



# **EARTH DAY**

## **April 2024 Edition**



## ANNOUNCEMENT:

Mountains of Life Festival at Azim Premji University



### *©* FEATURE ARTICLES

Planet vs Plastic - What we do matters! The mysterious Myristica swamps of the **Western Ghats** 

A stroll with shieldtails in the Western Ghats!



## **INFOGRAPHICS**

Kanchenjunga Park, Sikkim

Planet vs Plastic - Inspiring mountain stories



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Unscramble words to solve the puzzle!

Ode to the Mountains!

**Mountain Perspectives: Calling Young Voices** 

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# Introducing the second annual edition of newsletters as a part of the climate festival, an initiative by Azim Premji University!

Building on the success of the Forests of Life Newsletter last year, and with the upcoming Mountains of Life festival scheduled in November 2024, we are excited to bring you a collection of captivating stories, insights, and calls to action.

These newsletters will take you on a journey through the diverse world of mountains. From the fascinating geological processes that shape these landscapes to the unique lives of the animals and plants that call them home, we will explore the wonders of mountain life together.

We will also throw some light on the challenges faced by those who live in the mountains, and discuss the importance of protecting these fragile ecosystems, calling everyone to join in the effort to preserve our planet.

But our newsletter is not just a repository of information—it is a platform for creativity and engagement! In every edition, we will invite students to share their artwork, poetry, and other creative works in order to motivate young readers to bring in their unique perspectives towards mountain conservation.

Launching on **Earth Day, 22 April 2024**, our newsletter aligns with the theme of "**Planet vs. Plastics**". We intend to raise awareness about the dangers of plastic pollution, advocate for the reduction of single-use plastics, and call for stronger measures to protect our environment.

Together, let us take a stand for sustainability and work towards a future where humans and nature thrive in harmony.

# This November, Come Celebrate the Mountains of Life Climate Festival with Us

With the planet in a turmoil and climate crisis spilling into and affecting our daily lives, a coming together of global citizens is needed to address the human impact on nature.

The climate festival of the Azim Premji University after exploring the distant rivers of life and ancient forests over the last two years is once again back to ignite a ray of hope in the efforts to protect planet Earth. The new generation, while rolling up their sleeves, will surely need all the support to understand and respond effectively to the challenges of a planet in crises.





This year the Mountains of Life festival will be held between 11th and 22nd November 2024 in Bengaluru and subsequently in other towns and cities. The festival is an expression of our belief that critical life support systems such as mountains, rivers, wetlands, grasslands, and forests that together make up the mosaic knitting our world will be conserved by the children. For the children.

Once again, the festival will see the coming together of interns, students, activists, artists, researchers, young professionals, teachers, experts, family members and community members to create a multi-layered narrative of mountains as a critical and inseparable part of nature.

The interns who have begun their journeys to document the mountains come to us with their thoughts, perplexed at the state of the earth and at our struggles to cope with the growing crisis—on why discussions around nature are often sidelined. On why we are hurting our own life sustaining systems when we understand its intrinsic value. On why some communities resist and conserve despite the challenges. On how they changed as a person during their journeys. But also with the hope that their efforts will affect someone significantly enough to think about the environment even as they go about their daily lives. At the festival, using various forms and media MoL interns, as they are called in conversation, will create individual tapestries documenting the complexities of our natural world.

We are also engaging with NGO partners to bring out their stories and experiences of living and working in the mountains. We will also have stories of villagers conserving seeds, of idealists who set up influential civil society organisation to conserve hills and mountains, and of children who will grow up to inherit the hills.

Young children will have this fun filled newsletter to look forward to in the months leading up to the festival. Quiz competitions on mountain ecosystems, social media updates, real life yatras during the World Environment Day, youtube series on guardians of the mountains and mountain ecowarriors, workshops with teachers on interpreting nature and endless competitions—all this and more will be held before the festival in November.

As we prepare to host the festival, we hope that thousands of young children and adults visit the festival to see the numerous photo documentations, infographics, real life installations, traditional folklore, contemporary music around mountains, workshops, talks and more and join the effort to respect and conserve nature.

As nature completes one of its many millions of life cycles on an everyday basis, as the rivers flow as they have always flown in their ever-changing manner, as the forests breathe and provide valuable life support systems, so have the mountains stood forever. Magnificent, majestic, eternal, ethereal, they have been around for millions of years. Giving birth to rivers and enveloped in layers of forests, mountains seem to be more alive than still.

