

STATUS OF ASIAN RHINOS AND KEY CONSERVATION MEASURES

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The conservation of three species of Asian Rhino – Sumatran Rhino (*Dicerorhinus sumatrensis*), Javan Rhino (*Rhinoceros sondaicus*) and Greater One Horned Rhino (*Rhinoceros unicornis*) in its range countries are always challenging due to the wide range of issues, the main ones being limited and increasingly threatened habitats and sometimes difficult terrain coupled with persistent threats from organised poachers. In this paper, we present the current state of these three species of rhino in its distribution range.

FAR EAST

SUMATRAN RHINO:

The past and current distribution range of Sumatran Rhino is being summarized in Fig-1 and Fig-2. The current estimates of Sumatran Rhino stands in between 280-320 of which about 135-185 are estimated to be found within Indonesia, about 100-120 within Malaysia (both Peninsular Malaysia and Sabah) and about 6-15 could be spread over in North Eastern part of India, Myanmar and Thailand.

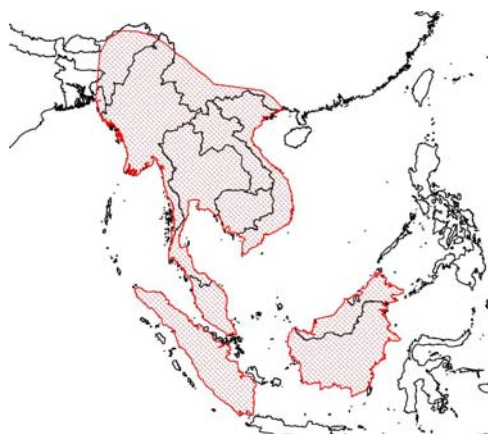


Fig-1: Past Distribution Range

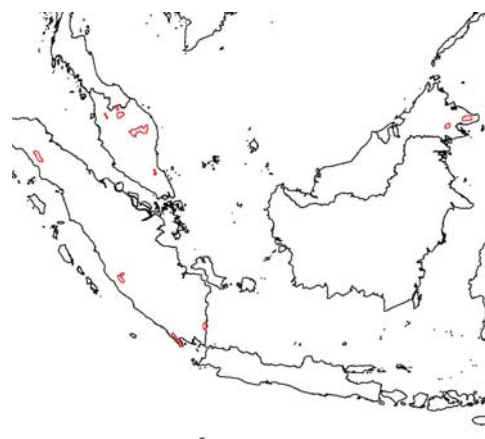


Fig-2: Current Distribution Range

In Indonesia, the Sumatran Rhino *Dicerorhinus sumatrensis sumatrensis* are found only in three protected areas in two provinces of Sumatra – Lampung and Aceh. Currently the Bukit Barisan Selatan National Park in Southern Sumatra houses about 65-85 rhino while in Gunung Leuser National Park in Aceh province houses about 50-70 rhino and Way Kambas National Park in southern Sumatra houses about 20-30 rhino.

In Malaysia, the Sumatran Rhino are found both in Peninsular Malaysia and in Sabah state of Northern Borneo within Malaysia. The forests in central and eastern part of Peninsular Malaysia currently holds about 75-90 Sumatran Rhino *Dicerorhinus sumatrensis sumatrensis* while *Dicerorhinus sumatrensis harrissoni* are found only in the Sabah state of Malaysia on the northern tip of the island.

Another sub species of Sumatran Rhino *Dicerorhinus sumatrensis lasiotis* are still believed to be scattered in isolated forests of North East India, Mynamar and Thailand and the estimated number could be 6-15. More survey is required to ascertain the actual position of this sub species in North East India, Myanmar and Thailand.

JAVAN RHINO:

The past and current distribution range of Javan Rhino is being summarized in Fig-3 and Fig-4.

