

May 2022

Issue 8



YOUTH FOR NATURE

India's Incredible Islands

The Islands Are Calling

Page 7

The Beauty of Majuli

Page 14

Spotting a Mermaid

Page 27



Editors' Note

We are pleased to welcome you on board as we sail off the mainland and across crystal blue waters to the numerous islands of India!

Islands are fascinating and unique but due to their relative inaccessibility to most people, they are not often given the attention they deserve or are treated merely as exotic destinations to be checked off a bucket list. With this issue of the magazine, we aim to bring you stories from scientists, ecologists and nature enthusiasts who want to shed light on some of the unfamiliar island wildlife, the threats to island biodiversity, snapshots of gorgeous landscapes and their own unique experiences of working on these islands!

Come join us as we dock at the sandy shores of Andaman and learn about its geography and who its native inhabitants are! Dive into the sea to explore the magnificent coral reefs, walk through the dense tropical rainforests in Narcondam island to spot the extravagantly coloured birds and flying snakes. Experience the fantastic diversity in flora and fauna on Lakshadweep island that cannot be found anywhere else in the world. There is much to see and do on the seemingly isolated islands of India, so let us set sail without further ado.

All aboard!

-Priya Ranganathan and Nikita Bhat, Co-Editors

YOUTH FOR NATURE

May 2022



LEARNING CORNER

Learn about how ecotourism effects island ecosystems, the biogeography of the many Indian islands and how its native inhabitants make a living

SPECIES IN SPOTLIGHT

We shed the spotlight on some weird and wonderful wildlife found on the islands of India, from dugongs to flying snakes!



EXPERIENCES IN THE WILD

Travel with ecologists and go on excursions through the dense tropical rainforests to experience the magnificent beauty of islands



TALES & TRAILS + ACTIVITY CORNER

A short story about spotting a mermaid in the wild and an enchanting poem curated for our youngest readers. Don't forget to complete the activity!

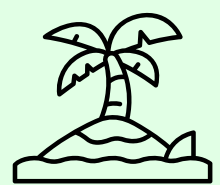
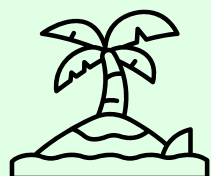
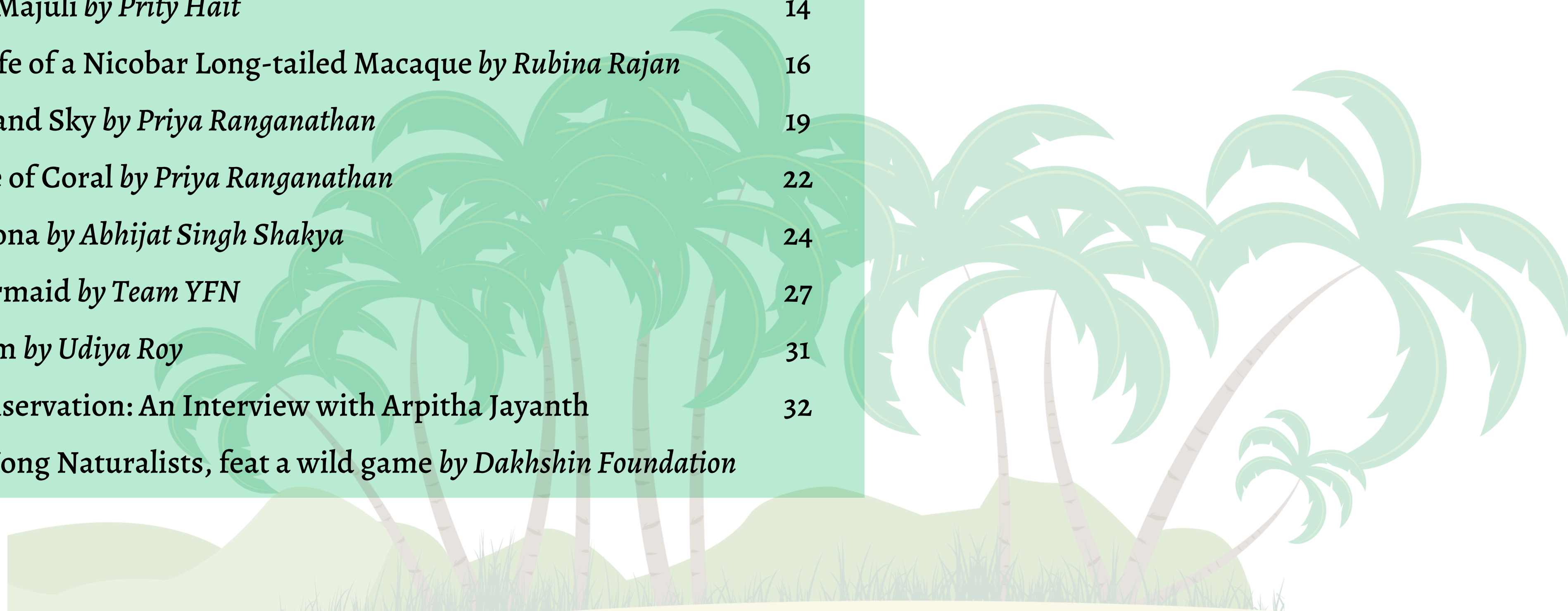
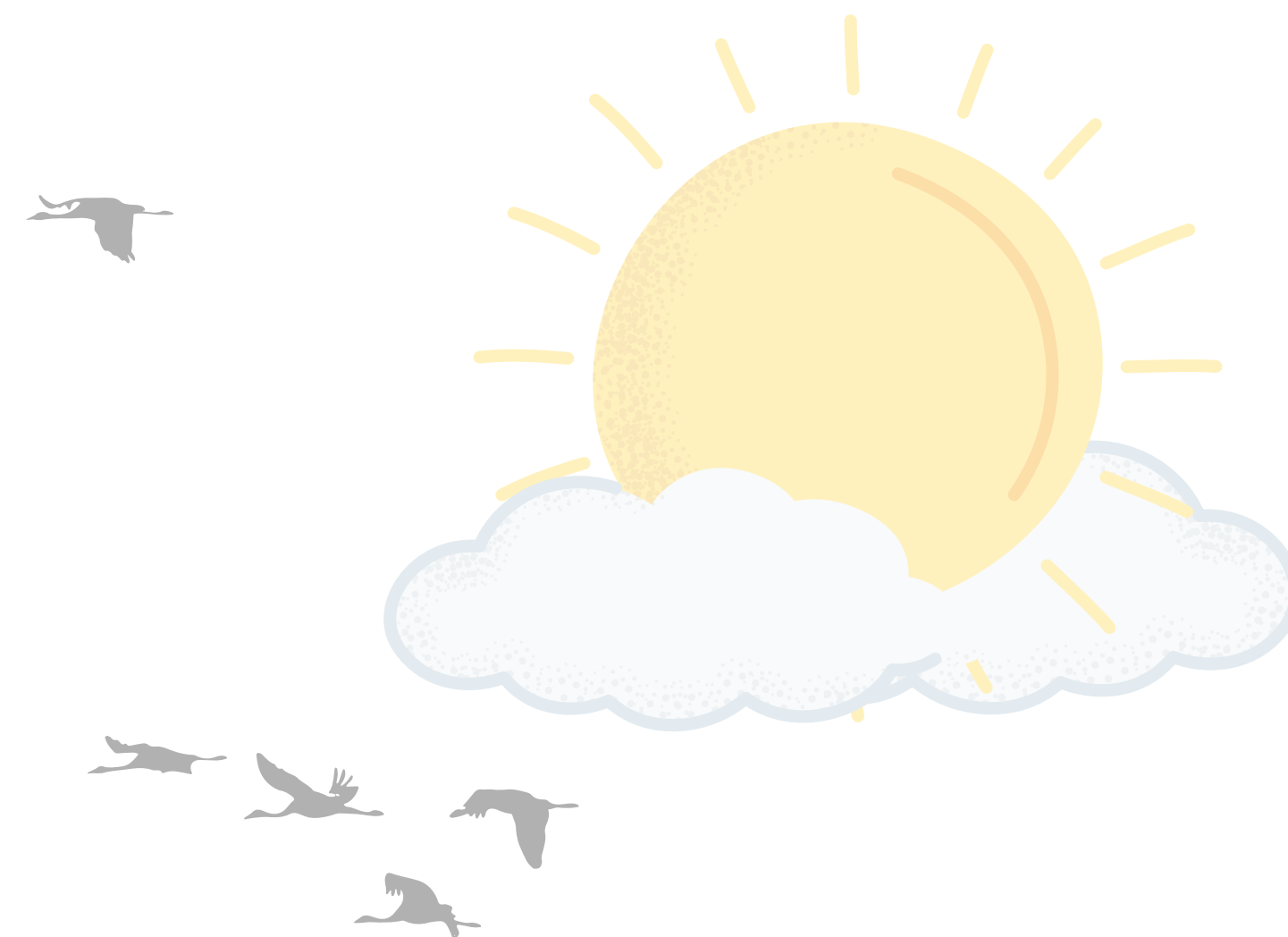


Table of Contents

Islands of the World <i>by Prateek Sharma</i>	1
Exploring the Andaman and Nicobar Islands <i>by Avik Banerjee</i>	4
The Islands are Calling <i>by Dincy Mariyam</i>	7
A Tree of Stars and a Sky of Fire <i>by Nobin Raja M.</i>	9
Like Islands in the Sky <i>by Abhirami Ravichandran</i>	12
The Beauty of Majuli <i>by Prity Hait</i>	14
A Day in the Life of a Nicobar Long-tailed Macaque <i>by Rubina Rajan</i>	16
Snakes of Sea and Sky <i>by Priya Ranganathan</i>	19
The Secret Life of Coral <i>by Priya Ranganathan</i>	22
The Holy Chelona <i>by Abhijat Singh Shakya</i>	24
Spotting a Mermaid <i>by Team YFN</i>	27
Islands: A Poem <i>by Udiya Roy</i>	31
Careers in Conservation: An Interview with Arpitha Jayanth	32
Activities for Yong Naturalists, feat a wild game <i>by Dakshin Foundation</i>	



Islands of India

Prateek Sharma | Illustration by
Adyasha Nayak



India has a total of 1,382 off-shore identified islands. The major island groups of India are the Andaman and Nicobar archipelago in the Bay of Bengal and the Lakshadweep Islands in the Arabian Sea. Andaman and Nicobar Islands were formed due to a collision between the Indian Plate and Burma Minor Plate [which was a part of the Eurasian Plate], and is similar to the formation of the Himalayas.

Andaman and Nicobar Islands are a southward extension of the Arakan Yoma range in Myanmar [Arakan Yoma in itself is an extension of Purvanchal Hills]. Lakshadweep Islands are coral islands. These islands are a part of Reunion Hotspot volcanism. Other than these two groups, there are islands in the Indo-Gangetic Delta and between India and Sri Lanka [Remnants of Adams Bridge or Rama's Bridge or Rama Setu; formed due to submergence].

The **Andaman and Nicobar Islands**, situated in the Bay of Bengal, run like a narrow chain in the north-south direction. This archipelago is composed of around 265 big and small islands [203 Andaman islands + 62 Nicobar Islands]. The Andaman islands are divided into three main islands i.e. North, Middle, and South. The Great Andaman group of islands in the north is separated by the Ten Degree Channel from the Nicobar group in the south. The Grand Channel is between the Great Nicobar islands and the Sumatra islands of Indonesia.

Most of these islands are made of tertiary sandstone, limestone, and shale resting on basic and ultrabasic volcanoes [Similar to the Himalayas]. The Barren and Narcondam Islands, north of Port Blair, are volcanic islands [these are the only active volcanoes in India]. Some of the islands are fringed with coral reefs. Many of them are covered with thick forests. Most of the islands are mountainous.



