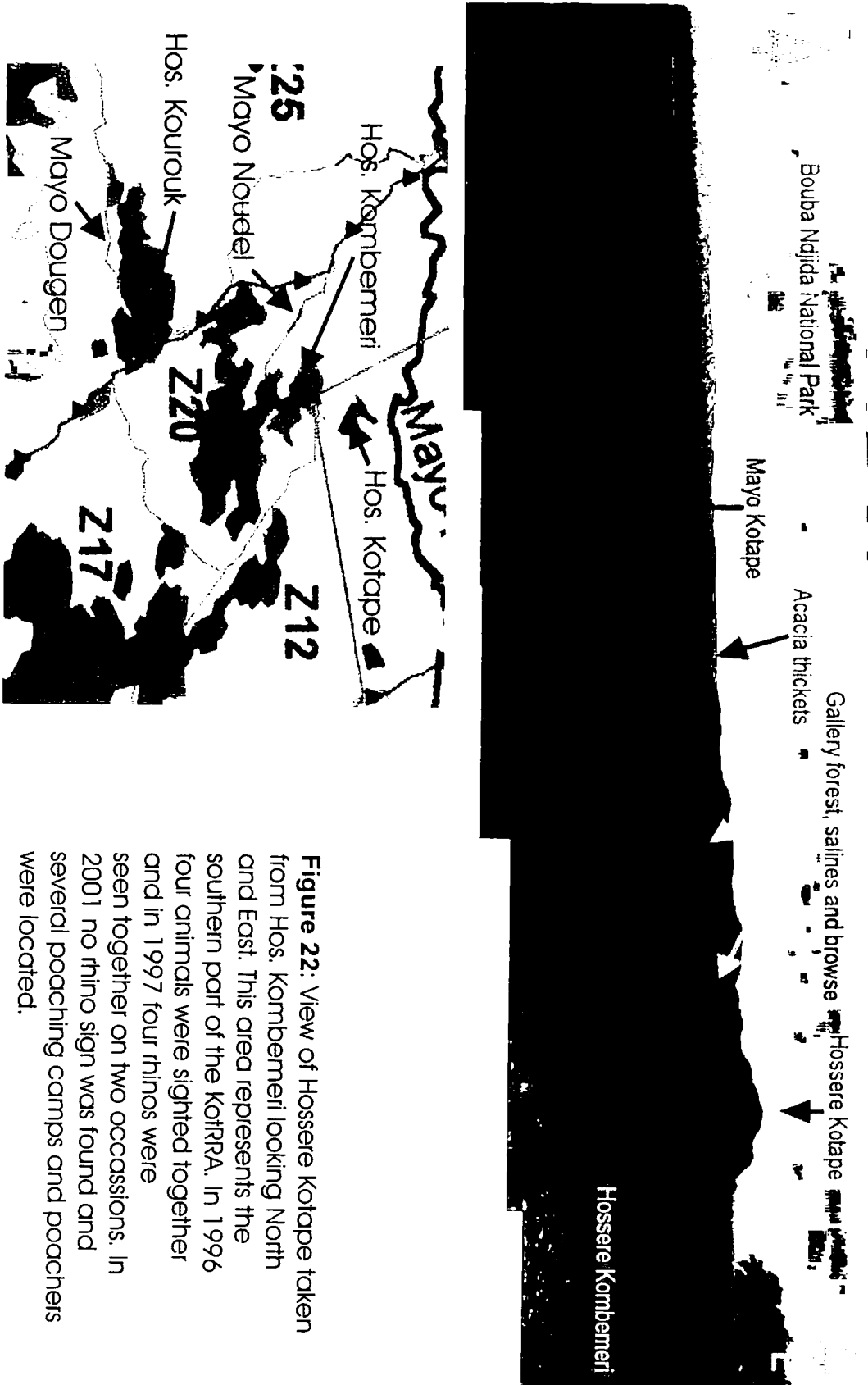


Figure 22: View of Hossere Kotape taken from Hos. Korbemeri looking North and East. This area represents the southern part of the KotRRA. In 1996 four animals were sighted together and in 1997 four rhinos were seen together on two occasions. In 2001 no rhino sign was found and several poaching camps and poachers were located.



