

ANNUAL REPORT

2020-2021

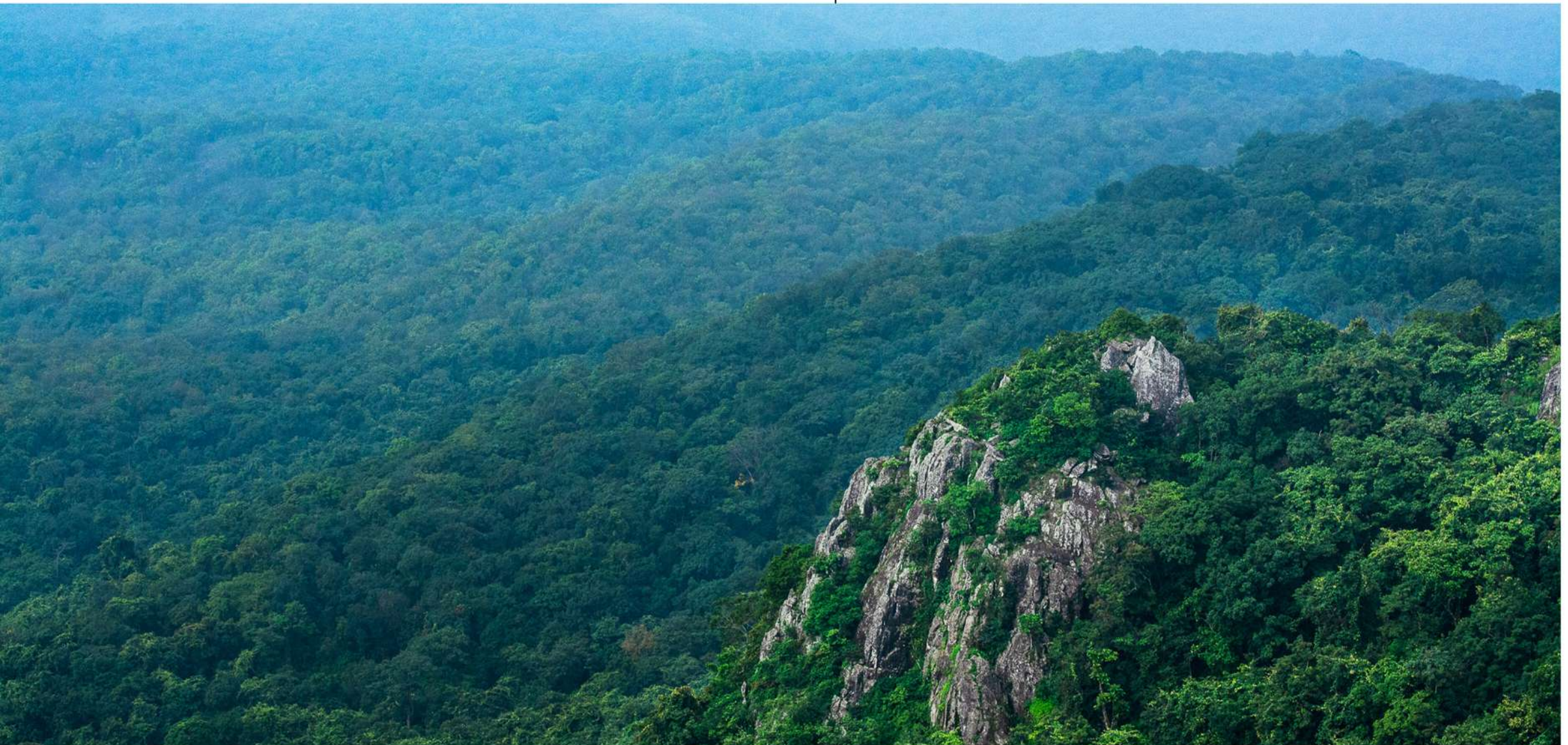


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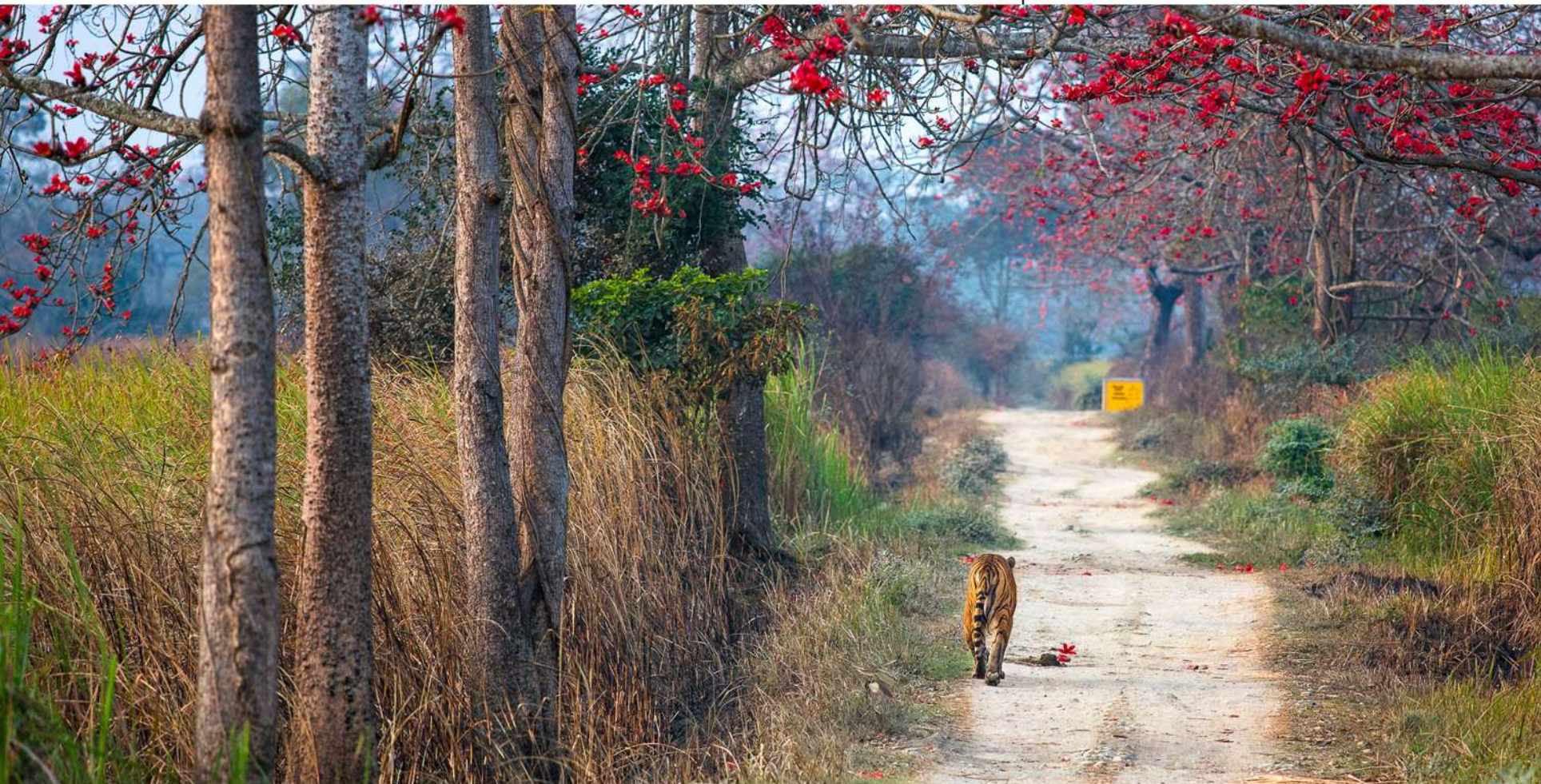
<https://conservationinitiatives.org/>