As we celebrate this journey of rediscovering our mountains of life with a coming together of its many traditions, its people and the many geographical complexities that make a mountain, we attempt to do so through stories of everyday importance. In the process, the mountains teach us.

Join us in November 2024!
Mountains of Life Team





#### Planet vs. Plastic - What we do matters!

Arvind Lakshmisha

The theme of Earth Day 2024 is Planet vs. Plastic. This is a call for a strong global treaty to curb plastic pollution and demand an end to single use plastics in addition to creating widespread awareness on health risks posed by plastics.

The debate of man vs. machine is an evergreen one—as old as the invention of modern machinery. The invention of machines and technological advancements led to the development of plastics in 1907. Plastics have the property of being lightweight, durable, flexible, having a long-life and are inexpensive to produce. And more than 10 billion tonnes of plastic is estimated to have been produced till date.



Plastics have become a nuisance to the world. They are today found from the highest peaks in the Himalayas, the Andes and the Rocky Mountains to the deepest parts of the ocean including the Mariana Trench, and the Philippines Trench. A recent study revealed that a plastic grocery bag is now the deepest known piece of trash.

Plastic in the mountain peaks is worrying as they have become part of the diet of birds and mammals. An investigation identified high levels of plastics in nearly all the samples of the diets and regurgitated pellets of the Andean Condors (*Vultur gryphus*) living in protected areas far from garbage dumps high up in the Andes mountains of South America. This indicates a declining habitat quality or ecosystem health status, with the entire food chain at risk of being contaminated with plastics. The report "It is raining plastic" by the US Geological Survey showed how plastic was found in 90 percent of soil and rock samples collected in the Colorado Front Range of the Rocky Mountains in North America.

Mountains are not under the spotlight when compared to oceans, when speaking about the environment, even though they face serious threats from a wide range of human activities. Tourism is one of the main causes of pollution on the mountains. 99.7 percent of mountain enthusiasts from 74 countries saw litter and waste on or besides trails and resting places during and post Covid-19 pandemic. Our mountains are already affected by climate change and the menace of plastics is an added burden, with rising costs of collection and transportation due to challenging geographies leading to a one-way flow of plastic waste to the mountains.

Closer home, the problem is stark in the majestic Himalayas, with regular reporting of waste on the world's highest peak. The images of piles of plastic waste left over by trekkers, tourists, and climbers are distressing. This has been documented in the Netflix documentary "14 Peaks" showing the trials and tribulations our mountains face due to plastic waste.

To quote one of the world's youngest climate activists from the Himalayan state of Manipur, India, Licypriya Kangujam, "If we don't know how to fix the world, why do we continue to break it". A very serious quote, that should make us think about why we continue to use and manufacture plastics when we do not know how to dispose of them?



How do we overcome the problems of plastic plaguing our world? It is up to us, all of us as citizens and residents of this planet, to save our mountains, our seas and wetlands and show the world that when the planet takes up the issue of plastics, in one voice, there is no other way but for the planet to win.





# The mysterious Myristica swamps of the Western Ghats

Seema Mundoli

Swamps conjure images of swamp monsters, dangerous creatures lurking in these damp, dark, and eerie places—places we prefer to steer clear of.

And then there are the Myristica swamps—a unique ecosystem that draws naturalists and ecologists eager to explore the swamps' rich biodiversity.



In India, Myristica swamps are found in the Western Ghat regions of Kerala, Karnataka, and Goa—and more recently have also been recorded in Maharashtra. These swamps are formed by freshwater streams that flow down the Western Ghats and get their name from Myristicaceae that are flowering trees of the nutmeg family. The dominant trees in these swamps are the Kanara nutmeg (Gymnacranthera canarica) and Myristica fatua, both of which are endemic species. As the trees grow in waterlogged soil, they have aerial and stilt roots that stick out in an inverted U shape. The roots are pneumatophores, specially adapted to enable the exchange of gases and provide stability to the trees in the marshy soil. Walking through the swamp is not an easy task. The mesh of roots that stick out from the ground can trip you if you are not careful.