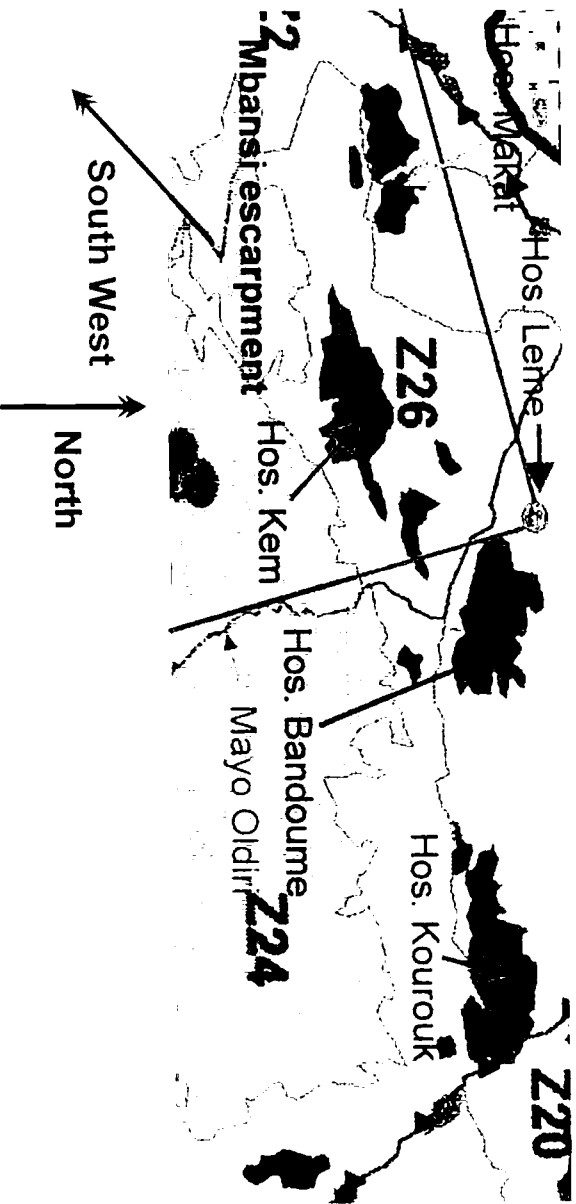
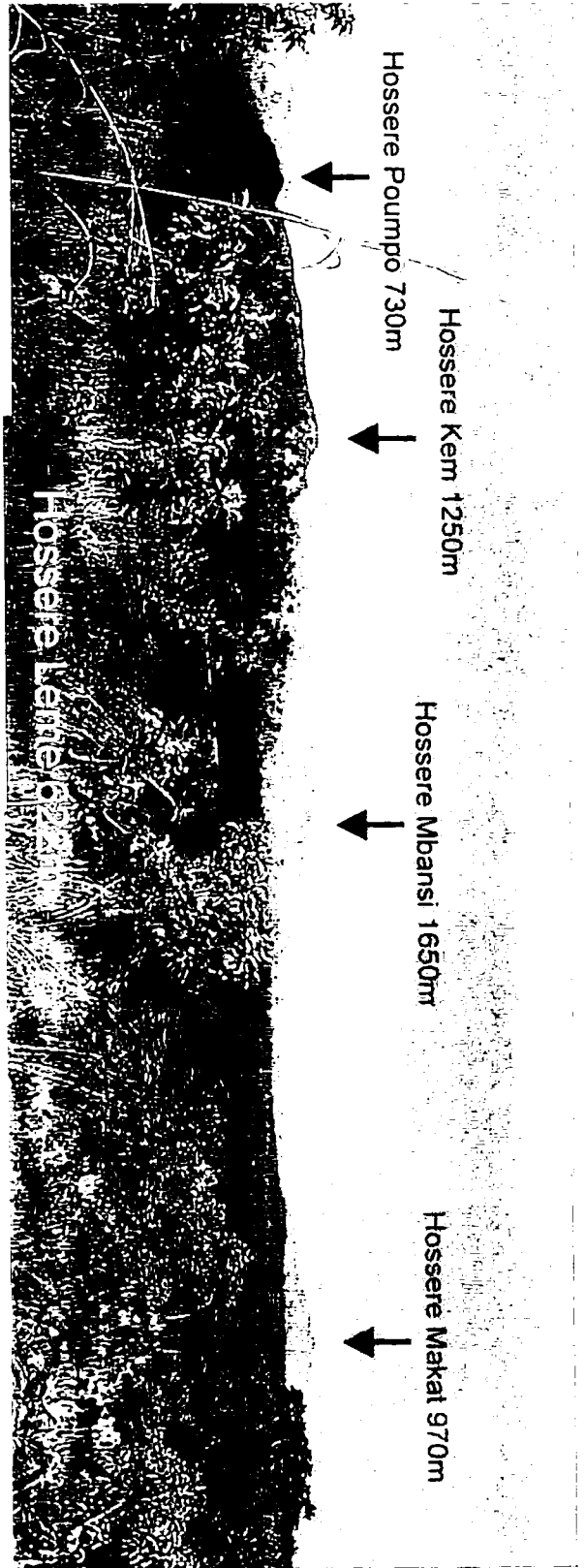