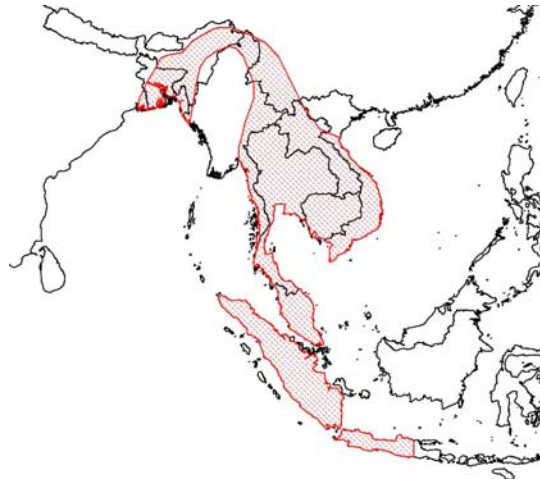


Fig-3: Past Distribution Range

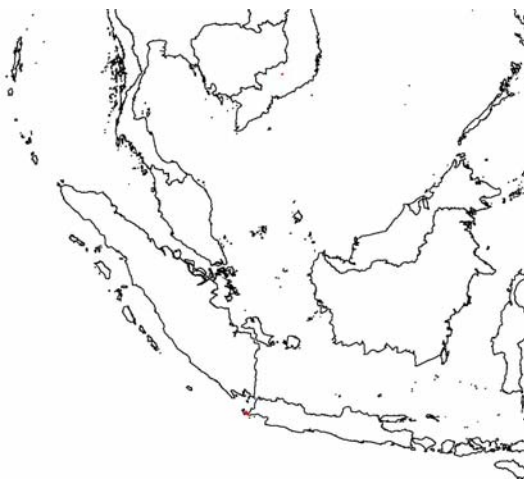


Fig-4: Current Distribution Range

The current estimates of Javan Rhino stands in between 50-70 of which about 35-58 are estimated to be found in Ujong Kulon National Park, Indonesia, while about 3-7 in Cat Loc area of the Cat Tien National Park within Viet Nam. The Indonesian population of Javan rhino is known as *Rhinoceros sondaicus sondaicus* while the Viet Nam population of the Javan Rhino is known as *Rhinoceros sondaicus annamiticus*. The monitoring of Javan rhino population in Ujong Kulon National Park is being done using camera traps while in Viet Nam a similar initiative is being undertaken by WWF.

INDIAN RHINO:

The past and current distribution range of Greater One Horned or Indian Rhino is summarized in Fig-5 and Fig-6. The current estimates of Indian Rhino in India and Nepal are in between 2700-2800 of which about 2300-2370 are distributed in India while about 400-430 in Nepal. In India the rhinos are mainly recorded from the Kaziranga National Park, Orang National Park and the Pabitora Wildlife Sanctuary in the state of Assam, Jaldapara Wildlife Sanctuary and Gorumara National Park in West Bengal and Dudhwa National Park in Uttar Pradesh.

INDIA

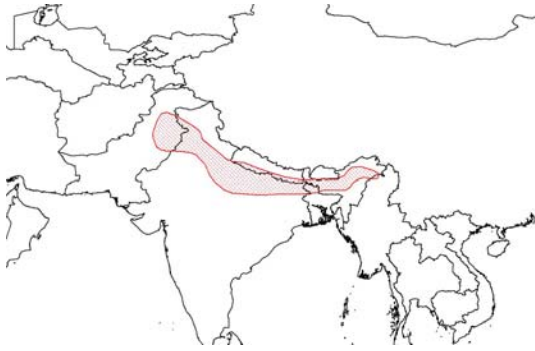


Fig-5: Past Distribution Range



Fig-6: Current Distribution Range

Dudhwa National Park: The Dudhwa National Park declared as Dudhwa Tiger Reserve under Project Tiger in 1987 is in the Kheri district of Uttar Pradesh (UP) in Northern India and lies between 28°18'N and 28°42'N latitudes and 80°28'E and 80°57'E longitudes, approximately 30 km south of the Nepal Himalayas. It is 490 sq km in extent with buffer zone of 124 sq km under the Park administration. Currently the rhino population in the park is in between 25 and 30.

