BIOINVASION

EIACP newsletter on Biological Invasion

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Prosopis juliflora

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Mangrove Day Special Issue

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Mangroves to be rid of invasive species

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Tamil Nadu's long fight against Prosopis juliflora

By Hindustan Times

Mar 29, 2023 04:01 PM IST

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The article has been authored by Manjunatha G and Ananya Rao, researchers, Centre for Social and Environmental Innovation, ATREE, Bengaluru.

Tamil Nadu's long fight against Prosopis juliflora(Ravi Choudhary/HT PHOTO)

In the early 1960s, parts of southern Tamil Nadu faced a severe firewood shortage. The answer arrived by helicopter.

Cover image source - https://commons.wikimedia.org/wiki/File:Prosopis_juliflora_%282222290893%29.jpg

Content

EIACP Editorial Team

Dr. Maya Mahajan
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EIACP RP

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EIACP RP

From the Coordinator's desk

Ministry of Environment, forest and Climate Change's (MoEFCC) Environmental Information Awareness Capacity Building and Livelihood Programme (EIACP) resource partner at Amrita Vishwa Vidyapeetham is established to disseminate scientific, technical, and semi-technical information on various issues related to biological invasion/Invasive Alien Species and conduct related research and extension activities.

Some of the objectives of the EIACP Centre are:
1. To promote, implement, and coordinate Green Skill Development Programme (GSDP), an initiative to skill youth in environment, forest, and wildlife sectors and enable them to be self-employed. E.g., lantana craft and furniture making, herbal kitchen gardening of native species.

2. To implement and coordinate National Environment Survey (NES) a Grid-based Resource Information and Decision Support System (GRIDSS) for sustainable management of natural resources to fill in data gaps with respect to various environmental parameters such as emission inventory and pollution; forest and wildlife (flora and fauna); wetlands; rivers and other water bodies; public health, etc.

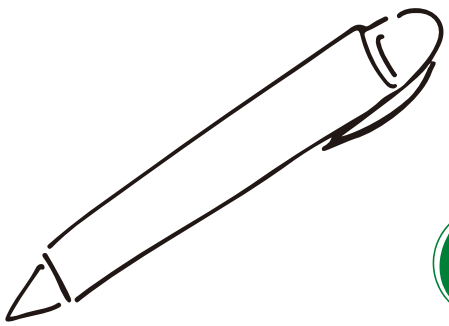
3. To implement and coordinate a community driven Environmentally Sustainable Village Programme (CESVP) with the objective of mobilizing communities on environmental issues, creating decentralized models of development to empower local communities and build an awareness driven atmosphere in villages to adopt environmentally sustainable practices at community level.

4. To build a repository and dissemination centre in Environmental Science, Information and Management (ESIM).

5. To support and promote research, development and innovation in ESIM.

6 To promote national cooperation and liaise with agencies concerned for exchange of environment and biological invasion related information.

Dr. Maya Mahajan



Prosopis juliflora : An Invader Impacting Ecosystems

Introduction

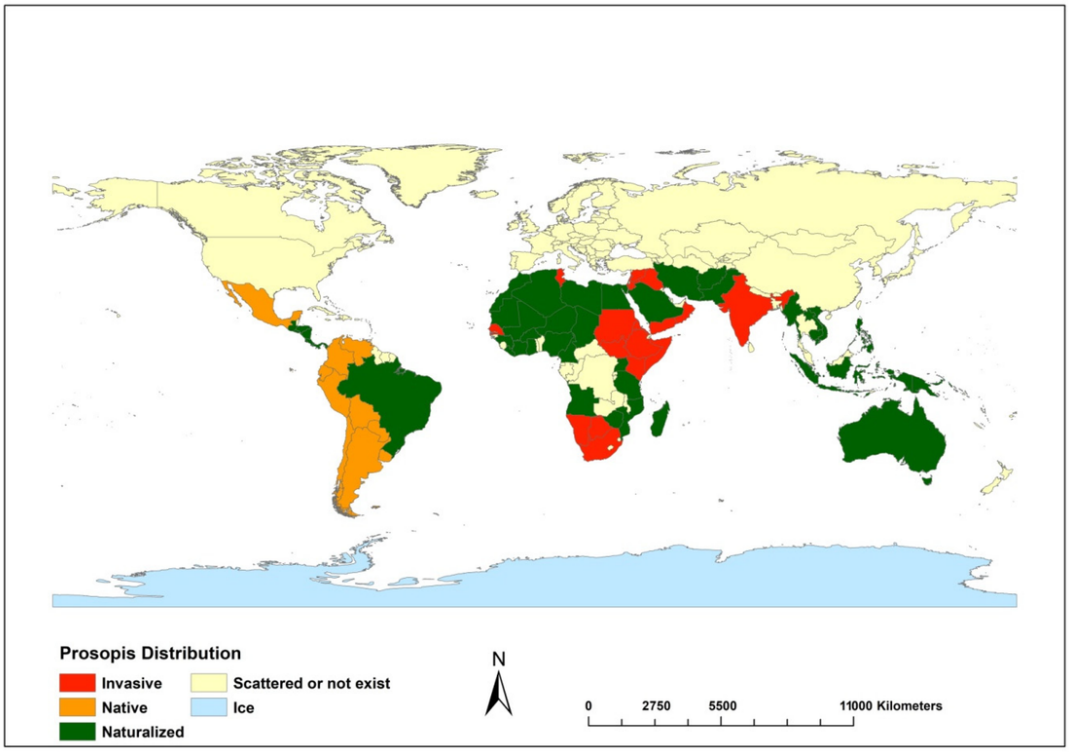
Prosopis juliflora, commonly known as the mesquite tree or seemai karuvelam (in Tamil), is a thorny, drought-resistant shrub or small tree native to South and Central America. Introduced to various regions worldwide for its adaptability and usefulness, this species has become one of the most controversial invasive plants in many countries, including India, where it has had profound impacts on ecosystems and local livelihoods (Wakie et al., 2016).

Taxonomic Position

Domain	: Eukaryota
Kingdom	: Plantae
Phylum	: Spermatophyta
Sub - phylum	: Angiospermae
Class	: Dicotyledonae
Order	: Fabales
Family	: Fabaceae
Sub - family	: Mimosodeae
Genus	: Prosopsis
Species	: *Prosopsis juloflora*

The introduction of Prosopis juliflora to India dates back to the early 20th century when it was primarily introduced for afforestation, soil conservation, and fuelwood production. With its ability to thrive in arid and semi-arid regions, it was seen as a promising species to combat desertification and provide wood for various purposes. During the 1960s the state government of Tamil Nadu encouraged the planting of Prosopis juliflora to overcome the shortage of firewood faced by the state at the time, it was also grown as a fence to protect agricultural fields from animals.

Rapid Spread and Invasion



Global data of invasion of Prosopis sp. (Wakie et al., 2016)

Initially, Prosopis juliflora served its intended purpose and was even promoted for its beneficial traits. However, its invasive nature soon became evident as the species began to spread rapidly, outcompeting native vegetation and dominating large areas of land. The tree's prolific seed production, long-lived seeds, and hardy nature allowed it to establish and spread aggressively, displacing native flora and altering entire ecosystems (Tadros et al., 2020).

Parts drawing from the 1880–1883 edition of F. M. Blanco's Flora de Filipinas.

Impact on Biodiversity

The invasion of Prosopis juliflora has had detrimental effects on biodiversity in affected regions. As an aggressive colonizer, it forms dense thickets that reduce sunlight and water availability for native plants, leading to their decline. The change in vegetation composition disrupts the food web, affecting native fauna, including insects, birds, and mammals that depend on native plants for food and habitat. This disruption can result in a cascade of ecological consequences, further threatening local biodiversity.

Water Resource Depletion

One of the most significant concerns related to Prosopis juliflora invasion is its impact on water resources. The species has a high demand for water and exhibits a unique capability to tap into groundwater reserves, which can cause a decline in the water table and negatively affect the hydrological balance of an area. This water depletion can have serious implications for nearby agricultural lands and rural communities that rely on groundwater for their livelihoods.

Socio economic Implications

While Prosopis juliflora was initially introduced with good intentions, its unchecked spread has resulted in several socioeconomic challenges. The invasive tree competes with native vegetation used for grazing, reducing available forage for livestock. Furthermore, its thorny nature makes it challenging for livestock to graze freely, impacting the livelihoods of pastoral communities. The encroachment of Prosopis juliflora into agricultural lands also results in reduced crop yields, affecting the income and food security of farmers.

Management and Control

Addressing the issue of Prosopis juliflora invasion requires a comprehensive and coordinated approach. Eradication of the species entirely may not be feasible due to its widespread distribution, but effective management strategies are essential to minimize its impact. Integrated approaches, including manual removal, controlled grazing, and the introduction of biocontrol agents (natural enemies of the plant), are being explored to control its spread. Another feasible method is the production of Charcoal and firewood (Odeor et al., 2003).

Prosopis morphology (Timothy ., 2010)

Prosopis sp. tree form (Timothy ., 2010)

Conclusion

Prosopis juliflora serves as a poignant reminder of the potential consequences of introducing non-native species without adequate consideration of their long-term impact. Its invasion has triggered ecological imbalances, impacted biodiversity, and disrupted traditional livelihoods in various regions of India.