Figure 23: View from Hossere Leme in HZ 25 during a walk between the KotRRA and MRRA. View to the south west with Hossere Mbansi and Hos. Makat (26km) in the distance. Good rhino habitat located on Hos. Leme and to the east, towards Old Doukia village and Hos. Bandoume



ANNEX 4, TABLE 3 : SUMMARY OF ALL CONFIRMED RHINO SPOOR LOCATED DURING THE PERIOD APRIL 12TH TO JULY 6TH 2001 DURING THE WWF BLACK RHINO LOCATION AND IDENTIFICATION PROJECT

Date and Time	Spoor I.D.	Loc	Adult	S/adult	Age of spoor	GPS position	Comment
APRIL 2001							
01/04/12 06:45	RHSP1	MK	YES		LRS	N8 04 57.5 E13 58 45.0	
01/04/12 07:43	RHSP2	MK	YES		LRS	N8 05 25.0 E13 58 23.4	
01/04/12 08:00	RHSP3	MK	YES		R + BRol	N8 05 20.9 E13 58 20.8	Probably same animal
01/04/12 08:33	RHSP4	MK	YES		R + BRol	N8 04 46.0 E13 58 07.1	Probably same animal
01/04/12 09:24	RHSP5	MK	YES		R	N8 04 19.1 E13 58 08.8	3 days old, walking down road
01/04/13 06:31	RHSP6	MK	?			N8 04 14.3 E13 59 41.1	
01/04/13 06:51	RHSP7	MK	?		LRS	N8 04 12.4 E13 59 37.3	Most likely giraffe, some confusion
01/04/13 09:18	RHSP8	MK	YES		R + BR	N8 03 06.0 E14 00 11.5	Spoor seen close to browsing
01/04/13	RHSP8a	MK	?	Possible	LRS		Young animal, sub-adult ?
01/04/16 06:55	RHSP9	MK	YES		TS	N8 03 09.5 E13 58 18.3	Same animal?
01/04/16 07:02	RHSP10	MK	YES		R + BRol	N8 03 07.8 E13 58 19.6	Same animal?
01/04/16 08:17	RHSP11	MK	YES			N8 02 41.6 E13 58 31.9	Same animal?
01/04/16 10:19	RHSP12	MK	YES			N8 02 41.0 E13 59 41.4	Same animal?
01/04/16 10:35	RHSP13	MK	?YES	Possible	LRS	N8 02 45.2 E13 59 59.8	Different animal, younger
01/04/17 06:03	RHSP14	MK	YES		LRS	N8 03 46.6 E13 58 03.5	
01/04/17 07:13	RHSP15	MK	YES		TS	N8 03 04.8 E13 57 51.7	Same animal?
01/04/17 07:22	RHSP16	MK	YES		LRS	N8 03 02.7 E13 57 43.0	Same animal?
01/04/17 09:40	RHSP17	MK	YES		TS	N8 02 17.0 E13 57 00.3	
01/04/18 08:59	RHSP18	MK	YES		LRS	N8 01 21.6 E13 56 46.9	Not conclusive, pisteur unsure
01/04/20 08:07	RHSP19	MK	YES		LRS	N8 02 13.8 E13 58 00.2	Spoor on the summit of Hosere
01/04/20 09:06	RHSP20	MK	YES		LRS	N8 02 07.9 E13 58 29.8	Makat (L=25-26cm)
01/04/20 12:12	RHSP21	MK	YES		LRS?	N8 02 45.3 E14 00 49.7	
01/04/21 06:50	RHSP22	MK	YES	Possible	R	N8 04 13.8 E13 58 52.4	L=21cm Close to BC1, young animal
