



Dudhwa's Rhinos – A Plan for their Growth & Secured Future

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INTRODUCTION:

The Dudhwa National Park (DNP) currently supports a breeding population of 32 greater one horned Rhinos. However, this population faces a risk of slow growth rate and inbreeding as they are confined to a fenced area of about 27 sq. km since 1984. The breeding population is mostly dominated by one male 'Banke'. The rhinos translocated from different source populations have demonstrated a good adaptation to the habitat as well as a successful breeding. The park is about 500sq.km and has the potential to support a rhino population of around 100 individuals. Rhinos translocated from different source populations in the past have adapted well to this habitat, as well as bred successfully, indicating a healthy ecosystem. The global distribution of source population of the greater one horned rhino is very limited and it is necessary that best efforts are made for the conservation of this species in a distributed pattern.

THE STUDY AREA:

The Dudhwa National Park covers an area of about 500 sq km and is situated along the Indo-Nepal border in Kheri district of Uttar Pradesh. Located in the warm, tropical forests of the Terai, in the foothills of the Himalayas, it lies north of the Suheli River.

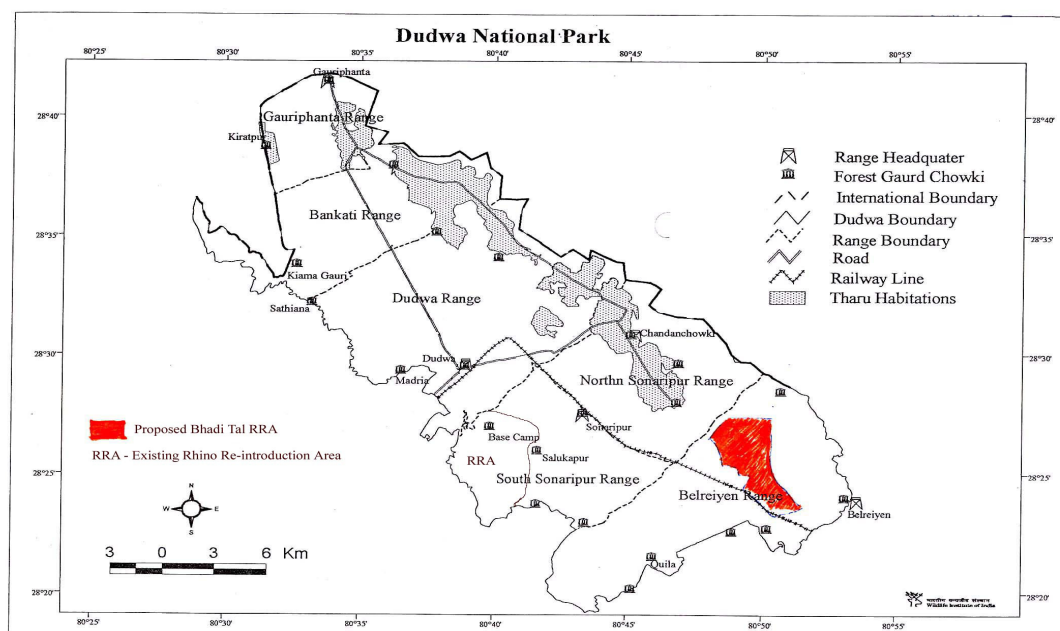


Fig1: Map of Dudhwa NP

THE SPECIES:

In 1984, five rhinos (two males and three females) were brought to Dudhwa National Park from in and around Pobitora Wildlife Sanctuary in Assam (Sinha, 1993). On 3rd March 1984, they were released in the rhino enclosure in Dudhwa National Park, but three out of the five rhinos died in the same year (Table1). In 1985, four female rhinos were translocated from Chitwan National Park in Nepal and released in the rhino enclosure. One male rhino was also brought from the Kanpur Zoo but it was unable to adapt to the new environment and had to be sent back to the Kanpur Zoo.

