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From the Editor's

Dear Readers,

In the March issue of our Newsletter, we received several popular articles from diverse fields. All the authors deserve great appreciation for sharing articles in huge numbers. Please continue sending articles to our Publication team and share published newsletter with your friends also.

I would like to thank the Editorial team including Print, Designer and Publication committee for their efforts throughout the edition.

Your suggestions are always welcomed for improvement.

Dr. R. S. Tomar
Editor-in-Chief

INTERNATIONAL WOMEN'S DAY

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The International Women's Day is not just a date on the calendar. It is a powerful reminder of the strength, resilience, wisdom, and invaluable contributions of women in our families, our communities, and our nation. It is a day to honour the mothers who nurture us, the daughters who inspire us, the sisters who stand beside us, and the leaders who guide us toward a brighter future.

Women are the foundation of society. From shaping young minds at home to leading institutions, from working in fields and factories to serving in offices and public life, their dedication and perseverance have transformed the world. Yet, even today, many women continue to face challenges—inequality, discrimination, and limited opportunities. Therefore, this day is not only for celebration but also for reflection and renewed commitment.

As responsible citizens, we must pledge to create a society where every girl child has access to education, where every woman feels safe and respected, and where opportunities are based on ability and determination—not on gender. Empowering women is not just a women's issue; it is a societal responsibility. When women rise, families prosper. When families prosper, communities flourish. And when communities flourish, the nation grows stronger.

Let us use this occasion to appreciate the achievements of women in all walks of life—social, economic, cultural, political, and spiritual. Let us encourage our daughters to dream big and support them in achieving those dreams. Let us teach our sons to respect, value, and uplift the women around them.

On this special day, I extend my deepest gratitude to all the women present here and beyond. Your courage, compassion, and commitment inspire us every day. May we continue to work together to build a just, inclusive, and progressive society.

Photo credit: **S. K. Basu**

ATR-FTIR IN FORENSIC SCIENCE

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Over the past two decades, Attenuated Total Reflectance Fourier Transform Infrared (ATR-FTIR) spectroscopy has found a firm place in forensic science, offering analysts a reliable, non-destructive method for identifying substances ranging from seized drugs to trace evidence and biological materials. Attenuated Total Reflectance - Fourier Transform Infrared spectroscopy, to use its full name, has over the past two decades quietly become one of the workhorses of forensic chemistry. Its appeal is straightforward: it tells you what a substance is, at the molecular level, without consuming, dissolving, or meaningfully altering the sample in question. For a discipline where chain-of-custody and evidence integrity are non-negotiable, that matters enormously[1].

In ATR -FTIR, a beam of infrared radiation is passed through a small crystal, typically diamond, zinc selenide, or germanium, at an angle steep enough to cause total internal reflection. At each point of reflection, an evanescent wave extends just a fraction of a micrometre (roughly 0.5 to 2 m) beyond the crystal surface into whatever sample is pressed against it. That sliver of penetration is all the instrument needs. The sample absorbs infrared energy at frequencies that correspond to the vibrations of its chemical bonds, i.e, the C–H stretch of a hydrocarbon, the C=O signature of a carbonyl, the broad O–H absorption of an alcohol etc. The detector then records what is missing from the reflected beam. Run that absorption values through a Fourier transform algorithm and a spectrum is obtained: a chemical fingerprint that is, in most cases, as distinctive as the compound itself. Match that fingerprint against a validated 2 spectral library and identification follows, usually within minutes[2].

ATR-FTIR in Forensic Science

1. Drug and Narcotic Analysis

ATR-FTIR is widely employed for the rapid identification of controlled

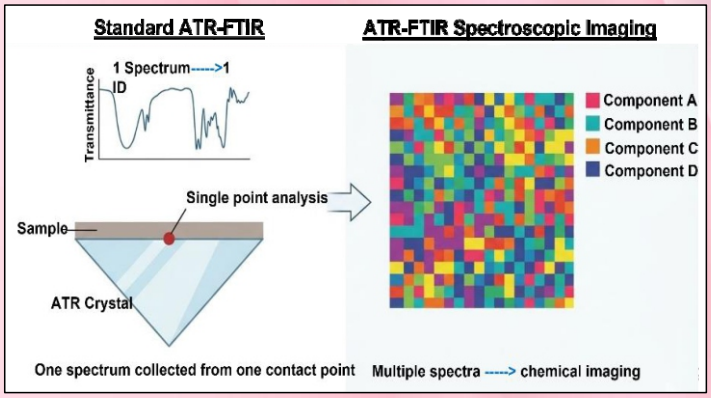

Fig. 1: Comparison of standard ATR-FTIR (single-point spectrum, one chemical identity per contact) and ATR-FTIR spectroscopic imaging (pixel-by-pixel spatial mapping of chemical component distribution.