01/04/21 10:11	RHSP23	ML	YES		TS	N7 59 29.4 E14 01 53.1	Close to BC2, Mayo Luo
01/04/22 11:28	RHSP24	ML	YES		R	N7 56 14.8 E14 04 34.3	Probably same animal
01/04/22 11:30	RHSP25	ML	YES		R	N7 55 58.8 E14 04 15.5	Probably same animal
01/04/22 07:58	RHSP26	ML	YES		TS	N7 55 47.0 E14 03 55.9	
01/04/22 09:23	RHSP27	ML	YES		R	N7 54 59.8 E14 03 35.8	Probably same animal
01/04/22 10:21	RHSP28	ML	YES		R	N7 55 20.2 E14 04 01.7	Probably same animal
01/04/24 11:45	RHSP29	ML	YES		R	N7 59 02.1 E14 03 24.1	Spoor between rains this last week (L=26.5cm), same as RHSP27/28?
MAY 2001							
01/05/05 06:15	RHSP30	MK	YES		LRS	N8 04 06.8 E13 58 32.6	
01/05/07 06:14	RHSP31	MK	YES		LRS	N8 05 46.4 E13 56 12.4	
01/05/24 06:19	RHSP32	HK	YES		LRS	N8 08 16.0 E14 25 01.3	
01/05/24 08:23	RHSP33	HK	YES		LRS	N8 07 16.4 E14 24 17.6	
01/05/26 07:47	RHSP36	HK	YES		R	N8 09 56.2 E14 30 15.7	Spoor from 5/05/2001
01/05/26 11:50	RHSP37	HK	YES		R	N8 10 15.0 E14 28 00.0	Spoor from 5 days ago (L=22.5cm)
JUNE 2001							
01/06/17 09:44	RHSP39	HN	YES		R+BR	N8 01 31.4 E14 46 31.4	Spoor located at base of <i>Acacia polycantha</i> , several areas showing evidence of browsing. Spoor badly affected by rain
01/06/23	RHSP41	MK	YES		F+BR	N8 00 34.5 E13 50 14.3	Spoor located by WWF team on road, fresh spoor tracked but lost due to rain. Animal was seen by pisteur 20/5/2001 on Doudja to Lasserri road. Author did not see spoor as his team was in the field at the time, remote and not contactable
	RHSP42	MK	YES		F+BR	N8 00 44.8 E13 50 23.2	
KEY (Loc=Location of area): MK=Hossere Makat and Mbansi area; ML=Mayo Luo and east Mbansi; HN=Hossere Ndakara and HZ17 area; HK=Hossere Kourouk and Kotape area.							
JULY 2001							
01/07/04	RHSP43	MK	YES		R+BR	N8 00 29.5 E13 50 21.0	Spoor located close to tree rubbing post, clear evidence of rhino presence. Confirmation of RHSP41/42

Classification of rhino spoor by age estimate:

- 1: Fresh=12-24 hours old (F)
- 2: Recent=less than 1month old (R)
- 3: This season=last 6 months (TS)
- 4: Last season=last rainy season (LRS)



Classification of browse signs:

- B=browse eaten
- BR=browse recently eaten
- BRol=browse signs old





ANNEX 5, TABLE 4 AND TABLE 5: FURTHER DETAILS OF RHINO PRESENCE WITHIN THE AREAS SEARCHED.

