



Commentary

A Proposed Safari Park in a Subtropical Forest in Northeastern Bangladesh Will Be Detrimental to Native Biodiversity

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Abstract: Biodiversity in tropical and subtropical forests are at high risk of decline due to rapid anthropogenic development. Planned activities that potentially benefit communities near forests are often undertaken at the expense of forest biodiversity. Recently, the Government of Bangladesh released plans to develop a safari park in Lathitila forest in northeastern Bangladesh. This mixed evergreen, stream-fed, trans-border forest harbors 26 globally threatened species. The proposed plan aims to bring several exotic game animals such as the lion (*Panthera leo*), spotted hyaena (*Crocuta crocuta*) and cheetah (*Acinonyx jubatus*) to be maintained in captivity. Additionally, exotic bird aviaries, gardens, a dolphinarium, a marine aquarium exhibit, and a carp pond have been proposed for construction. Here, we (i) summarize some of the key attributes of safari parks and the misconceptions associated with them; (ii) highlight some of the planned development activities of the proposed safari park; (iii) list the threatened species found in the area, and (iv) explain why establishing a park in the area would be detrimental to the region's biodiversity. We urge the government to abandon the plans to develop a safari park and suggest that the area be brought under formal protection for the benefit of biodiversity conservation.

Keywords: Lathitila forest; Bangladesh; conservation; safari park; exotic species

1. Introduction

Globally, biodiversity is concentrated in rapidly developing tropical countries [1]. For example, tropical South Asia has undergone rapid development, with an overall decline in forest biodiversity, severe fragmentation, and habitat loss [2]. The region has high human population densities ranging from 400 to 1200 individuals/km². Likewise, the challenges to providing basic human necessities and conserving biodiversity are high. Furthermore, conservation measures in this region are poorly implemented due to inadequate legislation. Bangladesh has a population of about 160 million people, with less than 7% of the land remaining as forest (Figure 1). Recently, the Bangladesh Forest Department asked a consultancy service to conduct a feasibility study to develop a safari park in one of the last forested areas in the northeastern region of the country. The feasibility report, published on 3 July 2021, determined that the safari park would provide benefits to local communities primarily by providing drive-in observation facilities for exotic animals such as lions, leopards, cheetahs, jaguars (*P. onca*), and African ungulates [3]. The safari park will be developed within Lathitila Forest (LF), a mixed-evergreen, broadleaved, stream-fed, trans-boundary forest of northeastern Bangladesh. The report contended that much of LF was degraded forest and therefore of limited conservation value [3]. Bangladesh Engineering and Technological Services Ltd. (BETS), a consulting firm [3], provided a biodiversity assessment report on LF and a detailed plan of the safari park. Upon publishing the report, a nationwide debate ensued, with much discussion about the potential detrimental effects on native biodiversity.

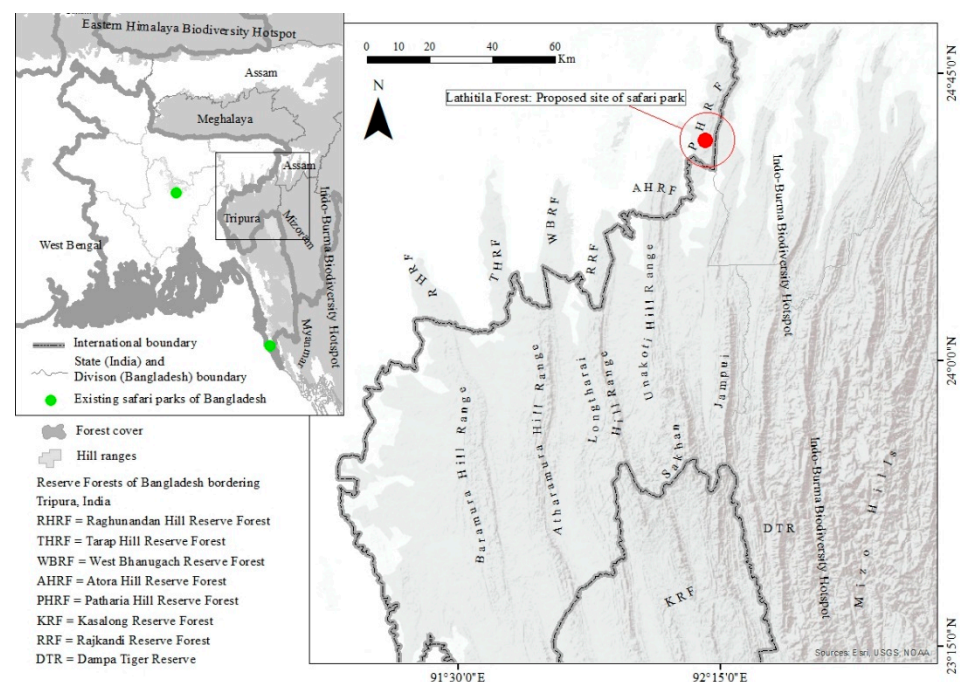


Figure 1. Biogeographic position of the mixed-evergreen, stream-fed, trans-boundary forests of northeastern Bangladesh. Forest cover data were from <https://www.globalforestwatch.org/> (accessed on 3 July 2021), the name of the Tripura Hills was from Saigal [4], and biodiversity hotspot data were from Myers et al. [5]. Reserve forests hold a protected status under the Bangladesh Wildlife (Conservation and Security) Act 2012.