Going forward, it is imperative to approach afforestation and land management practices with a precautionary mindset, thoroughly evaluating the potential consequences to prevent future invasive species disasters. Through collective efforts, we can learn from the challenges posed by Prosopis juliflora and work towards restoring affected ecosystems and ensuring sustainable livelihoods for the communities living in these regions.

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Indian Mangroves: spare a thought for our coastal ecosystems

Introduction

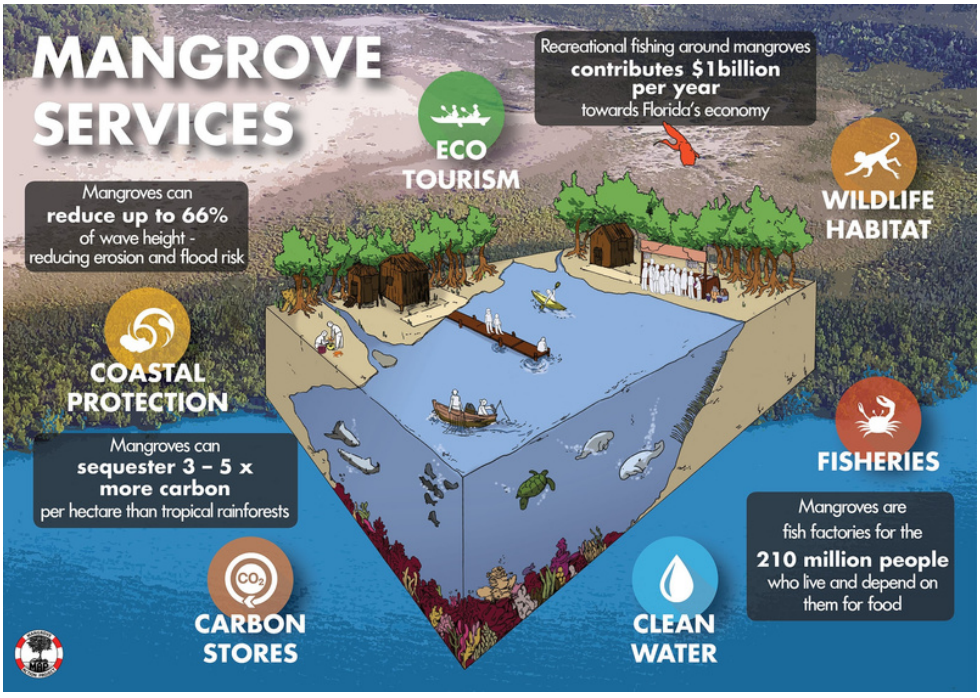
Mangroves, unique coastal ecosystems comprised of salt-tolerant trees and shrubs, play a crucial role in the ecological balance of India's coastline. These thriving habitats, found along the country's extensive shoreline, offer numerous ecosystem services that benefit both nature and humanity. However, over the years, these invaluable ecosystems have faced severe threats due to human activities and climate change. In this article, we will explore the ecosystem services provided by Indian mangroves and the urgent need for their conservation.

Importance of Mangrooves

Indian mangroves encompass a diverse range of species that are uniquely adapted to saline environments. These ecosystems act as vital nurseries for a wide variety of marine species, providing shelter and food for numerous fish and crustaceans. The intricate root systems of mangroves trap sediments, preventing erosion and stabilizing coastlines against the forces of waves and tides.

Climate Change Mitigation

Mangroves are highly effective at sequestering carbon dioxide from the atmosphere, making them significant players in the fight against climate change. Their ability to capture and store carbon helps reduce the amount of greenhouse gases in the atmosphere, thus mitigating the impacts of global warming. Conserving these ecosystems is essential to maintain their vital role in climate regulation.



An infographic on the benefits of a mangrove ecosystem. Picture courtesy: Mangrove Action Project

Coastal Protection

The dense root networks of mangroves create a natural buffer zone between the sea and land, acting as a shield against storm surges, tsunamis, and cyclones. During extreme weather events, mangroves dissipate wave energy, reducing the destructive impact on coastal communities. The loss of mangroves has often led to increased vulnerability to natural disasters in many regions.

Biodiversity Hotspots

Indian mangroves are biodiversity hotspots, harboring a remarkable variety of flora and fauna. These ecosystems are home to several endangered and threatened species, such as the Royal Bengal Tiger, saltwater crocodile, and numerous bird species. Protecting mangroves ensures the preservation of these unique and ecologically significant habitats.

Sustainable Livelihoods

Mangroves offer a source of livelihood for numerous coastal communities. Fishermen rely on mangrove estuaries as prime fishing grounds, and the dense vegetation provides firewood, timber, and medicinal plants for local use. Additionally, ecotourism activities centered around mangrove exploration can generate income and promote conservation awareness.

Conservation Efforts

Despite their ecological importance, Indian mangroves have been subject to considerable degradation due to anthropogenic activities. Unsustainable coastal development, aquaculture, logging, and pollution have taken a toll on these delicate ecosystems. However, there are several ongoing efforts to conserve and restore mangrove habitats:

Legal Protection:

The Indian government has implemented laws and policies to protect mangroves, including the Coastal Regulation Zone (CRZ) rules, which restrict certain activities near coastlines to prevent further degradation.

Mangrove Restoration:

Several organizations and communities are actively engaged in mangrove restoration projects, replanting and rehabilitating degraded areas to regain lost biodiversity and ecosystem services.

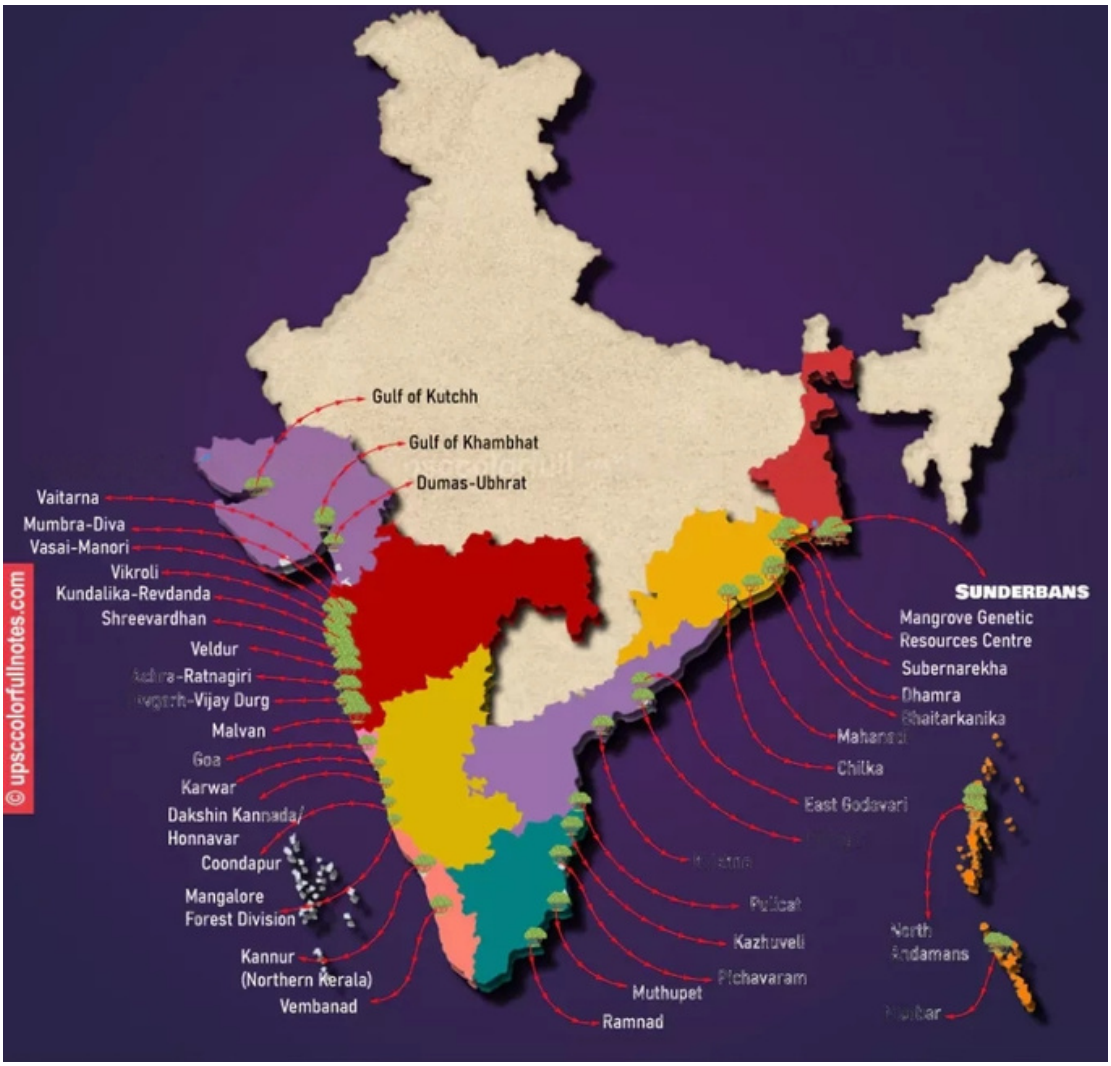
Awareness and Education:

Raising awareness among local communities and the general public about the value of mangroves is crucial for their conservation. Education initiatives help foster a sense of ownership and stewardship towards these vital ecosystems.

