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SYMPOSIUM ON *WILDLIFE* AND *BIODIVERSITY* CONSERVATION

TABLE OF CONTENTS

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FOREWORD

Mr.William Hanlon Jr. – Chief of Field Office, UNICEF Odisha

Climate change is an unprecedented crisis that impacts every life form on earth. Greenhouse gas emissions created by our lifestyles and industrial activities is altering the delicate balance that nurtured life on our planet. Extreme and changing weather patterns, rising sea levels and disappearing ice caps challenges developmental progress and can lead to conflicts, migration, the spread of disease and many other changes that fundamentally affect ourselves, nature and the planet.

We need to act. As nations come together to jointly plan for mitigation and adaptation, we are slowly but steadily working towards solutions to counter the climate change threat. One of the key mitigation measures is that of forest and biodiversity conservation.

In that context, I am happy to know that the UNICEF led Youth4Water Plus campaign is organising this Symposium on Wildlife and Biodiversity Conservation in collaboration with the Regional Science Centre (Ministry of Culture), FORCE and Bikash Saathi on 20th February 2024.

The deliberations will give insights into how best to address the current threats to biodiversity and plan for its long-term conservation. Our focus must extend towards spreading awareness, encouraging youth to participate in various events focusing on our environment, and engaging local communities to cultivate a sense of accountability. The goal is to gain and implement knowledge in our daily lives, ensuring we all are well prepared to address any threats to our biodiversity. So that we can learn ourselves and teach others along the way too.

I congratulate Youth4Water Plus for organising the Symposium

With best wishes for its grand success!

William Hanlon Jr.

Chief, UNICEF Field Office Odisha

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MESSAGE FROM PCCF -CUM CWLW

Susanta Nanda, IFS

ପ୍ରଧାନ ମୁଖ୍ୟ ବନ ସଂରକ୍ଷକ (ବନ୍ୟପ୍ରାଣୀ) ଏବଂ
ମୁଖ୍ୟ ବନ୍ୟପ୍ରାଣୀ ତତ୍ତ୍ୱାବଧାରକ, ଓଡିଶା ।

Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden, Odisha, Bhubaneswar.

Message

It gives me immense pleasure to know that Youth4Water Plus - a youth led UNICEF Odisha Campaign- is going to organize the Symposium on Wildlife and Biodiversity Conservation in collaboration with Regional Science Centre, Ministry of Culture, FORCE, Bikash Saathi and UNICEF on 20th February 2024.

Wildlife and biodiversity are essential components of our planet's ecosystem, providing a delicate balance that sustains life. Biodiversity, the variety of life on Earth, encompasses the multitude of species, ecosystems, and genetic diversity. As human activities increasingly impact the environment, there is a growing urgency to conserve wildlife and biodiversity for the well-being of both ecosystems and humanity. Special focus must be on adaptive strategies that show beneficial outcomes for wildlife especially establishing and maintaining protected areas, such as national parks and wildlife reserves that help safeguard critical habitats and provide safe space for endangered species. By adopting sustainable practices, raising awareness, and implementing effective conservation measures, we can protect the richness of our planet's natural heritage for the benefit of present and future generations.

I am happy that Youth4Water Plus Campaign has organised conference to focus on various scientific tracks covering major conservation methods and strategies to mitigate the challenges faced wildlife habitat. This Conference will bring together youth, scientific community, researchers and administrators for real brainstorming on these glaring issues related to the current crisis of biodiversity and wildlife treats. The Youth Statement for Wildlife and Biodiversity Conservation will serve as a roadmap and inspiration for youth engagement with the cause

I am thankful to organizers of this conference and the people whose dedicated efforts and creative plans will make the symposium successful. Finally, I wish grand success of the Symposium on Wildlife and Biodiversity Conservation.

Date: 05th Feb, 2024

(Susanta Nanda) 5/02/24

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MESSAGE FROM PCCF -HoFF

ଦେବୀଦତ୍ତ ବିଶ୍ୱାଳ
DEBIDUTTA BISWAL

ପ୍ରଧାନ ମୁଖ୍ୟ ବନ ସଂରକ୍ଷକ
ଓ ବନବାହିନୀ ମୁଖ୍ୟ, ଓଡ଼ିଶା
PRINCIPAL CHIEF CONSERVATOR OF FORESTS
& HEAD OF FOREST FORCE, ODISHA

MESSAGE

It gives me immense pleasure to know that Youth4Water Plus - ayouth led UNICEF Odisha Campaign - is going to organize the Symposium on Wildlife and Biodiversity Conservation in collaboration with Regional Science Centre, Ministry of Culture, FORCE, Bikash Saathi and UNICEF on 20th February 2024.

Wildlife and biodiversity conservation are crucial aspects of environmental protection and sustainable development. As our planet faces serious challenges such as habitat loss, climate change, and extinction of wild species, it becomes imperative to prioritize efforts to protect and preserve the rich wildlife heritage species. Special focus must be on adaptive strategies that show beneficial outcomes for wildlife especially establishing and maintaining Protected Areas, such as National Parks and Wildlife Sanctuaries that help safeguard critical habitats and provide safe space for endangered species.

Engaging local communities, raising awareness and thrust for conservation efforts fosters a sense of responsibility and inspires collective action in protecting their natural surroundings to ensure a safe coexistence between humans and all life forms that share our planet.

I am happy that Youth4Water Plus Campaign has organised conference to focus on various scientific tracks covering major conservation methods and strategies to mitigate the challenges faced in the wildlife habitat. This Conference will bring together youth, scientific community, researchers and administrators for real brainstorming on these glaring issues related to the current crisis on biodiversity and wildlife threats. The Youth Statement for Wildlife and Biodiversity Conservation will serve as a roadmap and inspiration for youth engagement with a cause

I am thankful to organizers of this conference and the people whose dedicated efforts and creative plans will make the symposium successful. Finally, I wish the Symposium a great success.

Date: 05th Feb, 2024

(Debidutta Biswal)
Principal Chief Conservator of Forests
Head of Forest Force
Odisha, Bhubaneswar

ଅରଣ୍ୟଭବନ, ପ୍ଲଟ-୨/୧୨, ଚନ୍ଦ୍ରଶେଖରପୁର, ଭୁବନେଶ୍ୱର-୭୫୧୦୨୩, ଫୋନ: ୦୬୭୪-୨୩୦୦୮୫୩
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MESSAGE FROM DEPUTY DIRECTOR, NANDANKANAN

NANDANKANAN

Message From Deputy Director

A better environment led to a better society, with this theme in our minds. I am happy to be a part of the upcoming symposium organized by Youth4Water Plus in collaboration with the Regional Science Centre, Ministry of Culture, FORCE, Bikash Saathi, and UNICEF on February 20, 2024.

The environment is a very near thing to us, which provides us selflessly, yet humans find various ways to disintegrate and disrespect it. A clean and hygienic environment is a necessity for better biodiversity. Being responsible and making efforts can make our society better. Climate change, pollution, endangered species, and much more are some modern problems that require a well-framed solution. The basic thing we can do is respect our surroundings, as making our surroundings clean itself makes the environment clean. Wildlife and biodiversity conservation are very important parts of environmental protection. Establishing different national parks and biosphere reserves can lead to sustainable development.

Involving youth, training them, and spreading awareness among local communities can make the upcoming generation more knowledgeable. The awareness at schools and universities results in inspiring youth to make further progress.

A great initiative was taken by Youth4Water Plus to conduct a symposium where many researchers, administrators, and youth were involved. It is certain that this event will result in many great ideas and new friendships that will work together to achieve the desired goal.

I am thankful to organizers of this conference and the people whose dedicated efforts and creative plans will make the symposium successful. Finally, I wish the grand success of the Symposium on Wildlife and Biodiversity Conservation.

Date: 07th Feb, 2024

Signature Sarath Kumar .N.

Deputy Director
Nandankanan Zoological Park

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Message

Ms. Shipra Saxena, WASH-CCES Specialist, UNICEF Odisha

Climate change is the defining crisis of our time, and it is happening even more quickly than we feared. No corner of the globe is immune from the devastating consequences of climate change. Rising temperatures are fueling environmental degradation, natural disasters, weather extremes, food and water insecurity, economic disruption and conflict. Sea levels are rising, the Arctic is melting, coral reefs are dying, oceans are acidifying, and forests are burning. It is clear that business as usual is not good enough. As the infinite cost of climate change reaches irreversible highs, now is the time for bold collective action.

Youth4Water Plus has been at the forefront of enabling youth to lead and contribute to climate action in Odisha. Through the momentum created by their persistent and multifaceted efforts, they have shown that we are far from powerless in the face of this global threat.

I am happy to see yet another path breaking initiative from the Youth4Water Plus team. This Symposium on Wildlife & Biodiversity Conservation will add to the valuable knowledge dimension that has guided the Youth4Water Plus fight against climate impact in Odisha. On one hand, it will give youth doing research in the field, a platform to share their learnings; and on the other, it will capacitate and empower grassroots youth activists.

I hope the deliberations, research poster presentations, expert talks and experience sharing pertaining to the different sub-themes will contribute towards defining action points for climate action especially for biodiversity and wildlife conservation. I believe that such scholarly gatherings can play a vital role in preparing the world community for managing difficult situations likely to arise with global warming.

I wish the Symposium success in achieving its goals towards biodiversity Conservation and adding to the body of knowledge on Wildlife and Biodiversity Conservation.

Shipra Saxena
WASH-CCES Specialist
UNICEF Odisha

ACKNOWLEDGEMENT

Ms. JYOTI SHARMA- PROGRAM DIRECTOR - YOUTH4WATER PLUS

The recently concluded COP 28 resulted in unprecedented recognition for the fact that nature and biodiversity are keys to mitigating a heating planet and protecting vulnerable communities from the impacts of a changing climate. Creating momentum for linking efforts to address the climate and biodiversity crises, it stressed on the importance of conserving, protecting and restoring nature and ecosystems towards achieving the Paris agreement temperature goal through "protecting terrestrial and marine ecosystems, by conserving biodiversity, halting and reversing deforestation and forest degradation by 2030", This is the first time such a pledge has garnered formal recognition under the UN Framework Convention on Climate Change (UNFCCC).

Given this context, I am happy to see Youth4Water Plus contributing to the knowledge bank on this topic through this Symposium on Wildlife and Biodiversity Conservation. As the Convener, I felt privileged to be a part of this symposium that will serve as a crucial dialogue space for young climate scientists, transcending borders and disciplines to explore innovative solutions for the intertwined challenges of climate change and biodiversity loss.

The Symposium has been made possible by the tireless efforts of the Co-Convener Dr. Biswajeet Panda (*also a Youth4Water Plus Youth Leaders Council Member and Secretary, Bikash Saathi Non-Profit*) and the Core Organizing Committee members - Smrutirupa Swain, *(Documentation Coordinator, Youth4Water Plus)* Abhishek Mani *(Media and International Officer, Youth4Water Plus),* Puranjay Sahu *(Youth Leaders Council Member, Youth4Water Plus) and* Nirakar Bisoyi *(Youth Leaders Council Member, Youth4Water Plus)*

As we navigate the complex intersection of environmental issues, I congratulate Youth4Water Plus, UNICEF, Bikash Saathi and FORCE for yet another milestone activity that brings together and capacitates the emerging leaders shaping the future of our planet. May this symposium inspire a renewed sense of responsibility, instigating meaningful actions that propel us towards a more sustainable and harmonious coexistence with our planet.

Jyoti Sharma

Jyoti Sharma
Program Director, #Youth4Water
President, FORCE Non-Profits

ODISHA OUTLOOK ON BIODIVERSITY

The state Odisha, located on the eastern coast of India, boasts of rich biodiversity and diverse wildlife due to its varied topography, including forests, wetlands, and coastal plains. This study explores Odisha's biodiversity, highlighting its unique ecosystems and conservation efforts.

