



Figure 11. Young male rhinos prior to release, October 2014.

A Manas Rhino Conservation Plan is in preparation. A strategy for combatting encroachment is in place, comprised of short-term actions such as eviction notices and subsequent evictions, deployment of additional 50 home guards and constructing temporary camps, boundary demarcation using trenches and solar fencing. Longer-term actions concerning encroachment control are still under discussion.

Anti-poaching Efforts and Needs

Anti-poaching remains a key focus, with recognition that anti-poaching staff need to be increased significantly and that staff morale is in need of a boost. Currently, anti-poaching units operate over 500 sq. km. of the park. There are 58 anti-poaching camps, each covering an average area of between 8-10 sq. km. These staff are supported by 10 vehicles, 28 elephants, and cover four ranges. The average permanent staff per camp is 2-3 men. There is a need to increase intelligence operations, create new camps, expand SMART patrolling, and to issue better arms to the anti-poaching units (by the district administration). Recent poaching events have been attributed to a growing insurgency movement in the area.

LAOKHOWA-BURACHAPORI WILDLIFE SANCTUARY COMPLEX – P. Sivakumar, IFS, Conservator of Forest, Nagaon Wildlife Division

The contiguous Laokhowa and Burhachapori Wildlife Sanctuaries (Figure 12) of Assam are two important protected areas of central Assam. Laokhowa Wildlife Sanctuary (LWS) is located between latitudes 26°28'31.85"N to 26°32'13.95"N and longitudes 92°37'57.91"E to 92°47'23.27"E having a total area of 70.1 sq.km in Nagaon district. Burhachapori Wildlife Sanctuary (BWS) is located between the latitudes 26°30'34.16"N to 26°33'48.96"N and longitudes 92°34'27.31"E to 92°46'10.667"E with a total area of 44.06 sq.km in Sonitpur district.

Map of Laokhowa-Burhachapori Wildlife Sanctuaries
Kaziranga Tiger Reserve, Nagaon Wildlife Division, Assam

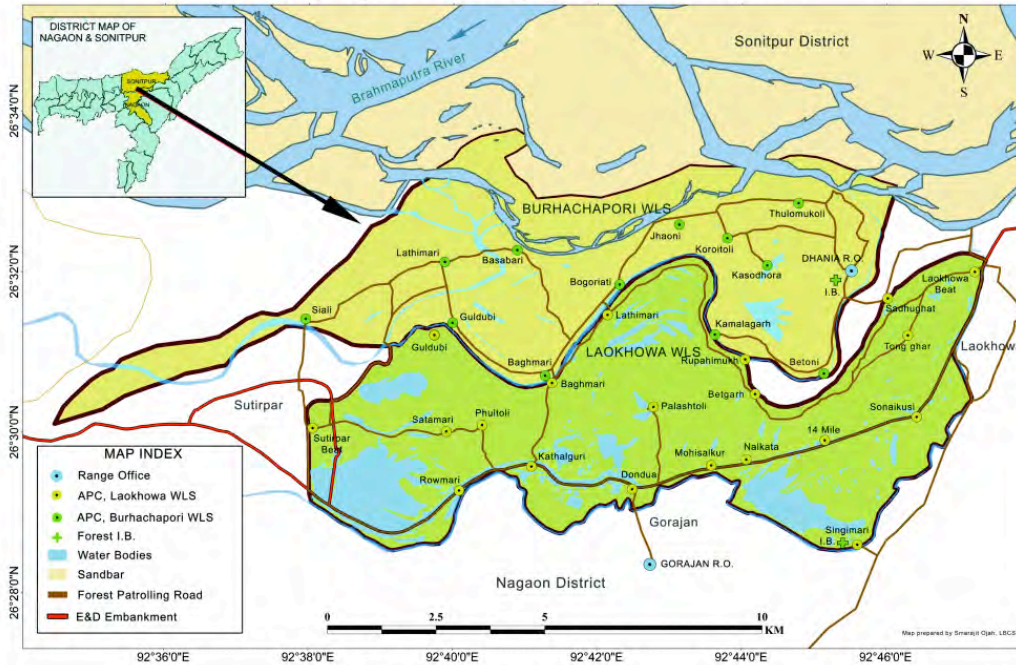


Figure 12. Map of the Laokhowa – Burhachapori complex.

