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Protected Area Governance and Conservation Frameworks at Manas National Park

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FIELD RESEARCH REPORT

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Centre for Environmental Law, Advocacy and Research (CELAR)
National Law University and Judicial Academy, Assam (NLUJA Assam)

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ABOUT CELAR

The fundamental aim of the **Centre for Environmental Law, Advocacy, and Research (CELAR)**, National Law University and Judicial Academy, Assam, is to participate in advocacy and research on public interest environmental concerns. It endeavours to do so by holding workshops and seminars to educate and improve skills, convening conferences to encourage an exchange of ideas, conducting training programmes for capacity building in environmental law issues, undertaking legal research, and publishing newsletters and journals regularly.

The main objectives of CELAR can be elucidated as follows:

- Providing students with hands-on advocacy experience and direct exposure to the issues to inspire and educate them.
- Strengthen access to justice by conducting high-quality multi-disciplinary research on current environmental legal issues.
- Advocate for reforms in environmental law through scientifically sound legislative proposals.
- Organize training programmes for civil servants, law enforcement agencies, non-governmental organisations, and media professionals to improve their legal capacity on environmental laws and policy.

- Publish environmental law publications and bulletins on a regular basis.

Thus, to meet the last objective, CELAR has undertaken the initiative '***Lex Terra***'. Through Lex Terra, we aim to give voice to various aspects of the environment in a quarterly publication, creating a community of environmentally conscious individuals from the legal and non-legal professions. Each issue of Lex Terra features important environmental news from across the world and from within the nation. This bulletin is meticulously compiled by CELAR members and is dedicated to enviro-legal enthusiasts around the country.

EDITOR-IN-CHIEF'S NOTE

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Environmental law gains its real meaning when studied beyond classrooms and textbooks. While legislations and judicial decisions form the backbone of environmental governance, the realities of conservation can only truly be understood by engaging with the landscapes, institutions, and communities that these laws seek to protect. The field visit to Manas National Park organised by the Centre for Environmental Law, Advocacy and Research (CELAR), NLUJA Assam, was undertaken with this very objective in mind.

Manas is not merely a protected forest. It is a living example of ecological significance, institutional perseverance, and conservation recovery. From once being categorised as a World Heritage Site in Danger to emerging today as one of India's most important biodiversity hotspots, the journey of Manas reflects the impact of sustained conservation efforts and responsible governance. The visit offered students an opportunity to witness these efforts firsthand and to better understand the complexities involved in balancing wildlife protection, habitat management, and community interaction.

The discussions with forest officials and conservation authorities provided valuable insights into the functioning of Project Tiger, anti poaching strategies, biodiversity monitoring systems, and the broader administrative structure governing protected areas. Equally important was the experience of observing wildlife within its natural habitat, which reinforced the importance of preserving ecological spaces not only as legal obligations but also as shared environmental responsibilities.

This report represents more than a documentation of observations. It reflects the growing importance of experiential learning within environmental legal education. In an era marked by climate change, habitat loss, and increasing human pressure on natural resources, there is an urgent need for future legal professionals and researchers to engage critically with the practical dimensions of conservation governance.

I extend sincere appreciation to the Assam Forest Department, the officials and staff of Manas National Park, and the organising members of CELAR for making this educational initiative possible. It is hoped that this report will contribute to greater awareness, stronger academic engagement, and continued dialogue on wildlife conservation and environmental protection in India.

EDITORIAL NOTE

The field visit to Manas National Park was not merely an academic excursion. It was an attempt to understand conservation beyond textbooks and legal provisions. As students of environmental law and policy, we often study legislations such as the Wildlife Protection Act, 1972 and the Forest Rights Act, 2006 in classrooms. However, the realities of implementation can only truly be understood by engaging directly with the people, institutions, and ecosystems involved in conservation governance.

Manas National Park is one of India's most notable conservation success stories, which is why it was selected for this field study. Because the lower Gangetic plains, the Brahmaputra valley, and Himalayan biodiversity zones meet, the park, which is situated at the base of the Eastern Himalayas, is ecologically unique. Numerous endemic and endangered species, including the Indian tiger, Bengal florican, Assam roofed turtle, golden langur, and pygmy hog, can be found there. The park is a crucial case study in protected area governance and biodiversity management due to its enormous international significance as a UNESCO World Heritage Site.