Odisha is home to several protected areas, including national parks, wildlife sanctuaries, and biosphere reserves, which serve as habitats for a plethora of flora and fauna. These areas, such as Simlipal National Park and Bhitarkanika Wildlife Sanctuary, support significant populations of endangered species like the Indian elephant, Bengal tiger, and Olive Ridley sea turtle.

The state government of Odisha has implemented various initiatives and policies to conserve its biodiversity and wildlife. These efforts include afforestation programs, community-based conservation projects, and the establishment of eco-tourism destinations to promote sustainable development while protecting natural habitats.

Challenges to biodiversity conservation in Odisha include habitat loss due to deforestation, human-wildlife conflicts, poaching, and climate change impacts. However, collaborative efforts involving government agencies, local communities, and conservation organisations are striving to address these challenges and ensure the preservation of Odisha's rich biodiversity for future generations.

Hence, Odisha's outlook on biodiversity emphasises the importance of balancing conservation with sustainable development to safeguard its unique ecosystems and diverse wildlife. Continued efforts in conservation and community engagement are essential to mitigate threats and preserve the natural heritage of the region.

WILDLIFE CONSERVATION AND PROTECTION

Wildlife conservation and protection are crucial for maintaining biodiversity and ecological balance. This study provides an overview of key strategies, challenges, and the importance of conserving wildlife.

Wildlife plays a significant role in ecosystem functioning, providing essential services such as pollination, seed dispersal, and pest control. Furthermore, wildlife-based tourism contributes to local economies, highlighting the economic value of conservation efforts.

Various strategies are employed to conserve and protect wildlife, including habitat preservation, anti-poaching measures, captive breeding programs, and public education initiatives. Conservation organisations, governmental agencies, and local communities often collaborate to implement these strategies.

Despite efforts to conserve wildlife, numerous challenges persist, including habitat loss due to human activities such as deforestation and urbanisation, poaching for illegal wildlife trade, pollution, climate change, and human-wildlife conflicts. Addressing these challenges requires interdisciplinary approaches and global cooperation.

Wildlife conservation and protection are critical for maintaining biodiversity, ecosystem services, and the cultural and economic well-being of communities. By implementing effective strategies and addressing underlying challenges, we can ensure the long-term survival of wildlife species and the ecosystems they inhabit.

ABOUT YOUTH4WATER PLUS

Youth4Water Plus is a UNICEF led youth campaign started in 2019 aims to reach out to youth to engage, empower to became WASH & Climate Champions. With consistent support from 40 partners and Youth Leaders Council members campaign has reached out to 5,00,000 youth, provided trainings, mentorship support to more than 1,72,000 as WASH Guardians, trained more than 1000 youth on disaster risk resilience, awarded 11 innovation awards. Through various online, offline activities, the campaign now targets to reach about 10,00,000 youth champions for Climate Change, WASH and Water. With the vision and voice the Youth4Water Plus has created knowledge awareness assets to create innovative path ways to breakthrough barriers in outreach to youth across Odisha and beyond. Adopting a comprehensive approach, the Campaign has set an India Book Record for the largest single-place youth gathering on World Hand washing Day 2022.

One of the primary focuses of Youth4Water Plus is biodiversity protection. A cohort of youth change makers have made significant efforts to conserve wildlife species. Notable examples are Dr Biswajeet Panda, a Youth4Water Plus Council Leader from Balasore District is working for the protection of Horseshoe Crabs, Rutika Nath from Kendrapara District for the protection of Crocodiles, Satyabrata Samal, Climate Man of Odisha for the protection of Olive Ridley Turtles. Like them, apart from working at grass root levels, Youth4Water youth have also taken the voices of Odisha youth to Indian and International forums by participating in global events such as United Nations Water Conference (UNWC) in New York, UN World Food Forum 2023 in Italy, Conference of Parties (COP28) in UAE, Local Conference of Youth (LCOY) in Kerala and Odisha Conference of Youth (OCOY) 2023. Youth4Water Plus cohorts have worked for some of the key Climate Change & global warming issues of recent times such as Forest Fires, Human-Animal Conflicts, and the protection of wildlife species conserving fragile ecosystems. Through activities such as panel discussions, awareness events, nature walks, plogging drives etc on these topics, Youth4Water Plus has contributed significantly to a more holistic and sustainable approach to sustainability.

ABOUT THE SYMPOSIUM

Title – Symposium of Wildlife and Biodiversity Conservation

Organising Partners – Youth4Water Plus, UNICEF, FORCE, Bikash Saathi, Regional Science Centre

Venue–Regional Science Centre, Ministry of Culture, Government of India

Biodiversity is not merely a spectacle of nature but the cornerstone of our existence. It provides numerous ecosystem services like pollination, water purification, climate regulation and medicinal resources. Each species contributes uniquely to the intricate web of life, enhancing resilience and adaptation to changing environments. Addressing the challenges requires international cooperation and shared responsibility. Treaties like the Convention on Biological Diversity (CBD) and agreements such as the Paris Agreement on climate change highlight the commitment of nations to safeguard our natural heritage.

This Symposium will present networking opportunities for youth to interact with experts from multiple domains, researchers, academicians and government agencies and for peer-to-peer learning. The Symposium is expected to be attended by more than 100 youths cutting across various verticals and segments. Youth participants from the environment and allied sectors, entrepreneurs, professionals, leaders, experts, decision-makers, and environment protection boards from Odisha will share insights on Environmental Sustainability, Biodiversity Conservation, Urban Biodiversity, Climate Change, Indigenous Climate Knowledge, and Role of Technology in Biodiversity Conservation. The Symposium will have expert talks, poster presentations & youth working for biodiversity conservation presenting their expertise from different fields & research.

Themes:

8) Intersections between biodiversity conservation and the SDGs
9) Biodiversity Conservation Challenges and Opportunities in Odisha
10) Importance of indigenous knowledge in biodiversity conservation
11) Strategies and mitigation measures to protect vulnerable species
12) Policy and Advocacy Biodiversity Conservation

13) The Role of Technology in Biodiversity Conservation

14) Urban Biodiversity

15) Case Study on Wildlife Conservation in Odisha.

ADVISORY COMMITTEE MEMBERS

1) Shipra Saxena, WASH-CCES Specialist, UNICEF

She has over 20 years of experience in the WASH Sector. Currently, she is leading the WASH program for UNICEF in Odisha State, India, providing technical assistance and policy advice to the Government of Odisha on WASH and Climate Change. She has led WASH programs and teams across India for the UN, International organizations, and corporates, building networks and partnerships. She has established strategic and influential partnerships with Departments of different State Governments, UN and International agencies, formulated policies and strategies through technical assistance to State Government to draft the Menstrual Health & hygiene, Sanitation and Water policies. She played a pivotal role in establishing a state-wide Youth network for WASH and climate change that now comprises of more than 500,000 youth for social action.

She has previously worked with Bilateral & Multi-lateral Agencies, National & International Organizations; and Government Organizations like TARU, WaterAid, USAID project, Govt. of India-Ministries/Departments, & FICCI). Her work experience encompasses program development, resource mobilisation, program monitoring & evaluation, partner management and advocacy with the Government. She has demonstrated programs that have and enabled positive ecosystem for addressing issues of water, sanitation, hygiene and climate change which in turn influenced high level policies.

2) Dr. Prasanta Kumar Kar, (Retd) Former Scientist E. Central Silk Board, Govt of India.

Dr Kar, Ph.D. (Environmental Biotechnology) holderfrom Bharathidasan University, Tiruchirappalli started his career as research fellow in Regional Medical Research Centre (ICMR), Bhubaneswar and conducted research in the field of immunology and biochemistry of lymphatic filariasis. Subsequently he joined Central Silk Board, Ministry of Textiles, Govt of India and pursued his scientific career. He has contributed both in Tasar as well as Mulberry silkworm. He served at Central Tasar Research & Training Institute, Ranchi, Research Extension Centre, Katghora (Chhattisgarh), Central Sericultural Germplasm Resources Centre, Hosur (Tamilnadu), Regional Seri cultural Research Station, Baripada and BSM&TC, Pali before hisretirement in November 2023. He is life time member of four National scientific societies ad review editor in eight national and international scientific journals.He has handled 16 major research projects funded by CSB, Department of Biotechnology and Department of Sericulture, Jharkhand. He has 175 publications including research papers in International and National journals, books, book chapters. He has supervised 5 students for their Ph.D. degree & 27 students for M.Phil., M.Sc. B.Tech. and B.Sc. degrees (Biotechnology/Zoology/ Sericulture). Dr Kar with his experiences in extension and training, he has been able to create livelihood opportunities for as many as 2500 new poor farmers & reelers by bringing them to Tasar culture in Odisha. Through creation of about 3000 hectares of new Arjun plantation and through conservation of wild Tasar silkworm he has contributed significantly to the ecology and ecosystem. Presently he is contributing to different projects which involve socio-economic status of poor, biodiversity conservation being associated with three NGOs in Odisha. Besides his scientific pursuit, he is a Odia story writer and dramatist.

3) Milan Panda, Education Officer, Nandankanan Zoological Park

Milan Panda, wildlife conservationist with over nine years of experience as the EducationOfficer atNandankanan Zoological Park, under the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of Odisha. He has presented ten research papers in both national and international journals, showcasing his depth of knowledge and keen insights into wildlife conservation

In addition to his research findings, he has organized several educational workshops. diverse audiences, including youth and fellow forest officials, fostering a culture of learning and knowledge exchange within the conservation community. Milan a distinguished professional with a commitment to wildlife conservation and education. He completed his MSc and MPhil degrees from Utkal University, Department of Zoology.

4) Snehasis Nayak, Sociologist, Bhadrak Autonomous College

Snehasis, social researcher and socio-environmental activist. He has completed his Masters (gold medallist) and Master in Philosophy in Sociology from Fakir Mohan University. He has also qualified for UGC NET in the year 2022. He has teaching experience of 4 years FM autonomous college and now currently working as lecturer in Sociology at Bhadrak Autonomous College. He is areas of research interest are sociology of health and medicine, social psychology and sociology of indigenous community. He has been continuously doing research on the Northern Odisha region among the indigenous population and the rural areas.

THEME 1

CASE STUDIES OF WILDLIFE CONSERVATION IN ODISHA

1.1 Preserving Ancient Guardian- A case study on Horseshoe Crab

Sambit Patra, Samikshya Acharya, Jigyansa Panda

PG Department of Zoology, Fakir Mohan Autonomous College, Baleswar, Odisha- 756001, sambit.quest@gmail.com

This case study digs into the dynamic landscape of wildlife conservation in Odisha, India, focusing on the elaborate efforts devoted to the preservation of horseshoe crabs. Recognizing the ecological significance of these ancient marine arthropods, the conservation initiative unfolds through a series of tactical events from July to December 2023. Horseshoe crabs are marine chelicerate arthropods of the family Limulidae and the only living members of the order Xiphosuraspite. Despite their name, they are not true crabs but are more closely related to spiders and scorpions. Two species are known to be alive today in India, which are- Mangrove Horseshoe Crab (Carcinoscorpius rotundicauda), Indian Horseshoe Crab (Tachypleus gigas). Among which Carcinoscorpius rotundicauda and Tachypleus gigas are found in Odisha. The conservation of these two species is currently classified as 'Data Deficient' by the International Union for Conservation Nature (IUCN). Odisha is the largest habitat for these organisms, but they are declining more rapidly now due to overharvesting for use as food, biomedical testing, and habitat destruction. The need for the conservation of this targeted species arises from underlying threats such as habitat loss, pollution, poaching, and climate change. Climate change encompasses rising sea levels, ocean acidification, and changes in temperature. These creatures play a crucial role in maintaining ecosystem balance, serving as a primary food source for migratory birds and contributing to nutrient cycling in coastal areas. Their presence or absence serves as an indicator of estuarine health. Recently, scientists and various NGOs have urged the Odisha government to protect the horseshoe crabs before they become extinct. As of now, the Wildlife Protection Act 1972 recognizes the importance of horseshoe crab conservation, listing the species as Schedule II. The study underscores the need for immediate action to safeguard these ancient guardians of Odisha & coastal ecosystems.

