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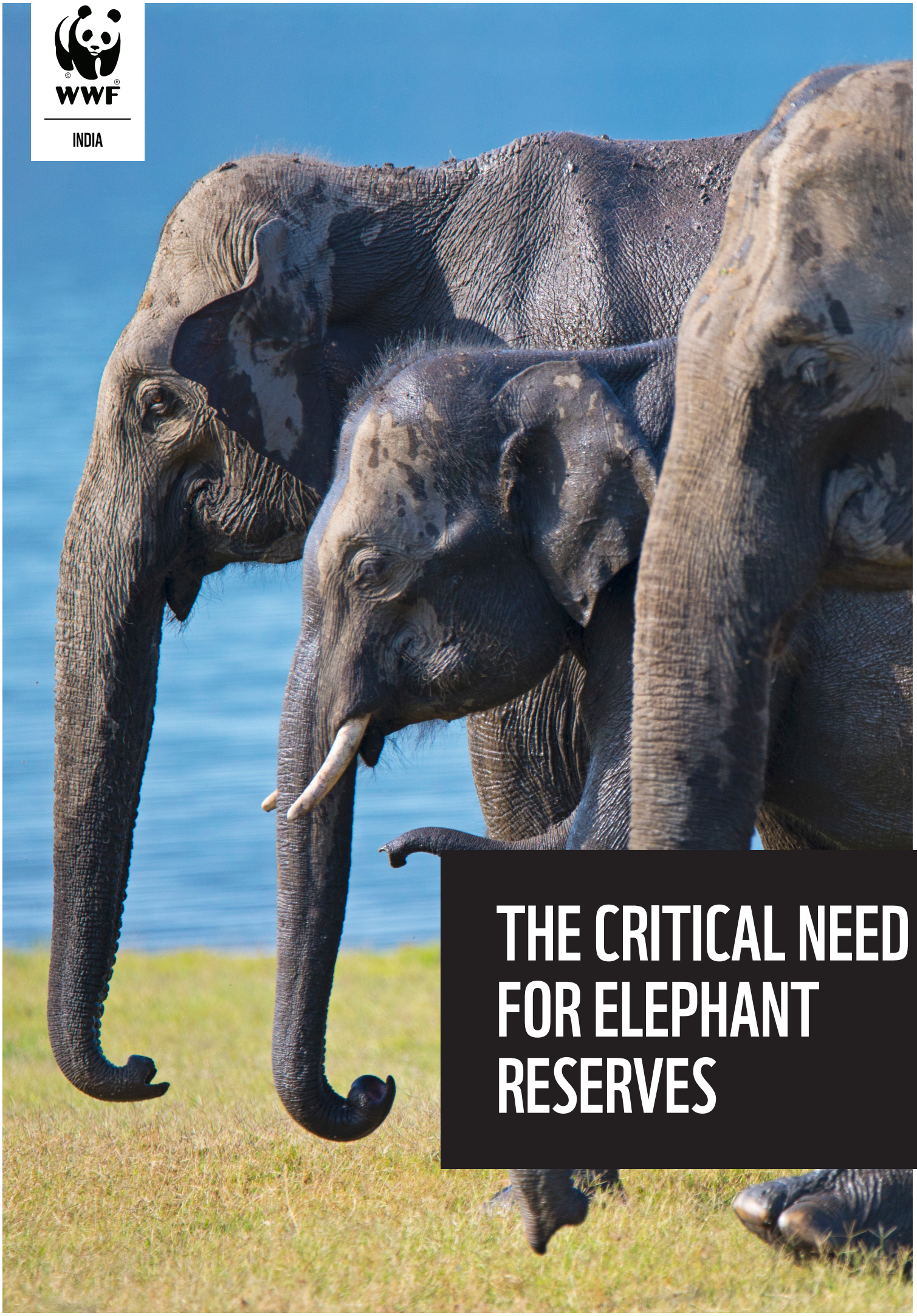

THE CRITICAL NEED FOR ELEPHANT RESERVES

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"There is none in the world who would not be relieved of their fatigue and feel refreshed on the banks of this enchanting river, frequented by herds of elephants who [...] come here to drink."

- Ram speaking to Sita in Valmiki's Ramayana(1, 2)

"Elephants [...] seem to have evolved similar social and cognitive capacities [to humans...] These parallels between humans and elephants suggest a convergent cognitive evolution possibly related to complex sociality and cooperation."

- Frans de Waal, ethologist (5)

"Now Gautama and the other sages who were there saw this illustrious hermit [Palakapya] who was spending his time in silence in the midst of the elephant herd; and so they asked him: 'Why do you anoint their wounds? What made you take compassion on the elephant herd?' Though the sages questioned him thus he made no reply."

- The Matanga-Lila by Nilakantha (3)

"My teacher says that of the two forests, one productive of timber, and another of elephants, the former is the source of all kinds of works and is of immense help in forming a store-house, while the latter is of reverse character.

"Not so, says Kautilya, for it is possible to plant timber-forests in many places, but not an elephant-forest..."

- The Arthashastra by Kautilya (4)

"Given sufficient [...] habitat [...], elephants have no problems and will create none for us, but [...] when they find their familiar trek routes blocked by men and are confined to an inadequate tract, the disturbed animals become nervy and panic and consequently wander about aimlessly, often turning hostile to men."

- M. Krishnan, naturalist (6)

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SUMMARY

India's elephants are an indispensable part of our nation's heritage, and their protection is enshrined in our laws and culture. Thus far, India has proven to be a world leader in the conservation of elephants, remaining home to some 60% of the planet's wild Asian elephants. This remarkable achievement is in large part due to strong laws and policies to conserve the National Heritage Animal, as well as conservation efforts in states where elephants are found.

The recent debate about denotifying Shivalik Elephant Reserve in Uttarakhand suggests the need for India to review why elephant reserves are important, reaffirm our commitment to protecting elephant habitat, and reimagine how we can reconcile elephant conservation with other critical priorities such as economic development and national security. In this report, we use Shivalik Elephant Reserve as an example to demonstrate the importance of the protections offered by elephant reserves and explore how discussions about management of elephant reserves can reconcile conservation and development objectives. This report highlights how the ecological and conservation benefits from elephant reserves could motivate decision makers to explore creative ways to realize economic and national security objectives while also safeguarding India's unparalleled natural inheritance.

INTRODUCTION: WHY ELEPHANTS NEED SPACE

With about 27,000 of the approximately 50,000 remaining wild Asian elephants, India has the world's largest population of this super-charismatic species (7, 8). This is nothing short of a miracle, and it should be a point of great Indian pride. With over 1.3 billion human beings, India could easily have become like other economically mobile and densely populated parts of the world—Western Europe, China, Japan, or the US (9–12)—decimating or exterminating most large-bodied species over the last centuries. Instead, Indians have by and large recognized that other animals have some inherent value (e.g.,(13)), and that human life is enriched when we make room for fellow creatures as we develop human society. Through the role they have played over thousands of years across India's diverse regions and cultures, elephants have helped Indians understand that humans are not alone in having intellect, emotions, curiosity, or compassion (2), protecting us from the extreme anthropocentricism that has infected other parts of the world (14, 15). Modern scientific experiments and observations have confirmed the personhood of our inter-millennial companions: that elephants can use and make tools (16, 17), correctly compare quantities (18, 19), imitate human sounds (20), and have a concept of self and theory of mind (16, 21, 22). In this case, ancient insight and modern inquiry have essentially agreed: elephants experience their lives richly, and a truly ethical society must consider elephant well-being in how it governs its natural resources.