Sl. No	Name	Sex	Date of Re-introduction	Approx. age at the time of Re-introduction	Present Status	Details
1	Banke	M	31/3/1984	7	Alive	This rhino was brought from Assam
2	Raju	M	31/3/1984	2	Dead	This rhino was brought from Assam. It was severely injured by Banke on 11/12/1984 and expired.
3	Lohit	M	28/4/1992	8	Sent Back	This rhino was brought from Kanpur Zoo and was sent back to same place. Presently it is in Lucknow Zoo.
4	Saheli	F	31/3/1984	30	Dead	This rhino was brought from Assam. It was supposed to be pregnant. She was injured during transportation and died on 20/4/1984.
5	Asha	F	31/3/1984	17	Dead	This rhino was brought from Assam. She died on 31/7/1984.
6	Pavitri	F	31/3/1984	4	Alive	This rhino was brought from Assam
7	Swamvara	F	29/3/1985	5	Alive	This rhino was brought from Chitwan National Park, Nepal
8	Narayani	F	29/3/1985	5	Alive	This rhino was brought from Chitwan National Park, Nepal
9	Himrani	F	1-4-85	4	Alive	This rhino was brought from Chitwan National Park, Nepal
10	Rapti	F	1-4-85	16	Dead	This rhino was brought from Chitwan National Park, Nepal. It died on 25/9/1991

Table 1 – Pattern of rhinos released in Dudhwa NP (Source: UP Forest Dept Records)

Since the time of reintroduction, the rhino population in Dudhwa has demonstrated a positive trend of growth and as per the latest records the population in the year 2012 stands at 32, including six calves. However, this pattern is steadily showing a decreasing trend over the years. Banke has been the dominant male and has probably fathered almost all the off springs. There is probably no other unrelated male and all the mating of the Dudhwa-bred population is taking place between close relatives (Sinha, 2005).

Recently, the Forest Department and WWF-india have prepared master IDs for all rhinos of the park for easy and effective monitoring.

The rhinos are confined within an area of about 27sq.kms protected by an electric fence since their first release since 1984. However, due to breakages, the rhinos are sometimes are able to move out of the fence and stray into the adjoining agriculture

fields. There have been 11 recorded cases of crop depredation and also of a female rhino giving birth in an adjoining agriculture field in October 2011 (Sinha, 2005).

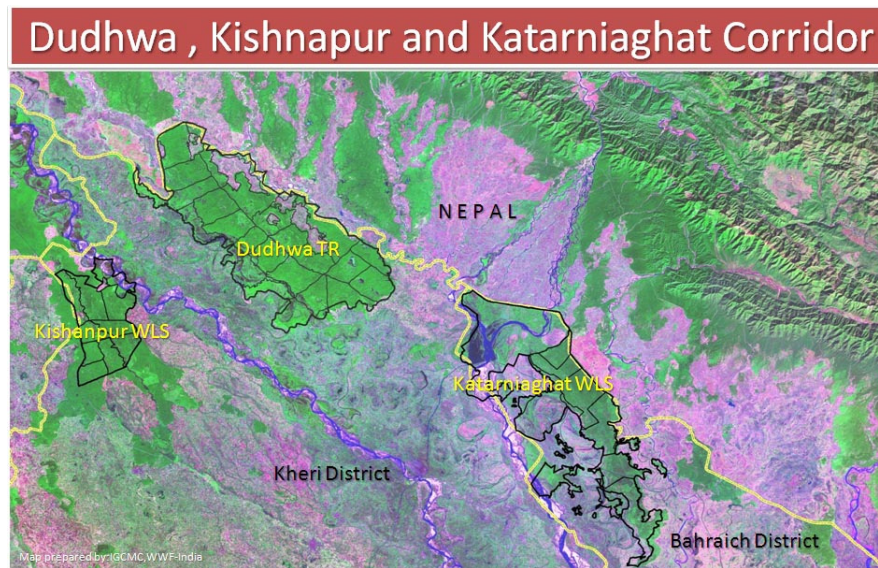


Fig2: Dudhwa NP & adjoining areas

In addition to the rhinos in Dudhwa National Park, there are reports of three floating populations in the Terai Arc landscape within India.

- a. In the last 4-5 years, two – three rhinos are visiting from Shukla Phanta Wildlife Reserve to Lagga Bagga area under Pilibhit Forest Division and Tatarganj area under North Kheri Forest Division to Kishanpur Wildlife Sanctuary.
- b. Three rhinos that have become resident in Katarniaghat Wildlife Sanctuary since 2005 may have come from Bardia National Park. Rhinos are also reported to be moving between Bardia National Park and Katarniaghat Wildlife Sanctuary in the last few years.
- c. Rhinos are reported to be visiting Sohagiverva Wildlife Sanctuary and Valmiki Tiger Reserve from Chitwan National Park.