The swamps also throb with faunal life. Species of fish, snakes, amphibians, spiders, damselflies, and dragonflies can be found in abundance in the foliage and in the water. One of the most interesting species is the endemic Kumbara night frog (*Nyctibatrachus kumbara*), which has a unique mating and breeding behaviour. After an elaborate dance of sorts, the female lays the eggs, and the male takes over their care by spreading a layer of mud on the eggs—hence the name Kumbara or potter. The layer of mud helps camouflage the eggs and prevent the eggs from getting desiccated. If you ever get a chance to visit the swamps listen for the "tok" or "tok-tok" call of these potter frogs. But even as new species, and new patches of swamps, are being discovered, the swamp ecosystem itself is under extreme pressure.

H. G. Champion and S. K. Seth in their revised "Forest Types of India" published in 1968 write about the Myristica swamp:

"This localised but interesting type recently described from Kerala is being rapidly destroyed for conversion into paddy fields."

Clearly, the swamps have been under threat for decades. But today in addition to their conversion into agricultural fields, the threats include diversion of water from the swamps to meet drinking water needs of villages and to irrigate plantations of teak, areca, and eucalyptus.

But why bother, of all things about, a swamp? The Myristica swamps are ecosystems that support rare floral and faunal species found nowhere else in the world. Many of the species are also endangered—such as the Kumbara frog and the *Myristica fatua*. In this era where we are witnessing the adverse impacts of climate change, the trees in the swamp serve as critical carbon sinks. The swamps also help in groundwater recharge and mitigating the impacts of floods.

Moreover, the Myristica trees are living fossils—relics from the time of the continental drift and survivors of the meteorite crash 65 million years ago that wiped out dinosaurs. It would be a pity if we humans destroyed these ancient ecosystems. And with it silence forever the echoing "tok-tok" call of the Kumbara frogs





WESTERN GHATS

### A Stroll with Shieldtails in the Western Ghats

Shubham Soni

The Western Ghats. This is a mighty escarpment in the Indian subcontinent, a mountain range that formed nearly 150 million years ago when the Indian plate split from the Gondwana landmass. This megadiverse hotspot of biodiversity extends from the Dang forests in Gujarat, up to southern Kerala. It is a visually mesmerising experience to just be in the ghats and its rich biodiversity.



On a casual stroll in the forest, we can see the elegant hornbill fly by, the colourful butterflies hover, and hear the woodpeckers and barbets drum. These forests are full of colour. There are birds in the sky and through the canopies we can catch a glimpse of flycatchers and leaf birds—flashes of blue and yellow flitting in the foliage. If we have a sharp eye, we can see the camouflaged flying lizards (*Draco dussumeri*) and the water droplet frogs (*Raorchestes nerostagona*) on the bark of trees. Moving further below in the canopy we can spot the vine snake (*Ahaetulla borealis*) and the pit viper (*Trimeresurus malabaricus*). On a sunny morning, we might even get to see the feeding frenzy of the red and black-bodied, Roux's forest lizard (*Monilesaurus rouxii*) in the leaf litter. This is a lot of colour and we still have not seen the best!

If we dig a little deeper, literally, we can see the colours that lie beneath. After flipping a hundred rocks and digging a few buckets of earth we may even find GOLD—the rare golden shieldtail (*Plectrurus aureus*). The golden shieldtail snake was rediscovered recently after a gap of 142 years on an expedition led by Dr. Vivek Cyriac. This species is known only from some spots in Chembra Hills of Wayanad, Kerala. Shieldtails are one of the most fascinating and elusive reptiles of the Family Uropeltidae. Shieldtails are known to be endemic to peninsular India and Sri Lanka. There are many different species, and shieldtails also show a high diversity in body coloration.

If we explore the Anamalai mountain ranges and turn over a few more logs, we can see the beautiful purple-red earth snake (*Teretrurus sanguiensis*). From the top, it looks like any other snake, but its underside has a beautiful red coloration. The bicoloured shieldtail (*Rhinophis melanoleucus*) is black with milky white patches underneath and is eye-catching too. The colours in shieldtails are due to pigments present in the scales. But the Khaire's black shieldtail (*Melanophidium khaire*i) is a special kind that relies on the structural properties of its scales to gain iridescence. As if colour variations between species was not enough, the Mahabaleshwar shieldtail (*Uropeltis macrolepis*) is known to show variation within species—from speckled patterns to stripes that run along the body.