In an increasingly crowded country, elephants need more than just the tolerance of India's people to thrive: they require our deliberate, thoughtful accommodation. Experts have inferred that the wild elephant population across much of Asia a century ago was likely double what it is now (8, 23). At the heart of the challenge to conserve elephants is ensuring they have sufficient food and space: elephants eat 4-6% of their body weight a day—200 kg of forage for large males (24)—and can slurp up as much as 190 litres of water daily (25, 26). Practically speaking, this means elephants have to move substantial distances to meet their needs, often following seasonally available resources. For instance, both in northeast India and the Western Ghats, collared elephants have been seen to shift their ranges in accordance with the monsoon (27, 28). Such seasonal movements have meant that elephants have large home ranges—while home ranges vary across contexts, evidence suggests (typically solitary) males generally need about 250 sq. km. (though they use much larger areas when in musth) and female-led herds need around 1000 sq. km (2, 24). The result of the species' feeding ecology is that long-distance movement is core to what it means to be an elephant, perhaps comparable to how communication is key to being human. Preventing elephants from moving across their range might not only make it hard for them to survive (29–31)—it can produce frustrated, even confused giants more prone to conflict with people.

Elephants' unparalleled spatial needs are at the heart of why India's elephant reserves are crucial to the survival of elephants. The recent debate about denotifying one of India's largest elephant reserves, Shivalik Elephant Reserve in Uttarakhand, for infrastructure development demonstrates the need for India to review why elephant reserves are important, reaffirm our commitment to protecting elephant habitat, and reimagine how we can reconcile elephant conservation with other vital priorities such as economic development and national security.

This report takes three steps toward these goals by:

1. Examining the role elephant reserves generally play in elephant conservation;
2. Demonstrating how elephant reserves protect the needs of elephants through the specific example of Shivalik Elephant Reserve;
3. Exploring how decision-makers could potentially reconcile the requirements of elephant reserves with other key interests.

The overall aim of this report is to provide a foundation for discourse on how to ensure the future of elephant reserves as India continues to pursue a secure and prosperous future.

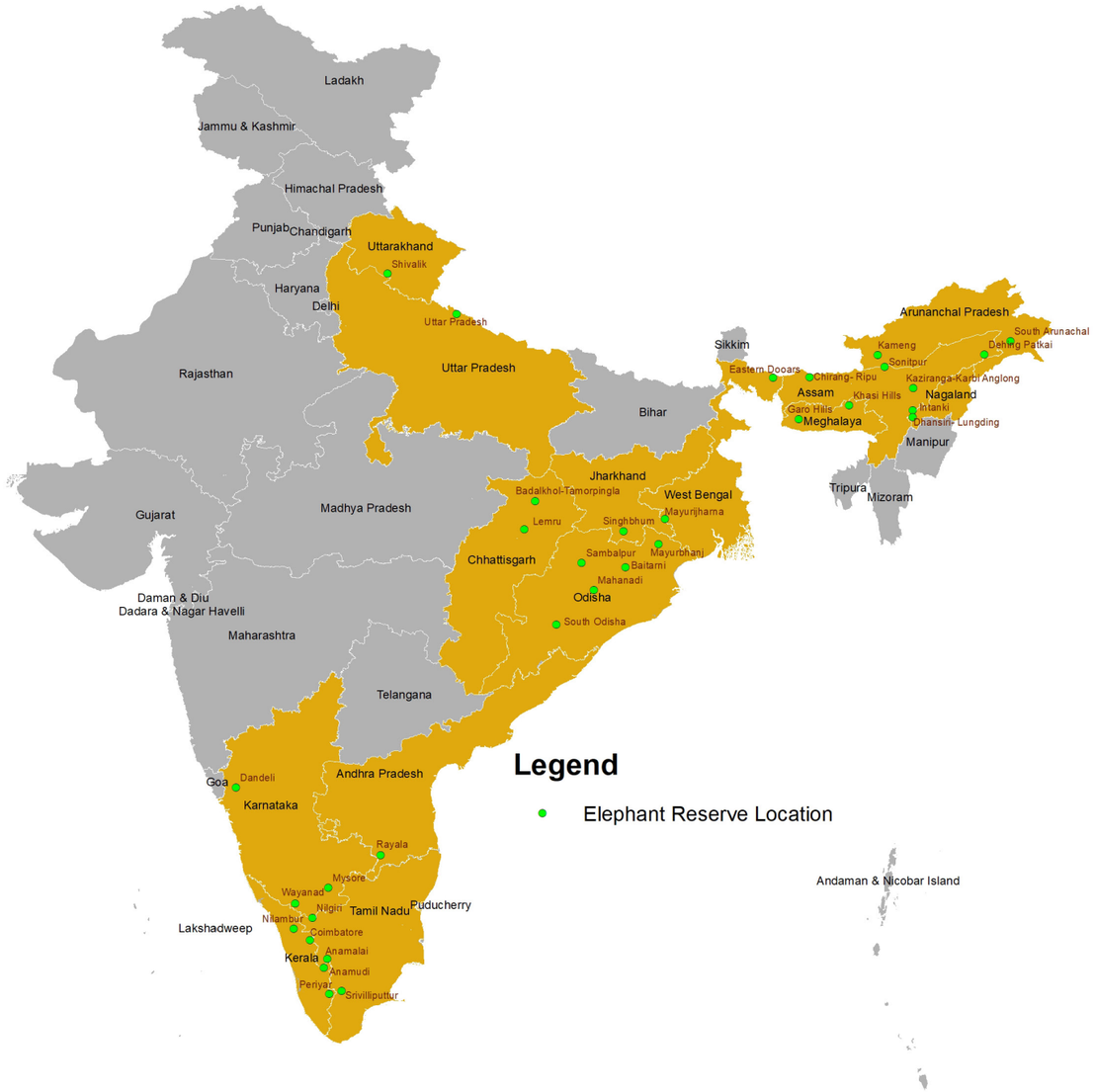


Figure 1: The locations of India's 33 elephant reserves, spread across 14 states.

HOW ELEPHANT RESERVES HELP ELEPHANTS

India has 33 elephant reserves (ERs) scattered across 14 states (32) (see Figure 1). Even passionate elephant enthusiasts may be forgiven for not having heard of them. This is because ERs are quite different from the more familiar tiger reserve. Elephant reserves—and elephant corridors—are essentially administrative (as opposed to legal) classifications, formed by state government notifications that officially recognize areas with significant elephant populations under the national program Project Elephant. In effect, the classification is meant to primarily serve administrative purposes. This is in contrast with tiger reserves, which are recognized under the Wildlife Protection Act and are intended to provide stricter on-the-ground and legal protection. Furthermore, while tiger reserves are generally delineated such that they are forest-and grassland-dominated areas only sparsely populated by people, elephant reserves reflect the wide-ranging habits of their main wards: since elephants only spend some 60% of their time in the smaller spaces designated as protected areas (33), elephant reserves include large areas that can encompass not only national parks and wildlife sanctuaries but also reserve forests, conservation reserves, and community reserves where human access is permissible. As of 2010, of the 65,000 sq. km. covered by India's elephant reserves—about 1.9% of India's territory—only 29% fell under well-demarcated protected areas, i.e. wildlife sanctuaries and national parks (32). One can easily cross into an elephant reserve without realizing it.

So how, then, do elephant reserves actually serve elephant conservation? There are two main ways. First, through funds: notifying an area as an elephant reserve helps direct funds from the central government to that region for elephant conservation (34). Second, while elephant reserves do not offer the official legal protections that come with tiger reserves, they do offer a thin added layer of de facto protections, effectively encouraging decision makers to remember the costs of allowing land use change that could reduce elephant habitat or block their movement. Courts and the National Green Tribunal have given elephant reserves and corridors dull teeth by citing them in decisions that forestall land-use change or the blockage of elephant pathways (35). Government administrators generally submit proposals for development and land diversion in elephant reserves for the approval of the National Board of Wildlife, even though this isn't legally required (35). Elephant reserves also offer a sort of public protection: by officially recognizing habitat of particular importance to elephants, elephant reserves help galvanize the public in support of elephant conservation when development that might be detrimental for elephants is proposed in the reserve (36–39).

