AWARE
CONSERVATION&PHOTOGRAPHY
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THE ASIAN ELEPHANT

BY PETER HUDSON

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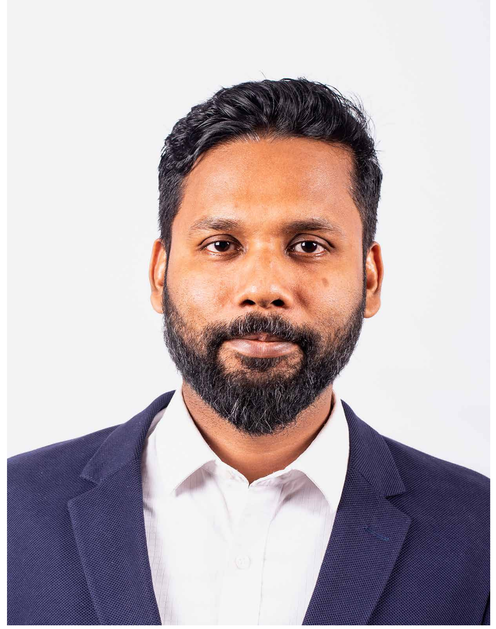

Raghul Patteri
Editor

EDITOR'S DEN

Growing up in southern India in the 80's, there was no escaping the fascination for elephants being ingrained in the mind forever.

The 1982 Asian games was a bold step by India in its march towards the modern age. Along with the games, its mascot Asiad Appu continues to live on in the memories of all who were around at the time. When the fledgling country decided to put its best foot forward, the mascot of the event had to be an elephant – the cute Appu who is immortalized in memories and history.

This fascination for elephants is not just rampant in India, but throughout the Indian sub-continent and south-east Asia where the Asian elephants have a presence. Then why has the Asian elephant numbers plummeted to half in about 3 elephant generations? In this edition of PT Aware –let Dr. Peter Hudson's compelling narrative take you through the conservation issues and threats faced by these giants of the land.

For elephants, being the largest land mammal and being mega herbivores is not easy. Their biology demands regular supplies of enormous amounts of food which must be procured by foraging through large tracts of habitat. And this requirement for Extensive habitat is a major cause of their downfall, with habitats being depleted and fragmented, driving them to raid crops for sustenance. This creates direct confrontation with humans leaving causalities on both sides. Hence, elephant conservation in Asia is not just a conservation issue, but also a political and socio-economic issue. Even from an evolutionary perspective the wellbeing of the Asian elephant population is of importance as they are the only surviving member of the genus *Elephas*

Follow PT Aware for interesting stories on different species from around the world. We are committed to bring you the best from the worlds of science and photography -the latest scientific perspective on the biology and conservation issues, illustrated with breathtaking images by gifted photographers. We thank the wonderful photographers for their elephant images which adorn this edition.

Our next edition will focus on the Grey Crowned Crane, and we await your wonderful photographs of these colorful birds. Selected photographs will be published in the next edition.

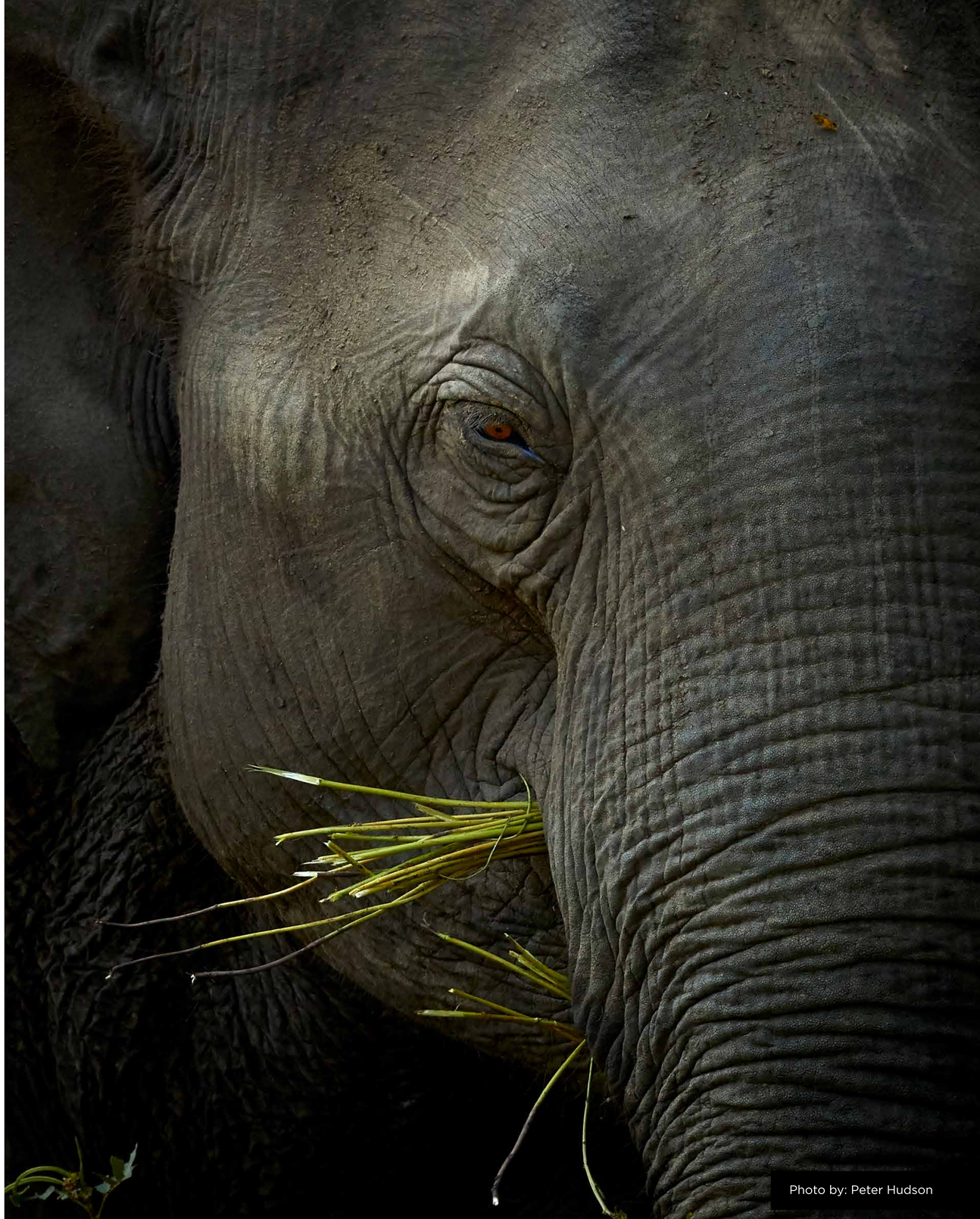

Photo by: Peter Hudson

FOUNDERS' NOTE

PT Aware is completing two years. An edition every alternate month, six editions a year. This here is our 12th edition.

That is 12 species from around the world that we have brought to you, the stories of their fascinating lives, and the struggles they face.

It was a journey into the lives of 12 species looked at from two angles, the scientific mind, and the photographic eye. For us, it is akin to viewing a subject through a microscope and a kaleidoscope, to bring you the best of both worlds.