While all these snakes are very beautiful to look at, they are elusive and shy. Given the fossorial habit, they are hard to find but if we are lucky to be in the right time and place, and with some effort we stand a chance to see these snakes. Shieldtails are specialised to live underground with a strong, narrow head and their cylindrical body makes them excellent diggers. However, such specialisations can potentially make the species vulnerable to climate change by limiting their ability to adapt to the changing environment. Out of 65 species recognised globally, India is home to 47, but even today we know very little about shieldtails. Given how vulnerable these fossorial species are to habitat alterations and climate change it is crucial to understand their ecology, which can in turn inform impactful conservation plans. And shieldtails could live on for longer to dazzle us with their colours!





### Kanchenjunga Park, Sikkim

Sakkyong, Sikkim

An area of over 1,784 square kilometres





#### **About The Park**

• Location: Mangan and Gyalshing districts, Sikkim, India

 Home to Kangchenjunga, the third-highest peak in the world at 8,586 m (28,169 ft)

Total Area: 849.5 km²

 Features: Plains, valleys, lakes, glaciers, snow-capped mountains, ancient forests

Sacred to Sikkimese people, "Five Treasures of the Snow"

UNESCO World Heritage Site since July 2016



#### **MAMMALS**

- Red Panda
- Himalayan Tahr
- Jackal
- Tibetan Wolf
- Goral
- Blue Sheep (Bharal)



#### REPTILES

- Kukri Snake
- Himalayan Pit Viper
- Russell Viper
- Rat Snake





#### **BIRDS**

- Blood Pheasant
- Satyr Tragopan
- Himalayan Griffon
- Tibetan Snowcock
- Lammergeier



#### **FLORA**

- Rhododendron forests
- Alpine meadows
- Blue poppy





#### **BEST TIME TO VISIT**

March to mid-May and from October to late November.



#### **NEAREST AIRPORT**

The nearest airport to the Indian side of Kanchenjunga is Bagdogra airport in West Bengal. It is well-connected to major cities in India. From Bagdogra, you can proceed to Sikkim. If you land at Bagdogra airport, you can hire a taxi to Gangtok, the capital of Sikkim.







### Planet vs Plastic - Inspiring mountain stories



#### Ruchi Jain, based in Pune, is the founder of Atithyaa

With a passion for mountaineering since 2010, Jain was deeply concerned by the plastic waste generated by the travel industry in **Himachal Pradesh** and **Uttarakhand**. In response, she transformed these non-biodegradable materials into eco-friendly hotel amenities. Atithyaa specialises in producing edible drinking straws, sustainable hotel toiletries, and guest room amenities, thereby contributing to the reduction of plastic pollution while promoting environmental sustainability in the hospitality sector.

#### Residents of DLF Phase 5 in Gurgaon

Due to the rising levels of pollution, the residents joined hands together to organise weekly cleanup drives. They collected 200 kg of waste from the **Aravalli** hills near Ghata village. This initiative emphasises the role of community engagement in environmental conservation, promoting a sense of responsibility towards preserving our ecosystems.

GUJARAZ

Preeti Chauhan, a civil engineer from Mumbai, founder of Little Green World

Recognising the environmental threat and extensive plastic pollution in **Ladakh**, the organisation takes various initiatives to curb plastic use in the mountains. These efforts include waste management programmes, promoting waste segregation in schools and hotels, and conducting awareness campaigns. Little Green World also integrates experiential learning programmes in schools to cultivate a culture of conservation, sustainable construction practices, and promoting the use of solar power in schools.

Pradeep Sangwan hails from Haryana and leads the initiative known as Healing Himalayas.

Since 2016, Sangwan and his dedicated team organise treks into the **Himalayas** from February to October annually. Their mission is to gather plastic and other waste dumped by tourists and pilgrims. Over the years, they have collected tonnes of non-biodegradable waste, carefully sorting, and recycling it through their dedicated facilities. Supported by a network of 3,000 volunteers from various parts of India, these weekend clean-up campaigns have resulted in the removal of a staggering 400,000 kgs of waste over a span of four years.

### Priyadarshinee Shreshta, an environmental activist with WWF India and Founder of Zero Waste Himalaya (ZWH)

ZWH tackles waste through various initiatives. The Himalayan Cleanup identifies polluters by analysing collected waste. The "Return to Sender" campaign holds companies accountable by returning their plastic trash. A week-long "Plastic Freedom Challenge" encourages individuals to minimise plastic use. ZWH also supports the recently implemented national ban on single-use plastics and fights fast fashion's environmental impact. Their efforts extend to collaborating with businesses to adopt reusable packaging. Shrestha's work reflects the growing global awareness of waste management and the fight against plastic pollution.