The visit further allowed students to study the functioning of Project Tiger at the ground level. Project Tiger remains one of India's most ambitious and globally recognised wildlife conservation initiatives. Launched in 1973, the project was envisioned to protect tigers and preserve their natural habitats through scientific management, habitat restoration, anti poaching measures, and community engagement. The importance of Project Tiger today extends far beyond the protection of a single species. Tigers function as apex predators and umbrella species. Protecting tiger habitats indirectly safeguards forests, rivers, grasslands, and thousands of other plant and animal species that coexist within the same ecosystem. In a state like Assam, where biodiversity faces pressures from habitat fragmentation, encroachment, and climate related vulnerabilities, tiger reserves such as Manas play a crucial ecological role.

One of the most important takeaways from the field trip was understanding how conservation is implemented through institutional collaboration. Interactions with Dr. C. Ramesh, IFS, Field Director of Manas Tiger Reserve, and forest officials shed light on the administrative and enforcement aspects of conservation governance. Students were able to see how patrolling frameworks, anti-poaching camps, biodiversity monitoring systems, and corridor preservation measures are used across the reserve.

The achievements of the Assam Forest Department and associated conservation authorities at Manas deserve special recognition. Manas was once categorised as a "World Heritage Site in Danger" due to severe poaching and insurgency related disturbances during the 1990s. Through sustained conservation efforts, habitat restoration, stricter protection mechanisms, and collaborative governance, the park was removed from the danger list in 2011. This transition reflects years of dedicated work by forest officials, rangers, conservation workers, and local communities.

The department has also strengthened monitoring and surveillance systems through technological interventions such as M STRIPES, which allows forest guards to digitally record patrol routes, wildlife movement, and conflict incidents using GPS based systems. Extensive anti-poaching infrastructure across different ranges of the reserve demonstrates the state's commitment to reducing illegal wildlife activities and protecting critical habitats. Simultaneously, the focus on corridor protection and human wildlife coexistence highlights a shift towards more sustainable and community conscious conservation practices.

This excursion was a valuable experiential learning opportunity for the members of CELAR . It emphasised that environmental law cannot be limited to statutes and courtrooms alone. Scientific

management, administrative efficiency, legal enforcement, and community participation all work together to ensure effective conservation. Observing animals in their natural habitat and interacting directly with conservation officials gave students a far better understanding of the biological, legal, and ethical importance of wildlife conservation.

Finally, Manas is recognised now not just as a protected forest, but also as a symbol of ecological persistence and conservation recovery. Its journey from crisis to restoration exemplifies the power of long-term policy implementation, institutional commitment, and communal environmental responsibility.

1. Introduction

This field report outlines the observations and findings from a two-day educational and field research excursion to Manas National Park, organized by the Centre for Environmental Law, Advocacy and Research (CELAR) at NLUJA Assam. The principal objective of this visit was to conduct empirical research on the juncture of environmental law, policy execution, and the operational realities of protected area governance, with special focus on Project Tiger.[1]

The area today consisting of the Manas National Park was under the Kingdom of Bhutan till the Duar War of 1865 when it was ceded to British India.[2] The Manas Wildlife Sanctuary was declared a sanctuary on 1 October 1928 with an area of 391 sq. km.[3] It was declared a World Heritage Site in 1985 by UNESCO.[4] In 1992, UNESCO declared it as a world heritage site in danger due to heavy poaching and terrorist activities.[5] On 21 June 2011, it was removed from the List of World Heritage in Danger and was commended for its efforts in preservation.[6]

The Manas landscape can be best explained as a confluence of 3 major bio-geographic regions namely the lower Gangetic plains, the central Himalayas and the Brahmaputra valley.[7] There is only one forest village, Pagrang, in the core of the national park. Apart from this village 56 more villages surround the park. Many more fringe villages are directly or indirectly dependent on the park.[8]

The Manas National Park is divided into various ranges, namely the Kuklung range, Panbari range, Bansbari range, and the Bhuyanpara range. This division helps to ensure all the ranges are getting the best possible in terms of administration and forest management with the present

[1] National Tiger Conservation Authority, 'About Us', stating that Project Tiger was launched in April 1973 to ensure a viable population of tigers in India and preserve areas of biological importance as national heritage, https://ntca.gov.in/about-us/