India houses astounding biodiversity, awe-inspiring conservation landscapes, and magnificent species. Northeast India, in particular, is a region with two Biodiversity Hotspots, multiple Important Bird and Biodiversity Areas (IBA) and landscapes of conservation significance. Northeast India is also a region of rich people–nature traditions, and in some areas, heavy dependence of people on forests for their lives and livelihoods. But this rich natural heritage is threatened.



Conservation Initiatives works with multiple stakeholders towards science-based conservation of threatened wildlife and their habitats, and sustenance of positive people–nature relationships into the future.



OUR VISION

Our Vision is to nurture a planet where endangered flora and fauna rebound and thrive, and people lead self-sufficient, eco-friendly lives that are at one with nature.

In keeping with our vision, our **overall goal** is to achieve large-scale conservation of endangered species, biodiversity and ecosystems through a model where multiple conservation roles of stakeholders in India's complex landscapes coalesce in a scientific manner.

Our approach involves three basic tenets: using **scientific evidence** to prioritise **best practices, locations, and actions** for each conservation landscape; devising **solutions tailored to the local ecological and conservation context**, and social and cultural environment; and, an **inclusive participatory approach** wherein stakeholders are integrally involved in the implementation of conservation strategies.



We believe that India can emerge as a nation of **scientific excellence in the field of conservation**, while the socio-cultural context provides opportunities for novel and **path-breaking conservation models**, which can be replicated across the globe.



OUR APPROACH

Our work is founded in science-based conservation, wherein scientific enquiry (a) provides us with an in-depth understanding of socio-ecological contexts in our project landscapes; (b) firms our boots-on-the-ground approach to conservation; and (c) directs us to the most important locations, imminent threats, and critical actions, for **maximum and sustained conservation benefits**.

We use a **landscape-scale conservation** approach, which encompasses protected areas, as well as the non-habitat matrix, including agricultural fields, plantations and other land uses. Such an approach to conservation automatically and implicitly includes: securing key source populations; maintaining connectivity and ecological linkages across populations and habitats; and understanding and shaping human-wildlife interactions.



Our approach enhances persistence of endangered species, mitigates negative impacts of climate change, and ensures the realisation of ecosystem services. With ecosystem services valued at up to USD 125 trillion / year, supporting conservation ensures unmatched returns on investment going into the future.

Collaboration is key to all successful conservation efforts. We collaboratively implement projects and engage with State Forest Departments. With the Assam Forest Department, we have developed a photo-database of Asian elephants for their conservation and monitoring, and have documented these efforts in a collaborative peer-reviewed scientific article published in a respected international journal.

We work closely with local communities in all our field sites and collaborate with the Bhutan Glory Eco-Club, Village Councils or Syiemships and Eco-tourism Societies. We are part of a multi-organisation partnership Coalition for Corridors, focused on connectivity conservation. Taken together, our goal is to increase the scope of conservation such that all stakeholders play a meaningful role in landscape-scale conservation.



FLAGSHIP SPECIES: THE ASIAN ELEPHANT



The Asian elephant *Elephas maximus* is a charismatic species, revered in India as our National Heritage Animal. An endangered species, elephants are threatened by habitat loss and fragmentation, poaching and human–elephant conflict.

Today, less than half of the area used by elephants in India is protected; yet, protected areas mitigate the impacts of anthropogenic threats, and are integral to the long-term survival of elephants. Knowledge of the population status of elephants in these strongholds of conservation, therefore, will greatly benefit management and conservation efforts.