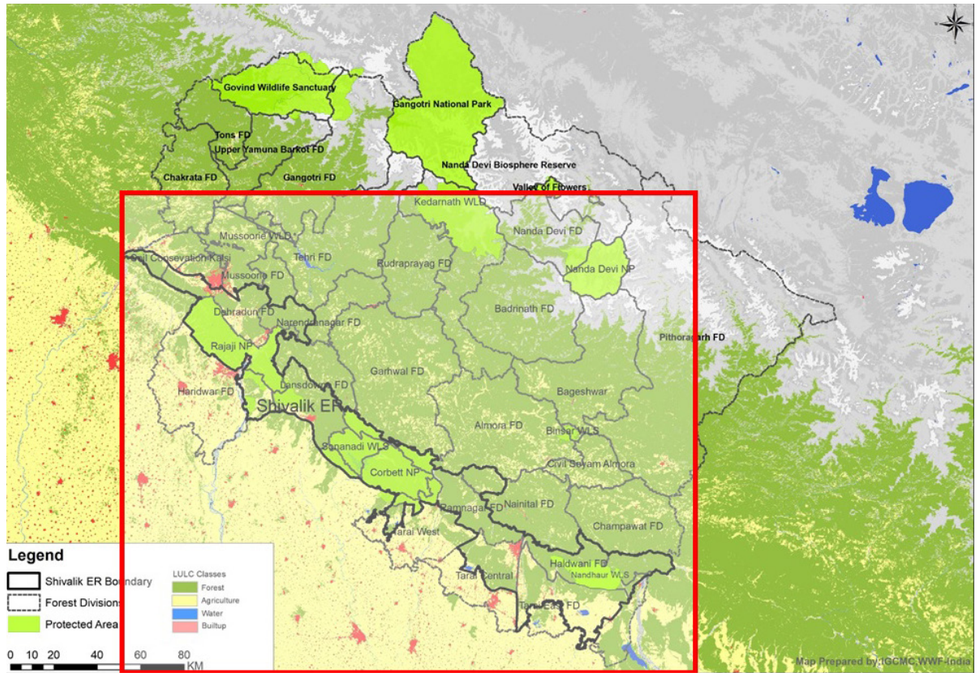
Conservationists have expressed concerns about the unsystematic protections provided to elephants by elephant reserves—in their visionary report Gajah (32), the government's 2010 Elephant Task Force recommended that elephant reserves be given Ecologically Sensitive Area status under the Environmental Protection Act, 1986. Nonetheless, in the meanwhile, elephant reserves play a crucial role in safeguarding elephant habitat. This can be seen in the case of Shivalik Elephant Reserve.

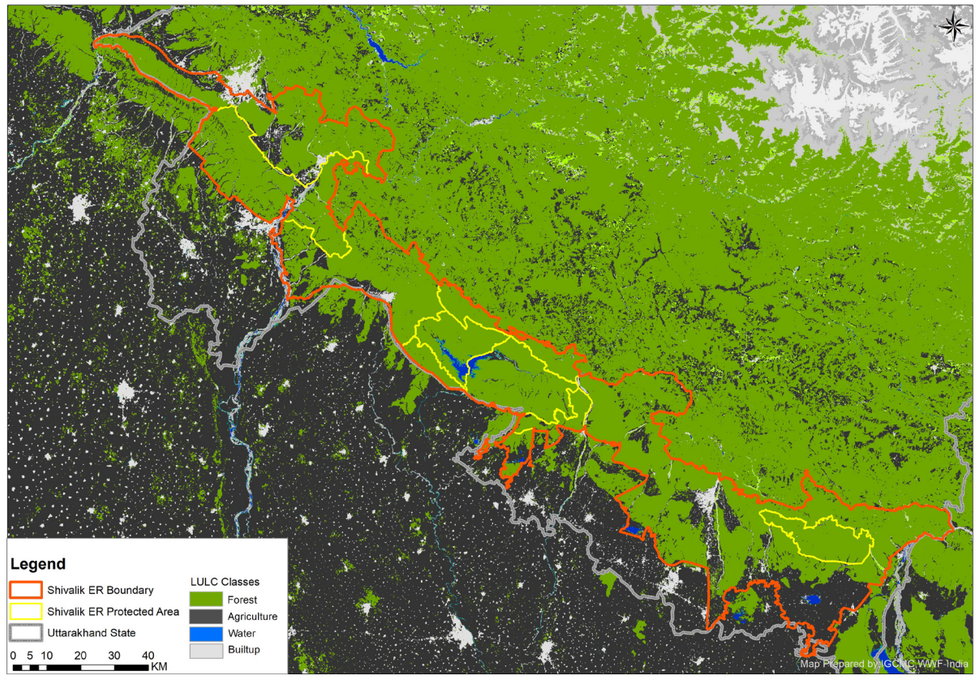
SHIVALIK ELEPHANT RESERVE: ELEPHANT HABITAT FROM THE YAMUNA TO THE SHARDA

Shivalik Elephant Reserve, Uttarakhand, designates a region of paramount importance for elephant conservation that deserves elevated funding, administrative support, and public attention (see Map Series 1). As of the latest elephant population estimation in 2017, Shivalik ER was home to almost all of Uttarakhand's 1839 wild elephants—about 6.7% of India's total wild elephants and an astounding 88% of India's (comparatively limited) north-western elephant population (7). Shivalik Elephant Reserve is thus the most essential habitat for the elephants of northern India. Shivalik Elephant Reserve protects 5,405 sq. km. of forests and grasslands across six districts. Much of this habitat falls inside protected areas: Rajaji National Park, Corbett Tiger Reserve, Nandaur Wildlife Sanctuary, and Sonanadi Wildlife Sanctuary protect 2,213 sq. kilometres of habitat and form the core of Shivalik Elephant Reserve. Outside of these protected areas, Shivalik ER includes about 3,269 sq. km. of forests and grasslands usable by elephants—in other words, about 60% of elephant habitat in the region falls outside of PAs but inside Shivalik ER. During a 2015 elephant population estimation, authorities estimated that about 25% of Shivalik ER's elephants were using the forests and grasslands beyond protected areas (40). Notably, Shivalik ER is not one uninterrupted block of elephant habitat: juxtaposed among Shivalik ER's forests and grasslands are about 1,600 square kilometres of urban areas, agriculture, and human habitation (not counted in the 5,405 sq. km. of Shivalik ER). These human-dominated areas are home to about 30,20,540 people (as per the 2011 Census of India). The ad-hoc expansion of these human-dominated areas and conversion of forests to other land use could easily break Shivalik ER into small, unconnected patches of habitat, making elephant movement and access difficult or impossible. As currently designed, Shivalik ER protects key patches and corridors necessary to allow elephants to move from their habitats near the Yamuna River in the west to those on the Sharda River in the east; while several of these corridors require further protection, they generally allow for animal movement between the Terai's habitat blocks without major confrontation with humans.