Saddle peak (737 m) in North Andaman is the highest peak. The Andaman and Nicobar Islands have a tropical marine climate influenced by the seasonal flow of monsoon winds. The region is under dense tropical rain forests. The coastal regions have mangrove forests. Coconut is the staple food of the people. Fishing and piggery is the primary occupation of most inhabitants. The Islands are also famous for the largest and rarest species of crab, the Giant Robber Crab. It can climb the coconut trees and break the hard shell of the fruit. The entire region is vulnerable to earthquakes as it is in the major earthquake zone. Andaman islands are home to the only known Palaeolithic people, the Sentinelese. The Sentinelese are one of the last humans on earth who remain untouched by modern civilization. The state Animal of Andaman is the dugong (sea mammal), endemic to Indo-Pacific seacoast areas, especially to the Andaman Islands.

Ritchie's Archipelago is a cluster of smaller islands which lie 20 km east of Great Andaman, the main island group of the Andaman Islands. Neil Island and Havelock Island is in Ritchie's Archipelago. Ross Island is in the South Andaman region and 3km east of Port Blair.

Lakshadweep Islands, situated in the Arabian Sea, is a group of 36 islands. The main islands under the Lakshadweep Islands group are: Kavaratti, Agatti, Minicoy and Amini. The Lakshadweep





Image © Thierry Falise/LightRocket via Getty Images

One of the isolated tribes of the Andaman Islands - The Jarawa are seen fishing here. At the end of the day when there is a low tide, small groups of both men and women go out to catch fish!



Credit: Palaeolithic Cognitive Inheritance in Aesthetic Behavior of the Jarawas of the Andaman Islands - Scientific Figure on ResearchGate

Islands group is a Union Territory administered by the President through a Lt. Governor. It is the smallest Union Territory of India. Kavaratti is the administrative capital of the Lakshadweep Islands. It is also the principal town of the Union Territory. The Lakshadweep Islands are located at a distance of 280 km to 480 km off the Kerala coast. The entire Lakshadweep island group is made up of coral deposits. Fishing is the main occupation on which livelihoods of many people depend. The Lakshadweep islands have storm beaches consisting of unconsolidated pebbles, shingles, cobbles, and boulders.

Pitti Island is an important breeding place for sea turtles and for a number of pelagic birds such as the brown noddy, lesser crested tern, and greater crested tern. The Pitti island has been declared a bird sanctuary. Most of the islands have low elevation and do not rise more than five meters above sea level [Extremely Vulnerable to sea-level change]. Their topography is flat and relief features such as hills, streams, valleys, etc. are absent.

So, as you have learned, islands make up a lot of India's rich landscape and diversity. Turn the pages and read on to learn more about the natural history of some of India's incredible islands!



Exploring the Andaman and Nicobar Islands

Avik Banerjee | Illustration by **Varnika Walvekar**

Of the 1382 islands in India, they are the largest group consisting of 572 islands in the Bay of Bengal, situated 1400 km off the south-eastern coast of India. They enjoy warm tropical climates and receive abundant rainfall throughout the year. They possess lush tropical rainforests, thick mangroves, and colourful coral reefs which harbour a wide variety of plants and animals. They are also home to some of the world's oldest aboriginal tribes. 'They' are popularly known as the Andaman and the Nicobar Islands.

The islands possess more than 9000 species, of which more than 1000 species are endemic. A plant or animal species is called endemic when it is found only in a particular area, such as an island or a country or even a distinct habitat, and nowhere else in the world. Having such great diversity of animals, no wonder these islands are home to some unique species of the world. Be it the cow that can swim in the sea or the monkey that loves to eat seafood, be it the pigeon that carries a grinding stone in its stomach or the fox that can fly, the Andaman and Nicobar Islands have numerous species to amaze us all.

One such unique species is the **Dugong**, a marine mammal that can weigh up to 900 kgs. It is also the state animal of the island group. It is popularly known as the 'sea cow', mainly because of its large bulky body and its herbivorous diet consisting of seagrasses. Dugongs have a flattened tail and paddle-like flippers to help them swim and a downward angled snout to ease their feeding on seagrasses. So, you see, we have cows living in the oceans too. And talking about large animals, these islands harbour the world's largest land crabs, known as **robber or coconut crabs** which can grow up to 1 meter in width. Another unique endemic monkey species is the **Nicobar long-tailed macaque**, usually found in the mangrove forests. They have brownish-grey fur and a tail longer than their body length. These macaques are known to feast on small crabs during dry seasons.

The islands are a paradise for bird watchers as they host more than 250 species of birds, of which many are endemic and possess unique features.





Dugongs are referred to as sea cows because they use their strong, cleft upper lips to graze on sea grasses they uproot from the seafloor.

The **Nicobar pigeon** gleams with its distinct and luminous plumage that shimmers in blue, rust, red, copper, and green colors. Starkly different from the grey and white pigeons found in the city!

The bird developed this gorgeous coloring because of its isolated location on small islands. These areas lacked natural predators, so they didn't need to conceal themselves. Because of this, they were available to develop brilliant feathers.



Credit: Reddit



One such bird is the **Nicobar megapode** (mega means *large* and pode means *feet*). These birds build mound nests by piling up soil, shells, and plant materials such as leaves and twigs. The mounds can be as tall as 10 meters, and parent birds bury their eggs inside these structures. The heat produced by the decomposition of the plant materials helps incubate the eggs. Young birds hatch out of the mound in their most mature condition, having fully formed wings and are ready to fly. Talking about bird nests, these islands host a species of bird whose nest is edible. White-nest swiftlet is a small blackish-brown bird, weighing only 15 to 18 grams, and has a short tail. These birds build an opaque white nest made entirely of solidified saliva. The nests are edible and are used to prepare 'bird nest's soup', which is a delicacy in China. "Yuk!!!" for many of us but a tasty soup in a neighbouring country.

Another bird species found on these islands, known as the **Nicobar pigeon**, is one of the most spectacular birds in the world. They possess metallic green and blue coloured feathers that have a shiny glitter-like appearance. These birds carry a stone in their stomach, known as a gizzard stone, which helps grind grains and hard seeds. Unfortunately, these birds are under the threat of illegal hunting for their gizzard stones, used in jewellery for their smooth and polished appearance.

Apart from the species mentioned above, the Andaman and Nicobar Island groups provide shelter to many other exciting and globally important species, such as hornbills, marine turtles, saltwater crocodiles and even dolphins and whales. Some more unique species to look out for in these islands include the bright green coloured Andaman day geckos, Andaman hawk owl, a bat species known as the black-eared flying fox, Nicobar cricket frog and the Andaman spiny shrew, among others. However, these magnificent islands and their wildlife are under threat from habitat loss due to increasing human populations, illegal hunting, animal trade, natural disasters such as tsunamis and effects of climate change. Many animals on these islands have become endangered; some have even become extinct over the last few decades. Therefore, we must act to spread awareness and take up essential conservation steps to protect these beautiful islands from destruction and allow such unique creatures to continue living amongst us.



The Islands Are Calling

Dincy Mariyam | Illustration by **Rubina Rajan**

Humans have long been fascinated with islands, which are isolated patches of land surrounded by sea. For decades, islands have been a popular tourist destination. People travel there to enjoy the scenery, beaches, and to meet indigenous people. Tourism is one of the most important sources of money on many islands, and it has also resulted in major job creation. It provides a source of income for the coastal communities. With limited economic opportunities in the islands, tourism can be a good source of income. This also reduces people's reliance on forest resources for survival. The Andaman and Nicobar (A&N) Islands are one of India's most popular tourist destinations.

The A&N Islands are located in the Indo-Burma biodiversity hotspot in the Bay of Bengal. Since the late twentieth century, tourism has been the main area of development on these islands. The Andaman Islands are the most popular among the two groups of islands. In the near future, tourism is likely to increase in Nicobar as well. People visit historical

and natural sites on the Andaman Islands. *Kalapani* (*Kala* - black, *pani* - water), a three-storey colonial prison in Port Blair that was used to house exiled political prisoners during the British rule in India, is a popular heritage site. The beaches attract people interested in watersports, snorkeling and scuba diving to observe the underwater life. Trekking options include hiking up to the Saddle Peak, which is the highest point on the island and is located in the North Andaman islands. Some islands also include beach shacks for those who just want to relax. Permission to visit specific islands is required in advance. Tourists can also contribute to the understanding of underwater biodiversity by reporting their findings during underwater expeditions, which can assist researchers in keeping track of the biodiversity. Some of the community members in the area produce handicrafts and engage in tourism, while others offer tourist homestays.



Every year, over 100,000 tourists visit the islands, and the number is steadily increasing. The island attracts both Indian and foreign tourists due to its location. To facilitate tourism, numerous islands in the A&N have granted permission for both type of tourists to visit. Several governmental and private investors have come forward, understanding the importance of these islands for tourism. For example, a few years ago, NITI Aayog, an agency of the Indian government focused on driving economic development, picked A&N for boosting high-end tourism. The new development includes five-star resorts, relaxed laws for tourists (particularly foreign tourists), improved island interconnectivity, airports, and a seaport. Scientists and environmentalists are concerned that this may wreak havoc on the island's delicate ecosystem. Due to overcrowding of tourist places, one of the key concerns has been the intense use of resources and a reduction in the quality of the surrounding environment. While every tourist model highlights the role of increasing tourism without jeopardizing island integrity, nothing is actually done in this regard. Unregulated tourism, on the other hand, can harm ecosystems, and A&N's story is no exception. Waste management and drainage, sanitation, increasing food production and supply, resource depletion, and cultural dilution are some of the social, ecological, and cultural difficulties linked with rising tourism on the islands. Non-biodegradable waste disposal is a major issue for the islands. Uncontrolled tourism has

the potential to harm coral reefs and lead to the loss of fish species.

The islands must estimate how many people they can accommodate at any given time without putting the ecosystem at risk. Tourism can be both a blessing and a curse. While tourism may help with economic development and livelihood, as well as educate tourists about the island ecosystem and culture, unregulated tourism can harm these fragile ecosystems.



A Tree of Stars and a Sky of Fire

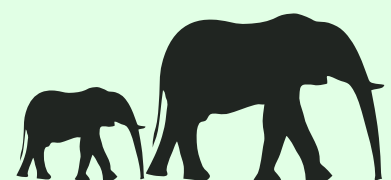
Nobin Raja M. | Illustration by **Nivedita Pattanaik**

The ship left Andaman Port (Port Blair) and steamed into the great blue unknown.

That was my first impression of the journey to one of the most isolated island chains in the world – India’s Nicobar Islands – a sea of blue. Not just the sea – the world around me was monochrome. It was difficult to tell where the ocean ended and the sky began. The ship was often the only thing breaking up the smooth blue view. Without internet or music to give me company, my only companions were occasional marine creatures that I glimpsed from the rail. One day, to my great surprise, a shoal of fish leapt through the air; it was my first time ever seeing flying fish, and I later learnt that they leap powerfully from the water and use their fins to glide through the air. Other creatures like octopi and dolphins were welcome visitors too. I spent long hours standing at the rail, gazing at the waves and waiting for other signs of life in the deep and calm waters.

“Everyone, stay in your places,” the captain shouted. “We are crossing the Ten Degree Channel!” This channel was known for its extremely rough waters, and anyone who moved around during the crossing would find themselves flat on their backs. Honestly, life on a ship always felt like a rough crossing - even the water in glasses never stayed still.