Table 4: Data on rhino presence collected by a team from Doudja between 21/05 to 29/05/2001 but not verified by Consultant.

Date	Spoor I.D.	Adult	S/adult	Age of spoor	GPS position	Comment
24/05/2001	RHSP1A	YES		R	N7 59 08.3 E13 53 27.3	Rhino spoor 1A was not more than 3 days old and was located near a small saline close to the Mayo Kout. The spoor was from a smaller animal (L=21.5cm).
24/05/2001	RHSP1B	YES		TS	N7 59 47.5 E13 54 50.0	
27/05/2001	RHSP2A	YES		TS	N8 01 25.1 E13 53 38.4	Spoor 2A was from a larger animal, different from 1A. 2B and 3A probably same animal as 2A.
27/05/2001	RHSP2B	YES		TS	N8 01 43.3 E13 54 09.4	
28/05/2001	RHSP3A	YES		TS	N8 02 07.0 E13 53 54.1	

Table 5: Summary of unconfirmed rhino spoor observed in the Hossere Makat, H. Kourouk, H. Kotape and H. Agba areas and between these areas, during the years 2000 and 2001

05/05/2001	RHSP34	2 adults	1 s/adult	Fresh	N08 09 45.4 E14 30 57.4	Fresh spoor of 3 animals seen on Tam-Ndok road heading west down Mayo Djintere and followed by individual for a few hundred meters. One set of spoor confirmed down river by team on 26/05/2001(RHSP 36) but badly affected by rain
10/05/2001	RHSP35	2 adults	-	1 month	N08 08 16.3 E14 32 44.0	Spoor seen on Tam-Ndok road heading north east towards Hos. Agba and Mayo Kotape, at least 1 month old
November, 2000	RHSP38	2 adults	1 s/adult	Recent	N08 01 50.0 E14 45 35.6	Spoor seen by HZ17 <i>pisteur</i> in excellent rhino habitat in November 2000. Confirmed by <i>pisteur</i> as 3 animals, 2 adult and one sub-adult. Area checked by team and quality of habitat confirmed
January, 2000	RHSP40	1 adult	-	Fresh	N08 07 37.4 E14 13 35.6	Rhino seen by HZ25 road repair crew near the Old Doukia village and confirmed by <i>pisteur</i> . Team visited area and confirmed the quality of habitat. There is some concern about confusion with hippo but the area is many kilometers from the nearest river (30km from Mayo Oldin)



Figure 24: Location of rhino spoor 38 seen in November, 2001

Note: Unconfirmed spoor implies that the team and author did not personally verify the spoor but evidence suggests that the report is true; if there is some doubt on the observations this is noted. Spoor was often verified by an experienced *pisteur*; on one occasion the current team verified spoor near to the original observation (RHSP 34).



ANNEX 6: DETAILS OF TEAM MEMBERS, PISTEURS, PORTERS AND INFORMANTS USED DURING THE CAMEROON RHINO LOCATION & IDENTIFICATION CONSULTANCY:

MAIN TEAM

Michael Kock, Team Leader and Veterinarian
 Michael Kuwong, Assistant TL and Veterinarian
 Sylvain Tiawoun, Technician
 Jean Paul Mahop, Biologist Assistant
 Madjeje Matoloko, Driver

Affiliation and Location

Consultant, Greyton, South Africa
 WWF Cameroon, Garoua, Cameroon
 WWF Cameroon, Garoua, Cameroon
 WWF Cameroon, Garoua, Cameroon
 WWF Cameroon, Garoua, Cameroon

MINEF GAME GUARDS

Sali Adama
 Weyeyang Pascal
 Andre Saibou
 Theodore Niawang
 Justin Koulagna
 Michel Wouin
 Todou Damba