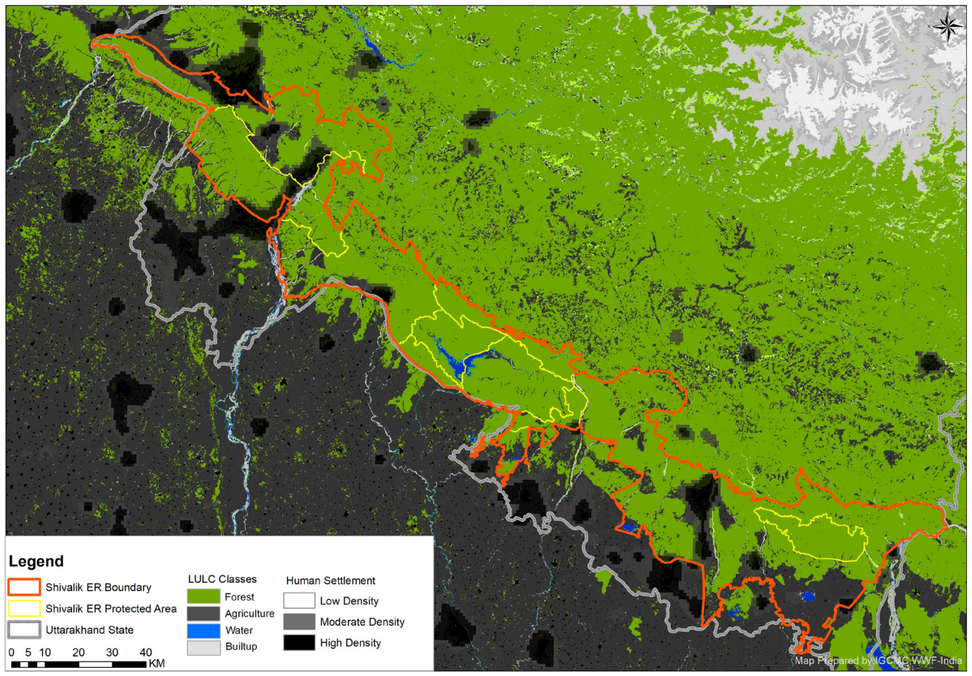
MAP SERIES 1: SHIVALIK ELEPHANT RESERVE MAPS

This series of maps shows how the forests and grasslands protected by Shivalik Elephant Reserve serve as crucial elephant habitat that is under tremendous pressure. If Shivalik's protections are removed, the result could be devastating for North India's last large elephant population.

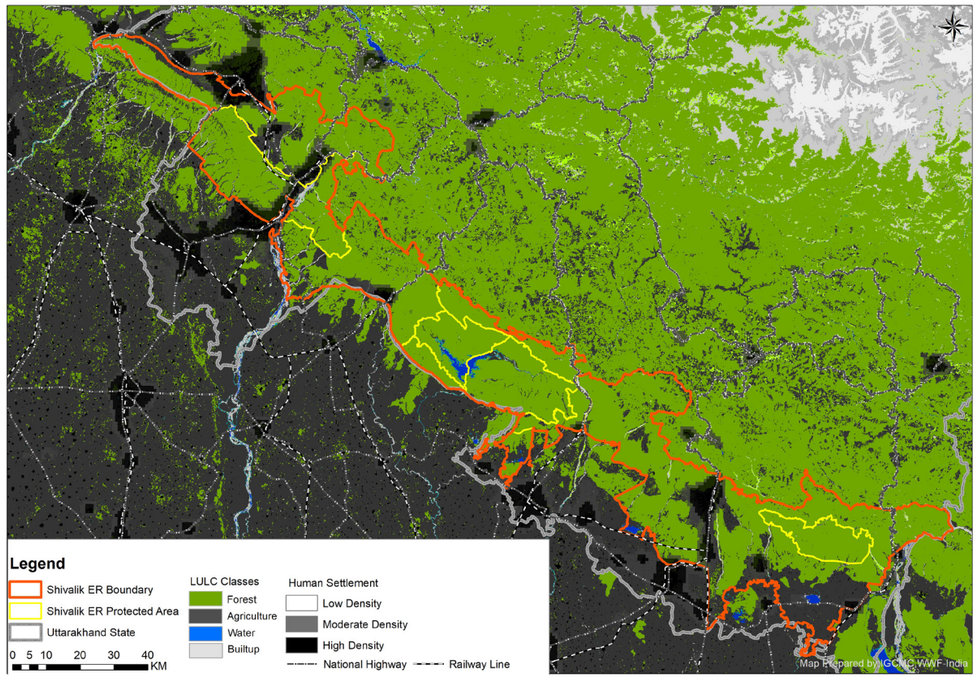




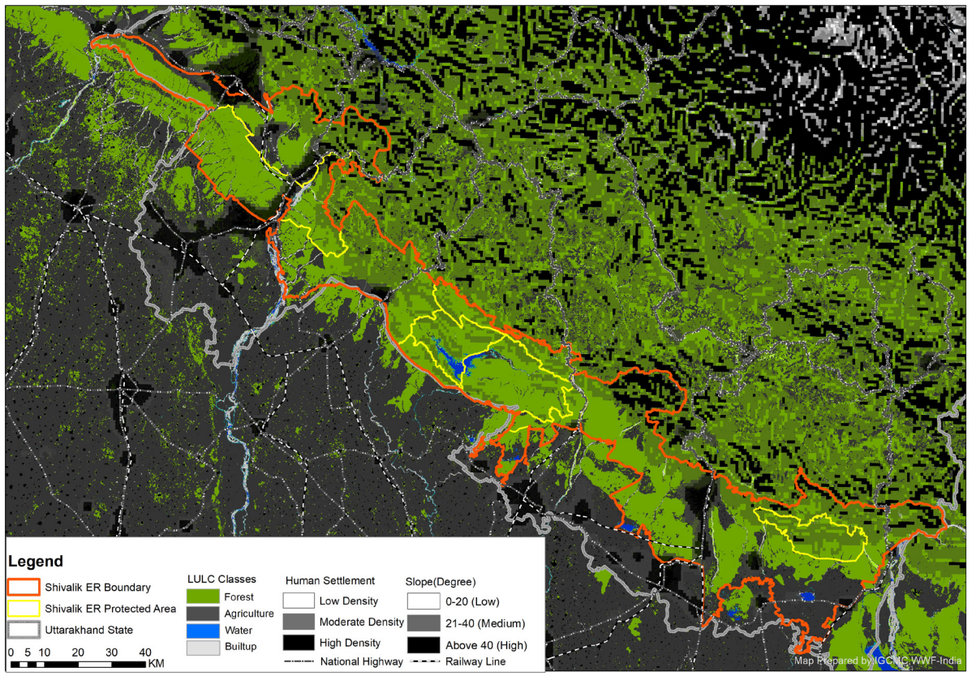
By showing agriculture in black, this map starkly demonstrates that elephants are already highly constrained in terms of where they can go south of Shivalik ER.



Here, we also mark areas with high and medium densities of human settlement using black and gray, demonstrating how elephant movement within Shivalik is already very much shaped by human activity. Over 30 lakh people already live in Shivalik Elephant Reserve.



Major roads and railways further complicate elephants' movement across the elephant reserve.



Finally, elephant activity is further constrained by the steep slopes of the Himalayas. Evidence suggests elephants avoid slopes over 40 degrees almost entirely; medium slopes (shown as gray-green) are also not always easy for these heavy animals to navigate.

Overall, the green spaces show habitat usable by elephants while all the black, gray, and gray-green indicate barriers and partial barriers to elephant habitat use. This map demonstrates how Shivalik protects the thin space of habitat still fully suitable for North India's last remaining major Asian elephant population. Note that the 3,269 sq. km. of forest and grasslands protected by Shivalik but outside of national parks and wildlife sanctuaries constitutes 6.6% of the area of Uttarakhand.