Fig. 1: *Comparison of standard ATR-FTIR (single-point spectrum, one chemical identity per contact) and ATR-FTIR spectroscopic imaging (pixel-by-pixel spatial mapping of chemical component distribution*substances and their adulterants. It can differentiate between chemically similar drugs such as heroin and morphine with ease. But its real value shows in the harder questions: is this tablet genuine or counterfeit? What cutting agents are present, and in what proportion? The ability to detect adulterants such as caffeine, paracetamol, levamisole, or fentanyl analogues alongside the primary drug, without requiring separate sample preparations, has made ATR-FTIR indispensable in drugs casework3.Studies have validated its use for identifying synthetic cannabinoids, methamphetamine, and prescription drug diversion, all critical concerns for law enforcement agencies[3,4].

2. Trace Evidence

Fibres, paint flakes, adhesive residues, plastics, glass, the detritus of crime scenes, are among the most demanding samples a forensic scientist encounter. Quantities are tiny, the risk of contamination is real, and conventional preparation methods can destroy what little material exists. ATR-FTIR sidesteps most of those problems. A paint chip from a hit-and-run vehicle, for instance, can be placed directly on the crystal and characterised layer by layer. In some cases, examiners have been able to narrow down vehicle make and model year from the paint profile alone, providing investigators with a lead they would otherwise have lacked[5]. Fibre analysis works on a similar principle; a single thread can be placed on the crystal without mounting or staining[6].

3. Questioned Documents

Document examiners have long relied on visual and microscopic methods, but the chemistry of ink and paper carries information that the eye simply cannot access. ATR-FTIR allows non-destructive chemical differentiation between ballpoint, gel, rollerball, and inkjet inks, a distinction that matter enormously when a document's authenticity is disputed. More practically, it has been used to detect erasures, chemical bleaching, and the addition of text at a later date, since aged ink and freshly applied ink have measurably different spectra[6]. In fraud and forgery investigations, this is a capability that is difficult to replicate by other means without damaging the original document[7].

4. Explosives and Gunshot Residue

Post-blast investigation is unglamorous, painstaking work, and the ability to characterise explosive residues rapidly, without sending samples through a weekslong analytical queue has operational value that extends well beyond the laboratory. ATR-FTIR has demonstrated reliable identification of common military and improvised explosives including RDX, TNT, PETN, and the peroxide-based TATP, which has featured in several high-profile attacks globally. Gunshot residue characterisation and propellant analysis round out the picture, helping establish whether a particular weapon or ammunition type was involved in a shooting[8].

ATR-FTIR & Forensic Medicine: A Less Obvious but Growing Role

Forensic medicine has been somewhat slower to adopt ATR-FTIR than forensic chemistry, which is perhaps understandable; the medico-legal autopsy suite has its own established traditions and toolsets. But the technique is making inroads, and for good reason.

1.Biological fluid identification: Blood, seminal fluid, saliva, and urine each carry a distinct infrared signature. In sexual assault cases where presumptive stain tests are inconclusive, or where mixed biological material complicates interpretation, ATR-FTIR can provide a useful independent characterisation[9].

2.Toxicological corroboration: Hair and nail segments preserve a chemical record of systemic exposure over time. ATR-FTIR analysis of these matrices can flag chronic drug use, heavy metal poisoning, or exposure to industrial toxins, sometimes providing corroborating evidence when conventional immunoassay screens have returned ambiguous results[10].

3.Wound age estimation: Determining when a wound was inflicted is one of forensic medicine's more contested challenges. Preliminary research suggests that the chemical evolution of wound crusts and peri-wound tissue produces spectral changes detectable by ATR-FTIR, potentially offering a more objective complement to histological methods[11].