Herein, we examine the origin of safari parks and the theme they convey. We then (i) provide an overview of the existing safari parks in the country, including challenges such as the intermittent outbreaks of zoonotic diseases; (ii) conduct a review of the wildlife of LF based on secondary literature; and (iii) contest the propositions of BETS [3] based on the methodology it followed for the biodiversity survey. The purpose of this paper is to answer the question of whether the establishment of the safari park proposed by BETS is

beneficial to native wildlife, and whether there are alternatives that are better suited to this purpose in light of current knowledge and the experience of other safari parks.

2. Biogeographic Features of Lathitila Forest

The northeastern forests of Bangladesh are the northernmost fringes of the anticlinal Baramura-Atharamura-Longtharai-Unakoti Hill ranges of Tripura (Figure 1) [4]. These forests have been protected since the colonial era and belong to the western tip of the Indo-Burma Biodiversity Hotspot (Figure 1) [5–7]. The Patharia Hill Reserve Forest (PHRF, area 80 km²) is the northernmost patch that holds LF (22 km²) within its boundaries and consists of traversing streams with old teak (*Tectona grandis*) plantations and bamboo-dominated (e.g., *Melocanna* sp., *Bambusa* sp., *Dendrocalamus* sp.) stands. The PHRF is about 250 km from Dhaka, and 60 km from Juri, the nearest city within Sylhet Division. The eastern boundaries of PHRF are adjacent to the state of Tripura, India. The whole of PHRF is composed of hillocks (highest altitude: 70 m), streams, and waterbodies that have resulted in large catchments inside the forests with high annual rainfall [6]. The reserve forest stands on the Upper Tertiary rocks, in which sandstone largely predominates along with siltstones and mudstones, locally altered to slates and shales. Limestone formations are also found in hills on the northeastern border. The soil of PHRF is highly acidic. This soil feature of PHRF results in the most diverse orchards of citrus fruits in the country that surround its periphery [8].

Existing Research on Wildlife in Northeastern Bangladesh

The forests of northeastern Bangladesh are traditionally considered species-poor based on insufficient research efforts (Figure 2) [9]. For example, since 1971, the Bengal tiger (*Panthera tigris*) has been the subject of 45 peer-reviewed publications in Bangladesh, including two national conservation action plans. In contrast, 14 out of 28 extant carnivores of the country are yet to appear in any peer-reviewed study [9,10]. However, remarkably, 126 extant terrestrial mammals under 36 different families have been reported from the northeastern forests of Bangladesh [7,11–14]. Remarkably, in the last two years, two new species of frogs were discovered in the region [15–17]. New populations of the small-clawed otter (globally vulnerable) were noted in camera-trapping in 2021 [18]. Evidence of the dhole (globally endangered), black bear (*Ursus thibetanus*), golden cat (*Catopuma temminckii*), and greater hog badger (*Arctonyx collaris*) (all three globally vulnerable) were also found [19]. Despite being a biodiversity hotspot, where fascinating discoveries are made at regular intervals, concerted research and conservation investment in wildlife of northeastern Bangladesh, an ecologically uncharted territory, is severely stunted. Bangladesh is the only range country for half a dozen globally threatened carnivores (including apex species such as the dhole, bear, clouded leopard, etc.) on which there has been no pertinent study [9]. While the Sundarbans area (a globally important mangrove forest in southwestern Bangladesh) attracts considerable attention because of its tiger population, eastern Bangladesh, which supports a much larger diversity of terrestrial mammals, has rarely been studied. Thus, lack of evidence and meagre investment in advocacy are the prime threats to these forests of northeastern Bangladesh. These forests are traditionally considered ‘empty’ and ignored for conservation investment. This practice, in turn, influences development activity and regional policy in a detrimental manner to the biodiversity inhabiting the region.

	Sundarbans	Eastern Bangladesh
Number of globally threatened carnivore species	2	13
Number of concerted studies done on carnivore species	47	8
Number of globally threatened primate species	0	7
Percentage of forests protected under IUCN category II/IV protected area	23.2	9.2

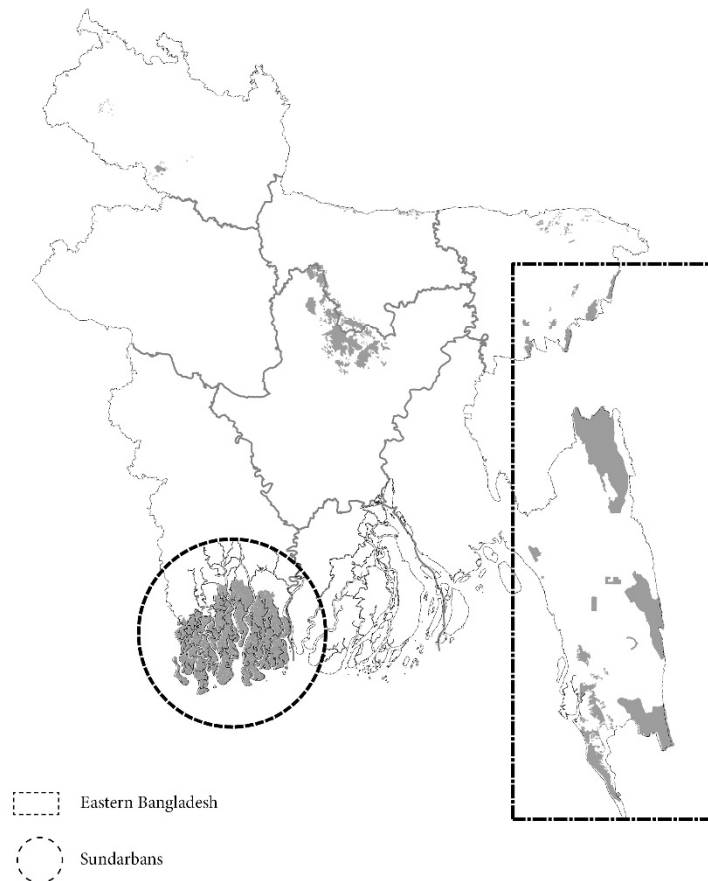


Figure 2. A general comparison between the Sundarbans and the forests of eastern Bangladesh. Information was adopted from Khan [7], Akash and Zakir [9], Rahman et al. [12], and Zakir et al. [13]. The Sundarbans is a mangrove forest that holds the only tiger (*Panthera tigris*) population in Bangladesh.

