

NATURE TRAIL

Chennai Young
Naturalists' Network

SEPT 2021 | Vol 2, Issue 3

- ▶ Through our Homes and Backyards: A Peek Into Our **Urban Biodiversity**
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by Yashi Punia
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by Yuvan Aves



NATURE TRAIL

Volume 2, Issue 3

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Nature Trail is published triannually in January, May and September. It is a free e-Magazine published by the Chennai Young Naturalists' Network that may be viewed on our website.

Our Mission - To reach a broad spectrum of readers and ignite curiosity and scientific thinking towards the natural world, while also promoting young naturalists to develop a variety of skill sets.



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About the Editor: Anooja is a Zoology graduate from Chennai. Apart from trailing the shores of Chennai, she loves observing the majestic pelicans and the multicoloured insects. She is ready to dance to any beat, any time and sometimes, to other's embarrassment, anywhere.

Front Cover:

Common Clubtail (*Ictinogomphus rapax*): Nanditha Ram Satagopan

Back Cover:

Painted Grasshopper (*Poekilocerus pictus*): Aswathi Asokan

Dear Readers,

Every year, September brings rains and butterflies. As the pandemic rages on, I hope that you can find solace in the millions of friends around you- friends you can find in and around your home regardless of date and time. This edition is all about finding "wildlife" that thrives loud and proud in urban spaces. Long lines of marching ants on the tree behind your house, small grasshoppers of colours aplenty hopping around in the grass, colossal V-shaped flocks of ibises cutting through the cold winds of the dawn and a lone spider weaving its way from one corner of the window to another- there is always life around you. I hope that this edition will help you notice all the creatures around you, big and small, and motivate you to protect the environment in every little way you can.

-- Anooja A, Content Editor

About the Chennai Young Naturalists' Network

The Chennai Young Naturalists' Network aims to create a platform for young naturalists to interact with peers interested in wildlife and to explore various applications of a variety of skills. The hope is to help them grow not only in aspects connected to observation in the field but also give them the opportunity to explore various career options. Meanwhile we also aim to conduct outreach and educational events to help increase awareness and improve participation of the public in citizen science and other nature related activities.



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Our Recent Projects:

In Nature's Defence - The tales of wild India's unrecognised soldiers

Careers in wildlife aren't normally viewed favourably by society. The most under-appreciated jobs in the field are probably those of forest rangers, local guides or spotters, even though they are some of the most important people in conservation and possess knowledge that few others do. As a tribute to these amazing individuals, we at YNN have been interviewing such people from the field to shed light on their work, their opinions and the hardships they face.

We hope that this series, brought to you by our outreach team in connection with Ranger Day, will help people better understand and appreciate those in nature's first human line of defence.

9 articles have been released so far and 2 more will be released in the coming days. Make sure to check out the project on our website!

Picture Credits: Smriti Mahesh



Our Recent Events:

Webinars with Schools and Colleges

Over the past 4 months, webinars were conducted for 2 schools and 1 college on a range of topics that were very well received. The webinars included a session on the biodiversity of Vidya Mandir for the students of Vidya Mandir Sr. Sec. School by Aditya Ramakrishnan, Smriti Mahesh and Ekadh Ranganathan, one on the biodiversity of Chennai for the students of Kids Central High by Anooja A, Ekadh Ranganathan and Rohith Srinivasan and one on butterflies for Adamas University by Mahathi Narayanaswamy and M. Nishanth Arvind.

Do reach out to us if you are from a school or college and would like us to conduct a session on wildlife/biodiversity for students.

Instagram Live Sessions with Experts

Over the past 4 months, the YNN outreach team has gone live on Instagram with three experts on account of various wildlife events. The first session was kicked off by Anooja A and Smriti Mahesh as they spoke to Surya Ramachandran on the occasion of World Rainforests Day. This was followed by a talk with Gnaneshwar Ch on World Snake Day by Aditya Ramakrishnan and Ekadh Ranganathan and a session discussing moths with Pritha Dey during National Moth Week by Mahathi Narayanaswamy, Nivethiga E. and Rohith Srinivasan.

Follow us on Instagram ([@ynenchennai](https://www.instagram.com/ynnchennai)) to be notified about future live sessions.

Ongoing Events:

Big Butterfly Month Webinar and Contests

YNN is a partner for Big Butterfly Month India 2021 and is organising multiple events and competitions as part of it.

Virtual Walk through the Butterfly Hotspots of Chennai (Completed)

Home to 152 butterfly species ranging from the massive Southern Birdwing to the rare Dark Wanderer, Chennai is a butterfly watcher's delight. On 18th September 2021, Vikas Madhav Nagarajan, a YNN member and award-winning naturalist, took 70 people on a Virtual Walk through the Butterfly Hotspots of Chennai. He talked about what butterflies one can spot and taught us where to best see these winged wonders in our very own Chennai.

Instagram Photography Competition:

As a tribute to the beauty of these winged wonders, YNN is organising a photography competition with the theme, "Butterfly Life Cycles". The judge for the competition is award-winning wildlife photographer and wildlife photography hide designer, *Zhayyn James*. We'll be looking for series of images showcasing the life cycle of a butterfly.

You can submit your pictures by posting them on Instagram with #YNNBBMIPhotoContest, emailing them to us at ynn.chennai@gmail.com or sending them to our Instagram account, @ynnchennai, via DM.

Any Indian national may participate and all pictures must be taken between September 1st, 2020 and September 25th, 2021. The last date for submissions is 25th September, 2021. Oh, and did we mention that exciting prizes await the top 3 photographers? Hurry up and send in your entries!

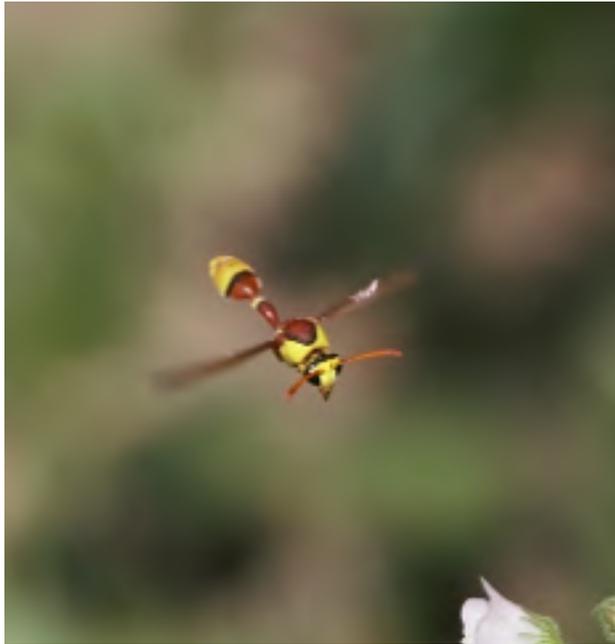
Backyard Butterfly Bioblitz

We've set up a project on iNaturalist and will be conducting a bioblitz from 19th-25th of September. Join our project via the link below and upload as many butterfly observations as possible within the given period. The 3 people who record the most number of species will receive certificates!