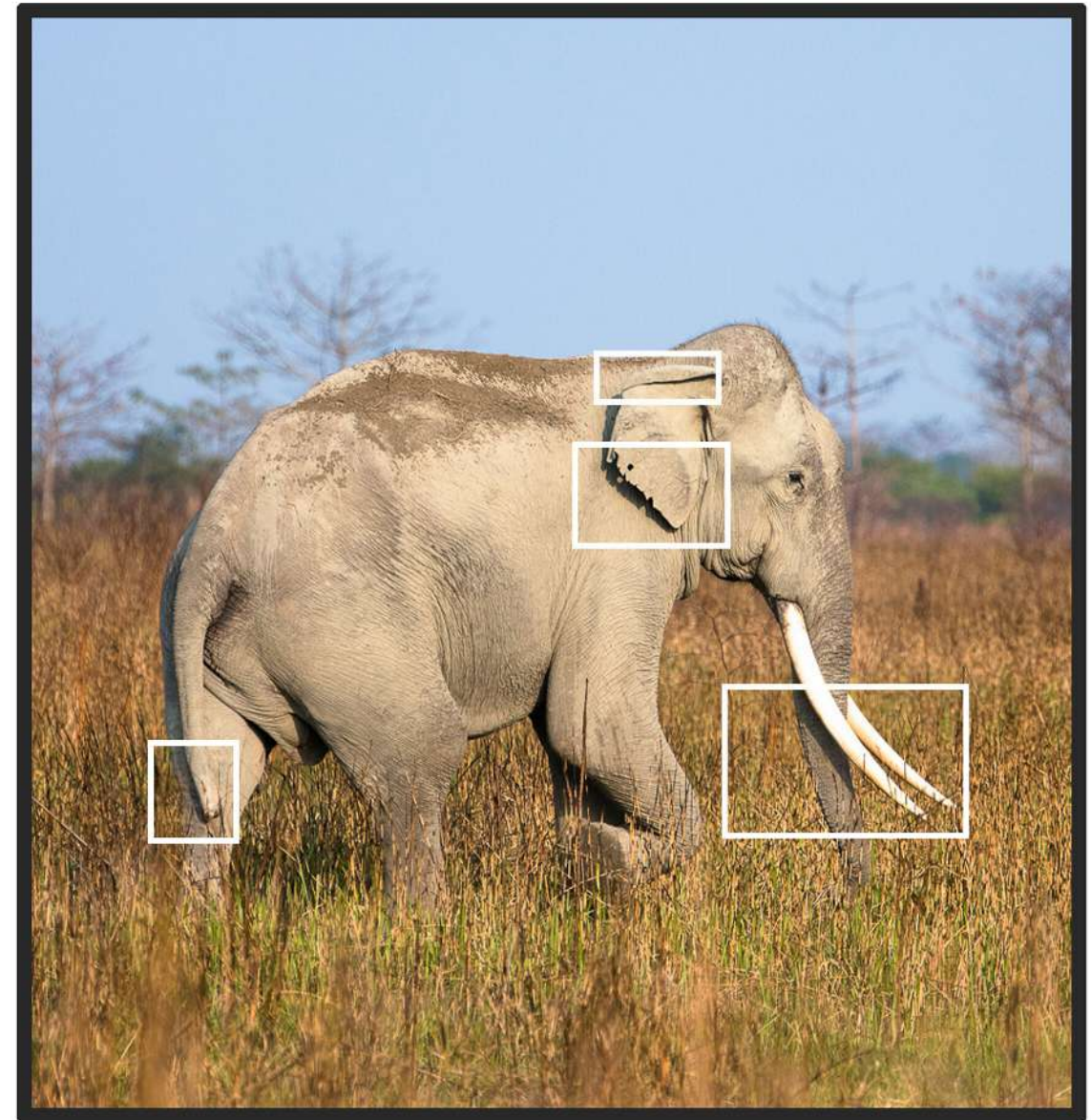
The landscape centred around the unique and breathtaking Kaziranga National Park, holds the second largest Asian elephant population across the globe. Kaziranga is located on the banks of the mighty Brahmaputra River, and is one of the few remaining intact floodplain ecosystems in our country.

Kaziranga, a UNESCO Natural World Heritage Site, is home to diverse flora and fauna, including the greater one-horned rhinoceros, tiger, hog deer, many bird species such as the bar-headed goose and the greater and lesser adjutant storks, among a host of other species.



PROJECT: PHOTO-DOCUMENTING ELEPHANTS IN KAZIRANGA

We undertook a photographic survey to reliably estimate elephant population size in Kaziranga National Park. This effort builds on earlier work (2017–2019), implemented in collaboration with the Assam Forest Department and led by Conservation Initiatives' senior scientists, to photographically document individual Asian elephants in the park. This engagement is based on our ability to distinguish individual elephants from their photographs, and is part of a long-term elephant monitoring programme in the Kaziranga landscape.



Elephants can be individually identified, just like people. We identify elephants using a suite of morphological characters, including their ear shape and folds, tail length, and in the case of tusked males, their tusk orientation and shape.

1st March 201720th Feb 20197th Jan 2021

This adult female elephant in Kaziranga National Park was photographed by our team multiple times over the years. She bears a perfectly circular hole in her right ear, a feature that makes her easily distinguishable.

5th Apr 201722nd Feb 201817th Feb 2021

Tusks—their shape, size, and even their presence—are a great way to tell male elephants apart. A striking feature of this majestic elephant photographed in Kaziranga National Park are his shapely tusks, curving with beautiful symmetry to have their tips parallel to the ground.



OUTPUT: 2021

Total area surveyed: 388 km²
 Drive effort: 2,180 km
 Team effort: 50 team-days
 Elephant detections: 777 individuals
 across 244 elephant sightings

CUMULATIVE OUTPUT: 2017–2021

Total area surveyed annually: 388 km²
 Drive effort: 12,080 km
 Team effort: 350 team-days
 Elephant detections: 5871 individuals
 across 1502 elephant sightings



PROJECT: CAMERA TRAPPING IN CORRIDORS

Kaziranga National Park is connected to the forested hills of Karbi Anglong towards the south of the park by designated animal corridors, as well as tea estates and other agricultural land uses. Two key designated corridors are the Panbari and Kanchanjuri animal corridors.

