Two decades after civil unrest, wildlife makes a steady recovery

- Between the late 1980s and early 2000s, civil unrest impacted wildlife in Assam's Manas National Park.
- Twenty years after the conflict, researchers have found that elephant, wild buffalo, and tiger populations have revived significantly compared to earlier data.
- While the density of gaur, sambar, and barking deer seemed stable, the populations of prey species such as hog deer and wild pig showed a sharp decline.
- Researchers warn that a sustained decline of the prey species could lead to a prey deficit, potentially increasing the risk of human-wildlife conflict.

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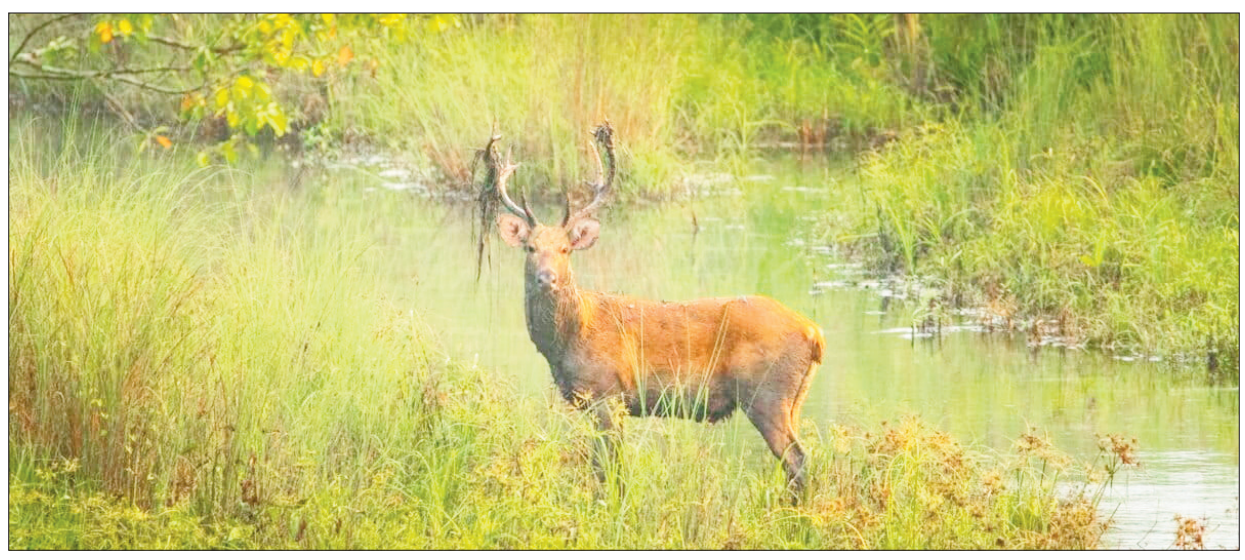
For two decades, armed conflict in Assam's Bodoland region turned Manas National Park from a UNESCO World Heritage Site into a battlefield. Forest guards fled, poachers moved in, and over 40% of the park's primary forests were cleared for farms and settlements. Tigers, rhinos, elephants and deer vanished or hovered on the brink of extinction.

Between the late 1980s and early 2000s, civil unrest between Bodo insurgent groups and the state government spilled deep into Manas. Rebels targeted forest department personnel and infrastructure, crippling the Park's management systems. With protection gone, poaching surged, habitats degraded, and wildlife populations collapsed.

Now, nearly 20 years after peace returned, a new study by researchers from the Wildlife Institute of India tells a rare story of ecological resilience but also warns of troubling declines in key prey species.

The study assessed the post-conflict recovery of endangered prey-predator guilds and recorded high densities of elephant, wild buffalo, and tiger compared with the 2015 baseline data. While the density of gaur, sambar, and barking deer seemed stable, the populations of hog deer and wild pig showed a sharp decline.



The recovery path

Manas National Park, which serves as an important transboundary conservation landscape, encompassing several protected areas in northeastern India and southern Bhutan, witnessed a sharp decline in almost all of its species during the conflict period between the late 80s and early 2000s.

During this period, the greater one-horned rhinoceros went locally extinct and male tuskers of elephant populations reached near extermination due to organised poaching and ivory trade.

The eastern swamp deer was almost extirpated, and tigers were also targeted by the poachers during the unrest. The population of medium herbivore species such as spotted deer and wild boar, which serve as primary prey for large carnivores, was also severely depleted due to their high value as bushmeat.

However, following the resolution of civil unrest in 2003, the park authorities initiated conservation efforts to restore Manas' ecological integrity. This included habitat restoration, anti-poaching initiatives, and community engagement programmes, which gradually led to the recovery of several species. This recovery included the reintroduction of rhinoceros in 2008 and swamp deer in 2014, both of which marked significant progress in restoring Manas' biodiversity.