[2] Manas Tiger Reserve, 'Conservation Timeline of Manas National Park', recording the historical conservation timeline of Manas, https://manasnptr.in/about/conservativetimeline

[3] Manas Tiger Reserve, 'Conservation Timeline of Manas National Park', recording the declaration of Manas Wildlife Sanctuary on 1 October 1928 with an area of 391 sq. km., https://manasnptr.in/about/conservativetimeline

[4] UNESCO World Heritage Centre, 'Manas Wildlife Sanctuary', recording Manas as a UNESCO World Heritage property, https://whc.unesco.org/en/list/338/

[5] UNEP-WCMC, 'Manas Wildlife Sanctuary: World Heritage Datasheet', recording that Manas was listed as a World Heritage Site in Danger from 1992 to 2011 because of damage and losses caused by civil unrest, https://world-heritage-datasheets.unep-wcmc.org/datasheet/output/site/manas-wildlife-sanctuary

[6] UNESCO World Heritage Centre, 'Successful preservation of India's Manas Wildlife Sanctuary enables withdrawal from the List of World Heritage in Danger', 21 June 2011, https://whc.unesco.org/en/news/762

[7] National Tiger Conservation Authority, 'Manas Tiger Reserve' brief note, describing the landscape location and ecological setting of Manas Tiger Reserve, https://ntca.gov.in/assets/uploads/briefnote/manas.pdf

[8] UNESCO World Heritage Centre, 'Manas Wildlife Sanctuary', describing the property's ecological and conservation significance, https://whc.unesco.org/en/list/338/

infrastructure.[9] However, it is proposed to be divided into west and east zones and further include different ranges to ensure ease of management across the vast land.[10]

2. Academic Objectives

The visit was designed to bridge the gap between theoretical environmental law and its everyday application on the ground. The pivotal points included:

i. **Policy and Administrative Implementation:** The students assessed the governance architecture of protected areas for tigers and other IUCN listed animals in the reserve. The park is known for its rare and endangered endemic wildlife such as the Assam roofed turtle, golden langur and hosting the only population of pygmy hogs.[11]

ii. **Legal Measures and Enforcement of Laws:** The legal measures on paper and in actuality are different for many, especially in the field of environmental law. The students conducted practical research to understand the on-ground operationalization of conservation laws, including compliance practices based on the Forest Rights Act, 2006[12] and the Wildlife Protection Act, 1972.[13]

iii. **Project Tiger Framework:** India was the first country in the world to champion the cause of conservation of the tiger and its natural habitats.[14] Analyzing the operational realities, successes, and challenges of this flagship conservation initiative was one of the major tasks undertaken by the centre.

iv. **Institutional Roles of the Field Officers and Director:** The authorities of the Assam Forest Department and the Bodoland Territorial Council are responsible for the management of the Manas National Park.[15] With the exclusive interaction with the Field Director at the Manas National Park and Tiger Reserve, the students were able to understand the coordination between various tiers of forest administration, protection

[9] National Tiger Conservation Authority, 'Manas Tiger Reserve' brief note, describing the reserve's governance and protected-area status, https://ntca.gov.in/assets/uploads/briefnote/manas.pdf
[10]Manas Tiger Reserve, 'Conservation Timeline of Manas National Park', recording the notified area of Manas Tiger Reserve as 2,837 sq. km., https://manasnptr.in/about/conservativetimeline
[11] UNESCO World Heritage Centre, 'Manas Wildlife Sanctuary', noting endemic and endangered species including pygmy hog, hispid hare, golden langur, and Bengal florican, https://whc.unesco.org/en/list/338/
[12] Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006
[13] The Wild Life (Protection) Act, 1972
[14] National Tiger Conservation Authority, 'About Us', describing the launch and objective of Project Tiger, https://ntca.gov.in/about-us/
[15] National Tiger Conservation Authority, 'Milestone Initiatives', describing Project Tiger and its management framework, https://ntca.gov.in/milestone_initiatives/

systems, and habitat management, focusing on how human and wildlife interaction can mitigate the conflict that might occur between local communities and the wildlife.

3. Key Interactions and Field Observations

3.1. Insights from the Field Director

A cornerstone of the expedition was an exclusive interactive session with **Dr. C. Ramesh, IFS,** Field Director, Manas Tiger Reserve. Dr. Ramesh generously shared profound intellectual insights into the complex administration, governance, and day-to-day workings of the National Park. The discussion provided students with an invaluable administrative perspective on how statutory mandates are translated into daily conservation action.