Sustainable Management:

Encouraging sustainable practices in fishing, aquaculture, and tourism within mangrove areas ensures that these ecosystems can continue to provide ecosystem services without compromising their health.

Map of Mangrooves in India



Source - UPSC colourful notes

Conclusion

Indian mangroves are ecosystems of great ecological significance, providing an array of services that are indispensable to coastal communities and the environment. Their role in climate change mitigation, coastal protection, and biodiversity conservation cannot be overstated. However, preserving these valuable habitats requires collective efforts from governments, NGOs, communities, and individuals.

Conservation measures must focus on sustainable practices, awareness campaigns, and restoration initiatives to safeguard the future of Indian mangroves. By recognizing their true worth and acting to protect them, we can ensure that these precious ecosystems continue to thrive for generations to come.

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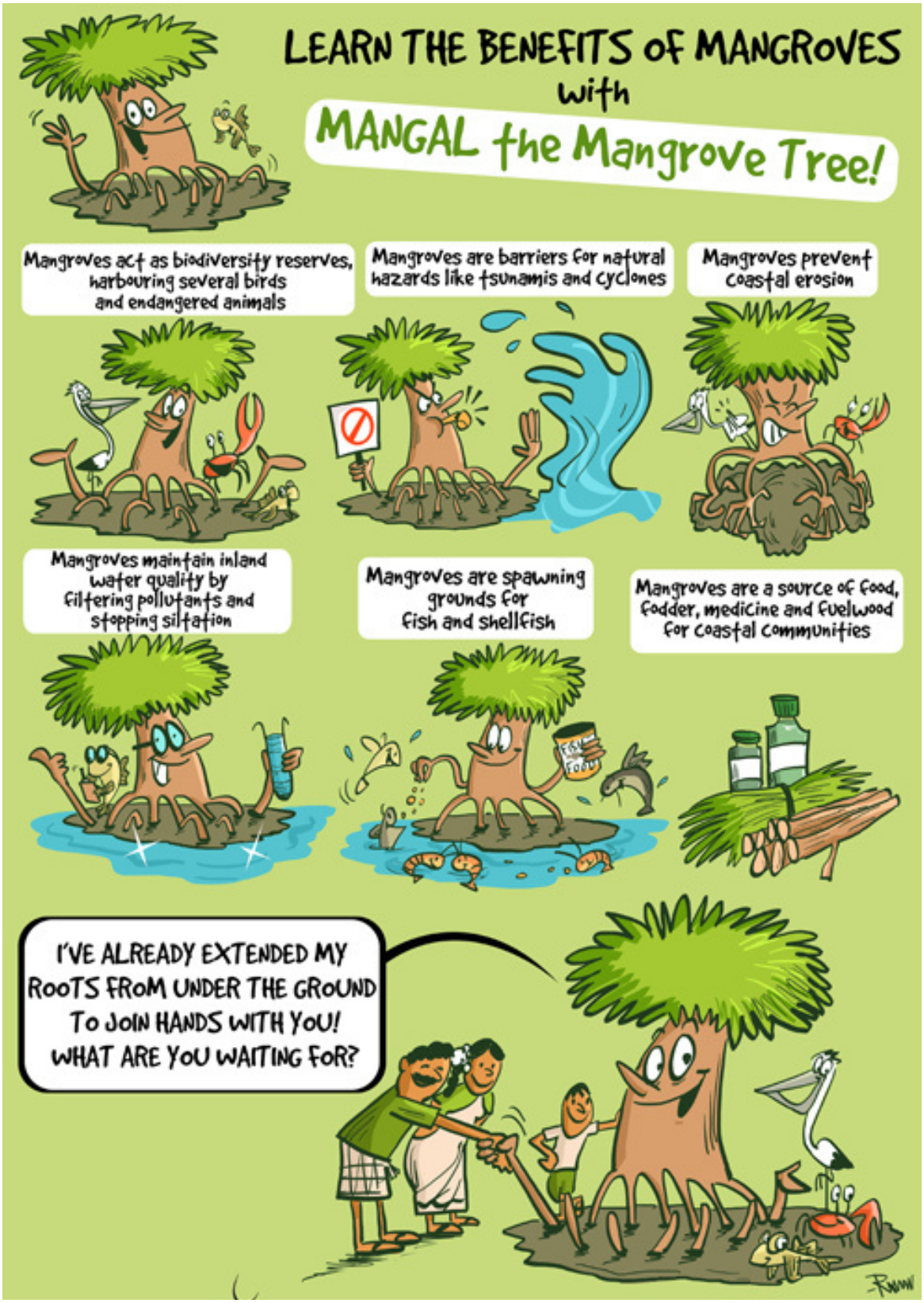
World Mangrove Day 2023

Image credits - https://www.greenhumour.com/2016/07/world-mangrove-day.html



World Mangroves Day 2023 Celebrations

The webinar titled "Mangrove – coastal warriors" was delivered by Dr. Maya Mahajan, the EIACP coordinator and Associate Professor at the Center for Sustainable Future, Amrita University on 26th July 2023 on the occasion of International day of conservation of mangroves.

Dr. Mahajan began by discussing the vital role mangroves play in coastal ecosystems, particularly in flood-prone regions. Mangroves act as a natural barrier against coastal erosion and storm surges, offering protection to nearby communities during extreme weather events like cyclones and floods. By absorbing the impact of waves and winds, mangroves reduce the vulnerability of coastal cities to disasters, making them an essential component of disaster management strategies. The webinar delved into the significance of mangroves in flood management. Dr. Mahajan explained that mangrove ecosystem possess the unique ability to absorb and retain excess water during heavy rainfall and floods.

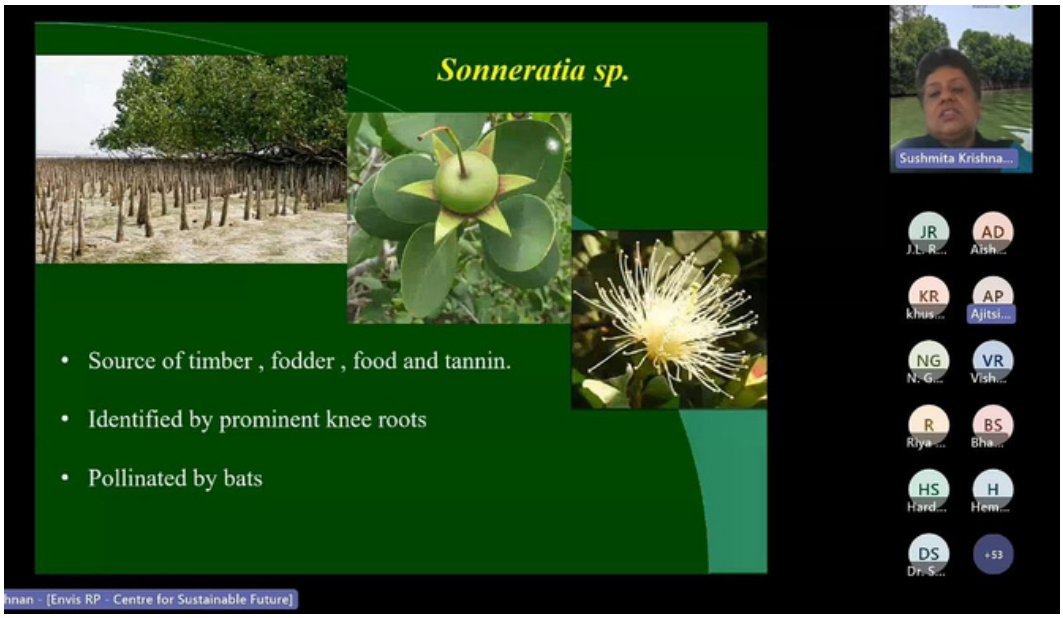
The intricate root systems of mangroves efficiently trap sediments and slow down the flow of water, reducing the risk of flooding in the adjacent areas. This feature of mangroves is particularly beneficial for coastal cities , which are susceptible to frequent flooding.

Dr. Mahajan emphasized the rich biodiversity harboured by Indian mangroves and its ecological significance. Mangrove ecosystems are home to a diverse range of flora and fauna, including various species of migratory and native birds, fish, crustaceans, and plants. These ecosystems provide breeding grounds and nurseries for numerous marine species, supporting the overall health of coastal fisheries. Furthermore, mangroves act as carbon sinks, sequestering substantial amounts of carbon dioxide and contributing to climate change mitigation.

