# ANNUAL REPORT
# 2021-2022

Conservation INITIATIVES
nurturing nature, rooted in science

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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.

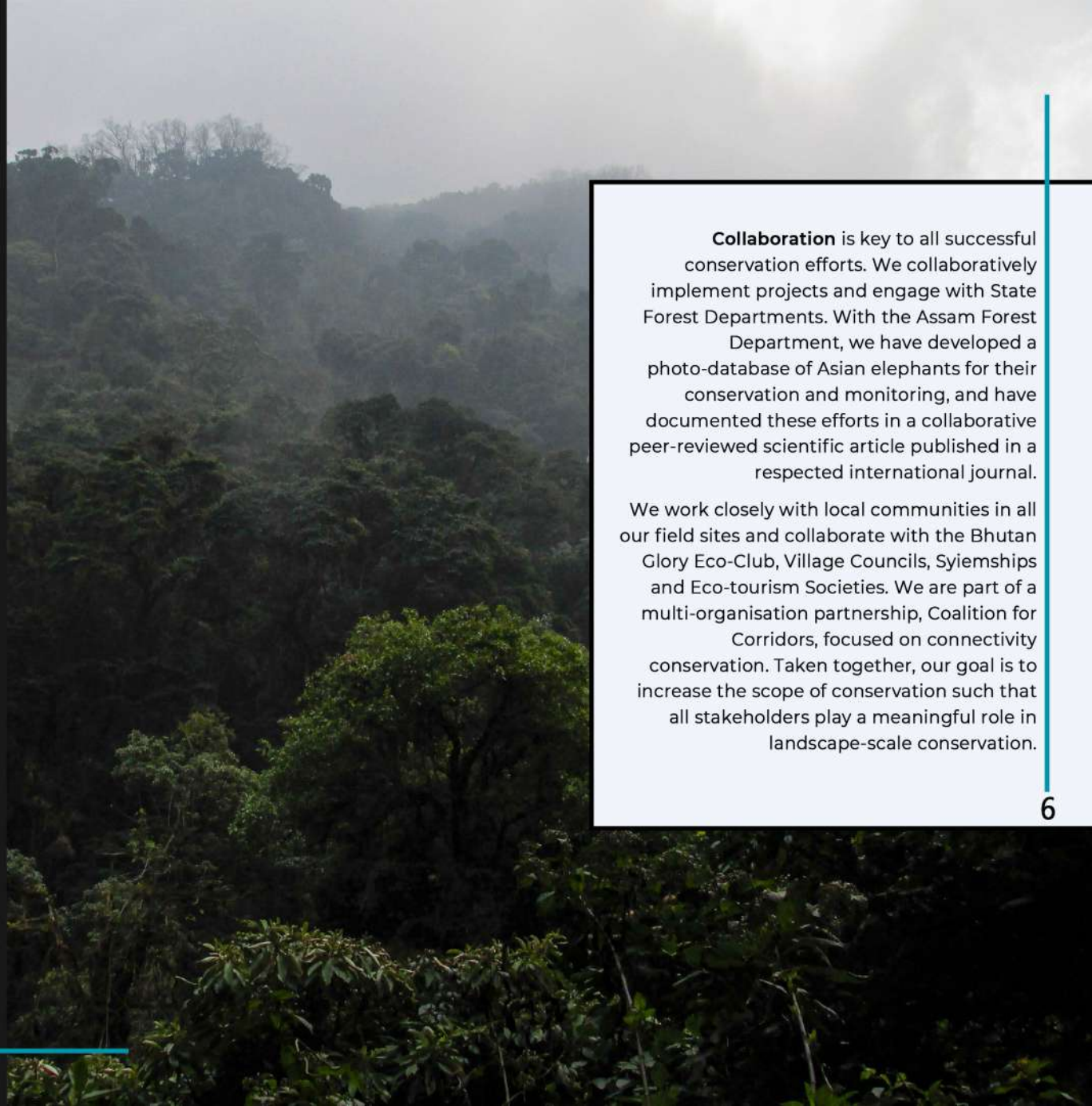
# OUR APPROACH

Our work is founded in science-based conservation, wherein scientific inquiry (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, 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.

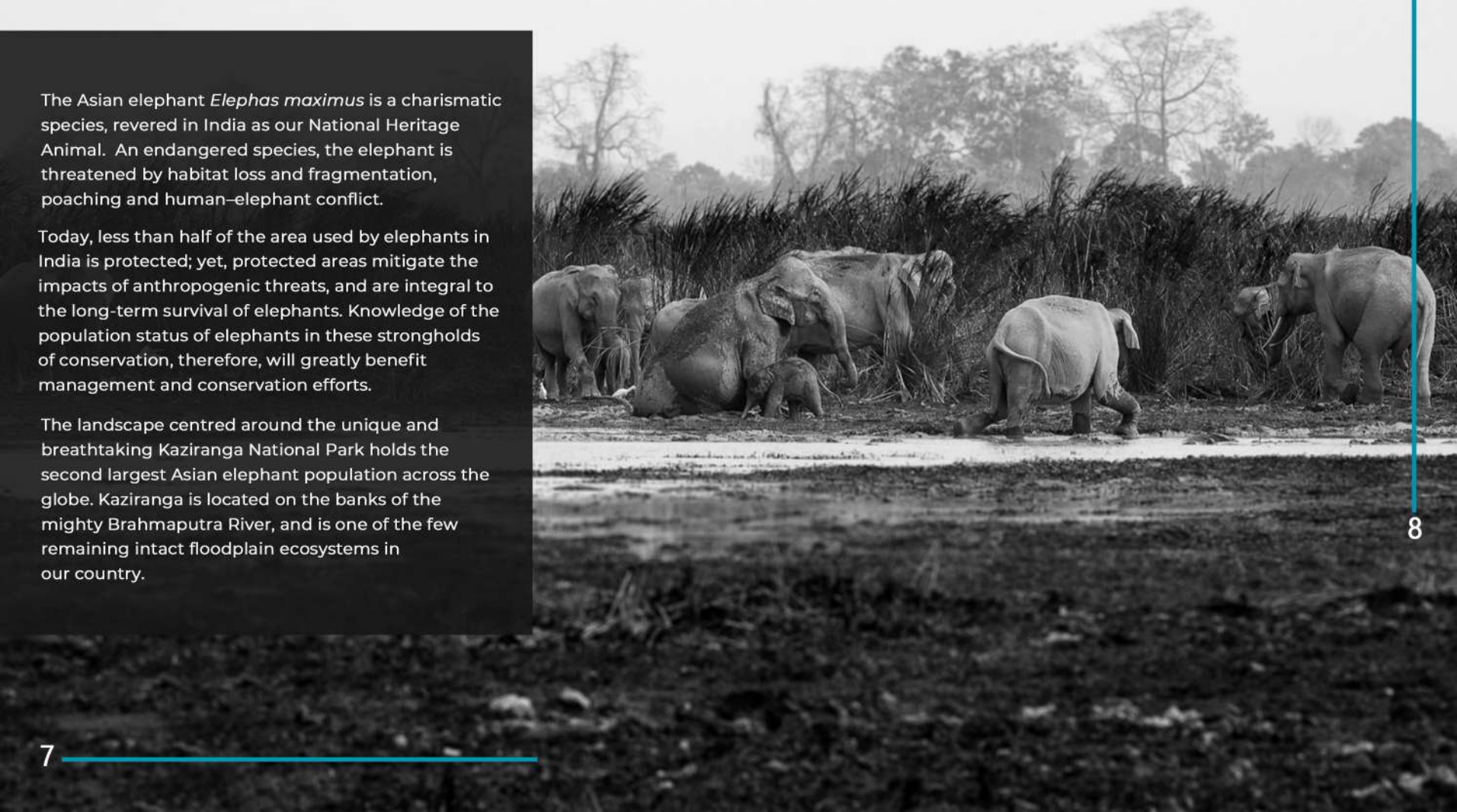
# FLAGSHIP SPECIES: THE ASIAN ELEPHANT

The Asian elephant *Elephas maximus* is a charismatic species, revered in India as our National Heritage Animal. An endangered species, the elephant is 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: PHOTOGRAPHIC SURVEY OF ELEPHANTS IN KAZIRANGA NATIONAL PARK