Jaldapara Wildlife Sanctuary: The sanctuary is located in the flood plains of the river Torsa and other small rivers, which have created large tracts of grasslands sustaining a small population of one horned rhinos. Jaldapara Wildlife Sanctuary lies in the civil district of Jalpaiguri, West Bengal, which situated between the latitudes 25°58" and 27°45" North and longitudes 89°08" and 89°55" in the East. The total area of the sanctuary at present stands at 216.51 sq. km. The current rhino population in Jaldapara is 108 as estimated in 2005. The estimates of rhino in Jaldapara Wildlife Sanctuary carried out by the West Bengal Forest Department is summarized in Table-1

Table-1: Rhino population in Jaldapara WLS

Year	Population Trend
1997	44
1999	55
2002	84
2004	96
2005	108

Records of rhino poaching of Jaldapara Wildlife Sanctuary were not properly maintained prior to 1968. Verifiable reports of poaching of rhino are available only from 1968 onwards and it appears that intensive poaching of rhinos between the years 1968-69 and 1975 had brought down the population of rhinos drastically from 80 to 14.

Gorumara National Park: The Gorumara National Park is located in the district of Jalpaiguri in the flood plains of Jaldhaka and Murti Rivers. It is situated between 88°50' & 88°60" E Longitude and 26°44' & 26°75' N Latitude. The area of the Gorumara National Park is about 79.45 km². The current rhino population in Gorumara is 27 as estimated in 2005. The estimates of rhino in Gorumara National Park carried out by the West Bengal Forest Department is summarized in Table-2.

Table-2: Rhino population in Gorumara NP

Year	Population Trend
1997	14
1999	19
2002	22
2004	25
2005	27

The reports from Gorumara National Park do not indicate any large scale poaching of rhino in the National Park area and its surroundings during the last few decades. The last poaching case was reported in 1992 and took place in the Kathambari area when a rhino strayed out of the National Park.

Pabitora Wildlife Sanctuary: The Pabitora Wildlife Sanctuary (38.81 km²) is located within 26°12'N to 26°15'N and 91°57'E to 92°5'E. The sanctuary area is flat with a gentle east to west inclination excluding Bura-Mayong hillock in a flat terrain in the flood plains of river Brahmaputra, a basin-like structure in the midst of Mayong, Kamarpur and Monohar hillocks finely-dotted with water bodies, grassland and tree forest. The area is part of Brahmaputra River floodplain; as such, water remains year-round in different lakes and swamps which makes Pabitora ideal rhino habitat. Pabitora is 60% –grassland, 18% wetland, 20% woodland and 2% other kinds of habitat. Pabitora Wildlife Sanctuary (PWLS) has been successful in rhino conservation. The current rhino population in Pabitora is 84 as estimated in the year 2009. Table-3 summarizes the area's rhino census results:

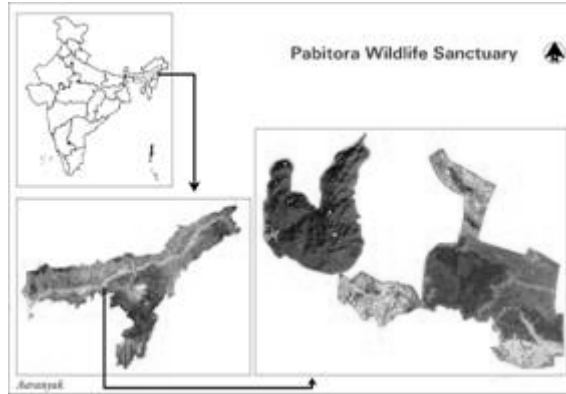


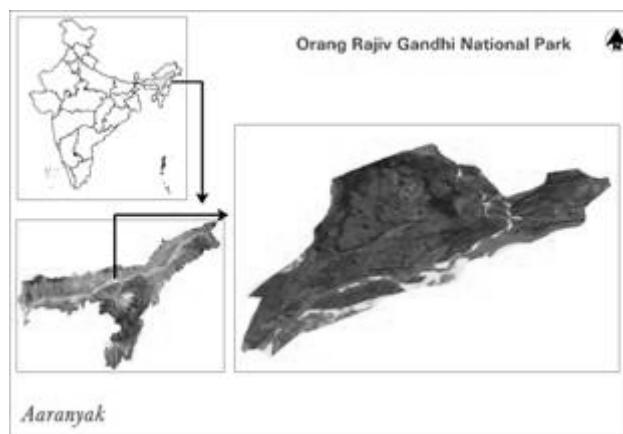
Table-3: Rhino Census in Pabitora Wildlife Sanctuary

Year	Total
1987	54
1993	56
1995	68
1999	74
2004	79
2006	81
2009	84

Source: Assam Forest Department

PWLS has witnessed a steady increase in its rhino population. One of the major problems that the sanctuary management faces is poaching, and, as the area of Pabitora is very small, the straying of rhinos from the sanctuary also leads to poaching outside the rhino protected area. Other problems include degradation of habitat, immense biotic pressure, annual floods, overhead high tension power, human- animal conflict, siltation and scarcity of water during dry seasons, invasion of *Ipomoea spp* into grasslands, grazing by livestock from fringe areas into protected areas.

Orang National Park: The Orang National Park has been often regarded as the man made forest dedicated to rhino conservation that lies within the geographical limits of 92° 16' E to 92°27'E longitude and 26°29'N to 26°40'N latitude. Orang was earlier a village which later on was transformed into a forest with sizeable areas of grassland and wetlands. The total area of the national park is 78.80 km². Orang was



declared as a wildlife sanctuary in the year 1985 keeping in mind the potential habitat of Orang for rhino conservation along with other wildlife and further upgraded into a national park the year 1999.

The national park has witnessed severe poaching threats during 1994-2000 when half of its rhino population was poached by well organized gangs. In 1991, the total population of rhino was 97, but due to an increase in poaching the population had declined to only 46 by 1999. However due to concerted efforts of the forest department, supported by NGOs the rhino population in the park increased to 68 by 2006. The current rhino population in Orang NP as estimated in the year 2009 was 64. Table-4 summarizes the area's rhino census results:

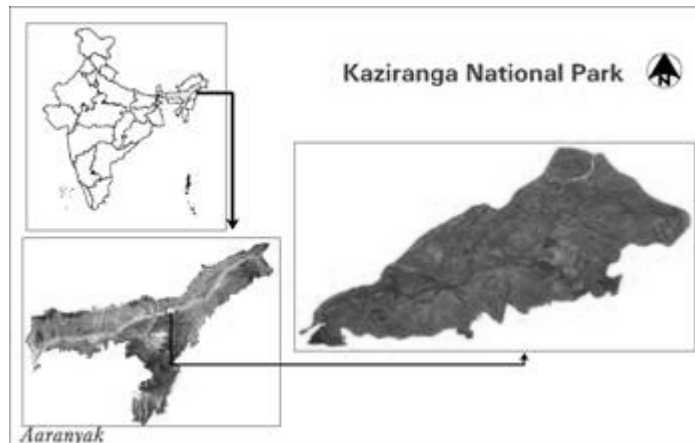
Table-4: Rhino Census in Orang National Park

Year	Total
1972	35
1985	65
1991	97
1999	46
2006	68
2009	64

Source: Assam Forest Department

Problems and threats include damage to habitat composition, severe poaching, lack of community participation, insufficient funds available, weed invasion in grasslands, poor habitat connectivity, and declining grasslands (while woodlands have increased). Nevertheless, Orang could support between 100 and 150 rhinos. If NGOs and local people support conservation, there is the possibility of increasing the rhino population in the park, particularly with well designed and run awareness and education initiatives, coupled with ecotourism