Dr. Peter Hudson has spent a lifetime in biological research, all those years in the field observing animals makes him uniquely capable to bring their stories to you. And the fact that he is an enthusiastic photographer who travels the world is the cherry on the top. Our hats off to Peter and all the scientists and researchers who have toiled hard in the field and labs around the world, to bring the hope of survival to various species and that of a better world to humankind.

PT Aware has been vocal about the power of community photography. In the last 12 editions, we have published images by a big number of photographers from around the world. The global PawsTrails community has embraced us with enthusiasm and has donated each of the images that you have enjoyed. Each of these images is nothing short of a labor of love, of the result of years building expertise in the wilds, braving the elements while staring at the world through their third eye. We are reaffirming our commitment to utilizing your images to further the goals of conservation and the betterment of mother nature.

We urge the global PawsTrails community to stay connected through the various outreach programs on our social media handles.

Please follow us on Facebook, YouTube, and Instagram to stay abreast of the latest developments in the fields of research and photography. We bring together the best in their fields to share their wisdom and experience with the global community.

As we move ahead to our third year, we request our readers and contributors for their continued support.

pawstrails.com/register
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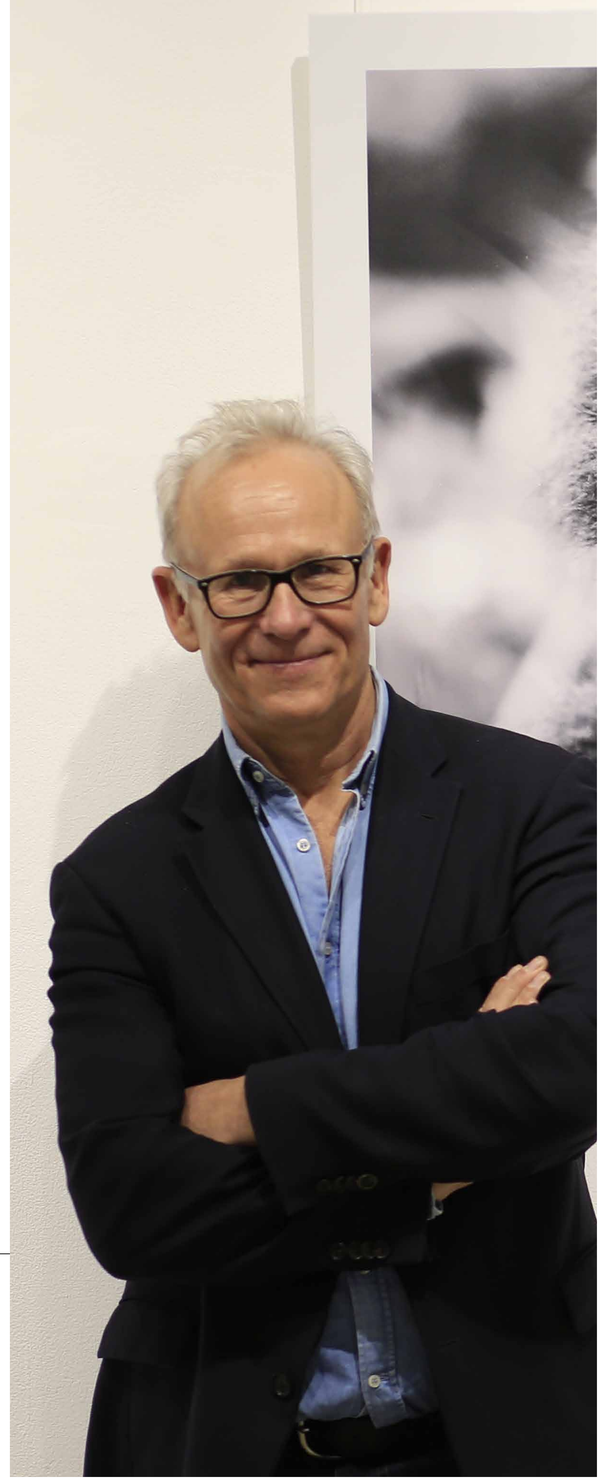
Hermis Haridas & Nisha Purushothaman
Founders - Paws Trails Explorers

THE STORY

The Asian Elephant: Saving elephant populations with wildlife corridors

By Peter Hudson,
Conservation Director, Paws Trails

Photo by: © Arshdeep Singh



Peter Hudson is a scientist, photographer and conservationist. He undertook his first scientific expedition to Africa at the age of 21 and has been a regular visitor ever since. Passionate about nature, he manages his own 36-hectare nature reserve in Pennsylvania which is home to bears, bobcats and other animals.

In his professional career, Peter is the Willaman Professor of Biology at Penn State University. The focus of his research has been the infectious diseases of wildlife and in particular how new diseases emerge. He has been running scientific studies on the wolves in Yellowstone, tortoises in the Mojave Desert and bighorn sheep in Idaho. He is currently involved in a major project in Australia investigating the viruses associated with bats.

Peter established a new global health institute at Penn State that seeks to develop the concept of One Health, whereby the future health of humans is dependent on that of the environment, livestock management and the conservation of wildlife. He is an adjunct Professor at The Nelson Mandela African Institute of Science and Technology based in Arusha, Tanzania and a Fellow of the Royal Society.