3. What Is a Safari Park?

The idea behind the safari park was first formulated when the first drive-through lion enclosure was established in Longleat, England [20]. Worldwide, safari parks showcase African game animals in open spaces and may also have aquaria, arboreta, aviaries, and reptile houses. Several of these facilities keep selective cross-breeds and leucistic and melanistic morphs of large carnivores. The concept of safari parks has evolved significantly since its inception. Safari parks are often termed zoological gardens, where the enclosures are significantly larger than those of traditional zoos or menageries. These facilities are also used for educational purposes, offering up-close observation of threatened animals, hands-on experiences with dolphins, benthic invertebrates such as clams and sea cucumbers, and through-the-glass observation of large mammals. Furthermore, many modern-era safari parks now operate captive breeding facilities and serve as conservation centers. For example, the San Diego Zoo Safari Park, California, USA, is a 7.3 km² facility that has several breeding programs for endangered species such as the California condor (*Gymnogyps californianus*) [21]. Safari parks are accredited members of many umbrella organizations for the global zoo and aquarium community, including the European Association of Zoos and Aquaria (EAZA) and the World Association of Zoos and Aquariums (WAZA) [22]. In the Indian Subcontinent, there are safari parks in Pakistan: Karachi Safari

Park (area 0.60 km²) and Lahore Zoo Safari (area 0.98 km²). The rest of the region does not have any safari parks, but 11 facilities are WAZA members (9 in India, 1 in Sri Lanka, and 1 in Nepal). No park or zoo in Bangladesh is a member of WAZA [22].

In general, safari parks uphold an extended definition of a zoo that aims at housing exotic species. These parks do not fall under the definition provided by the International Union for Conservation of Nature (IUCN)-designated protected area categories [18]. Furthermore, safari parks differ significantly from the guided visits on jeeps through tropical forests of Africa and Asia. Many of these forests are under a strict conservation scheme of IUCN-protected area categories I, II, and IV [23], e.g., Kruger National Park of South Africa and Kaziranga National Park of India.

3.1. Safari Parks in Bangladesh

According to Section 19 of the Bangladesh Wildlife (Conservation and Security) Act (2012), a safari park is defined as an area where native and exotic wild animals are protected in an approximation of a natural environment for breeding and roaming openly. There are two safari parks in Bangladesh, i.e., Bangabandhu Sheikh Mujib Safari Park in Cox's Bazaar (BSMSPC, area 9 km²) and Bangabandhu Sheikh Mujib Safari Park in Gazipur (BSMSPG, area 15.42 km²) (Figure 1). Both of these facilities are built on degraded dipterocarp-dominated forests [7] and are within 50 km of the nearest cities [3].

These parks hold animals such as lions, tigers (*P. tigris*), crocodiles (*Crocodylus*), bears (*Ursus*), monkeys, deer, and exotic and indigenous birds. There is a core zone within the park area that is about 5 km² which houses large carnivores and ungulates. Core zones in BSMSPC and BSMSPG offer drive-in tourist services. Both provide shelters for confiscated, trafficked wildlife [24].

3.2. Risk of Pathogens in Captive Facilities

Safari parks create a potential risk of disease outbreaks in captive animals and native wildlife. We summarize the result of nine peer-reviewed works that studied infectious pathogens from animals and birds from BSMSPC and BSMSPG to document the potential perpetuation and spread of infectious diseases in the existing wildlife of the proposed site. Samples from Amazon parrots (*Amazona* spp.), mandarin ducks (*Aix galericulata*), and black swans (*Cygnus atratus*) were found positive for adenovirus and avian influenza A; the latter gives rise to deadly winter outbreaks [24]. Rabies was detected in a male blue wildebeest (*Connochaetes taurinus*) from BSMSPC. *Escherichia coli*, a known bacterium of endothermic animals, is an indicator of faecal contamination [25,26]. Antibiotic-resistant *Escherichia coli* detected in captive animals is considered a risk to animal and human health [25–27].

Hossain et al. [28] found that 68.8% of carnivores of BSMSPC screened positive for gastrointestinal parasitic infection and detected *Capillaria* spp., zoonotic nematodes that can transmit from wild carnivores to humans. *Toxocara* spp. were also reported in captive carnivores and can cause toxocariasis or visceral larva migrans and blindness in humans [29]. Closely occurring captive and free-roaming animals and birds may share a common endoparasite spectrum, but studies on the risks and benefits of the host–parasite relationship are scarce [30]. Wildlife can act as a reservoir of zoonotic pathogens, where zoonotic infections may flourish by natural or human-induced influences [31]. Between January and February 2022, BSMSPG experienced an *Anthrax* outbreak that killed 11 zebras (*Equus quagga*), one tiger, and one lion within two weeks [32]. The risk of spillover of zoonotic pathogens circulating in captive wildlife to native wildlife is high, given the layout of safari parks. We therefore consider the risk of disease outbreaks in captive animals to be of high importance to native wildlife that may live in proximity to the proposed safari park.