Kaziranga National Park: Kaziranga National Park (KNP), with the current area of over 800 km² including all the addition areas is known worldwide for its success in the conservation of



greater one-horned rhino. It harbors the world's largest population of one-horned rhino: 1855 animals in 2006. The Kaziranga National Park lies between Latitudes 26°33' N to 26°50' N and Longitudes 93° 05' E to 93° 41' E. Its conservation value was recognized when it became one of the World Heritage Sites notified in India by UNESCO in 1985. A symbol of dedication for the conservation of animals and their habitat, Kaziranga,

represents the single largest protected area within North-east India and provides the most important long term viable conservation area for *Rhinoceros unicornis*.

The current rhino population in the national park is 2048 as estimated in 2009 by the Assam Forest Department. The rhino population in Kaziranga between 1966 and 2009 has been summarized in Table-5 and shows the significant growth of the population over the years.

Table 5: Successive Rhino Population in 2006.

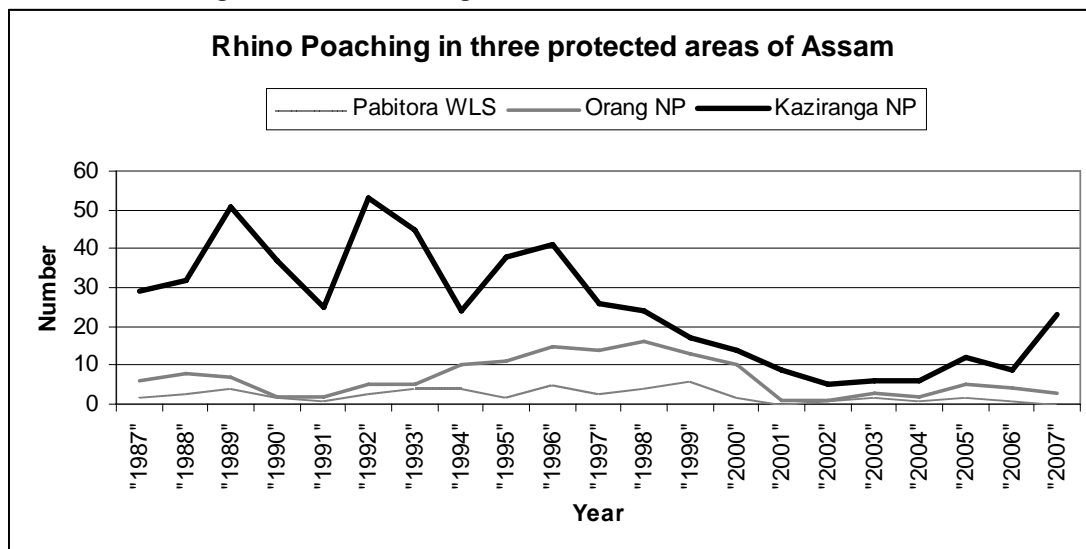
Year	Total
1966	366
1972	658
1978	939
1984	946
1991	1069
1993	1164
1999	1552
2006	1855
2009	2048

Source: Assam Forest Department

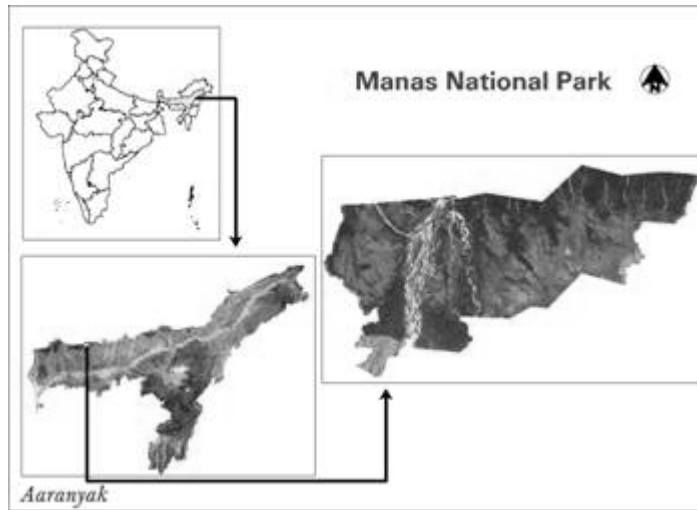
The single largest threat to rhino conservation in the national park is poaching. Besides poaching, the changes in habitat composition and loss of land mass within Kaziranga due to shifting of the Brahmaputra River towards the south has emerged. This is now an increasingly important threat to wildlife in the region. Protection alone is not a guarantee for the longer term and there is an urgent need for landscape solutions and attention to emerging threats driven by anthropogenic impacts and in particular climate change.