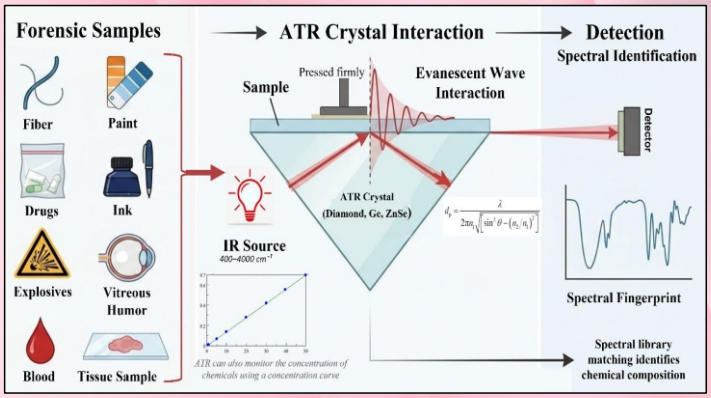

Fig. 2: Integrated workflow diagram illustrating the range of forensic samples amenable to ATR-FTIR, the ATR crystal mechanism showing total internal reflection and evanescent wave penetration, and the resulting IR absorption spectrum matched against a validated reference library for compound identification.

4.Post-Mortem Interval Estimation. Vitreous humor undergoes predictable biochemical changes after death. A 2018[12] showed these changes produce ATR-FTIR spectral shifts that can estimate PMI — a useful addition to the toolkit in cases where conventional biochemical indicators are inconclusive, particularly in advanced decomposition. The study was conducted in animal model and the results suggested that ATR-FTIR spectroscopy may be useful for VH analysis in order to predict PMI in the future, but the authors suggested more research in the field to generalise the usefulness.

5.Skeletal remains: Distinguishing human from animal bone is not always as straightforward as it sounds, particularly with fragmentary or burnt remains. ATR-FTIR analysis of hydroxyapatite crystallinity and the ratio of mineral to collagen content has been shown to assist in both species' identification and with appropriate caveats, estimation of post-mortem interval[13].

ATR-FTIR spectroscopy has grown well beyond its origins as a drug identification tool. Across drugs, trace evidence, biological fluids, wildlife crime, and forensic medicine, it consistently delivers reliable chemical information with minimal sample handling, a combination that suits forensic casework well. When paired with chemometrics, its discriminating power increases substantially.

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ECO-SMART LIVING: STRATEGIES FOR A GREENER PLANET

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Introduction

Any sustainable integrated, community-driven approaches to environmental sustainability that address climate change, biodiversity loss, and ecosystem degradation is important for our survival. It emphasizes the protection of water resources through watershed management, pollution control, rainwater harvesting, and sustainable agricultural practices to ensure long-term water security and aquatic ecosystem health.

The article highlights reforestation as a critical strategy for restoring degraded landscapes, enhancing carbon sequestration, preventing soil erosion, and improving local climate resilience. By promoting native tree planting, agroforestry systems, and community forest management, reforestation initiatives can simultaneously support biodiversity conservation and rural livelihoods.

Lastly, beekeeping as a sustainable economic activity strengthens environmental conservation efforts. Bees play a vital role in pollination, supporting food security and maintaining ecosystem balance. Sustainable apiculture not only enhances agricultural productivity but also incentivizes forest preservation and habitat protection.

How water collection and protection help sustainva community

Effective strategies are essential for being more successful in supporting water collection and/or protection for creating a better environment. To be more effective in helping Earth's human and ecological communities, we need the following:

More local data: Access to up-to-date watershed data, community-specific rainfall patterns, aquifer health reports and local regulations. Localized information leads to practical, realistic solutions.

Stronger community collaboration: When local leaders, indigenous knowledge keepers, engineers, farmers and youth work together, water solutions are more resilient and culturally grounded.

Investment in infrastructure: Success increases with rainwater capture systems, greywater recycling, green infrastructure (bioswales, permeable pavement) and local wetland restoration.

Policy and education alignment: Long-term water protection improves when schools teach water literacy, policies incentivize conservation and communities understand the ecological value of clean water.

Strategies to strengthen water collection and protection in a community

A. Supporting community water projects

1. Design rainwater harvesting systems
2. Plan greywater reuse setups
3. Understand watershed management principles
4. Research local water policies and conservation grants

B. Sharing knowledge and best practices

1. Sustainable water management models used in countries like Israel (drip irrigation innovation)
2. Water recycling systems such as NEWater in Singapore
3. Global freshwater protection efforts led by organizations like UNESCO
4. This helps communities learn from proven systems.

C. Encouraging ecological thinking

1. Watersheds as living systems
2. Indigenous water stewardship principles
3. Protecting wetlands and aquifers
4. The connection between soil health and water retention
5. By strengthening awareness, better decisions often follow.