Keywords- Data Deficient, IUCN, habitat, coastal, ecosystem.

1.2 Climate Change: A Global Threat Poisoning Healthy Ecosystem

Arpita Das Mohapatra, Biswajit Parthasarathi Nanda

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Not only pollution but also the geometric rise in population is a major reason for the drastic climatic changes we are experiencing. From melting of glaciers in Greenland to declining snowfall in Kashmir we humans are the cause. No doubt that this new Gen-z era is developing technologically but it is retreating socially and environmentally. We have a technological solution for almost everything. When a city is not getting rainfall, we have the solution of artificial rains but what about those animals moving in forests of slashed trees, those fishes swimming in ponds of less dissolved oxygen and those birds flying high in the sky of poisonous gases. The accelerating anthropogenic activities over the past few decades have led us to a day where educational institutions remain closed for days and days due to heavy pollution. But still there is no deceleration in clearing forests to construct skyscrapers or highways. With the focus of increasing connectivity through tunnels over water bodies we ignored the consequence of the aquatic ecosystem of that water body. With the focus of increasing tourism (or rather increasing revenues) through wildlife safaris we ignored the disturbances caused to the ecosystem of forest. Both the government & the NGOs go on publishing schemes, creating awareness programs, writing articles on climate changes but all in vain unless and until each and every individual shows their concern towards improvement because each one of us is responsible for all the hotchpotch in our Mother Earth. If this ignorance towards our environment continues then our future generation may be left with no oxygen to breathe in.

Keywords: population, environmentally, educational, tourism

1.3 A preliminary study on Human-Wildlife Conflicts in Baleswar-Odisha

Laxmipriya Nayak,Shiba Prasad Parida

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Balasore district in Odisha grapples with the complex and pressing issue of human- wildlife conflict, reflecting the intricate challenges arising from the coexistence of growing human populations and diverse wildlife habitats. The conflict manifests through various dimensions, driven by factors such as habitat encroachment, agricultural impact, livestock predation, and conservation challenges. The expanding human footprint leads to increased encroachment into wildlife territories, triggering territorial conflicts and resource competition. Agriculture, a cornerstone of livelihoods in the region, faces the brunt of wildlife intrusion, particularly by elephants, resulting in economic losses and escalating tensions between communities and wildlife. The predation of domestic animals by carnivores further amplifies the conflict, impacting the livestock-dependent livelihoods of local communities. Direct interactions between humans and wildlife can lead to injuries or fatalities, especially when involving larger mammals such as elephants or tigers. Balasore &biodiversity conservation efforts encounter hurdles as negative perceptions toward wildlife conservation initiatives emerge from the heightened conflict. The lack of awareness about wildlife behaviour and inadequate mitigation measures exacerbate the frequency and intensity of these conflicts. Effective resolution necessitates a multifaceted approach involving government intervention, community engagement, and conservation initiatives. Balancing the conservation of biodiversity with the welfare of local communities requires strategic policies, such as fencing, early warning systems, and community-based conservation practices. Moreover, adapting to climate change impacts on wildlife movements is crucial in the evolving ecological landscape.Sustainable development practices that harmonise economic activities with ecological sustainability are imperative. The abstract explores the intricate web of challenges in Balasore & human-wildlife conflict, emphasising the need for comprehensive strategies to ensure the coexistence of communities and the preservation of the rich biodiversity in this region.

Keywords: Coexistence, livelihoods, Community, Conservation, Biodiversity

1.4 Clash of Realms: Navigating Human-Bear Co-existence

Saipriya Nayak, Biswajeet Panda

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Sloth bear, *Melursus ursinus*, also called Indian bear is found in Indian subcontinent like India, Nepal, Bhutan and Sri Lanka etc. They evolved from brown bears through divergent evolution. They are mainly insectivorous. Some of them are crazy for fallen mowha, honey, wood apple and jackfruit. In Odisha they are mainly found in Kuldiha wildlife sanctuary and associated forests. We investigated the species interaction between human and sloth bear of the region of the above said sanctuary that falls into Balasore district. It comprises 272.8km2 area. This city has a population density of 609 people/km2. We examined human sloth bear conflict data of 12 years and found that 4 deaths,99 major injuries,63 minor injuries are recorded. Victims included people from different age groups like 15 years, 30-40 years, and above 60yrs. 86.7% victims are male as they are the earning head of family. By detailed observation and interview we found that these conflicts mainly took place during the monsoon season i.e. from July to October. Monsoon is the time of outdoor farming and villagers are encountered by the bears while working in the field. Increasing human population, improper land planning and loss of natural habitat for wildlife are the main reasons for these encounters. Making toilets available for the local people, awareness about human -bear conflict, equipped conflict management team formation are the solution for these incidents. Also cooperation between the forest department and native people play a major role in these types of scenarios.

Keywords: Evolved, sloth bear, monsoon, conflicts

1.5 Vulture: The guardian of sky and It's conservation challenges in India

Arabinda Singha, Biswajeet Panda

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Vultures are an important part of a healthy ecosystem, providing benefits both to the environment and human well-being. India houses nine species of vulture, which are fragmented to the foothills of Himalayas, Thar desert, Gangetic Plains and some forest regions due to habitat loss, diclofenac poisoning and many more adverse environmental conditions. Vultures play a crucial role in ecosystems, such as – nutrient cycling, ecosystem sanitation, disease control and prevention, i.e; nature's clean-up crew. The increase in urbanisation in India impose serious threats to the vulture population that leads to drastic fall in their numbers. To counter these threats various Governmental organisations have taken initiative, like - community outreach, habitat protection, captive breeding programs, vulture safe zone and diclofenac ban (5th July 2008). The vulture conservation breeding centre of Nandankanan Zoological Park, Odisha is one of the remarkable step in providing a boost to the vulture population. Despite the significant progress made in vulture conservation in India several challenges remain. These challenges require multiple approach including – habitat protection and restoration, strict enforcement of the diclofenac ban, community engagement & awareness and last but not the least the power line mitigation measures. By working together, we can make a significant change in their population so that they can play their vital role in the ecosystem for the future generation.

Keywords: Diclofenac, nature's clean-up crew, captive breeding programs and awareness

1.6 Conservation of Marine Fishes in Coastal Odisha

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The coastal region of Odisha, is the home to a diverse array of marine fishes, which play a crucial role in the local ecosystem and economy. Odisha has 480 km of Coastline which is further known as Utkal plains and it contains 6 districts such as Baleswar, Bhadrak, Kendrapara, Jagatsinghpur, Puri, Ganjam. The marine fishes of coastal Odisha encompass a wide variety of species, including commercially important ones such as hilsa, pomfret, mackerel, sardines as well as around 2611 Marine and Brackish Water fishes found in coastal Odisha. These species support the livelihoods of local fishermen and contribute significantly to the state & fisheries industry. Additionally, they are integral to the food web, serving as prey for larger predators and helping maintain the balance of marine ecosystems. However, these marine fishes face various threats, including deep sea overfishing, habitat degradation, fishing during breeding and egg laying times, pollution, and climate change. These factors can lead to declines in fish populations and disrupt the delicate ecological balance of the coastal waters. Conservation efforts such as sustainable fishing practices like fishing ban during breeding seasons as well as egg laying periods (15th April to 14th June) and regulation of fishing net size, and several rules are deployed by Odisha marine fisheries regulatory act (OMAFRA) ARD dept. Odisha, marine protected areas, and pollution control measures are taken by the Forest department and NGOs like Bikash Saathi who has been continuously working for Nature and Sustainable Development. In conclusion, the marine fishes of coastal Odisha are vital components of both the local environment and economy. Protecting and managing these fish species is crucial for maintaining the health and sustainability of the coastal ecosystem and ensuring the continued prosperity of coastal communities.

Keywords: Marine Fishes, Coastal, Conservation

1.7 Impact of wetland conservation on 'Fishing Cat' and Fisher folk, a case study from Chilika

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Being considered the most productive ecosystems on earth, Wetlands provide for a wide variety of ecosystem services that directly and indirectly affect the communities and species depending on them for survival. Chilika, being the second largest brackish water lagoon in the world needs no introduction to its unique biodiversity. Chilika is home to a range of fish and the unique Fishing Cat. Despite the Fishing Cat & above average conservation appeal among the masses, this unique wetland species faces the brunt of not being in the list of so-called charismatic giant cats, in our country. Being one of the top predators in the wetlands ecosystem, its presence indicates the overall health of the habitat. In Spite of its status as the ambassador of Chilika lagoon, less is known about the numbers of this species. This framework primarily deals with the drivers of degradation of the fishing Cat and prey and its habitat. How do they cause stress to the Ecosystem? How does the Ecosystem and prey respond to the stressors?

This is to guide the fishing cat conservation actions in Chilika to mitigate threats to the fish as well as the native species in the Chilika, as a consequence of conserving the wetland Ecosystem.

Keywords: Fishing Cat, Wetlands, Conservation, Ecosystem-Services,

1.8 Behavioural thermoregulation of gharials in captivity at Nandankanan zoological park

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Gharial (Gavialisgangeticus) is the only surviving member of the family Gavialidae which is native to the Indian subcontinent. IUCN has listed Gharial as Critically Endangered and it is categorised in Appendix-I by CITES. The rapid decline of population in its known ranges due to various threats mainly construction of dams and overexploitation of their food resources have protected the Gharials under Schedule-I of the Wildlife (Protection) Act, 1972. Gharials have bred for the first time in captivity in the world at Nandankanan Zoological Park in 1980. Environmental temperature has a pivotal role in the behaviour of ectotherms. A pilot study was conducted from December 2023 to February 2024 to assess the impact of temperature variability on behavioural thermoregulation of gharial in the winter season at Gharial breeding pool, Nandankanan Zoological park (NKZP), BBSR. The present study attempts to analyse the effect of atmospheric and pool water temperature fluctuation on thermoregulatory behaviour of gharial in the winter season specifically December to February. Primary data was collected using, instantaneous focal animal sampling method. In winter, basking was triggered when outer temperature surpassed pool water during day and evening hours but warmer pool water than the atmosphere in the morning resulted in gharials to stay inside pools for thermoregulation and ecological needs of their body. In extreme temperatures, thermal stress may affect normal functions causing extensive damages. Thus, it is important to understand behavioural pattern of the gharials with ambient temperature and control its fluctuation for their management in captivity.