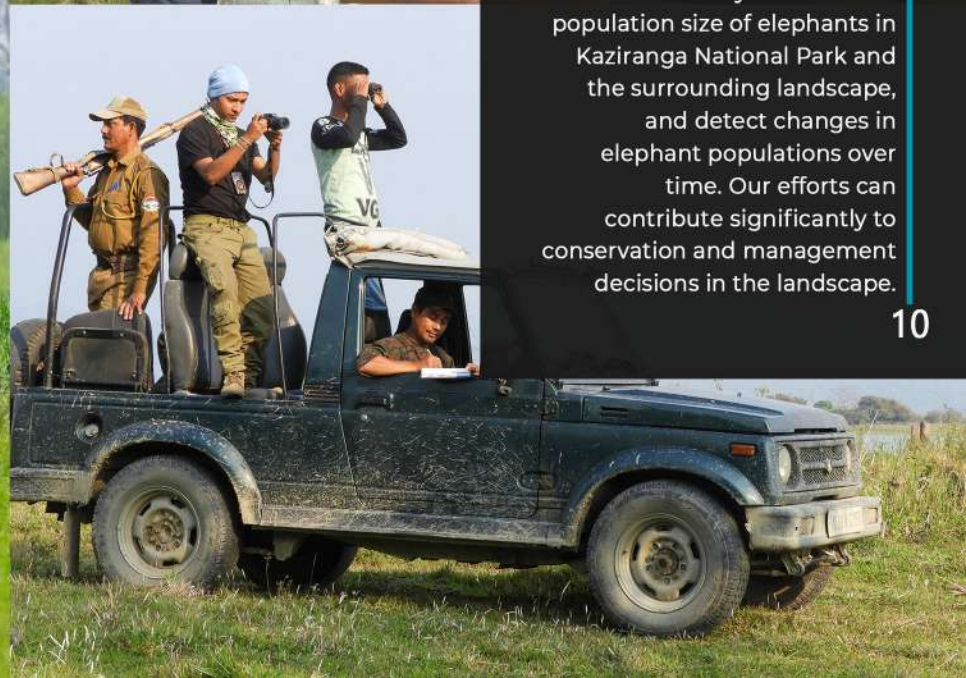
The long-term photo-documentation and population monitoring of elephants in Kaziranga National Park is one of our flagship programs. The program is based on our ability to individually identify elephants from morphological features such as ears, tusks and tail. To obtain such information, we implemented a systematic photographic survey of elephants in Kaziranga National Park, building on previous efforts undertaken by our scientists.



**This year, we drove 1,526 km across 33 team-days and documented:**

Elephant sightings: 170
Individuals sighted: 600

This long-term monitoring program is the first of its kind in the country, implemented in collaboration with the Assam Forest Department. Our sustained efforts allow us to reliably estimate the population size of elephants in Kaziranga National Park and the surrounding landscape, and detect changes in elephant populations over time. Our efforts can contribute significantly to conservation and management decisions in the landscape.



**CUMULATIVE EFFORT: 2017–2022**

Team effort: 383 team-days
Drive effort: 13,606 km

Total elephant sightings: 1,672
Individuals sighted: 6,471


13th Apr 2018


23rd Jan 2019


30th Mar 2022

Elephants can be distinguished based on ear folds, and the presence of any tears or holes in the ears. This young adult female, for example, has a discernible tear in her left ear.


9th Mar 2017


21st Mar 2018

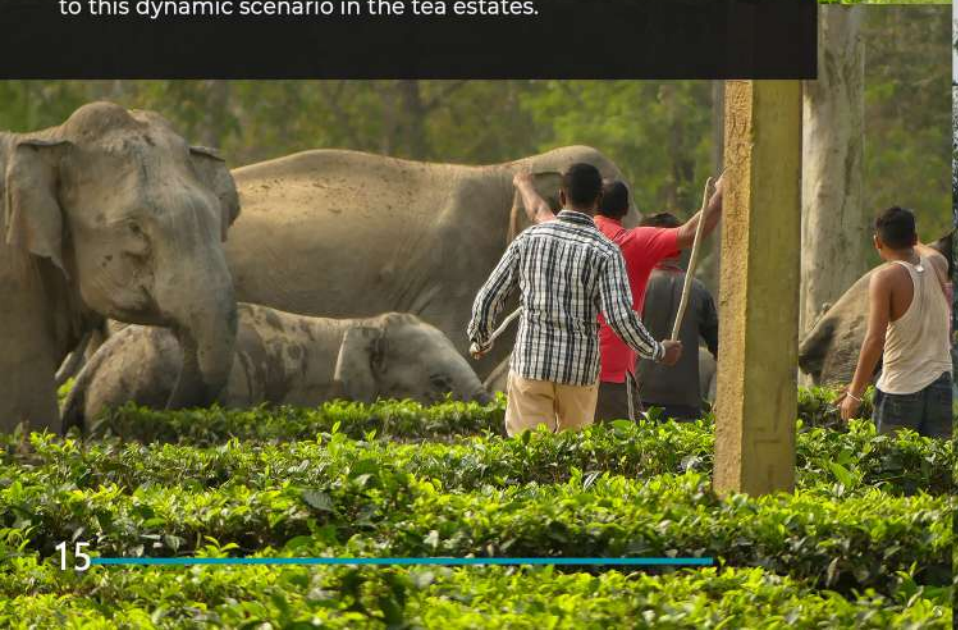

25th Mar 2022

Our team has photographed this handsome tusker on multiple occasions between 2017 and 2022. Over the years, his characteristically crossed tusks have grown in length, as seen in these photographs.

# PROJECT: HUMAN–ELEPHANT INTERACTIONS IN TEA ESTATES

Tea estates in the Kaziranga landscape are crucial passageways for elephants to move between forest fragments to access resources and refuge. However, in tea estates, people and elephants come in direct contact with one another, and the resulting interactions may sometimes turn into conflict. Mitigating human–elephant conflict in tea estates is integral to the well-being of both elephants and people, as well as to ensure sustained elephant movement and connectivity in the landscape.

We want to understand factors that lead to human–elephant conflict when people and elephants interact in real time. In Dec 2021, we undertook a behavioural study in the tea estates to record: the nature and extent of people' s behavioural responses to elephants, and the response of elephants, in turn, to people. We also noted elephant group size and composition to see if elephants with young calves behave differently. We noted elephant identity, to parse out differences across individual elephants in their response to people. Finally, we mapped elephant movement in response to this dynamic scenario in the tea estates.





**We gathered this information by: (i) engaging with the tea community to gather information on elephant activity in the region, and (ii) carrying out on-foot follows of elephants in tea estates. Over 20 days, we followed elephants accumulating data for a period of more than 30 hours.**

Our science will allow us to identify factors that exacerbate human-elephant conflict, and will inform on-ground management of conflict. This will benefit both elephants and people.

# COMMUNITY-BASED CONSERVATION IN NORTHEAST INDIA

Across many parts of Northeast India—in particular, the hill states—land and forests are owned and managed by local communities. Here, biodiversity conservation disproportionately depends on the management of community lands, large areas of which are undergoing rapid land-use change. Ecological information on different forest taxa inhabiting these lands is still lacking but is urgently needed for better management.

We address this gap through scientific studies focussing on forest taxa inhabiting community lands, and intensive engagement with local community leaders.

# PROJECT: BIRDS IN FOREST-AGRICULTURAL LANDSCAPES OF MEGHALAYA

Bird communities in the state of Meghalaya are increasingly threatened by forest loss and land use change. Driven by agricultural expansion and other human activities, the amount and quality of forest habitat of many bird species in the state has undergone drastic changes over the past few decades. We ask how birds cope with this change.

Since September 2021, we have been conducting bird surveys across the Ri-Bhoi District of Meghalaya. The aim of these surveys is to generate critical scientific information that can inform conservation strategies for birds in forested landscapes of the state that are experiencing agricultural expansion. We have been assessing bird occurrence in the different land uses that characterise the Ri-Bhoi District; these include open-field agriculture, fallow lands, open-canopied woodlands, secondary forests and old-growth forests. Till date, we have surveyed 95 locations in the district spread across approximately 200 $km^2$; over 80 bird species have been detected across the different land uses. Currently, surveys are ongoing to assess seasonal patterns in bird occurrence.

Biang La Nam Syiem, PhD student at Deakin University and Conservation Initiatives, has received the National Geographic Society Early Career Grant for this project





**Streak-throated Woodpecker**
*Picus xanthopygaeus*

# PROJECT: OTTERS IN THE KHASI HILLS

Otters are unique, semi-aquatic mammalian carnivores that are top predators in riverine ecosystems and feed primarily on fishes, amphibians and aquatic invertebrates. India is home to three different species of otters, the smallest of which is the Asian small-clawed otter *Aonyx cinereus*. In India, this species is found predominantly in smaller streams that are characteristic to hilly regions and upland headwaters. Meghalaya is characterised by such undulating hills with streams and fast-flowing rivers flowing through different land-use types such as primary and secondary forests and forest fallows that are good habitat for otters. Habitat degradation due to changes in land-use as well as mining in stream catchments, and hunting have threatened otter populations in this region.