<https://www.inaturalist.org/projects/ynn-backyard-butterfly-blitz>



Lemon Emigrant and Common Jay - Picture Credits: Mahathi Narayanaswamy



Potter Wasp, *Delta esuriens esuriens* - Picture Credits: Samrudh Nandagopal

Recent Observations

Editorial Team

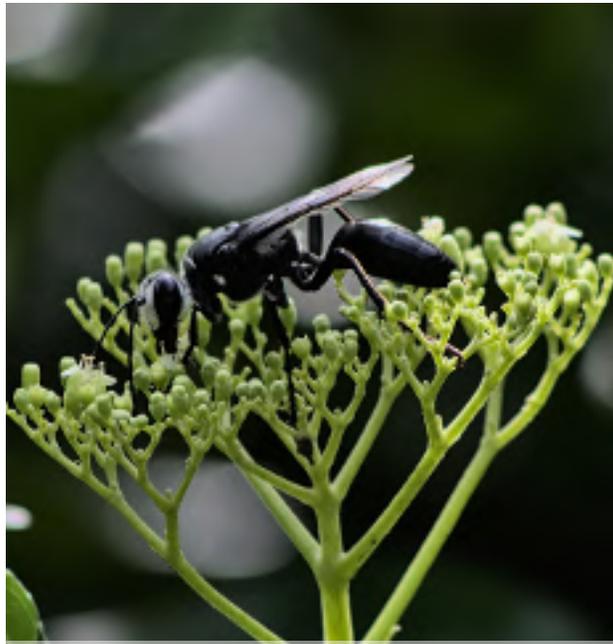
Members of YNN have observed 1134 species through 3455 observations uploaded on the Chennai Young Naturalists' Network iNaturalist Project. From birds to beetles, diverse taxa were observed right from our own backyards. Check out some of the observations from the last 4 months, clicked by our members.



Arboreal Bicoloured Slender Ant - Picture Credits: Sridevi P.



Plains Blue Royal - Picture Credits: Nirmal Kumar



Sphex argentus - Picture Credits: Adit Jeyan



Little Tiger Pierrot - Picture Credits: Samrudh Nandagopal

Oriental Garden Lizard

Dimple Kothari

Oriental Garden Lizards are a widespread species that are sometimes mistaken for chameleons. They can often be seen basking on trees, rocks, walls and fences, doing push-ups every now and then to regulate their body temperatures.

DESCRIPTION:

Male Oriental Garden Lizards are very variable in appearance and are distinctly larger than females which are brown. These lizards have two sets of spines separated from each other behind the tympanum. They are found in shades of brown or greyish yellow with a white dorsolateral streak present on either side. During the mating season, males' heads change from bright orange to crimson red and their throats turn black. They have long, pointy tails and shed their skin regularly.

DIET:

Oriental Garden Lizards are considered natural biological pest controllers; they prey on small insects, vertebrates, and ants. They swallow their prey instead of tearing or biting them with their teeth.

RANGE AND HABITAT:

Being abundant in nature, these lizards are found almost everywhere on the globe including South Asia, Southern China, Indonesia, Malaysia (Western). They are found in plenty in Northeast India, Sri Lanka and Myanmar. They easily adapt to their surroundings and can be found in forests and their peripheries, gardens, plantations, and even in highly urbanised areas.

REPRODUCTION:

The female lizard lays around 5-16 soft oval eggs that are buried in holes they dig in the ground. The eggs are about 1.5 cm long and hatch within a period of 8 to 9 weeks.

Dimple Kothari is a 3rd year Chemical Engineering student at SSN Chennai.



Picture Credits: Smriti Mahesh

Oriental Garden Lizard

(Calotes versicolor)

TAXONOMY

Kingdom: Animalia

Phylum: Chordata

Class: Reptilia

Order: Squamata

Family: Agamidae

Genus: *Calotes*



Picture Credits: Sidharth Srinivasan



Picture Credits: Mahima Nair



Picture Credits: Aditya Ramakrishnan



Picture Credits: Mahathi Narayanaswamy



Picture Credits: Nanditha Ram

Shikra

Kavya. G. V

The Shikra is a small raptor whose name originates from the Hindi word for hunter, 'Shikari', a reference to its widespread use in falconry during colonial times. It is fairly widespread and can be seen perched atop buildings and posts quite often.

DESCRIPTION:

The Shikra is a small raptor belonging to the family Accipitridae along with falcons, sparrow-hawks and goshawks. It varies from 26 to 30 cm in length. This bird of prey is cosmopolitan and is commonly found across Asia and Africa. Adults have whitish undersides and dark upperparts. Barring is found on the ventral side of the bird, with lesser barring towards the lower belly region. Individuals of the species exhibit sexual dimorphism- males have red irises whereas females have yellowish-orange irises. The females are also marginally bigger.

Juveniles have dull streaks and spots on the upper breast. Their wings are barely barred but their tails have banding on both sides.

RANGE AND HABITAT:

The Shikra is found in a range of habitats including forests, farmlands and urban areas. It's distribution is spread widely across Asia and Africa.

BREEDING:

They breed in India during the summer months. It is interesting to note that Shikras have often been observed reusing the same tree to nest over many generations.

Kavya. G. V is a 3rd year student at SRM Easwari Engineering College.



Picture Credits: Sidharth Srinivasan, Sidharth Srinivasan

Shikra

(Accipiter badius)

TAXONOMY

Kingdom: Animalia

Phylum: Chordata

Class: Aves

Order: Accipitriformes

Family: Accipitridae

Genus: *Accipiter*



Picture Credits: Aditya Ramakrishan



Picture Credits: Rohith Srinivasan

The Joy of Watching Butterflies

M. Nishanth Arvind

Butterflies have captured the hearts of generations, leaving many inspired with their diversity and sheer beauty. In this article, M. Nishanth Arvind details his butterfly watching journey and shares a few tips on how to start your own.

I have been watching butterflies for a little over a year now and it has been the most rewarding experience ever.

Butterflies have been inspiring humans for countless years. They are often used as symbols of freedom and love. The timeless Tamil song 'Oh! Butterfly.... Butterfly....' by the late singer S. P. Balasubrahmanyam is a perfect example of this. From an ecological and biological perspective, butterflies play a vital role in our ecosystem as pollinators and indicators of its well-being.

I was walking one evening when I saw one of my seniors from school poking around some bushes by the side of the

road. When I asked her what she was doing, she told me that she was searching for butterfly eggs. This sparked my curiosity and I joined her for the rest of the walk. We found the caterpillar of a tussock moth, which she took home to 'rear'. I didn't understand what was going on but I wanted to do the same and, voila! I found not one, but two different caterpillars on a plant on the way home. The very first butterfly that emerged under my care was a Common Emigrant. The moment I let it fly, I felt a sudden excitement that I couldn't control and I instantly knew that I wanted to learn more about these beautiful fliers. I started to go on walks every morning, trying to photograph butterflies, learning more about their world with each walk.

Even during the pandemic, one can observe butterflies in their backyards, apartment complexes and neighbourhoods. Nectaring plants such as Divi Divi (*Libidibia coriaria*), West Indian Jasmine (Genus *Ixora*), Periwinkle (Genus *Catharanthus*), Hibiscus (Genus *Hibiscus*) and many types of grasses tend to attract a variety of butterflies. Milkweed (or) Crown Flower (*Calotropis gigantea*), False Ashoka (*Polyalthia longifolia*), Indian Mango (*Mangifera*

indica), Indian Cadaba (*Cadaba fruticosa*) and Sugar Date Palm (*Phoenix sylvestris*) serve as host plants for Plain Tigers, Common and Tailed Jays, Lime Blues, Common Gulls and Palm Bobs, respectively. So far, I have been able to spot at least fifty different butterfly species on visiting a fairly small number of plants.



Lemon Emigrant - Picture Credits: Nanditha Ram



Common Jay - Picture Credits: Adit Jeyan



Lime Swallowtail on Ixora sp. - Picture Credits: Rohith Srinivasan



Spot Swordtail on Divi Divi - Picture Credits: Aswathi Asokan



Plain Tiger caterpillars on Milkweed - Picture Credits: Mahathi Narayanaswamy



Tailed Jay - Picture Credits: Nanditha Ram

Rearing butterflies to study their life cycles is one of my favourite activities. Butterfly eggs can often be found hanging on the underside or upperside of their host plants' leaves, flower buds and stems. To get started, one can consult butterfly experts on how butterflies are reared and studied.