The designated corridors comprise tropical semi-evergreen and moist deciduous forests, adjacent to human-use areas such as agricultural lands and tea estates, and a national highway (NH 37). Our team previously installed camera traps to assess animal use of the corridors during the monsoon season. These efforts resulted in a large dataset of animal photographs, which we compiled and analysed. This year we put together a total of 39,474 photographs, capturing 19 species.



Tiger *Panthera tigris*, leopard *Panthera pardus*, Asian elephant, hog badger *Arctonyx collaris*, large Indian civet *Viverra zibetha*, jungle cat *Felis chaus*, Asiatic brush-tailed porcupine *Atherurus macrourus*, one-horned rhinoceros *Rhinoceros unicornis* (top left to bottom right).



PROJECT: TRACKING ELEPHANTS IN TEA ESTATES

Our work shows that tea estates in the Kaziranga landscape play an important role in facilitating wildlife movement and providing refuge, especially during the flood season. However, the presence of elephants in tea estates sometimes leads to conflict. Therefore, **fostering positive human–elephant interactions and minimising conflict** is key to strengthening the conservation role of tea estates.

We engage with tea estates in the Kaziranga landscape to promote positive human–elephant interactions, such that tea estates serve as safe spaces for elephants. As part of these efforts, we track individual elephants and herds as they move through the tea estates. By doing this, we understand how elephants respond differently to people, with some animals being more passive than others; are able to map movement routes within tea estates; and have a real-time understanding of how these social animals work in groups to tackle risky environments and potential threats.

Sighting Information

Add NEW Sampling Occasion Add NEW Sighting Add NEW Picture Add Group Information

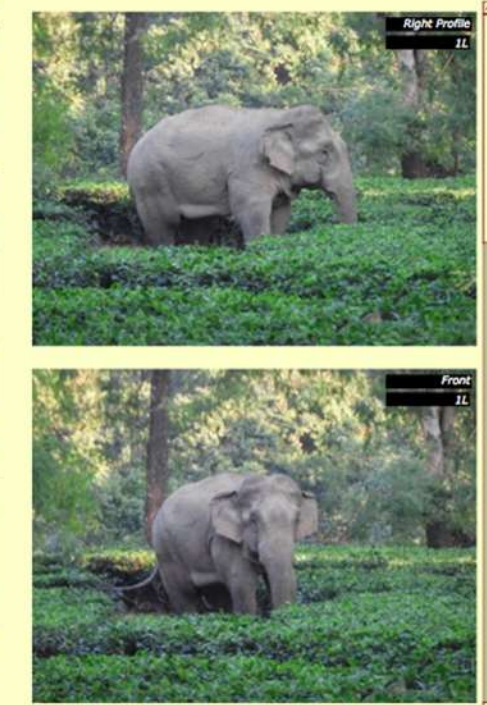
Year: 2018 Estate: Numaligarh Range:
 Sample ID: 003 Sighting ID: NML_271118
 Route ID: Group Size: 17 Group Detection: PD
 Date: 27/11/2018 Animal ID: NML_271118_1 Sex: Male
 Time: 13:05:00 Individual ID:
 Location: Tea Estate Distance: 106 Angle: 268

Age Class: AdultMale Sighting Description:
 Latitude: 26.62321 Overall Description:
 Longitude: 93.71371
 Habitat Type: Tea

Tusks: Absent Tusk Description:
 TuskArrangement: N/A
 LEFT N/A Angle N/A
 Tusk Configuration N/A Length N/A
 N/A Thickness N/A
 RIGHT N/A

Ear Configuration: LEFT U-Shaped Fold Absent
 Back Secondary fold
 U - Rounded Lobe V - Acute
 Yes Tear Yes
 Yes Hole N/A
 RIGHT

Tail Length: At Ankle Tail Description:
 Tail Brush Type: Both Sides - Discontinuous
 Scar Tumour Description:
 Scar Tumour: Yes
 BodyCondition:



Save Record



Our photographic database of elephants in tea estates consists of 381 entries, with information on elephant identity, location of sighting, time and date, and group composition.

FLAGSHIP SPECIES: WESTERN HOOLOCK GIBBON

The western hoolock gibbon is India's only wild ape. Restricted to closed-canopy forests, these gibbons have faced immense threat from habitat loss and fragmentation, as well as from poaching. It is estimated that we have lost c. 90% of wild gibbons over the past few decades.



In the hill states of Northeast India, including Meghalaya and Nagaland, forests are predominantly community owned and managed. Thus community-based conservation is the foundation to securing the future of these charismatic species.

Towards this end, we work with communities to secure their forests for these magnificent species, reduce threats of hunting, increase awareness, and expand our scientific knowledge base on gibbons and other wildlife found on community lands.

PROJECT: SECURING THE FUTURE OF THE ENDANGERED WESTERN HOOLOCK GIBBON

THE CALL OF THE GIBBON: A DOCUMENTARY FILM

Folklore of the Khasi people—a tribe in Meghalaya—states that their kingdoms are demarcated by the characteristic morning calls, or duets, of the gibbon. Centred around this folktale, we made a documentary film, 'Haba U Hylla U Huleng', or 'The Call of the Gibbon', in the Khasi language, to bolster conservation support for the species in the region.



The film delves into the conservation of the endangered western hoolock gibbon in Hima Malai Sohmat, a group of 5 villages in Khasi Hills, Meghalaya, the benefits of gibbon and forest conservation, and the potential role of eco-tourism in helping bring about conservation.

AWARENESS PROGRAMS FOR ENHANCING CONSERVATION SUPPORT

This year, while we continued to engage with community leaders, interactions were restricted and few due to the COVID-19 pandemic. In November 2020, we conducted a conservation awareness program for village residents of Hima Malai Sohmat. The aim was to raise awareness among the participants with respect to: (i) the importance of community-based conservation of nature, forests, and wildlife—especially the hoolock gibbon—in Meghalaya; (ii) threats to the natural ecology of Meghalaya; and (iii) the potential for responsible eco-tourism to meet the dual goals of nature conservation and community livelihood improvement.