Efforts to estimate the number of elephants in Shivalik ER over the last decades have been heartening, with some interpreting increasing estimates to mean that the population of elephants in the region has grown to exceed the carrying capacity—i.e., the number of elephants that the natural habitat can support (41). However, carrying capacity is very difficult to measure. Most experts and officials agree that the data from elephant population estimation exercises in Shivalik ER were not collected rigorously enough to allow for precise estimates (40, 42), and there is certainly not enough (publicly available) information to rigorously estimate the carrying capacity (43, 44). Still, the apparently healthy number of elephants in Shivalik ER underscores the importance of ensuring that the region holds enough habitat to sustain them.

As such, any development projects proposed within Shivalik ER must consider how they might affect elephant habitat. Take, for instance, the recent proposal to expand the Jolly Grant Airport. The development proposed was modest in scale: project proponents noted that only 87 hectares of trees—less than one square kilometre—of the Thano forest would be felled. But development of that patch of forest would sever a de facto elephant corridor (between Thano Reserve Forest and the Barkote Forest Range) that connects 110 square kilometres of elephant habitat to the rest of the erstwhile reserve, leaving almost no connectivity between the 110-km habitat and neighbouring forests (see Map Series 2). Furthermore, the tract of forest under threat from the proposed airport expansion is one of only two corridors in the 80 kilometre span between the Ganga and Yamuna Rivers that connect the Rajaji-Shivalik ecosystem with the forests of the lower Himalaya. These are thus vital passages for a variety of species apart from elephants, including leopards, bears, tigers, and various wild ungulates, especially because wildlife sometimes need to move uphill to navigate changes in their habitat wrought by climate change.

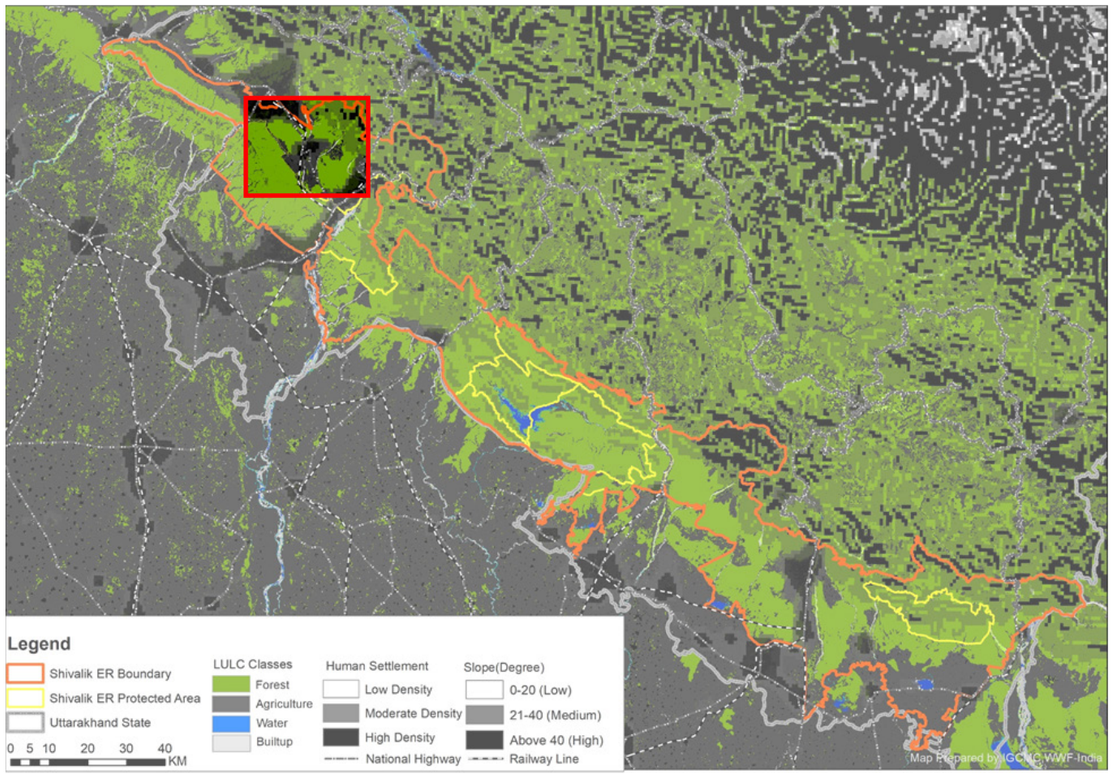
Given the potential benefits to local people of, say, expanding the local airport, it is reasonable for decision-makers to ask whether the loss of connectivity to patches of forest like the 110 sq. km. patch in Map Series 2 really matters—what would the consequences of lost connectivity be for the elephants that use that patch? Based on home range sizes from other parts of India (2, 45), 110 sq. km. of forest would likely constitute somewhere between a 11% (female-led herds) and 44% (solitary, non-musth adult males) of the area they currently use to forage—so for the (unknown number of) elephants that rely on that patch for sustenance, severing connectivity to the patch could be seen as a 10-45% paycut! As a result of this

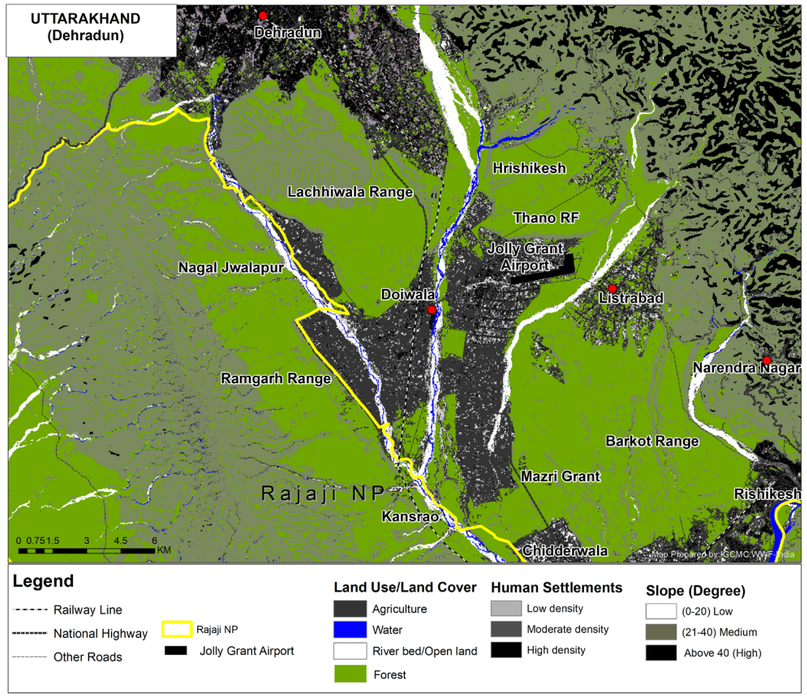
salary reduction, elephants will likely start looking elsewhere for resources—and since they are already essentially restricted to the area of Shivalik ER (see Map Series 1), these elephants are likely to be more and more tempted by anthropogenic resources like agricultural crops (46). This, of course, means more human-elephant conflict, which in addition to leading to the tragic suffering and sometimes even death of people and elephants, is likely to result in local people having less tolerance for elephants (47, 48). As people get fed up trying to fend off hungry giants, they might resort more quickly to killing elephants using, for example, illegal lethal electric fences (49, 50), undermining the effective conservation efforts of the Uttarakhand Forest Department and Project Elephant.

It is important to concede that no one can predict just how much the severance of any one corridor will affect levels of human-elephant conflict, especially if the state also invests in some mitigation measures—the data to make such specific determinations aren't available. However, the science underpinning the concern—that if we transform more and more elephant habitat into human-dominated spaces, elephants will be pushed to look elsewhere for food, and this is likely to result in increased conflict—is widely accepted by conservationists (46, 51–53). Even some relatively small patches of forests and grasslands in Shivalik Elephant Reserve, like the forest patch next to Jolly Grant Airport, are disproportionately important to elephant conservation. As such, the forest land and other wildlife habitat remaining in Shivalik ER must not be seen as being dispensable, and they should only be reduced as a last resort. The question, then, is how other important priorities, like those of economic development and national security, can be effectively served in elephant reserves without jeopardizing elephants or their habitat.