Keywords - Endangered, Gharial, Thermoregulation, Behaviour, Temperature, Conservation

1.9 Case Study of Wildlife Conservation

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Nabarangpur forest division consists of six ranges namely NABRANGPUR, UMERKOTE, RAIGHAR, KODINGA, DABUGAON, and JHARIGAON range. The wild fauna mainly found in this division are Sloth Bear, wild boar, Monkey, spotted deer, Hyaena, jackal, Fox, Chow Singha, Kutra etc. The population and distribution of sloth bear found in almost allranges and predominantly in Nabarangpur, umerkote, Jharigam, Dabugaon, and kodingarange. Day by day sloth bear menace is going on and man animal conflict pose a serious challenge to this division. This is due to rampant loss of natural habitat, Encroachment, Extensive maize and sugarcane cultivation in forest land, Bharatmala road network project. The loss of habitat associated with non-availability of food in the nearby forest, the wild bears usually come to human habitation very often and deliver their kids inside home pipe culvert, abandoned house, school premises, underneath big holes etc. Taking the above facts into consideration and in order to reduce the man animal conflicts, the Nabarangpur forest division made many artificial bear caves at several places of the division on experimental basis during 2019-20. In order to enrich the habitat and success for this experimental bear caves, different fruit bearing trees are planted in and around this artificial cave by Forest dept. Species like - Barakoli, Jamun, panasa, Sitaphala, pijuli,Sunari. Generally, there is no dearth of water from July to December. However, scarcity is felt from January to June, when most of the seasonal nallahs and streams dry up. Hence, it is necessary to create waterholes and check dams on the higher slopes across nallahs near to the caves to improve water availability during summer. Forest fire is also another important cause of habitat degradation in the division. Main cause of forest fires is stubble burning, shifting cultivation and mahua flower collection. In order to reduce forest fire incidents, fire awareness programme, fire watchers are appointed, and regular patrolling are done.

Keyword: Man-animal conflict, Habitat management, wildlife management, Forest fire

1.10 Case Study: Poachers to Protecter (Mangalajodi)

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Odisha is one of the rich biodiversity states of India, having more than 500 species of birds,102 species of mammals, 110 species of reptiles and 19 species of amphibians. Among these many more need to be protected and conserved. Not only the government, many community-based conservation strategies can be seen now a days. Here a case study is given about the conservation of wildlife at Mangalajodi, Khorda, Odisha.The fisherman community of Mangalajodi were normally depend upon catching fishes from the Mangalajodi wetland but by side the most of them were involved in illegal poaching of migratory birds. As time passed, by such action of poaching activities resulted in ecological imbalance, biodiversity degradation and other negative impacts which is a big threat for the future of biodiversity at Mangalajodi. The alarming scenario gets a kind of rejuvenation with the introduction of eco-tourism and related activities at Mangalajodi. This initiation employs more than 100 families of the nearby villages. The poachers eventually turned into protectors of biodiversity of the place. Here this study refers to the factors influencing the villagers in such a remarkable transformation from destructor of environment to get involved in protection of environment in sustainable manner. This regards socio-economic-cultural development initiatives through ecotourism by the local community. Many of the poachers now coming forward for the management of habitat as their own asset and also got self-employed through it. The extent to which the socio-economic conditions and environmental growth have been realised so far and the solutions for the existing challenges have been seen positive.

Keywords: Conservation, Community participation, Ecotourism, Sustainable development.

THEME 2

CHALLENGES AND OPPORTUNITIES FOR BIODIVERSITY CONSERVATION

2.1 Horseshoe crabs in and around Dublagadi coast of Balasore district of Odisha: A Preliminary Observation

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A survey was conducted to assess the occurrence of horseshoe crabs in and around the coastal stretches of Dublagadi of the Balasore district during the low tide period. The team covered the intertidal area (3 kms length X 250 metres width towards north and 7 kms length X 250 metres width towards south) of Dublagadi coast randomly. Total numbers of horseshoe crabs (HSCs) sited either dead or alive were enumerated. Data about the availability of HSCs were also collected from the local fishermen, students, waste collectors, aged men and women. More dead HSCs were found than the live ones. According to the local old people, the population of HSCs have been declining in comparison to the past years. During the visit, a total of 73 dead and three live HSCs were recorded. Out of the total, 19 were freshly dead and the rest were old in nature. Some (4 pairs) of the entangled dead HSCs were in pairing condition. Only two HSCs were found in living condition. One freshly dead gravid female was also observed. One live HSC was released to the sea by the team which was found trapped in a fishing net during the study. All the HSCs were found to be adult Tachypleus gigas. It was observed that due to unregulated fishing activities and lack of awareness among the fishing community a good number of breeding HSCs pairs have met unnatural death in the studied area causing a great loss of expected HSC population in the area as a single gravid female carry about 6000-8000 eggs during the spawning period. Therefore, necessary conservation efforts have to be taken up by the young environmentalists, concerned government and non-government organisations of the state.

Key words: Horseshoe crabs, Conservation, Odisha, India

2.2 Marine bycatch: Treasure trove of unexplored marine fauna or exploitation of biodiversity

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Over the past two decades, the global demand for fish has surged, with approximately one billion people relying on fisheries. However, this increased fishing activity has given rise to a significant issue known as bycatch. Bycatch refers to the unintentional capture of non-target species, including dolphins, marine turtles, and seabirds, during fishing operations. It occurs when fishing gears like nets and lines are set to catch specific fish species, inadvertently trapping other marine organisms and often resulting in the discard of juvenile fish, dolphins, and sea turtles overboard, either dead or dying. The consequences of bycatch are far-reaching, impacting ecological, economic, and social aspects, as well as biodiversity. Bycatch leads to a decline in the mortality rate of non-target species, disrupts the natural prey-predator balance, causes loss of biodiversity, destroys habitats, and alters ecosystem dynamics by changing genetic compositions within Populations. Initiatives such as the International Smart Gear Competition, organised by WWF, aim to develop innovative technologies and fishing gears to reduce bycatch. In India, the term & quot; by catch & quot; gained prominence with the mechanisation of fisheries, particularly the introduction of trawl fisheries. Trawlers, responsible for a significant portion of marine fish production, often result in substantial bycatch, leading to discards and depletion of fish stocks. Efforts to address bycatch globally involve the identification of responsible fishing gear and the implementation of measures like turtle excluder devices. A critical evaluation of trawl fishing in India explores the potential conversion of bycatch waste into edible resources. With a long coastline and big population dependent on fisheries, the Odisha coast is not explored much further bycatch abundance and diversity. Overall, bycatch poses a complex challenge, requiring concerted efforts to balance economic benefits with marine biodiversity conservation.

Keywords – Bycatch, Turtle excluder devices, Trawlers

2.3 Odisha's Biodiversity: Challenges, Conservation, and the Path Forward

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Odisha biodiversity has undergone significant changes over the last two decades, with diverse ecosystems like forests, wetlands, and coastal areas. The state's total geographical area is 155,707 km2, with a forest cover of 32.3%.Conservation efforts, including initiatives for endangered species like Olive Ridley turtles, and strides in afforestation, have been made. However, challenges such as deforestation, tourism, climate change, and human activities persist, impacting biodiversity. Unregulated activities like hunting, poaching and illegal trade, along with climate change and pollution, pose threats to various species. Approximately 46,707.49 ha of forest area has been diverted for various purposes, contributing to habitat degradation. The loss of human lives in elephant conflicts underscores the complexity of conservation challenges. Establishing more hotspots and sanctuaries is suggested for in-sit species conservation. Implementing effective conservation plans is crucial to sustain and enhance Odisha' rich biodiversity.

Keyword: Biodiversity, Odisha Heritage Species, Climate Change, IUCN

THEME: 3

IMPORTANCE OF INDIGENOUS KNOWLEDGE IN BIODIVERSITY CONSERVATION

3.1 The Role of Indigenous Knowledge in Biodiversity Conservation: Lessons from Traditional Practices and Wisdom

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This article explores the invaluable contribution of indigenous knowledge to the field of biodiversity conservation by examining traditional practices and wisdom passed down through generations. In a rapidly changing global landscape, the rich repository of knowledge held by indigenous communities has proven to be a critical asset for the sustainable management and preservation of biodiversity. Traditional practices, rooted in an intimate understanding of the environment, offer insights into sustainable resource management, habitat preservation, and species conservation. The article highlights the nuanced ways in which indigenous communities maintain a delicate balance between human activities and nature, drawing upon traditional ecological knowledge that has evolved over centuries. Drawing upon examples from diverse geographical regions, the article emphasises the adaptive capacity of indigenous communities in responding to environmental challenges. It also examines the potential for collaborative partnerships between indigenous knowledge holders, scientists, and policymakers to develop holistic conservation strategies that respect cultural diversity and enhance the effectiveness of conservation initiatives. In conclusion, the research presents a compelling argument for the integration of indigenous knowledge into contemporary biodiversity conservation efforts. By recognizing the profound ecological insights embedded in traditional practices, we can forge a more inclusive and effective approach to safeguarding the planet & biological diversity while respecting and preserving the cultural heritage of indigenous communities.

Key Words: Traditional practice, Indigenous knowledge, Biodiversity conservation, Cultural heritage

3.2 Safeguarding Biodiversity and Sustaining Forests: Innovative Strategies for Wildlife And Conservation

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This abstract delves into the multifaceted realm of wildlife and forest conservation, presenting a comprehensive overview of strategies designed to protect biodiversity and ensure the sustainable management of vital ecosystems. Against the backdrop of escalating threats, including habitat degradation, climate change, and illegal activities, this document explores innovative approaches and proven methodologies that form the foundation of effective conservation efforts. A critical component of successful conservation is the establishment and management of protected areas. These areas serve as sanctuaries for diverse flora and fauna, providing essential habitats for wildlife to thrive. Additionally, the creation of wildlife corridors and habitat connectivity emerges as a strategic solution, facilitating the movement of species and enhancing genetic Diversity. Community engagement and empowerment play a pivotal role in the sustainable conservation of forests and wildlife. Collaborative approaches that involve local communities in decision-making processes, coupled with educational initiatives, contribute to fostering a sense of stewardship. This, in turn, helps mitigate human-wildlife conflicts and promotes sustainable resource management practices. Innovative technologies, ranging from satellite imagery for monitoring deforestation to advanced tracking devices for studying animal movements, offer unprecedented opportunities for informed Furthermore, sustainable forest management practices, including agro-forestry and reforestation initiatives, are highlighted for their role in mitigating climate change and preserving biodiversity. The document emphasises the need for adaptive strategies that account for the dynamic nature of ecosystems and changing environmental conditions.

Keywords: Biodiversity, Wildlife, Conservation, Management

3.3 Strengthening Community Engagement and Ownership via Participatory Methods for Biodiversity Conservation

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This research aims to explore the intricate connection between community engagement and the conservation of biodiversity through the implementation of innovative approaches like restoring natural habitats, eradicating invasive species, and implementing wildlife monitoring initiatives. The captivating tale of the Guardians of the Grove inspires us as we explore the transformative power of working together and taking care of our environment to maintain its delicate equilibrium. This article offers a comprehensive explanation of the essential concepts and strategies required to educate communities about the importance of preserving biodiversity and fostering active participation in conservation efforts. This is achieved by blending theoretical frameworks with real-life illustrations. We present a holistic approach that empowers individuals and communities to actively contribute to the preservation and revitalization of biodiversity. This approach encompasses a range of engaging activities, including public outreach campaigns, citizen science initiatives, interactive workshops, and sessions for sharing traditional knowledge. Creating a balanced connection between humans and the environment is achieved by embracing inclusive methods and integrating education, outreach, and community involvement into conservation initiatives. This sets the stage for a sustainable future where all voices blend harmoniously with the symphony of nature.

Key words: Biodiversity, Conservation, Community engagement

3.4 Indigenous Communities and Development Activities In Eastern Ghats

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Indigenous communities in the past, especially the tribes were the lords of the forest and free to use forest resources. With the interference and encroachment by non- tribals in the Eastern Ghats forests for developmental and commercial purposes in recent times the tribals were forced to collect forest resources especially non-wood forest products for trade purpose and in certain areas to leave or forego right to live in their native land due to forest clearing, for different activities. People who were living in the past, were living in a symbiotic relationship with the forest. Many indigenous communities depend directly on natural ecosystems for their livelihoods, wild-plants and animals for food, clothing, medicine, fuel and shelter. The economic identity and cultural and spiritual values as well as the social organisation of Indigenous people are closely linked to biological diversity. But due to rapid developmental activities like large scale mining, dams for hydropower and irrigation, extractive industries, railway lines, widening of roads in the pursuit of National development is causing biotic pressure on the eco-system which is quite pronounced. It is a tragic irony of development that the Indigenous Communities are at the vulnerable worst which led to the loss of control over resources, decision making, social and cultural identity, involuntary displacement, loss of livelihoods and forced migration. So, the government with the help of a few NGOs, environmentalists etc., should take an initiative to strictly implement all the necessary measures effectively and properly which is a great need of the hour.