Due to COVID-19 restrictions, the number of participants was limited to 12 village residents, comprising community leaders and youth representatives. We had experts present talks at the program, covering a range of topics such as forest ecosystem services and function, responsible cave eco-tourism and threats to forest biodiversity of Meghalaya. We also conducted group activities—a focus group discussion and a web-of-life game—to brainstorm on the benefits of, and perceived challenges to, conservation and eco-tourism.

PROJECT: BIRDS IN FOREST- AGRICULTURAL LANDSCAPES OF MEGHALAYA

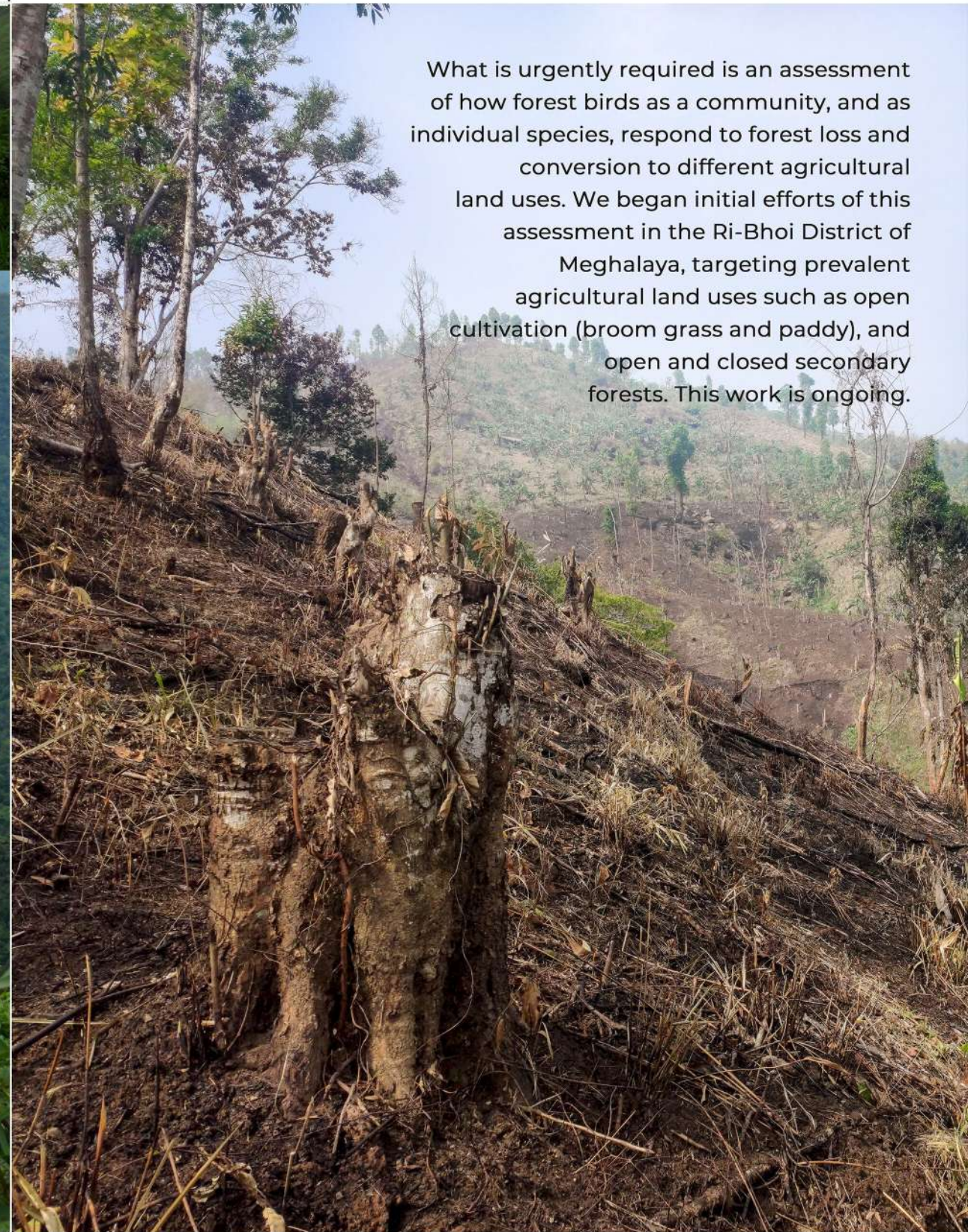
Meghalaya is a state that is rich in forest bird biodiversity, harbouring over 300 species of birds across multiple forest types. However, this rich biodiversity is increasingly threatened by agricultural expansion and the conversion of forests into non-forested land uses.

Birds are a taxon that capture our imagination. In being visible, colourful and sensitive to habitat modification, birds can be an ideal taxon for community-based bio-monitoring and planning eco-friendly land management. Accordingly, we have trained interested community youth in spotting and identifying birds.



Leaf Bird *Chloropsis* sp.