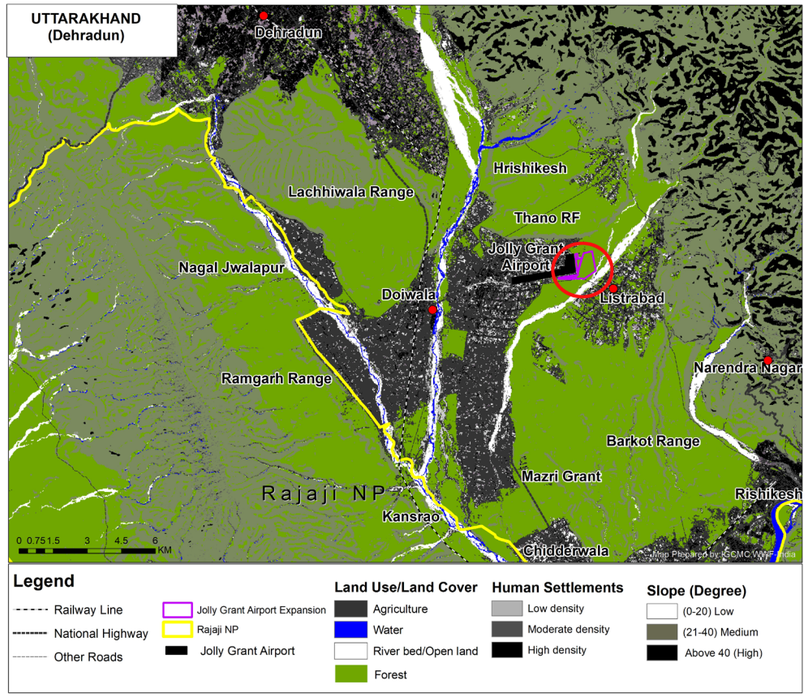
MAP SERIES 2: SHIVALIK ELEPHANT RESERVE MAPS

While the denotification of Shivalik threatens all elephant habitat outside of Corbett, Sonanadi, Rajaji, and Nandaur, the proposed airport poses an immediate threat to this section of Shivalik ER. This series of maps and photos shows how the Jolly Grant Airport expansion threatens to sever 110 sq. km. of elephant habitat—an area 13% the size of Rajaji National Park—from the rest of the forests usable by elephants.

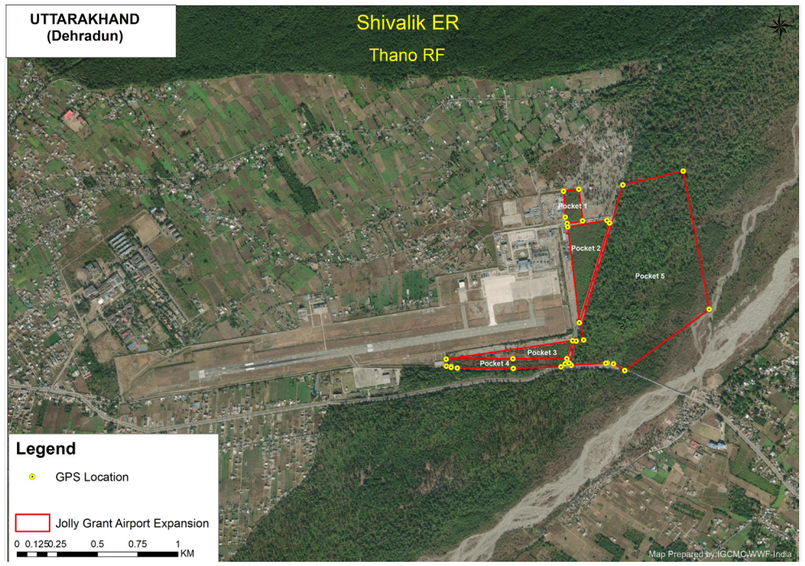




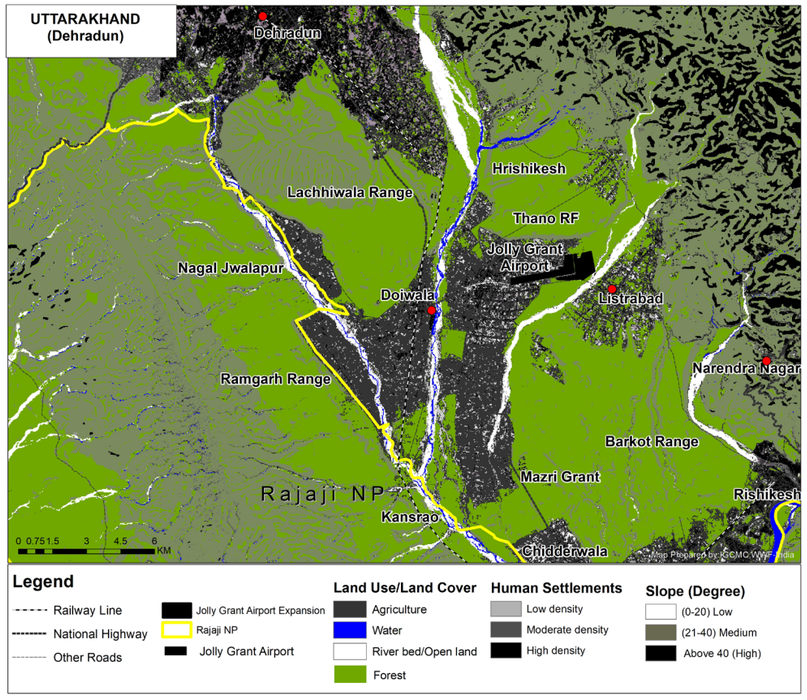
The Jolly Grant Airport is essentially situated between Thano RF and Barkote range, next to the last or one of the last forests allowing elephants to get from the Himalayan foothills to the rest of the Shivalik system.



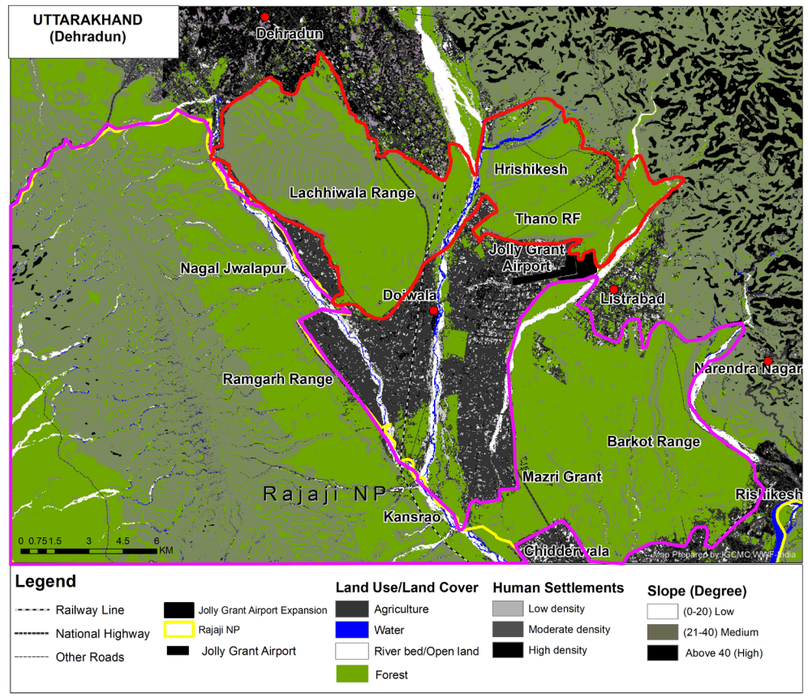
The proposed expansion of the airport will essentially sever connectivity for elephants and other wildlife between Thano RF and the Barkote Range.