We are investigating otter habitat selection in different microhabitats, land use types, altitudes and stream orders in the Khasi hills of Meghalaya. We use otter signs (predominantly otter scat, known also as spraints) and information from local community members to record otter presence. The aim is to identify potential hotspots, which are stream and river stretches of high otter presence that are also under greater threat and need to be conserved. Around 30 stream sites have been surveyed thus far in Ri Bhoi and East Khasi Hills districts, in protected areas, community forests and private agricultural lands.



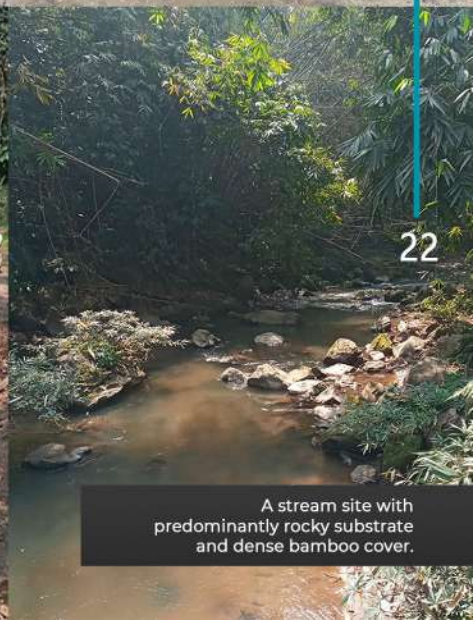
PC: Chi King/Wikimedia commons

Small-clawed otter

A small-clawed otter pawprint.

A communal defecating area with white older spraints and darker fresh spraints.

A stream site with exposed sandy bank.



A stream site with predominantly rocky substrate and dense bamboo cover.

# PROJECT: SUBSISTENCE PRACTICES FOR FOOD SECURITY AND CONSERVATION

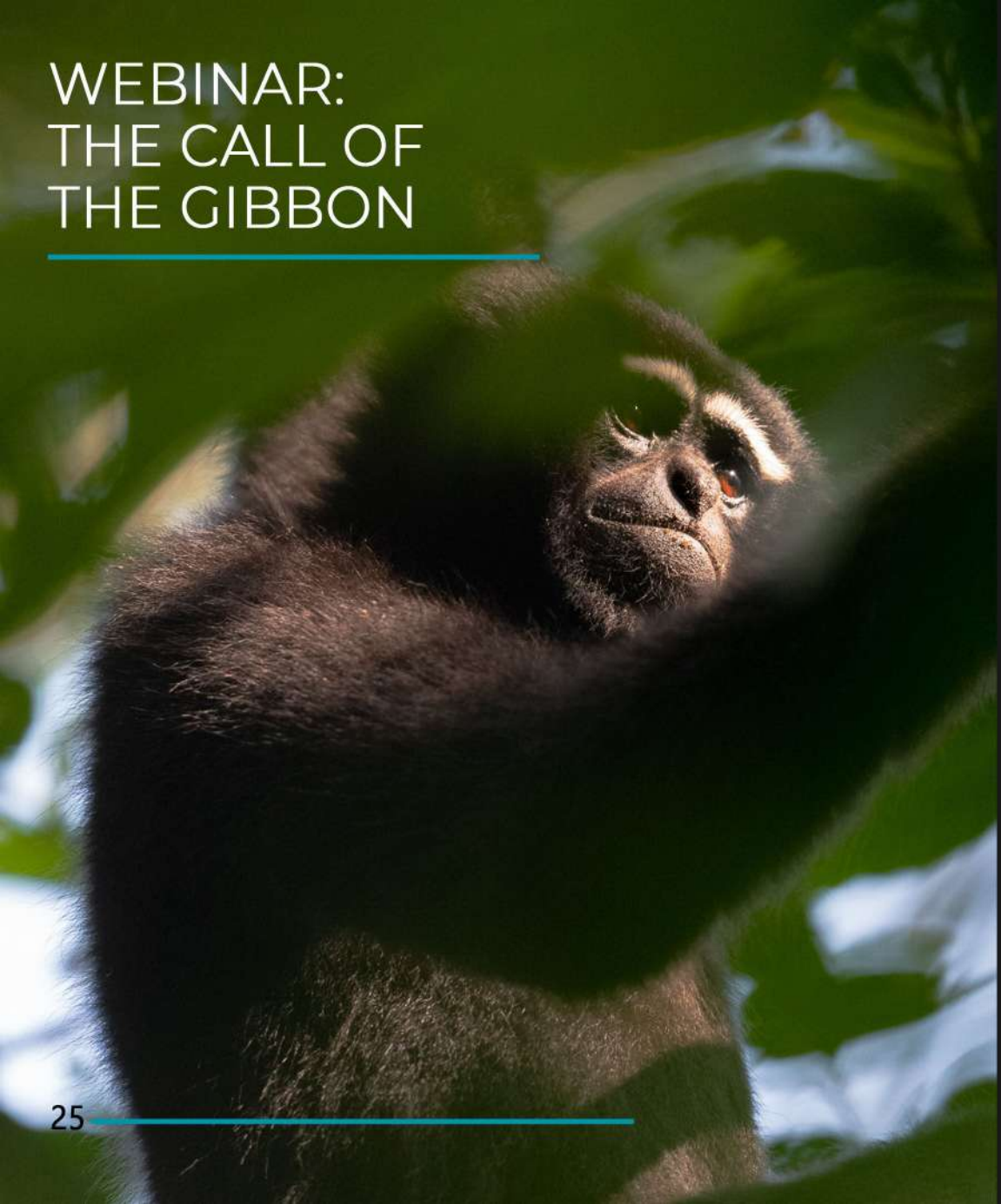
Traditional food systems, market-dependence and community governance often play an important role in shaping food security for people with forest-based livelihoods. In addition, they also play a role in balancing natural resource utilisation with biodiversity conservation, as well as maintaining community resilience during adverse events.



In collaboration with Centre for Wildlife Studies, we conducted a social study to understand how community governance, food systems and market-dependence relates to food security and biodiversity conservation in the north-eastern states of Nagaland and Meghalaya. These states are home to people who primarily depend on forests for their livelihoods, but have differing food and community governance systems.

We interviewed more than 100 households to address these questions. Our work can help in strengthening community governance and resilience, and in simultaneously achieving biodiversity conservation and human wellbeing goals.

# WEBINAR: THE CALL OF THE GIBBON





The conservation of wild species and their habitat requires the local, regional and global support of people. In order to garner this support, local conservation efforts need to be highlighted and effectively communicated to a public audience. In November 2021, we conducted a webinar focussing on the conservation of the endangered western hoolock gibbon, and community-based conservation in Northeast India. The aim of this webinar was to showcase the efforts initiated by Hima Malai Sohmat (a group of villages in the Khasi Hills of Meghalaya) to conserve the gibbon, and shed light on various aspects of community-based conservation. This was done through the public screening of the film, 'Haba U Hylla U Huleng' or 'The Call of the Gibbon', a documentary about conservation work done by the people of Hima Malai Sohmat.
The film was followed by a panel discussion.

We had panellists from diverse fields speak about community-based conservation, including grassroots conservationists, college faculty and forest department officers from Meghalaya and Nagaland. We also had the Hon' ble Member of Parliament, Ms. Agatha Sangma from Meghalaya as a panellist. The webinar was attended by more than 40 people, tuning in from across Northeast India, and has received more than 400 views on Youtube.



> **"[The] community conservation model characterizes land use for both man and the wild for a long-term period and in a sustainable way."**
> **- Ms. Agatha Sangma,**
> Hon' ble Member of Parliament

# KNOWLEDGE EXCHANGE PROGRAM

Indigenous tribes in the state of Nagaland play a vital role in preserving forests and diverse biodiversity present within the region. Working in Nagaland, we constantly aim to engage with local community leaders from different villages to foster community-level support and active participation of locals in our conservation efforts.



This year, as part of our relationship-building activity, a one-day exposure visit to Kaziranga National Park, Assam, was organised for village council members and ecotourism committee representatives from Fakim Village. We have been closely working with this village for the past three years and have initiated community-based bio-monitoring programs to understand the diversity of mammals present within their forests. This visit aimed to generate awareness and increase motivational levels of village leaders for wildlife conservation.