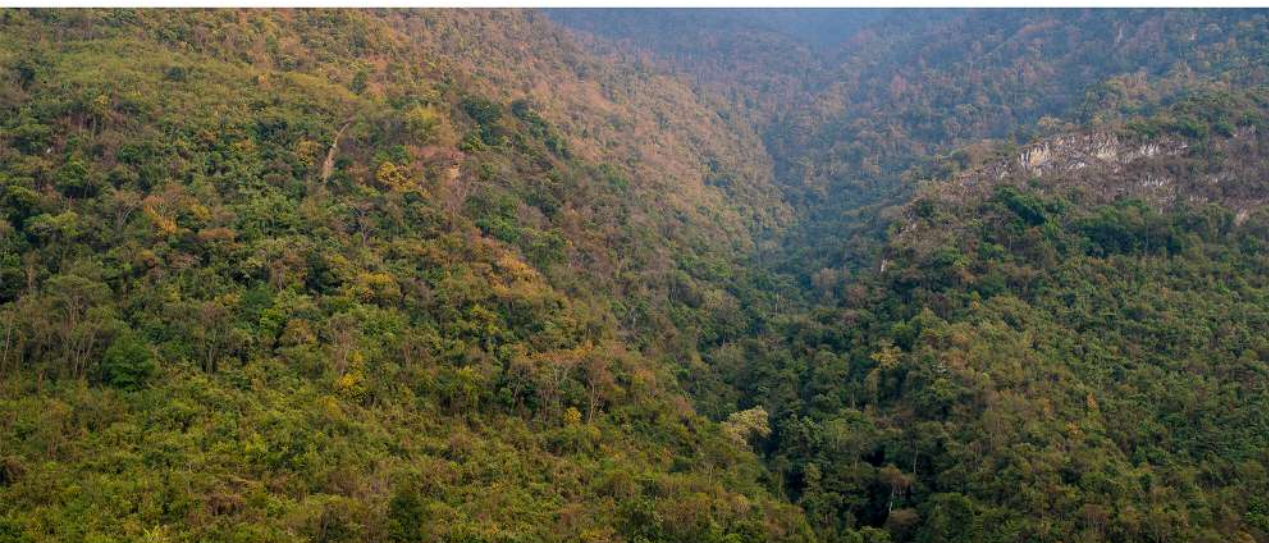
What is urgently required is an assessment of how forest birds as a community, and as individual species, respond to forest loss and conversion to different agricultural land uses. We began initial efforts of this assessment in the Ri-Bhoi District of Meghalaya, targeting prevalent agricultural land uses such as open cultivation (broom grass and paddy), and open and closed secondary forests. This work is ongoing.



PROJECT: COMMUNITY-BASED BIO-MONITORING IN NAGALAND

Community lands in Nagaland house some of the richest forests in Northeast India. Here, grassroots community conservation movements have taken hold, with youth leaders working hard to secure their forests into the future. We support these community leaders.

This year, we worked in collaboration with the Bhutan Glory Eco-Club to train next generation community conservationists in community-based bio-monitoring.



With the community, we investigated the presence of mammals, especially small felids, in government- and community-managed forests. We deployed 29 pairs of camera traps over 1,368 trap-nights. We obtained photographs of 17 mammalian species from 10 families. We recorded 4 felid species—the clouded leopard *Neofelis nebulosa*, Asiatic golden cat *Catopuma temminckii*, marbled cat *Pardofelis marmorata*, and leopard cat *Prionailurus bengalensis*.



We recorded multiple species such as the leopard cat (above), Asiatic golden cat (middle), and clouded leopard (below) through our community-based bio-monitoring efforts.

These species are all impacted by forest loss, and dependent on community forest conservation in the state of Nagaland. Further, because of their elusive nature, there is much we don't know about these species, including basic information on where they are found; our survey adds to these data. In addition, we also recorded large mammals such as the dhole *Cuon alpinus*, and Asiatic black bear *Ursus thibetanus*, and species such as the large-toothed ferret badger *Melogale personata*, whose sightings are relatively uncommon.

AWARENESS PROGRAM

We organised an awareness program and presented our findings from our community-based bio-monitoring effort to Fakim Village. The program was well received, and attended by most members of the village, including children and elderly people. For the younger generation, knowing that the Fakim community forest boasts of such a diverse assemblage of mammal species was a matter of pride and honour. The village council chairman and elders expressed their appreciation and support for future conservation initiatives.



With this project, we have been able to cement a strong relationship with leaders and residents of villages surrounding the Fakim community forest.

PROJECT: COVID-19 RELIEF FOR FISHING COMMUNITIES

The COVID-19 pandemic has been a challenging time for communities across the world. Informal and small-scale sectors have particularly been impacted.

In collaboration with InSeason Fish (inseasonfish.com), we provided COVID-19 relief kits to small-scale fishing communities from multiple villages in Tamil Nadu, southern India. Each kit contained staple food items such as rice, flour, pulses and oil; and a COVID-19 protection kit comprising soaps, masks and gloves.

We reached 687 beneficiaries altogether across multiple villages. We provided relief in April and May 2020, which arguably were the most difficult months for these communities. In total, we distributed 4.86 tonnes of rice, 3.71 quintals of pulses, 1000 units of soap, and 637 masks sourced from small-scale industries.



FEATURED CONSERVATIONIST

What are some of your early experiences with wildlife?

Having lived next to Kaziranga National Park all my life, I have always been surrounded by wildlife. I grew up watching, and occasionally handling wild animals. Some of my interesting memories of wildlife are from the flood season, watching animals move out of the forest. When Kaziranga floods, hog deer are seen in large numbers and I enjoyed watching them. We also got to see elephants and rhinos outside the National Park.

How and why did you enter the field of wildlife conservation?

Years ago, I used to accompany tourists to Kaziranga National Park as a driver and guide. Watching animals in Kaziranga increased my interest in wildlife, and I saw the need to conserve them. This area is heavily dependent on Kaziranga National Park. If the National Park is threatened, people's lives and livelihoods are also at risk. As locals, it is our responsibility to conserve wildlife here. Hence, when the opportunity to work with Dr. Goswami and Dr. Vasudev presented itself, I immediately took it up.

What do you enjoy the most about working in this field?

My team works on elephants, and I am part of both our research and conservation activities. I love that I get to watch and photograph wildlife, especially elephants. I am proud to be from Kaziranga, and contribute towards the conservation of wildlife here.

ABOUT

Binod Gogoi is a Conservation Affiliate, working in the Kaziranga landscape towards the conservation of Asian elephants. He is an integral part of the organisation's community engagement and research efforts, contributing towards our strong on-ground presence. He is also a skilled bamboo craftsman, and an advocate of sustainable lifestyles.