Butterfly gardens can be set up at home to provide a safe space for butterflies. They are cost effective and require little space. Common and easily available plants such as Ixora, Periwinkle, and Hibiscus can serve as nectaring plants. Two garden plants, Curry leaf and Lemon, are the host plants of the Common Mormon and Lime Swallowtail, respectively. Keep at least three nectaring plants for every two host plants.

Watching butterflies is an effective stress-buster and can bring us closer to nature. I hope this article helps you in your butterfly watching journey! I think my fascination with butterflies is best conveyed by this limerick that I wrote:

A BIG LESSON FROM A SMALL BUTTERFLY

Life is a big scary ride

It can sometimes bite

But when in fear

Remember the butterfly's cheer

Just spread your wings and fly

M. Nishanth Arvind is a 1st Year Biology student at Azim Premji University, Bangalore.



Ixora sp. - Picture Credits: Melvin Jaison



Common Crow chrysalis on Oleander - Picture Credits: Yuvan Aves

Through our Homes and Backyards: A Peek Into Our Urban Biodiversity

Claudia Pinheiro and Mahathi Narayanaswamy

Living in cities, we often assume that wildlife around us is few and far between and that one needs a forest to observe wildlife. Perhaps wildlife is limited to the lizard living behind a door or the pigeon or crow right outside our windows. For most of us, a garden might just be a pot with a few plants, and one may not expect to find much in it. Nevertheless, most of our houses and their surroundings are quite rich in biodiversity, and with some persistence you may even find over a hundred species. Wildlife around you depends on where you live, the structure of your house, and your surroundings. In this article, we hope to give you an idea of where to look for biodiversity and some of the common species found around our houses, the latter being predominantly based around Chennai but fairly valid for cities across India as well.

A good way of looking for common species around us would be by knowing their preferred habitats. Let's start with our own houses. Begin by exploring your windows and the walls beside them and go on to check dark corners around your sink or behind your washing machine and lastly, your ceilings and floors. There is a good chance that you will encounter a bunch of small and rather cute spiders on your windows or walls that belong to the family containing Jumping Spiders, Salticidae. If you take a closer look at them you may notice that they have 4 eyes in the front and two on each side. The most common

species of these spiders that occur in houses would be those belonging to the genera *Menemerus*, *Hyllus* and *Plexippus*. The other two very common groups of spiders in houses are the Giant Huntsman spiders, which look deceptively dangerous, and the Cellar spiders, which have very thin legs and bodies and can often be seen in corners of the ceiling or in lofts. There are other species such as the Red House spiders, Masked spiders and Lynx spiders that you may find fairly easily, so do keep an eye out for them.

Among the other things you may see on your walls are cocoons of various moths and occasionally even those of butterflies. Also very common are bagworm moths with their cases. You would have definitely come across these creatures but may not have paid much attention to them, so the next time you see them, do take a closer look and you may find a small caterpillar inside. Several other insects, both in their larval and adult stages, may be seen along the walls of your



Common Housefly Catcher (*Plexippus petersi*) - Picture Credits: Adit Jeyan

house. Wasps and moths that accidentally fly in may adorn your windows as well, perhaps even an occasional mantis or long-horned beetle.

Documenting insects in your house can be extremely satisfying, presenting quite a bit of diversity with just a little persistence. The lights at your doorstep, balcony or stairway could attract a tonne of life during the rainy season when you may wake up to find hundreds of winged-termites' (*Eesal* in Tamil) wings at your doorstep if you leave the light on. If you are on the ground floor, a huge number of birds such as babblers, crows and mynas may gather to snack on these delightfully, just as people make *Eesal* fry out of them in several parts of Tamil Nadu.

As we move on to reptiles, some major insectivorous predators you may find immediately are your resident house geckos or garden lizards in your backyard. Apart from these, you may occasionally see a skink darting under your shoe shelves or beneath a door. A common skink species in Chennai and many other places is the Common Dotted Skink, which, along with other skinks, is often known as *Aranai* in

Tamil. They are often believed to be venomous but are harmless.

This may perhaps be a good point to step out of your house or look out of your windows. A very common species of reptile found in backyards is the Common Garden Lizard. While other reptiles, particularly snakes, are uncommon in comparison, there are a few that you may see. You may find the Brahminy blind snake amongst fallen leaves or in the soil around your house. They closely resemble earthworms at first sight and are extremely important indicators of soil humidity and temperature. They are completely harmless as their diet predominantly consists of ant and termite larvae, both of which are important indicators of soil quality as well owing to them being partially fossorial (burrowing), like the Blind Snake. Similarly, the Striped Keelback, Banded Kukri, Vine snake, and Wolf-snake aren't any less common. Apart from the various snakes, some turtles and tortoises, such as the Pond Turtle, are among the other reptiles you may find in the vicinity of your house, especially if you live around a water body.

Returning to insects, butterflies are

some of the most fascinating life forms we could think of. They also hold an interesting evolutionary story. Their ancestry is known to have started from tiny caddisfly-like



Indian Rat Snake - Picture Credits: Ashraf Shaikh



Buff-striped Keelback - Picture Credits: Sidharth Srinivasan



Bagworm Moth - Picture Credits: Melvin Jaison



Amegilla sp. - Picture Credits: Balakrishnan Ram



Red House Spider with Millipede - Picture Credits: Mahathi Narayanaswamy



Indian Pond Turtle - Picture Credits: Balakrishnan Ram



Monkey Puzzle - Picture Credits: Aditya Ramakrishnan

creatures which eventually gave rise to moths and then butterflies. On a slightly unserious note, many believe that moths chose to swap their work shifts from nocturnal to diurnal in order to escape echolocating bats, which led to their promotion as butterflies equipped with colourful wings. However, moths are no less fascinating, displaying a myriad of colours and patterns. You can find both of these arrestingly beautiful creatures in your garden or surroundings near their larval host plants (on which the caterpillars feed and subsist) or nectar plants (on which the adults feed). A common misconception at this point is that moths are purely nocturnal and butterflies are purely diurnal. In reality, several species of moths are day-flying. Occasionally, butterflies can also be seen light trapped at night like moths. Several species of plants that are grown around houses such as Oleander, Lime, Ixora and Curry Leaf are also popular among butterflies and moths as either larval or nectar host plants. Among the most common butterflies on these are the Mormons and Emigrants and some of the less common ones include the Blue Mormon and Monkey Puzzle.

Apart from butterflies, several common house or garden plants are popular among insects as well. Keeping an eye around may help you find a wide diversity of planthoppers, wasps, beetles and bugs and perhaps even help you witness some very exciting behaviour that they may display. Keep an open mind about what things can look like for they may deceive you otherwise, for instance, the spittlebug nymph case appears like a misplaced fluff of foam.

Many of us would've idolized flying superheroes in action movies but now it's time to rethink that the actual



Sandalwood Defoliator (*Amata passalis*) - Picture Credits: Balakrishnan Ram



Spittlebug Nymph Case - Picture Credits: M. Nishanth Arvind



Purple Sunbird - Picture Credits: Nanditha Ram



Red-vented Bulbul - Picture Credits: Claudia Pinheiro

superheroes with true flight adaptations are birds. Their unique features like hollow bones, lightweight, streamlined body and feathers make them very distinct from other animal groups and superheroes. These also help in their aerial-arboreal lives. Birds have also adapted to live in a variety of habitats such as forests, wetlands and grasslands. With the increased destruction of their habitats, several species of birds have started adapting to cities as well. Throughout India some of the most common birds around human inhabitation are mynas, crows, parakeets, bulbuls, pigeons and sunbirds. We often overlook a lot of these small birds that find a home for themselves right outside of our windows. A bit of persistent documentation may go to the lengths of revealing the presence of at least 20 species that you can see from your windows.