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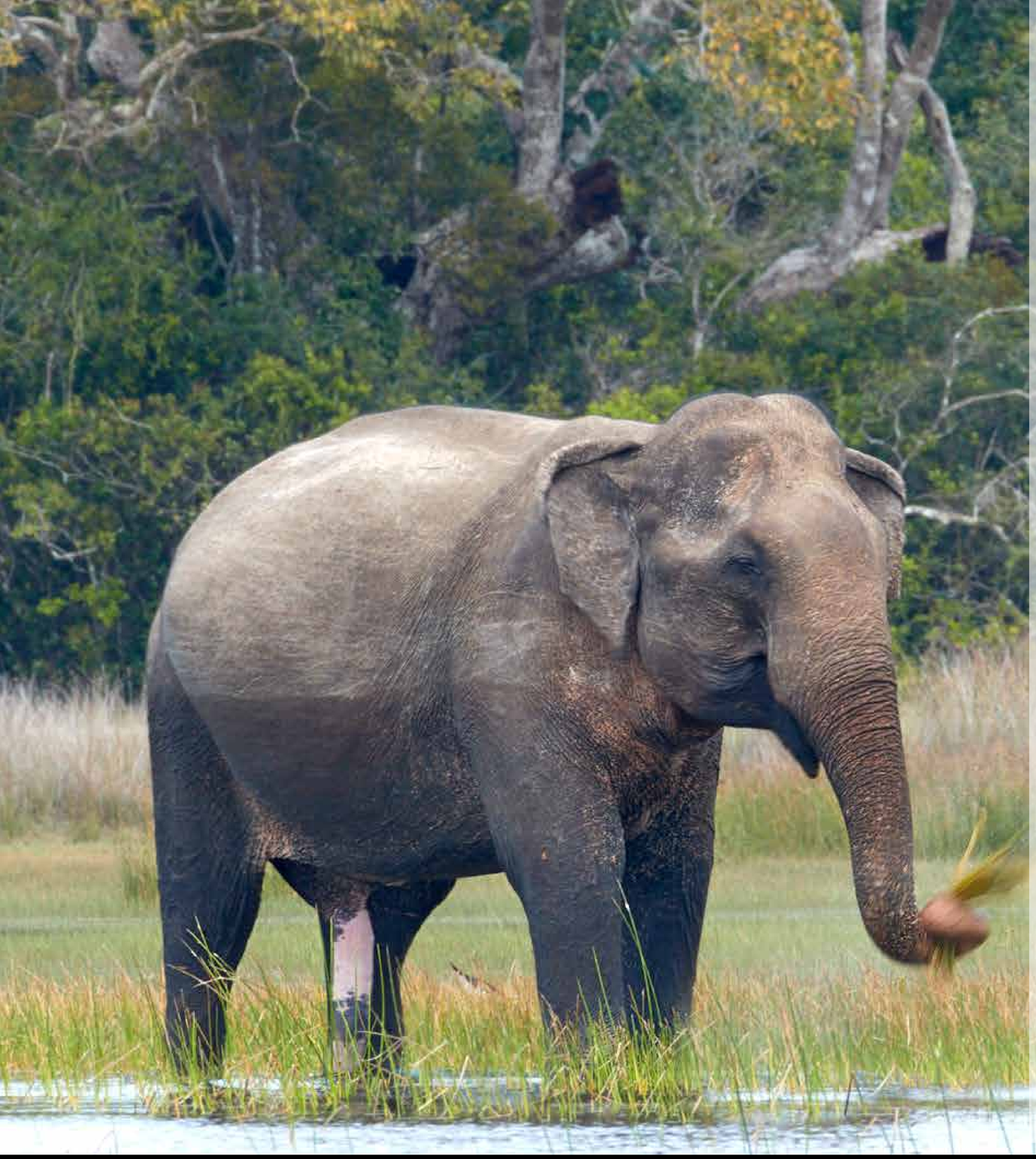
Photo by: Peter Hudson

Photo by: Varun Thakkar



When most of us see an elephant, we stand and stare in fascination and awe. These are one of the few remaining mega-herbivores that feed exclusively on plants and exceed 1,000kg in body mass – magnificent, gentle and spectacularly different from all other animals with their long trunk, massive ears and tree-trunk like legs. Being so big they invariably take many years to grow to adult size so their young stay with the mothers for many years and they have developed complex social behavior and a remarkable memory. How to capture the essence of these animals in a photograph is not easy, but that is the challenge and beauty of conservation photography. What we really need are good photographs illustrating the way elephants live within the habitat and conflicts that occur.

Elephants consume huge amounts of food and an average elephant will eat 135 kg (300 lbs) of roots, grass, fruit and bark every day. To obtain access to this quantity of food they need large areas of habitat and may range over 50-500km2 (20-200 miles2) or more, often walking in a loop along traditional paths to feed on fruit or vegetation at the right time. This need for extensive habitat is also their downfall since, like many of the charismatic large mammals, the available good quality habitat has been degraded, destroyed and fragmented so they now utilize crops on their travels and this brings them into conflict with people. More than 400 people die each year in India during these conflicts and about 100 elephants are killed in retaliation. Conservationists are seeking solutions by developing wildlife corridors that link fragmented habitats along these traditional routes so that people can live in harmony with elephants.

Asian Elephants

Elephants are the largest living land mammals on this planet, one of the few remaining mega-herbivores. There are three recognized species of elephants, two in Africa (the bush and the forest elephant) both belonging to the genus *Loxodonta* and then the Asian elephant (*Elephas maximus*), the only surviving species of the genus *Elephas*. They occur in 13 Asian countries but are now extinct in Pakistan, with one subspecies across mainland Asia and two other subspecies: one in Sumatra and the other in Sri Lanka. The species is listed on the IUCN Red List as *Endangered* since the population has declined by more than 50% over the last 3 elephant generations, a period of about 75 years.

Elephant numbers

The current estimate is there are about 45,000 elephants left in Asia although these numbers have been in constant decline for many years. The expectation is that they will continue to fall in the future although there is now some encouraging evidence that numbers in the Western Ghats may be increasing as a consequence of conservation

Photo by: Peter Hudson

Photo by: Varun Thakkar

efforts.

Without question, the primary reason for the decline of elephgants in Asia is the dramatic habitat loss and habitat fragmentation, all a consequence of the expanding human population in that part of the world and the growing demand for resources by humans. Once found throughout much of Asia, the elephants are now restricted to small and isolated fragments of habitat. Of particular concern is how growing rural populations and road networks have blocked traditional elephant migration routes, limiting access to resources and resulting in increased crop raiding and human-elephant conflict. In addition to the habitat loss there is always some poaching for the ivory trade and the Asian medicine markets. Since female Asian elephants don't carry tusks, the poaching for ivory is focused primarily on the bulls with big tusks and this results in highly skewed sex ratios to a point where there can be as many as 120 females to each male. This unbalanced sex ratio can result in reduced fecundity of females and low recruitment of young elephants into the population and places the populations in an "extinction debt" – where they will die out without more young being produced unless the poaching is stopped.