For village leaders, this was their first visit to Kaziranga National Park, and their first experience to see animals such as the greater one-horned rhinoceros, wild buffalo and elephants roaming in the wild. Following this, the village leaders visited Conservation Initiatives' field camp and discussed future plans for conservation efforts in their village.

# OUTREACH & CONSERVATION AWARENESS

Reinforcing the theme of community ownership of conservation efforts, conservationists from our Meghalaya team from the local Khasi tribe, Banshim and Wallambor, spoke of their encounters with hoolock gibbons and other wildlife in the field and their hopes for a greener future for their villages in the Hima Malai Sohmat, on the occasion of International Gibbon Day (Oct 24).

On the same day, the IUCN–Section on Small Apes featured Divya Vasudev in a series celebrating women voices for gibbon conservation.




Varun Goswami and Divya Vasudev were thrilled to be part of a panel discussion on Travelling Green at Shillong's first ever Cherry Blossom Literary Festival (26th November).




To celebrate International Forest Day on the 21st of March, and to highlight the important role of community-based conservation in our ability to secure the future of forests, we featured grassroots community conservationists from our team from the Fakim landscape, eastern Nagaland, representing the Yimkhiung tribe, Tsuseki, Kihomong and Luntsuba.

Bhavendu Joshi spoke to students and faculty at Deakin University, Australia, of stakeholder perspectives on conservation from work previously done in tea estates of the Kaziranga landscape, Assam.

# SOCIAL MEDIA
## #CONSERVINIT

We showcase below just a few social media posts from Conservation Initiatives and our team.

@conservation.initiatives
Aug 9, 2021
#worldelephantday

Elephants are the largest land mammals that roam our planet. Owing to their large frames, these giants need upwards of 150 kg of food and an equivalent number of litres of water everyday to survive as an adult. Then there is the need to search for mates, reconnect with family, find good shelter and much more. So the bottomline is that elephants need large spaces that they can call habitat. To conserve elephants effectively, we need to better understand where they occur and what they choose to call home. In other words, assessing elephant distribution, in a manner that is scientific and reliable, is a cornerstone to ensuring that these threatened animals continue to roam the Earth.

The scale at which we look at the distribution of elephants (and other species) naturally matters. We may take a large region, say Northeast India or the Western Ghats of South India, and ask: where are the elephants found in these regions? Or we may zoom in, to a landscape where we know elephants occur, and ask: how do these animals use space and habitats in the landscape; where do they move through when they walk from one habitat to another?

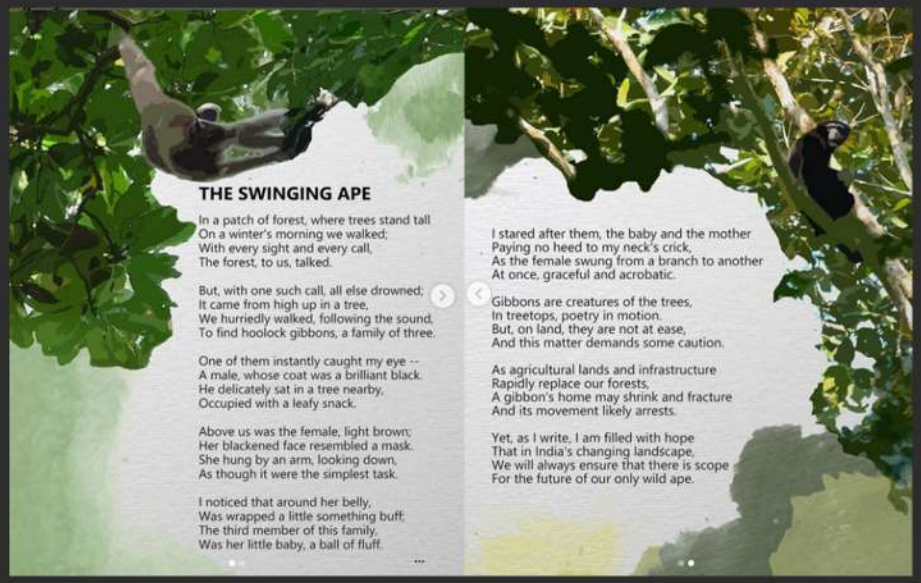
Only about 30% of elephant habitats in India are protected. Which automatically means that they must also make a living in spaces that they share with people. But not all of these spaces are made equal. How does an unprotected woodland compare to a monoculture of rubber for example? Do they provide for elephants comparably? Understanding the relative conservation value of lands outside protected areas is critical to thinking into the future and planning for elephants and the people who may share space with them.

At Conservation Initiatives, we focus to a great extent on the distribution of elephants and other wildlife, at different scales, to ask such questions. And through such research, we inform and further the conservation of threatened species across large, heterogeneous landscapes.

If you would like to support our work, please donate (link in bio)!

PC: @varunrgoswami

@conservation.initiatives
Oct 24, 2021
#IGD2021




It is always a pleasure to watch gibbons in the wild, moving gracefully in the canopy. This poem is a recount of one such sighting in the forests of Assam that our team members at Conservation Initiatives had the pleasure of witnessing.

The poem, written by Parvathi K. Prasad @e.minimus, was originally published in the October 2021 issue of the Youth For Nature magazine @yfn_magazine

PC: @divyavasudev.conservinit @varunrgoswami
Design: @sarparag

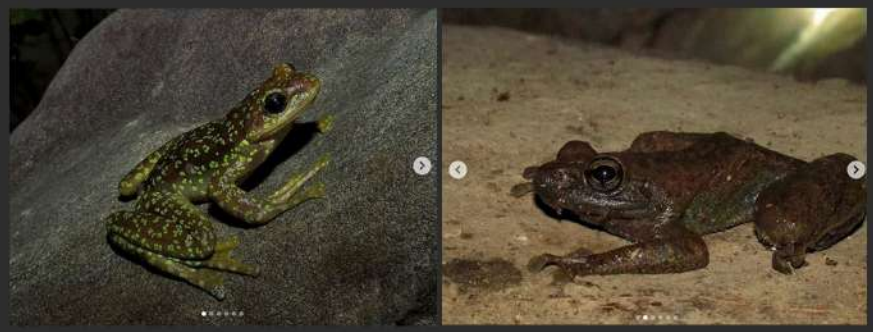


@dv_conservinit
Mar 21, 2022
#Internationaldayofforests


@conservinit_org
Dec 13, 2021


Conservation Initiatives is dedicated to ensuring that our field stations are safe and nurturing spaces for researchers and conservationists

@conservation.initiatives
Mar 20, 2022
#worldfrogday



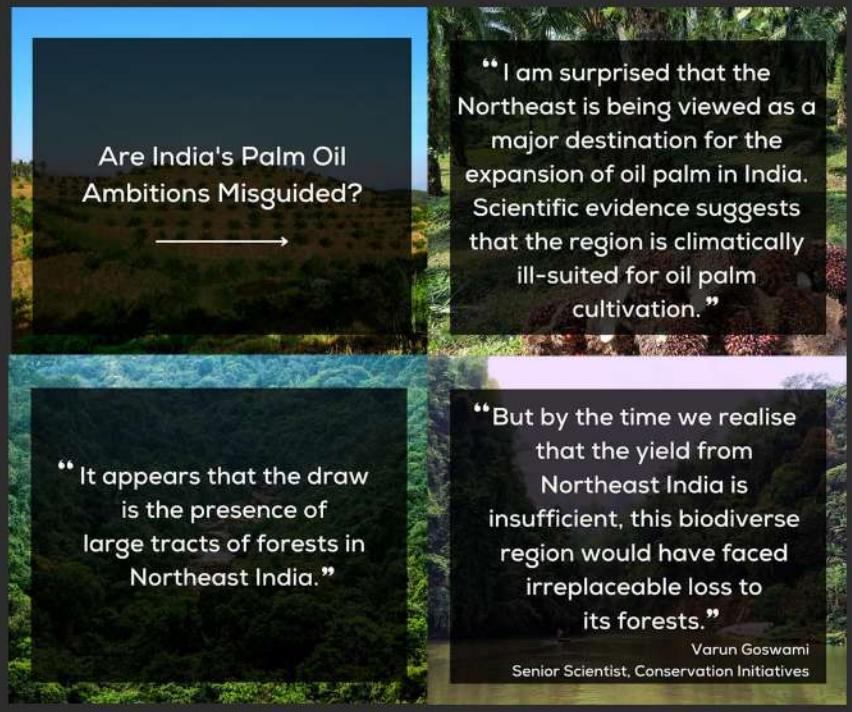
#frogs and #toads play an important role in the health and proper functioning of ecosystems. These animals are highly sensitive to even small changes in their environment and because of this, are valuable indicators of ecosystem health. Their ability to do so is especially crucial now, in times of rapid human-induced environmental change, which can cause considerable and sometimes irreparable damage to ecosystems.