Having covered most major commonly occurring groups of biodiversity, we conclude the article here by urging you to observe the life forms around you. They are fascinating and beautiful and in most if not all cases completely harmless. Many times they coexist with us without our awareness so there is no need to kill them should you actually encounter them. Despite being harmless in most cases, please do not touch them unless absolutely necessary. Also start using Citizen Science tools like iNaturalist and eBird to document whatever you see. We hope you have a lot of fun exploring and discovering the biodiversity around you.

Claudia Pinheiro is a Zoology graduate from Stella Maris College, Chennai.

Mahathi Narayanaswamy is a 2nd Year Physics student at Azim Premji University, Bangalore.

Interview:

Caricatures for Wildlife - In Conversation with Rohan Chakravarty

Interview by Aswathi Asokan and Shivani Manivannan



What got you into wildlife and inspired you to get into the field of illustration?

I am a dentist by qualification but I did not practice after getting my degree because I was interested in a career in the arts.

After dentistry, I worked in the animation industry for 4 years and then became a full-time cartoonist.

I've always had a dormant interest in wildlife, but it became a more active one after I started volunteering for an NGO called "Kids for Tigers". I had to take school kids birdwatching and on nature walks and that's how I also started to gain interest. Because I was already drawing cartoons, I decided to merge my two interests to see what would come out of it - that's how that series was born.

Do you remember what your first wildlife illustration was?

I don't really remember what it was, but I can tell you what my first published cartoon was - it was a cartoon about Tiger Conservation and the Tiger Task Force for Sanctuary Asia, back in 2008.

In what ways do you think art helps carry the message of conservation to the general public?

This is a very nuanced question. There are many ways of approaching it. There is a lot of jargon involved in communicating science to the layman and I think my kind of art, which is more on the side of creative communication, helps eliminate that jargon. The element of personification and anthropomorphisation in my work leads to an instant connection between the reader and the subject, which in my case is wildlife, so that works in my favour. It also instills love and curiosity for nature in the reader.

Apart from that, there are other kinds of art and they all work differently: photography, film, fine arts. They all have their own purposes and approaches.

Is there any comic strip or project or organisation that you have illustrated for, that stands out for you? What is it and why is it special?

I'm generally very critical of my work, I don't think of it very highly. But I think that, from my own repertoire, there is a comic strip about Arctic terns that I did

many years back. It was about their migration from one pole to another.

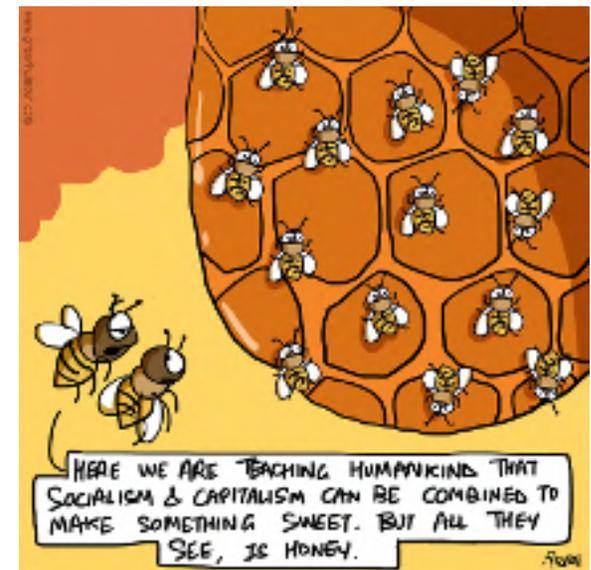
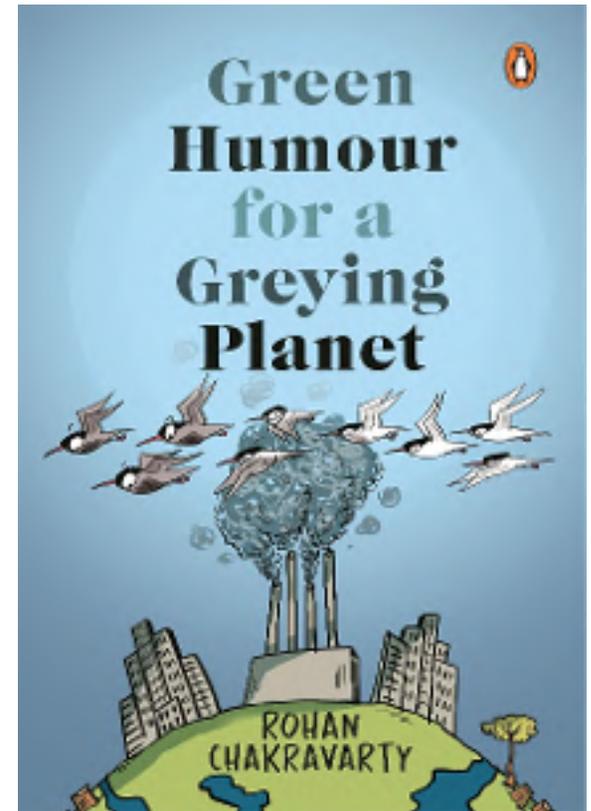
That is one comic strip that really makes me laugh every time I read it.

Can you name any artists who have influenced you?

There are many artists who have inspired me. I derive inspiration from all kinds of art, not just cartoons or comics. I'm a big cinema buff, I follow a lot of cinema from around the world and I read a lot of different kinds of books. Even music inspires me. But concerning cartoons, I think the works of Bill Watterson and Gary Larsson have been the most influential to me.

Could you tell us a little bit about your column in The Hindu and your books, particularly Bird Business and the one you released recently, Green Humour for a Greying Planet?

Bird Business is a collection of 100 illustrations that depict bird behaviour. My motive behind that book was to create something that takes the reader beyond just the identification of birds and rather, help understand them. A lot of the literature that exists in India- and generally everywhere- is all about identifying birds and doesn't really tell



you much about how these birds interact with their environment. As a keen observer of birds, what I have observed over the years and what I have learned from other books is presented in the form of illustrations in Bird Business.

My upcoming book, Green Humour for a Greying Planet, is a compilation of my published work from 2012 to 2020. There were about 600 to 650 cartoons in total and my editor and I chose 200 to 250 cartoons to publish in this book. There was a lot of demand from my readers to read all my work in one place. That was my motive to create this compilation.

What are some of the challenges you face while making illustrations and how do you cope with them?

“Activist” is just a label that people have placed on me. I’ve never called myself an activist or an environmentalist or a conservationist. I’m merely a cartoonist, doing my job. It’s just that my subject happens to be wildlife so people perceive me as a conservationist. That is not the case.

I think what I portray in my cartoons is partly my opinion. By and large, it is also

things that I have learned from scientists, from scientific literature and new developments in ecology and how I decipher them. A lot of different kinds of readers perceive my comics differently and they have their own opinions, which they are of course entitled to.

With the current political environment and the intersection of politics and environmental governance, a lot of my cartoons tend to be political as well. Which, of course, does not tend to go down well with a large section of people and that’s the reality of cartooning as a profession. That’s what it has been doing over the years and that’s what cartooning will do in the future as well.