Keywords: Tribes, Indigenous Communities, Eco-system.

3.5 Inventorization of traditional knowledge of the herbal medicines among indigenous peoples in Malayagiri hills, Garhjat Range, Odisha

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India is rich in floral diversity, with more than 17,000 angiosperm species, 64 gymnosperms, 1,200 pteridophytes, 2,850 bryophytes, and 2,021 lichens. Out of the total, 7,500 species have been reported to have medicinal uses. Diverse topography and climatic conditions provide the Indian Himalaya with especially rich medicinal plants, with alpine areas being the major source of important medicinal plants. Inhabitants of rural and remote areas still rely on plants as a major component of their health care systems. Most diseases cured by local herbalists are common problems such as respiratory diseases, aches and pains, wounds, and musculoskeletal ailments. Inhabitants often use local medicinal plants without prior advice of local traditional healers because they are using these plants for generations. This knowledge may be passed secretively from one generation to the next through word of mouth inherited via medico-spiritual manuscripts. An ethnobotanical expedition will be conducted to document the traditional ethnobotanical (TEB) uses of wild flora of Malayagiri Hills, Garhjat Range, Odisha. It has rich plant diversity and is the hub of many endemic plant species while the study areas are not yet explored. The research area comprises mountainous terrain and villages are located on far and farther distances. Malayagiri Hills has rich biocultural and plant diversity comprising different ethnic groups of Odisha state. The current research is aimed to explore and document traditional medicines and other domestic and commercial uses of wild plants. This study will assist to evaluate conservation and commercial worth of wild flora which can be potential candidates for drug discovery through ethnopharmacological analysis.

Keywords: Herbal medicine, tribal health, management, spiritual manuscript, plant diversity.

3.6 A Review on Habitat, Ecosystem and Society ofthe Bonda Tribe.

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In the wild and remote mountainous country within Kondakamberu ranges of Eastern Ghats rising, toward the south-western part of Malkangiri district, lives a unique tribe. The tribesmen identify themselves as Remo means human being, but the world recognizes them as Bonada which is also known as the Bondo or Bondoporaja. They live in the upland towards north-east of river Machkund confined to 130 sq.km. of hill area in the Khairput Block. Based on their settlement, the Bonda tribe is divided into 2 groups i.e. the upper Bonda living in the inaccessible forest at the Bonda hill top and lower Bonda living in the plain area at the foot of the hill. Bonda is one of the 13 PVTGs found in Odisha. They belong to Austro-Asiatic racial stock and speak Remo an Austro-Asiatic dialect. They live in small cottages with thatched roofs and have a backward kitchen garden, which is known as "Dingrabui" used to grow vegetables, maize, tobacco etc. Bonda men wear a loincloth called "Gusi" around the waist. Women wear a special and unique attire, they wear rings made of silver and bronze decorated with colourful beads of different shapes around their neck which virtually cover their body from chest to navel, below this they wear a skirt known as "Nadi" or "Ringa" woven from natural fibre. Their livelihood is supplemented by seasonal forest collection, animal domestication and shifting cultivation of various cereals, pulses, oilseeds etc. For trading purposes, Bonda people depend on nearby weekly markets or "Hata". Apart from buying and selling they also come in contact with the outer world through this market. Bonda people worship nature as their deities, like "Kapuchuon" deities of stream and "Doliang" soul of mango tree. The Bonda is no longer an unknown community living in the far-off mountain, government of Odisha and India are trying over the year to bring Bonda into mainstream. Now it is up to them to decide as to how best they can derive maximum benefit out of the development intervention or they continue to remain isolated or decide to safeguard their tradition while embracing development.

Keywords: Bonda tribes, Hata, PVGTs, Austro-Asiatic racial stock.

3.7 The Role of Indigenous Peoples in Biodiversity Conservation

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Indigenous peoples are essential to the preservation of biodiversity, which is the wide variety of flora and fauna that inhabit a given area. They have spent a great deal of time on the land and are well familiar with it. Their generation-to-generation transmission of knowledge aids in their understanding of environmental conservation. Indigenous peoples have unique lifestyles that honour the environment. They are aware of which species are crucial to the ecology, which plants can be utilised as medicine, and how to use resources without endangering the environment. They contribute to the health and balance of ecosystems by coexisting peacefully with nature. Indigenous peoples are like nature guardians when it comes to conservation. They are aware of the what happening of endangered species and have the ability to detect environmental problems. Their traditional knowledge frequently offers insightful information that might enhance conservation efforts, combining scientific study. It not just about knowing things; it's also about treating people fairly and respecting their rights. Indigenous groups really care about their land, but they sometimes have problems like losing their land or not being asked about important decisions. We should make sure they have rights and include them when we are trying to protect nature, and we should do it in a fair and kind way. In conclusion, indigenous peoples are really important for keeping nature diverse and healthy. They've learned a lot from living closely with nature for a long time, which helps us take care of ecosystems and all the different life on Earth. It's super important to respect their rights and work together with them to make sure we're conserving biodiversity in the best way possible for the long term.

Keywords: Indigenous peoples, Biodiversity, Ecosystem, Right and respect, Endangered species.

3.8 Multi Species Avian Diversity of Agronomy Field, OUAT, Bhubaneswar

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Agronomy field of Odisha University of Agriculture and Technology is place having agroforestry sites with agricultural research fields, which is a good foraging and resting site for birds. Due to the presence of plenty of foods and small wetland areas, many of migratory and local migratory species of birds visit here during November to February month for breeding purpose. Over 46 species of birds of 32 family and 15 order found in the study during November to February of 2023-2024. Migratory species like Wood sandpiper (Tringaglareola) Common sandpiper (Actitis hypoleucos), Alexandrine parakeet (Psittaculaeupatria),common kingfisher (Alcedoatthis), Citrine wagtail (Motacillacitreola), White wagtail (Motacillaalba), Brown shrike (Laniuscristaus), Black naped oriole (Orioluschinensis) are found mainly. The Passeriformes order birds having maximum abundance of 46 percent and Accipitriformes, Suliformes, less than 2 percent. The numbers of birds as well as the species of birds are gradually decreasing from years to years due to some biotic factors like Eutrophication, overexploitation of agricultural lands and abiotic factors like Urbanisation, Concritaisationinside the agronomy field.

Keyword: Migratory species, Abundance, Eutrophication, Urbanisation

THEME: 4

INTERSECTION BETWEEN BIODIVERSITY CONSERVATION & SDG'S

4.1 Study of behavioural activities of red weaver ant (Oecophyllasmaragdina) in Mayurbhanj district, Odisha

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The ant species of genus *Oecophylla* shows unexpected social behaviour (eusociality). Our present study reveals the building of nests, defensive behaviour and foraging activities by *O.smaragdina*. According to the studies, a single nest has different types of castes that help to build a nest. The broods collected from different areas like forest, rural and urban areas of Mayurbhanj district are studied throughout the year covering all seasons. The brood consists of different stages of its life cycle like egg, larva, pupa, juvenile, worker, soldier, adult male and the female, which are meant for different work both inside and outside of the colony. The queen, during their nuptial flight, mates with the male and comes back to the nest to lay eggs. The worker ants squeeze the fluid (lac/silk) from unfertilized eggs of drone larva at the periphery for sealing the leaves. In this study, we have also focused on the possessiveness of ants towards their colony mates. It has been observed that once their colony is disturbed, they begin to migrate to other places of the same or different tree to prepare a new shelter for them. The queens in the colony feed up on insects captured by workers. Ants obtain their food with the help of other nest mates by a specialised activity known as "foraging". It is well adapted by ants and it is achieved by a special group called foragers. Together with food, they generally march towards their own nest rather than moving to another nest conforming to nest specificity. The study concluded that *O.smaragdina* showed eusociality for nest building, protecting and foraging behaviour.

Keywords: *Oecophylla smaragdina*, Eusociality, colony, nesting behaviour, defensive behaviour and foraging activities.

4.2 The Role of Indigenous Knowledge in Bio diversity conservation and SDGs.

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Indigenous knowledge systems stand as invaluable assets in advancing both sustainable development and biodiversity conservation on a global scale. This abstract delves into the multifaceted roles and significance of indigenous knowledge in tackling contemporary environmental and developmental issues. Rooted in traditional ecological knowledge (TEK) nurtured over generations, indigenous communities harbour profound insights into local ecosystems, biodiversity, and sustainable resource management practices. Their knowledge, deeply intertwined with the land and cultural heritage, provides holistic perspectives on ecological dynamics and the intricate relationships between humans and nature. Within the realm of biodiversity conservation, indigenous peoples assume the role of stewards over their ancestral lands, implementing sustainable land management techniques and protective measures for habitats. Their conservation ethos underscores the interdependence of humans and nature, epitomizing a steadfast dedication to stewardship and sustainability. Furthermore, indigenous knowledge significantly contributes to the attainment of Sustainable Development Goals (SDGs) by addressing pivotal development challenges such as poverty alleviation, food security, and climate resilience. Community-centric governance frameworks and participatory decision- making mechanisms ensure local empowerment and equitable resource distribution, fostering social cohesion and inclusivity. Through collaborative partnerships and knowledge exchange initiatives between indigenous and non-indigenous actors, innovative solutions emerge, capitalizing on the strengths of diverse knowledge systems. Bio cultural diversity conservation approaches recognize the intrinsic connections between biological and cultural diversity, advocating for integrated conservation strategies that uphold indigenous rights and self- determination.

Key Words: Bio diversity, Ecosystems, Indigenous knowledge, Sustainable Development.

4.3 Waste Management for Sustainable Environment.

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Waste management is intended to reduce the negative effects of waste on the environment, human health, planetary resources, and aesthetics. It provides hygienic, efficient and economic solid waste storage, collection, transportation, and treatment or disposal of waste without polluting the atmosphere, soil or water system. This presentation is an overview of current Solid Waste Management (SWM) practices in Bhubaneswar (BBSR), India and identifies possible strategies for key problems that the city faces. The city generates about 500 Ton/day of solid waste within the Bhubaneswar Municipality Corporation (BMC) area. There are some visible deficiencies exist which are key elements for deficiency in the SWM system. The collection process is weak in terms of manpower and vehicle availability. Bin capacity provided is in-adequate and locations were found to be inappropriate. Untreated solid waste is dumped on open land after collection. With a population of 1 million, the per capita annual expenditure for SWM in 2016-17 was Rs. 670. In comparison to other cities in the country, this expenditure is insufficient for providing reasonable services. Besides political will, technological capability and management competence in all functional areas need intensive development to achieve the status of a smart and clean city. This topic has proposed to adopt innovative & proven waste processing technologies (combination of waste to energy and composting) that are environment friendly and aims to contribute in developing a pollution-free environment.

Keywords: Solid Waste Management, Waste Collection, Waste disposal.