4. The Proposed Park

The proposed safari park plans to transform the entire LF with the planned construction of major infrastructure, including rest houses, a highway, and multi-storied residential plots for park management staff. The park area encompasses a total area of approximately

22 km² [3]. The report proposes the establishment of a core area (0.84 km²), tourism-oriented ecovillages (2.81 km²), an exhibit-themed “safari kingdom” (0.15 km²), and a wilderness park (18 km²) [3]. The core area would contain several exotic species such as the lion (*P. leo*), tiger, spotted hyaena, cheetah, leopard (*P. pardus*), jaguar (*P. onca*), Asian elephant (*Elephas maximus*), and many African ungulates in captivity. Additionally, exotic bird aviaries, gardens, a dolphinarium, a marine aquarium exhibit, and a carp pond were proposed within a 0.15 km² area [3]. In addition, BETS [3] proposed to construct an elephant orphanage, although the area of this facility was not specified in the report. The wilderness area was designated for the rest of LF with an emphasis on the conservation of biodiversity with provisions of trail walks for tourists. Conservation of nature combined with the delivery of economic benefits to nature-dependent communities can ensure sustainability. However, there are no “safari parks” or “safaris” that utilize this conservation model. Many “safari”-based conservation models usually do not involve importing exotic (or invasive) wildlife. BETS [3] proposes to establish a marine and freshwater aquarium exhibit and a dolphinarium (within an exhibit-themed “safari kingdom”) among many facilities that can have a potentially detrimental effect on the mixed-evergreen forest and its riparian ecosystem. Furthermore, BETS [3] proposes to install ponds for koi carp, i.e., a known invasive species in tropical Asia. To our knowledge, none of the safari parks in the world have been built in such a remote area and close proximity to a biodiversity hotspot. In contrast, we found other national parks, wildlife sanctuaries, and other IUCN-designated protected areas which are more conducive to nature conservation. Thus, the plans provided by BETS regarding wildlife conservation and tourism are not articulated and are non-scientific.

The BEDS report [3] specifies plans to install captive breeding facilities for the Asiatic black bear, mugger crocodile (*Crocodylus palustris*), sambar (*Rusa unicolor*), nilgai (*Boselaphus tragocamelus*), hog deer (*Axis porcinus*), gaur (*Bos gaurus*), and vulture (*Gyps* spp.). We assessed the success of captive breeding programs elsewhere in the region. For example, the mugger crocodile breeding facility in the Similipal Tiger Reserve, Odisha, India spans over a 1.8 km² area [33]. Earlier attempts to breed mugger crocodiles in captivity in Bangladesh were unsuccessful [6,34]. Similarly, the other species mentioned require expertise as well as an extensive area for the captive breeding program. In Bangladesh, dedicated captive breeding has not been attempted in any of the mentioned species. The country lacks sufficient expertise, infrastructure, or financial allocation to conduct such captive breeding activities consistent with international conservation efforts. Thus, the plan to install captive breeding facilities within the proposed area is unrealistic.

The proposed budget to construct the park is about \$114 million, which will be spent in five years [3]. Upon being built, the park plans for 4–6 visiting hours per day, and expects to earn \$ 1.75 million annually from 1 million annual visitors with a per-person park entry fee of less than \$ 1. Based on this estimated income, it would take more than a century to make the park economically profitable.

BETS [3] designed the safari park based on four safari parks in Southeast Asia and one zoological garden in India. All the facilities mentioned in their comparative study (e.g., Hyderabad Zoological Park, Safari World Bangkok, and Jurong Bird Park) are located within tourist destinations, several kilometres away from international borders and protected areas. These model safari parks are, in fact, zoos and theme parks, and earn a yearly revenue of more than \$1 billion per year. We also noted several controversies about Tamang Safari Indonesia, Bali Safari and Marine Park, and Safari World Bangkok for allegedly using sedating drugs on large carnivores to facilitate photography with tourists. Additionally, the condition of many of the captive animals in these parks was also poor [35]. Thus, the idea of safari parks or zoos, particularly South Asian and Southeast Asian ones, are often not conducive to animal welfare, biodiversity conservation, or animal ethics goals.

Safari parks and safaris are fundamentally different approaches. Safari parks can be made profitable and may be operated ethically, especially under the supervision of international organizations such as EAZA and WAZA. Both of these associations are watchdogs that set, maintain, and monitor scientific standards under which wildlife are kept

in captivity in zoos and safari parks around the world. As Bangladesh has no zoo or safari park affiliated with EAZA and WAZA, and as deaths of captive wildlife occur frequently due to lack of adequate husbandry practices or negligence in the existing facilities, we are skeptical about the implementation of what has been proposed by BETS [3].

Limitations in Methodology Determining the Feasibility of the Proposed Park

The floral and faunal survey report provided by BETS [3] appeared to be inadequate and incomplete, as the survey was conducted in only two short field visits within two months. The report was based on transect surveys, camera-trapping, sign surveys, and interviews. However, in the report, the coordinates and lengths of the transects were not specified. Furthermore, BETS [3] mentioned the installation of 10 camera traps, but not the number of trap days or any coordinates. It was not clear if the camera trapping effort was systematic or non-systematic based on the report. Without these pieces of information, it is not possible to assess the density or abundance of wildlife. Similarly, the sample size of the interviewees and the methodologies followed to track, spot, and identify the animal signs were not provided in the report. We also found several mislabeled species on the checklist, suggesting little attention to detail and reflecting the lack of expertise of the people conducting the surveys. Thus, we do not have any confidence in the purported feasibility of the safari park, since the assessment and analytical methods are not clearly stated or replicable.