Stream-dwelling frogs, such as those of the genus Amolops (seen in the photos), are perfect examples of indicator species. These frogs are typically found in cascading forest stream habitats. Many a time, their presence in community-managed forests of #nagaland has indicated to us a healthy forest ecosystem.

Photo credit: @bhavenduj



@varunrgoswami
Oct 7, 2021




A new proposal aims to promote the cultivation of #palmoil in the Northeast and Andaman and Nicobar Islands. Dr. Varun R Goswami @varunrgoswami
, a senior scientist with Conservation Initiatives, tells us why this move will cause irreparable harm. #nationalwildlifeweek
@RSPOtweets

@RGSustain1

@varunrgoswami
Mar 3, 2022
#worldwildlifeday

Diving into the deep blue this #WorldWildlifeDay to share my awe at seeing the largest of all species on #PlanetEarth come up for a breath. It is time to not just celebrate our wildlife, be it a blue whale or frog, but to also let #nature, and life in all its #diversity, breathe.



@conservinit_org
Mar 3, 2022
#worldwildlifeday

This #WorldWildlifeDay we celebrate the talents of Debangkur Gogoi, a teenager from the local community in Kaziranga, Assam, and son of a member of our team. Through his sketches, we show appreciation for some of the birds that people living alongside wildlife may grow up seeing.

# FEATURED CONSERVATIONIST

Kihomong Yimkhiung

Kihomong, Amo to friends, is a conservationist with Conservation Initiatives, working towards saving forests and wildlife in Nagaland.

**Were there any special growing up experiences that developed your interest in wildlife?**

Being a Naga, I have spent my entire childhood living around forests. I would accompany my parents, relatives, and friends often to the forest to collect firewood or casually while working in jhum [slash-and burn agriculture] fields. However, to be frank, I did not have a keen interest in visiting forests and seeing animals that much. I used to enjoy the scenic beauty and would go for treks and all, but I never developed a deep passion for forests or wildlife in general. While most of my friends were aware of different kinds of animals present in our village—at least the local names—I knew nothing about the wildlife in our area.

**Then, what led you to work for wildlife conservation with CI?**

I remember my friend telling me that there are these people who work on forest conservation and wildlife and are currently working in Nagaland. They are planning to do a wildlife survey in forests near my hometown Pungro, and are looking for people who can help them.



I was pretty puzzled to hear this! And started wondering about what these researchers do in forests and what kind of surveys they do. This made me interested to know more, and I asked my friend if I could join for a brief period and work with CI.

**How did it feel when you started working with CI?**

The survey that I joined was focused on understanding the diversity of mammals present in the community forests adjoining Mount Saramati. I was supposed to help the CI team place camera traps and sound recorders to capture photos of animals present in these forests. Initially, I felt it was tough and tedious work. We had to roam forests every day looking for signs of animals and walked the entire day carrying multiple camera traps and other equipment. We often stayed in forests for more than a week at a stretch! But as soon as I learned to identify different animal signs and set up camera traps and GPS, it became quite a bit of fun, and I started enjoying doing these activities. The team I worked with was also accommodating and patient with me. As I spent more and more time with the team, my interest in knowing more about the forest and wildlife also started growing, and since then, I have enjoyed every bit of the work that I have been doing.

**Is there any memorable experience that you would like to share?**

I do not have a particular moment to share, but every time, after a hard day of work, when we would gather in our camp to check photos of animals that we have captured in our camera traps is something that I cannot forget. The excitement of finding a rare species, or even a common species for that matter, cannot be expressed in words.

**What are your future plans?**

I want to continue working in the field of wildlife and conservation. One thing that I have realised is that in our area, like me, many people are not aware of the incredible diversity of animals our forests have. I want to spread this awareness amongst them so that all these species continue to remain in our forests and our children can enjoy them watching in the future.

# FIELD NOTES

BANSHIMSUBHEN WANNIANG

Ban is a conservationist working with Conservation Initiatives in Meghalaya. Here, he tells us about his field experience written in Khasi translated to English.

**Yellow-throated marten**
*Martes flavigula*



Ha kawei ka step jong u bnai December 2021, katba mangi, u bah Biang Syiem, u Wallambor Kharlyngdoh bad manga (u Banshimsubhen Wanniang) ngi dang ïaleh ïa ki bird survey ha Jirang, namar ba ka dei ha ka por mynstep phyrngap ka mariang ka long kaba kynjah bha bad ha ka rukom leh ïa ka survey jong ki sim, ka long ba ngi hap pyn jar jar bha ïalade namar ba ngi tieng ïoh ba ki sim ki ïohsngew ïangi bad ki lah ban phet noh sha jngai.

One morning in December 2021, I was conducting bird surveys in Jirang, Meghalaya, along with Biang Syiem and Wallambor Kharlyngdoh. Since it was early morning, the environment was very still and following our bird survey protocol, we were keeping quiet lest the birds heard us and flew away.

Namar ka jinglong jar jar ka jongngi ha ka por ba ngi dang peit sim, kynsan kynsan nga la ïohsngew ïa ka jingsawa ba don kaei re kaei kaba ïaid hangta ha ka madan kaba don ha lyndet jong uwei u maw. Ha kata ka por u Wallambor u don kham pajih na kaba nga don (kumba san meter eiei) bad u bah Biang pat u dang don ha kawei pat ka liang. Tang kumta hi nga la pyrshang ban sngap bha, nga sngew ba kata ka jingsawa ka long thik kumba ïaid ka skei ha ki jaka ba don sla (te ha ka jingpyrkhat jongnga namar ka jingkwah ïohi jongnga ïa ka skei). Kata ka jingsawa nga sngew ba ka wan beit sha nga, te nga la pyrkhat ba ngan leit shim ia ka camera na ka pla jongnga ba nga buh kham pajih nanga.

Suddenly, I heard a sound as if something was moving along the ground behind one boulder. At the time, Wallambor was a bit far from me (about 5 meters) and Biang was on the other side. In that moment, I strained to listen carefully and thought that it sounded like a skei (Khasi for muntjac) walking on leaves that had fallen on the forest floor (in my mind, since I really wanted to see a skei). The sound felt as if it was coming towards me and I thought of fetching the camera from my bag which I had not kept nearby.

Hynrei ngam sngew don por shuh ba ngan phet nangta ban leit shim ïa ka camera, namar nga tieng ïoh ba lada nga ïaid manga kan sa iohsngew ïanga bad ka lah ban phet noh shawei bad ngam lah shuh ban ïohi bad ngam lah shuh ban tip ba ka dei ka ei kata kaba ïaid. Kumta nga la rai ba ngan shu sei noh da ka mobile phone jongnga kaba don ha

pla patlun ka jongnga. Hangta hi nga la pyrshang ban ring video sha kata ka liang ba wan kata ka jingsawa bad hamar hangta hi la wan mih kynsan kynsan da u phyllad (yellow-throated marten) uba la wan ïeng kynjreng ha u maw uba don ha khmat jongnga, ha ka jingjngai kaba tang 10 meter eiei na nga, bad u la ïeng hangta kumba 25 second. Te nga la sngew kmen bha ha kata ka por ba nga ïohi ïa une u phyllad uba long u mrad uba itynnad bha uba la wan ban ïeng hajan jongnga bad nga la ïoh ban peit bha ruh ïa ka jingitynnad jong u. Katba u dang ïeng hangta u la peit sharum shaneng, u la peit sha nga ruh. Kaba sngew tynnad ka long ba u khlem don tang marwei hynrei la don sa artylli kiwei pat kiba dei ha kajuh ka kynhun. Kawei kaba nga sngew kmen eh ïanga ka long ba nga la ïoh ruh ban ring video.

But I felt like there was no time to fetch the camera and I was afraid that whatever it was would hear me move, and would run away. I would not get to see it or know what it was. So instead, I decided to use my mobile phone which was with me. I tried to take a video in the direction of where the sound was coming from and at that very moment, a phyllad (Khasi for yellow-throated marten) appeared suddenly standing tall on the boulder in front of me. It was at a distance of only 10 metres away and it stood there for about 25 seconds. I felt so happy seeing this beautiful animal which came and stood so close to me. As it was standing there, it looked about itself, it looked towards me. What was more wonderful was that it was not alone but there were two more of them which were part of a group. I felt even happier knowing I got to record everything on video.