4.3 SDG Goal Fulfilment: A new alternative food source

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SDG is a global, transdisciplinary vison for future. This initiative was taken up in the year 2015 with the main objective to achieve "peace and prosperity for people and the planet, now and into the future", and it is established by the United Nations (UN). There are 17 total goals of the SDG programmes, among which Zero Hunger is 2 nd goal. Due to population explosion, the carrying capacity limit of our natural resources may be reached in near future and there will be no further sustainable growth. To encounter no such situations in future, alternative sources of nutrition must be found out. The use of wild edible plants can be introduced to mitigate feeding deficits. Wild edible mushrooms like Oyster mushroom (Pleurotusostreatus), Sulphur shelf (Laetiporussulphureus), Grifolafrondose, Laetiporussulphureus, Auricularia cornea, Boletus edulis, Calocybegambosa, Pluerotuseryngii, Termitomyceseurrhizus are very healthy, nutritive, rich in fibre. Some of these mushrooms are even delicacies having medicinal and heath promoting compounds. Due to the little knowledge about these species in the urban region many of these mushrooms are now vulnerable and endangered. By the help of the indigenous knowledge of the native people, these alternative food source must be protected and conserved. Most of these mushrooms are saprophytic and symbiotic in nature, thus their conservation may lead to a holistic conservation of the ecosystem.

Keywords: SDG, Biodiversity conservation, Zero hunger, Wild mushroom

THEME 5

STRATEGIES AND MITIGATION MEASURES TO PROTECT VULNERABLE SPECIES

5.1 Safeguarding biodiversity and sustaining forest

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This abstract delves into the multifaceted realm of wildlife and forest conservation, presenting a comprehensive overview of strategies designed to protect biodiversity and ensure the sustainable management of vital ecosystems. Against the backdrop of escalating threats, including habitat degradation, climate change, and illegal activities, this document explores innovative approaches and proven methodologies that form the foundation of effective conservation efforts. A critical component of successful conservation is the establishment and management of protected areas. These areas serve as sanctuaries for diverse flora and fauna, providing essential habitats for wildlife to thrive. Additionally, the creation of wildlife corridors and habitat connectivity emerges as a strategic solution, facilitating the movement of species and enhancing genetic diversity. Community engagement and empowerment play a pivotal role in the sustainable conservation of forests and wildlife. Collaborative approaches that involve local communities in decision-making processes, coupled with educational initiatives, contribute to fostering a sense of stewardship. This, in turn, helps mitigate human-wildlife conflicts and promotes sustainable resource management practices. Innovative technologies, ranging from satellite imagery for monitoring deforestation to advanced tracking devices for studying animal movements, offer unprecedented opportunities for informed Furthermore, sustainable forest management practices, including agro-forestry and reforestation initiatives, are highlighted for their role in mitigating climate change and preserving biodiversity. The document emphasises the need for adaptive strategies that account for the dynamic nature of ecosystems and changing environmental conditions.

Keywords: Ecological Biodiversity, Mitigation Measures, Forest Cover, Wildlife Conflicts

5.2 Human-crocodile conflict and opinion towards co-existence of Local communities in Coastal areas of Bhitarkanika National Park, Kendrapara, Odisha, India

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The significance of the population of crocodiles in Odisha becomes clear when the gradual disappearance of the saltwater crocodile is retracted from the stage of its wider distribution in the past. The murky waters of coexistence between humans and saltwater crocodiles have long been a battleground of survival and adaptation. As our world expands and human activities encroach upon their habitats, a delicate dance of conflict and coexistence unfolds. There has been an increase in saltwater crocodile-human interaction around Bhitarkanika National Park. Information regarding the attacks was extracted from national newspapers and local newspapers. It has been found that in the last 15 years, more than 100 people have been attacked by saltwater crocodiles in and around Bhitarkanika National Park. The trend of incidents shows that the attacks on humans are increasing every year, which might be due to the increase in the density of C. porosus in a limited area of natural habitat. They are migrating from the zone of national parks to the local rivers and canals. June to October, i.e. The monsoon and post-monsoon seasons, is considered the critical season when maximum attacks occur, as this is the nesting and hatching season of C. porosus, during which the species remains highly aggressive. The attacks can be due to the scarcity of food in the rivers and canals. Crocodile attacks are common among fishermen, swimmers, and people near crocodile habitats. Monsoon and post-monsoon periods in Kendrapara lead to crocodile attacks, affecting coastal aquaculture and human habitats. Promoting human-crocodile co-existence is crucial for protecting human lives and biodiversity. In the last 49 years, since the crocodile breeding and management project was implemented in India under the Wildlife Protection Act 1972, the conservation of the species has resulted in a significant increase in their number in Bhitarkanika National Park due to a favourable environmental condition. Crocodile conflicts arise from habitat encroachment, urbanisation, livestock grazing, fishing activities, tourism, climate change, and a lack of awareness and education. The present scenario demands the development and implementation of an updated management plan for the coexistence of humans and saltwater crocodiles. The conservation and management

strategy of saltwater crocodiles shall include community education, warning signs, securing livestock, habitat management, monitoring, emergency response plans, public outreach programs, legislation, research, and community involvement.

Keywords: saltwater crocodiles, natural, attacks, conservation

5.3 Role of youth in protecting vulnerable species

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The fate of our planet's magnificent biodiversity hinges not just on seasoned conservationists, but also on the passionate engagement of a new generation: youth. These future inheritors possess unique capabilities to champion the cause of vulnerable species, shaping a more sustainable tomorrow. This abstract delves into the multifaceted role youth can play in safeguarding threatened creatures.

Firstly, their digital fluency empowers them to raise awareness through innovative social media campaigns, educational content creation, and online fundraising initiatives. Young voices amplified on these platforms can pierce through information barriers, fostering a global understanding of the plight of vulnerable species.

Secondly, their unbounded energy and enthusiasm translate to direct action. From participating in citizen science projects to volunteering with conservation organisations, youth can contribute valuable data collection, habitat restoration efforts, and animal rehabilitation support. Such hands-on experiences cultivate a deep connection with nature, fostering a lifelong commitment to environmental stewardship.

Thirdly, young minds are brimming with fresh perspectives and solutions. Unburdened by traditional approaches, they can invent creative techniques for tackling conservation challenges, utilising technology, art, and storytelling to engage diverse audiences and advocate for policy changes. Their advocacy efforts, whether lobbying local representatives or organising peaceful protests, can influence decision- making processes and hold authorities accountable for protecting vulnerable species.

Finally, promoting diversity and inclusivity within the conservation movement is crucial. By encouraging participation from young people of all backgrounds and regions, we tap into a wider range of experiences and perspectives, enriching the movement and ensuring all voices are heard in protecting our shared biosphere. In conclusion, the youth are not bystanders, but

essential partners in protecting vulnerable species. By harnessing their digital prowess, hands-on involvement, innovative spirit, and diverse voices, we empower them to become the future guardians of our planet's irreplaceable biodiversity. By investing in their knowledge, skills, and leadership, we ensure a brighter future for both humanity and the natural world.

Keyword: Sustainable, vulnerable, conservation, diverse

5.4 Today's Youth and biodiversity

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As we all know, Biodiversity or biological diversity is the variety and variability of life on Earth. It includes animals, plants and microorganisms. Every one of these live and work together in ecosystems to maintain and support life on earth and exist in delicate balance. But as a planet, we are failing to meet all the targets set for showing down biodiversity destruction by 2020. Over the last 50year humanity has unleashed unprecedented technological change and economic growth, which have raised living standards and pulled billions of people out of poverty. However, the increasing demand for energy, food, fibre, water and land has come at a significant cost to planetary systems. The sheer scale of production and consumption combined with systemic inefficiencies, misallocation of Resource and waste has resulted in rapid and widespread biodiversity loss. The implications for human health and wellbeing, societal resilience and sustainable development are considerable and potentially even catastrophic. The youth's active sustainable participation in biodiversity or environment related days will help emphasise the aim of promoting the protection of various wild species and advocating the message of environment protection for the well being of one and all. The United Nations Environment programme celebrates several environmental days and hosts multiple initiatives to provide open platforms for Youth participation. One of the ways we can show our support for biodiversity consumption is by uniting, discussing, carrying out campaigns or supporting various campaigns for protecting the flora and fauna of the world. Our young and energetic minds can lead this conservation and be heard by the whole world and secure our future. Every single small step such as using reusable jute and cloth bags instead of plastic bags, using a bamboo brush or pen or other bamboo stationary and toiletries, planting native flowers that attract honeybees and consuming organic fruits and vegetables can make much of a difference.

Keywords: Biodiversity, consumption, Youth participation

THEME: 6

THE ROLE OF TECHNOLOGY IN BIODIVERSITY CONSERVATION

6.1 "Bridging Wildlife & Technology" The Impact of AI tools on conservation of Species diversity

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Artificial Intelligence (AI) is the broad branch of computer science which has potential to work equal or better than human beings in all fields. AI makes a task simple and quick by symbols, algorithms and computer vision image processing. Biodiversity consists of a variety of organisms present on earth which includes microorganisms like bacteria to large animals. Today the extinction rate is 1000 -10,000 times higher than the natural extinction rate. Here AI plays a major role in conservation of species in their natural habitat without disturbing them. It can save animal's lives by stopping poaching, by preventing human-animal conflicts and by preventing illegal trading of animal's organs. Researchers are developing new AI tools and techniques which can help in conservation of species diversity; like RFID (wireless chip), Drone with thermal camera, Trail Guard, Acoustic/Sound Surveillance, GPS Tracker, Mobile App, Satellite etc. The main objective of my proposed program is to find out the implications of such advanced tools and techniques, their limitations and how to improve for conservation of biodiversity, linking them with natural resources and most importantly to contribute to Sustainable Development Goals (SDGS). Subsequently, to figure out different case studies which should be considered as a model of AI in conservation of biodiversity. Therefore, AI can be a game changer in the field of conservation and deliberation of our animal biodiversity. It can provide a complete idea about earth's biodiversity, future forecasting of animal resources and its emerging technologies can make the conservation

Keywords: Artificial Intelligence, Conservation, Tools, Technologies, Biodiversity, SDGS

6.2 Using IoT Models to control agricultural losses from Human Elephant Conflict

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Man-wildlife conflict is a known cause of disturbance in anthropogenic activities like cultivation and habitation. In India one of the leading issues in this type of conflict is conflict between human and Asian elephants due to expansion of habitations occupying forest lands, which tends to deteriorate the quality of lives of Elephants residing in the forest and makes them prone towards Human-Elephant Conflict (HEC). Many researchers in the past decade have provided valuable inputs in mitigating HEC but many of them cannot be practised in certain scenarios like destruction of crops by Elephants and addressing such problems is driving the motivation in this research. The Scope of this research is designing a failsafe system for control of elephant foraging on agricultural produce in a sustainable way. This research tries to implement this system in the HEC Prone area and to study the effect of this system in changing animal Behaviour. The technology works on open source IoT technology and the methodology comprises design of the technology, Effect on animal Behaviour and implementation.

Keywords: HEC, IoT, Agriculture, Animal Behaviour, Technology

THEME: 7

URBAN BIODIVERSITY

7.1 Harmony in nature Nurturing wildlife biodiversity for a balanced planet

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Wildlife biodiversity, encompassing the variety of life forms on Earth, plays a crucial role in maintaining ecological balance and sustaining the planet and health. This abstract explores the significance of wildlife biodiversity and the urgent need for conservation efforts to safeguard these invaluable ecosystems. The Earth and diverse ecosystems house a myriad of species, each contributing to the delicate web of life. From the microscopic to the majestic, every organism has a unique role in maintaining ecosystem services such as pollination, water purification, and carbon sequestration. However, human activities, including habitat destruction, pollution, climate change, and over-exploitation, pose significant threats to wildlife biodiversity. Protected areas, wildlife corridors, and sustainable resource management are integral components of conservation efforts. Technological advancements, such as satellite tracking, genetic monitoring, and data analytics, provide valuable tools for scientists and conservationists to assess the health of ecosystems and implement targeted conservation measures. Global collaborations and policies are essential for addressing transboundary conservation challenges and ensuring the sustainable use of natural resources. By recognizing the intrinsic value of wildlife biodiversity and embracing sustainable practices, we can strive towards a harmonious coexistence between human development and the preservation of Earth & rich tapestry of life. Through concerted efforts, we can ensure the resilience of ecosystems, fostering a planet where wildlife thrives, and future generations inherit a world teeming with biodiversity and natural wonders.