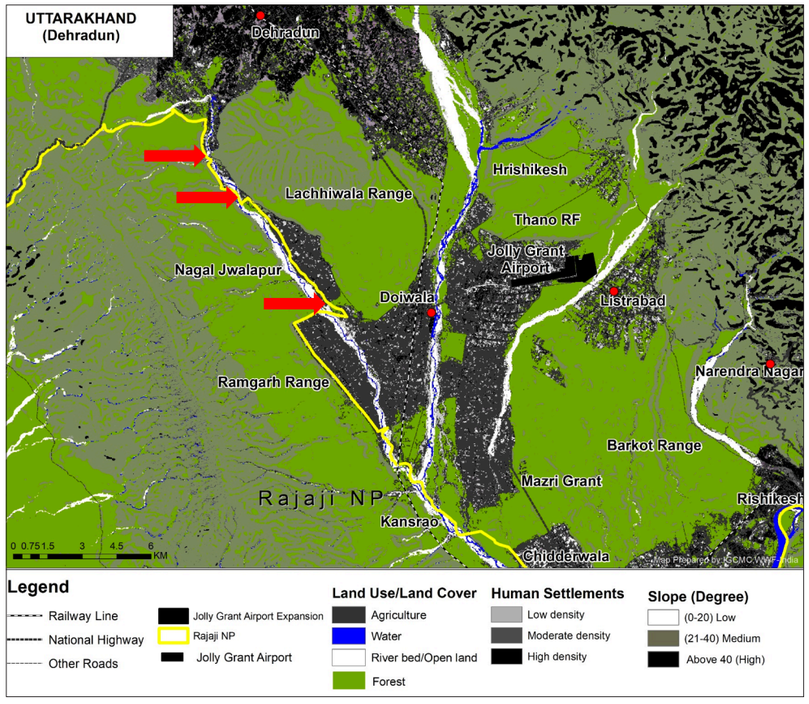
The effective severance of connectivity is even more visible upon closer inspection.



What is less intuitive, perhaps, is that the proposed airport expansion threatens to all-but-fully disconnect the Lachhiwala Range-Hrishikesh-Thano RF patch of forest from the suitable habitat of the rest of the landscape.



This map shows how these three forest areas (Lachhiwala, Hrishikesh, and Thano—totaling 110 sq. km.), outlined in red, are essentially severed from the rest of the forests (outlined in pink) by the expansion of Jolly Grant Airport. This severance will essentially remove 110 sq. km., an area 13% the size of Rajaji National Park, from use by elephants and other wildlife.



Apparent connectivity between Lachhiwala Range and Rajaji National Park is not very good for elephants/wildlife. Note, first, that much of the area is heavily populated by human settlements. There are three locations, noted by arrows, that satellite images suggest could potentially be used by elephants to move into Rajaji.

The difficulty of crossing from Lacchiwala into Rajaji (or vice versa) is even more visible from this close-up map.

In the first two locations, urbanization, a road, patchy fencing, and gabion walls to prevent erosion on the Suswa River already make elephant movement difficult. These structures should be revisited to enable elephant movement at these points.

In the third location, the same barriers exist, but they are configured such that some elephant movement is still possible. However, human habitation is beginning to spread in the area. Further barriers should be disallowed from being built here, and gabion structures should be reconfigured to enhance connectivity. Even if all this is done, these three points between Ramgarh and Lacchiwala are not as good connectivity as the forest currently connecting Thano and Barkote ranges near Jolly Grant Airport.

RECONCILING ELEPHANT RESERVES WITH OTHER INTERESTS

The recent discussion about denotifying Shivalik Elephant Reserve highlights the difficult reality facing state and local governments that have demonstrated an interest in conservation. The state of Uttarakhand has repeatedly indicated, through action, a dedication to elephant conservation: in addition to ensuring the safety of North India's largest elephant population, the Uttarakhand Forest Department and state government have ensured the construction of three flyovers (at Chilla-Motichur, Teen Pani, and Kansrau-Barkote) in Shivalik ER to allow elephants and other species to cross underneath, fostering connectivity between habitat patches. The flyover in the Chilla-Motichur corridor, for instance, has recently been completed, potentially re-establishing connectivity for tigers, elephants, and other species between eastern and western Rajaji NP. The Uttarakhand government has celebrated that 70% of the state's land is under forest cover, and instead of succumbing to conventional economic calculations that undervalue ecological systems, has worked to foster a more enlightened process of valuation. An analysis of ecosystem services in Uttarakhand supported by the state's Directorate of Economics and Statistics showed that ecosystem services provided by protected areas alone is at least 3.2 lakh crore INR, and that the sociocultural fulfillment provided by the state's forests can conservatively be valued at 309 crores (54).

Yet just as surely as our national and state governments must safeguard our natural heritage, governments are also mandated to promote the economic advancement and general security of their people. These are all critical objectives—and balancing them is the unenviable task of India's political leaders. Elephant reserves pose a unique opportunity, and an unparalleled urgency, to find ways to strike the required balance. Their large size precludes even the illusion of inviolate areas for elephants, forcing conservationists to think more carefully about how to incorporate human aspirations in our strategic visions and practice. However, the Indian people's affection for elephants forces those trained in traditional economics to acknowledge that anthropocentric cost-benefit models are incomplete.