The fig-7 summarises the poaching of rhinos in the above three protected areas of Assam –

Fig-7: Rhino Poaching in three Protected Areas of Assam



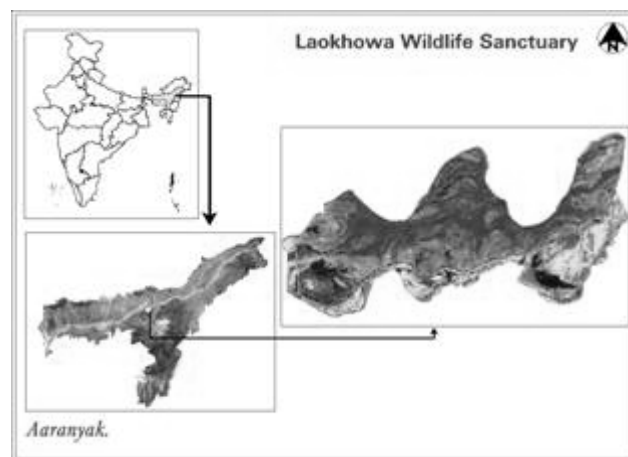
Manas National Park: The Manas Wildlife Sanctuary which was established in 1928 with an area of 391 sq km has long history of its becoming a world heritage site in 1985. Subsequently its area was further increased up to 500 km² when it was upgraded to a national park (26°37'-26°50'N, 90°45'-91°15'E) in 1990 by the Assam government. Currently the Manas National Park lies within the newly created Baksa and Chirang district of western Assam.



Manas had witnessed socio-political unrest during the 1990s. Severe damage to its infra-structure is responsible for the loss of effective anti-poaching along with a decline in wildlife numbers including the rhino. Prior to the unrest, about 80 rhinos were estimated to be within the Manas National Park. However during the unrest all the rhino were poached by organized gangs of poachers.

However since 2006, the Assam Forest Department in association with the Wildlife Trust of India shifted four rescued and orphaned female rhino from the Wildlife Rescue and rehabilitation Centre, Kaziranga to Manas National Park and put them inside a boma. Subsequently, two male rhinos from Pabitora Wildlife Sanctuary were translocated into Manas NP on 12th April 2008 as part of the Indian Rhino Vision 2020 (IRV 2020). There are plans to translocate about 18 more rhinos into Manas NP from Pabitora WLS and Kaziranga NP by end of 2009.

Laokhowa Wildlife Sanctuary: Laokhowa Wild Life Sanctuary (LWLS) is situated in the state of Assam, India between the latitudes 27°30'N and 27°30'N and Longitudes 94°08'E and 94°08' in the flood plain of river Brahmaputra. The PA is located in the central portion of the state of Assam. It is situated in the extreme north of Nagaon district touching the southern boundaries of Sonitpur district. The PA covers a part of the civil sub -division of Koliabor and Nagaon.



Laokhowa WLS harboured about 70 rhinos in 1980. However during the ethnic unrest in between 1980 and 1985, most of its rhino were poached. In 1981, six rhinos were poached, while in 1982 a total of 11 and in 1983 a total of 30 rhinos were killed by poachers and thus opened the pathways to exterminate the rhino population from the WLS rapidly. Currently there is no resident

population of rhino although rhino do move into the WLS from Kaziranga occasionally.