How do you deal with plagiarism?

Plagiarism is something that’s quite poorly understood in India especially with the people on social media and young artists who are trying to develop their own portfolios without really getting a feel of what the market is like or what a career in arts is really like. So, I think conversations around plagiarism need to happen. I’ve been a victim of plagiarism on several occasions and I’ve felt that the people who are plagiarising me don’t really realise that they are

doing something wrong. Young artists must read up and understand what plagiarism is, what developing an individual style is and how to build a harmonious relationship with other contemporary artists.

How do you think citizen involvement is important in ensuring a sustainable future for wildlife and how important do you think it is?

My understanding of this issue has changed and evolved over the years. Earlier, I used to think that individual efforts go a long way to create a change. But now, I don’t think that is the case, because even if you target the individual’s habits or lifestyle, the difference it can bring is very small compared to demanding accountability from governments, environmental policy makers and corporations.

While we cannot discount that individual lifestyle changes do make a difference, we need to change the discourse to target bigger and more accountable bodies.

There’s a common belief among people that you need to be a scientist or have a PhD to contribute to conservation and wildlife.



Do you have any advice for people without formal education in biology or ecology who want to get into conservation?

I don't think I'm the right person to do that because I'm not a trained environmentalist or conservationist. My knowledge of wildlife and ecology is very basic.

But I've worked with a lot of people in the field and what I know from them is that it's not necessary to train as a biologist to be involved in conservation. A lot of people who are not trained and are self-taught environmentalists are doing a lot to make a great difference. How you weave your occupation or lifestyle with environmentalism and conservation is what matters.

Rohan Chakravarty retains the copyright to all images used in this article.

Aswathi Asokan is a 3rd year Zoology student at Stella Maris College.

Shivani Manivannan is a Class 9 student studying at P S Senior Secondary School.

Learning the Language of Nature

Yashi Punia

As India rapidly develops and concrete jungles become increasingly common, a strong relationship with the natural world isn't something many living in cities can form easily. In this article, Yashi Punia uses her personal experiences to emphasise the importance of forming a bond with nature in today's disconnected world.

Jasmine scattered by the road - Picture Credits: Mahathi Narayanaswamy

I was all of twelve years old when I read 'Letters from a Father to His Daughter', and it has since stuck with me as the kindest, most sensitive anecdote on nature. In his letters to Indira, Jawaharlal Nehru spoke extensively about the importance of understanding the 'language of nature'. I think that is an impactful message that we can give small children and grownups alike. To love the environment, we must understand how it communicates with us.

Located in the middle of South Delhi's hyper urban, fast-paced setting, Jawaharlal Nehru University is a quiet abode, a treasure-trove of flora and fauna. It is a part of the southern ridge of the Aravalli hills and its varying terrain is home to a plethora of animals and birds. The first house I lived in on campus was frequented by rat snakes and cobras, and when a seven-year-old grows up in that setting of coexistence, it stops being something that is extraordinary.

I've always lived in harmony with the animals around me; snakes slithering over autumn leaves to reach a patch of wet earth for a nap, porcupines digging up the bulbs of the lilies my mother so very carefully planted, civet cats having a dance party in my father's vegetable patch at night, monkeys stealing the brightest of our bed sheets, peacocks sneakily nibbling on the buds of all the roses yet to bloom, and a family of mongooses always trying to get into the kitchen to salvage a few drops of milk. I realize now that these experiences allowed me to maintain a relationship with my environment that so many people have never had.

Today, we talk about environmental conservation a lot more than we used to a decade back, but the number of people responding to these urgent calls has not necessarily changed much. Does that mean that people don't care about nature anymore? Has it become outdated like Facebook?

As an avid birdwatcher and conservation enthusiast, I observed that we expect people who have never experienced nature to care about it. We expect people who have never had a tree's branches brush against their windows to suddenly participate in a plantation drive on a random day, once a year. In short, we expect people to respond to something they may not feel connected to. We get agitated when we don't get the participation we expect, but instead of being forceful and judgmental about the population's neglect of our natural habitat, we should work towards facilitating learning opportunities. We should start asking questions like "Why are people not able to understand the urgency of conservation?", "What is hindering their understanding of it?", "What changes should we bring in our methodology for a greater response?", because only then will we truly appreciate how integral it is to have a bond with nature or, as Nehru said, "to understand its language in order to respond to its cries of help".

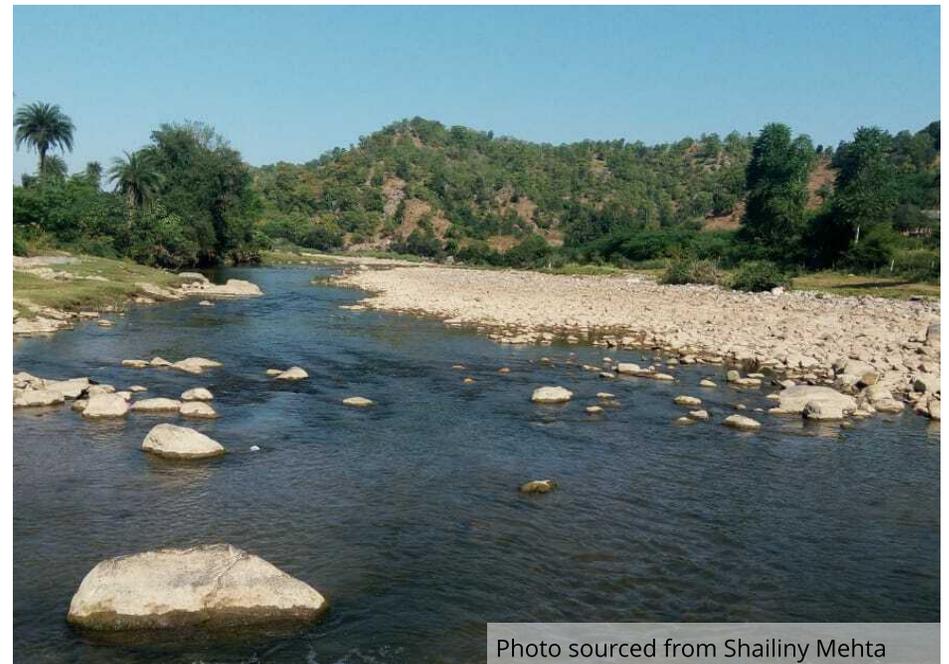


Photo sourced from Shailiny Mehta

A lot of what we experience and explore as kids is what defines us as adults, which is why I believe it is absolutely necessary to have some kind of exposure to the natural world in one's formative years. Children are bundles of energy and curiosity and unlike adults, they are not constrained by responsibilities. They should be motivated to observe dragonflies and smell the grass and jump in puddles without any fear. They should be allowed to fall in love with their natural habitat if we want them to care about it as adults.

Growing up, I had the privilege of looking at Nilgai happily munching on greens along the roads and jackals running around at dusk, but many people do not have the luxuries of living in a place so intertwined with nature. We must work towards forging a relationship with nature because the majority of our country's working class aren't able to actively explore our flora and fauna.

One step that has greatly improved the lives of many is the trend of keeping indoor plants. This has allowed people who reside in apartments in cities to feel some connection to the natural world. Glorifying keeping native plants as a trendy activity is also helping the

conservationists' cause by providing hundreds with opportunities to inculcate coexistence into their daily routines. Even spiritual activities like yoga promote lifestyles that are more in sync with nature. This proves that people do care if they're given the opportunity to form meaningful relationships.