5. Wildlife of Lathitila Forest

The Lathitila Forest (LF) is an inseparable part of the Patharia Hill Reserve Forest (PHRF, 80 km²) being located in the southern extent of PHRF. The proposed safari park plans to separate LF (22 km², approximately 30 percent of the reserve forest) from the rest by erecting boundaries and fences. The reserve hosts a high diversity of globally threatened wildlife, including the elongated tortoise (*Indotestudo elongata*), king cobra (*Ophiophagus hannah*), Burmese python (*Python bivittatus*), white-rumped vulture (*Gyps bengalensis*), Indian spotted eagle (*Clanga hastata*), greater spotted eagle (*Clanga clanga*), lesser adjutant (*Leptoptilos javanicus*), white-cheeked partridge (*Arborophila atrogularis*), red-breasted parakeet (*Psittacula alexandri*), Chinese pangolin (*Manis pentadactyla*), Phayre's leaf monkey (*Trachypithecus phayrei*), Bengal slow loris (*Nycticebus bengalensis*), northern pig-tailed macaque (*Macaca leonina*), capped langur (*Trachypithecus pileatus*), stump-tailed macaque (*Macaca arctoides*), hoolock gibbon (*Hoolock hoolock*), marbled cat (*Pardofelis marmorata*), clouded leopard (*Neofelis nebulosa*), leopard, dhole (*Cuon alpinus*), binturong (*Arctictis binturong*), small-clawed otter (*Aonyx cinereus*), sambar deer (*Rusa unicolor*), red serow (*Capricornis rubidus*), etc., all occurring in LF [6,7,36,37]. Though small and fragmented, LF is part of a greater metapopulation of several large carnivores [12]. We found that a total of 26 globally threatened animals live in LF, of which 13 are Vulnerable, 4 are Endangered, and 3 are Critically Endangered (Figure 3). It may be mentioned that Asiatic elephants as well as hoolock gibbons (both endangered) require substantial stands of forest to survive [38]. Separating LF can sever the southerly connection of PHRF with contiguous forest stands in India, disrupting trans-border movement of threatened wildlife.

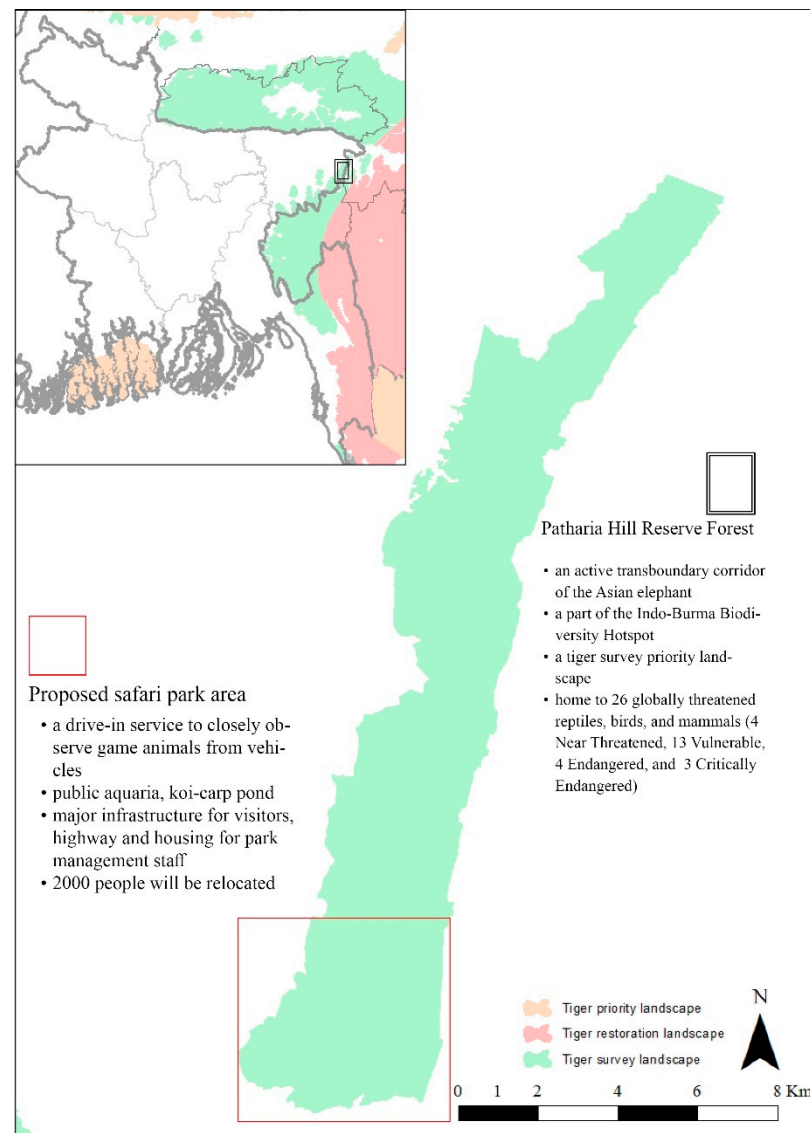


Figure 3. Key wildlife features of Patharia Hill Reserve Forest and Lathitila Forest, and the key points of the plan proposed by BETS (2021). Information was adapted from IUCN Bangladesh [6], Khan [7], Akash et al. [10], BETS [3], Rahman et al. [12], and Zakir et al. [13]. Tiger conservation landscapes were adapted from Sanderson et al. [39].