Photo by: Peter Hudson

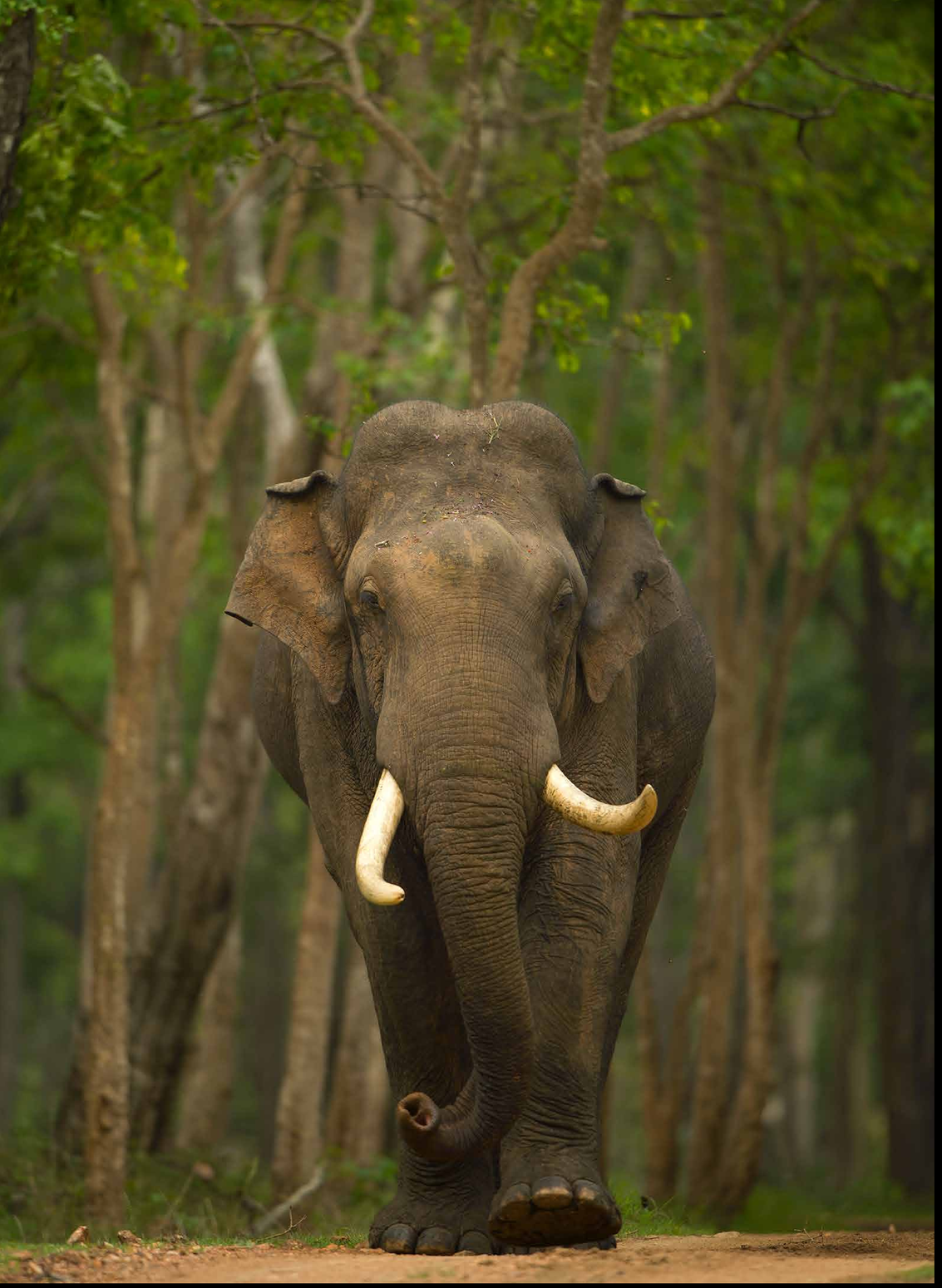


Photo by: S.K. Arun

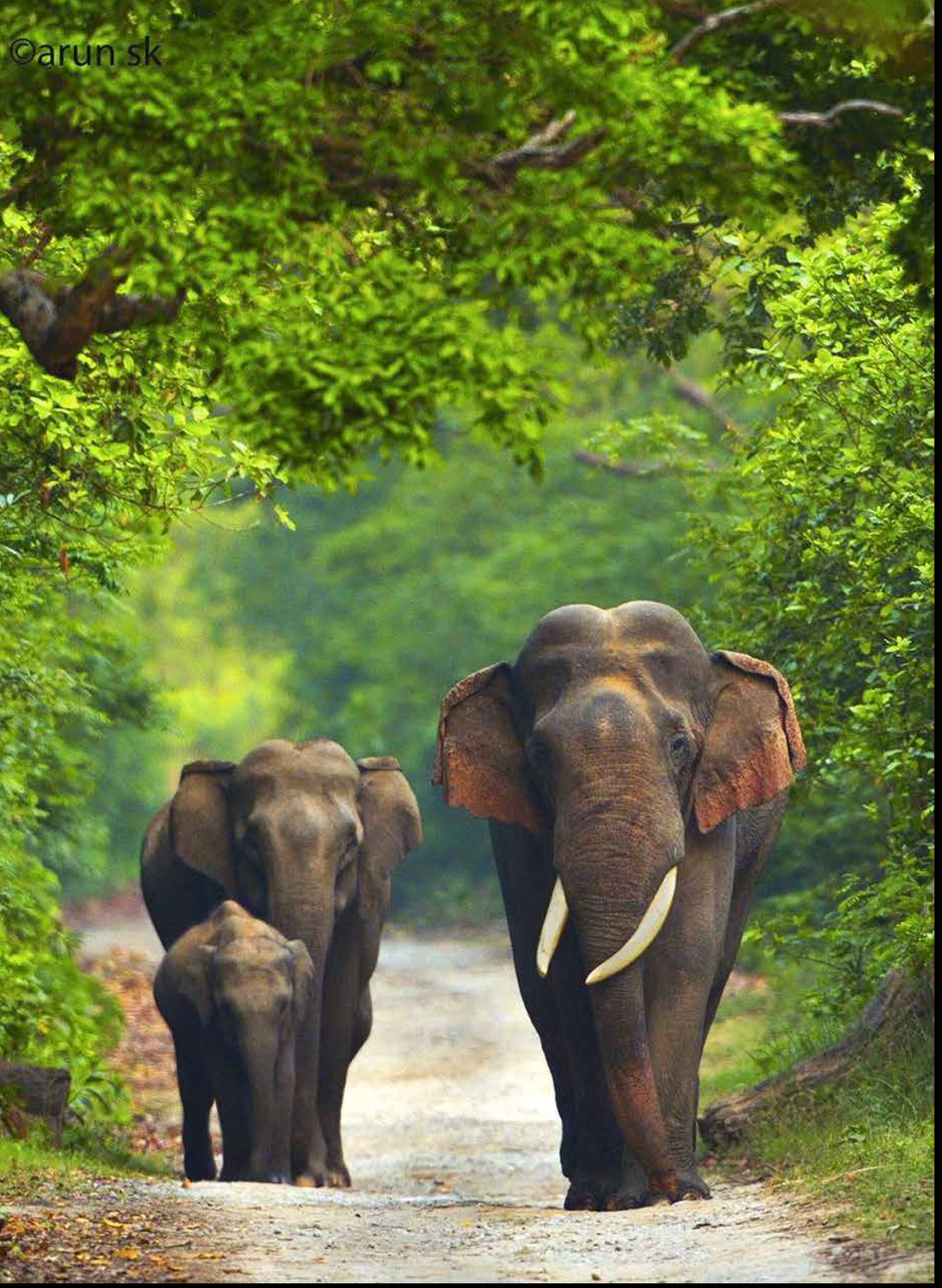
Photo by: Peter Hudson

Photo by: S.K. Arun

Elephants depend on landscapes and not just a few habitat patches so conservation must work to retain these "wildlands". Recent work, by the Smithsonian Institute has started mapping landcover for endangered species like the Asian Elephant and they examine how much this has been affected by human activities[1]. This approach is very useful for strategic conservation actions since it can help prioritize conservation activities locally and these will vary across the range of the animal.

Recent work by this team[1] has shown that just 51% of the range of elephants is in wildland (uncultivated) and only 16% of the range is under legal protection. This is a disaster for the elephants and so we must first identify where the elephants and their habitats are and seek solutions. The elephant population and habitats can be divided into three broad types – depicted in Figure [1].