OBSERVATIONS:

1. The first five rhinos from Assam were released in 1984 of which four rhinos died within the first 2 years of their release.
2. Four rhinos were later translocated from Nepal in 1985.
3. Presently (2012) the rhino population in the park is about 32 rhinos; ten males, fourteen females, 2 individuals (sex unknown) and six calves.
4. The rhinos started breeding after 5 years of their release in the Park. The first birth was recorded in 1989 through Hemrani.
5. The total births recorded are 34 (till 2009) and the total deaths are 14 (till 2009).

6. Banke is the dominant male and is probably responsible for the successful breeding with all the females.
7. The primary breeding females are Narayani, Hemrani, Swambhara, Pavitri, Rajeshwari, Rajrani, Rajashri, Vijayshree and Suheli.
8. The rhinos are confined within the fenced area and occasionally escape and stay into adjoining agricultural fields, but always return. The breakage is mainly induced by the elephants in the park and faulty fence operations.
9. At present, there are three matured males namely; Nakul, Bhimsen and Kartikeya in addition to Banke. However, they stay together and do not participate in breeding.
10. The rest of the males are still young and will need a few years to attain maturity.
11. The rhinos in the park are demonstrating a healthy growth rate in comparison to Pobitora Wildlife Sanctuary (2009-2012). However, the trend shows a steady decrease over the years (Fig.2).
12. The sex ratio is not ideal (1:1) and the family tree indicates a probable scenario of inbreeding.
13. The habitat within the present enclosed area (27.5 skms.) is favourable for the rhinos and more such area exists in other parts of the park.
14. A second enclosure (12 sq m) for rhinos is planned in another area of the park.

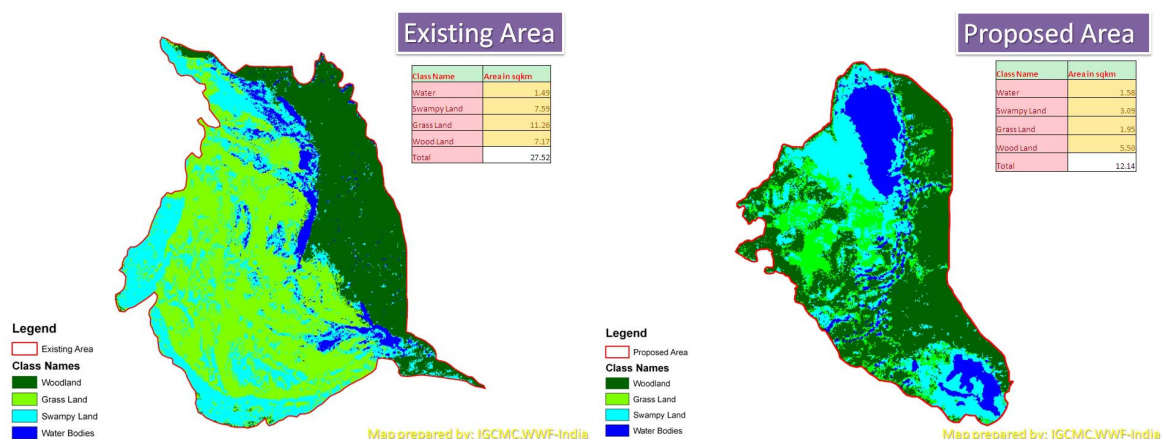


Fig3 & 4: Land cover in the rhino areas in Dudhwa NP (existing and proposed)

SUGGESTIONS:

Option I –

The ideal option is to release the rhinos in the open habitat, preferably the males Nakul, Bhimsen and Kartikeya, along with a few selected young females like Rajrani, Rajashri, Vijayshree and Suheli. This will provide an opportunity for the matured males to breed with the females leading to a new family tree and diversifying the gene pool. This will also provide a chance for the wildlife of the park to utilise the entire area and free ranging for the enclosed rhinos. The released rhinos can be easily identified for monitoring as the master ID database is already in place. A few rhinos can be radio collared

after observing the ranging pattern for the first few months following release. In addition, a new population of sub-adult rhinos also needs to be added to the existing population to ensure the preferable composition of 1 male and 2 female.

Before releasing the rhinos, it is essential to accomplish the following:

1. Plan and provide mitigation measures along the railway track so that accidents can be prevented.
2. Assess the total security situation in the park and bridge gaps as necessary, as well as implement strict protection and patrolling regime.
3. Reach out to the fringe communities for awareness building and seek their support.