Days on a ship are not very different from each other, but the stops on the way from Port Blair to the Nicobar islands made the experience exciting. We were not allowed to get off the ship onto the different small islands we halted at, but I stood at the railing and watched the local islanders hurry to and from the port, unloading supplies and vegetables, farm animals, and tourists alike. Many of the islands around India are tiny specks in the water, and some are too small to have freshwater for their residents to drink. On those islands, locals must travel to the nearest island to bring water to use in their homes. At times, the water near the island was too shallow for the ship to dock at the port. That was when I got



to see the tough side of the islanders. They would climb down and up a rope hanging down the side of the ship and climb into small boats that they then rowed to the dock. I saw people of all age groups climbing these ropes without complaint. A fascinating sight was people carrying pigs tied upside down on long sticks - in many parts of the world, pigs are considered a gift by the rich, something I had never heard of before my journey to the islands.

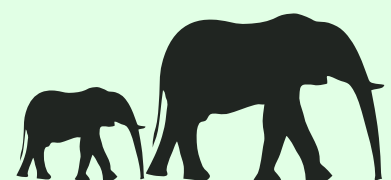
At night, the ship usually fell very silent, apart from the occasional Hindi songs that played from the workers' cabin. But when I looked up at the sky on those dark nights on the ship, when the engines were switched off and the waves rocked my fellow passengers to sleep, I counted millions of tiny, fiery stars. I never knew our sky could be so bright, even in the middle of nowhere.

I was an amateur in ecology and wildlife when I set foot on the Andaman and Nicobar Islands. But there I was, nonetheless, with a task to collect chytrid fungus samples from frogs on India's largest island chain. Chytrid is a deadly fungus that causes death in amphibians like frogs and toads. If you have heard anything about the A&N islands, they are an untouched

paradise (at least according to tourism hoardings) which is home to many rare species of amphibians, and my work would help identify the threat to these rare species by the deadly fungus on one of the most remote and unexplored forests in the world.

Working on the Nicobar Islands was far more exciting than working on the Andamans. For one, only a tiny part of Great Nicobar Island is occupied by people; the remaining island is dense tropical rainforest. Tree shrews, Nicobar long-tailed macaques, and countless snakes and frogs called these forests home, and they were hardly shy and never missed an opportunity to flaunt their beauty. There are no large predators on the island, making my research, which took place at night, much safer than I had originally expected. Great Nicobar is home to two tribes – the Nicobarese is the dominant tribe and they do all sorts of work like running local businesses, and the Shompen, who reside in the remote dense jungle and they only come out occasionally. I saw them a few times while heading to the jungle for my nightly work.

One incredible night in the Great Nicobar Biosphere Reserve is still cherished in my memory even today. I had taken an old bike along the cliff road which entered the deep jungle, a torch in my left hand and my right was steering the vehicle



It had been drizzling all evening, and finally, the rain had stopped. The forest was pitch dark, as the canopy was so thick that even the moon and stars did not shine through to the ground. The only sounds that filled the forest were the croaking of frogs, the rustling of the leaves, the calls of small animals going about their nightly business, and the lapping of waves against the cliffside.

That was when I saw it.

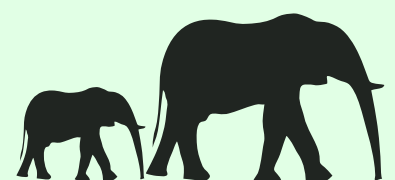
At first, I did not know what I was seeing. The path rounded a bend and all of a sudden, I found myself staring at a tree on fire. Not fire, but light. I switched off my torch, but the tree remained bright. It glowed eerily in the darkness, and it was only after a few minutes that I realized the light was actually made by thousands of tiny, dancing fireflies. They dipped and danced, lighting up the outline of the tree like silent flames. It was a massive tree, towering above the path, but tonight, it shone with thousands of delicate jewelled insects.

I switched off the bike engine, climbed off, and soaked in the beautiful sight before me. There was nothing that could compare to that glowing tree. Without a camera or a phone, I tried to capture the tree in my memory. Later, I would take out my notebook and desperately sketch what I saw, trying



to recreate the “tree of fire” in the inky forest with only a charcoal pencil on white paper.

Even today, when I remember those days on India’s unexplored islands, I wonder if the tree of fire still lives today, or if it was an anomaly. And sometimes, I can’t quite remember if I saw a tree full of fireflies or a tree full of stars.



Like Islands in the Sky

Abhirami Ravichandran | Illustration by **Amrita Gujarati**



All of us are quite familiar with the term “islands” aren’t we? Islands are always defined as “a piece of land surrounded by water.”

Well, what do we call isolated mountains which are surrounded by lowlands? Aren’t those islands too? Of course they are, and we ecologists call them ‘Sky Islands.’

Sky islands remain isolated from the rest of the land surrounding them. These isolated mountains are home to many endemic plants and animals. The Chiricahua Mountains in Arizona, USA are the best-known example of sky islands.

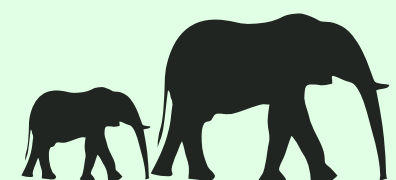
So, do we have sky islands in India? Yes, we do. The southern Western Ghats in India are recognized as sky islands. Let’s get to know these exquisite and unique sky islands.

Luckily, as a part of my work, I got a chance to work on the shola grasslands in the Nilgiris. We traveled all the way from

Bengaluru to the Nilgiris. The journey was intense; traveling all the way through Bandipur Tiger Reserve, one could see patches of humongous Eucalyptus trees, *Cestrum aurantium* flowers on road edges (don’t fall in for their beauty; they are exotic invasives of the Nilgiris), and if lucky, sightings of a few birds and animals.

We arrived at our field station comparatively late that night. We stayed at the Electricity Board Quarters of Tamil Nadu. Our field station reminded me of my grandma’s house back in Periyar. With warm memories, freezing temperatures, and extreme tiredness, we slept off.

The next day, I woke up to the call of a bird, at that point in time, I was into birding and jumped right away from the bed and ran outside. There was a patch of *Lobelia* flowering right outside our field station. *Lobelia* flowers, due to their giant flower stalks remind me of the Jurassic Era for some reason.

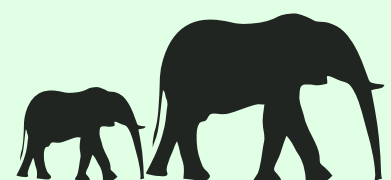


There were a bunch of Angry looking birds with white brows feasting on these flowers. They made weird calls that sounded like they were mocking us. That was my first encounter with the **Nilgiri Laughing Thrush**.

The Nilgiri Laughing Thrush is a shy bird, endemic to the Nilgiris, and typically seen in high elevation Sholas. Like I mentioned earlier, they are angry looking birds, reddish-brown and olive green in color, and their white brows lend them a permanently irritable look.

I enjoyed the sunrise from the blue hills – the hills are bluish because most of the hills in Nilgiris are plantations of ‘Blue gum,’ a variety of Eucalyptus. I could also see **Nilgiri Langurs** hopping on the Eucalyptus trees. I decided to go for a quick five-minute walk to spot birds since there was time to spare. A blackbird flew over me and sat on the electric wire. I assumed he was lonely. With the help of a bird identifying app named ‘Merlin,’ I figured out that he was a **Square-tailed Bulbul**. An attractive bird with a greyish black body and a bright red bill and eyes, he also had a distinguished spiky black crown. I also spotted a couple of other birds including the **Gray-headed Canary Flycatcher**, **Black and Orange Flycatcher**, **Common Rosefinch**, and **Grey Jungle Fowl**, among others.

After the birding session, all of us gathered in the kitchen, sipping hot tea and warming up our bodies. Kamal Anna, our field assistant, pointed out a bird call and asked us, “What bird is that? It sings every morning.” I listened carefully to the sweet melody, and then stepped out of the kitchen to see the artist. There she stood on the ground, singing. I must say, it was more of a whistling than singing. It suddenly struck me that I was in the presence of the most awaited celebrity of the Sholas – the **Nilgiri Sholakili**. The Sholakili is plum-coloured, with dark blue feathers and white and brown underparts. This bird too looked annoyed, shy in nature and dwelling in the understories of the Sholas.



But why is the Sholakili considered to be a Shola celebrity? Well, the Nilgiri Sholakili is endangered and highly restricted in its distribution, seen only in the Sholas at an elevation of 900-2100 m. As these birds are geographically isolated, they face the major threat of habitat loss.

Sky islands like the Nilgiris are not only home to endemic birds, but also to animals and plants like the *Magnolia nilgirica* - a Western Ghats endemic - *Anaphalis neelgerryana*, and *Rhododendron arboreum*. The Shola ecosystem is made up of both grassland and Shola forest. In the spring, the grasslands are awakened by entrancing flowers that paint the valleys with a riot of colours.

The Shola sky islands of the Nilgiris have a lot more stories to tell you - stories of her people, stories of all the researchers, her diverse inhabitants, and how humans have threatened her life over the past years. It will always be our responsibility to save these unique patches of Sky Islands. My 10 days of journeying through the Nilgiris ended sooner than I imagined. We waved goodbye to the Sholas and carried the memories given to us by the landscape, along with a few grass samples for analysis because that was the purpose of the visit.

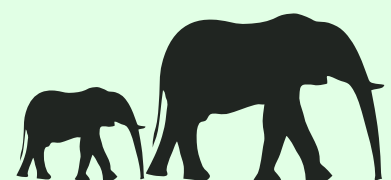
The Beauty of Majuli

Prity Hait | Illustration by
Asmita Sapre Ranganathan

Islands.

Whenever we hear this word, we somehow tend to think about the Andaman and Nicobar Islands or Lakshadweep, situated on large water bodies. But have you come across riverine islands? What are riverine islands?

Riverine islands are a land mass located within a river, formed by the deposition (dumping) of sand and rocks by the force of water. Today, I want to share with you memories from my visit to Majuli, a riverine island in Assam, Northeast India. The island has many tags added to its name, like being the largest riverine island and being the first island to be designated as a district in India. Majuli is located midstream on the mighty river Mahabahu Brahmaputra. Brahmaputra is one of the most



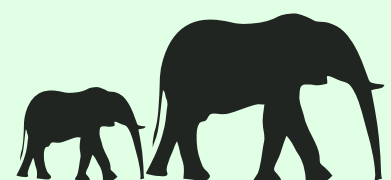
unique rivers of India, being both the largest river and also the only river with a male name. The island is formed by an anabranch of the Brahmaputra River, Kherkutia, joined by the Subansiri River from the north and the Brahmaputra from the south.