Category A is large unfragmented areas of habitat (green areas in Fig[1]) often with large elephant populations and can be found in Myanmar, the Thai-Myanmar border and a section running through north-east India close to Bhutan. These areas have good potential for long-term elephant conservation, but the conservation strategy is often to stop elephant poaching for ivory and medicinal products. Not all of these areas carry good elephant populations since the remote sensing data used in the study



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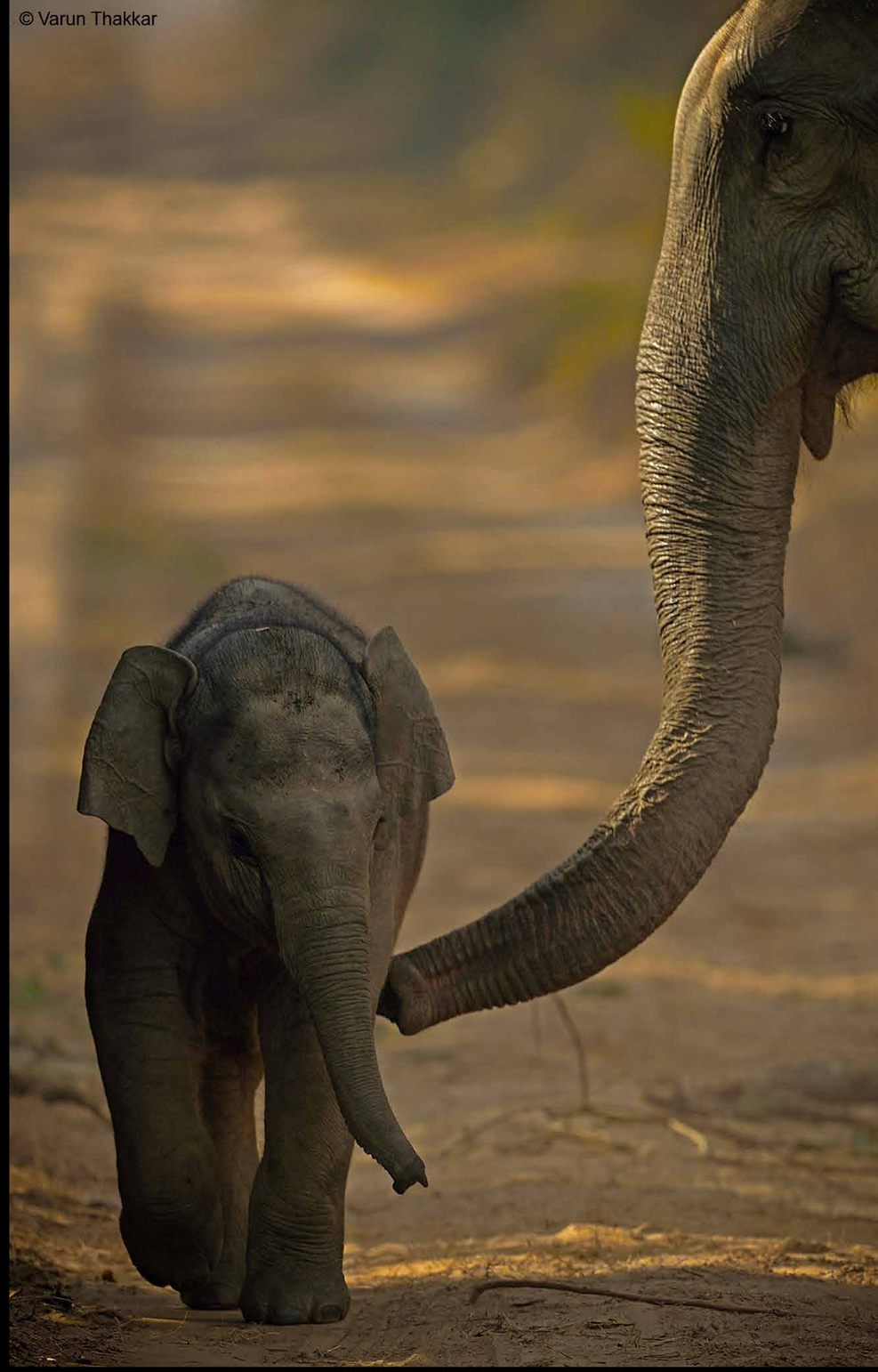

Photo by: Varun Thakkar

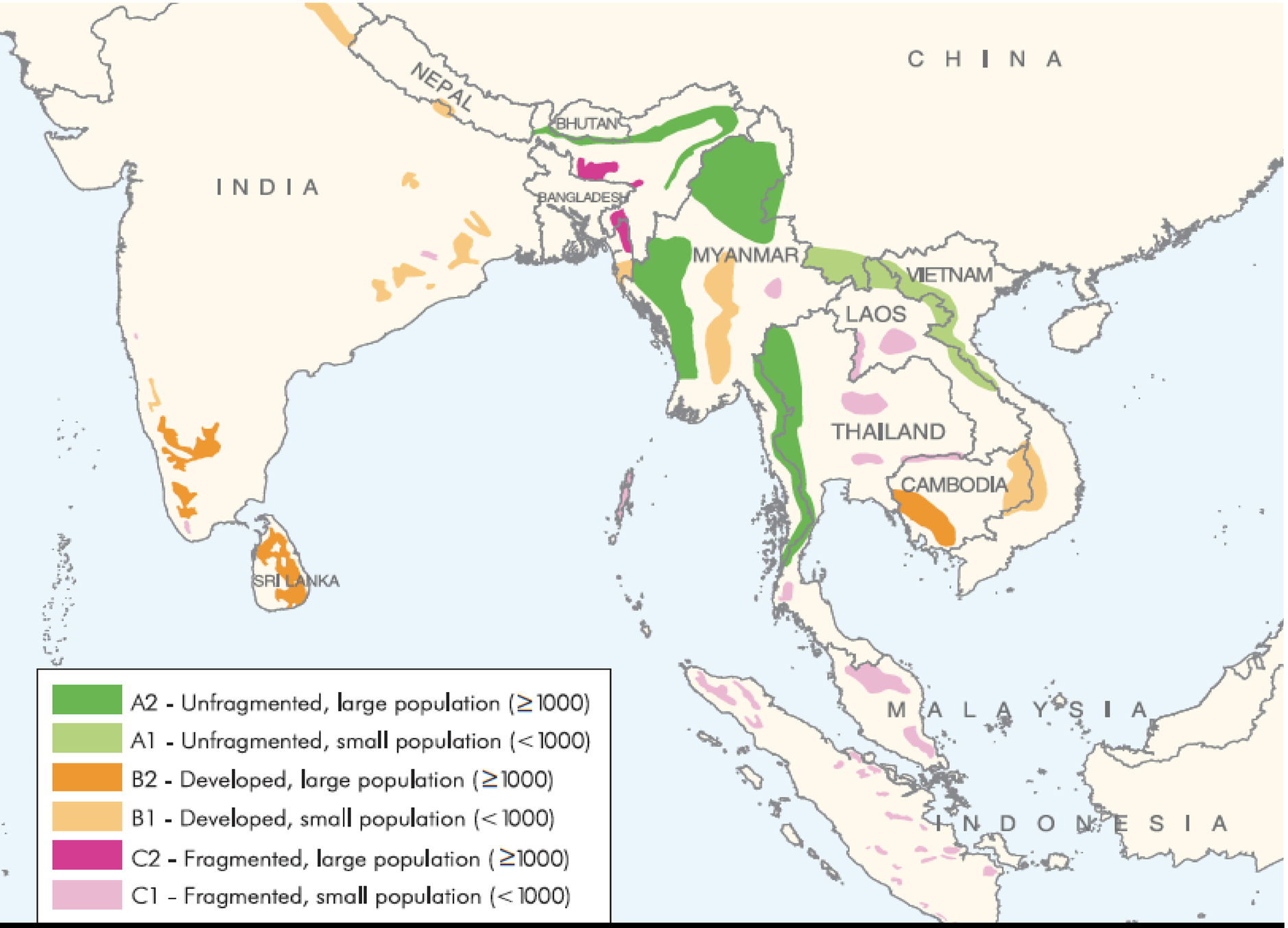

Figure 1: Management categories for elephants. Cluster A in green is large unfragmented wildlands, Category B in orange is wildlands fragmented by transport networks and high human population density and Category C in pink is highly fragmented ranges with few roads and people. (after ref 1)

cannot distinguish areas degraded through the planting of palm oil from solid canopy forest.