Every smooth pebble was once a ragged bit of rock torn from a larger cliff, which travelled great distances along a river that snaked across many lands and saw many cultures; it was after this daunting journey in the wilderness that the pebble achieved its form. The Queen of the Night flower only blooms in moonlight, almost like a white-shirted Romeo serenading the moon with its dusky beauty. Sometimes when one is taking a post-dinner walk, they might see a lowly branch laden with Jungle Babblers squished in a group, safe in the comfort of family.

All of these are ways the environment talks to us. We only have to learn to read them.

People always say nature is grand and scary and powerful, but I think above all it is romantic. It flirts with us, teases us with warm breezes of jasmine-scented air, fluttering butterflies, vibrant sunsets and elegant swallows diving and dancing

like a troupe of ballerinas that one might see in a production of Swan Lake. Almost as if it is challenging us to flirt back. To understand.

Yashi Punia is a 3rd year student at Shiv Nadar University.



Striped Tiger - Photo: Mahathi Narayanaswamy



Photo: Nanditha Ram Satagopan

Biomimicry

Aswatha Biju

Taking inspiration from the natural world has allowed us to innovate new efficient technologies to use in the modern world. In this article, Aswatha Biju describes the value of biomimicry as well as its numerous applications in today's society.

Biomimicry offers an interconnected understanding of how life works and where we ultimately fit in this world. Biomimicry is a practice where a living organism's survival strategies are imitated. The main aim is to create products, processes and policies required for human survival, from nature. Biomimicry could be classified into 3 essential elements:

- **Emulation-** the scientific practice of learning from nature's forms, processes, and ecosystems to recreate designs for the benefit of humankind.
- **Ethos-** the philosophy that explains the working of life.
- **(Re)Connection-** the concept by which we view ourselves from the point of view of nature and find value in connecting ourselves to life's interconnected systems. This method helps us understand how nature and life work together, allowing us to have a better philosophy to emulate biological sketches for better structures.

Architects have come up with new designs developed into a database from nature itself, which in turn defines that nature has been mimicked for the survival of humans. While taking a deep dive into the subject, you'll find that most of the discoveries that have been made are very reasonable and unique. Let's have a look at the discoveries made from

mimicking marine biodiversity.

► Mercedes-Benz's Fish-Inspired Car Design

Mercedes-Benz wanted to design a vehicle that was aerodynamic, safe, efficient, and manoeuvrable. To achieve all of these goals while drawing from a single, overarching theme, Mercedes-Benz turned its gaze to nature for inspiration. After much probing, the company found the boxfish, a small, tropical coral reef fish, and decided to use it as a model. Unlike other finned animals on Earth, boxfish are encapsulated in a squarish or triangular, lightweight, rigid, bony shell that comes from numerous smaller, stony plates fused together almost like a honeycomb that locked eyes with Medusa. Engineers specifically took interest in the boxfish's shell and its shape with its impressive hydrodynamic characteristics. Its body has an exceptionally low drag despite being blocky, broad and rounded in shape, similar to that of an automobile. The shell supposedly has unique, inherent self-correcting stabilization properties. This helps direct the flow of water around itself in such a way that the swimming fish is kept on course even in roiling waves. This phenomenal combination of a spacious body, low drag and high stability means that the boxfish is a stellar choice for a model.

► Jellyfish-Like Self-Contained Ocean City

In a post-apocalyptic world where the earth is flooded and there's little land left for human civilization, ocean cities could provide a solution. This concept by Arup Biomimetics is not just a single floating city, but a collection of 'organisms', clearly inspired by jellyfish. The self-sustainable cities have trailing appendages that perform different energy and water-related functions from drawing in seawater for desalination to collecting energy from waves.

► **WhalePower**

Marine scientists have long theorised that the humpback whale's incredible agility comes from the bumps on the leading edges of its flippers. Recently, Harvard University researchers came up with a mathematical model explaining this hydrodynamic edge. The work shows that similar bumps could lead to more stable airplane designs, submarines with greater agility, and turbine blades that capture more energy from the wind and water.

The above are a few examples where biomimicry inspired us to make useful products. Biomimicry as an art form helps us understand the importance of our planet and its resources. We can apply biomimicry in our work and processes to minimize the harm we cause to our natural surroundings by developing more efficient, green solutions. Biomimicry hence teaches us that nature has the answers to most of our problems- all we have to do is unearth those solutions.

Aswatha Biju is a Grade 9 student at Sri Chaitanya Techno School, Palavakkam.



Documentary Review:

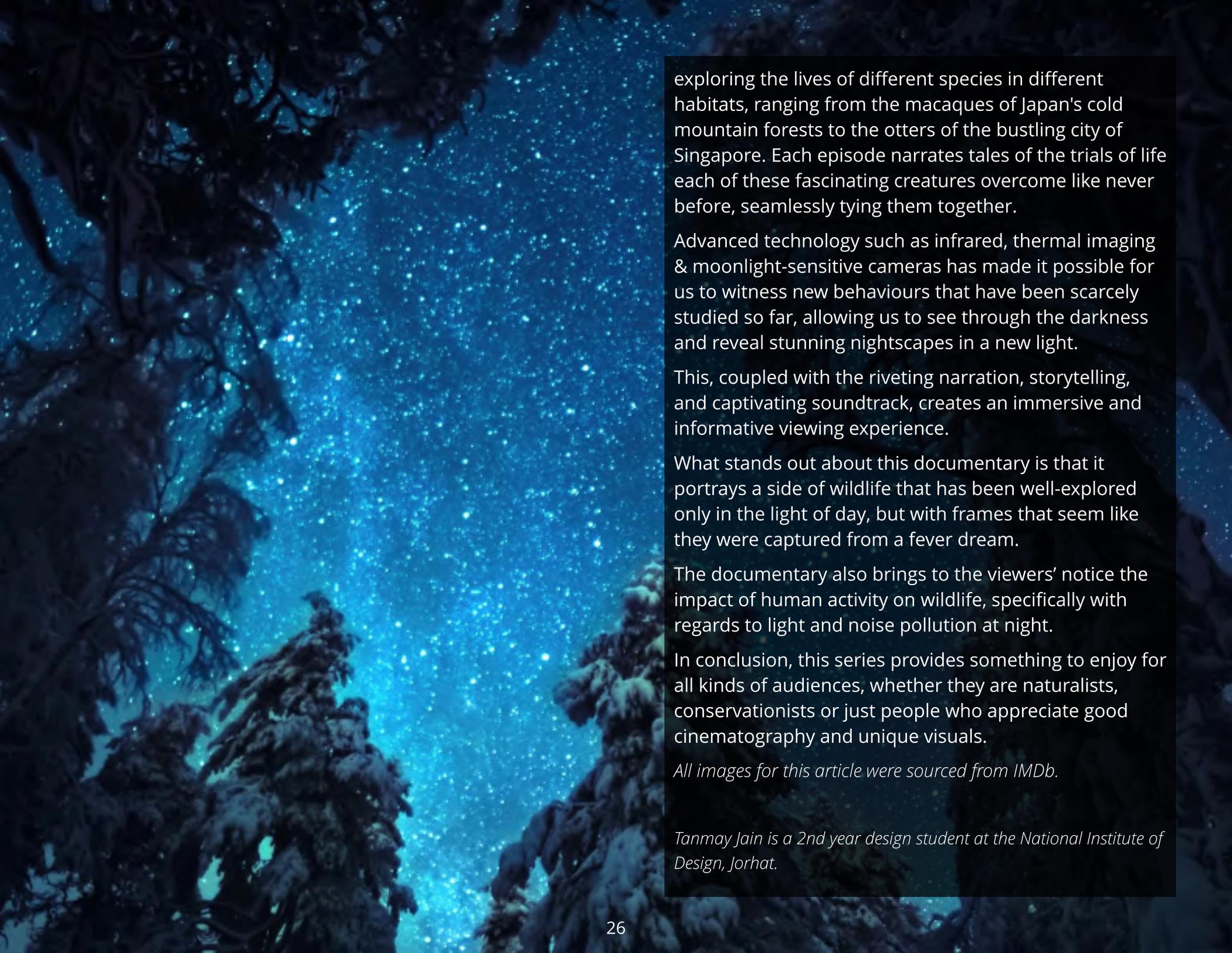
Night On Earth

Tanmay Jain

Night On Earth is a documentary series narrated by Samira Wiley that delves into stories from the nocturnal natural world.