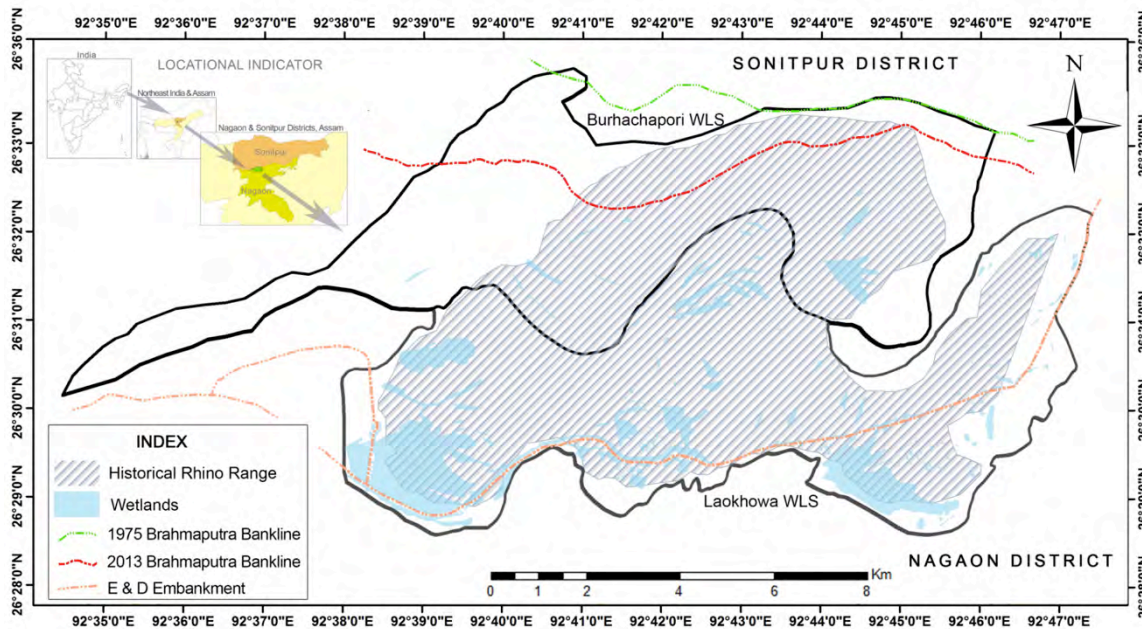


Figure 13. Map of the historical rhino range in Laokhowa-Burhachapori prepared on the basis of focused group discussions and field work conducted with frontline forest staff who served in Laokhowa and Burhachapori prior to 1983 and with fringe village elders.

Both Laokhowa and Burhachapori are historically important protected areas. The importance and biological value of the PAs can be gauged from the fact that in Laokhowa was notified as a Proposed Reserve Forest (PRF) along with Kaziranga in the year 1905 based on its then rhino

population. In 1955, this area held 41 animals (25.12.1). In the early 1980s, the area held more than 70 rhinos. However, due to the unstable political situation of the state during 1983-84, the period of Assam Agitation, poachers killed more than 40 rhinos within a matter of weeks. The rest of the surviving rhinos fled to nearby safer PAs such as Orang and Kaziranga. Figure 14 shows mortality rates and causes from 1980 through the population’s extirpation in 1991.

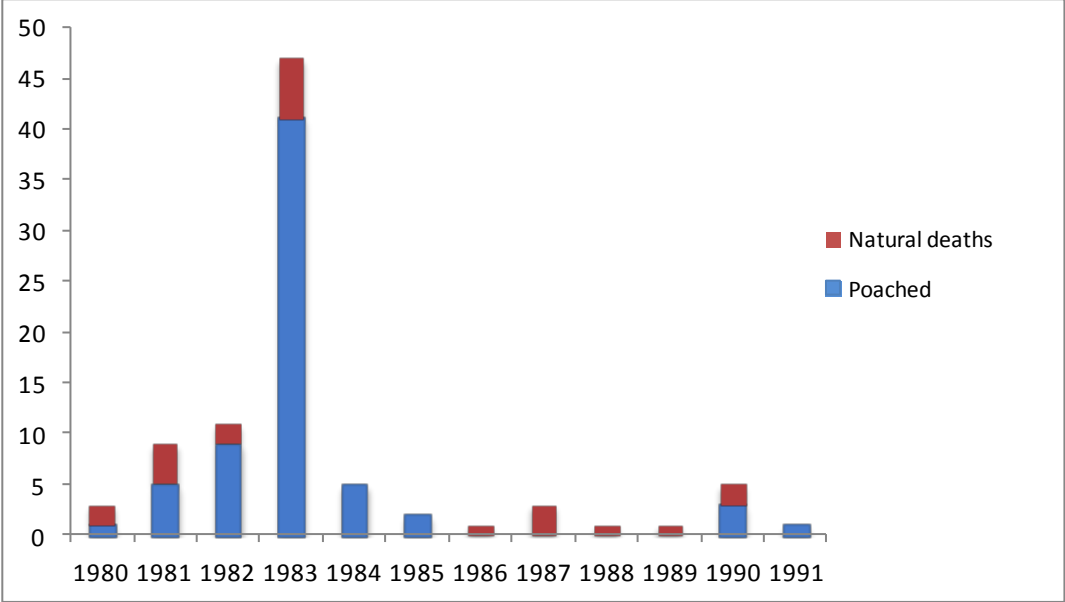


Figure 14. Mortality in Laokhowa Wildlife Sanctuary, 1980-1991 (from TRAFFIC – India)