Hadien kata nga la pyrshang ban khot ia u Wallambor ban peit lang ïa ka jingitynnad jong ki bad ka jingbymtieng ka jong ki. U Wallambor ruh u la ïohi bad hadien kata une u phyllad u la phet bad u la ïaid noh da ka jingsuk mynsiem bad ha ka jingbymtieng sha kawei pat ka liang.

I tried to call Wallambor so that we could both see these beautiful animals and how unafraid they were. Wallambor also saw them. After that, the phyllad moved away calmly and unafraid towards a different direction.



**Yellow-throated marten**
*Martes flavigula*

Burom bad ieit ïa ki mrad bad wat pynthut ïa ka leit ka wan ka jong ki. Hangta phin sa ïoh ïa ka jingieit na ki; phin sa lah ban ïohi ïa ki ha ki khlaw ki btab ki jongngi kiba don ha ki shnong, ki Hima bad ha ka Ri ka jongngi.

Respect and love wildlife and do not disturb their coming and going. Then you will get their love; you will get to see them in the forests which are found in our villages, our Himas (Khasi traditional state) and our country.

# ACADEMIC PROGRAM: IN-COUNTRY PHD PROGRAM WITH DEAKIN UNIVERSITY

This year, two researchers from Conservation Initiatives started their doctoral studies under the Conservation Initiatives–Deakin University in-country PhD program: Parvathi K. Prasad and Bhavendu Joshi.

**Parvathi K. Prasad**

Parvathi is pursuing her PhD at Deakin University, Australia, in collaboration with Conservation Initiatives. She works in the forest–tea plantation system in Assam's Kaziranga landscape on the movement and socio-ecology of elephants, and human–elephant interactions.

## Elephant behaviour in the human-dominated Kaziranga landscape

The growing and widespread impact of anthropogenic factors has resulted in the fragmentation and shrinking of elephant habitats. Threats associated with human-dominated landscapes can elicit various behavioural responses in elephants. Such behavioural responses may then alter elephants' ability to find resources efficiently, avoid further threats, and find mates and refuges. In doing so, behavioural responses can impact elephants' ability to survive and reproduce, and therefore, are important from a conservation perspective.

Despite the high overlap in space between people and elephants, our current knowledge on behavioural responses of elephants to human-altered conditions is limited. Through her PhD, Parvathi seeks to address this knowledge gap by studying the behavioural responses of elephants in the human-dominated Kaziranga landscape in Northeast India—a composite of forests and tea plantations, this important conservation landscape is home to over 1,700 elephants. Her PhD focuses on three key aspects of elephant behaviour—sociality, movement and interactions with people.

**Bhavendu Joshi**

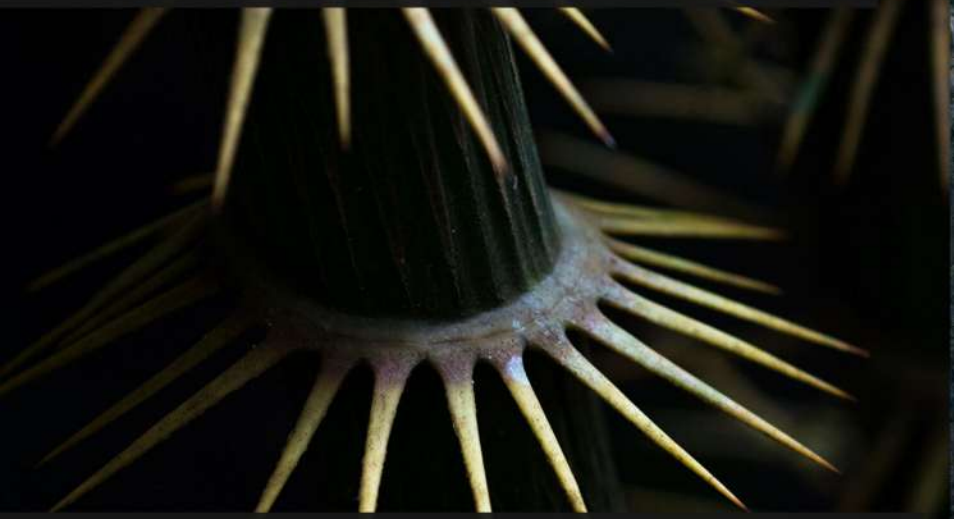
Bhavendu Joshi is a conservation biologist who has been working in Northeast India for the past seven years. He has been associated with Conservation Initiatives in different capacities, primarily working on projects that involve community-based conservation approaches. From June 2021, he is enrolled in Deakin University's in-country PhD program in partnership with Conservation Initiatives.

For his PhD, he is looking to quantify and map ecosystem services from the state of Nagaland, Northeast India, which are relevant from the perspective of local communities. Through his PhD, Bhavendu aims to untangle the complexities associated with people-nature relationships in the region and, based on that, wishes to recommend management strategies that foster biodiversity conservation through direct involvement of local communities in pro-conservation actions.

# ECOSYSTEM SERVICES IN NAGALAND

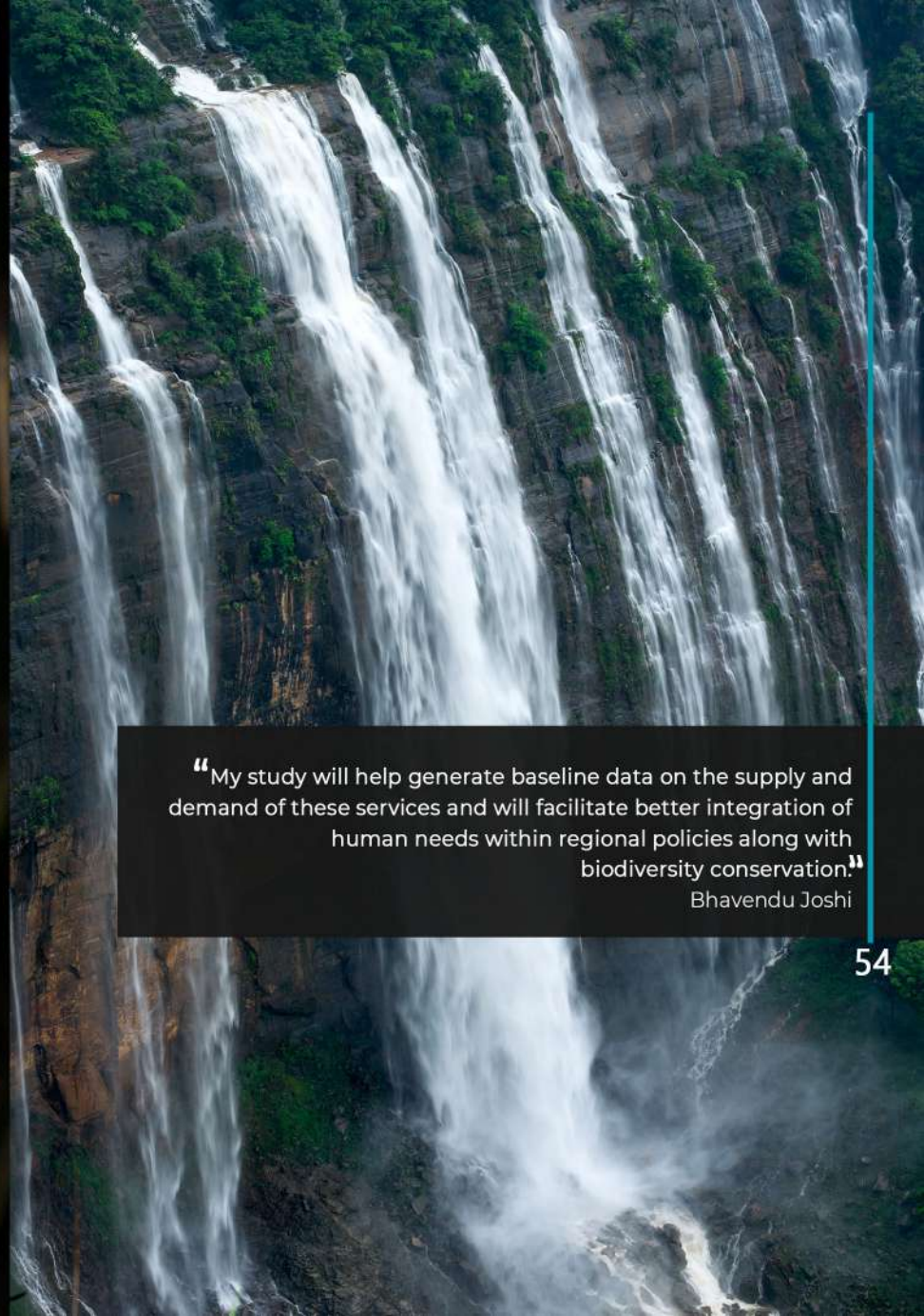
Ecosystem functioning and processes provide multiple benefits ranging from basic provisions of food, fresh water, and fuel, through water and air quality regulation, to cultural services vital for societal and human well-being. These benefits together are called ecosystem services. It is predicted that ~10 to 12% of the global population directly depends on these services, and the current estimated value of all ecosystem services is approximately USD 125 trillion. However, growing anthropogenic pressures have led to increased biodiversity loss, habitat degradation, and deterioration globally. The Millennium Ecosystem Assessment (MA) 2005 report suggests that approximately 60% of ecosystem services are threatened and are used unsustainably, causing a rapid decline of these services globally. Thus, an increasing number of global policies are now focused on securing these services along with biodiversity.