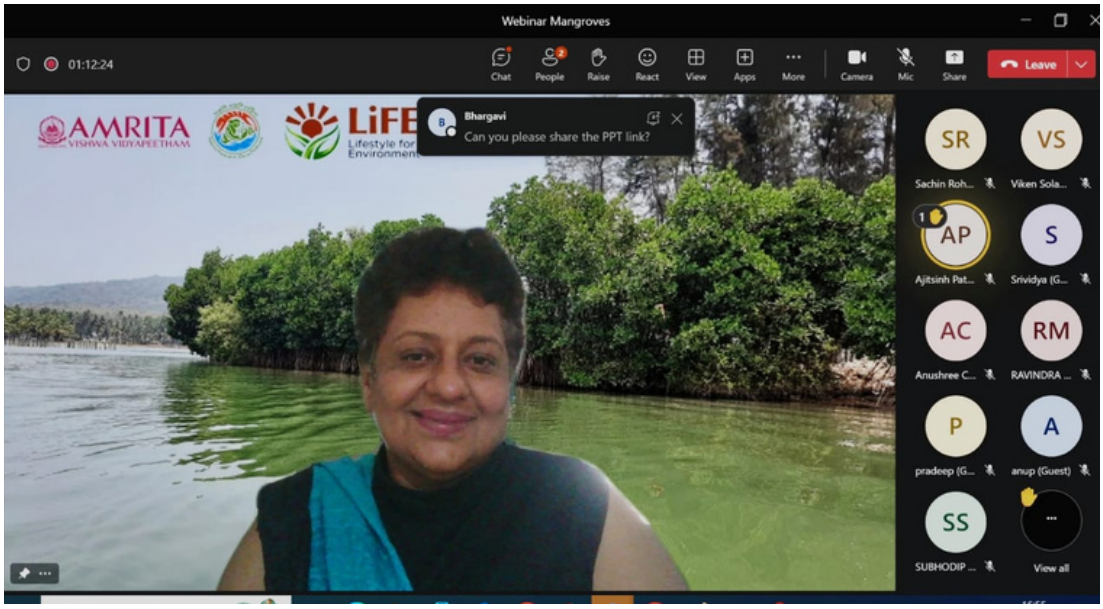
In addition to their ecological value, mangroves hold immense socioeconomic importance for local communities. She inspired the younger generations by sharing success stories about two mangrove men Late Kallen Pokkudan and Murugesan in Kerala working on ground to protect mangroves - .

During the webinar, the challenges faced in mangrove conservation were also discussed. These include habitat loss due to urbanization, pollution, unsustainable fishing practices, and climate change. Dr. Mahajan proposed potential solutions such as community-based conservation initiatives, stricter regulations, and raising awareness about the importance of mangroves among policymakers and the general public.

The insights shared by Dr. Mahajan serve as a call to action for governments, communities, and environmental organizations to collaborate in safeguarding these invaluable coastal ecosystems for future generations. The knowledge gained from the webinar will undoubtedly contribute to informed decision-making in disaster management and conservation efforts.



Watch the webinar online by scanning



75 participants attended the webinar from across the country and an insightful discussion followed the presentation. Participants were from colleges , universities and research institutes from across the country.

" It was a good session. Speaker has given a detailed presentation on mangroves"

Akhilraj T M , College of Forestry, Sirsi

""Very experianced and knowledgeful resource person"

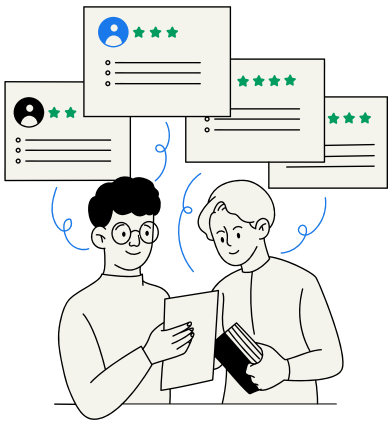
Ganesh Prabhakar Pawar, Tuljaram Chaturchand College, Baramati

""Loved how she could elaborate more and answer all our questions due to her own personal experience."

Riya Ranga, GICIA India Pvt. Ltd.

"Learnt so much about Mangroves today and their importance for both Climate change and all other living animals."

Duman Talom , North Eastern Institute of Ayurveda and Folk Medicine Research



Joining the Dots: Why Connections Are Important for Management of Invasive Freshwater Species - Part Two

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Over the last three years I have been invited to discuss invasive species in Indian freshwater at three events, two of which have had this ecosystem menace as their sole focus. As well as considering the pervasive impact of invasive species in freshwater networks, these meetings are also valuable in creating new human connections. These connections, between those working on conservation and those involved in management decisions, are a key part of informing national as well as local strategies to combat threats to habitat and wildlife.

What is an invasive species?

The invasive species workshop organised under the National Mission on Biodiversity and Human Well-being (NMBHW) began by adopting the **Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)** description of invasive species.

In full, it describes invasive species as follows: **"Species whose introduction and/or spread by human action outside their natural distribution threatens biological diversity, food security, and human health and well-being. Alien refers to the species' having been introduced outside its natural distribution (exotic, non-native and non-indigenous are synonyms for alien). Invasive means tending to expand into and modify ecosystems to which it has been introduced. Thus, a species may be alien without being invasive, or, in the case of a species native to a region, it may increase and become invasive, without actually being an alien species."**

Unfortunately, despite several submissions to the Ministry of Environment, Forests and Climate Change (MoEFCC) in the feedback process to the parliamentary committee shaping the Wildlife Protection Amendment Act of 2022, the wording adopted for the final bill reads: ""Invasive alien species" refers to plant or animal species which are not native to India"

Steve with common carp

This difference in description is unfortunate because it does not consider species moved beyond their native distribution range within the country as alien and pays no attention to the invasive potential of native species if habitat alterations change population hierarchies. They are not considered a threat in the same way as those introduced from outside the country. This is obviously a nonsense in a country with clearly defined biogeographical zones. An example is the Himalayan golden mahseer, Tor putitora which has been deliberately moved south into the peninsula (Nagalgaon and Patil, 2021) and has even been introduced into the basin of River Cauvery. This is a species formerly restricted to Indus - Ganges - Brahmaputra, now impacting upon local species of mahseers as far south as Kerala.

Also, introductions of native fishes (or other aquatic fauna) into a river in such numbers that they skew populations is a potential for those or other species to become invasive.
The adopted description of invasive species makes it more difficult for some invasive behaviour to be tackled within the remit of MoEFCC. And a disconnect between those in management positions raises the threat of introductions overwhelming native diversity.
Paradoxically, India's latest National Biodiversity Action Plan (2019) describes invasive species as follows: "species whose introduction and/or spread outside their natural past or present distribution threatens biological diversity."

Steve with African catfish

Status of freshwater fishes

For the first time, the 2022 Wildlife Act Amendment Bill includes species of freshwater fishes in the protection schedules. This shows intent to consider freshwater fishes as wildlife. Prior to this amendment to the Wildlife Protection Act, all activity relating to freshwater fishes came within the remit of state fishery departments, under the umbrella of the Ministry of Agriculture. Half of the 14 freshwater fish species listed as invasive by the National Biodiversity Authority are recognised as food fishes (National Biodiversity Authority, 2019) creating a potential disconnect between competing authorities. We should ask who is the ultimate authority on invasive species: MoEFCC or the National Biodiversity Authority?

I have spent huge amounts of time discussing fish releases into the wild and where responsibility lies in terms of protecting fragile freshwater habitats from invasive species. Among freshwater fish species the big three invasives worldwide are: tilapia (Oreochromis spp.); African catfish (Clarias gariepinus); and common carp (Cyprinus carpio). These three fish have been targets of selective breeding in India and have often been released into the wild, either deliberately or by accident (Singh and Srivastava, 2022). Between them they have an almost total impact on the ecological needs of all other fish species and also upon other freshwater users like insects, amphibians, aquatic plants and birds.
Tilapia are an aggressive species that will defend territory as well as predating upon early life stages of other fishes. African catfish tend to scavenge the detritus important to other aquatic fauna. Common carp are omnivorous, tend to outcompete other cyprinids (carps) for food resources, feed in all parts of the water body and will eat the eggs of other fishes as well as being predatory at certain times of a season.

Biosecurity

Among aquaculture organisations there are common concerns that steps be taken to ensure invasive species cannot escape into open freshwater systems. Responsibility for biosecurity lies with state fishery departments; yet they are also the bodies tasked with increasing production of fishes. The 2020 Guidelines for Responsible Farming of Tilapia in India, published by the Ministry of Fisheries, Animal Husbandry and Dairying is explicit: those wanting to grow or breed tilapia must ensure "all the biosecurity measures are in place including necessary precautions to check spread of Tilapia Lake Virus." It is not only fish that are a potential problem but also, as the government recognises, pathogens carried by fish.

Cage culture is growing in India. It is a system where fish are grown in large cages in open water bodies, usually reservoirs (Mongabay, 2022). Those who support this system point out the benefits in terms of production versus area; little mention is made of biosecurity. Yet experts who have studied cage culture are not convinced of the biosecurity standards: "in such systems, escape is inevitable." (Vicente and Fonseca-Alves, 2013).