3.2. Conservation Infrastructure and Enforcement

To understand the enforcement of wildlife laws, students engaged directly with Park and Forest officials. The team conducted non-interfering observations of the park's conservation infrastructure, which included:

i. **Patrolling Frameworks:** The team focused on understanding the logistical and legal protocols followed by the frontline forest staff. With the reserve covering approximately 2,837 sq. km. area with an international border, it becomes crucial to understand how the human intervention can be minimised to keep the animals at ease.[16] With focus on the restoration of natural habitats of various fauna and grasslands to provide a hunting ground for the predators, the patrolling frameworks have been developed in a manner that does not interfere with the natural workings of the wildlife.[17]

ii. **Anti-Poaching Operations:** The team focused on observing the setup and strategic placement of anti-poaching camps essential for deterrence and rapid response. The most important thing is that there remain no gaps in patrolling, especially in parts which has been recently added to the existing reserve area. A crucial part about anti-poaching remains the human-wildlife conflict which may take place due to a variety of reasons.

[16] Manas Tiger Reserve, 'Conservation Timeline of Manas National Park', recording Manas Tiger Reserve notification area as 2,837 sq. km.; National Tiger Conservation Authority, 'Manas Tiger Reserve' brief note, recording its location adjoining Bhutan and related landscape features, https://manasnptr.in/about/conservativetimeline and https://ntca.gov.in/assets/uploads/briefnote/manas.pdf

[17] National Tiger Conservation Authority, 'About Us', explaining the objective of preserving biologically important areas for ecological values, https://ntca.gov.in/about-us/

The forest officials take extra care in ensuring that animals are more or less used to co-existing with the humans in the nearby villagers.

As of now, there are 9 anti-poaching camps in the Kuklung region, 20 camps in the Panbari range, 28 camps in the Bhuyanpara range, 33 camps in the Bansbari range, 9 camps in the Kahitama Beat and 2 camps in the Amteka beat. However, there still remains the question whether the present infrastructure is enough to ensure reduction and overall end of poaching. The team focused on the Kuklung region, noting that the 350 sq. km. area is having barely 11 anti-poaching camps, making it difficult for the forest guards to conduct proper patrolling in the range.

iii. **Monitoring Systems:** The students also learned about the technological and manual tracking systems used to monitor biodiversity and ensure habitat security. M-Stripes is an Android-based application designed for forest guards to record wildlife, habitat, and patrol data using real-time GPS.[18] There are cameras placed on both sides of the routes of the tigers, so when the tigers are captured in the camera, they are identified by their stripes to ensure enhanced patrol efficiency and monitor tiger habitats. The application also tracks and maps human-wildlife conflict incidents, such as livestock attacks, crop damage and property damage.[19]

Range/Beat	Foot	Vehicle	Total
Bansbari	2995.95	3540.9	6536.85
Bhuyanpara	5554.94	5219.39	10774.33
Panbari	2841.43	1301.65	4143.08
Kuklung	2524.6	1305.97	3830.37
Kahitama	1209.22	2137.98	3347.2
Total	15126.1	13505.9	28632.03

Table 1: MSTrIPES Patrol Report for March 2025

[18] National Tiger Conservation Authority, 'M-STrIPES', describing the system as rolled out by NTCA in association with the Wildlife Institute of India for better management and monitoring of tiger reserves, https://ntca.gov.in/a/m-stripes/

[19] National Tiger Conservation Authority, 'Our Work: M-STrIPES', describing the use of modern technology for patrolling, ecological assessment, and mitigation of human-wildlife conflict, https://ntca.gov.in/our-work-m-stripes/

3.3. Biodiversity Management and Corridor Protection

Discussions with officials also highlighted the ecological imperatives of conservation. The students gathered primary data on the strategies employed for corridor protection, which is vital for the genetic viability of species, and the practical approaches to biodiversity management within the complex ecosystem of Manas.