**BINOD
GOGOI**

FIELD NOTES

UTHAIAH N. T.



Hog Badger *Arctonyx collaris*

It was February and the field season was about to end. Our work involved photographing individual elephants and collecting data inside Kaziranga National Park. We drove into Kohora Range in our Gypsy accompanied by a forest guard as usual. Close to the entrance, among the hustle and bustle of safari jeeps was a herd of swamp deer trying to get some shut-eye. Soon we were off the safari route and the treetops were bustling with bird activity. Fish eagles ready to swoop down on their prey were hard to miss as we drove past the water bodies. The flowering silk cotton trees *Bombax ceiba* added a splash of red to the otherwise green canopy. By the time we got few photographs of elephants, it was post afternoon and hunger struck us. We were en route to the nearest forest camp to feast on our packed lunch when the vehicle came to a sudden halt on spotting a tiny pale brown creature with a pig-like snout walking towards us. It was a hog badger, which was surprised on seeing us, as we were on seeing it!

The hog badger is a terrestrial mustelid distributed throughout sub-tropical East and Southeast Asia, including Northeast India, Myanmar, Thailand and Cambodia. The animal we saw was a light fawn, but the animal's fur color ranges from grey to brown, characterized by two black stripes on an elongated face. Hog badgers are solitary, and active throughout day and night; so you often see a single animal in the field. They are omnivorous, with a diverse diet of plant parts, worms, and small animals. Hog badgers are listed as a Vulnerable species in the IUCN Red List of Threatened Species, due to declining populations.

So when we saw a hog badger, we were certainly excited! Its jolly walk ended on seeing us and without hesitancy, it turned left and bolted into the forest. A short sighting, but it made our day!

SCIENTIFIC PUBLICATIONS

Varun R. Goswami, Divya Vasudev, Bhavendu Joshi, Prity Hait, Pragyan Sharma. 2021. Coupled effects of climatic forcing and the human footprint on wildlife movement and space use in a dynamic floodplain landscape. *Science of the Total Environment* 758: 144000.



The Kaziranga–Karbi Anglong landscape is a rich floodplain ecosystem, characterised by annual flooding of the Brahmaputra. The floods drive regular and large-scale migrations, as Kaziranga's wildlife move towards the dry highlands in search of refuge. With increased habitat fragmentation, animals have to navigate highly human-modified lands during such migration. We investigated factors that shaped flood-driven refuge migration of a suite of herbivores in the Kaziranga landscape.



Water Buffalo *Bubalus bubalis*



Rhinoceros *Rhinoceros unicornis*



Hog Deer *Axis porcinus*



Sambar *Rusa unicolor*

We looked at six species: the Asian elephant, greater one-horned rhinoceros, Asiatic water buffalo, sambar, hog deer and muntjac. We considered a number of factors, such as elevation, and cover which could impact their movement.

We saw species-specific differences, but, by and large, species avoided people and used areas of low disturbance. Our study highlights how woodlands and bamboo cover in tea estates and on other private lands add to existing corridors in enabling critical refuge migration during periodic floods.

Divya Vasudev, Varun R. Goswami, Madan K. Oli. 2021. Detecting dispersal: A spatial dynamic occupancy model to reliably quantify connectivity across heterogeneous conservation landscapes.
Biological Conservation 253: 108874.