Shoaling Tilapia

Tilapia in cage culture - India

(Credit - Dhruv Fisheries)

Connecting the dots

A solid conservation action plan relies upon protection or rehabilitation of habitat. Wildlife introductions are a last resort because given quality habitat, repopulation usually takes care of itself. Such conservation plans become tricky for governmental departments, NGOs or local communities to implement because the links between river, wetland and species population health also rely upon factors including (but not limited to) healthy species hierarchies, improved flow, quality riparian forest cover, better agricultural use of farmland, and strict controls upon industrial effluent.

We must find solutions to operate at scale yet be adaptable to local conditions. We must take greater steps to ensure invasive species are not allowed into the wild. Too many slip through the gaps between areas of responsibility and exploit human conflicts of interest. It is not a new problem; many of the species and impacts have been discussed for hundreds of years (Krefft, 1873). Freshwater and wetlands, along with all of the people and species that rely upon them are the losers when we continue to act alone. If we act at all.

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ILLUSTRATING SCIENCE

By
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Hydrating Hearts: Water Pots Quench the Thirst of Campus Animals

Sushmita , Koonal and Anudeep
AAWS members

When summer unveils its fiery intensity, the sweltering temperatures not only affect humans but also place tremendous stress on the animal kingdom. Dogs, cats, and birds that call the Amrita Vishwa Vidyapeetham campus their home are particularly vulnerable during this time. Dehydration becomes a grave concern, leading to weakness, fatigue, and even severe health issues. Recognizing this plight, a leader emerged to combat the challenges faced by the campus animals. Dr. Parameswaran, the Principal Director of Corporate Industrial Relations, took the initiative to install water pots across the university grounds, providing a lifeline to the dehydrated dogs, cats, and birds. This heartwarming gesture, in collaboration with the Amrita Animal Welfare Society, EIACP Resource Partner, showcases the unwavering commitment of the university to the health and happiness of its cherished animal residents.

The installation of water pots throughout the campus has proven to be a remarkable step toward ensuring the well-being of the animals. Dr. Parameswaran's compassionate vision has transformed the arid spaces into oases of respite for the four-legged and feathered inhabitants. These water pots act as beacons of hope, providing life-sustaining hydration to the animals, who can now drink freely and find comfort amidst the scorching summer heat.

Speaking about the initiative, Dr. Parameswaran emphasized the importance of animal welfare and the significance of their presence on the campus. He stated, "Our campus is not just a place for academic pursuits; it is a thriving ecosystem that embraces all living beings. It is our duty to extend our care and support to the animals who share this space with us. By providing them with clean drinking water, we ensure their well-being and create an environment that fosters harmony."

The water pots scattered throughout the Amrita Vishwa Vidyapeetham campus have become a symbol of hope and compassion, catering to the needs of the campus animals during the challenging summer months. Dr. Parameswaran's initiative, combined with the relentless efforts of Dr. Maya Mahajan, EIACP coordinator, highlights the power of collective action in fostering a harmonious coexistence between humans and animals. By ensuring the hydration and well-being of the campus animals, Amrita Vishwa Vidyapeetham paves the way for a more compassionate and caring society as a whole.

Celebrating Animal Rescue Warriors

EIACP, Ministry of Environment and Forest RP Amrita Vishwa Vidyapeetham (AVV) and Amrita Nature Club organized an award function to honor and felicitate women who have been in the forefront of animal rescue. The Award is named as Animal Rescue Warrior Award. Nine unsung **She**ros from different walks of life ranging from corporate sector, NGO , retired professors, housewives to house keeping and domestic helpers were identified and honoured. Mr. Mahesh , General manager , Amrita Recycling Center was also honoured for his invariable efforts in animal welfare in campus

Prof. C Parameswaran, Principal Director of Corporate Industrial Relations at Amrita University graced the occasion as chief guest. He emphasized the need for a safe society for animals to live and coexist with nature. This award is one of a kind to honour women working for animal welfare in their own capacity. The program was coordinated by **Dr Maya Mahajan,** coordinator of EIACP Center of Ministry of Environment and Amrita University. She emphasised the need to recognize the tremendous efforts taken by women in Animal Rescue in spite of all the odds they face and generate awareness about each life matters.

It was followed by Award winning movie screening **Elephant Whisperers**. The program was graced by Dr Sankaran Registrar Amrita Vishwa Vidyapeetham. More than 300 students and citizens attended this award function and appreciated the efforts by these women warriors

Ms. Bhagyalakshmi

Ms. Bhagyalakshmi is a retired couple from Coimbatore. But retirement has not stopped them from changing the lives of others for the better. Her enthusiasm and concern to work for stray dogs , would make anybody feel the touch of a mother who feeds and nurtures her babies. This tale of being a “paw-mother” dates back to 17 years when she moved to her present residence. The helpless condition of stray animals in her locality instilled a sense of purpose and need to make their lives better. When funding is a constraint for any retired couple , Ms. Bhagyalakshmi prioritized the welfare of animals and started spending her savings for their cause. When the purpose is big and desire is for the needy, any obstacle is easy to break. What more example of social service that the present society will need, when it has been complaining for its inaction. As Gandhi quoted “ Be the change you wish to see” , at present she feeds around 70 stray dogs on a daily basis. Imagine the happiness and contentment of changing 70 lives. She is also actively helping people adopt puppies and kittens through her network. What more could define a purposeful life?

Ms. Ambika discovered her superpower accidentally. Does it sound like a marvel story where superpowers are accidental? She had taken responsibility of 11 newly born puppies near her home. Little did she know that only four would go to their new homes and remaining would stay back as her babies. Through this beautiful journey of raising these 8 puppies , she also uncovered so many hardships faced by stray animals. This made her transform into a she-ro working for the welfare of stray animals with special focus on dogs. She involves in rescue, vaccination and animal birth control related activities to ensure happy lives for the animals. She is part of a small focused group which has rescued around 30 dogs and also helped in animal birth control for another 30 dogs by collaborating with Humane Animal Society. Through her efforts , she is spending around seventy thousand per month towards animal welfare. She attributes them to animal activists, rescuers at ground level, donors, few private clinics , fosterers, like minded individuals who are making this beautiful cause a reality. A little empathy, awareness , accountability towards your community dogs can play a significant role in creating a healthy ecosystem for the welfare of animals.

Ms. Ambika

Ms. Vinitha

Raising a dog is like a rainbow. Puppies are the joy at one end. Old dogs are the treasure at the other.

In a society where old - aged dogs are treated like last year’s calendar, Ms. Vinita chose to make the lives of old dogs better and happy. Any adopter would love to adopt just born little and cute puppies or kittens. But we fail to understand that there are so many old aged dogs that are abandoned by owners because they are no longer young and energetic as before. If the kindest souls were rewarded with the longest lives, dogs would outlive us all. So who is there for their rescue and shelter? When these questions were in the air, Ms. Vinitha stood tall as a ray of hope for them. When her old pet passed away, she again adopted an aged dog that was already abandoned by her previous owner. She adopts them to give them a beautiful home full of love and care during their evening of their life.

Ms. Nivedita

Ms. Nivedita , is a deputy manager at Ford motors Private Limited. Looks formal? She has another cap to wear. Every time when the animal world needs a saviour to speak for them, she stands out as a superhero rescuing them and finding a happy place for them to fill with love and care. To her mission she has rescued 40 puppies and 30 kittens so far and sterilised six stray dogs. Adding to it , she has taken efforts to even give puppies and kittens to other cities all the way from Coimbatore. To add on, she does all of them in her own expenses. This would remind of any superhero in a parallel world wearing a cape and rescuing people in the times of need. Ms. Nivedita's journey would personify her as an animal world superman – maybe without a real cape?

Ms. Dhanalakshmi

Ms. Dhanalakshmi ,a soft , calm and docile resident of Vadavalli once went against her neighbours for a cause. A cause that great philosophers like Naess fought for humanity through the deep ecology theory demanding equal right for every life form to exist in this planet. Ms. Dhanalakshmi is a 21st century Naess, who has etched a reforming story among the residents of Vadavalli, worth sharing for any animal lover fighting to save stray animals in their locality. She is an animal lover and her compassion for animals is unmatched from any sense. She fosters three stray dogs in her area , of which two are females. To mention , she was fuelled by Dr. Maya , who has a zeal for animal rescue. When they delivered 9 beautiful puppies during the monsoon season, that beauty came with its own set of challenges from her neighbours. Some were arrogant, few other ignorant and many found the puppies as a nuisance. But what saved the puppies was the love , care and affection peppered with courage which she exhibited saved them from the rains and brought pretty sunshine in their lives by safely giving them to beautiful families for adoption.

Ms. Nalini

Giving colours to the lives of animals, Ms. Nalini is a commited "paw – rent" who cooks food for more than 50 to 60 dogs in her locality. Even as a child, she has been an animal lover who would empathise with the feeling of dogs and cats. In a society where female infanticide was predominant, even our pets are not an exception. Agreeing to the fact that a small population can ensure happy homes for them, Ms. Nalini helps in sterilization of female puppies and later gives them for adoption. She has rescued many puppies from bushes and ditches, where these little hearts were lying helplessly for help. She has been their rescue warrior who has brought light into their lives and smiles to the family who adopted them. Her spirit of fighting for justice to her paw – friends makes her a "she-ro" in the eyes of cats and dogs who are the heart of the society.