Category B are the areas with human development that still carry reasonable elephant populations (orange areas in Fig[1]) despite dense transportation networks and high human population density. They are in a precarious situation since further development could reduce the movement and habitat availability and result in the populations crashing. Category B includes most of the elephant populations in India and all the populations in Sri Lanka. These are high priority areas for retaining elephant habitat and working on maintaining and improving connectivity with wildlife corridors and mitigation in human-elephant conflicts.

Category C is highly fragmented habitat with small pockets of elephants (pink areas in Fig 1), where the habitat has been replaced by cultivation but still with few roads or people and embraces all the Sumatran population and much of the populations found throughout Indonesia, eastern Thailand, Malaysia and Laos. This is a dire situation where the habitat is currently being destroyed rapidly through logging and the planting of palm oil. They urgently need management of elephant corridors, to stop deforestation and initiate habitat restoration. Human-elephant conflicts in these areas often escalate rapidly so need ways and

Photo by: Varun Thakkar

Photo by: Varun Thakkar

means of acting fast.

New technology to help Conservation

One of the problems conservationist organizations face is how wildlife patrols and conservation officers can effectively enforce wildlife laws and develop site-based conservation activities. With funding from WCS (Wildlife Conservation Society) and others an app has been developed that can help hugely, it is called SMART: Spatial Monitoring and Reporting Tool. Essentially, SMART provides a suite of best practices and tools for efficiently collecting, analyzing and reporting on anti-poaching efforts at these sites and in so doing allows their managers to identify hotspots where attention is needed. The app is now being used to help Asian elephants and has recently been introduced into Thailand to help elephant managers to record and mitigate conservation needs. More about this on their website at https://smartconservationtools.org.

Wildlife Corridors for Elephants

Wildlife corridors do two things – first, they link populations and make several small, vulnerable populations into one bigger more resilient population in term of genetic diversity and likelihood of going extinct through random catastrophic effects. Second, they also permit the movement of elephants to traditional feeding grounds and keep the elephants away from crops and in so doing reduce human-wildlife conflict.

Take for example the situation in Sabah, part of Malaysia, where the WWF worked with the government and local people to develop a corridor through a palm oil plantation and were able to link the 42-square-mile Silabukan Protection Forest Reserve to the 475-square-mile Tabin Wildlife Reserve. The corridor is flanked by electric fences to keep the elephants away from the young palm oil crops and the WWF have selectively planted natural vegetation, close to the river system, and this encourage elephants, gibbons and orang-u-tans to use the corridor and move between the forest reserves.

In India, The Wildlife Trust of India has worked hard to help develop the system and in 2005 identified 88 corridors that are critical to the survival of elephants in India This has recently been updated to 101 elephant corridors with the loss of five from the previous list that had become impaired through subsequent human development[2]. Of these corridors, 58 are now considered of high ecological priority.

One of the success stories has been the Wayanad Elephant corridor in Kerala where the elephants pass between the Nilgiri Biosphere Reserve and the Brahmagiri hills through a narrow strip of land. The corridor had seven villages, four of