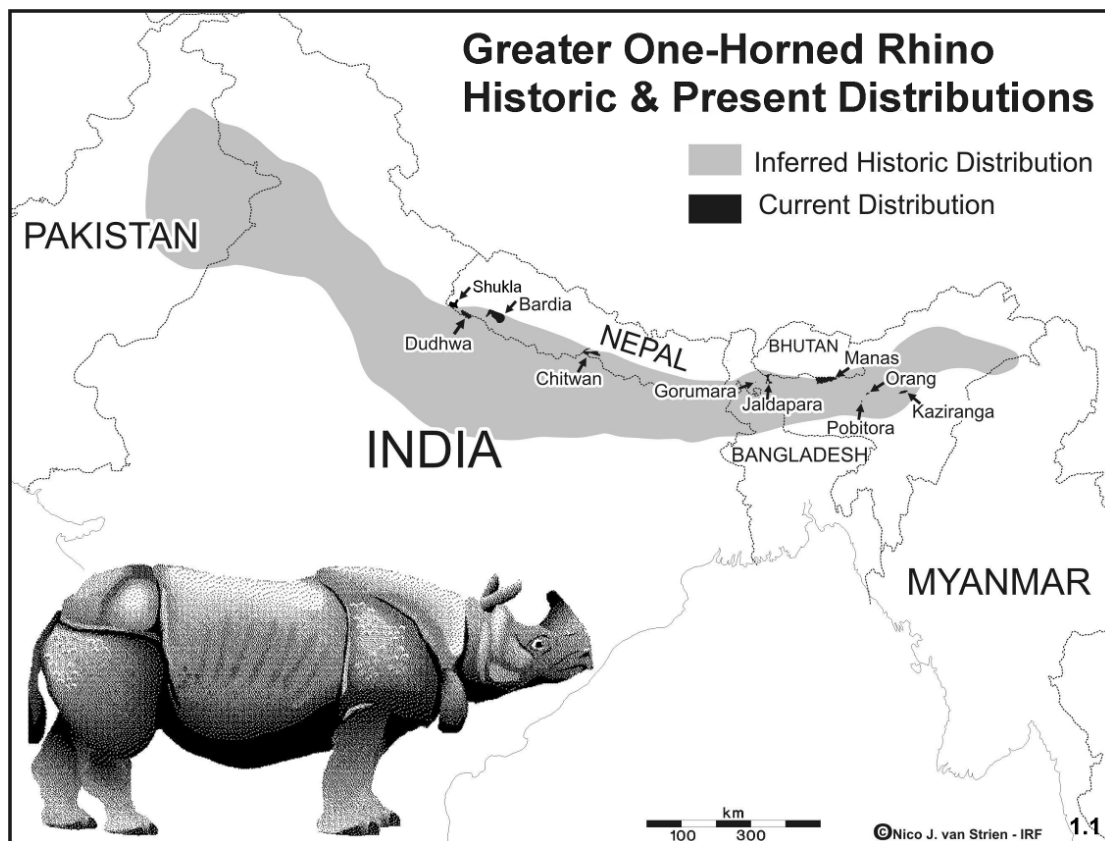
The Indian Rhino Vision 2020 has the long term intention to re-stock rhino in the Laokhowa WLS. If the local people support conservation and there is the political will the possibility of rhino coming back to Laokhowa exists. The habitat is fine but there is a need to improve the security mechanism to ensure rhino protection in the WLS in years to come.

Threats to Rhino in India include: poaching, invasive species like Mimosa, Ipomea, Leea, Mikenia and grazing. Grazing is a problem in Jaldapara, Gorumara, Pabitora and Orang NP.