Ms. Vinny

Ms. Vinny R. Peter is a multi – faceted person who stretches her work from research to community level action. While some would know her as a wetland ecologist, but many would know her as an animal welfare activist. Some would have seen her with small children teaching them about nature , many would have seen her taking actions for the welfare of animals. As an animal lover and nature lover , she always takes an extra step out of the research cycle to drive community level impact in the society. For the past ten years, she has been assisting the forest depart to rescue birds. When we associate animals to God , we forget to worship or atleast care for their living successors who would trace back to their grandeur ancestors. Ms. Vinny is an absolute example of a research who can stretch her boundaries to bring happiness in the lives of animals.

Ms. Prema is a support staff at Amrita University. Tuffy (female spitz dog adopted by AAWS) came to our campus , clueless and abandoned. But she was lucky to meet Ms. Prema , who was working in the girls hostel. She has loved her unconditionally and fostered her for so many months. The love she gave to Tuffy is ingrained in her mind that even today , she recognises Ms. Prema with so much love and affection. She has been feeding campus animals with so much love and affection.

Ms. Prema

Ms. Pushpa

Ms. Pushpa is an Anganwadi worker and earns a very low salary to support her family. However , during some emergency , she even spends half of her salary for medical treatment of animals and to transport them to hospital. She feeds several dogs , puppies and cats in her neighboring area. She has withstood opposition from rich neighbors and animal haters in her locality. She stands as an example that how in spite of funds constraints rich minds can positively impact animals and make their lives beautiful.

GOALS IN FOCUS

SDG 15 - Life on Land

Awardees during felicitation

Students during the screening

Student volunteers of Nature Club

Earth Day 2023 Celebrations

GOALS IN FOCUS

SDG 3 - Good Health and well - being
SDG 4- Quality Education
SDG 13 - Climate Action
SDG 15 - Life on Land

"Cleanliness is the mirror of our attitude towards life" – Mata Amritanandamayi

Inspired by these words of wisdom, the EIACP RP and the Nature Club of Amrita Vishwa Vidyapeetham University joined forces on the momentous occasion of Earth Day 2023, aligning with the visionary initiatives of Mission LiFE and Azadi ka Amrut Mahotsav. With a shared commitment to environmental stewardship, they orchestrated a remarkable cleanliness drive within the university campus. Simultaneously, a hydration camp was set up, providing refreshing buttermilk to all members of the university community.

Amidst this display of conscious hygiene, the students, driven by their enthusiasm and passion for change, mesmerized everyone with a vibrant flash mob dance, serving as a powerful reminder of the critical need to reduce plastic waste and practice effective plastic segregation. The honorable inauguration of the cleanliness drive by **Dr. Maya Mahajan**, coupled with the overwhelming support of the Nature club students, exemplified the collective determination and dedication toward fostering a cleaner, healthier, and more sustainable environment.

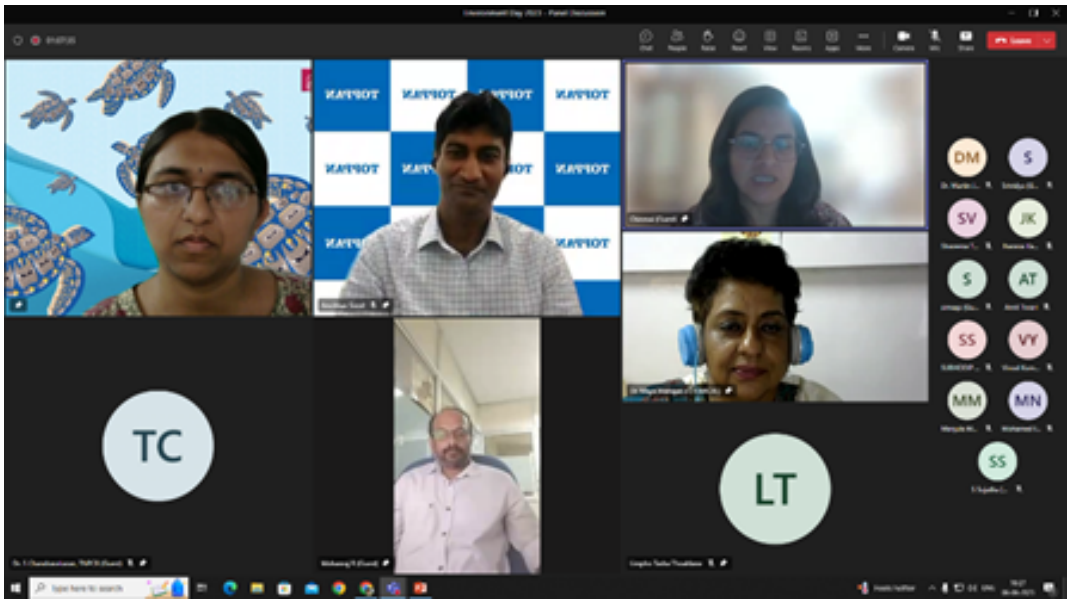
Environment Day 2023 Celebrations

On the occasion of World Environment Day 2023, EIACP RP , Center for Sustainable Future at Amrita Vishwa Vidyapeetham and Nature Club organized a panel discussion on " **Beat Plastic pollution**". The session was moderated by Dr. Maya Mahajan , Associate Professor , Center for Sustainable Future, Amrita Vishwa Vidyapeetham University, Coimbatore. Having enormous experience in Environmental education, Dr. Maya aced the discussion with a flair for detail and awareness. The panel was cross – functional with representatives from different sectors like the Government, Academia, Industry and NGO.

The panel discussion flagged off by Dr. Maya with the question related to the present scenario of plastic pollution in the country. Dr. Mohanraj , Professor at Bharathidasan University answered the question and commented on the 2023's theme of Environment Day and quoted reports published by UN regarding plastic generation.

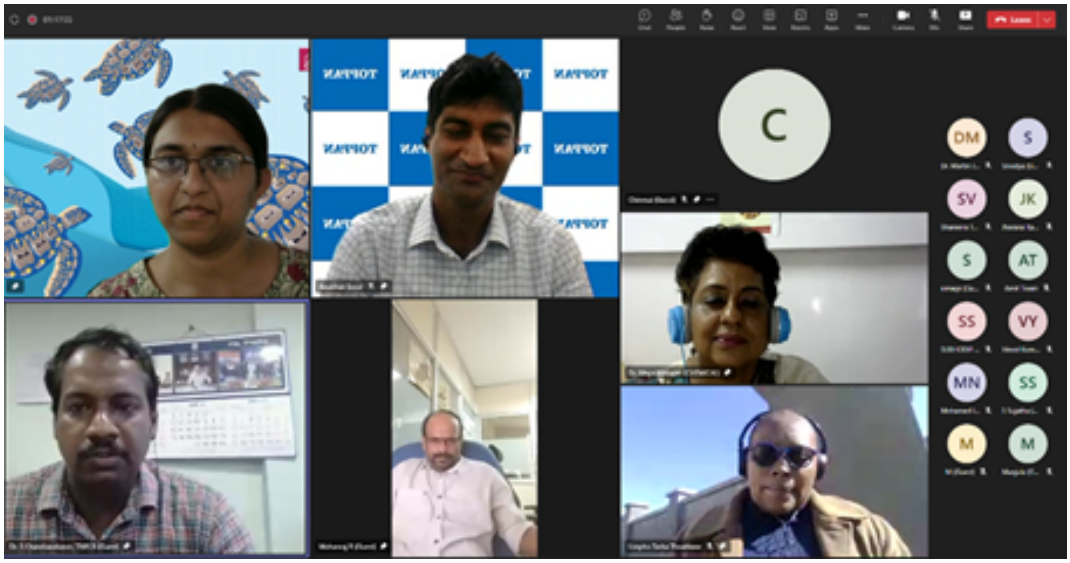
Then , the discussion channeled towards Dr. Chandrasekaran who spoke about the Government's initiatives that are in place to reduce plastic pollution. He discussed about the role of government in banning single use plastic, supply of cloth bags in malls and supermarkets, segregation of waste for recycling etc.