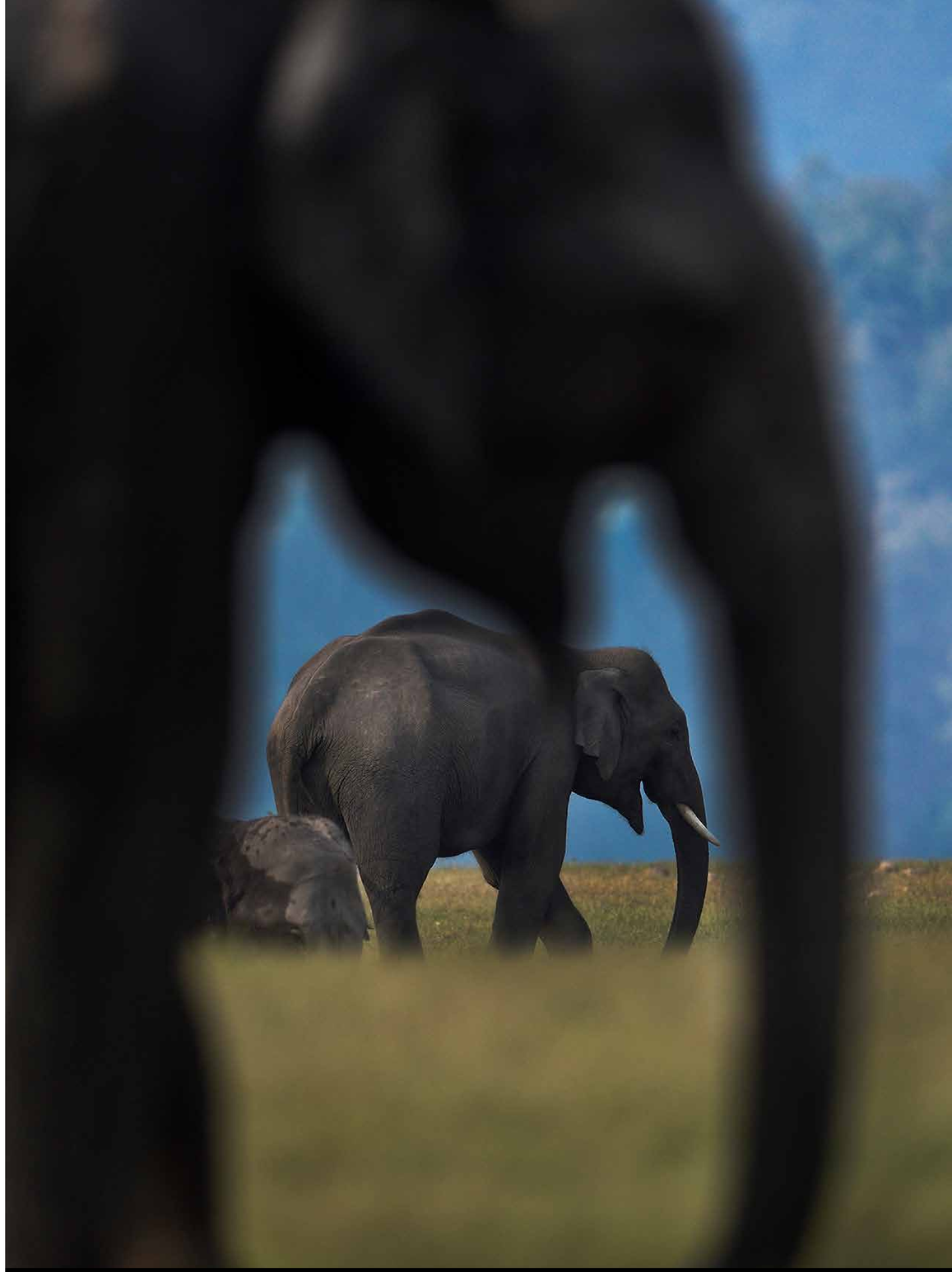

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Photo by: Arshdeep Singh

which were located in important locations for elephant movement. The Wildlife Trust of India, together with funding from IUCN Netherlands and Wild Land Trust bought 25 acres of critical land and then 37 families took voluntarily relocation from the four villages. Voluntary translocation included opportunities for new and better housing, water facilities, the land they needed for farming, without the fear of wild animals and improved schooling opportunities.

The corridor land was then passed over to the Kerala Forest Department and has subsequently became part of the Wayanad Wildlife Sanctuary. Follow up work involves monitoring of the elephants and the translocated people to obtain sound data on the long-term success and limitations of the project.

This took four years of careful negotiations and has become the poster child of how it can work through private land purchasing. Alternative models involve government securement of land as used in Kaniyanpura - Moyar Elephant Corridor, Karnataka. In other situations, community involvement and use of electric fences can help reduce conflict and allow elephant movement, such as the Siju-Rewak Elephant corridor in Meghalaya, north east India.

Of course, the long-term success of corridors really depends on the corridors attracting protection policy to stop further fragmentation and

Photo by: Varun Thakkar

Photo by: Varun Thakkar

human-elephant conflict and this requires good legal protection. Recommendations include bringing in state forest department and conservation organizations to protect and secure corridor lands through purchase and voluntary relocation of inhabitants. Corridors could also be secured by working with the local communities and governments to reduce local dependency on corridor land, and getting the corridors notified as Village Reserve Forests by the Council or Community Reserves.

References

1. Leimgruber, P. et al. (2003). Fragmentation of Asia's remaining wildlands: implications for Asian elephant conservation. Animal Conservation 6, 347–359. doi:10.1017/s1367943003003421

2. Menon, V., et al 2017 Right of Passage: Elephant corridors of India (2nd edition). Conservation reference series #3. Widlife Trust of India, New Delhi.

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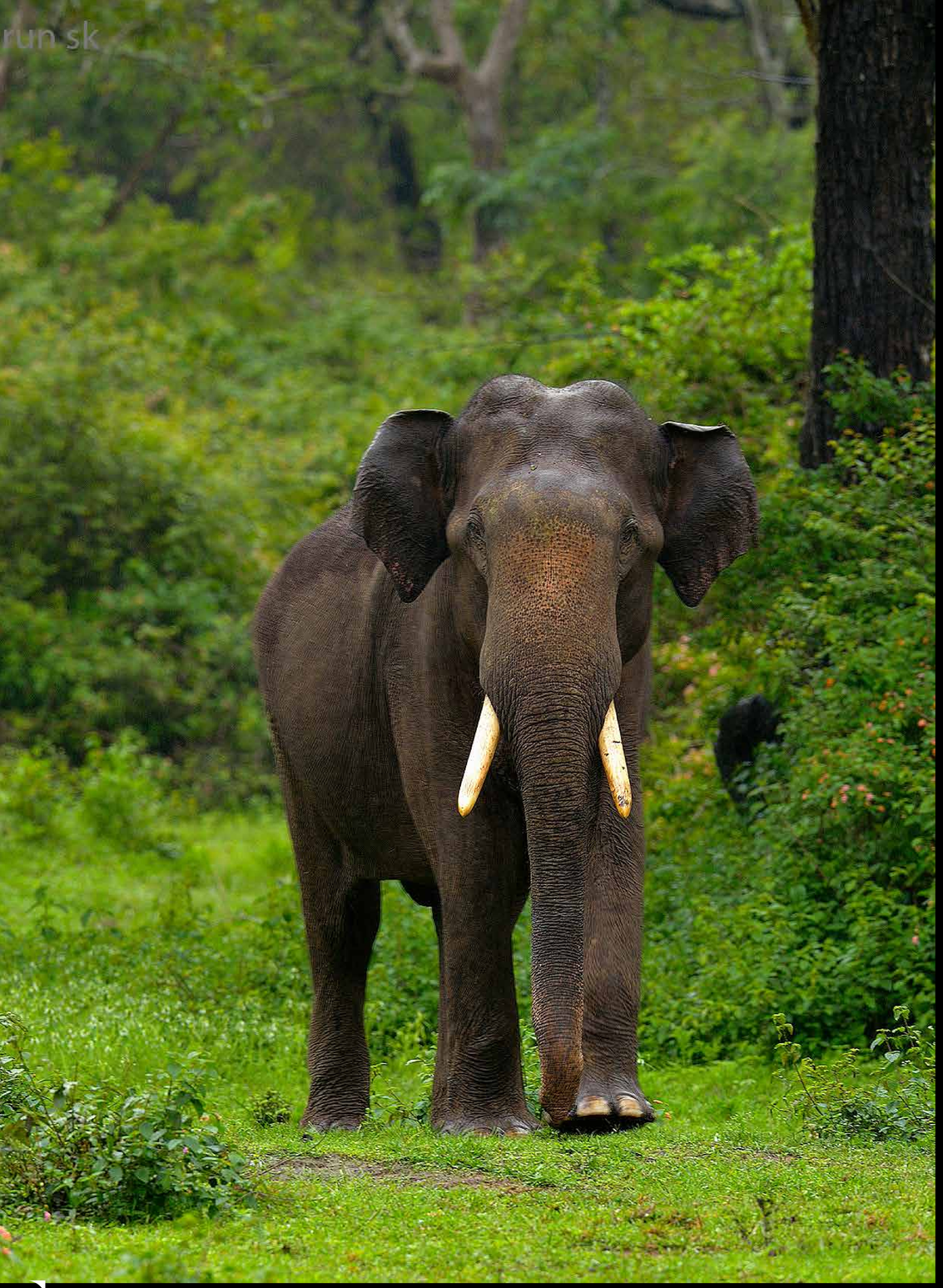