Affiliation, Village and Areas worked

MINEF Doudja Village, MRRA
 MINEF Taboun Village, MRRA
 MINEF Doudja Village, MRRA
 MINEF Doudja Village, MRRA
 MINEF Gouga Village, KotRRA, Kotape/Makat
 MINEF Koum Village, KotRRA, Kotape/Makat
 MINEF Landou Village, KotRRA

PISTEURS

Nioke
 Nang Aoudi
 Beilima Bingue
 Bindouw Adama
 Albert Ossoumanu
 Moussa Maliki

Village and Areas worked

Doudja Village, MRRA
 Lasserri Village, MRRA, KotRRA, Kot/Makat
 Gouga Village, KotRRA, Kotape/Makat
 Kali Village, KotRRA, HZ20 *pisteur*
 Taboun Village, Kotape/Makat, HZ25 *pisteur*
 Sackje Village, MRRA, KotRRA, WWF *pisteur*

PORTERS

Bouba Solimou
 Bobodje Michel*
 Bangawa
 Bouba Hamaua
 Salbgaye Jeremy
 Adamu Emmanuel
 Dairou Hargue
 Adamu Krebeye
 Maoude Samaki

Village and Areas worked

Doudja Village, MRRA
 Doudja Village, MRRA, KotRRA, Kot/Makat
 Mbaou Village, MRRA
 Bandjoukri Village, MRRA
 Tam Village, KotRRA, Kotape/Makat
 Tam Village, Kotape/Makat
 Tam Village, KotRRA
 Maroum Village, HZ17, H24, KotRRA
 Gouga Village, KotRRA

*Note: Bobodje was initially employed as a porter but became camp attendant and cook

INFORMANTS

Lamou (truck driver)
 Unnamed individual (brother of resident army officer in Kali)

Village and Area

Tam Village, Tam-Ndok rd, KotRRA, H17, H20
 Kali Village, information on Bouba Njida National Park

Note: Detailed accounting of amounts paid to informants will not be made as very little information was obtained through informants except on one occasion and, therefore, very little money paid out. Most information was obtained from villagers and trackers involved in the operation.