Option II –

The other option is to separate the dominant male Banke from the rest of the matured males and provide them with breeding options in separate small enclosures (approx. 1 sq kms). The RRA area, if decided to be continued, should be well maintained to have the fence working properly at all times. To choose the rhino pairs, it is essential to carry out a DNA analysis to confirm the family tree. However, from the understanding developed from the current composition of the existing rhino population (Fig.7), the following options may be tried –

1. Nakul allowed to breed with Rajrani/New Female.
2. Bhimsen allowed to breed with Rajrani/New Female.
3. Kartikiya allowed to breed with Rajrani/New Female.

In addition, it is suggested that additional free ranging rhinos in other parts of the landscape should be properly identified and monitored. If young rhinos, especially females, are found in the population, they should be captured and translocated to Dudhwa to provide an opportunity for the matured males to breed.

For proper and scientific plan to be undertaken, it is essential to initiate DNA studies on existing populations using non-invasive tools to determine the parental tree of the existing population.

The plan to enclose another significant part of the park should be re-visited and modified through proper studies and discussions. A pilot study on carrying capacity of the existing enclosed part may help in arriving at a decision.

Need based habitat management (both grassland & wetland) should be undertaken to maintain the suitability of the habitats for the rhinos.

The areas occupied by rhinos in the adjoining areas of Dudhwa National Park should be identified and plans undertaken to develop those as additional rhino bearing areas.

CONCLUSION:

The rhino population in Dudhwa National Park is doing well and the park offers a good habitat for a healthy breeding free ranging population of rhinos. Necessary plans should be immediately finalised and adopted for field observation for securing the future of the rhinos in the park and also in the other parts of the landscape.

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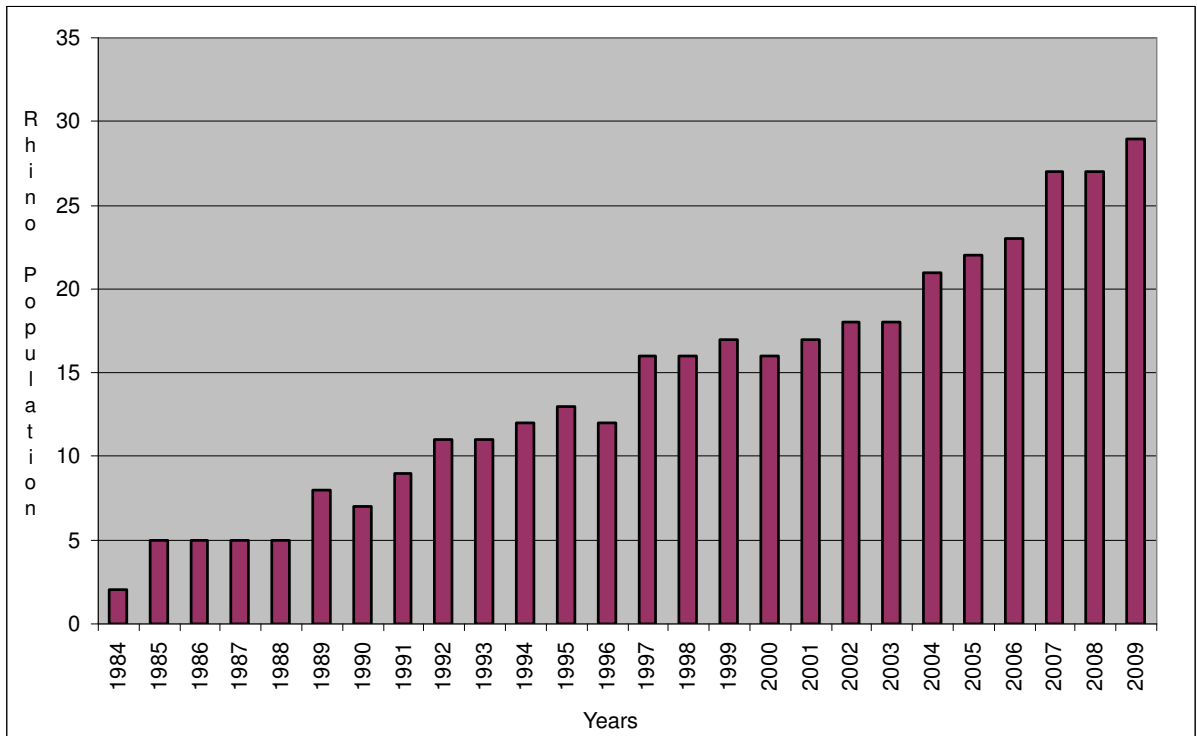