How reforestation can help in building a sustainable community

Reforestation plays a vital role in building sustainable communities by restoring ecological balance, strengthening local economies, and enhancing social well-being. Through the strategic planting and management of trees, degraded lands can be rehabilitated, biodiversity can be protected, and natural ecosystems can regain their ability to provide essential services. Trees improve air quality by absorbing carbon dioxide and releasing oxygen, helping to mitigate climate change and reduce the impacts of global warming. They also stabilize soil, prevent erosion, and improve water retention, which supports sustainable agriculture and reduces the risk of floods and landslides.

Beyond environmental benefits, reforestation contributes to economic sustainability by creating green jobs in tree planting, forest management, and eco-tourism. It can provide communities with renewable resources such as timber, fruits, and medicinal plants, reducing dependence

on nonrenewable materials. Socially, reforestation initiatives encourage community participation, environmental education, and stewardship, fostering a sense of shared responsibility and collective action.

By integrating ecological restoration with economic opportunity and social engagement, reforestation serves as a foundation for long-term resilience. Sustainable communities that prioritize forest restoration are better equipped to address environmental challenges, improve public health, and ensure resources for future generations.

Strategies to reforest a community

It is important to actively participate in local tree-planting initiatives by collaborating with community groups, schools, and environmental organizations to plant native trees in degraded and underutilized areas. Care must be taken to help raise awareness about the importance of reforestation through workshops and social media, encouraging residents to care for existing trees and plant new ones in their yards. Additionally, supporting long-term stewardship by organizing follow-up maintenance days to ensure young trees needs to be watered, mulched, and protected so they can thrive.

To strengthen this work, one needs greater access to funding for purchasing quality native seedlings and maintenance supplies, as well as tools and irrigation resources. Stronger partnerships with local authorities, businesses, and environmental organizations would help expand planting sites and volunteer participation. Training in sustainable forestry practices and community engagement strategies would also improve the long-term survival and impact of the trees we plant.

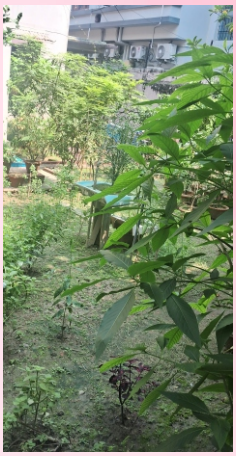
Beekeeping can help in creating better environment

Beekeeping plays a vital role in promoting environmental sustainability and ecological balance. As managed pollinators, honeybees significantly enhance the reproduction of flowering plants through pollination, which









supports biodiversity, improves crop yields, and strengthens natural ecosystems. By facilitating the growth of trees, fruits, vegetables, and wild plants, beekeeping contributes to healthier forests, increased food production, and improved soil stability. This, in turn, helps reduce erosion, enhance carbon sequestration, and combat climate change.

Moreover, responsible beekeeping encourages the preservation of green spaces and discourages the excessive use of harmful pesticides that threaten pollinators and other wildlife. It raises environmental awareness within communities, fostering conservation practices and sustainable land management. Beekeeping also provides an eco-friendly source of income through honey, beeswax, and other hive products, reducing pressure on destructive economic activities such as deforestation.

By supporting pollinator populations and promoting sustainable agricultural systems, beekeeping serves as a practical and accessible strategy for building healthier ecosystems, strengthening food security, and creating a more resilient and balanced environment.

How can pollinator protection in a community help in pollinator/bee conservation

To strengthen pollinator protection we need to work on a common platform by promoting habitat restoration, reducing pesticide use, and increasing public awareness about the importance of bees and other pollinators. I also personally encourage the planting of native, pollinator-friendly plants and support the creation of small Pollinator Gardens in backyards, schools, and shared spaces.

It is very important to share educational resources to help others understand how pollinators contribute to food security and biodiversity. Whenever possible, it is necessary to advocate for sustainable landscaping practices and support local beekeepers by purchasing local honey and promoting awareness about their work. Additionally, facilitating conversations about ecological responsibility and the interconnectedness of human and environmental health can further strengthen the human-nature interaction in a highly pisitive manner.

To be more successful, increased access to educational workshops, funding for native plant installations, and partnerships with local schools or environmental groups would be incredibly helpful. Small grants or community sponsorships could support the creation of demonstration pollinator habitats that model best practices.

Stronger collaboration with local government to encourage pollinator-friendly policies—such as reduced pesticide use and incentives for native plant landscaping—would also expand impact. Access to mentorship from experienced beekeepers and conservation organizations would improve practical knowledge and long-term sustainability.