The cattle present in the fringe villages are characterized by poor health and are of poor quality most probably due to a lack of an organised breeding programme and other inputs. The effect of cattle grazing is more pronounced during the dry seasons when there is competition for fodder between the wild herbivores and the cattle. The existing input for cattle improvement is very limited and there is a dearth of proper veterinary care in the villages

A few alien invasive weeds and climbers like lemon grass, *Leea* spp. and *Mikania* spp. are infamous for colonizing the open forest areas of Jaldapara sanctuary which, in turn, suppress the growth of palatable fodder grasses and other tree spp. *Mikania* spp. includes *Mikania cordata* and *Mikania scandens*. Other weeds that are commonly found are *Lantana camara*, *Eupatorium* spp, *Clerodendron* spp, *Cassia tora* and *Solanum nigrum* etc. All these weeds are damaging the habitats of rhino and other wild animals.

NEPAL



The history of rhino in Nepal is one of a massive decline starting in the 1950s to <100 by 1964. This population was isolated to Chitwan which became a National Park (CNP). This period was followed by intense protection efforts which brought some recovery. 612 animals were reported in Nepal by 2000. This recovery effort included the establishment of new populations through translocation to Shuklaphanta Wildlife Reserve (SWR) and Bardia National Park (BNP) . Unfortunately the Nepal population declined from then onwards an estimated 435 at the end of April 2008. Poaching pressure continues and the most important losses in terms of population impacts have been in BNP, which had an estimated loss of >100 animals since the translocation of 83 in the 1980s and now has only 20 left. If this decline continues it will soon no longer be a viable population. SWR has only 5 animals and remains non-viable. Chitwan remains the stronghold and although the count of 372 in 2005 was followed by a count of 408 in 2008 the methods of counting were improved so direct comparison should be made with caution. The main agencies involved in rhino conservation over the years have included Nepal Trust for Nature Conservation (NTNC), Department of National Parks and Wildlife Conservation, World Wide Fund for Nature Conservation (WWF), Zoological Society of London others.

Mortality reports 2000 – 2008

Official reports

Year	Natural death				Poaching				Remarks
	CNP	BNP	SWR	Total	CNP	BNP	SWR	Total	
1999/2000*	20	-	-	20	-	17	-	17	
2000/2001	13	2	-	15	12	3	-	15	
2001/2002	12	2	-	14	38	3	-	41	
2002/2003	22	-	-	22	20	8	-	28	
2003/2004	9	-	-	9	5	5	-	10	
2004/2005	11	-	1	12	16	-	-	16	BNP lost at least 40 more
2005/2006	9	-	-	9	9	-	-	9	
2006/2007	-	4	2	6	13	-	-	13	
Total	104	8	3	115	113	36	-	149	GT 264*

* June to June (Based on Fiscal Year of Government of Nepal)

115 natural deaths and 149 poaching incidents were reported over this period but this is possibly an underestimate. Although habitat conditions might be reducing capacity for growth, for the sake of argument, we can estimate potential growth at 5%. At this rate we would have expected ~ 300 rhino to add to the 612 = 912 over the period of 2000 to 2008. Subtracting the known losses from the difference between the current population and what was expected means total loss can be estimated ~ 564 and the current poaching figures or deaths would represent under-reporting = >55%. This is speculative but shows the importance of monitoring the populations more regularly and intensely.

Key Challenges to rhino conservation in Nepal

- Poaching
- Invasives
- Encroachment by people and livestock
- Loss of buffer, settlement and agriculture
- Human rhino conflict

Rhino counted in March 2008

CHITWAN

Sex	Adult	Sub-adult	Calf	Total
Male	85	8	7	100
Female	113	9	8	130
Unknown	79	34	65	178
Total	277	51	80	408

BARDIA

Sex	Adult	Sub-adult	Calf	Total
Male	3	1	1	5
Female	6	-	-	6
Unknown	6	-	5	11
Total	15	1	6	22

SHUKLAPHANTA WILDLIFE RESERVE

5 rhino with 3 currently in India.

Deaths – 1 adult rhino poached in January 2008