For his PhD, Bhavendu aims to identify, map, and quantify, locally perceived important ecosystem services across the state of Nagaland in Northeast India. Nagaland is considered a highly biodiverse region. It falls at the confluence of Eastern Himalaya and Indo-Myanmar biodiversity hotspot. Almost 80% of its geographical area is covered with forests, and of these, around 95% are community-managed.



The indigenous Naga tribes living in and around these forests share a strong cultural bond with the forests, and are highly dependent on forests for their subsistence. Empirical data on these different services (multiple services supplied from various ecosystems), and preferences of people regarding the use of these services (demand for the multiple services) is currently not available from the region.





"My study will help generate baseline data on the supply and demand of these services and will facilitate better integration of human needs within regional policies along with biodiversity conservation."

Bhavendu Joshi

# NOTES FROM NONGKHYLLEM AND A KHASI FOLKTALE

## BY BIANG LA NAM SYIEM

Excerpt from an article first published in Nature in Focus

The rains had made their first appearance before the monsoon and it had been pouring intermittently since morning. Bah Banjop, my field assistant, and I had been caught in a sudden downpour. We were on our rounds of taking vegetation measurements when the rain came in. The sky had suddenly turned a dark grey, giving the day the appearance of dusk, and the wind became a shrill scream sweeping between the trees under the forest canopy. The rain front came advancing from the south like a moving wall. The forest canopy was an ineffective shelter and we decided to wait it out in a shallow cave formed by root-covered boulders piled and stacked against one another. As the rain came to a stop, dark clouds hung overhead and blocked out the late morning sun.

This part of the forest seemed to teem with wildlife. The hooleng (Western Hoolock Gibbon) had been calling since morning, and we had spotted a family group earlier—two males and one female. We came across them as we neared one of our vegetation plots.

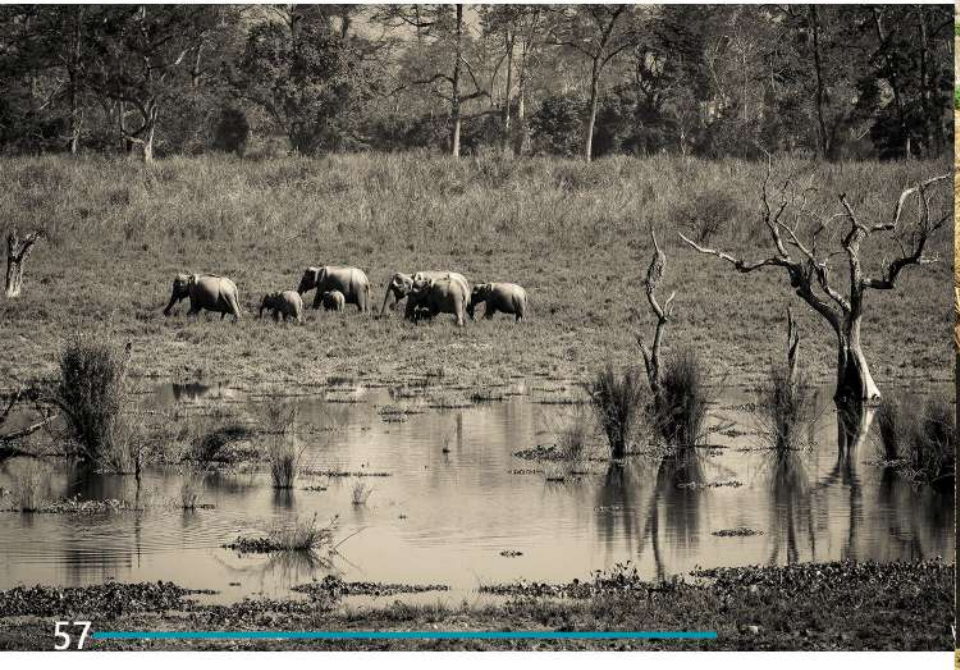


They were unaware of our presence, and we were unaware of theirs. As we were unpacking equipment, the troupe broke out into their loud haunting howls and startled us out of our wits. We immediately rushed up-slope onto some rocks to catch a glimpse of them in the trees. After straining our eyes through the foliage for some time, we managed to see both the black-coloured males and the beige-coloured female, their long, slender arms clinging to tree branches as they brachiated their way through the forest canopy. Their retreating calls were a comfort to hear, a sign of the larger wildlife still living in these forests. A little later on, we came across a lone tngaw (Capped Langur) and a dongwah (Black Giant Squirrel). The former appeared to be separated from its troupe, making its way along a low-lying bamboo culm before seeing us and rushing off, its long tail bouncing as it jumped up the bamboo. The latter was amongst the bamboo, using the overlapping culms to move between groves and feeding on whatever nuts and seeds it could find. Other wildlife made their presence felt through fresh signs that they had left behind—the large sier (Sambar) and the little skei (Indian Muntjac) with their hoof marks and faecal pellets across the forest floor, the sniang khlaw (Indian Boar) and the spots of ploughed earth they left behind, and the kyrbei (Chinese Pangolin) through their deep round burrows. The carnivores were a little too elusive in their habits to reveal their presence, although we did see a pair of phyllad (Yellow-throated Marten) a few weeks back in the reserve and we constantly came across scat—the faecal remains of carnivores. I had hoped to see the khla shabrat (Clouded Leopard) during the course of my fieldwork in the reserve, but it seemed that I would have to come back another time for that.

# SCIENTIFIC PUBLICATIONS

**Divya Vasudev, Varun R. Goswami, Nishanth Srinivas, Biang La Nam Syiem, Aishanya Sarma. 2021. Identifying important connectivity areas for the wide-ranging Asian elephant across conservation landscapes of Northeast India. Diversity and Distributions 27(12), 2510-2526.**

Maintaining connectivity of endangered wildlife is of vital importance to ensure their healthy populations and long-term survival.
It is especially crucial in human-dominated landscapes where wildlife movement is severely restricted due to the loss and fragmentation of critical habitat. However, a lack of reliable connectivity maps for many wildlife species currently hinders the development of conservation programmes in these landscapes.