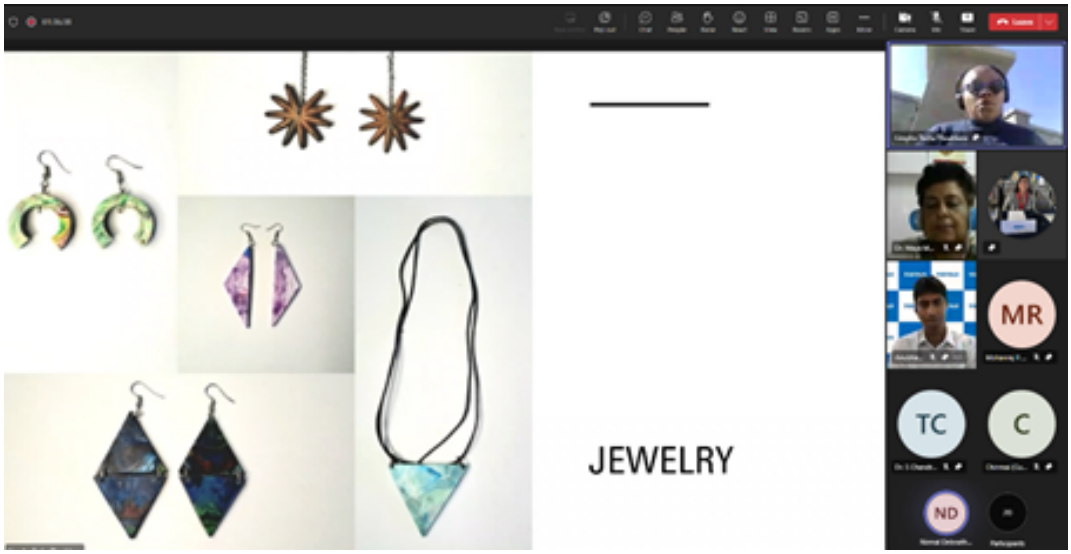
Then , Dr. Maya Mahajan nudged the direction towards awareness about plastic pollution among public. Ms. Hemani shared some insights from her study on people's awareness about plastic pollution.



The discussion focused on the solution aspects. Mr. Anubhav shared his views on recycling plastic waste and giving them back to industries for reusing. He also spoke about sustainable packaging materials available in the market which is affordable, cost effective and above all sustainable.

Adding on , Ms. Limpho from South Africa shared the vision of her company where they are collecting plastic waste from the country and using them to make jewelry. She shared the importance of recycling plastic and the impact her company has created through her industry by offering sustainable solution to the environment, giving employment to people and alleviating poverty.





Finally all the panelists shared their message to the future generations and emphasised on creative solutions for the environmental conservation. The discussion was well received by the participants. The discussion had international participants from United Nations Student Association , colleges from Sudi Arabia and Nepal.

Sonnet Sanctuary

In a world so vast, where empathy resides,
Let us weave a tapestry of compassion's tides.
With hearts tuned to nature's subtlest song,
We'll embark on a journey, where kindness belongs.

Behold the splendor of a sunlit morn,
Where dew-kissed petals gracefully adorn.
In this realm of green, where life takes flight,
Empathy whispers, painting colors bright.

With gentle steps, we tread on sacred ground,
A symphony of life, in nature's haven found.
Let's embrace the Earth with love untamed,
Kindness our guide, with every action aimed.

For every tree that dances in the breeze,
For every bird that soars above with ease,
Let empathy flow like rivers of grace,
Restoring harmony, in this sacred space.

No act of kindness is ever too small,
A simple smile, a helping hand for all.
Like seeds we sow, in fertile soil we trust,
Transforming the world, with empathy robust.

See how the rivers, once clogged with despair,
Now shimmer and sing, with hope in the air.
The forests, once silent, now echo with glee,
For kindness has set all living creatures free.

As empathy's flame lights up the night,
Darkness retreats, bathing in its gentle light.
In unity, we stand, hand in hand,
Transforming the world, a compassionate land.

Let's mend the wounds, inflicted by greed,
With acts of kindness, we'll plant new seeds.
From mountaintop to ocean floor so deep,
Nature shall rejoice, and her beauty will keep.

So let us be kind to every living soul,
With empathy as our compass, we'll reach our goal.
Transforming the world, one heart at a time,
With kindness as our language, love sublime.

Sushmita Krishnan
Programme Officer, EIACP RP

Effect of Anthropocentrism on wetlands - Policies and actions

Author Information
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St. Louis College of the Deaf, Adayar ,Chennai

Introduction

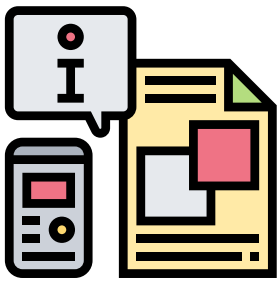
Anthropocentrism is the view that places human beings as the most important factor in the world. This perspective has had a profound impact on wetlands policies and actions, as it encourages humans to prioritize their own needs over those of nature and the environment. Among the various types of centrism, two stand out: Anthropocentrism and Ecocentrism, each differing in their core values. While an anthropocentric mindset predicts a moral obligation solely towards other human beings, ecocentrism extends its ethical considerations to include all living beings. The choice between anthropocentrism and ecocentrism significantly influences the perception of nature and its protection, thus shaping our attitude towards the environment.

When discussing human-environment relationships, it is essential to consider which humans and which environments are being taken into account. Nature and the environment vary around the globe, resulting in different impacts and circumstances for people living in these spaces.In the context of environmental conservation, mangroves serve as a critical ecosystem that deserves special attention. Mangroves are coastal forests consisting of salt-tolerant trees and play a crucial role in protecting shorelines from erosion, acting as nurseries for various marine species, and sequestering significant amounts of carbon dioxide from the atmosphere. To ensure their preservation, the implementation of effective policies becomes paramount.

Therefore, it is of utmost importance to precisely identify the individuals and environments involved, as these facts define the relationship in a unique way. Now, the question arises: Are ecology and humanity truly incompatible? Can human beings and the environment coexist harmoniously? To put it more explicitly: Is it possible to ensure human livelihood and development while simultaneously protecting nature? These are the core topics analyzed by anthropogeography and human-environment relationships—an interdisciplinary research area that delves into these complex connections.

GOALS IN FOCUS

SDG 10 - Reduced Inequalities
SDG 4- Quality Education
SDG 13 - Climate Action
SDG 15 - Life on Land



Effects of Anthropocentrism on Wetlands

As is true of both small- and large-scale human greed, blind anthropocentrism has accelerated climate change, ozone depletion, the destruction of rainforests, water and air pollution, the rapid pace of species extinction, the prevalence of wildfires, the decline of biodiversity, and numerous other environmental crises worldwide. According to common critiques, anthropocentric axiologies pose significant hazards to the environment as they inherently prioritize humanity and only instrumentally value nonhuman entities. Intrinsic value is generally considered essential for granting full moral status or membership in a moral community.

Policies and Actions

Numerous Wetlands Policies have been developed to safeguard them from the adverse effects of human activities, such as pollution and land development, which can harm and degrade the delicate ecology of wetlands. These policies may involve imposing restrictions on the use of certain resources, land reclamation, and other measures aimed at preserving these precious ecosystems.

Similarly, in the case of mangroves, a critical policy to consider is the establishment of protected marine reserves encompassing these invaluable habitats. Such reserves would promote sustainable fishing practices and regulate coastal development to ensure the long-term preservation of mangroves and their essential ecological functions.

An exemplary illustration of such policies is the Ramsar Convention and Wetland Policy. According to this policy, the Convention should implement the Strategic Plan at national and regional levels by formulating comprehensive national wetlands policies. Such policies should duly recognize the invaluable benefits wetlands provide and adopt a cross-sectoral approach to ensure the greatest impact on the wise use of wetlands

Wild Wanderlust: A date with elephants in Anamalai Tiger Reserve

The lush greenery of the Anamalai Tiger Reserve and the majestic beauty of Parambikulam National Park became the backdrop for a thrilling and educational experience for a group of around 35 enthusiastic students. This nature trail took them on an unforgettable journey, immersing them in the wonders of the wild and leaving them with lasting memories.

Safari at Anamalai Tiger Reserve

The journey commenced with a thrilling wildlife safari deep into the heart of the Anamalai forest. As the students stepped into the safari jeeps, they could feel the excitement bubbling within them. The first day had an air of expectancy, and it didn't disappoint.

During the safari, the students were fortunate enough to spot a plethora of magnificent birds soaring across the azure sky. The sight of colorful plumage and graceful wings left the students awestruck, awakening within them a newfound appreciation for the avian world. The forest offered even more surprises as the jeeps cruised along dusty trails, revealing the presence of gentle giants—the elephants. Towering over the vegetation, the elephants moved in a synchronized dance, showcasing their social nature and deep emotional connections.

The most breathtaking encounter came when the students stumbled upon a wild bison, also known as the Indian Gaur. The sheer size and strength of these magnificent creatures were awe-inspiring, and their graceful movements amid the wilderness evoked a sense of humility in the young adventurers.

One of the highlights of the day was the visit to the elephant camp, where the students delved into the intricacies of how the camp functioned. They witnessed firsthand the dedicated efforts of the caretakers and their bond with the majestic pachyderms. The experience not only provided an understanding of the camp's conservation efforts but also instilled in the students a sense of responsibility towards wildlife preservation.