Nights pose a unique set of challenges to wildlife. With the help of cutting edge camera technology, this documentary shows us a glimpse of the behaviours of a plethora of nocturnal creatures. It throws some light (pun intended) on the challenges as well as opportunities for survival created by the night and shows us how living beings have evolved in the most unique ways imaginable, to thrive in the challenging conditions of the dark.

Available on Netflix, the series spans 6 episodes, each of them



exploring the lives of different species in different habitats, ranging from the macaques of Japan's cold mountain forests to the otters of the bustling city of Singapore. Each episode narrates tales of the trials of life each of these fascinating creatures overcome like never before, seamlessly tying them together.

Advanced technology such as infrared, thermal imaging & moonlight-sensitive cameras has made it possible for us to witness new behaviours that have been scarcely studied so far, allowing us to see through the darkness and reveal stunning nightscapes in a new light.

This, coupled with the riveting narration, storytelling, and captivating soundtrack, creates an immersive and informative viewing experience.

What stands out about this documentary is that it portrays a side of wildlife that has been well-explored only in the light of day, but with frames that seem like they were captured from a fever dream.

The documentary also brings to the viewers' notice the impact of human activity on wildlife, specifically with regards to light and noise pollution at night.

In conclusion, this series provides something to enjoy for all kinds of audiences, whether they are naturalists, conservationists or just people who appreciate good cinematography and unique visuals.

All images for this article were sourced from IMDb.

Tanmay Jain is a 2nd year design student at the National Institute of Design, Jorhat.

Citizen Science for Biodiversity

Supraja Narasimhan

The contributions of citizens have never been more important to help us understand and map the biodiversity around us. In this article, Supraja Narasimhan describes the importance of citizen science and public engagement in the field of wildlife.

Citizen science involves the participation of the public in scientific research to collect data and address real-world problems. It improves access to scientific knowledge and encourages the involvement of the public by allowing a range of people to participate regardless of their careers or ages.

Citizen science, especially with respect to wildlife and biodiversity, empowers research as well as conservation, bridging the gap between citizens and scientists. Generally, professionals involved in science and research create citizen science programmes to collect data using community groups including birders, amateur naturalists, insect watchers, researchers and even the general public. Increasing citizen science engagement has been growing by the day, helping people become aware of the biodiversity around them.

You don't consider yourself a scientist? Think again. We all have a role to play in documenting and protecting the flora and fauna in our gardens, parks and neighbourhoods.

Here is a list of a few citizen science portals:

1. eBird India

In partnership with a large number of organisations and groups, eBird India is one of the most widely used citizen science platforms in the country. The data obtained from it is used to understand the distribution, abundance and population trends of Indian birds and the portal is a part of the Cornell Lab of Ornithology.

2. IFoundButterflies

The Indian Foundation for Butterflies was established in the year 2009 by a group of professional butterfly biologists, naturalists and butterfly enthusiasts. It works towards three main objectives:

- Consolidation of data on Indian butterflies and creation of an open data source on them.
- Collation of data on butterflies through scientific observation.
- Coordination with various governing bodies to aid the conservation of butterfly species and habitats.

3. iNaturalist

iNaturalist helps people identify plants and animals around them and is one of the world's most popular citizen science applications. This cyber community comprising millions of scientists, naturalists and others who are interested in monitoring and recording biodiversity is a joint initiative by the California Academy of Sciences and the National Geographic Society. iNat also allows users to create projects to collate observations of specific taxa or from a specific location or time period. An example of one such project is "Dragonfly South Asia" which is dedicated to recording odonates of the Indian subcontinent. It is also a successful Facebook community with over 8000 members.

4. India Biodiversity Portal (IBP)

IBP is a unique repository that aims to provide open and free access to information about the biodiversity of our country. It hopes to initiate public participation in data collection.

5. SeasonWatch

SeasonWatch urges users to systematically record various stages in the life cycles of specific plants. It records the seasonality of flowering and fruiting cycles of the plants with the help of contributions from students and the general public.

6. eMammal Project and Pterocount

The eMammal Project is a data management system and archive for camera trap research projects that helps amateur photographers and naturalists identify animals. Camera trappers use this software to identify, review and archive pictures at the Smithsonian. The data from this is invaluable for conservation.

Pterocount provides information about bat populations and the status of their roosting sites and habitats.

Both these portals are oriented towards scientific research and are not necessarily traditional citizen science portals, but are still important data repositories.

Awareness and encouragement play a vital role in engaging young minds to contribute to citizen science platforms.

Learn about what's in your own backyard. Making records of critters in your backyard helps ignite curiosity in children and adults alike about organisms around them. Encouraging people to contribute to cit-sci portals can help them

understand more about the creatures found in their immediate surroundings. Science communicators can substantially increase the participation of young volunteers and engage public participation. Successful collaboration between the media and science communicators could also help young people understand and the application of citizen science portals.

Citizen science isn't complicated, it is an initiative that has begun to gather steam because anyone can shine, not just the professionals. Because community science requires co-operation and invites contribution from everyone, regardless of their background, it is sure to help us move towards a safe future that involves coexistence with all the life forms around us.

Supraja Narasimhan is a science teacher at The Hindu Senior Secondary School, Chennai.



Involvement of General Public in Biodiversity documentation through Citizen Science- Nature Walk by Aswathi Asokan- Picture Credits: Srividya Vadlamani

The Street-side Soloist

Yuvan Aves

Squares and cement walls,
street vendor's calls,
roadway's blare and thrum,
electric cable's hum.

A soloist alights on the end-lane post,
flicks up his tail, clears his throat,
and angles his beak skyward...

Clouds of thick brushstrokes,
torrent of tree-frog staccatos,
a flash across the Areca nut rows

stops still on a tree-stump and finds a note.

This sound-smith shapes and sculpts the note,
and snowballs a song so fluid and long,

A theme and variation freewheels on.

Whirr of motor,

gush of water,

the smell of wet Earth being ploughed,

the Sun breaking sleep, turning gold.

From the Neem tree top a serenade flows,

embellished and improvised, the melody grows,

each day, each time a new motif arises,

the magpie robin's song each dawn

hauls me back into childhood places.



Oriental Magpie Robin and Black-rumped Flameback - Picture Credits: Yuvan Aves



Oriental Magpie Robin - Picture Credits: Yuvan Aves

Yuvan Aves is a school teacher at Abacus Montessori School. He is also a writer and a musician.

Photo Gallery

We at YNN are happy to share a few carefully curated images showcasing India's urban biodiversity taken by our talented young members. Enjoy!