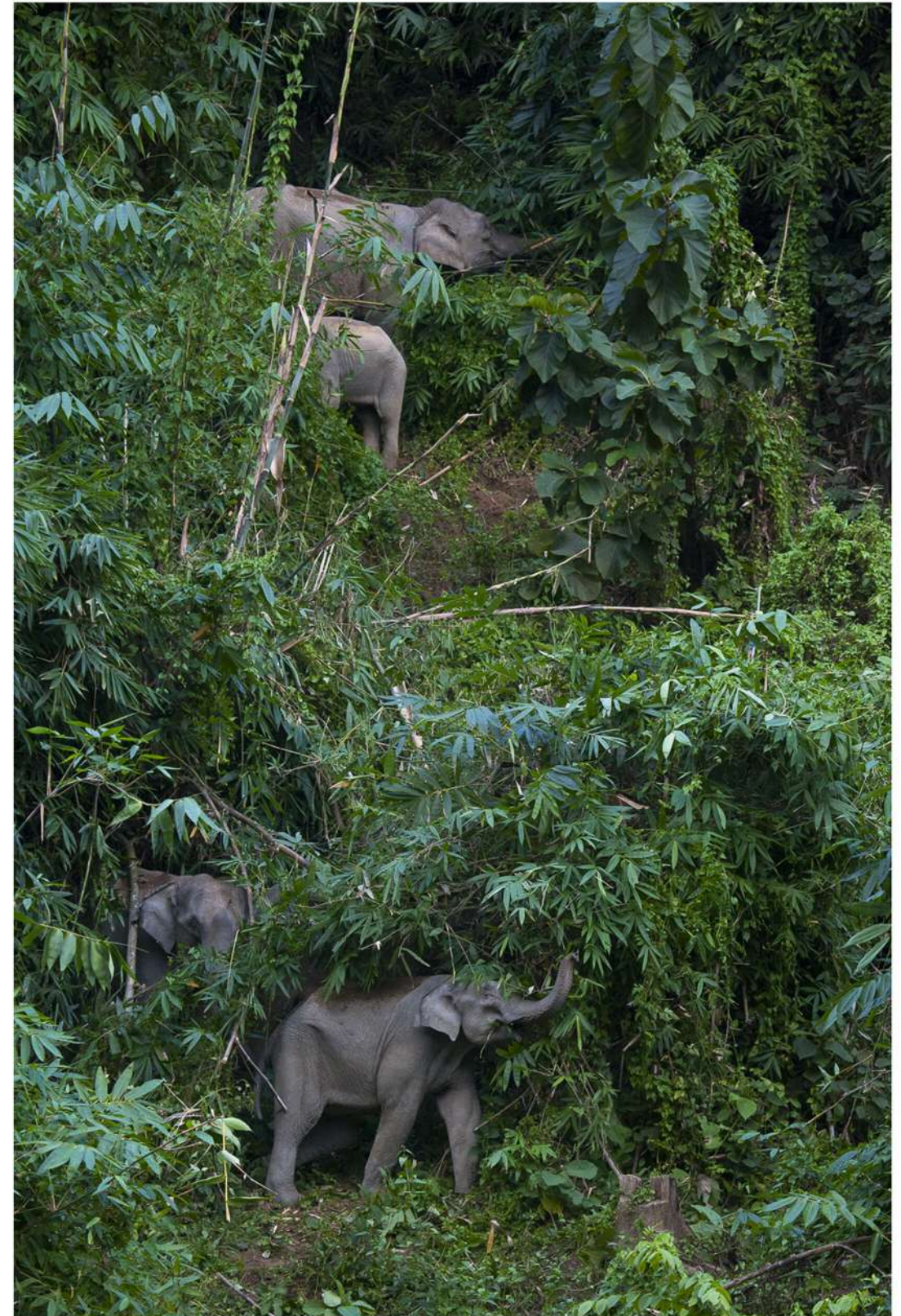


Connectivity is critical to mitigating impacts of forest fragmentation isolation, and climate change. Animals move across human-modified areas to connect different habitat patches. Animal movement may be limited by various factors, such roads, open lands, or densely populated human settlements. Assessing what limits animal movement is not trivial, but can be immensely valuable to conservation programs.

We adapt an existing set of models called dynamic occupancy models, to assess connectivity, using field survey data on the Asian elephant in the Garo Hills Elephant Reserve, Meghalaya. Our model incorporates spatial configuration, that is, how the landscape is arranged. It accounts for imperfect detection of elephant use of the landscape, that is, the possibility that the use of a given space in the landscape by elephants may go undetected during field surveys.

We predict locations of corridor importance. We also identify locations along the boundaries of the two government-managed habitat patches in the Elephant Reserve—Baghmara Reserve Forest and Balphakram National Park—that allow movement; it is critical to allow free movement at these locations.

Our model is widely applicable and can provide insights into animal movement across taxa, landscapes and contexts.



SOCIAL MEDIA

#conservinit



We are a not-for-profit organisation dedicated to conserving our natural world in all its beauty and complexity. Our passion is our strength. Science is our guiding light. Participatory conservation is our foundation.

We work towards saving multiple threatened species, including the western hoolock gibbon (*Hoolock hoolock*), and their diverse and beautiful habitats. Based in NE India, we use cutting-edge research, and the strength of our relationships with conservation stakeholders, to make a difference.

PC: @varunrgoswami

@conservation.initiatives



Forests: our source of fresh air, fresh water, a sink for carbon, our source of life. Conservatively, 300 MN people directly depend on forests for their lives & livelihoods in India. But we continue to lose forests every day. Save forests. Save life.

#InternationalDayofForests

@conservinit_org





Viserion, the dragon of ice and fire on whose back the Night King flew into battle, lives on in spirit in Nagaland! Viserion from Nagaland. *Calotes mystaceus*.

Repost from @bhavenduj
PC: @bhavenduj



How about a few on animal babies? Cute, mischievous, full of energy, delicate, tiny, innocent; the future. Seven reasons for why not! Here's the first one: a button-eyed stump-tailed macaque baby in the forests of Assam, Northeast India. What adjective would you use to describe it?

Repost from @varunrgoswami
PC: @varunrgoswami



The term butterfly effect is a phenomenon where small changes in the initial state of a deterministic system can have large scale effects in the system or elsewhere in a later state.

The term is associated with the work of an American mathematician and meteorologist Edward Lorenz. The phrase does not imply the flapping of the butterfly directly impacts the fate of a distant tornado. The flapping or the non flapping of the butterfly here represents a initial set of conditions of a complex system which can have a domino effect and impact events at a larger scale in time. It is the idea that tiny motions in atmosphere scale up to affect a larger system. One can draw similar if not accurate parallels to problem of climate change and loss of biodiversity.

It is not possible to address one without addressing the other.

Healthy ecosystems will be more resilient and help mitigate impacts of climate change. They ought to be the top priority to maintain a steady supply of ecosystem services on which our current and future well-being depends on. The conventional threats to biodiversity and drivers of ecosystem collapse being landuse change, deforestation, pollution, overexploitation and fragmentation must be reduced. These pressures are dictated by individual choice. A collective of such individual choices, actions and decisions will shape our planets future. Be it in our daily consumption to the leaders we choose to represent us, we must the best interest of our planet at heart. Protecting biodiversity is the only way to secure our future.

Then, like me, do you also see the mountain glaciers and cirrostratus clouds in this Common palmfly's wings?

Repost from @ecorock17
PC: @ecorock17



Trustees

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Managing Trustee

Dr. Divya Vasudev

Advisors

Dr. Ajith Kumar

Dr. Jagdish Krishnaswamy

Mr. Srinivas V.

Partners

Centre for Wildlife Studies

Wildlife Conservation Trust

Deakin University

Financials

Total grants received in FY 2020-2021: INR 37.5 L

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Conservation Initiatives expresses gratitude to our donors, supporters, collaborators, the villages and tea estates we work with, our advisors, and well-wishers. With your support, we hope to secure the future of wildlife in India.





Photo Credits: Varun R. Goswami, Divya Vasudev, Bhavendu Joshi, Pragyan Sharma, Parvathi K. Prasad, Biang La Nam Syiem, Banshimsubhen Wanniang, Tsuseki Yimchunger, Nishanth Srinivas, Uthaiah N. T., Arjun S. Menon, Anju Bawri, Simon Sona

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