In 2022 and 2023, researchers tracked how endangered predators and their prey species were recovering after conflict, using elephant-back surveys to count animals and camera traps to estimate their populations.

According to the study, there are records of high densities of elephant, wild buffalo, and tiger, while gaur, sambar, and barking deer showed stable densities compared to 2015 baselines. Rhinoceros and swamp deer populations also grew significantly. Tiger population recovered, with 57 adults, establishing Manas as a source population for the transboundary landscape, while leopard maintained stable densities.

"The sharp recovery of key species like tigers and rhinos in Manas Tiger Reserve can largely be attributed to the improved law and order situation following the first and second Bodo Accords (in 2003 and 2022). With the decline of insurgency, the forest department was able to re-establish control over the area and implement strict anti-poaching measures," Vaibhav Chandra Mathur, the lead author of the study and the Deputy Inspector General of Forests, National Tiger Conservation Authority (NTCA), said.

"Following this (the peace accord), the park authorities reinstated strict protection protocols such as deployment of additional forest guards, increased patrolling in vulnerable areas, and enhanced anti-poaching operations to prevent illegal hunting and trade. Efforts were also made to restore degraded grasslands, forests, and wetlands to provide adequate food and shelter for wildlife," Chief Conservator of Forest and the field director of Manas Tiger Reserve, C. Ramesh told Mongabay India in an email response.

Concerning decline

Despite a steady post-conflict recovery of many species in Manas National Park, the numbers of some herbivore species are concerning. The hog deer population, one of the major prey species of tigers, has seen an 82.32% decline in its density between 2015 and 2023. Similarly, a decline of 67.36% was observed in the wild pig population during the same period.

"During the years of civil unrest, hog deer and wild pig populations declined sharply due to extensive bushmeat hunting, as they were among the most commonly targeted species. While some recovery has occurred post-accord, hog deer numbers remain low. This is partly because hog deer have a relatively slow reproductive rate — single fawns after a gestation period of around nine months. In contrast, tiger populations have been increasing rapidly," explained Mathur.

"The imbalance has likely created a 'predator pit' scenario, where rising predator numbers prevent prey populations from bouncing back. Hog deer, being grassland specialists, are particularly vulnerable to ambush predation in tall grass habitats, making their recovery more challenging," he added.

"I can see two factors contributing to this: first, shrinkage or pressure on tall, wet grasslands which are specific habitats of the species, leading to a reduction in its numbers; second, an increase in large carnivore populations could have increased predation pressure on the species, which typically live in small groups," said Samir Kumar Sinha, head of conservation at Wildlife Trust of India. Sinha was not part of this study.

The study attributes the decline of wild pig population to illegal bushmeat hunting, as the animal is often heavily targeted for bushmeat.

Mathur warns that a sustained decline in these prey species could lead to a prey deficit, potentially pushing tigers closer to human settlements in search of livestock or domestic pigs, increasing the risk of human-wildlife conflict.

"Hog deer and wild pigs are important prey species for large carnivores such as tigers. A sustained decline in their populations could lead to a prey deficit, potentially pushing tigers to venture closer to human settlements in search of alternative food sources like livestock or domestic pigs. This may increase the risk of human-wildlife conflict, including retaliatory killings," he said.

However, he also notes that no adverse impact on predator densities has been observed so far, likely due to the presence of a diversified prey base.

While the decline of hog deer and wild pigs poses an ongoing challenge for the park's ecological balance, conservationists say the steady revival of Manas would not have been possible without the active participation of local communities in protecting and restoring its habitats.

Community's involvement

After the peace accord, local communities — many of whom had once been drawn into the unrest — became partners in conservation. Former poachers surrendered handmade guns. Young people helped rebuild Manas, patrolling alongside forest guards and working with NGOs on habitat restoration.

"Local communities actively engaged in conservation efforts, promoting shared responsibility and lowering human-wildlife conflict. After the peace accord, locals shifted from conflict-related activities to sustainable livelihoods, such as eco-tourism and conservation work. A significant number of people were employed as forest guards, eco-tourism guides, and members of anti-poaching teams. Increased community pride and ownership have led to a reduction in forest exploitation and ensured long-term protection of the forests," Ramesh said.

"In the initial years after the return of normalcy, local youth helped rebuild Manas by actively protecting the area in collaboration with the park management and local government. Later, they participated in the conservation efforts of government agencies and non-governmental organisations, demonstrating their sustained interest," Sinha said.

"Their commitment to conservation is also evident in initiatives in which local poachers surrendered handmade guns to the authorities. Moreover, local governance bodies and community groups have been supportive to the notification of protected areas in the landscape, aiming to safeguard wildlife habitats against anthropogenic expansion," Sinha added.

"The local government, especially under the Bodoland Territorial Administration (BTAD), also extended vital support, helping to institutionalise these changes. This shared sense of responsibility between the forest department and local communities has been key to Manas' ecological recovery," Mathur concluded./*MONGABAY*