Land use in the Laokhowa-Burhachapori changed significantly from the late 1970s to the late-2000s (Figure 15). Patterns of temporal change in land use and land cover classes of Laokhowa Wildlife Sanctuary show that there has been a gradual decline in the woodland from 1979 through 2008 and that this loss of woodland stabilized from 2008 onwards. Grassland area showed a steady increase throughout the same period. On the other hand, areas under non-forest activities (encroachment, forest and taungi village area) showed a slight decrease after 2008.

Woodland cover in BWS decreased exponentially until 2008 and after this period through 2013, woodland cover shows an increase. Grassland areas also increased after 2008. Interestingly, the area under sand deposit in BWS shows a constant increasing trend throughout the same timeframe. After 2008, the area under non-forest activities (encroachment, forest, and village areas) shows a significant decrease.

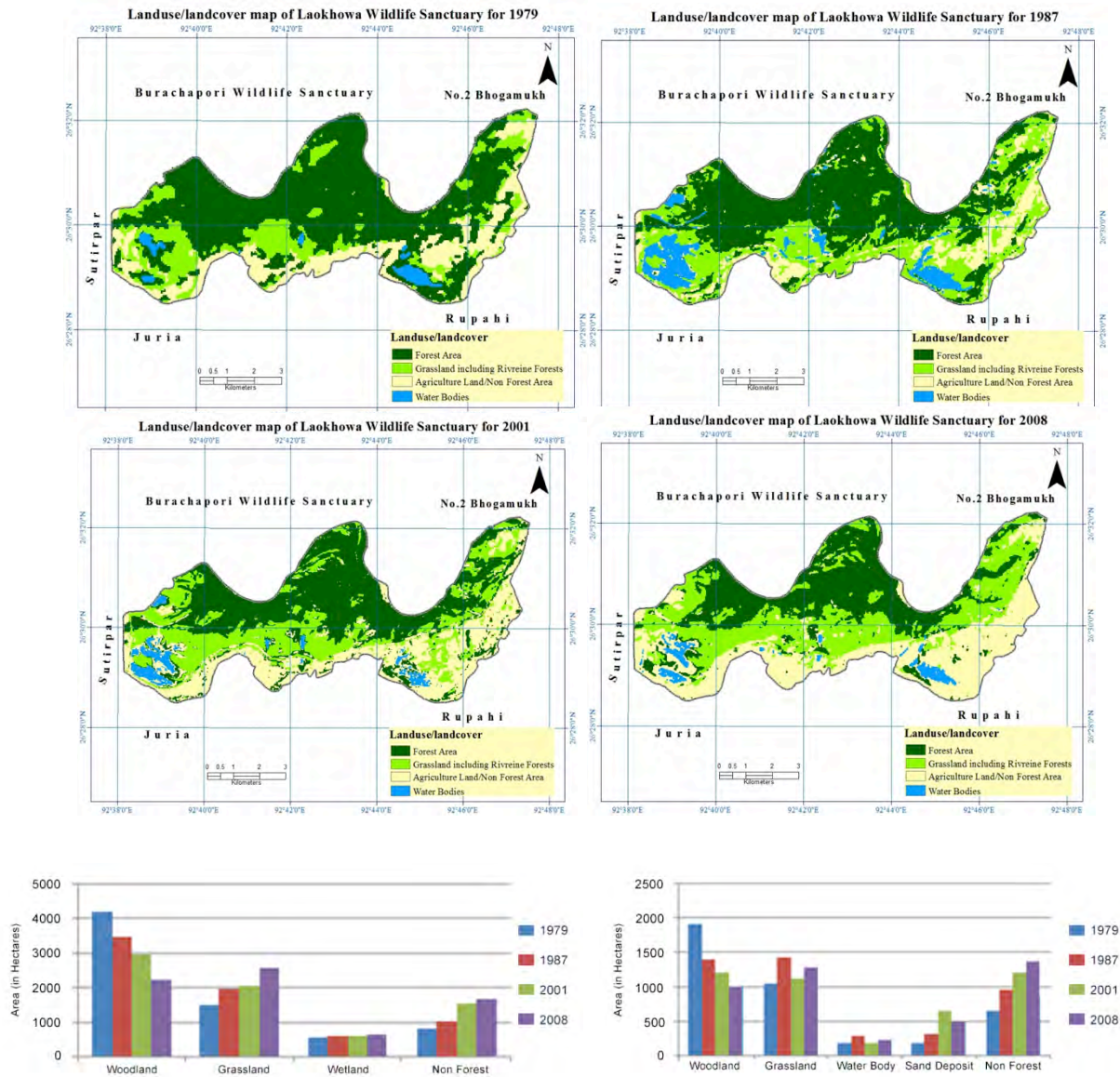


Figure 15. Land use and land cover change in Burhachapori Wildlife Sanctuary 1979 – 2008. (Based on Landsat Imageries, Source: NWLD & Smarajit Ojah, 2012)