Keywords: Wildlife, Biodiversity, Ecosystems, Conservation

7.2 Annotated Checklist of Birds of Kendrapara Autonomous College Campus, Odisha, India

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The present study was conducted to document the avifaunal diversity within the campus of Kendrapara Autonomous College, Odisha, India. A total of 38 bird species belonging to 27 families were recorded, with half being arboreal birds. The study also revealed the presence of seven species each of wetland and ground-feeding birds, two species of aerial feeding birds, and three species of birds of prey on the campus. All 38 bird species are categorised as Least Concern (LC) by the IUCN Red List of Threatened Species. Twenty-six bird species are listed under Schedule IV of the Indian Wildlife Protection Act, 1972, and four are included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The findings of this study highlight the significance of the campus as a bird habitat and provide baseline data on avifauna to guide future research and management strategies.

Keywords: Avifaunal diversity, Least Concern (LC), IUCN, Schedule IV, Appendix II, Endangered Species, Wild Fauna and Flora, CITES

7.3 A Multifaceted Analysis of Flora and Fauna in Metropolitan Environments

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Urban biodiversity, the diversity of life within urban ecosystems plays a decisive role in shaping the environmental, social and economic fabric of cities. As urbanisation increases globally, understanding and preserving urban biodiversity becomes paramount for sustainable development .Ecologically urban biodiversity contributes to the resilience and stability of urban ecosystems .It has direct implications for human well- being, including physical and mental health. Urbanisation acts as a significant threat to biodiversity, habitat loss, pollution, fragmentation of natural habitats and introduction of invasive species and alteration of local climates pose threats to the survival of diverse urban species. Climate change exacerbates these challenges affecting the distribution and behaviour of urban communities. Safeguarding urban biodiversity requires a holistic approach which includes urban planning that prioritises green infrastructure, incorporating biodiversity considerations into development projects. Community engagement and spreading awareness play pivotal roles, fostering a sense of environmental stewardship among urban residents. The recognition of the intricate relationship between urban biodiversity and sustainable urban development is imperative. By prioritising the conservation of diverse ecosystems within urban areas we can create cities that thrive ecologically and serve as a model for harmonious coexistence between urban life and nature. This abstract delves into the multifaceted aspects of urban biodiversity, addressing its social significance and the challenges associated with its conservation

Keywords – Urbanisation, delves, fragmentation, environmental stewardship.

7.4 Importance of Butterfly Diversity in CGU Campus

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India is a mega-biodiversity country with abundant plants and animals, with the orderLepidoptera being a key element of biodiversity. Butterflies, as herbivores, contribute to food integrity and forest ecosystem health by inducing hereditary variety in plants. In C. V. Raman Global University (CGU) campus altogether, 108 individuals and 17 butterfly species belonging to 3 families were documented. Nymphalidae, one of the three families, was discovered to have the most species of 11(64.72%), followed by Pieridae with 4 species (23.52%), and Papilionidae with 2 species (11.76%). The recent study has revealed that there is a healthy diversity of butterflies inside the campus. Butterflies have intrinsic, aesthetic, educational, scientific, ecosystem, health and economic values. Butterflies are flagship species for conservation in general, and in particular for invertebrates. Butterflies are used by advertisers and illustrators the world over as a way of indicating that something is environmentally friendly. Butterflies are often portrayed as the essence of nature or as representing freedom, beauty or peace. Butterflies are crucial model' organisms for biological research in navigation, pest control, embryology, mimicry, evolution, genetics, population dynamics, and biodiversity conservation. Butterflies and moths are indicators of a healthy environment and healthy ecosystems. These elements offer numerous environmental advantages, such as pollination and natural pest control. Butterfly species are crucial to the food chain, serving as prey for birds, bats, and other insectivorous animals. Butterflies are also called the wild indicators of an ecosystem. Butterfly behavioural changes or sudden butterfly population decline can signal potential environmental calamities or habitat loss for other animals. Butterfly species like monarch butterflies and caterpillars help reduce air pollution by absorbing carbon dioxide from the atmosphere, which contributes to global warming.

Keywords: Biodiversity, Butterfly species, Environment Sustainability, Pollination

7.5 The Role of Technology in Biodiversity Conservation

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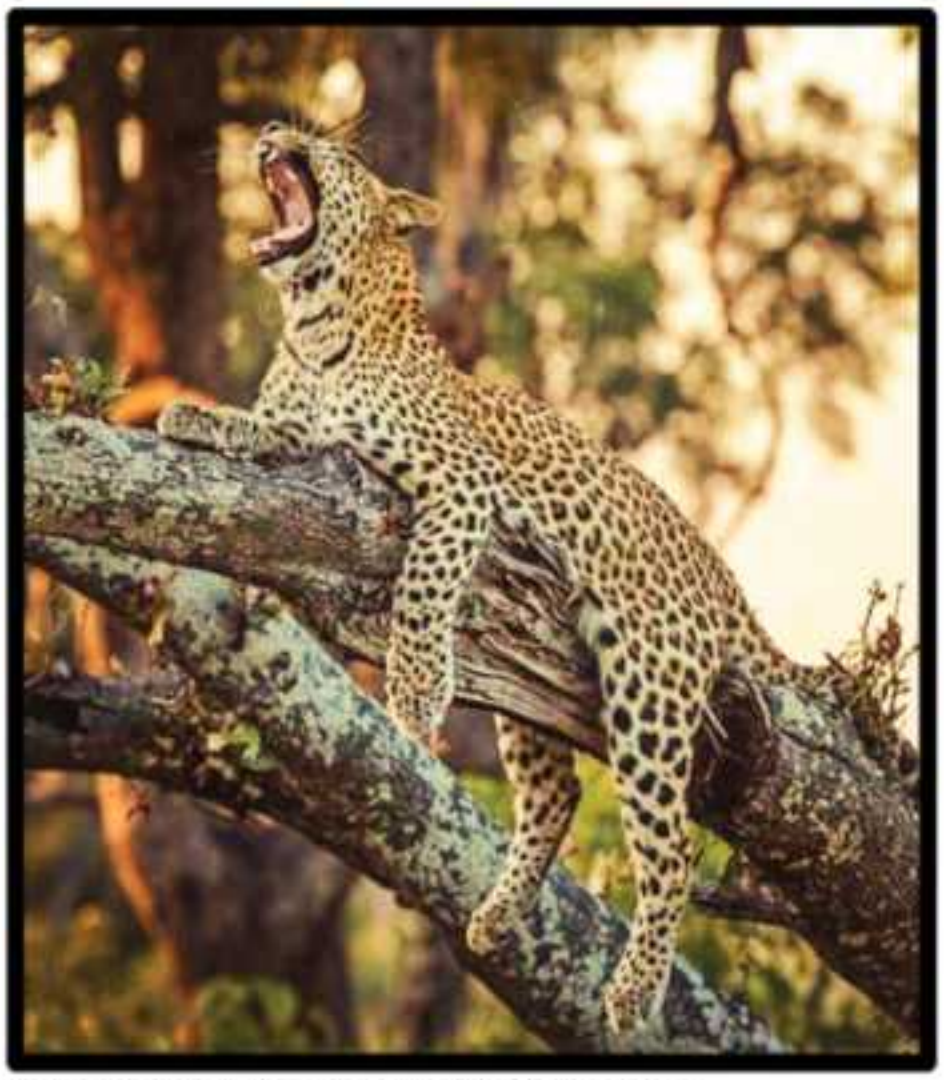
Biodiversity refers to the variety of life forms on earth, including plants, animals, microorganism and their ecosystem. Biodiversity conservation involves the protection, management, and restoration of variety of life forms and ecosystem on earth. It aims to maintain and enhance biodiversity to ensure the long-term health and sustainability of ecosystem and the services they provide to humans and other species. Technology plays a crucial role in biodiversity conservation by aiding in monitoring, data collection, analysis, and management of ecosystems. Tools such as satellite imagery, drones, and remote sensing enable scientists to monitor habitats and track changes in biodiversity more efficiently. Additionally, advanced data analytics and modelling techniques help in understanding complex ecological systems and making informed conservation decisions. Furthermore, technologies like genetic sequencing assist in species identification and conservation genetics, while social media and mobile apps facilitate citizen science initiatives and public engagement in conservation efforts. Overall, technology serves as a powerful ally in the conservation of biodiversity by providing innovative solutions to address conservation challenges. In today's world, technology plays a crucial role in compact biodiversity conservation by enabling efficient monitoring, data analysis, and management of ecosystems and species within limited spaces, ensuring effective conservation strategies. Technology is vital in animal conservation for monitoring, research, and management, providing data on populations, behaviour, and threats, facilitating informed decision-making and effective conservation strategies. Key role of technologies in animal conservation includes Remote Sensing, Camera Traps, Biopsy Testing, Drons, Dna Analysis and Different mobile APP. Various apps contribute to wildlife monitoring by facilitating data collection, analysis and communication – ODISHA FOREST MANAGEMENT SYSTEM, WILDLIFE APP, AVENZAMAP, KYFL APP, ANUKAMPA APP. Likewise there are different kinds of technologies used in plant conservation like in Vitro Technology, Tissue Culture Technology, Encapsulation, Biotechnology, Real Time Monitoring, Crypreservation etc.

Keyword: Remote sensing, Technology, Biodiversity



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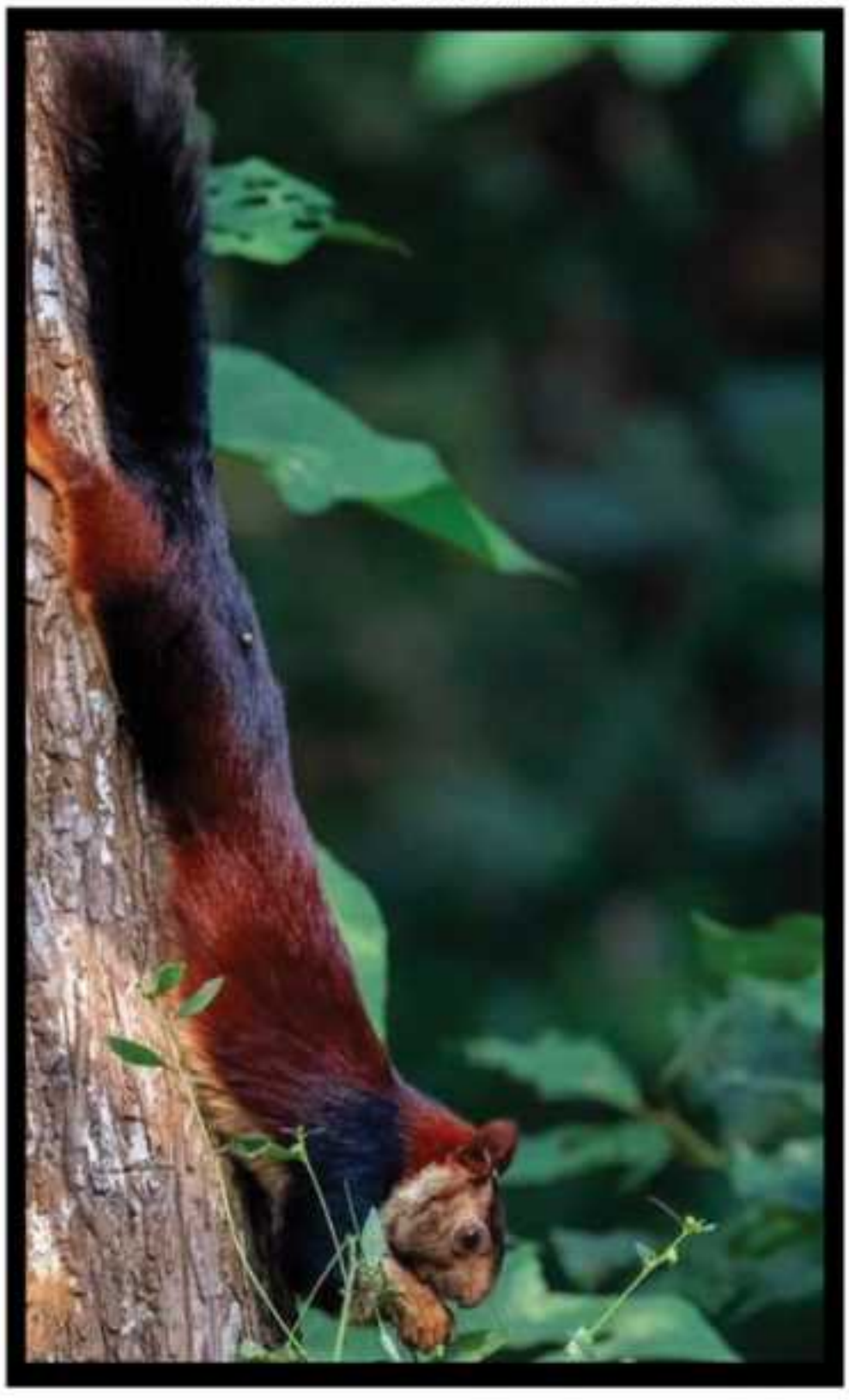