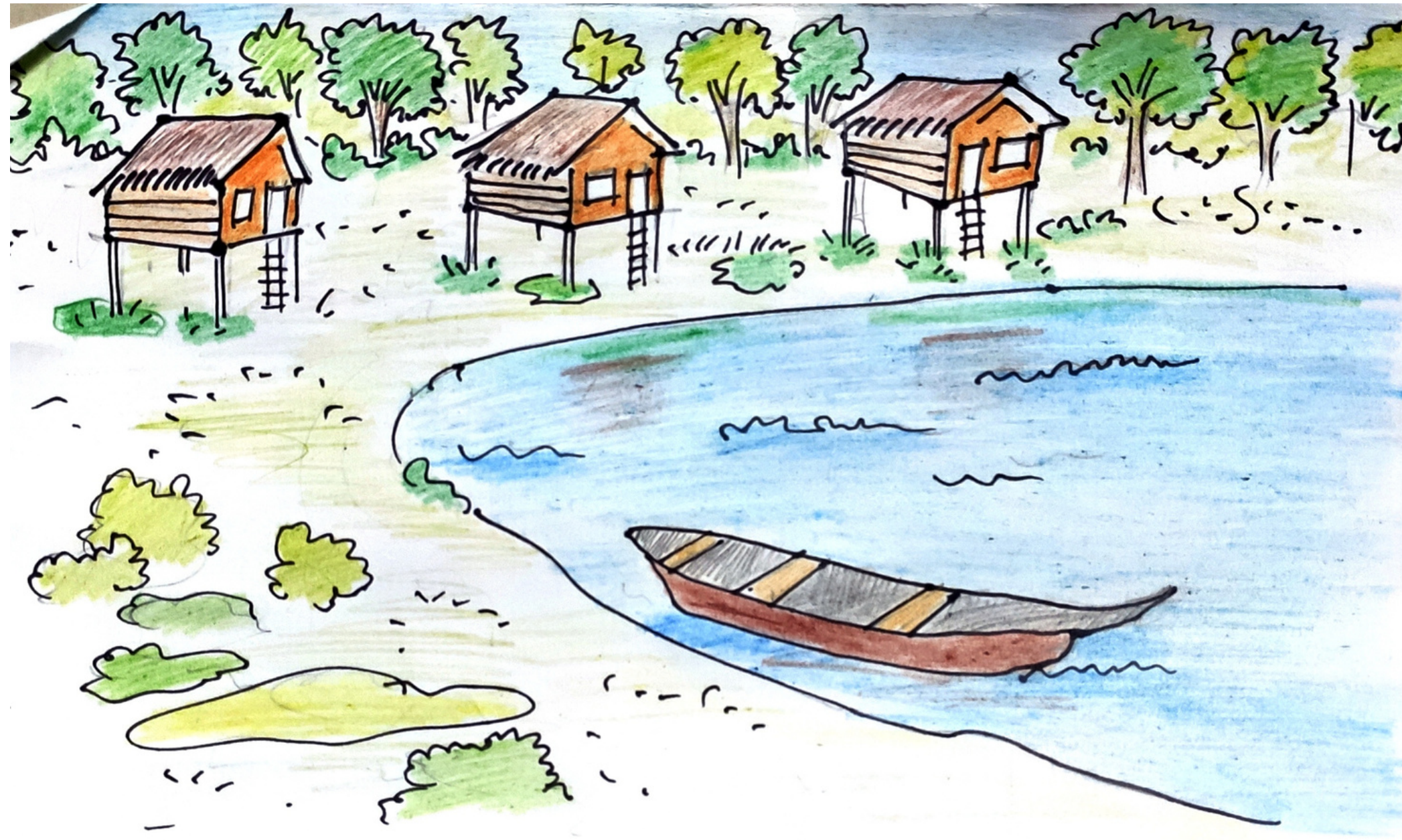
I started my journey with my friends from Jorhat, a town located in Upper Assam. We boarded a ferry at Nimati Ghat and were awed by the majestic beauty of the Brahmaputra. The ride was about 30 to 45 minutes, and we could see the white sandy riverbanks of the island approaching. Once we reached the island, the greenery and calmness captured our heart. We saw bamboo shading the roads, cows wandering on the roads, the paddy fields, and wetlands (locally called beels or dubi) where water cormorants and darters basked under the sun. Majuli is home to about 260 species of birds. Additionally, it is home to more than 20 species of reptiles, 100 species of fishes and 30 species of mammals. The beels provide an ideal habitat for turtles, amphibians, resident and migratory birds. At first glance, the island gave off a sense of tranquility.

Majuli has a special place in the cultural map of Assam, being home to the Vaishnavite movement in the 16th century. It is considered to be the cultural capital of Assam. The Saint Srimanta Shankardev came to the island in the 15th century

and he, along with his disciples, set up monasteries locally known as Sattras. The Sattras have a gurukul-like structure where young monks are taught the cultural knowledge of their respective Sattras. Drama, dance and music are an integral part of the Majuli's culture, which is portrayed by Bhaona and Sattriya dance forms. These sattras have their own cultural significance and are centres of cultural activity. Natun Samaguri Sattras practices the art of mask masking. These masks are sustainable and made from organic materials, starting from the bamboo frame of the mask, which is made using strips of cloth dipped in a mix of cow dung and clayey soil of Brahmaputra riverbanks. It was such a delight for me and my friends to watch one of the disciple wearing masks slip into each character at ease.

The many tribes of diverse ethnicities inhabiting the island contribute to the rich culture of the island. Tribes including Mishing, Deori, Ahoms, Sonowal Kacahris, Kalitas, and Brahmins inhabit the rich fluvial island. The Mishing tribe has the largest population on the island and their houses are built sustainably to combat floods. They live in raised bamboo hut houses locally called as *chang ghar*, which are built a few feet above the ground level to combat the floods during the monsoon season. During the dry season, the lower level shelters domestic animals.





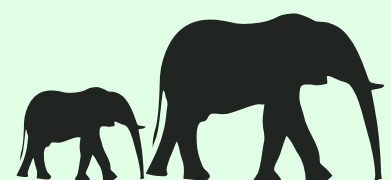
A Day in the Life of a Nicobar Long-tailed Macaque

Story & Illustration by **Rubina Rajan**

At a glance, Majuli seems like any other mainland locality, but when you near it, you can understand the threat that looms over this little island. Erosion and floods are a major threat to the island. The total area of the island was about 1200 square km as per government records in 1890; at the present, the island's area is only about 515 square km. More than half of the land mass has been eroded and still large chunks of the land erode away into the river during the monsoon, threatening this rich island. During the monsoon season, the water level rise of the river leads to high displacement of people and a loss of paddy. A multifaceted approach to conservation must be applied so that we don't lose this culturally rich gem of an island.

Hello, Friends! How are you all today? I heard that people on the mainland don't know much about us island monkeys. Let me take you on a tour of my day, and maybe that will help you understand the lives of Nicobar Long-tailed Macaques. We are named so because of our long tails and our home – the Nicobar Islands.

Let's dive straight into our day. We usually wake up at the crack of dawn. We kids usually have a lot of energy to fuel our day. I hope you are ready to go on an adventure! We will be going through the residential area today. The route depends on the roosting site that we picked the previous evening. We slept in that cashew tree that you see behind me. We often stop here for breakfast. Here, we can feed on mangoes,



berries, bananas, and more. Another one of my favourite things to eat are eggs. My aunt is quite skilled at approaching the chicken coop undetected and stealing eggs. I get chased off by the rooster every time I try, so I have given up. Apart from this, we also raid kitchens in the hope of finding something exciting. For instance, my brother is taking a jar of jam through the kitchen window. Jam tastes so good. I just hope that it has “jam” in it, people often store different things in these jars. I hate it when I open the jar expecting jam and instead, I find pickles! I wonder why people don’t put the right things in the right bottles? Read the labels people! I have had jam before from the SuperMarket. I am taking you there next. I call the garbage dump the SuperMarket, because we tend to find so many things here, from litchi juice to Horlicks to coconut oil. It just takes some time to sift through the stuff. Humans end up wasting so much!

It’s so hot now and I am tired from all the eating. Now it's time for rest. On the way down to the resting spot, I will show you a very interesting tree. This is called the *Pandanus Tree*. Do you see that orange cluster on the tree that resembles a pineapple? That is the fruit. It tastes so good. We usually suck the juice and drop the hard seed. In a way we are helping this plant propagate. Additionally, some pigs also eat the fruits that we drop. We cannot resist gorging on these fruits. I think now I am definitely full. We should go down and rest in the temple for some time.



I like spending time here. We often find some snacks near the idols. My mom usually grooms me when we rest. Grooming is a fun and necessary activity; it helps strengthen our bonds and keeps parasites away. So it's a win-win. After a quick nap, we can go towards the coconut patch. We love coconuts. Though I cannot break open a coconut on my own, my aunts and uncles can. It's an art. We can observe how it is done. First, we must climb a suitable tree, and locate a coconut. We then start removing the husk from one point. We then make a small hole to reach the centre we can then drink the tasty water and eat the coconut meat inside.

It is getting cloudy; it will start raining soon. In Nicobar, it can rain anytime. We can take shelter under that big tree. Because it rains so often here, we usually take shelter for some time but if it continues to rain, we go on about our business. We don't mind getting a little wet. We will be moving towards those houses with home gardens. Wow! They have fresh cowpeas! We have to be very careful though, if we make a lot of noise, people will come and chase us away. There are some bananas here too, I always peel bananas before eating. The peels taste so bad. I think it's time to head to the roosting spot, it's getting dark. There is a spot some distance away where we have slept before. I am quite tired.

I am glad we reached here. Looks like there is still some time to play before calling it a day. I like swinging on tree branches and running around with my siblings so I can get a good sleep. It's dark now, I should sleep so I can wake up on time tomorrow. I hope you had a good time with me and my troop. Now go back home and tell your friends all you learnt about Nicobar Long-tailed Macaques!



Snakes of Sea and Sky

Priya Ranganathan | Illustration by **Parinitha P**

Far in the east, where the sun rises at nearly four in the morning, a tiny volcanic island brims with life.

Narcondam Island is a tiny island spanning only 7 km in diameter, but it is also one of two volcanic islands, the other being Barren Island, in the famous Andaman and Nicobar Island chain. Only 16 people call this island home, but it is by no means lifeless. The rare, endangered Narcondam hornbill (there are only 300 left in the wild) can be glimpsed flitting through the dense evergreen jungles here. The island flying fox and the Sikkim rat are two of the mammals found scurrying in the thick undergrowth, but the island is a safe haven for far more serpentine creatures as well.

The gentle waves lap at the rocky shores of Narcondam, frothing and gurgling as they break over pebbles and rough sand. Floating seagrass lends a greenish tinge to the otherwise sky-blue water. The dormant volcano rises sharply into the sky, casting a long shadow over the cool waters. The shrieking call of hornbills echoes, as does the chittering of many curious, brightly coloured frogs.

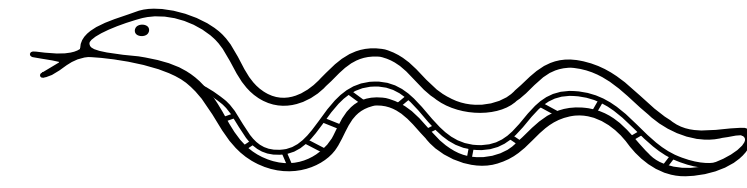


A piercing blue and black shape glides through the water, its whip-like tail acting like a propeller. Its silvery-blue scales are thickly banded in charcoal black, lending the snake the look of a beautiful bracelet. This is the **blue-lipped sea krait**, a unique water snake found in the open ocean, coral reefs, and mangrove forests of the Indian and Pacific Oceans. Named after its dark brown upper lip, this krait is highly venomous, meaning that its bite can inject venom to kill its prey. In fact, local islanders are known to rush ashore at the sight of this snake swimming lazily through the shallow offshore waters. However, despite its fearsome reputation, the blue lipped sea krait is a shy snake, sometimes avoiding biting humans even when picked up.

Adult sea kraits grow to nearly 3.5 feet, with females sometimes reaching 4 feet. They hunt among coral reefs in the night and rest, digest prey, and lay their eggs on land during the daytime to hide from potential predators. They feed mostly on eels and other sea life, and they never hunt on land. One cool fact about sea snakes is that they, unlike fish, do not have gills, so they must surface to breathe, just like we do when we swim underwater! You see, out of all the sea-dwelling Elapids (a family of venomous snakes including cobras, black mambas, and death adders), the sea krait is least adapted to life in the water and must come ashore frequently, unlike the yellow-bellied sea snake, a close relative.

Narcondam may be home to this snake of the ocean, but it is also home to a snake of the sky – the **Paradise flying snake!**

FUN FACT



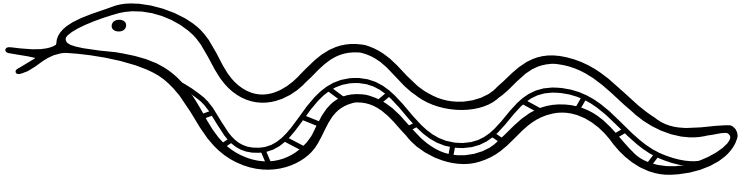
Sea kraits are different from sea snakes because of their intermediate traits between land snakes and sea snakes!