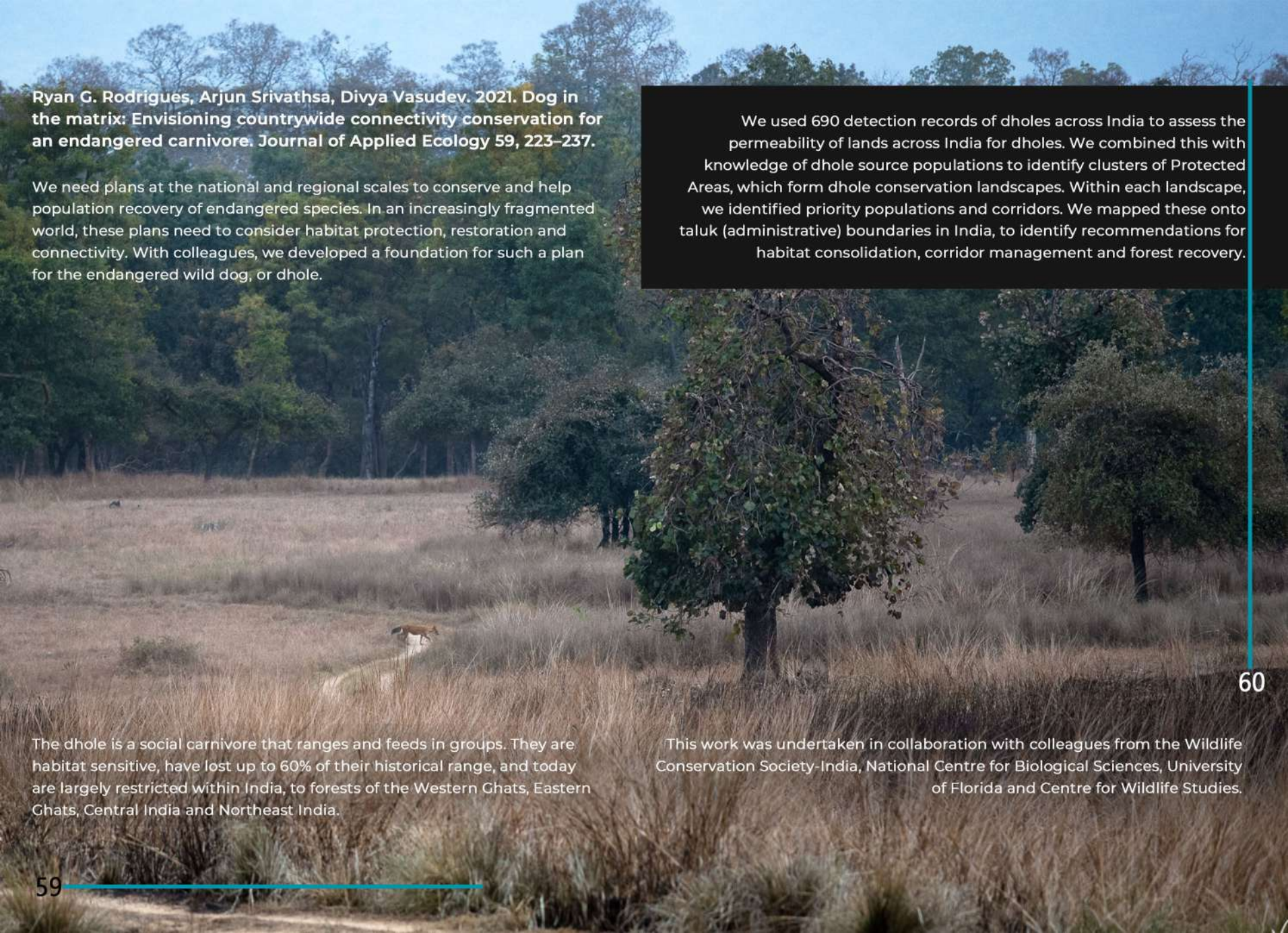




We identified important connectivity areas for the endangered Asian elephant across a 21,210 km² region of Northeast India, covering the states of Assam and parts of Meghalaya. Using crowd-sourced interview data on where elephants were seen by people, we investigated how elephants use human-dominated areas and whether specific environmental and anthropogenic factors affected use. We then used recently-developed movement models to map movement corridors that could be targeted for conservation; our models used a novel approach that incorporated a range of possible elephant movement behaviours. We also mapped roadways and railways, and human-elephant conflict areas to identify potential barriers to connectivity.



We found that elephants generally used locations with more vegetation cover that were closer to forests and had low human population densities. We generated connectivity maps that encompassed three important conservation landscapes. Thus, we provide valuable information that can inform landscape-scale conservation programmes for elephants in Northeast India.



**Ryan G. Rodrigues, Arjun Srivathsa, Divya Vasudev. 2021. Dog in the matrix: Envisioning countrywide connectivity conservation for an endangered carnivore. Journal of Applied Ecology 59, 223–237.**

We need plans at the national and regional scales to conserve and help population recovery of endangered species. In an increasingly fragmented world, these plans need to consider habitat protection, restoration and connectivity. With colleagues, we developed a foundation for such a plan for the endangered wild dog, or dhole.

The dhole is a social carnivore that ranges and feeds in groups. They are habitat sensitive, have lost up to 60% of their historical range, and today are largely restricted within India, to forests of the Western Ghats, Eastern Ghats, Central India and Northeast India.



We used 690 detection records of dholes across India to assess the permeability of lands across India for dholes. We combined this with knowledge of dhole source populations to identify clusters of Protected Areas, which form dhole conservation landscapes. Within each landscape, we identified priority populations and corridors. We mapped these onto taluk (administrative) boundaries in India, to identify recommendations for habitat consolidation, corridor management and forest recovery.

This work was undertaken in collaboration with colleagues from the Wildlife Conservation Society-India, National Centre for Biological Sciences, University of Florida and Centre for Wildlife Studies.

# POLICIES

Conservation Initiatives has provided its inputs on the Amendments to the Wildlife Protection Act, 1972, currently under discussion. A summary:

**Incorporation of Connectivity**

Provide legal recognition for corridors; facilitate a multipronged approach to connectivity conservation, including incentives for wildlife friendly practices on private lands and regulating barriers to wildlife connectivity.

**Disallow Transfer of Live Elephants**

Delete proposed clauses pertaining to transfer and trade of live elephants, in light of well-documented threats posed to wild elephant populations.

**Scientific Rationalisation of Schedules**

Schedules to be scientifically justified and based on clear criteria; revise and expand Schedules to include imperilled species that are inadequately protected.



**Declaration of Vermin**

If done at all, to be accompanied by scientific justification, and a clear time-bound population management and monitoring plan—India has no precedence of such plans; exclude Schedule II species from this purview.

**Inclusion of Research**

All of our inputs point to the need of clear recognition and explicit inclusion of research and science into the Act; transparent and time-bound processing of research permits; seamless integration of science into conservation and management of wildlife. This will lead to increase transparency, objectivity and efficacy; enhanced knowledge of our natural environment, which is valuable on its own.

Our detailed comments can be found on our website at https//:www.conservationinitiatives.org/ourwork

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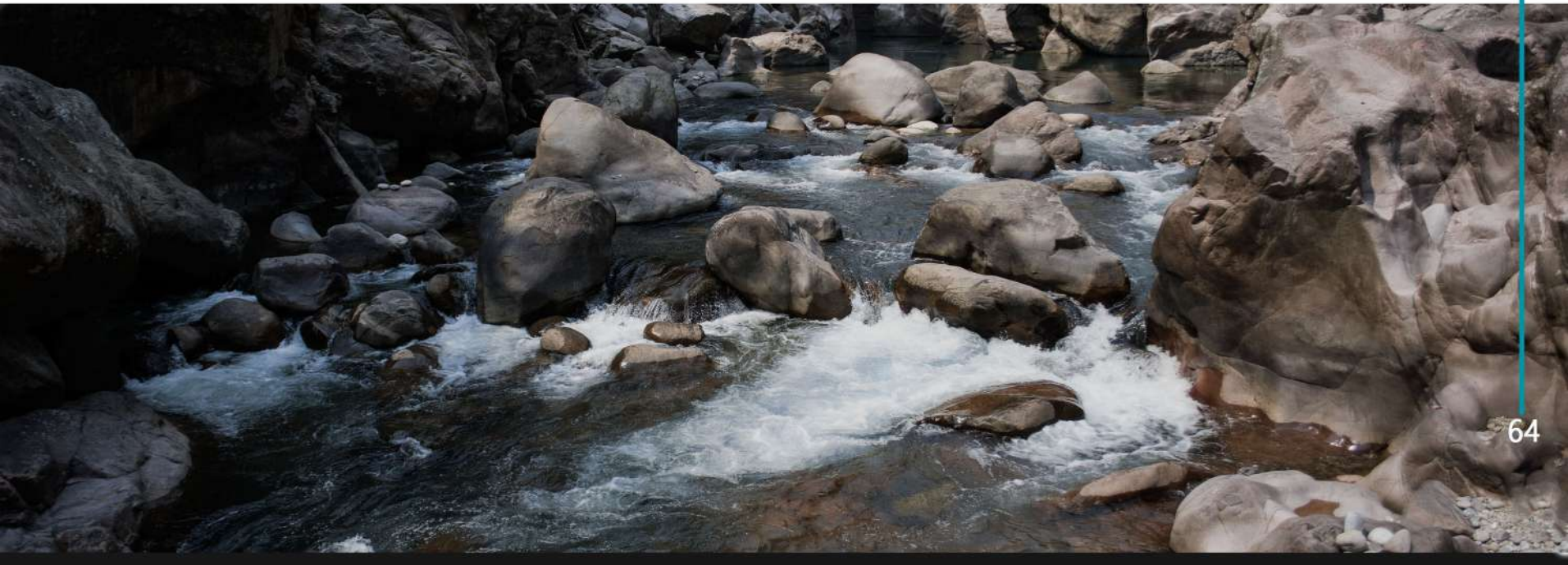



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Conservation INITIATIVES
nurturing nature, rooted in science

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