In the 1990s, important threats/events affecting rhinos were:

- exponential human population increase
- a high rate of dependency by local communities on the sanctuary’s resources
- poaching
- encroachment
- cattle grazing
- illegal timber and non-timber forest product extraction
- corridor degradation

Current threats include high human population dependence on the sanctuary, encroachment in fringe areas, grazing and illegal fishing, flood and erosion, corridor degradation and a vulnerable riverine area.

The Importance of the Laokhowa - Burhachapori Corridor

Nestled between the Kaziranga National Park to its east and Orang National Park to its west, the Laokhowa Burhachapori Wildlife Sanctuary along with the adjacent Brahmaputra riverine tract acts as migratory corridor for wild animals of Kaziranga and Orang (Figure 16). This Brahmaputra Riverine area is widely used by rhinos, among others, for migration among the Protected Areas (Figure 17).

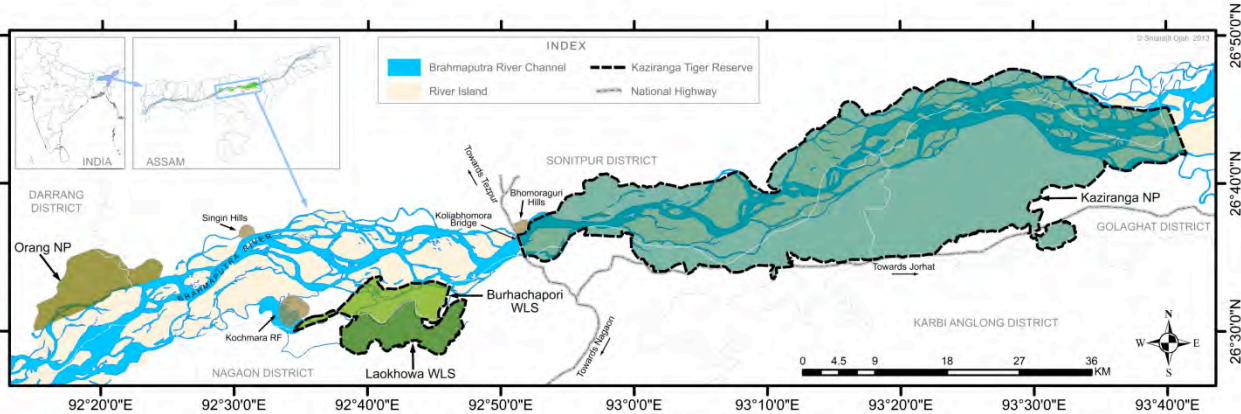


Figure 16. The Kaziranga-Laokhowa-Burhachapori-Orang Protected Area Landscape

Large mammals such as rhinos, tigers, elephants etc. frequently migrate out of Kaziranga and stray into human habitation areas near the eastern, northern and western periphery of the BWS. Such a situation demands that the wildlife be offered obstruction-free movement within the corridor to ensure that they are not blocked and thus prevent their straying into civil areas. It is important that the Kaziranga-Orang-Laokhowa-Burhachapori Brahmaputra riverine corridor is secured so as to ensure the healthy genetic exchange of wildlife. Otherwise wildlife of the adjacent protected areas would not be able to be sustained over time. Further, the islands in the region are home to many undesirable human elements, some of whom have been found to be directly associated with rhino poaching in Kaziranga and Orang National Parks.