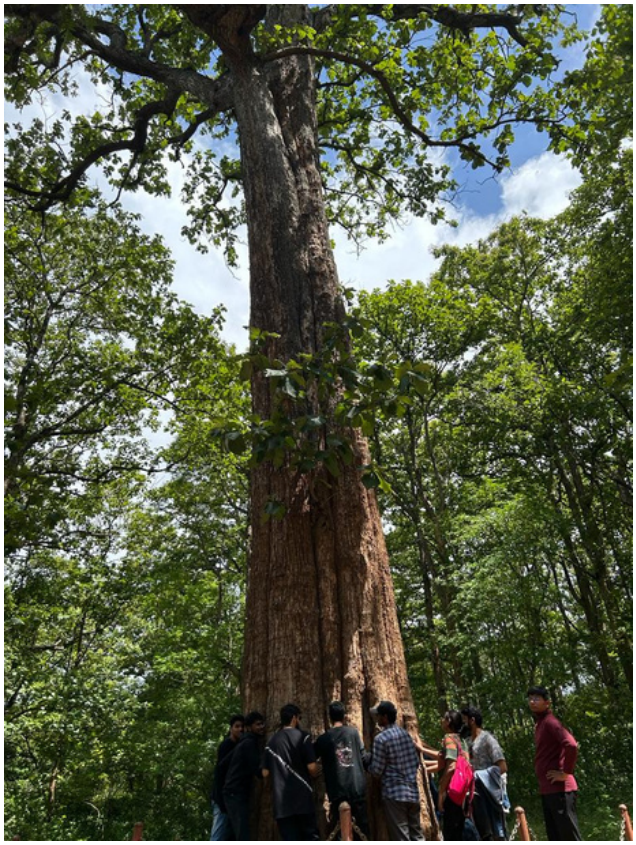
Exploring the Enchanting Parambikulam National Park

As the sun rose on the second day, the students were filled with anticipation for the exploration of Parambikulam National Park. The vibrant green canopy and pristine lakes were a sight to behold, and the students couldn't wait to dive into the adventure.

The safari through Parambikulam was an exhilarating affair, and the students reveled in the abundance of wildlife that revealed itself. The sighting of elephants, this time in their natural habitat, walking leisurely from one place to another was an enchanting experience. Observing these gentle giants in their element left the students in awe, fostering a deeper understanding of the importance of wildlife habitats.

Photo credits - Dr. Maya Mahajan

Adding to the thrill, the students embarked on a rafting adventure, which took them gliding along the serene waters of the Parambikulam Reservoir. The panoramic views of the forest and the distant mountains allowed them to connect with nature on a whole new level, nurturing a sense of harmony and tranquility within.



As the students' nature trail came to an end, there was a shared sentiment of gratitude and awe among them. The trip had been much more than an ordinary excursion; it was a journey that had opened their eyes to the marvels of nature and its delicate balance.

The experiences during the wildlife safari and the rafting adventure not only enriched the students' knowledge about the diverse flora and fauna but also awakened in them a sense of environmental consciousness. Witnessing the beauty of these protected areas reinforced the significance of preserving these natural habitats for generations to come.

This nature trail had ignited a wild wanderlust among the students, leaving an indelible mark on their hearts and minds. As they bid farewell to the wilderness, they carried with them a newfound appreciation for nature's wonders and a resolve to protect and conserve the precious biodiversity that thrives within the Anamalai Tiger Reserve and Parambikulam National Park.

Youth Parliament - 2023

Judging panel

- Dr. Ruppal Thakkar
- Dr. Sampriti Kataki

As a part of Environment Day celebrations, the Ministry of Environment is Youth Parliament on LiFE mission. It is an inter generational debate for college level students to discuss , debate and find solutions for matters related to environment. EIACP at Amrita University organized the first level of debate to select one student to represent Tamil Nadu in the National level program. Around 50 students were shortlisted from 300 entries for an online debate. The topic for the online debate was **"Does our present curriculum help us to become environmentally conscious citizens? "** . Dr. Ruppal Thakkar and Dr. Sampriti evaluated the participants.

After the first stage of Debate, Ms. Nandana Padmaraj was selected from EIACP RP at Amrita Vishwa Vidyapeetham to represent Tamil Nadu along with with other participants.
The subsequent levels were held in Indian Institute of Forest Management, Bhopal.

Ms. Nandana aced her way in the subsequent levels and secured her position in the top five Youth Icons selected at the National Level. The award function was held in the Ministry of Environment Forest and Climate Change premises on June 4th. The Youth Icons were awarded by the Honorable Environment Minister Shri Bhupendra Yadav.

Top performers

Nandana Padmaraj
Sri Krishna College of arts and Sciences, Coimbatore

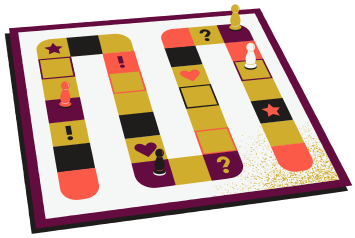
Amrithaa P
PSG Institute of Technology and Applied Research , Coimbatore

S Ananthasivan
Amrita Vishwa Vidyapeetham , Coimbatore

Rahul Shankar V
Amrita Vishwa Vidyapeetham , Coimbatore

Subhashini Sudhakar
Amrita Vishwa Vidyapeetham , Coimbatore

Kannan R
Bharathidasan Institute of Management , Trichy



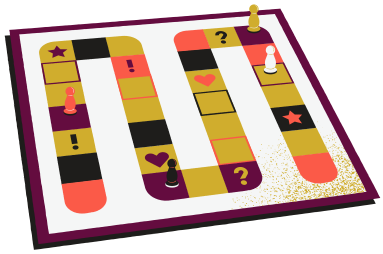
Puzzle time

Unscramble the letters to reveal words related to mangroves.

1. R _ _ _ _ _ S
2. S _ _ _ _ _ _
3. A _ _ _ _ _ _ _
4. P _ _ _ _ _
5. M _ _ _ _ _ _ E
6. L _ _ _ _ _ _ T
7. E _ _ _ _ _ _
8. R _ _ _ _ _ T _ _ _
9. O _ _ _ _ _ _ _ _
10. S _ _ _ _ _ _

Clues:

1. These are tall, slender structures that support and anchor the mangrove trees in the soft sediment.
2. Mangroves are often found in these coastal ecosystems where saltwater and freshwater meet.
3. This type of root system helps mangroves to obtain oxygen, even when submerged in water.
4. A variety of fish, crustaceans, and other small organisms find refuge and breed in these mangrove structures.
5. This term refers to the tidal inflow and outflow that occurs around mangrove ecosystems.
6. The dense network of roots and vegetation in mangroves serves as a protective barrier, especially during these natural disasters.
7. This bird is known for its association with mangrove ecosystems and its impressive aerial hunting skills.
8. The leaves of mangroves have special structures called _____ that help to filter out excess salt.
9. Mangroves play a vital role in this natural process, where they absorb carbon dioxide and store it for long periods.
10. These marine reptiles are occasionally spotted in mangrove habitats, particularly near brackish water areas.



Mission LiFE Word Search

A R Y V C X W R E T A W X K T X W L Z P A B S E
U P A E L E C T R I C R E D U C T I O N Z B S U
N Y W L S W A P N E E R G O U T R E A C H D E E
U O S I O E L B A T O T M R A F Z Q U E G O K B
J E I I K S L A T N E M N O R I V N E B L S L P
B F E T J H T B D E R V F X T S O P M O C F S W
P X A I U C E P O L L I N A T O R S B X G A D G
X I D K H L J K Y G R E N E D N I W J R P O D R
R T D O Y X L G R E E N T E A M M C T K H H E M
H U M A N E P O H J S N A E C O A W Z R S U A F
P I Z V P N W E P A I R Q U A L I T Y R S E K S
E T I G X H D L E O Z G K L A U M F L E A B A C
T U N X A N P B Q Z Z Y R R N L E O P R Q N Q Z
N O I Z G L E A N W U H U O V W C L T J R O B G
R I M A I F Y T X B T T C Y H A A H C E L I P Y
A A K Y S T U S F Q A A U P L N D X P Y D T R W
T R Z Y P G A O F N N H O F T A T D T J C N B J
S P J V F H W P U D U A O S Y Z U W I A L E O R
M P F W M F V M O Z N O D K I G G C V V D V R V
Q L E M P T V O U Z D I X B N A Q K X S I N T T
Q I G U Z A L C U S S U S T A I N A B I L I T Y
L Y X J V S J S E C I O H C Y H T L A E H E K Q
L M Z E Y A W B J G N I T R O S O A T Q K R E U
J D D O S C L E A N A N D G R E E N U I K P J U

Hazmat	Pollution	Air quality	Humane	Wind energy
Local foods	Reuse	Compostable	Environmental	Solar
Healthy choices	Natural	Clean and green	Outreach	Electric reduction
Sorting	Earth day	Oceans	Air	Water
Plants	Pollinators	Farm to table	Reinvention	No can do
Green paws	Green team	Compost	Recycle	Sustainability

Source -https://wordmint.com/public_puzzles/3750628 -

BIOINVASION

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We welcome original research and popular articles, reviews, reports, research highlights, notes, news, snippets, etc related to the thematic areas of EIACP Resource partner of publication in EIACP newsletter on Bio-invasion.

The articles and other relevant information should be neatly typed in double space not exceeding five pages. The figures, graphs/drawings should be of good quality and clarity. Photographs should be of minimum 300 dpi resolution. References should be limited and cited in the text by name and year.

Email your articles in MS-word format to bioinvasion.envis@gmail.com

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New Delhi

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AMRITA_ENVIS_RP

Nature Trail - 2023







adda moments.

प्रकृतिः रक्षति रक्षितः
Nature Protects if She is Protected

सत्यमेव जयते

AMRITA
VISHWA VIDYAPEETHAM