Fig5: Rhino population trend

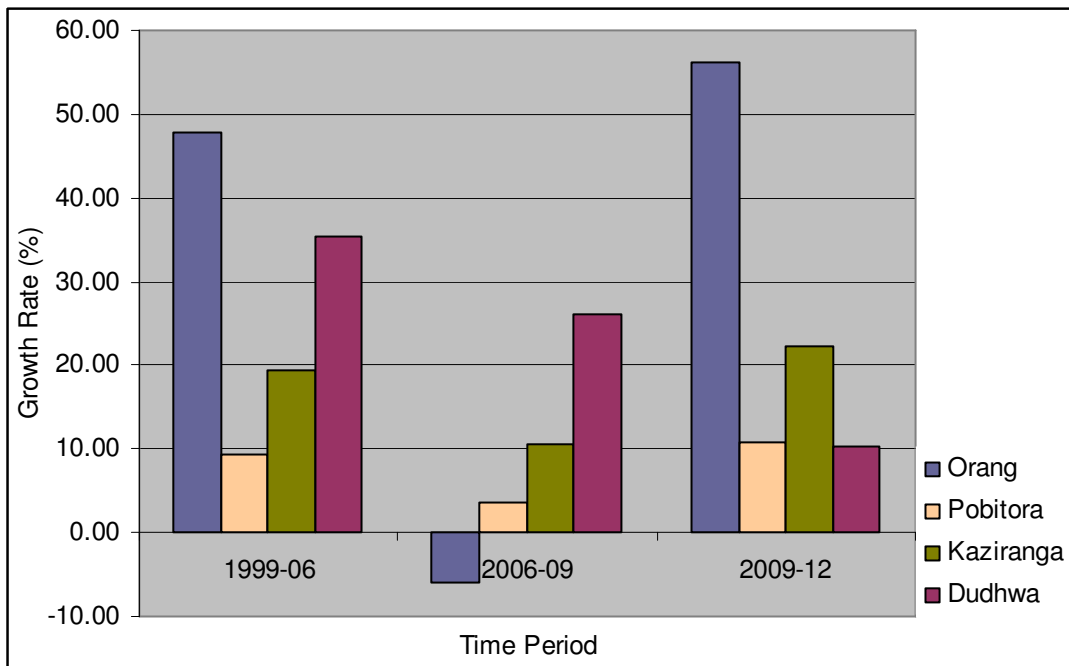


Fig6: Rhino population growth pattern

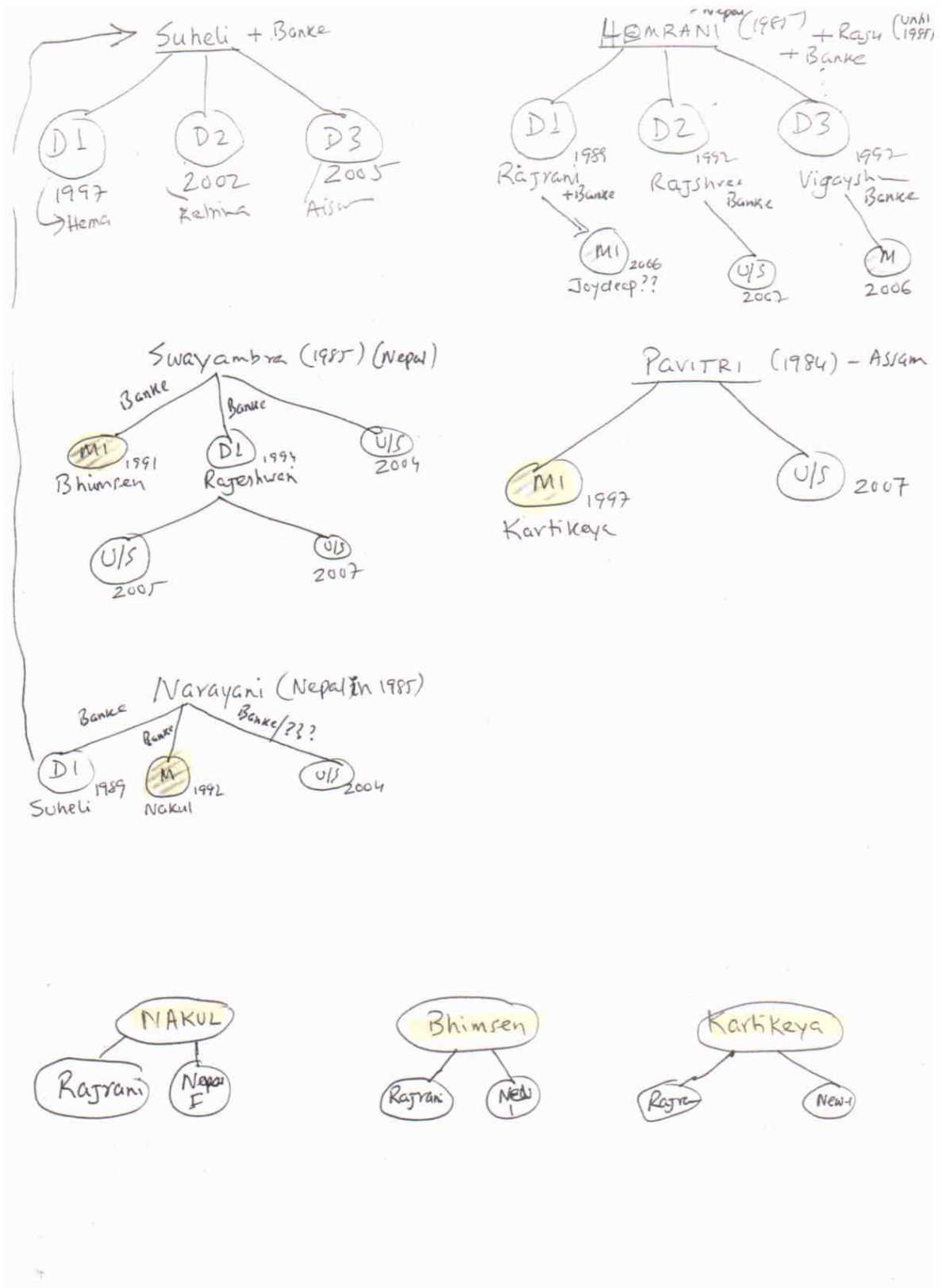