6. Conservation Significance of LF and Greater PHRF

6.1. Tiger Survey Landscape

Vagrant tigers periodically enter LF [7] which falls under the Tiger Survey Priority Landscape, which is an area putatively of high value for tiger conservation. The LF and PHRF are part of the greater Manas-Namdhipa tiger conservation, restoration, and survey landscape that extends from Arunachal, India in the north, including Mizoram, India, and continues south to Chattogram Hill Tracts, merging with the Arakan Hills [39].

Tiger Survey Priority Landscapes are defined as ‘large areas of structural land cover under a low human influence where tiger status is unknown but there is some reason to believe that tigers might still be present. These areas are large enough to support at least five tigers’ [39]. Although research and conservation initiatives were carried out on tigers in the Bangladesh Sundarbans, no study has so far been attempted in the forests of eastern Bangladesh [9]. This is also true for the forests of Tripura, the bordering state of India [9].

6.2. Trans-Boundary Elephant Corridor

The forest is the only remaining active transboundary corridor of Asian elephants in northeastern Bangladesh and southern Assam, India [38,40]. Talukdar et al. [14] assessed that only 6.88% of PHRF was completely uninhabitable by wildlife, but the rest (including most of LF) contained a moderate-to-excellent habitat for elephants. Elephants, although under serious anthropogenic pressure, can act as an umbrella species of the PHRF wildlife if protected properly [14].

6.3. Human Communities around Lathitila Forest

Establishing a large zoological park will not only threaten biodiversity but will also displace communities that live in the area. At least 2000 people reside within the proposed park area and would be displaced or otherwise impacted by the construction activities. The Government of Bangladesh recently became a signatory to the Rome Statute that has attempted to codify the crime of ecocide, referring to 'unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts'. We believe that the creation of the safari park will be inconsistent with the Rome Statute [41].

7. Conservation of Lathitila Forest

Lathitila Forest represents one of the few remaining biodiversity strongholds in Bangladesh [6,7]. The hilly ecosystems are predicted to be a climate refuge for wildlife, whereby increasing temperatures force species to limit their distribution to higher elevations [38,42]. We strongly urge the government to abandon the idea of developing a safari park to host semi-captive exotic animals primarily for entertainment at the expense of the diverse biota that still exists in LF and the greater PHRF.

We suggest that the government declare the whole PHRF as an IUCN category II/IV-protected area, initiate habitat restoration, implement species-specific conservation activities, and develop income generation activities that will support local indigenous people. In addition, in place of the park core area, we propose the construction of wildlife rehabilitation facilities for proper management and rehabilitation of rescued or confiscated wildlife as well as captive breeding facilities for animals that require relatively smaller spaces.

Biodiversity conservation activities through conscientious ecotourism have been successfully implemented in other areas of northeastern Bangladesh [37]. We further recommend trans-boundary conservation approaches that connect forest stands of adjoining states of India (such as Assam and Tripura). This would also be consistent with the Convention on Biological Diversity and its various programs of work, to which the Government of Bangladesh is a signatory [43]. Finally, we suggest that if a safari park is to be established in northeastern Bangladesh, the suitable area should be closer to an urban area, economically beneficial, and further from reserve forests and international borders.

8. Conclusions

We believe the development of the proposed safari park would be detrimental to the significant biodiversity that exists in the region if implemented as planned. This is because of the following observations we noted while assessing the proposed park: (i) the proposed site, i.e., Lathitila Forest, is a Tiger Survey Priority Landscape, an active trans-boundary elephant corridor, and belongs to the Indo-Burma Biodiversity Hotspot; (ii) the concept of the proposed Safari Park is very different from the concept of the safari, a common practice in the African countries; (iii) the existing safari parks of Bangladesh are prone to transmissible diseases; (iv) none of the zoological institutions or safari parks are members of EAZA or WAZA due to poor facilities, funding, and animal husbandry standards; (v) the proposed safari park by BETS [3] is an extended concept of a zoo; (vi) the proposed safari park of BETS [3] plans to bring exotic (with some invasive) wildlife into an area that consists of remote forest stands with trans-boundary connectivity; and (vi) the native

and threatened wildlife already residing within the forest could be better conserved using existing, proven conservation models.

Thus, we strongly urge the government to abandon the idea of developing a safari park to host semi-captive exotic animals primarily for entertainment at the expense of the diverse biota that still exists in LF. Lathitila Forest must be brought under formal protection to safeguard the remaining biodiversity of the region. Declaring the area, including the whole Patharia Hill Reserve Forest, as an IUCN-designated Category II or Category IV protected area will be far more effective, economical, and sustainable to commence sustainable conservation practice in the region to ensure both wildlife conservation and the welfare of the forest-dependent community.