Now, flying snakes don't exactly fly, but they do glide across the sky like flying squirrels do. When these snakes launch themselves from a tree, they wind their bodies into a triangular shape, flattening their body using their ribs. They keep their heads still and focused on the landing point while the rest of the body undulates through the air. If you are wandering through the forests of Narcondam, keep your eyes peeled for a green and black snake with orange diamond-shaped markings gliding through the air between the evergreen trees.

This flying snake primarily eats lizards and bats and uses a combination of mild venom and constriction (squeezing) to kill its prey. It lives in wet forests, like those found on Narcondam and the Andamans more generally. Here, the trees tower above the forest ground, effectively shutting out any sunlight and teeming with small wildlife. Frogs croak and sing, and the leafy undergrowth rustles as reptiles slither



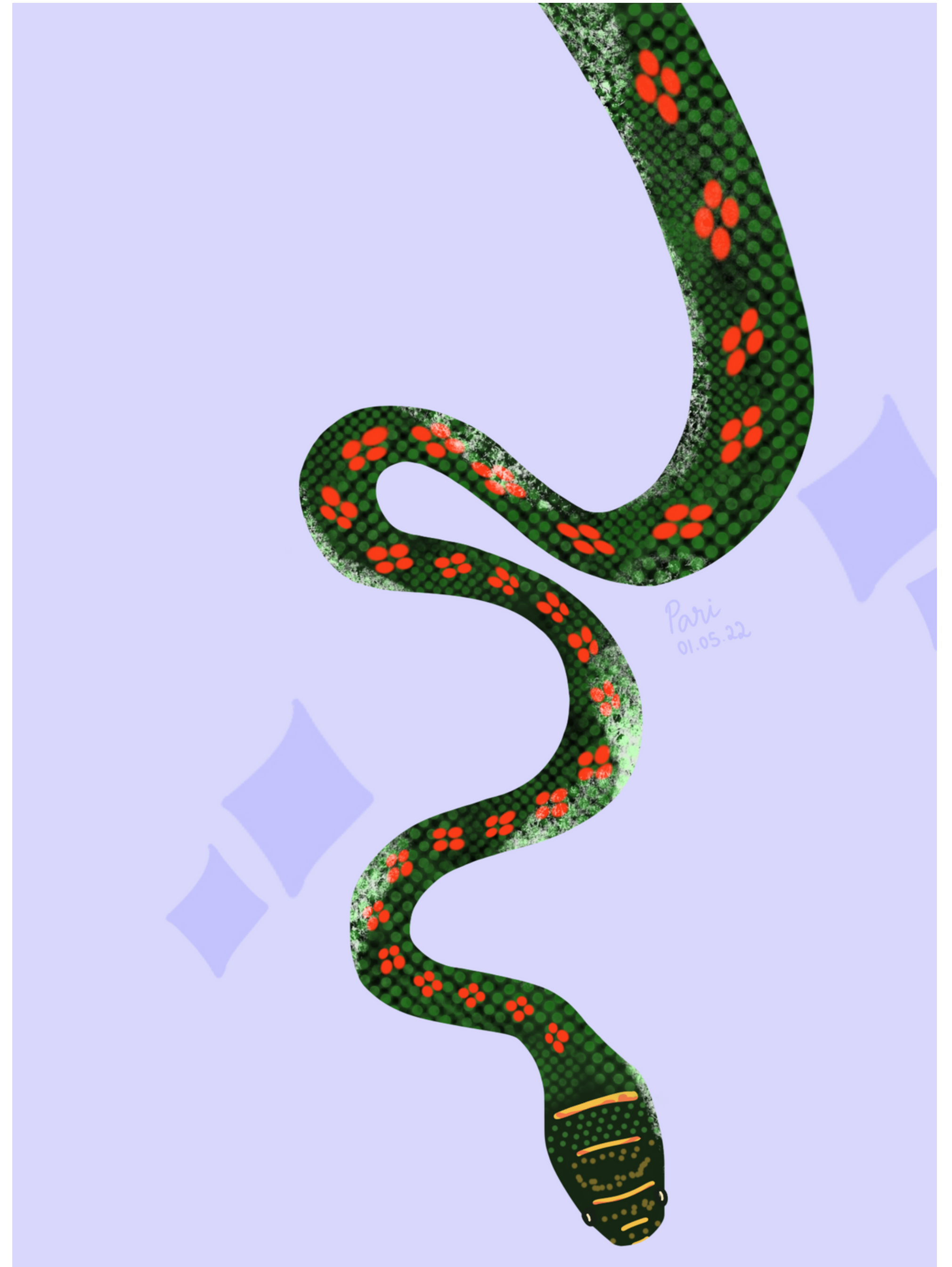
FUN FACT



The flying snake is the only known limbless vertebrate that glides through the air!

through the litter. Epiphytic vines twine around the massive tree trunks, slowly strangling their parent trees and using them to climb up towards the sunlight. It is this landscape that the flying snake calls home.

The Andamans archipelago (group of islands) is full of many hidden mysteries, but none perhaps as surprising as the diversity of reptiles and amphibians found here. Scientists are still learning about the many animals and plants that live on these lonely islands, and new species are being discovered each year. Very few people are allowed to wander through the dense tropical jungles of India's easternmost, isolated frontier, but those who have explored it return with starry eyes and tales of fantastic untouched forests and thousands of otherwise unknown creatures. And the lucky few who have set foot on Narcondam's volcanic shores return to the mainland with stories of snakes that swim through the sky and sea.



The Secret Life of Coral

Priya Ranganathan | Illustration by **Asmita Sapre Ranganathan**

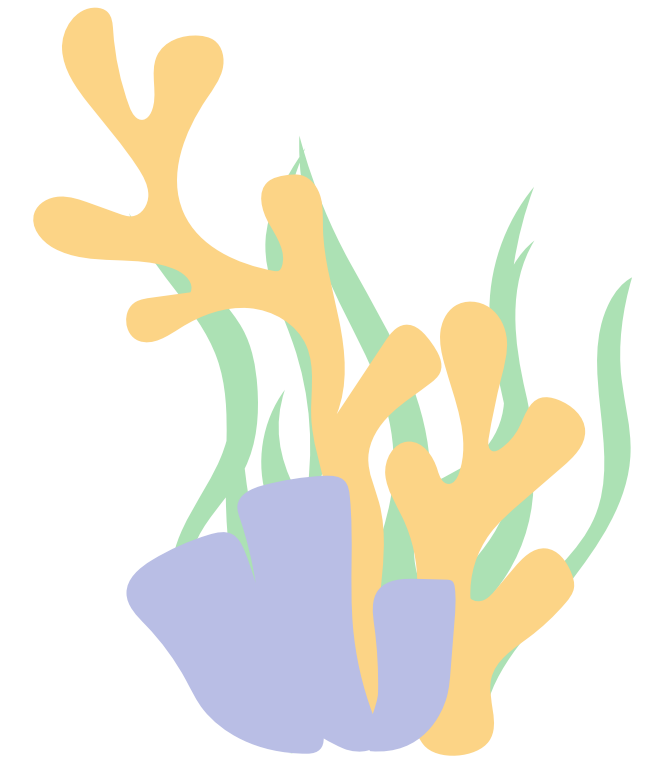
How many of you have heard of underwater forests teeming with life? Well, let me introduce you to the most colourful and diverse forests our world has ever seen – coral reefs.

Most of us grow up thinking that coral is a type of plant because it grows out of the seafloor. But coral is actually classified as part of the animal kingdom. Each individual coral is made up of hundreds of tiny animals known as polyps. These polyps have a tiny stomach (or mouth, depending on its mood), which is surrounded by tentacles. They use their tentacles to pull small passing animals into their mouth and also as a defense mechanism. During the day, they use this mouth to swallow their prey, and at night, waste particles are released into the ocean from this same opening. Strange, isn't it?

Coral reefs are not just made up of these coral polyps, but also of thousands of fish, sea anemones, and starfish. From the surface, the ocean looks like an expanse of blue, never changing colour as you progress deeper and deeper. Yet coral reefs are brilliantly coloured in hues of reds and oranges and yellows and purples and pinks. The fishes found here are equally brightly coloured so as to blend in with the surrounding coral.

FUN FACT

Camouflage is one of the oldest methods of avoiding hungry bigger fish in the ocean!



Corals require specific conditions to survive and grow, making them some of the most delicate creatures on the planet. They grow best in shallow open clear water with exposure to direct sunlight and warm water temperatures of 23-25 degrees Celsius. When a coral dies, its exoskeleton (the colourful part of the coral that we see when we scuba dive) cements together with millions of other coral skeletons, forming the massive reef structures that we see in nature documentaries. In India, coral reefs can be found in the Gulf of Kutch (the world's northernmost reefs), Palk Bay, the Gulf of Mannar, and surrounding the various island systems of the country. A 320 km-long barrier reef can be sighted near the Andaman and Nicobar Islands, while 95 km of reef have been documented in the Gulf of Mannar, off the coast of southern Tamil Nadu.



The Bay of Bengal has fewer coral reefs than the Arabian Sea or the open Indian ocean around the Lakshadweep, Andaman, and Nicobar islands. For one, heavy sediment washing into the ocean from the many east-flowing rivers like the Ganga, the Brahmaputra, the Godavari, the Krishna, and the Kaveri makes the water too silty for coral growth. Also, monsoon rains and high density of people living on the coastline around these deltas makes for limited coral reefs. Just like other natural habitats, coral reefs grow best in calm, undisturbed stretches.

But coral reefs, like other natural landscapes, are not safe from harm. One major threat is climate change. As sea temperatures warm, corals undergo a process called bleaching, where they slowly die due to acidification and become white. Have you ever seen



photographs of ghostly white coral reefs? Well, those are dead reefs, bleached by rising ocean temperatures. But another human threat is coral mining. In both India and Sri Lanka, coral mining is a common destructive activity, where local men swim down to coral reefs and break off large chunks of coral. This coral is then crushed and used to create cement for building houses and other infrastructure. A documentary called Coral Women looked at coral reefs in the Gulf of Mannar and showed how thousands of corals have been mined and used to make cement, leading to parched reefs and huge gaps where life used to brim under the ocean. People assume coral reefs are lifeless...in truth, it is our interference that saps them of life.

The National Institute of Oceanography reports that coral mining for construction has destroyed most of the reefs around India. Yet in many parts of coastal India, reef ecotourism brings in a lot of money. For example, hundreds of people go to islands for vacations and scuba dive in reefs to see the colourful coral and brilliant fishes in all shapes and sizes. If corals disappear, so will the livelihoods of many people relying on tourism for their daily wages.

Corals live a quiet life and face an even quieter death, but it is now up to us to recognize that they are living creatures who face extinction just as much as any tiger or elephant. With our efforts to raise awareness about coral reefs and the dangers they face, we will be able to bring them back to their colourful glory and preserve them for children of the future to learn about and admire.



The Holy Chelona

Abhijat Singh Shakya | Illustration by Pratiksha Sail

Far off at a distant unnamed beach in Goa, a child tries to have a talk with 'Holy Jalupa', the God of the Sea.

Kid: "Hello! Hello Sir! These sea snakes never listen to me!"

He throws his hands in the air in frustration. A muffled but distinguishable voice comes from the ground below.

Voice: "What do you want kid?"

Kid: "Who are you? Are you Holy Jalupa?"

Suddenly, the sand starts to shift as if a humongous creature is emerging out of the sands, but a tiny hermit crab emerges from the sand instead.

Hermit Crab: "No no. There is nothing such as holy Jalupa. 'Holy Jalupa means the 'God of the Desert.'

Kid: "I was looking for the god of the sea."

Hermit Crab: "Hmm, that must be Chelona. The god of the sea."

Kid: "Where should I find them?"