Fig7: Tentative Family Tree of the Rhinos in Dudhwa

Dudhwa National Park

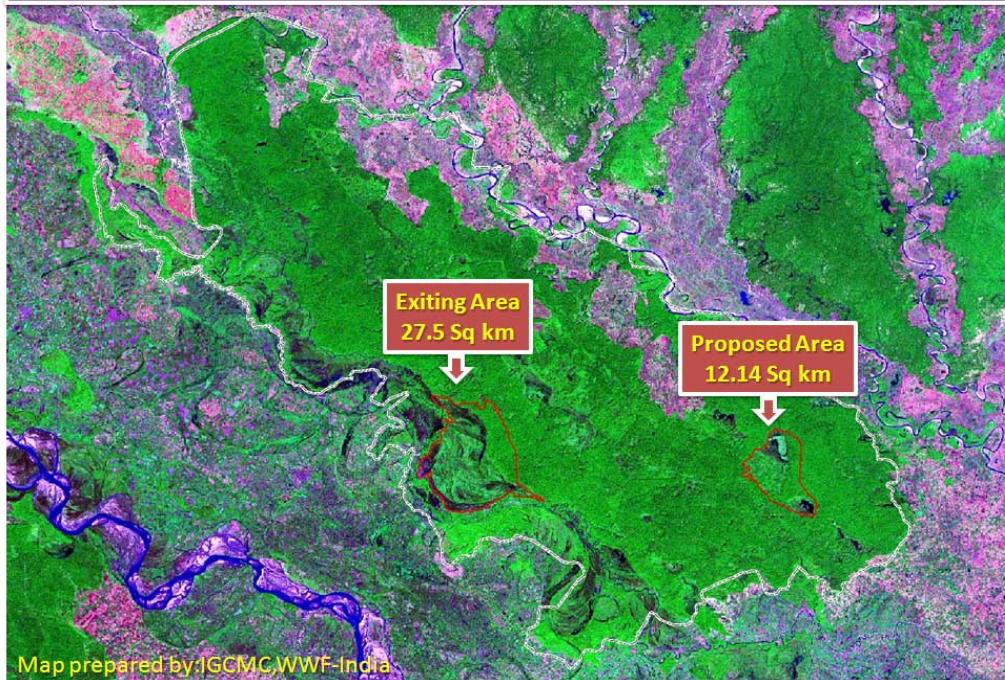


Fig8 : The rhino areas in Dudhwa NP (existing and proposed)