ANNEX 7 : ITINERARY AND ACTIVITIES, APRIL 4TH THROUGH JULY 11TH, 2001

DATE	DAY	LOCATION	ACTIVITIES
4/04/2001	Wednesday	Paris, France	International flight to Yaounde, meeting with Dr Martin Tchamba
5/04/2001	Thursday	Yaounde to Garoua	Meeting with WWF staff in Garoua
6/04/2001	Friday	Garoua	Meeting in WWF offices
7/04/2001	Saturday	Benoue National Park	Travelled with the Conservator, BNP, Mr Pierre Dongmo to
8/04/2001	Sunday	Benoue National Park	Buffel Noir and Doudja
9/04/2001	Monday	Buffel Noir, BNP	Overnight Buffel Noir
10/4/2001	Tuesday	Doudja	Meeting with traditional chiefs of villages nr. the Hos.Makat rhino range
11/4/2001	Wednesday	Hunting Zone (HZ) 3, H. Makat	Establishment of base camp 1, north east of H. Makat
12/4/2001	Thursday	Hunting Zone 3, Hossere Makat	Field work
13/4/2001	Friday	Hunting Zone 3, H. Makat	Field work
14/4/2001	Saturday	Hunting Zone 3, H. Makat	Field work
15/4/2001	Sunday	Hunting Zone 3, H. Makat	Field work
16/4/2001	Monday	Hunting Zone 3, H. Makat	Field work
17/4/2001	Tuesday	Hunting Zone 3, H. Makat	Field work
18/4/2001	Wednesday	Hunting Zone 3, H. Makat	Field work
19/4/2001	Thursday	Hunting Zone 3, H. Makat	Field work
20/4/2001	Friday	Hunting Zone 3, H. Makat	Field work
21/4/2001	Saturday	Hunting Zone 26, 2, Mayo Luo	Moving of base camp 1 to base camp 2 near upper Mayo Luo
22/4/2001	Sunday	Hunting Zone 26, 2, Mayo Luo	Field work
23/4/2001	Monday	Hunting Zone 26, 2, Mayo Luo	Field work
24/4/2001	Tuesday	Hunting Zone 26, 2, Mayo Luo	Field work
25/4/2001	Wednesday	Hunting Zone 26, 2, Mayo Luo	Field work
26/4/2001	Thursday	Garoua	Breaking camp to head for Garoua
27/4/2001	Friday	Garoua	Meeting at WWF offices
28/4/2001	Saturday	Garoua	Benoue Hotel
29/4/2001	Sunday	Garoua	Benoue Hotel
30/4/2001	Monday	Garoua	Benoue Hotel
01/5/2001	Tuesday	Garoua	Benoue Hotel, May Day
02/5/2001	Wednesday	Garoua to Mbao, Hossere	Back to base camp 1 for field work
03/5/2001	Thursday	Makat	Field work
04/5/2001	Friday	Hunting Zone 3, Hossere Makat	Field work
05/5/2001	Saturday	Hunting Zone 3, H. Makat	Field work
06/5/2001	Sunday	Hunting Zone 3, H. Makat	Field work
07/5/2001	Monday	Hunting Zone 3, H. Makat	Field work
08/5/2001	Tuesday	Hunting Zone 3, H. Makat	Field work
09/5/2001	Wednesday	Hunting Zone 3, H. Makat	Field work
10/5/2001	Thursday	Hunting Zone 3, H. Makat	Establishment of base camp 3 for field work in the upper
11/5/2001	Friday	Mayo Kout, Hossere Mbansi	Mayo Kout and Mbansi plateau, HZ 2
12/5/2001	Saturday	Mayo Kout, Hossere Mbansi	Field work
13/5/2001	Sunday	Mayo Kout, Hossere Mbansi	Field work
14/5/2001	Monday	Mayo Kout, Hossere Mbansi	Field work
15/5/2001	Tuesday	Mbansi plateau	Field work
16/5/2001	Wednesday	Mbansi plateau	Field work
17/5/2001	Thursday	Mbansi plateau	Left the Hos. Mbansi and Makat area for Doudja
18/5/2001	Friday	Doudja, Tchollire	Met with Conservator, Boubou Ndjidah National Park (BNNP)
19/5/2001	Saturday	Tchollire	Location of base camp K1 near Hossere Kourouk
20/5/2001	Sunday	Tam, Maroum, HZ 20 and 25	Cameroon National Day
21/5/2001	Monday	Tchollire	Moved to base camp on the M. Djimket, north. of H. Kourouk
22/5/2001	Tuesday	Base camp K1, H. Kourouk	Field work
23/5/2001	Wednesday	H. Kourouk, HZ 25 and 20	Field work
24/5/2001	Thursday	H. Kourouk, HZ 25 and 20	Field work
25/5/2001	Friday	H. Kourouk, HZ 25 and 20	Field work
26/5/2001	Saturday	H. Kourouk, HZ 25 and 20	Field work
27/5/2001	Sunday	H. Kourouk, HZ 25 and 20	Field work
28/5/2001	Monday	H. Kourouk, HZ 25 and 20	Field work
29/5/2001	Tuesday	H. Kourouk, HZ 25 and 20	Visit Doudja to meet with field team, overnight in Tchollire
30/5/2001	Wednesday	Mbao and Doudja, Tchollire	Benoue Hotel, WWF Offices, Garoua
31/5/2001	Thursday	Tchollire to Garoua	Benoue Hotel, WWF Offices
1/06/2001	Friday	Garoua	Benoue Hotel, preparation of progress report
2/06/2001	Saturday	Garoua	Benoue Hotel, preparation of progress report
3/06/2001	Sunday	Garoua	Benoue Hotel, preparation of progress report
4/06/2001	Monday	Garoua	Benoue Hotel, progress report submitted
5/06/2001	Tuesday	Garoua	Overnight in Tchollire
6/06/2001	Wednesday	Garoua to Tchollire and Doudja	Met with field team in Doudja
7/06/2001	Thursday	Tchollire then HZ20	Establishment of base camp K2 north of H. Kotape.
8/06/2001	Friday	Hossere Kotape	Field work