Hermit Crab (in chorus):

"When the tide is high at night
when nothing is clearly visible,
but the moon.

Then from the holy shores of the sea emerges
one that is known as Chelona emerges as..."

Kid: "... as elegant as a peacock's walk!"

Hermit Crab: "Aaaah! Don't interrupt again! I hate that coloured chicken. Where was I?"

Kid: "Chelona emerges as..."



Hermit Crab: “Ooh I see... Chelona emerges as elegantly as side walking red ghost crabs”

Kid: “How is a side-walking Red Ghost Crab elegant? Can it be that Chelona emerges as elegantly as Dolphins jumping from the sea?”

Hermit Crab: “Really? those water monkeys! I hate their strange tottering.”



Soon a distant voice from the sky speaks.

The Voice: “What are you talking about?”

Kid: “Who are you?”

The voice becomes louder, the sun brightens, and the kid's eyes almost close from the glow of the sun. All is soon shadowed by a winged creature that resembles a white angel emerging from the sky. But soon that imagination disappears when the boy notices that it is a gull coming toward him and then BANG-BAM-BAM, the boy dislocates his ankle

Kid: “Aah, who are you? You look like a gull”

Hermit Crab: “A white-winged chicken!”

Kid: “Stop calling everything a chicken.”

Sea Gull: “Yes. Stop calling me a chicken!!!”

After an amusing argument

Kid: “Do you know anything about Chelona?”

Seagull: “Yey! I saw one on my way back home. It had a back made

out of a rock and its flippers and head emerged from the rock.”

Kid: “Tell me more!”

Seagull: “It was a 'she,' and she was the only one of the sea creatures who gave me respect and said, “stop flying over me.”

Hermit Crab: “This is what you call respect?” The crab begins laughing loudly.

Seagull: “Aaah! I hate that laugh. Whatever, she is coming here today.”

Kid: “Why is she coming here?”

Hermit Crab: “To lay holy stones, from which baby chelonas will emerge. It’s sad that they are sometimes taken by hairless monkeys with half cloth on their legs, colourful cloth covering their chest, a disc resting on their head and eyes covered with black glasses. They take eggs away from here. Sometimes, they throw waste on the shores and into the sea, which chokes chelonas to death. They look a lot like you, but they aren’t you. You are not a man with filthy deeds and eyes filled with so much greed and selfishness that you need black glasses to hide them.”

Kid: “Those are all tourists, not bad by heart, but unaware of what really happens with the waste they throw.”

Soon, the sun disappears into the sea and the moon rises as the waves get higher and stronger

Two shrill voices shout from a distance: “Make way for our queen.” The kid realises those are Red Ghost Crabs walking sideways as elegantly as the hermit crab had mentioned and carrying on their back “the Holy Chelona.”

Soon, using her flippers to pull herself along, Chelona comes to the shore and begins digging a pit.

Kid: “Hello mam! I am Abhijat and want to take your interview.”

Suddenly, he feels an immense pain in his head and starts flapping his hands in agony.

Hermit Crab: “Don't blame me. Those Red Ghost Crabs bit you.”

Red Ghost Crab: “Bow before our queen and say ‘My lady’ instead of madam, you foolish creature.”

The kid bows before Chelona: “How far have you travelled to come here?”

Chelona (tiredly): “Approximately 9000 km.”

Kid: “That must have been a tiring journey and a great many younglings seem to be there with you. I hope they all grow as large as you.”

Chelona: “They can’t. Mother Earth is harsh on us. Not because she hates us, but because she wants us to be strong. So only one to three chelonas survive from this pit, but those one to three chelonas are strong enough to become like me one day.”

Kid: “Wow. My lady, that is saddening yet fascinating how only some survive to see the next generation. I am sorry for what my kind has done to you.”

Chelona: “Don't worry, Abhijat. I see lots of hope in kids like you. Maybe you can give us our hatching grounds back.”

Kid: “I will try my best, My Lady.”

The kid bows before Chelona as she disappears into the ocean. He decides to write about this incident to tell his kind that they should stop harming the ocean and her children, as she is the mother of life on earth.

Spotting a Mermaid

Priya Ranganathan | Illustration by
Meera Phadnis

Anaisha was very excited. Mummy and Daddy were finally taking her on a holiday! For two whole years, Anaisha had sat in her balcony and stared out at the busy Mumbai streets, wishing she could go outside and play but unable to because of the pandemic. But finally, her family was going on a holiday and Anaisha couldn't wait!

“Where are we going, Daddy?” she asked excitedly when the family sat down for dinner.

“To the Lakshadweep Islands,” her father replied.

Anaisha wrinkled up her nose. “Will there be playgrounds and a swimming pool?”

Mummy laughed. “Anaisha, beti, there will be the whole ocean for you to swim in.” She leaned in, her voice dropping to a mysterious whisper. “And who knows, maybe you will see a mermaid, just like

your favourite Little Mermaid.”

Anaisha’s eyes went round. “A mermaid?” she exclaimed. “Will I really see one?”

“You might,” her mother said, handing her a warm roti. “Now eat up. Tomorrow will be a very busy day.”

The next day, the family took a flight from Mumbai airport to Kochi, the capital of the southernmost state of Kerala. Anaisha, a mask tight across her nose and mouth, pressed her face excitedly to the window. She could see buildings and farmland, forests and rivers, mountains and clouds. How exciting!

Soon, they were at Kochi, making their way to the port where the ship to the Lakshadweep Islands would be docked. Anaisha loved the way the coconut trees waved and dipped in the breeze, just like graceful dancers.

The port was lively, with men rushing about shouting orders and lifting heavy crates with ropes onto the waiting ships. Each ship was at least as tall as a building, Anaisha thought, tilting her head back to look up. Daddy spoke to an important-looking official and then steered Mummy and Anaisha towards a beautiful white ship with a palm tree painted on the side.

“Is this our ship?” Anaisha asked as they climbed the gangplank.

“Yes, the only way to reach the island is by ship,” Mummy told her, clutching her hand tightly as the ship bobbed in the ocean.

After about thirty minutes, the ship gave a loud, alarming toooooooot and steam began puffing from its smokestack. They were off! Anaisha clung to the rail, waving to the people on the dock as they became shorter and faded into the distance. The ocean was very blue and she couldn’t see any land for



kilometres. Her mother encouraged her to explore the big ship and sleep, because they would reach the island the next day.

Sixteen hours later, the ship let out an excitable hoot and bumped its way into the port at Kavaratti, the capital of Lakshadweep. Anaisha, still half asleep, was carried off the ship by Daddy, while Mummy handled the suitcases. They climbed into one of the waiting tour buses and went straight to their guest house to relax.

When Anaisha woke up, she had no idea where she was. The bed was soft and plushy, the curtains were light blue and white, blowing gently in an inviting sea breeze, and she definitely knew the mirror set in seashells was not from her house. She sat up. Where was she?

Mummy appeared with a steaming cup of tea. “Oh good, you’re awake,” she said, giving Anaisha a kiss. “Don’t you want to go and swim on the beach?”

Anaisha suddenly remembered where they were. “Are we on the island?” she exclaimed, bouncing off the bed.

Mummy handed her swimsuit to her. “Yes, ma’am. Now go and change.”

The beach was white-gold and the water was sparkling blue,

waves lapping gently against the shore. Children ran about in the waves, squealing and shouting with joy, and parents relaxed in beach chairs set along the shore.

Anaisha squinted out into the blue water, trying to make out any rocks or small islands. Maybe she would see a mermaid sunning herself on one!

And suddenly, she saw a funny greyish shape relaxing in the water far out, near a rock. To Anaisha’s young eyes, it looked just like a mermaid, with long hair floating in a halo around its head.

The young girl shrieked in excitement. “Mummy, Mummy, come and look! It’s a mermaid!”

Her mother looked up from her book. “What on earth are you saying, darling? A mermaid?”

“Mummy, look, it’s right over there!”

Mummy got up and came over to stand by Anaisha, squinting out in the direction of the long-haired figure in the water.

Suddenly, she started to chuckle.

“Look a little closer, beti,” she said. “Doesn’t that hair look very

green to you?”

“Mermaids have green hair,” Anaisha insisted.

“Well, doesn’t your mermaid look a little white to you?”

“Ariel had white skin,” her little daughter replied stubbornly.

Mummy wisely held back her laugh. “Then we finally found your mermaid!” she said, giving Anaisha a big hug.

“I want to meet her!”

“No, she shouldn’t be disturbed,” Mummy said. “Just enjoy looking at her from over here. If the mermaid comes closer, her fins will be torn on the sharp rocks, and she will be hurt.”

Anaisha nodded. “You’re right, Mummy,” she said. “I’ll just watch her from here.”

Mummy left her standing at the beach, watching the mermaid with delighted eyes.

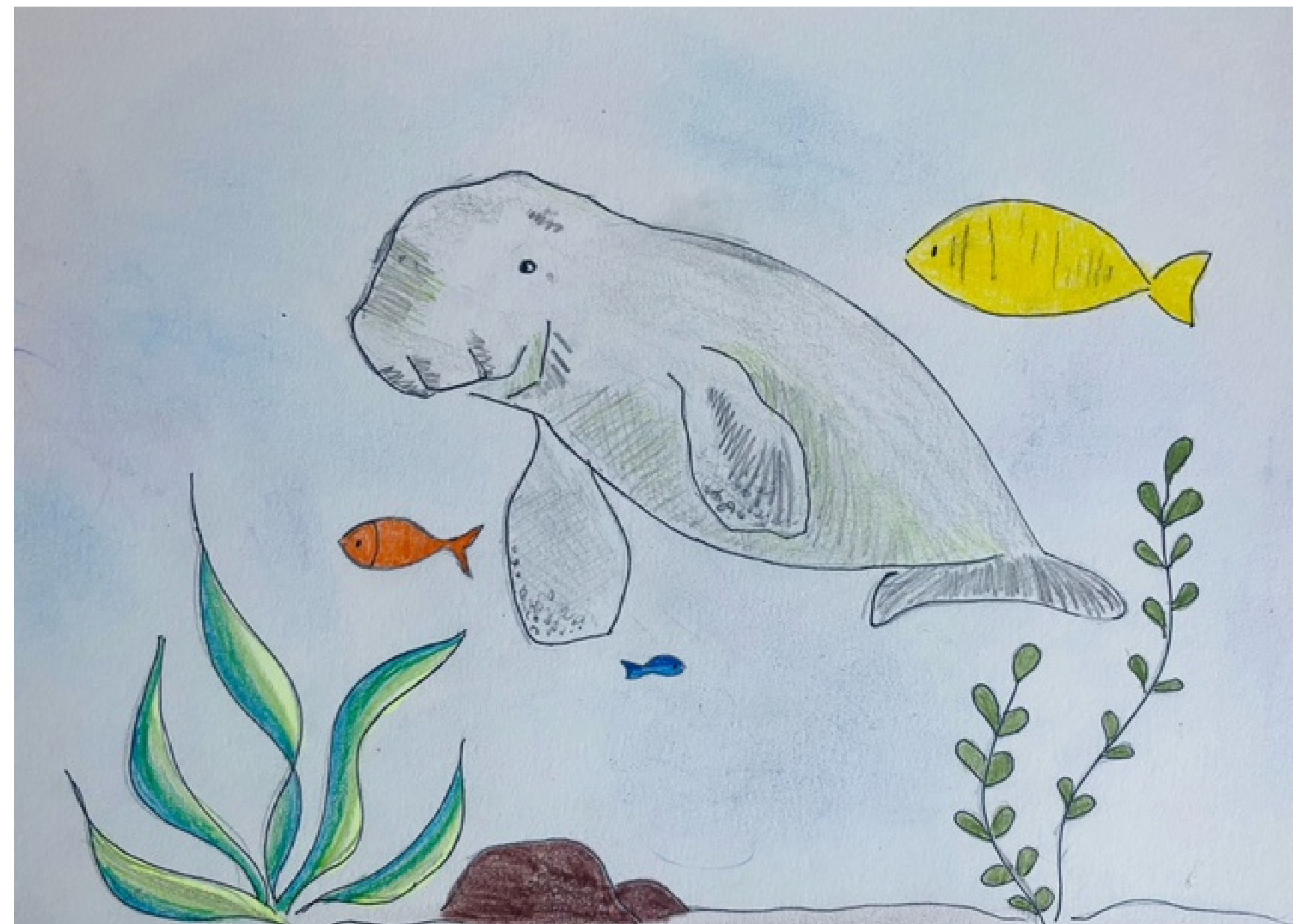
“What was all the commotion about?” Daddy asked when Mummy sat back down beside him.