#### Supriya Sahu, an IAS Officer, spearheaded Operation Blue Mountain

Operation Blue Mountain aimed to eliminate plastic usage and clear river sources and springs in the hill station of **Nilgiris**. Sahu implemented fines for public plastic usage. Additionally, in collaboration with the government, she implemented the replacement of plastic bags with affordable jute and cloth shopping bags, crafted by women's self-help groups. This initiative not only contributed to environmental preservation but also created employment opportunities in a sustainable manner.



Aravalli

Nilgiri

**MYSURU** 

TAMIL NADU





### **MOUNTAIN RIDDLES**

### **Mountain Mystery 01**

I am the highest peak in Northeast India, Known for my majestic beauty and spiritual aura. Locals call me "The Abode of the Gods," Can you guess my name, where the Himalayas applaud?





### **Mountain Mystery 02**

Known as the Blue Mountain, I'm a visual delight, In Mizoram, I rise, a scenic height.

My name begins with P, shining bright,
Solve this puzzle, and you'll be right on site!





### **JUMBLED WORDS**

Clue: I am the highest peak in the Nilgiri Hills, known for my blue hue. Unscramble to reveal my name!

ATTADDOADBE

Clue: Found in the Anamalai Range, I am a lesser-known gem. Unscramble and discover this beautiful peak!







### Unscramble words to solve the puzzle!

#### Instructions:

Solve the anagrams to reveal the letters for the final message using the hints below. Use the circled letters from the words in the top part to complete the final word or phrase at the bottom. Each circled letter is used just once.

	AEK —
El	NARG ————————————————————————————————————
0	CALVON — — — — — — — — — — — — — — — — — — —
**** <b>N</b>	osw ————————————————————————————————————
FI	FCL -
Fir	nal Message:

#### **Hints:**

The part of a mountain that every explorer wants to reach.

Multiple mountains linked together form these.

I like to think of these as 'angry mountains'.

This word is found in the name of a Disney princess.

People at the end of action/thriller movies hang on to the edge of this as they try not to fall down.

A huge sheet of ice which is found in extremely cold regions (for example: the Himalayas and the regions around the North Pole and the South Pole)

### **Ode to the Mountains!**

An old tree stares at you
Till you find many more
The walk up to Annapurna is stiff
And suddenly you go beyond the staring old trees and talk to the mountains
The chill wind carries the message
The trees deliver it

The snow laden Annapurna stands like a distance lover Reassuring herself in the mirror again and again

Light disappears, as if someone has seen the clandestine meeting Skies paint darkness
Wind sheds gentleness
Annapurna disappears into oblivion
Unbearable silence engulf Annapurna

Wait for the morning is perpetual.....









### **MOUNTAIN PERSPECTIVES:**

### **Calling Young Voices for Creative Renditions**

Artwork, Poem, Puzzle, Riddle, Illustration, Animation...

Calling all mountain enthusiasts!

Join us in celebrating the awe-inspiring beauty of mountains by sharing your creative works. Whether it's art, poetry, puzzles, riddles, illustrations, animations, or anything else that captures your mountain-inspired imagination, we welcome all!

Win a chance to be showcased in our upcoming "Mountains of Life" newsletter series.

<u>Click here</u> to upload your submission

Last date to apply - May 20, 2024



Scan here to upload the submission

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#### Infographics: Discover the wonders of Kanchenjunga Park!

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# Infographics: Planet vs Plastic - Inspiring mountain stories

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#### **Activity Corner: Mountain Riddles**

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Mt. & text = Kangchenjunga % 2C% 20 the % 20 third% 20 highest% 20 mountain, Sikkim% 20 and % 20 adjacent% 20 country% 20 Nepal.

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### **CREDITS & ACKNOWLEDGEMENTS**

Shieldtail Photos: Shieldtail Mapping Project | Dr. Vivek Cyriac

Kanchenzonga National Park Photo Credit: Northeastplace.weebly

Kanchenjunga Mountain Photo Credit: RNMltra

Phawngpui Photo Credit: Sayan Nath

Annapurna Mountain Photo Credit: Mario1952 from Wikimedia Commons

Unscramble the words using hints: Dhwani Nagendra Suri

Ode to the Mountains - Annapurna: Amalendu Jyotishi

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