DATE	DAY	LOCATION	ACTIVITIES
09/6/2001	Saturday	Hossere Kotape	Field work
10/6/2001	Sunday	Hossere Kotape	Field work
11/6/2001	Monday	Hossere Kotape	Field work
12/6/2001	Tuesday	Hossere Kotape	Field work
13/6/2001	Wednesday	H. Kotape to Garoua	Garoua, meet with Dr Martin Tchamba
14/6/2001	Thursday	Garoua to HZ20 hunting camp	Garoua, meet with Dr Martin Tchamba early morning
15/6/2001	Friday	Hunting Zone (HZ) 17	Establishment of base camp K3 in HZ17 on the Mayo Nuodel
16/6/2001	Saturday	HZ 17	Field work
17/6/2001	Sunday	HZ 17	Field work
18/6/2001	Monday	HZ 17	Field work
19/6/2001	Tuesday	HZ 17	Field work
20/6/2001	Wednesday	HZ 17	Field work
21/6/2001	Thursday	Maroum to Garoua	Garoua to collect Dr Michael Kuwong
22/6/2001	Friday	Garoua to Maroum	HZ17, base camp K3
23/6/2001	Saturday	M. Dougen, close to H. Djakarey	Early morning on Tam/Ndok road near Maroum, walk between
24/6/2001	Sunday	M. Dougen, HZ24HC, H. Gourbo	rhino range areas, east to west to HZ26 hunting camp (HC)
25/6/2001	Monday	H. Gourbo, Mayo Oldiri	Walk between rhino range areas, east to west
26/6/2001	Tuesday	Mayo Oldiri, Old Doukia	Walk between rhino range areas, east to west
27/6/2001	Wednesday	Old Doukia, Mayo Oldiri, HZ26	Walk between rhino range areas, east to west
28/6/2001	Thursday	Tchollire to Garoua	Relais St Hubert, WWF Offices, Garoua
29/6/2001	Friday	Garoua	Relais St Hubert, Garoua, work on final report
30/6/2001	Saturday	Garoua	Relais St Hubert, Garoua, work on final report
01/7/2001	Sunday	Garoua	Relais St Hubert, Garoua, work on final report
02/7/2001	Monday	Garoua	Relais St Hubert, WWF Offices, Garoua
03/7/2001	Tuesday	Garoua to Doudja	Field work near to Old Bandjoukri village, Hos. Makat
04/7/2001	Wednesday	Hossere Makat	Field work near to Old Bandjoukri village, Hos. Makat
05/7/2001	Thursday	Hossere Makat	Field work near to Old Bandjoukri village, Hos. Makat
06/7/2001	Friday	Hossere Makat to Tchollire	Field work near to Old Bandjoukri village, Hos. Makat
07/7/2001	Saturday	Tchollire to Garoua	Relais St Hubert, Garoua
08/7/2001	Sunday	Garoua	Relais St Hubert, meet with Dr Martin Tchamba in Garoua
09/7/2001	Monday	Garoua	Relais St Hubert, Garoua
10/7/2001	Tuesday	Garoua to Yaounde	Fly to Yaounde from Garoua
11/7/2001	Wednesday	Yaounde to Paris	Yaounde, meeting in WWF offices; fly to Paris



ANNEX 8: LIST OF ACRONYMS

AfRSG	African Rhino Specialist Group
BNP	Benoue National Park
BNNP	Bouba-Njidah National Park
CPO	Cameroon Program Office (WWF)
FAC	French Association for Cooperation
GIS	Geographical Information System
GPS	Geographical Positioning System
HZ	Hunting Zone
IUCN	International Union for Conservation of Nature
KotRRA	Kotape Rhino Range Area
KouRRA	Kourouk Rhino Range Area
LS	Last season
MINEF	Ministry of Environment and Forests (Cameroon)
MRRA	Makat Rhino Range Area
NGO	Non Governmental Organization
NP	National Park
SSC	Species Survival Commission
TS	This season
TOR	Terms of Reference
WWF	World Wide Fund for Nature