Mummy started to laugh, making sure to turn her face away from Anaisha’s view. “Oh dear, she’s convinced she found a mermaid,” she chuckled.

“But what did she actually see?” Daddy asked, looking out at his young daughter.

“A dugong floating in a bed of seagrass,” giggled Mummy.

The adults laughed in harmony as Anaisha happily gazed out at her mermaid, her wish fulfilled at last.



Islands

Udita Roy

A small isolated piece of land ...
Surrounded by water, it stands

We estimate it to be so little...
But it stands up in the ocean, right in the middle...

Fighting the waves, it contrives ...
Holding on itself millions of lives....

It is the home for many creatures
Filled with nature's unique features....

Consisting of beauties unknown...
Sustaining its life all on its own ...

The flora and fauna flaunt their aesthetic beauty,
Reviving the ecosystem is their 24x7 duty

Natives are another community an island sustains ...
With their rituals and culture it is maintained....

Because the people of the land who breathe its air..
Treat their land with hands of care.....



Becoming an Ecologist on a Lonely Island

in conversation with **Arpitha Jayanth**, Researcher & Ecologist, NCF

What would you describe yourself as?

I guess I would call myself as an ecologist, or a researcher studying ecology, animals, and plants.

What did you study after school that brought you to your current field?

I was always interested in taking up Biology, ever since middle school days, and so when I went to college, I took up Chemistry, Zoology, Botany as my subjects. It was around then that I discovered that there was a field called Ecology that I could take up as a career, mostly thanks to my professors, peers, and parents. So, after B.Sc., I joined NCBS as a part of their master's in wildlife science programme, focusing on Ecology and Conservation Science.

Were you encouraged a lot at home and supported when you decided to enter this field?

I remember having a conversation with my parents and saying that I definitely did not want to become an engineer or a doctor. I think that was in middle school, and because I was interested in

science, and biology in particular, my parents suggested that I take up research in biology. So, without really knowing what that meant, that sort of became my goal, to do research in biology. Now I'm happy where I am. I had not thought of ecology specifically in school. I joined my bachelor's with the intent of studying biology generally, but I learnt about all the different branches of biology and how it was much more diverse than we were ever taught in school.

Any mentors you'd like to mention?

I owe a lot to professors who really mentored me and encouraged me to learn outside the classroom. One professor would take those of us who were interested on bird watching trips and treks and weekend trips in and around Bangalore, so we sort of became a close-knit peer group with our professor and started learning together, interning and volunteering with different organisations together, and that segued into a career in ecology.

Exactly what does a day in your life look like right now?

So right now, I am working on plant-frugivore interactions in



the Andaman Islands, which essentially means I'm seeing how birds eat fruits and disperse the seeds to different locations. This helps in regenerating the forest. This entire process is known as seed dispersal. So on a typical day, I walk through the forest and watch birds and count birds, and on some days, I spend hours sitting under a single tree waiting to see what birds come and feed on the fruits and which birds are actually capable of dispersing the seeds away from the parent plant, as opposed to birds that don't do the same.



Why is this something you think is important to study and learn about?

Well, reproduction is important for all living organisms, and for forests to grow, trees need to put out seeds, which need to reach the ground and germinate and grow into new trees. Since trees cannot move around like we can, they rely on birds and animals, and sometimes the natural elements like the wind and water, to drop their seeds far away from the parent tree. There is usually a better chance of the seeds surviving if they are dispersed to far away locations. There are a lot of plants, especially in the tropics, that rely on animals to eat the fruit and poop out the seeds in faraway locations, allowing the plant to expand into the future.

What was something you didn't expect when entering this field?

Primarily, I got into this field because I liked being outdoors, exploring the wild and seeing wild animals. I thought science would be about observing. But I learnt that science, and conservation science in particular, requires a lot more than just scientific methods – you need to deal with people, paperwork, and so much more than just observing the natural world. Dealing with your own team members, the forest department, local communities...you learn a lot of people-management and team-management skills. Also, in field, you have limited access to a lot of things, so you're usually cooking and cleaning on your own, figuring out how to reach distant and often remote places, trying



to fix your vehicle, and so many other skills that we don't typically learn. It's a lot of knowledge apart from just being in the forest. That's something I didn't expect because it isn't spoken about a lot.

What are three essential qualities that someone entering ecology should have or aim to develop?

Well, first of all, you need to have passion for the field, because without it, it is really difficult to fit into the field. You need to adjust to being alone in wild areas without network, and if you're not passionate going in, you won't have the incentive to stay. And from that comes skills like observation and patience – you can't control everything happening in the field, and you need to be observant and patient to actually get things done and conduct your research. Another thing, which I find myself grappling with recently, is the ability to adapt and adjust to things in the field. It's very different from being in a controlled setting like a lab, where you know what to expect. A lot of things can go wrong. If you're the type of person who gets worked up when things go wrong, you may find it difficult to cope. So, you need to be both physically and mentally able to adapt to challenges to succeed in this field. It's something you learn on the go – I was not that type of person but being in field helped me become that type of person.



What keeps you going when the times get tough?

It's definitely passion that keeps me going. Sometimes I've had a long, tiring, unsuccessful day and my permits haven't been approved, and in those times, I just enjoy being in the forest, out and about. In my field site, I can walk by the beach and observe wildlife and people. There are always surprises around the corner if you look hard enough. This helps me remind myself why I am in this field, because I love it and I love seeing these beautiful places and creatures.



What is a piece of advice you would give students who might want to become ecologists?

I don't know if I would suggest a particular course or anything, because although I did a very "sciency" course, it was my learning outside the course that helped me get into the field. So, explore more, try things, learn new things, reach out to people in the field, explore new opportunities by volunteering or interning with nature or conservation organisations, and just get outdoors as much as possible to experience the wilderness. Also, keep an eye out for opportunities and don't be afraid to be flexible. Sometimes, you may want to study a specific animal or in a specific location, but you may not get the opportunity. I've found that being too fixated can also be a bit of a problem. Talk to people about interests and ideas, learn from them, and see their perspectives too; this is not a very formalised field as such, like how in medicine the career path is set. This is a little more vague, so you should be open to exploring it.

What sorts of organisations would you recommend for students interested in getting their feet wet and maybe learning more about this field?

Well, since I've been in Bangalore, I can suggest NCF (the place where I work), ATREE, CES-IISc, and NCBS. These are the ones I have personally interacted with and been in touch with, but there are many more. NCF is now starting to work on islands, and SACON does some work here on birds too!

And finally, why islands?

Well, I have to admit, I didn't enter this field thinking I wanted to specifically work on islands. But islands are a good place to study plant-animal interactions. For one, they are relatively understudied, so we don't know what's going on, but also, from a more objective point of view, there are fewer species seen here than on the mainland. To understand the specific dispersal behaviour. On the mainland, there might be 10 species that can disperse seeds for a particular plant, but on an island, there may be only two that are consequently very important. Also, the forests of the islands have faced a lot of disturbance through logging, plans to bring in oil palm plantations, and tourism ventures. We don't know what's going to happen with these islands, and if these disturbances continue, are islands going to face further consequences that disturb plant-animal interactions?

And apart from all this, it's a lovely place to work. How many work places give you the chance to walk through dense forests, seeing beautiful animals and birds, and laze on the beach?



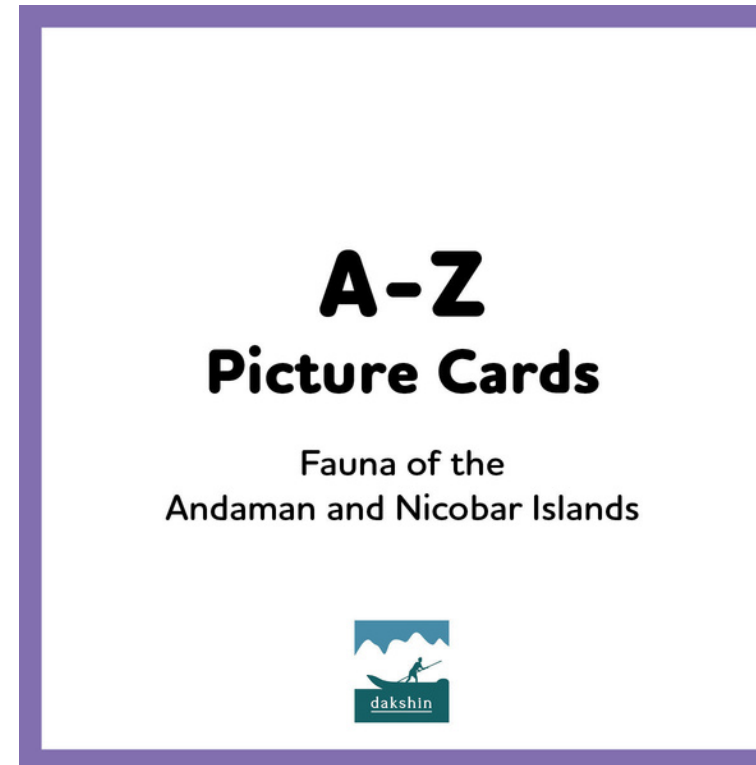
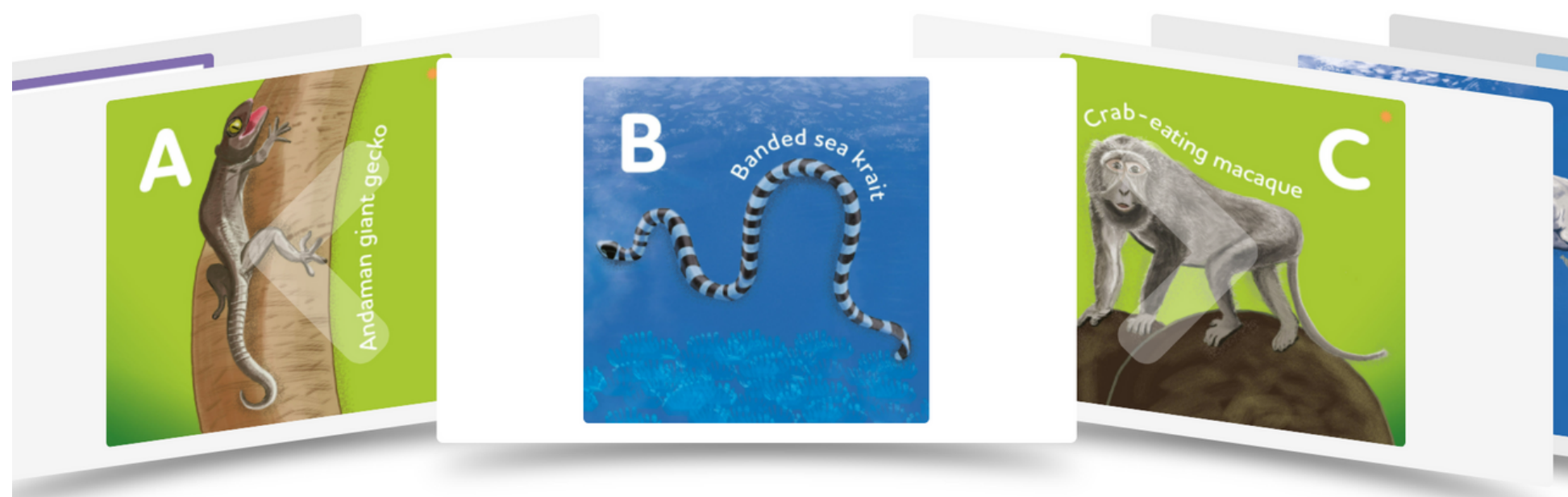


ACTIVITY CORNER

A-Z Picture Cards

Dakshin Foundation is a non-profit, non-governmental organisation headquartered in Bengaluru. They work with a mission to inform and advocate conservation and natural resource management while promoting and supporting sustainable livelihoods, social development and environmental justice. They adopt interdisciplinary and transdisciplinary approaches in research and conservation, drawing from the fields of ecology, conservation biology, sociology, economics, and law.