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References

- Morris, R.J. Anthropogenic impacts on tropical forest biodiversity: A network structure and ecosystem functioning perspective. *Philos. Trans. R. Soc. B Biol. Sci.* **2010**, *365*, 3709–3718. [\[CrossRef\]](#) [\[PubMed\]](#)
- Reza, A.A.; Hasan, M.K. Forest biodiversity and deforestation in Bangladesh: The latest update. In *Forest Degradation around the World*; Suratman, M.N., Ed.; IntechOpen: London, UK, 2019; pp. 1–19.
- BETS Consulting Services Ltd. *Draft Feasibility Report with Master Plan Zoning, Bangabandhu Sheikh Mujib Safari Park*; Wildlife Management and Nature Conservation Division; Bangladesh Forest Department: Moulvibazar, Bangladesh, 2021; p. 246.
- Saigal, O. Tripura-The Land. *Ishani* **2005**, *1*, 33–36.
- Myers, N.; Mittermeier, R.A.; Mittermeier, C.G.; da Fonseca, G.A.B.; Kent, J. Biodiversity hotspots for conservation priorities. *Nature* **2000**, *403*, 853–858. [\[CrossRef\]](#) [\[PubMed\]](#)
- IUCN Bangladesh. *Red List of Bangladesh*; International Union for Conservation of Nature: Dhaka, Bangladesh, 2015.
- Khan, M.M.H. *Photographic Guide to the Wildlife of Bangladesh*; Arannayk Foundation: Dhaka, Bangladesh, 2018.
- Sarker, S.K.; Rashid, S.; Sharmin, M.; Haque, M.M.; Sonet, S.S.; Nur-Un-Nabi, M. Environmental correlates of vegetation distribution in tropical Juri forest, Bangladesh. *Trop. Ecol.* **2014**, *55*, 167–176.
- Akash, M.; Zakir, T. Appraising carnivore (Mammalia: Carnivora) studies in Bangladesh from 1971 to 2019 bibliographic retrieves: Trends, biases, and opportunities. *J. Threat. Taxa* **2020**, *12*, 17105–17120. [\[CrossRef\]](#)
- Akash, M.; Trageser, S.; Zakir, T.; Rahman, S.C.; Mila, F.K.; Ghose, A. Detecting the spots: A review on leopard occurrences in Bangladesh. *Cat News* **2021**, *73*, 20–27.
- Ahmed, A.T.A.; Kabir, S.M.H.; Ahmad, M.; Ahmed, Z.U.; Begum, Z.N.T.; Hassan, M.A.; Khondker, M. *Encyclopedia of Flora and Fauna of Bangladesh*; Asiatic Society of Bangladesh: Dhaka, Bangladesh, 2009; p. 264.
- Rahman, H.A.; McCarthy, K.P.; McCarthy, J.L.; Faisal, M.M. Application of Multi-Species Occupancy Modeling to assess mammal diversity in northeastern Bangladesh. *Glob. Ecol. Cons.* **2021**, *25*, e01385.
- Zakir, T.; Debbarma, H.; Mahjabin, R.; Debbarma, R.; Khan, Z.; Minu, M.R.; Zahura, F.T.; Akash, M. Are northeastern forests of Bangladesh empty? Insights from camera-trapping into spatiotemporal activity pattern of mammals in a semi-evergreen national park. *Mammal St.* **2021**, *46*, 1–17. [\[CrossRef\]](#)
- Talukdar, N.R.; Choudhury, P.; Ahmad, F.; Ahmed, R.; Al-Razi, H. Habitat suitability of the Asiatic elephant in the trans-boundary Patharia Hills Reserve Forest, northeast India. *Model. Earth Syst. Environ.* **2020**, *6*, 1951–1961. [\[CrossRef\]](#)
- Al-Razi, H.; Maria, M.; Muzaffar, S.B. A new species of cryptic Bush frog (Anura, Rhacophoridae, Raorchestes) from northeastern Bangladesh. *ZooKeys* **2020**, *927*, 127–138. [\[CrossRef\]](#)
- Al-Razi, H.; Maria, M.; Poyarkov, N.A. Integrative taxonomic analysis reveals a new species of *Leptobrachium* Tschudi, 1838 (Anura, Megophryidae) from Bangladesh. *J. Nat. Hist.* **2021**, *55*, 85–114. [\[CrossRef\]](#)
- Trageser, S.; Al-Razi, H.; Maria, M.; Nobel, F.; Asaduzzaman, M.; Rahman, S.C. A new species of *Phrynoglossus* Peters, 1867; *Dicroglossidae* from southeastern Bangladesh, with comments on the genera *Occidozyga* and *Phrynoglossus*. *PeerJ* **2021**, *9*, e11998. [\[CrossRef\]](#) [\[PubMed\]](#)

