

sites, or additional land needs to be acquired. However, net gain cannot be allowed to dip below 2.75 meaning the net gain in Kaziranga should not be allowed to go below ~10 animals.

We need to think beyond the current plans to translocate animals, including crossing state and perhaps eventually national borders (Figure 9), creating larger populations and corridors in which rhinos can move. Many of the current rhino areas, e.g., Manas, Pabitora, and Orang, do not have room for expansion.

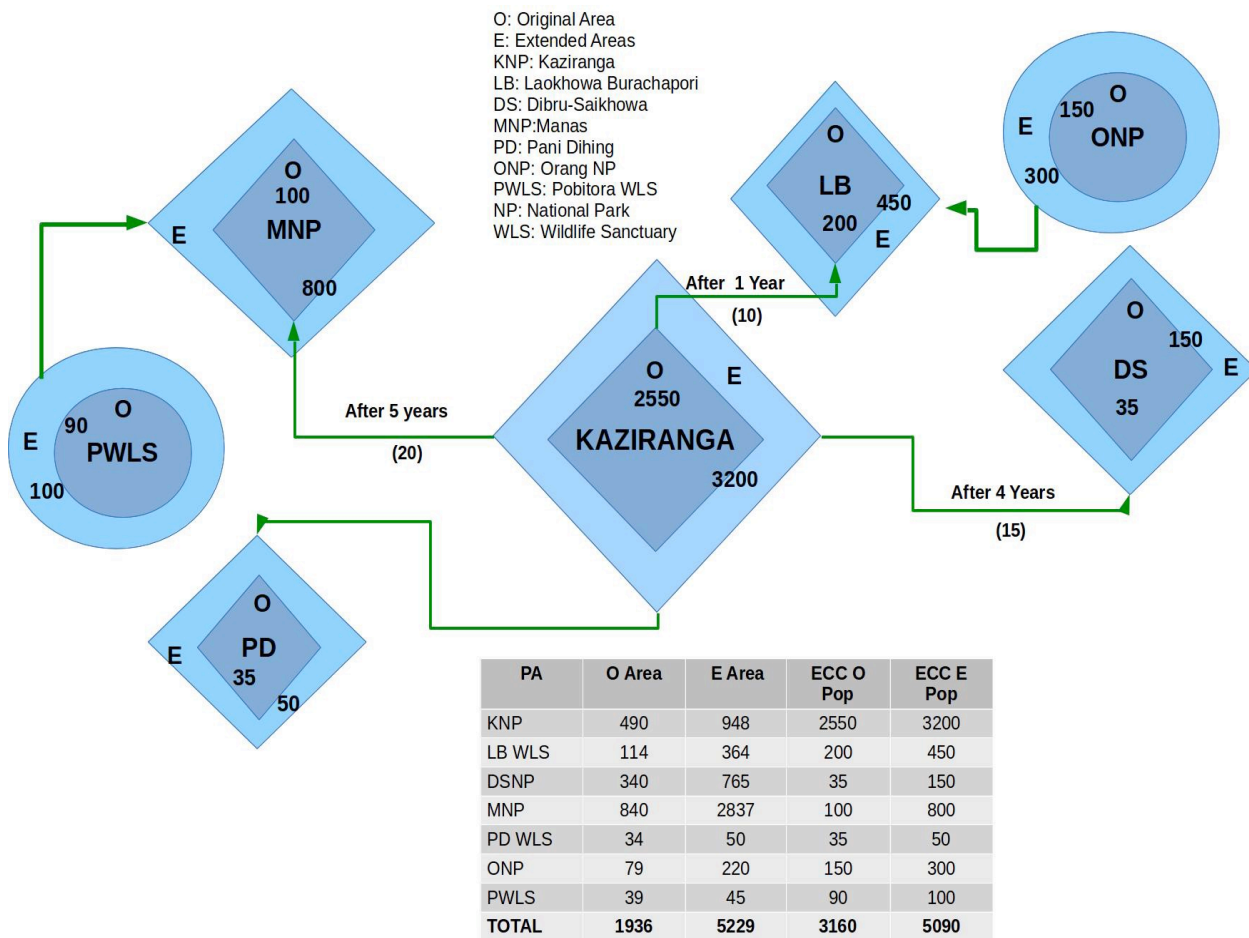


Figure 9. Conceptual figure with current and potential rhino range expansions possibilities, including (in table insert) the carrying capacity of each area.