Finally, greater community engagement—through volunteer events, seed exchanges, and awareness campaigns—would help build a culture that values pollinators not just for agriculture, but as essential partners in ecological resilience.

Conclusion

The article concludes that the integration of water protection, reforestation, and beekeeping forms a synergistic model for sustainable development. Through policy support, community participation, and environmental education, these strategies collectively contribute to ecological restoration, economic empowerment, and the creation of a healthier and more resilient environment for present and future generations.

Photo credit: **S. K. Basu**

FIRST TIME REPORT OF OBLIGATE BROOD PARASITISM OF PIED CUCKOO (*CLAMATOR JACOBINUS*) AND YELLOW BILLED BABBLER (*ARGYA AFFINIS*) IN DAROJI SLOTH BEAR SANCTUARY, BALLARI, KARNATAKA

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Obligate Brood Parasitism is a specialized form of Brood Parasitism, where a bird species (parasite) relies entirely on the other species (host) to rise and nurture its eggs and jevenile. It is a rare breeding strategy used by less than 1 % of the total bird species [1]. The pied cuckoo tends to exhibits Obligate Brood Parasitism in babbler species such as Common Babbler, Jungle Babbler, Large Grey Babbler, Yellow-billed Babbler, Rufous Babbler [2]. These Birds exhibit brood parasitism for various reason such as to save energy and time, to increase reproductive output by laying in multiple nest in one breeding season. Pied Cuckoo eggs exhibit mimicry in color and texture, closely resembling the host's eggs—a phenomenon believed to be part of an evolutionary arms race [4]. Both Pied Cuckoos and Yellow-billed Babblers inhabit open scrublands and woody, dry forests, often avoiding dense vegetation. This observatory note describes the observation of obligate brood parasitism between a pack of 7 yellow billed babbler and 1 pied cuckoo. Similar observation was seen in Sri Lanka [3].

Observation of brood parasitism in Daroji Sloth bear Sanctuary

On 29 June 2025, between 18:00 and 18:39 hrs, while walking along the bird trail path, inside the Daroji Sloth Bear Sanctuary we observed brood parasitism of the pied cuckoo as the parasite and yellow billed babbler as the host. The area was surrounded by shrubby and thorny forest; it had a rocky terrain and very few puddles. We documented the interaction using a Samsung S24 Ultra smartphone.

The host group consisted of seven babblers, four of which were observed actively tending to a juvenile Pied Cuckoo, confirming cooperative care. No aggression or rejection behaviour was observed from the babblers. The chick was calling persistently, and the host birds responded with regular feeding and attention. Since babblers tends to move around a lot, the pied cuckoo was following the pack of babblers.

Fig 1: Juvenile Pied Cuckoo and Yellow-billed Babbler (Obligate Brood Parasitism).

The Yellow-billed Babbler is a known host of the Pied Cuckoo, but records from Karnataka, particularly from Daroji Bear Sanctuary, are lacking in the published literature. To the best of our knowledge, this is the first documented observation of this behaviour from the region.

Observatory notes like this tends to help researcher understand long term changes in the behavior if occurred, adding data to its conservation and adding spatial data. The Jungle Babbler may be an underreported host species, and more focused monitoring is needed to understand such ecological interactions in dry forest habitats.

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A PRELIMINARY STUDY ON DOCUMENTING MAMMALIAN DIVERSITY IN AND AROUND VALLIPURAM THOLUR HILLS, NAMAKKAL DISTRICT, TAMIL NADU

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Abstract:
The present study was an attempt to understand the Mammalian diversity in and around Vallipuram Tholur hills that was documented opportunistically during the field surveys. This study was done from November to December month of 2023, which was the post-monsoon of India. In this study, a total of eleven species of mammals belonging to nine different families from 6 different orders were recorded. Among these Sambar Deer (*Rusa unicolor*) was listed as "Vulnerable" followed by Fruit bat (*Rousettus leschenaultii*), listed as "Near Threatened" according to IUCN. Biodiversity study like these is extremely important in assessing and recording the mammalian biodiversity patterns in a rapidly changing environment.