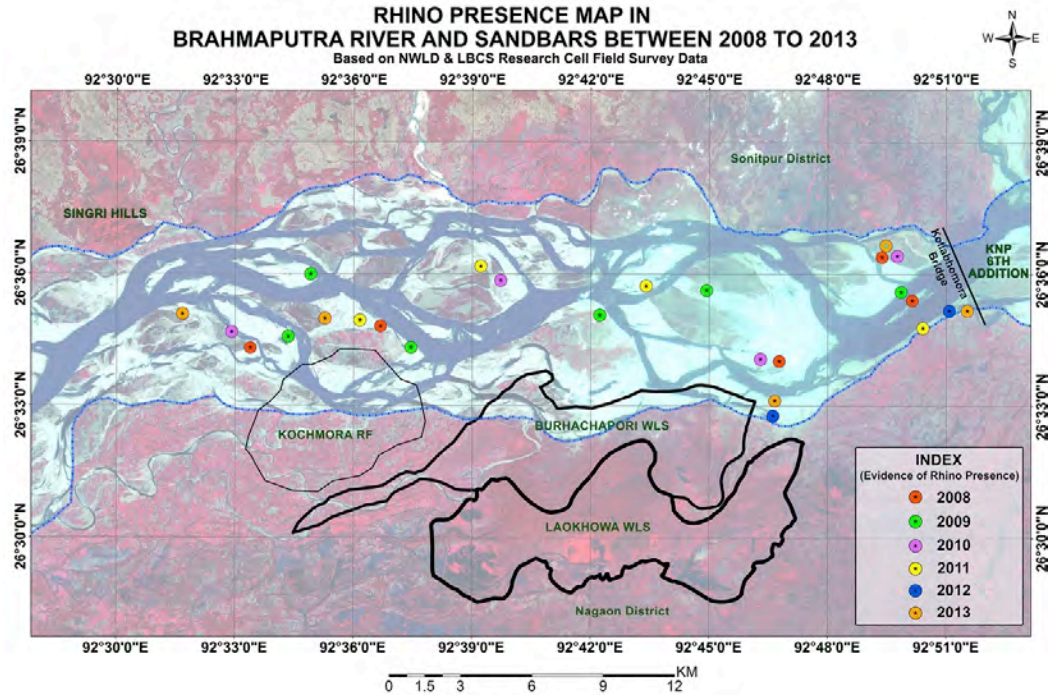


Figure 17. Map showing the presence of migrating rhinos in the River Islands within the Kaziranga-Laokhowa-Burhachapori-Orang PA Landscape (Source NWLD & Smarajit Ojah, 2014)

In 2013, a major part of the area (263.33 sq.km) comprising of a 2-km and 6-km buffer of LWS and BWS, respectively, was proposed as an Eco-Sensitive Zone (Figure 18); that proposal was discussed in a public hearing in January 2015 and the revised proposal has been submitted. Further, 90 percent of the area (250 sq.km.) was proposed as the first addition to BWS in 2014 (Figure 19).

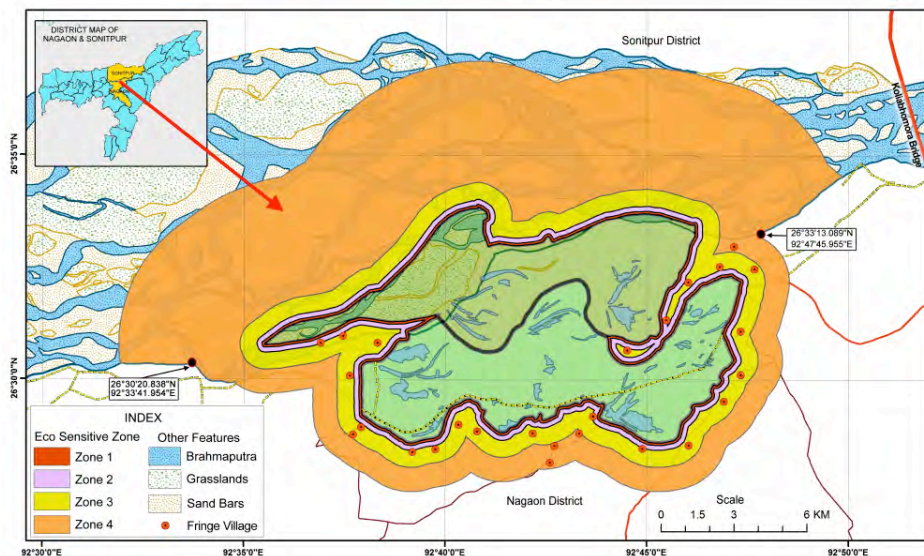


Figure 18. Proposed Eco-Sensitive Zone of Laokhowa Burhachapori Wildlife Sanctuary Complex (Source NWLD & Smarajit Ojah, 2013)

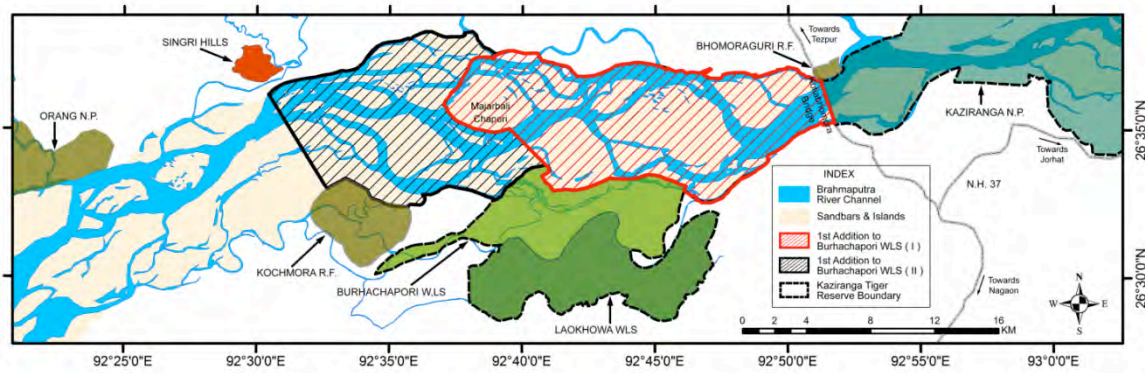


Figure 19. Proposed First Addition to Burhachapori Wildlife Sanctuary
(Source: NWLD & Smarajit Ojah, 2014)