18. Akash, M.; Zakir, T.; Biswas, J.; Shafi, S.M.; Ahmed, S.; Alam, M.S. Globally vulnerable small-clawed otter in northeast Bangladesh: Activity pattern of a newly discovered population in a human-dominated, riparian, mixed-evergreen forest. In Proceedings of the Student Conference on Conservation Sciences, Dhaka, Bangladesh, 27–30 September 2021.
19. Zakir, T.; Biswas, J.; Alam, M.S.; Shafi, S.M.; Ahmed, S.; Barkat, A.B.; Akash, M. Finding Fantastic Beasts: A Camera-Trapping Story on Threatened Carnivore Mammals Inhabiting Forgotten Forests of Northeast Bangladesh. Available online: <https://www.tbsnews.net/environment/nature/finding-fantastic-beasts-camera-trapping-story-our-forgotten-forests-393742> (accessed on 24 April 2022).
20. Flack, A.J.P. Lions loose on a gentleman's lawn: Animality, authenticity and automobility in the emergence of the English safari park. *J. Hist. Geog.* **2016**, *54*, 38–49. [CrossRef]
21. Wallace, M. Efforts to restore the California condor to the wild. *Wld. Assoc. Zoo Aq. Mag.* **2012**, *13*, 11–15.
22. World Association of Zoos and Aquariums. Available online: <https://www.waza.org/members/> (accessed on 25 July 2021).
23. UNEP-WCMC. Protected Area Profile for Bangladesh from the World Database of Protected Areas. Available online: www.protectedplanet.net (accessed on 25 July 2021).
24. Chowdhury, M.N.U.; Islam, S.; Hossain, M.E.; Rahman, M.Z.; Nine, H.S.M.Z.; Sadik, A.S.; Islam, A. Detection of Influenza A and Adenovirus in captive wild birds in Bangladesh. *Int. J. Inf. Dis.* **2021**, *101*, 219–264. [CrossRef]
25. Sarker, M.S.; Ahad, A.; Ghosh, S.K.; Mannan, M.S.; Sen, A.; Islam, S.; Bupasha, Z.B. Antibiotic-resistant *Escherichia coli* in deer and nearby water sources at Safari parks in Bangladesh. *Vet. World* **2019**, *12*, 1578–1583. [CrossRef]
26. Ghosh, S.K.; Bupasha, Z.B.; Nine, H.S.M.Z.; Sen, A.; Ahad, A.; Sarker, M.S. Antibiotic resistance of *Escherichia coli* isolated from captive Bengal tigers at Safari parks in Bangladesh. *J. Adv. Vet. Anim. Res.* **2021**, *6*, 341–345. [CrossRef]
27. Schets, F.M.; van Wijnen, J.H.; Schijven, J.F.; Schoon, H.; de Roda Husman, A.M. Monitoring of waterborne pathogens in surface waters in Amsterdam, The Netherlands, and the potential health risk associated with exposure to *Cryptosporidium* and *giardia* in these waters. *Appl. Environ. Microb.* **2008**, *74*, 2069–2078. [CrossRef]
28. Hossain, M.N.; Dey, A.R.; Begum, N.; Farjan, T. Parasitic infection in captive wild mammals and birds in Bangabandhu Sheikh Mujib Safari Park, Cox's bazar, Bangladesh. *J. Threat. Taxa* **2021**, *13*, 17889–17894. [CrossRef]
29. Sarvi, S.; Daryani, A.; Sharif, M.; Rahimi, M.T.L.; Kohansal, M.H.; Mirshafiee, S.; Siyadatpanah, A.; Hosseini, S.A.; Gholami, S. Zoonotic intestinal parasites of carnivores: A systematic review in Iran. *Vet. World* **2018**, *11*, 58–65. [CrossRef]
30. Carrera-Játiva, P.D.; Morgan, E.R.; Barrows, M.; Wronski, T. Gastrointestinal parasites in captive and free-ranging birds and potential cross-transmission in a zoo environment. *J. Zoo Wildl. Med.* **2018**, *49*, 116–128. [CrossRef] [PubMed]
31. Kruse, H.; Kirkemo, A.M.; Handeland, K. Wildlife as source of zoonotic infections. *Emerg. Infect. Dis.* **2004**, *10*, 2067. [CrossRef] [PubMed]
32. The Business Standard. Now a Tiger and a Lion Fall Sick at Gazipur Safari Park. Available online: <https://www.thedailystar.net/environment/wild-life/news/another-zebra-dies-gazipur-safari-park-raising-toll-10-2949836>. (accessed on 16 February 2022).
33. Sagar, S.R.; Singh, L.K. Captive Breeding and rehabilitation of Mugger crocodile (*Crocodylus palustris*) in Similipal Tiger Reserve, Orissa, India. *Ind. For.* **1993**, *119*, 807–815.
34. Masum, K.M.; Rahman, Z.M.M.; Alamgir, M.; Mamun, A.A.; Abdullah-Al-Mamun, M.M. Breeding difficulty of Marsh Crocodile (*Crocodylus palustris*, Lesson, 1831) in Safari Park of Bangladesh. *J. For. Environ. Sci.* **2012**, *28*, 220–226. [CrossRef]
35. Knox, P. Thailand Zoo Horror Revealed in Sickening Snaps Showing Emaciated Animals Shackled in Tiny Cages. Available online: <https://www.thesun.co.uk/news/6006446/thailand-zoo-animal-cruelty-cages/> (accessed on 16 February 2022).
36. Khan, M.A.R. *Wildlife of Bangladesh: A Checklist and Guide*; Chayabithi Publication: Dhaka, Bangladesh, 2015.
37. Talukdar, N.R.; Choudhury, P. Conserving wildlife wealth of Patharia Hills reserve forest, Assam, India: A critical analysis. *Glob. Ecol. Cons.* **2017**, *10*, 126–138. [CrossRef]
38. Alamgir, M.; Mukul, S.A.; Turton, S.M. Modelling spatial distribution of critically endangered Asian elephant and Hoolock gibbon in Bangladesh forest ecosystems under a changing climate. *Appl. Geog.* **2015**, *60*, 10–19. [CrossRef]
39. Sanderson, E.W.; Forrest, J.; Loucks, C.; Ginsberg, J.; Dinerstein, E.; Seidensticker, J.; Bryja, G. Setting priorities for tiger conservation: 2005–2015. In *Tigers of the World*, 2nd ed.; Tilson, R., Nyhus, P., Eds.; Academic Press: London, UK, 2010; pp. 143–161.
40. Motaleb, M.A.; Ahmed, M.S.; Islam, H.; Haque, M.A. *Atlas: Elephant Routes and Corridors in Bangladesh*; International Union for Conservation of Nature: Dhaka, Bangladesh, 2016.
41. Arsanjani, M.H. The Rome Statute of the international Criminal court. *Am. J. Int. Law* **1999**, *93*, 22–43. [CrossRef]
42. Chowdhury, M.A.W.; Muller, J.; Varela, S. Climate change and the increase of human population will threaten conservation of Asian cobras. *Sci. Rep.* **2021**, *11*, 18113. [CrossRef]
43. Muzaffar, S.B.; Islam, M.A.; Kabir, D.S.; Khan, M.H.; Ahmed, F.U.; Chowdhury, G.W.; Jahan, I. The endangered forests of Bangladesh: Why the process of implementation of the Convention on Biological Diversity is not working. *Biod. Cons.* **2011**, *20*, 1587–1601. [CrossRef]