*Yours,
The Photo Editors
Nature Trail Editorial Team*



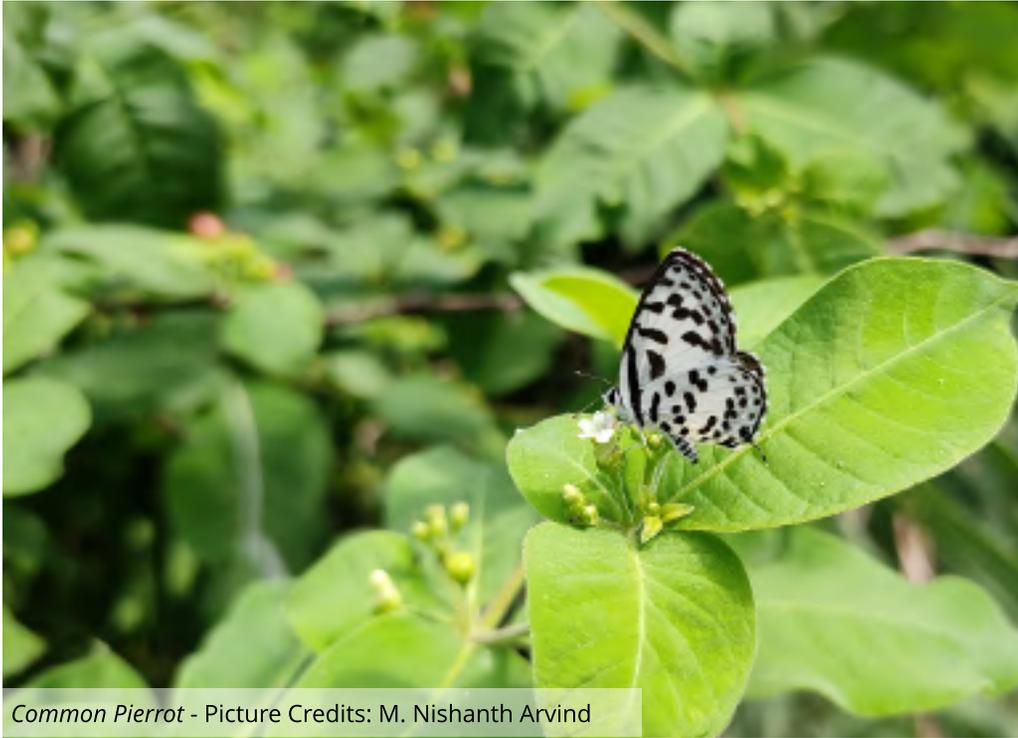
Lime Swallowtail - Picture Credits: Varshini Sridharan



Jumping Spider - Picture Credits: Samrudh Nandagopal



Pied Cuckoo - Picture Credits: Melvin Jaison



Common Pierrot - Picture Credits: M. Nishanth Arvind



Ditch Jewel - Picture Credits: Melvin Jaison



Blue-tailed Bee-eater - Picture Credits: Melvin Jaison



Jumping Spider - Picture Credits: Samrudh Nandagopal



Baya Weaver - Picture Credits: Samrudh



Shikra - Picture Credits: Melvin



Lemon Pansy - Picture Credits: M. Nishanth



Calotes versicolor - Picture Credits: Samrudh

**Fun
Corner**

IDENTIFY SOME COMMON URBAN TREES

Simran Singh

Many cities despite rapid urbanization and pollution are home to some majestic trees. Check out how many of these super common ones you can identify just by looking at their leaves!



1

Tropical or subtropical tree; leaves an indispensable part of Indian cuisine.



5

Popular Evergreen garden tree known for alleviating noise pollution.



2

Evergreen tree with glossy leaves; bears small fruit favored by birds.



3

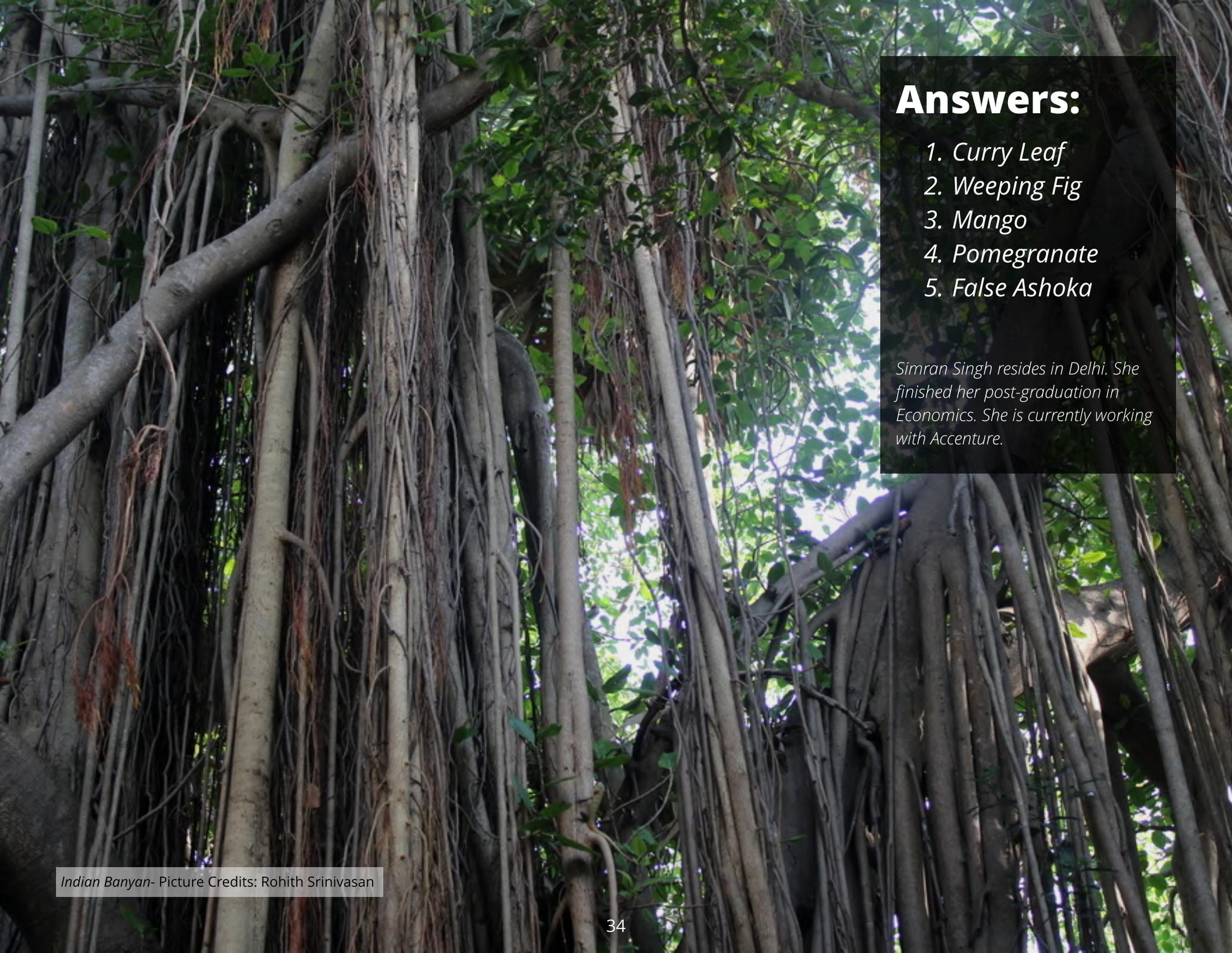
Large fruit tree produces small white flowers; grows best in tropical climate.



4

Fruit bearing deciduous shrub which produces bright orange or red trumpet-shaped flowers.

Picture Credits: Balakrishnan Ram



Answers:

1. Curry Leaf
2. Weeping Fig
3. Mango
4. Pomegranate
5. False Ashoka

Simran Singh resides in Delhi. She finished her post-graduation in Economics. She is currently working with Accenture.