### MANAS NATIONAL PARK – Sonali Ghosh, Deputy Director, Manas Tiger Reserve

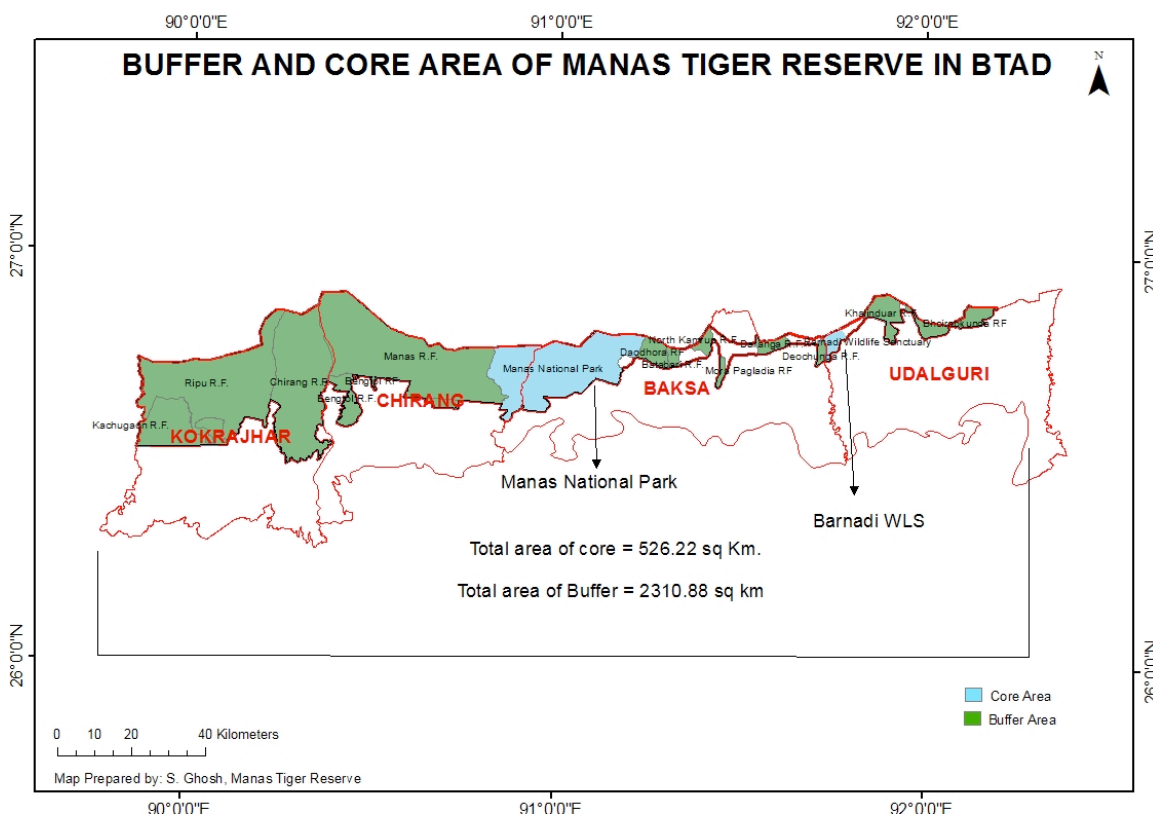
Manas currently has six national designations:

1. Tiger Reserve (1973)
2. World Heritage Site (1985)
3. Biosphere Reserve (1989)

4. National Park (1990)
5. Elephant Reserve (2002)
6. Important Bird Area (2007)

Work is underway to obtain additional international designations such as a transboundary landscape/World Heritage Site (TraMCA), RAMSAR site, and the second largest tiger conservation landscape (SOURCE) site. Manas is home to 22 of India's most threatened species of mammals. In total, there are nearly 60 mammal species, 42 reptile species, 7 amphibians and 500 species of birds, of which 26 are globally threatened. Plant diversity includes 89 tree species, 49 shrubs, 37 under-shrubs, 172 herbs and 36 climbers. The park also is home to 15 species of orchids, 18 fern species and 43 species of grasses.

Figure 10 shows a map of Manas National Park.



**Figure 10. Map of core area and buffer zone, Manas National Park.**

In 1966, Manas held 15 GOHRs, and by 1990, the population reached between 85 and 100 animals. During that time frame the rhino population was 15 (in 1966), growing to 85-100 in 1990. By 1995 only 30 were left and the last rhino was poached in 2001 in eastern range. By the mid-2000s, during a period of severe civil conflict, it was confirmed that rhinos had been extirpated from the park.

Beginning in April 2008, under Indian Rhino Vision 2020, four males and six female rhinos were translocated from Pobitara, and three males and five females were translocated from Kaziranga. A total of 18 animals were moved to Manas. The animals adapted well, with 11 calves born. Manas had been on the Endangered World Heritage Site list since 1992; bringing rhinos back assisted in the park being taken off the Endangered list and its status as a World Heritage Site renewed in 2011.

To support the current population, the USFWS is funding joint patrolling for home guards and park guards. SMART patrolling also has been implemented, with 160 volunteers supported. A rhino identification manual also is being developed.

Table 3 shows the number of rhinos that have been moved into the park since 2006. The first animals moved were three rescued hand-reared animals that resided in a 1-ha pen in the park. Table 4 shows the number of animals that had been poached in the park from this new population. Only adult animals, moved as part of Indian Rhino Vision 2020, have been killed so far. These animals are adults with fully formed horns, which represent a better profit for poachers.

**Table 3. Animals moved to Manas National Park under Indian Rhino Vision 2020 as well as rescued, hand-reared animals.**

Wild-to-Wild Translocation		Rescue-and-Rehabilitation	
Year	No. of Rhinos	Year	No. of Rhinos
2008	2	2006	3
2010	2	2012	2
2011	4	2013	1
2012	10	2014	3
<b>Total</b>	<b>18</b>	<b>Total</b>	<b>9</b>

**Table 4. Animals lost to poaching (all from the IRV 2020 translocations) and rhino births, 2011 - 2014.**

Year	No. of Rhino Deaths	No. of Rhino Births
2011	1	
2012	1	1
2013	5	10
2014	1	
<b>Total</b>	<b>8</b>	<b>11</b>

**2014 releases.** Three 5-year-old male rhinos were brought in from the rescue center and were released on 20 October 2014. They were confined in a boma in the park prior to release.



**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.