Groundwork for Translocation of Rhinos to Laokhowa Burhachapori Wildlife Sanctuary Complex

The Assam Forest Department has adopted a three-pronged strategy for this rhino corridor:

- Controlling the biotic and anthropogenic pressures inside Laokhowa and Burhachapori Wildlife Sanctuary Complex
- Bringing the Brahmaputra River and its islands between Kaziranga and Orang National Parks under the management of the Forest Department
- Establishing a strong participatory conservation model within this landscape

Groundwork is already underway to revive the two Wildlife Sanctuaries through:

- Meetings with the Indian Rhino Vision - 2020 Program team to plan translocation of ten rhinos to Burhachapori
- Awareness meetings
- Capacity building of frontline staff
- Securing habitat from threats
- Enhancing security for the area
- Research and documentation

An important emphasis will be promoting eco-development and ecotourism in the area, which will be very important for the rhinos. Tourism has seen a revival and numbers of visitors and revenue from tourism have increased significantly over the past few years (Figure 20).

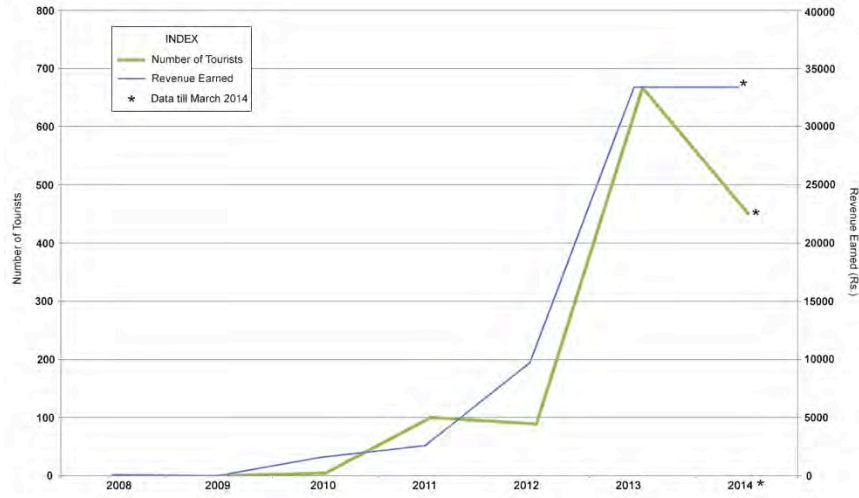


Figure 20. Trend of Tourist Inflow into Laokhowa Burhachapori Wildlife Sanctuary Complex from 2008 - 2015 (*January)



Figures 21-24. Promoting Ecotourism and Eco-Education in Laokhowa Burhachapori Wildlife Sanctuaries

The two Wildlife Sanctuaries are bordered by a large number of fringe villages as well as a few forest villages. In all, there are 33 revenue villages within a 5-km 'zone of influence' of the two sanctuaries. Further, there are 7 taungiya villages and one forest village under the LWS. The sanctuary lies in a very densely populated area. The surrounding population is very poor, illiterate, and their livelihoods, to a large extent, depend on these sanctuaries. Extreme poverty and a high human population growth rate have contributed to a huge population in the fringe areas of the sanctuaries.

In LWS, 17 Education Development Centers were registered in 2009 and eight more Centers have been proposed. For BWS, 11 Education Development Centers were registered during 2009 and two more have been proposed. They are registered under the Nagaon Wildlife Division Forest Development Agency (NWLD-FDA). The chairman of the Education Development Centers is the Director of the Kaziranga Tiger Reserve.

The Nagaon Wildlife Division has undertaken a number of Entry Point Activities in the fringe and forest villages through the Education Development Centers. Already, activities such as village road repair, construction of schools, community halls, temples and mosques, providing school uniforms and reading and writing materials, organizing free health camps, providing solar mobile charging facilities along with television sets with facilities in the community halls etc., have been initiated and mostly completed. The department also is assisting the villagers to undertake commercial planting of trees like Simul (*Bombax spp.*) in the fallow and uncultivated village lands. It also is providing incentives to villagers to develop fish, pig, and poultry farms. The department has also designated certain areas along the fringes of the two sanctuaries as grazing zones where Education Development Centers members will be allowed to graze their cattle in return of depositing a nominal fee in with the Education Development Centers. The money collected will be used for developmental activities in each of the respective Education Development Centers' villages.