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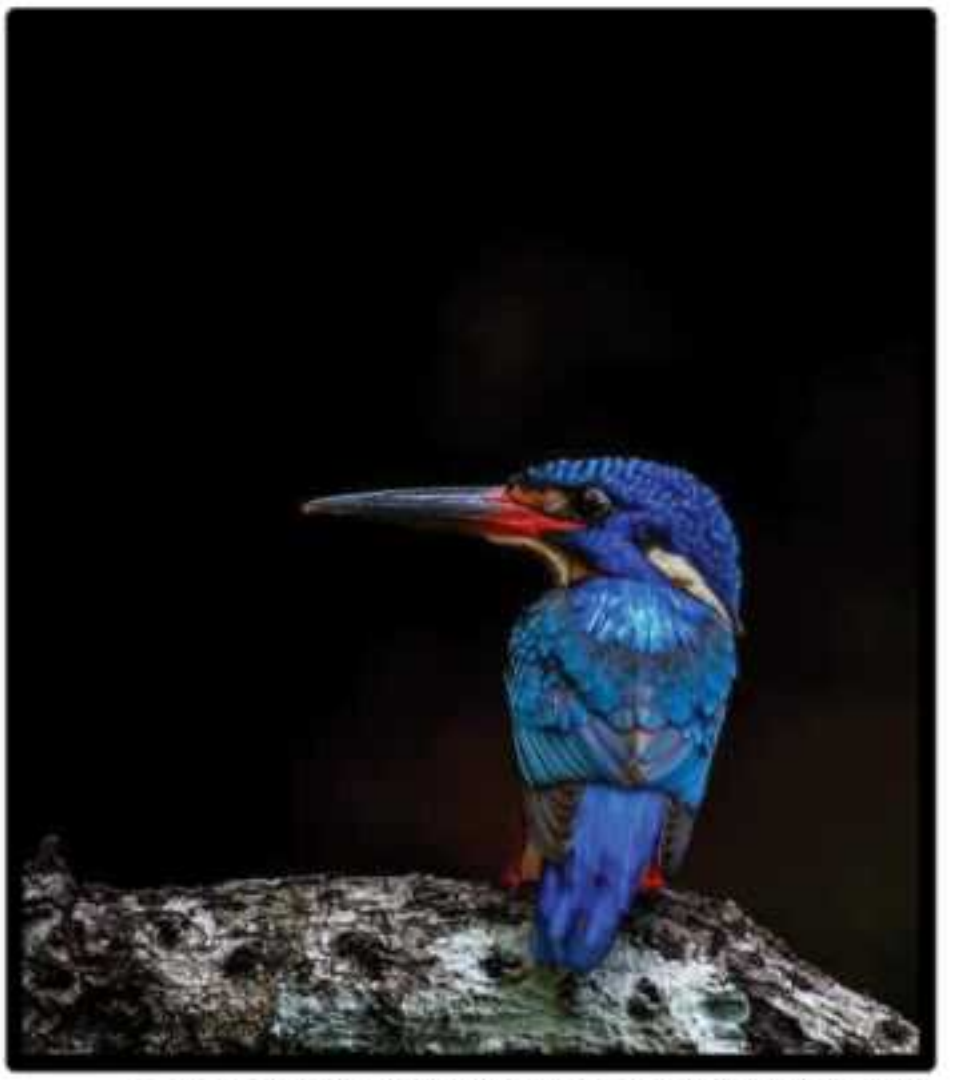

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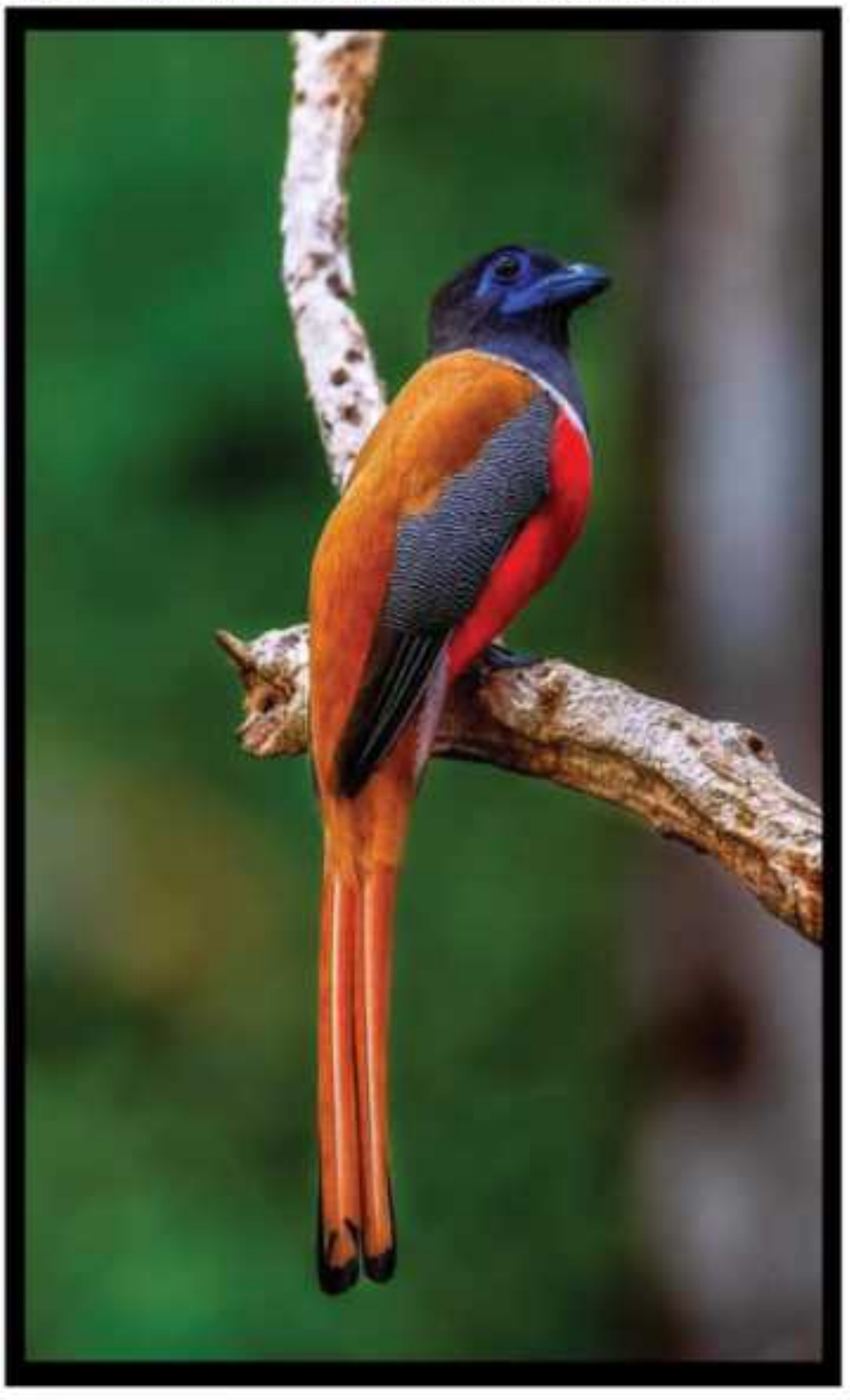

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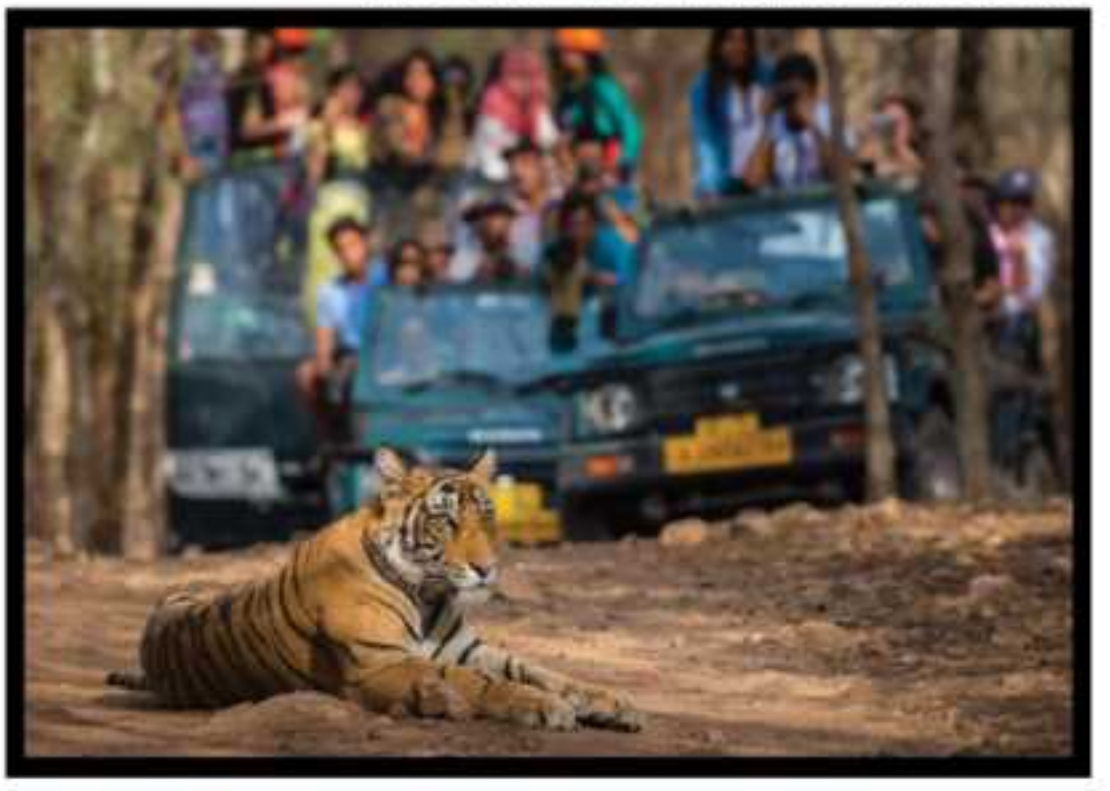

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