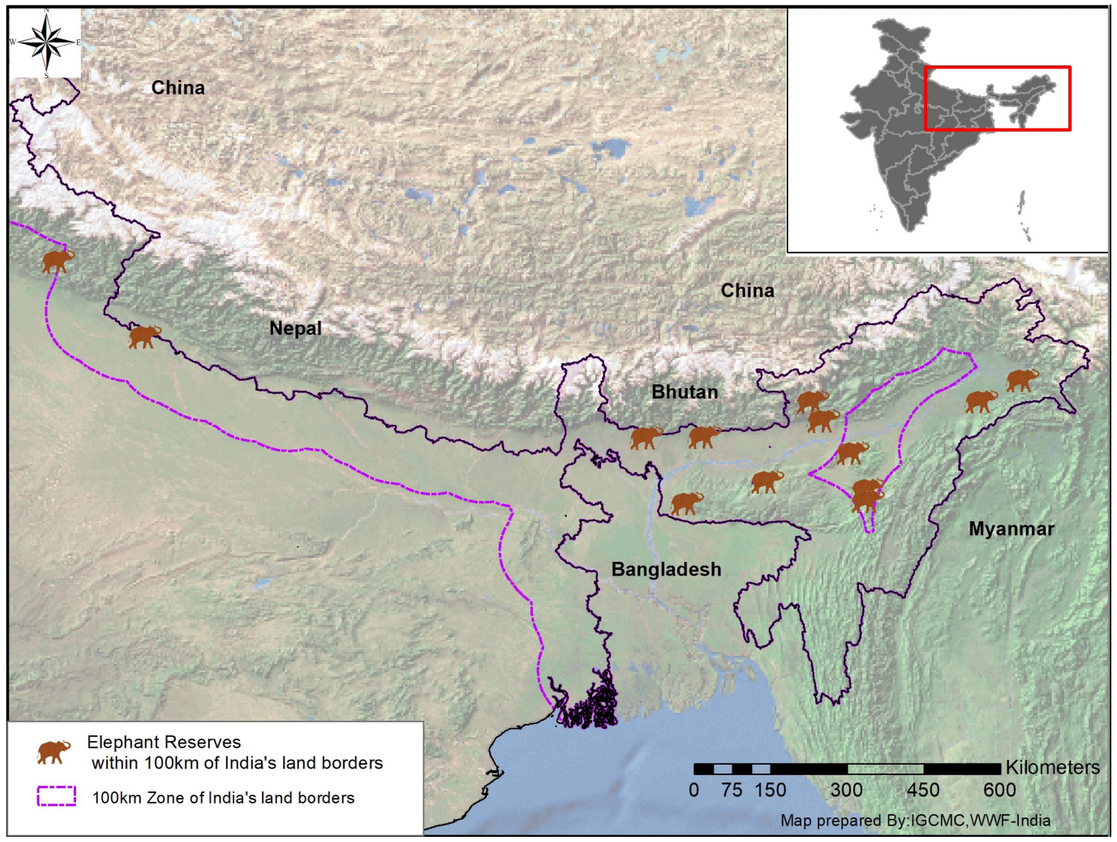


Figure 2: Thirteen elephant reserves are found partly or wholly within 100 km of India's borders with other countries. Areas close to these borders often come under the purview of national security, which can override other concerns including wildlife conservation. Before decisions to denotify such areas are taken, it is important that there is broad-based discussion and that all alternatives are found and carefully considered. Such an approach can allow our society to optimally balance concerns of national security, ecological security, and the protection of our natural heritage.

Officials, conservationists, proponents of development, and local communities should use elephant reserves to establish new processes that reconcile these multiple objectives. Two key tools might provide a good foundation. First, participatory planning processes can allow stakeholders with varying priorities to articulate their interests in an organized way, helping create and identify spaces in which interests coincide (55). Second, multi-stakeholder cost-benefit analyses can help decision makers systematically identify advantages and drawbacks of various proposals and scenarios as seen by all the different parties of interest—for instance, economists might look at revenue and property value, ecologists might consider habitat connectivity and carbon accounting, and local communities and public officials might consider the distribution of costs and benefits to various interest groups. While frameworks like green accounting can help make comparisons across areas (e.g., (54)), not everything can be converted to rupees (or any other one unit of measurement)—ultimately, an interest-based negotiations approach (as opposed to position-based negotiations) can ensure that even stakeholders with interests overlooked by traditional economics can help shape the outcome (56).

National security interests pose unique challenges in that some aspects of national security cannot be shared broadly in a public forum. Still, efforts have to be made to include national security in participatory planning where possible. Figure 2 shows that thirteen elephant reserves are found partly or wholly within 100km of India's land borders, highlighting the need to find ways that simultaneously protect our national territory while also protecting our natural heritage.

Participatory planning processes will not always result in a plan that pleases everyone, but they will inevitably result in two crucial benefits. First and foremost, genuine participatory processes will give the final decision far more democratic legitimacy than it would otherwise have had (55), especially if the interests of all stakeholder groups are duly considered and addressed to the extent possible. Such legitimacy is likely to obviate large protests or recourse to lawsuits. Second, such processes are likely to lead to more nuanced and well-rounded plans than those arrived at unilaterally (no matter how well-intended).

Elephant reserves might also provide particularly fertile ground for creative solutions that satisfy several stakeholders through the unrealized scope for elephant-centred ecotourism. India has not fully capitalized on the opportunities that stem from having the largest number of Asian elephants in the world: perhaps because elephants are so much easier to see than tigers, decision-makers seem not to realize just how special these creatures are to foreign tourists or even nature-starved urban Indians. The tourism industry should be banking on their charisma and relative reliability, building a parallel paradigm that centres on Asian elephants instead of treating them as a consolation prize for those who do not see a tiger or leopard.

The potential of such an elephant tourism model is significant. Elephant tourism in India could emulate the community-based ecotourism found in Nepal. Here, public-private partnerships have been used to develop the facilities and skillsets of local communities so they can host tourists in homestays, generating some $2000 more of revenue a year for participating households (57). In India, communities in areas frequented by elephants bordering the forest could work with the government and conservationists to replace teak plantations and invasive species with native vegetation and create elephant viewing platforms (a safe distance away) for homestay visitors. For visitors willing to pay more, the Forest Department could create special packages at a higher cost in which these tourists get unique opportunities to engage with elephants. For instance, they could be allowed view elephants overnight from platforms using night-vision goggles. The revenue from such high-end tourism could be ploughed back into local communities and used for protection and conservation.

Developing this or a similar model of elephant tourism will require investment, but it should easily be worth it. A study conducted in countries across Africa found that, despite the high costs of protecting elephants from poaching in countries across the continent, every dollar invested in protecting elephants yielded return on investments averaging 25% and going as high as 200% (58). Through greater strategic investment and creative partnership with ethical tour operators and conservationists, there is no reason that Asian elephants should not come to define Indian tourism as markedly as the Taj Mahal.

CONCLUSION: PRIORITIZING ELEPHANTS

It is difficult for Indians to comprehend the perilous situation faced by the Asian elephant. Unlike tigers which are difficult to see even when they are relatively abundant, elephants are relatively easy to find even when they are uncommon. The ease with which elephants can be seen gives all of us—including many dedicated conservationists—a false sense of security, causing us to take them for granted. But these intelligent, compelling, charismatic creatures are under historically unprecedented pressures that could lead to their extirpation across much of the country: spreading unplanned human development and resource exploitation (53, 59), poaching and illegal trade (60, 61), habitat degradation due to invasive species (62, 63) and climate change (64), and human-elephant conflict aggravated by the loss of natural resources for elephants (46, 49) collectively pose elephants a grave threat. Given India's deep-seated appreciation and reverence for the elephant, all of us should be building institutions to better safeguard elephant reserves and elephants.

Currently, the Indian government's investment in elephants is chronically insufficient: Project Elephant historically has received less than 35 crores a year, less than 10% of that provided for Project Tiger and the National Tiger Conservation Authority (63). As a frame of reference, that means that the body primarily responsible for conserving 60% of the world's wild Asian elephants receives only twice as much as the Indian Premier League's most expensive player (64). Investments in a society's ecological and cultural values can be costly up-front, and it can be hard for governments to muster the resources in the short term to make such investments. But more often than not, societies come to realize that a full life is not just about its per capita GDP or the conveniences of modern technology (though these are important), but about connecting to nature and our deeper values.

Consider an example from a then-developing country with modest global influence. In the mid-1800s, the city of New York in the United States decided to set aside the 843 acres (ca. 3.4 sq.km) necessary to build Central Park. The total cost was $7.39 million at the time, the equivalent of over $200 million in today's money—more than the United States ultimately paid to purchase Alaska from Russia (65). One would calculate the costs to be higher if one considers the private businesses that might have developed that space and turned a profit. But for the 38 million visitors to Central Park every year, the value of walking in peace, touching grass, breathing clean air, and observing migratory birds in an otherwise relentlessly concrete jungle easily surpasses the costs of establishment: one conservative estimate suggests that Central Park is now worth over $528 billion and generates about $25 billion worth of ecosystem services every year (66). For visitors to New York City, Central Park stands as a monument both to America's foresight and vision as well as its value of nature.

India's decision to make big investments to protect our megafauna is already a remarkable feat. With the support of Indian officials, private enterprise, and communities, Asian elephants can become India's living monument to our own values and vision. Few experiences bring as much joy and inspiration as a peaceful encounter with curious wild elephants: to observe elephants is not just an experience in nature but a form of sociocultural exposure to other intelligent life. Sometimes, elephants will have to give a little space for us as we try to restructure Indian society so that it serves all 1.3 billion-plus of our people—but we should do everything we can to minimize such losses, and even give back space when we can. Through protecting spaces like Shivalik ER, Indian society can invest in a model of development that is good not just for the pocketbook but for the heart and soul as well.

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