All the Executive Body members of the Education Development Centers are continuously trained in the process of participatory management of protected areas. As part of this effort, they were taken to Kaziranga National Park and Orang National Park on exposure visits. The Education Development Center members interacted with the Natundanga Education Development Center members of Kaziranga National Park as well as the members of Jeep Safari Association to understand the benefits of eco-tourism ventures. Moreover, a large number of school children have been taken to Kaziranga and Orang National Parks for exposure visits with the objective of creating young conservationists who value and will focus on wildlife, forest and environmental conservation.

Alternative livelihood programs have been started in the Dhania, Jhaoni, Sisuati and No. 7 Bhogamukh Education Development Centers of BWS by the Nagaon Wildlife Division. An ecotourism resort named Burhachapori Eco Resort, which caters to tourist food requirements, was opened jointly by the Nagaon Wildlife Division and the Dhania Jhaoni and Sisuati Education Development Centers for the tourism season 2014-2015. The resort also has started to market traditional artifacts, crafts, apparel, and dairy products and has created publicity materials. The

No. 7 Bhogamukh Education Development Center operates a country boat which takes tourists on river cruises and organizes river beach activities. The Education Development Center also operates one gypsy vehicle to conduct Jeep safaris in BWS.

The Nagaon Wildlife Division has constituted two 'Local Protection Squads' comprised of about 20 motivated youths who are being engaged in active patrolling duties with the frontline staff (Figures 25-26). The youths are paid a monthly stipend.



Figures 25-26. Local Protection Squad Members Education Development Center Meeting in Dhania

Other significant management initiatives with an aim to revive the two protected areas are:

- Removing cattle stations (khuttis) from inside BWS
- Increasing length of patrolling routes by construction of new roads and reviving damaged /unused roads
- Implementing scientific grassland and wetland management measures
- Conducting awareness programs in the fringe and forest villages
- Strengthening frontline staff capability by capacity building, including advanced training on use of firearms, legal procedures, mapping, wildlife monitoring, census techniques
- Enhancing security mechanism of the protected area complex by increasing the number of anti poaching camps
- Establishing an intelligence network in the fringe areas of the two protected areas, including within the adjoining Riverine landscape for pre-empting poaching attempts
- Promotion of participatory conservation model and Building upon, enhancing and extending the alternative livelihood generation activities through implementation of a strong eco development program
- Undertaking robust, authentic, scientific research and documentation activities
- Promoting eco tourism and environmental education tours in Laokhowa Burhachapori Wildlife Sanctuaries

Translocation of Rhinos to Laokhowa Burhachapori Wildlife Sanctuary Complex under IRV 2020

To understand the prevailing ecology of the Laokhowa Burhachapori WLS complex, a 1-km x 1-km grid overlay was made over the study area. Habitat parameters were identified and field

data pertaining to these parameters were collected from each quadrant using relevant sampling techniques. The parameters for each grid were scored on a scale of 1-10 (low to high). In all, 15 relevant habitat parameters were considered in the analysis; the cumulative score for all the parameters for each grid was converted into percentage (100%).

The parameters were:

- | | |
|-----------------------------------|-------------------------------------|
| 1. Fodder Quality | 9. Normal flood inundation |
| 2. Fodder Availability | 10. High flood inundation |
| 3. Drinking water availability | 11. Ungulate presence |
| 4. Wallowing space | 12. Pre 1980s rhino presence |
| 5. Seasonal availability of water | 13. Soil / Bank erosion |
| 6. Land cover distribution | 14. Human habitation / encroachment |
| 7. Accessibility | 15. Biotic pressure |
| 8. Communication facility | |

The cumulative score (100%) derived from the aggregate score (150) was then classified into four categories which was taken as indicator to arrive at the prevalent habitat scene for the complex (Results show in Table 5 and in Figure 27).