As part of making Foundational Literacy and Numeracy (FLN) accessible through **Place-based education**, the Environmental Education Programme at Dakshin Foundation has developed a set of A-Z picture cards of animals seen in the Andaman and Nicobar Islands.

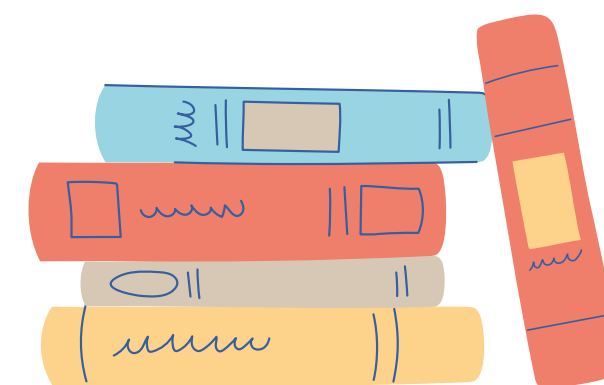


About the cards

The A-Z picture cards are designed for early readers and readers. All the animals on these cards are found in the Andaman and Nicobar Islands. Some live on land, some live in the ocean. Each card has an illustration of an animal on one side along with an alphabet. On the flipside, the cards contain three facts about these animals.

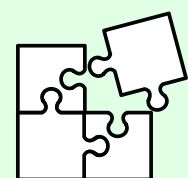
☀ Lookout for the animals that are found only on the Islands!

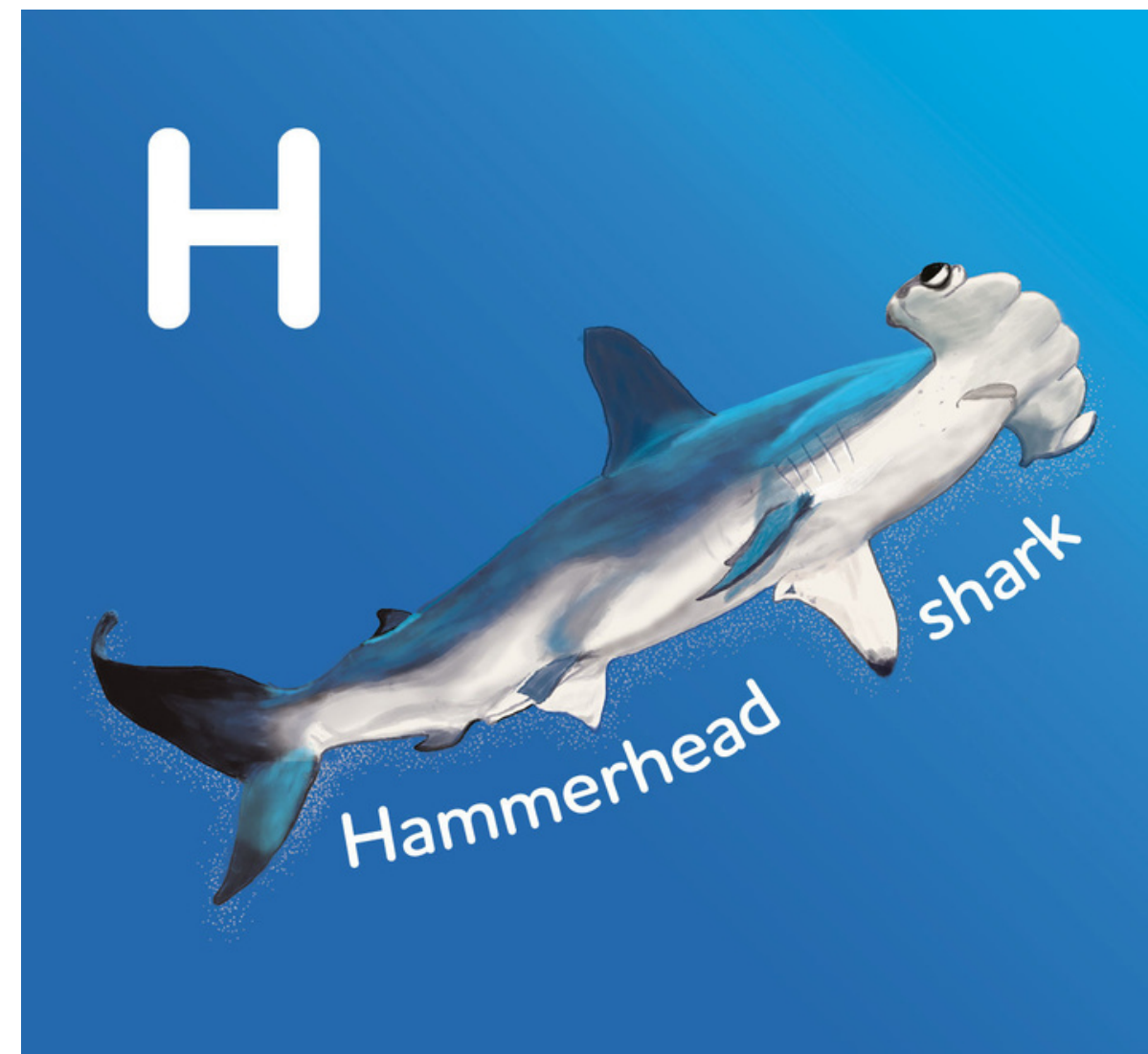
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What is Place-based education?

Place-based education is a form of integrated pedagogy that is rooted in local contexts while facilitating systems thinking, problem-solving and celebrating diversity. It is the sharing of local knowledge and learnings across stakeholders and scales.





Common Name-Flying fish
 Scientific Name-*Exocoetidae sp.*

- Their fins have been modified to act as wings that allow them to make powerful leaps.
- ▲ Mainly feeds on microscopic marine creatures known as plankton.
- “Fly” to gain speed and avoid predators like dolphins, tuna, marlin and seabirds.

Common Name-Hammerhead shark
 Scientific Name-*Sphyrna sp.*

- Its hammer-shaped head helps its vision and hunting abilities.
- ▲ Eats fish, squid, octopus, crabs and even other sharks.
- Swims in groups or schools during the day but hunts alone during the night.

Common Name-Nicobar Imperial-pigeon
 Scientific Name-*Ducula nicobarica*

- Has swift and powerful flight and usually flies well above tree tops.
- ▲ Feeds on fruits and berries in tree tops.
- Found in small flocks only in the evergreen forests of the Nicobar Islands.

For more flashcards, visit: <https://www.dakshin.org/a-z-picture-cards-the-fauna-of-the-andaman-and-nicobar-islands/>

These cards are designed and Illustrated by Subhadra Sridharan, a student at Srishti Institute of Art, Design and Technology, Bengaluru during her internship at Dakshin Foundation in 2021.

OUR TEAM

Editorial Team

Founder: Priya Ranganathan

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Social Media: Sankaranarayanan R.

Meet our Writers

Abhijat Singh Shakya is an amateur writer, photographer and a nature observer.

Abhirami Ravichandran is a young ecologist working as a JRF at NCBS, Bangalore. Her studies are focused on grasslands in India. Consequently, she gets chances to visit grasslands across India, giving her stories to share. She loves to discuss the ecology, but also the people, livelihoods and science of the regions she visits.

Avik Banerjee is pursuing his PhD at the Center for Ecological Sciences at Indian Institute of Science, Bangalore. His research includes studying behaviour of lizards and their diet. He is a nature enthusiast who loves to travel around and learn new things. Avik also has a keen interest in nature photography.

Dincy Mariyam is a doctoral student at the Centre for Wildlife Studies, Bengaluru. While her weekdays pass in a blur of research in the concrete jungle, she tries to spend her weekends escaping to the real jungles and wild places with her trusty binoculars and camera.

Nobin Raja M. is a doctoral student at the Ashoka Trust for Research in Ecology and the Environment, where he studies the invasion ecology and genomics of mosquitofish in India. He hails from a background of genomics and biotechnology, and enjoys mixed martial arts, table tennis, and exploring the food scene across Indian cities whenever he finds the time.

Prateek Sharma is a Wildlife Preservationist at Ranthambhore National Park, Sawai Madhopur, Rajasthan.

Prity Hait is a Research Affiliate at Conservation Initiatives, an organisation based in Assam. In her spare time, she enjoys bird watching and photography.

Priya Ranganathan is a wetland ecologist and geologist by training who works in the wild Western Ghats. When she isn't out wading through swamp forests, she can be found scribbling away in her notebook or practicing Bharatanatyam. Check out her website 'On Life and Wildlife.'

Rubina Rajan is fascinated by nature, having completed her post graduation in Wildlife Science she hopes to contribute through her art and writing while finding her niche. Her major areas of interest include human animal interactions, animal behaviour and primates.

Udita Roy is a student of B.Sc. Forestry, Wildlife and Environmental Science at Guru Ghasidas University.

Meet our Artists

Adyasha Nayak is inspired by wildlife, and often, her experiences with them in the field. She uses watercolours, coloured pencils, and digital media to translate conservation issues into art.

Amrita Gujarati is an 11th grader in Seattle, Washington, USA. She loves to be creative and spend time outdoors.

Asmita Sapre Ranganathan is a doctor, Sanskrit teacher, artist, poet, and writer from Mumbai. She enjoys wearing her many hats and especially enjoys illustrating for children's books and magazines.

Meera Phadnis is a 10th grade student in Moraga, California. She enjoys art, reading books, Kathak, and playing tennis for her school team.

Nivedita Pattanaik is deeply enthralled by the diversity in nature and wishes to explore its solved and unsolved mysteries. Through paintings, she tries to present what she learns and how she sees the world. While Nivedita wants to become a Wildlife Ecologist, she also wants to bridge nature and art, which she feels is one of the most striking mediums of awareness.

Even though **Parinitha P.** works in development and has a background in climate change, art has always been something she could fall back on. She wants to expand her horizons with her art and is looking forward to working with people. She does both traditional (watercolours and gouache) and digital art.

Pratiksha Sail is an Educator, Researcher and Natural History Illustrator.

Rubina Rajan is an artist with a background in wildlife science. She loves illustrating nature and works mainly with traditional media, water colour, gouache paints and pens.

Varnika Walvekar is a Master's in Conservation Practice student at ATREE, Bangalore. She loves art, music and writing and always wonders if she can be a jack of all trades and master of one. YFN's reach amongst children got her interested in the magazine. She hopes to help expand it further!

A Voice for Children

Youth for Nature focuses on bringing current environmental news, informative pieces on India's wildlife and wild places, and engaging activities to bring children closer to nature. We take pride in showcasing the work of children as well as professionals working to save India's wilderness to inspire youth to speak for our natural world.

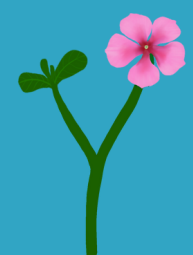
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