Manas is located in the foothills of the Eastern Himalayas and is densely forested. The Manas river flows through the west of the park and is the main river within it. This creates a Bhabar Terai formation, along with the riverine succession continuing up to Sub-Himalayan mountain forest, thereby making it one of the richest areas of biodiversity in the world.[20]

While famous for the conservation efforts of the tiger, the sanctuary has recorded 55 species of mammals, 380 species of birds, 50 of reptiles, and 3 species of amphibians. Out of these wildlife, 21 mammals are India's Schedule I mammals and 31 of them are threatened. The park is well known for species of rare and endangered wildlife that are not found anywhere else in the world such as the Assam roofed turtle, hispid hare, golden langur and pygmy hog.[21]

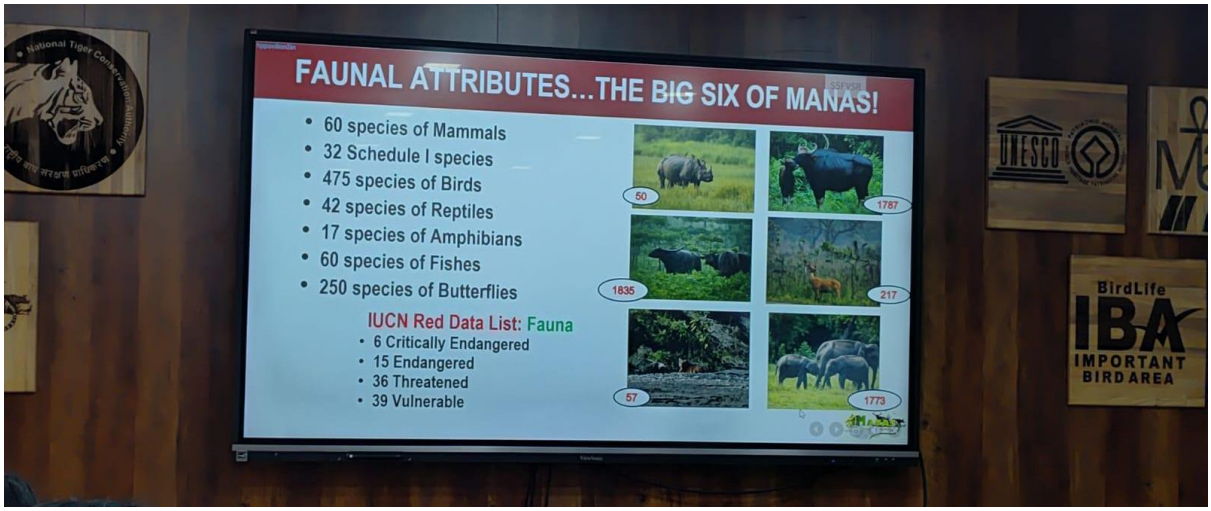
Manas also hosts more than 450 species of birds, having the largest population of the endangered Bengal florican.[22] Other major bird species include great hornbills, Indian peafowl, bulbuls, junglefowls, among others. There are also roughly 50 species of reptiles and 11 species of snakes at the park.

4. Experiential Learning: Wildlife Safari

Beyond the administrative and legal research, the expedition offered a profound experiential learning opportunity. Escorted by experienced forest rangers, the CELAR team undertook a wildlife safari. Observing the diverse flora and fauna in their natural habitat served to reinforce the necessity of the legal frameworks the students are studying. This immersive experience successfully promoted conservation education and provided a transformative, grounding perspective on the intrinsic value of wildlife preservation.

5. Photographic Documentation

[20] UNESCO World Heritage Centre, 'Manas Wildlife Sanctuary', describing the ecological significance of the site and its range of habitats and vegetation, https://whc.unesco.org/en/list/338/
[21] UNESCO World Heritage Centre, 'Manas Wildlife Sanctuary'; Government of Assam, 'Manas National Park', noting important species associated with the park, https://whc.unesco.org/en/list/338/
[22] ibid.



Images 1 and 2: Interaction with Dr. C. Ramesh, IFS, Field Director of Manas Tiger Reserve, discussing protected area governance.

Image 3: Interaction with frontline forest workers, discussing the strategies employed for corridor protection and human-wildlife interaction.

Images 4 and 5: Animal sightings in their natural habitat.

6. Conclusion

The two-day primary research trip to Manas National Park successfully fulfilled its mandate. It provided the students of CELAR, NLUJAA, with critical exposure to the implementation architecture of environmental law. By witnessing the enforcement practices, interacting with key administrators like Dr. C. Ramesh, and experiencing the wildlife firsthand, the students have gathered essential primary data that will significantly enrich their ongoing research into Project Tiger and wildlife conservation laws.