Table 5. Rhino Habitat Quality Scoring of Laokhowa Burhachapori WLS Complex

Habitat Duality	Habitat Score	Total No. of Grids
Least Suitable	<25%	79
Partially Suitable	26-50%	40
Moderately Suitable	51-75%	23
Most Suitable	> 75%	12

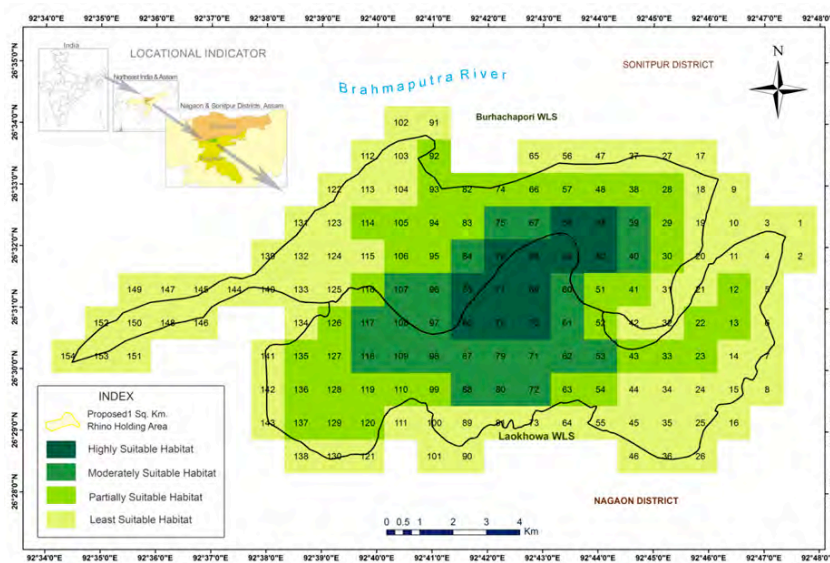


Figure 27. Rhino Habitat Suitability Mapping of Laokhowa Burhachapori Wildlife Sanctuary Complex (Source NWLD, IRV 2020 Habitat Assessment Team & Smarajit Ojah)

Based on the above findings, the construction of the Holding and Main Boma (Enclosure) was started in the Kasodhora-Koroitoli-Jhaoni region of Burhachapori Wildlife Sanctuary. The total size of the Holding Boma is 44,000 square feet while the Main Boma extends over an area of 1.50 square kilometers¹. The Assam Forest Department will translocate a total of 10 rhinos to the Laokhowa Burhachapori Wildlife Sanctuary Complex beginning in 2015.

WEST BENGAL – Ujjwal Bhattacharya, I.F.S., Principal Chief Conservator of Forests and Wildlife and Chief Wildlife Warden, West Bengal

There are two small national parks in West Bengal that hold rhinos: Gorumara (78.45 sq. km.) and Jaldapara (216.51 sq. km.) (Figure 28). Rhinos sometimes stray outside of the protected areas, especially from Gorumara.

Threats in these two areas include: limited grasslands in the Protected Areas; presumed inbreeding depression; male-male fighting resulting in straying outside the Protected Areas; and the ever-present threat of poaching for horn.

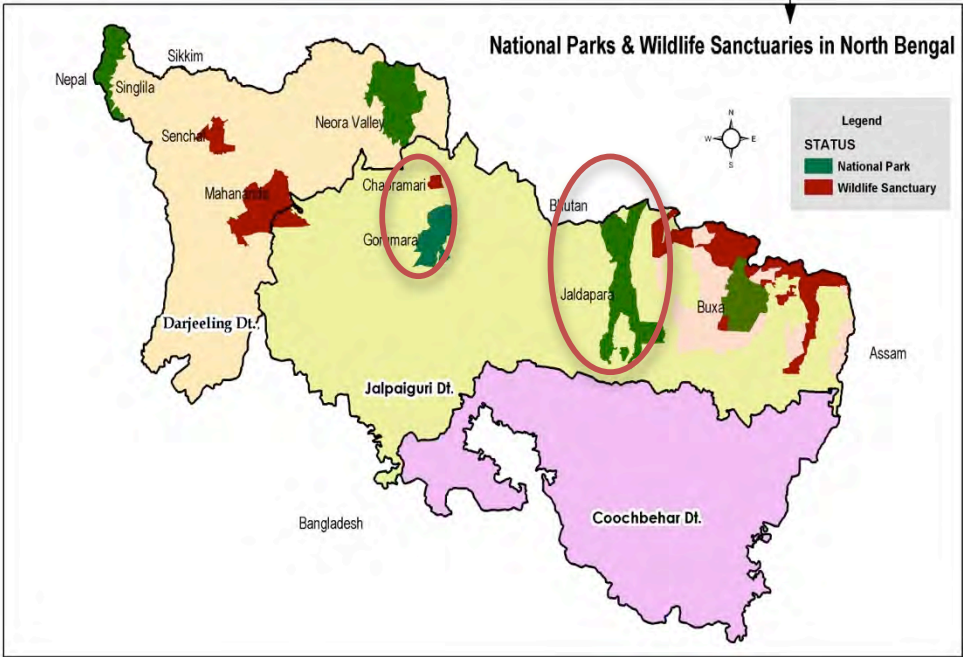


Figure 28. Gorumara and Jaldapara Wildlife Sanctuaries in West Bengal (circled in red).

¹ Details of the boma location and design are not included here due to security concerns.