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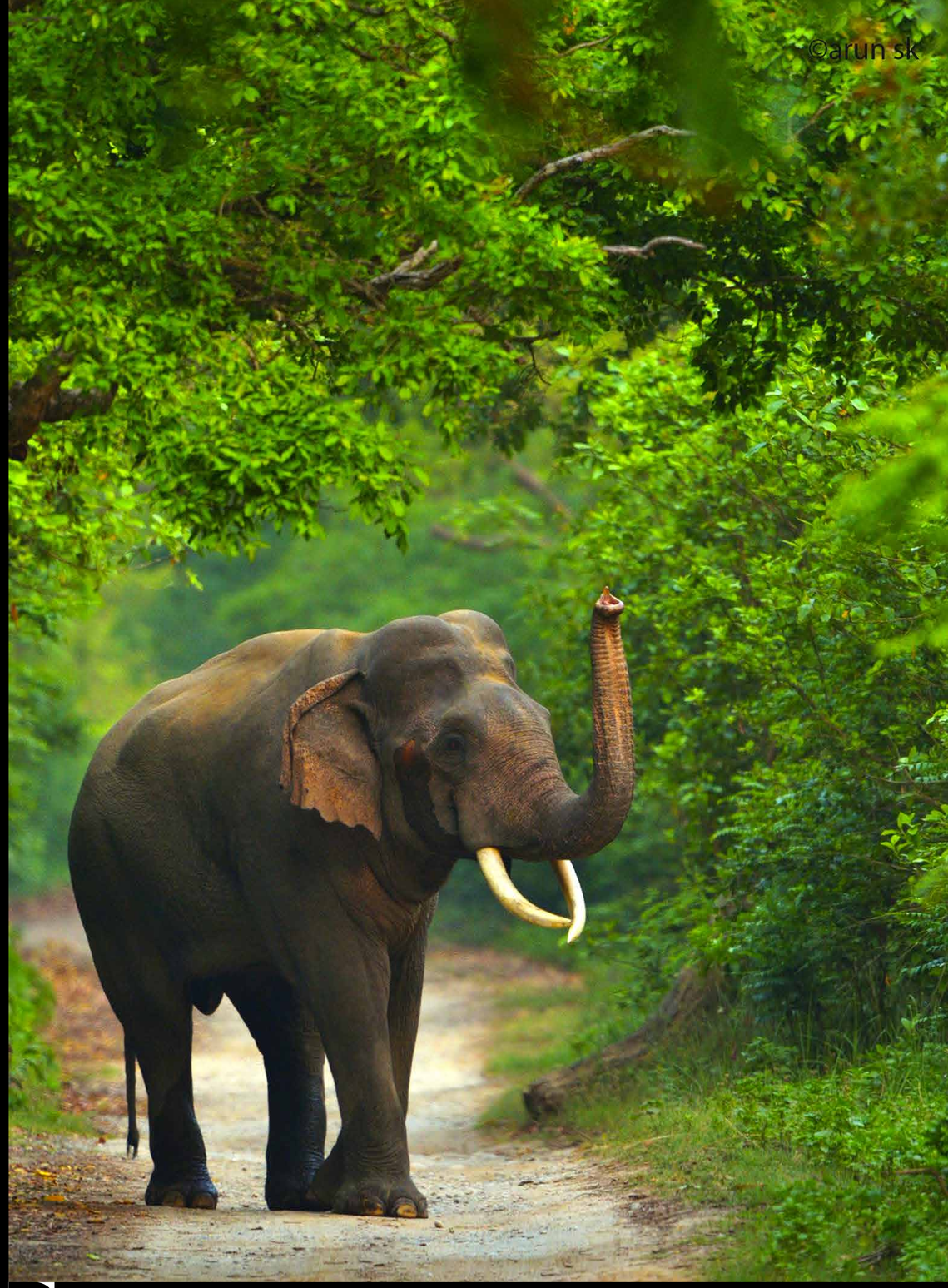

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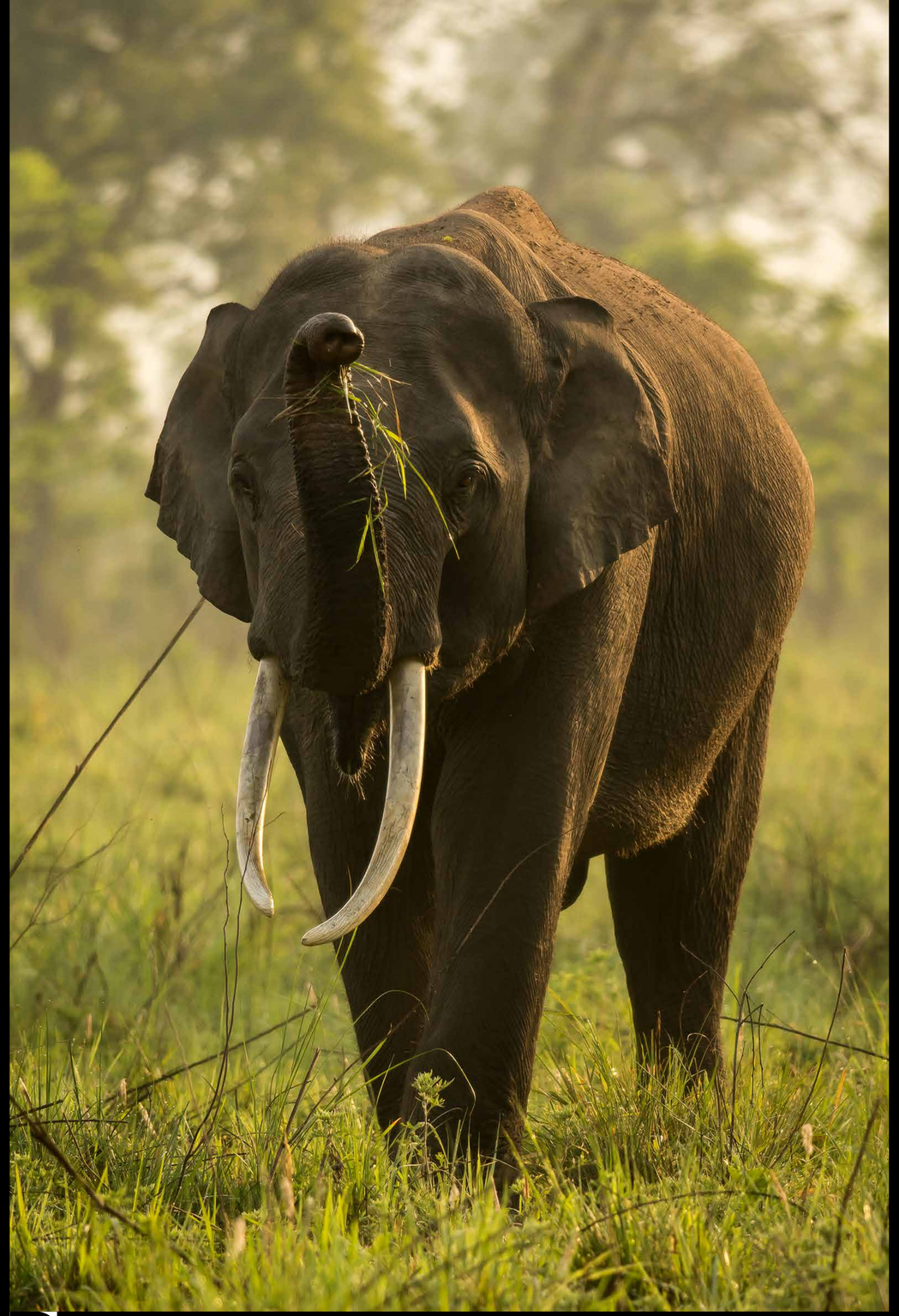

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AWARE

UPCOMING EDITION

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