Introduction:
Mammals are defined as the most recent common ancestor of Monothermata and Theria (marsupials and placentals) [6]. Mammals represent a vital component of the terrestrial ecosystem and serve as an ecological indicator of environmental health [4]. Mammals provide various ecosystem services that are crucial for our well-being, they maintain energy flow in the ecosystem, predation, seed dispersal, insect pest control, etc,[9]. However, in recent times about one-fourth of all the mammal populations are now on the verge of extinction, and over half of all the mammal populations are in decline [3]. India harbors a rich mammalian diversity, hosting 427 species of mammals [12]. Tamil Nadu a state which lies in the southern part of India, holds a noteworthy diversity of 132 species, out of which 108 species are terrestrial [8].

Tamil Nadu has over 30% of the total mammalian species of India. Despite having substantial mammalian diversity, documentation and comprehensive studies of mammalian diversity on a local scale remain relatively limited. This study focuses on documenting the mammalian diversity in and around Vallipuram Tholur hills within the Namakkal district of Tamil Nadu. Nammakal district in Tamil Nadu has a blend of habitats. As of the 2011 census, the district has 17,26,601 people in the place [7]. The district has 3 reserve forests in it, they are Kalvarayan Hills, Kolli Hills, and Sirumalai Hills. These forests serve as an important habitat and provide refuge for the local mammalian diversity.

Materials and Methodology:
Study area: The present study was conducted in and around Villipuram Tholur Hills (11.311095232741378, 77.8381990705562) Namakkal district, Tamil Nadu. The area is primarily characterized by agricultural activities, with farming and cattle grazing, as a primary occupation. The region receives an average rainfall of approximately 581.30 mm [11]. Cultivations like bananas, coconuts, and corn were the predominant vegetation in the area.

Fig 1: Study Area, Perumapalayam village from Namakkal District.

Study duration: The study was conducted from November to December month of 2023, which was the post-monsoon season [1] of India. The survey was carried out through an

Table 1: A checklist of Mammalian Fauna Recorded during the survey.

S. No.	Common name	Scientific name	Genera	Families	Order	IUCN	WPA, 1872
1	Indian Bandicoot	*Bandicota indica*	Bandicota	Muridae	Rodentia	LC	Sch V
2	Black rat	*Rattus rattus*	Rattus			LC	Sch V
3	Indian palm Squirrel	*Funambulus palmarum*	Funambulus	Sciuridae		LC	Sch IV
4	Sambar Deer	*Rusa unicolor*	Rusa	Cervidae	Artiodactyla	VU	Sch III
5	Wild boar	*Sus scrofa*	Sus	Suidae		LC	Sch III
6	Indian grey Mongoose	*Urva edwardsii*	Urva	Herpestidae	Carnivora	LC	Sch II
7	Asian palm civet	*Paradoxurus hermaphroditus*	Paradoxurus	Viverridae		LC	Sch II
8	Indian flying fox	*Pteropus medius*	Pteropus	Pteropodidae	Chiroptera	LC	Sch V
9	Fruit bat	*Rousettus leschenaultii*	Rousettus			NT	Sch V
10	Indian hare	*Lepus nigricollis*	Lepus	Leporidae	Lagomorpha	LC	Sch IV
11	Bonnet macaque	*Macaca radiata*	Macaca	Cercopithecidae	Primates	LC	Sch II

opportunistic survey method, so no particular timeline was followed. However, the field surveys was preferred to start at early in the morning [2].

Methodology: The study was documented using 2 complementary approaches. The primary method includes walking while observing visual and auditory cues. Binoculars were used to observe and identify a few mammal species. The observed species were identified using standard guides [10].

Results:
During the study period, we were able to record Eleven different mammalian species belonging to nine different families, belonging to six different orders (Table 1). Among them order Rodentia being dominant, has the most diverse group having two families with three species (n=3) in total, followed by order Artiodactyla, Chiroptera and Carnivora having two species (n=2) in total. Where order Lagomorpha and Primates are found to have one species (n=1) each (Fig 1).

Among the recorded species four species come under the Schedule II category, one species comes under the Schedule III category, followed by two species come under the Schedule IV category, and four species come under the Schedule V category. We recorded sambar deer (*Rusa unicolor*) which is a 'Vulnerable' species according to IUCN, comes under Schedule III in WPA followed by Fruit bat (*Rousettus leschenaultii*), listed as 'Near Threatened' according to IUCN, comes under Schedule IV in WPA.

Discussion:
This study presents the first systematic attempt to document mammalian diversity in and around Vallipuram Tholur Hills, Namakkal district, Tamil Nadu. Mammals being the least studied vertebrates in India, very few studies on mammals are being conducted in the Namakkal district. In term of the conservational status of the study area, one Vulnerable (*Rusa unicolor*) and one Near

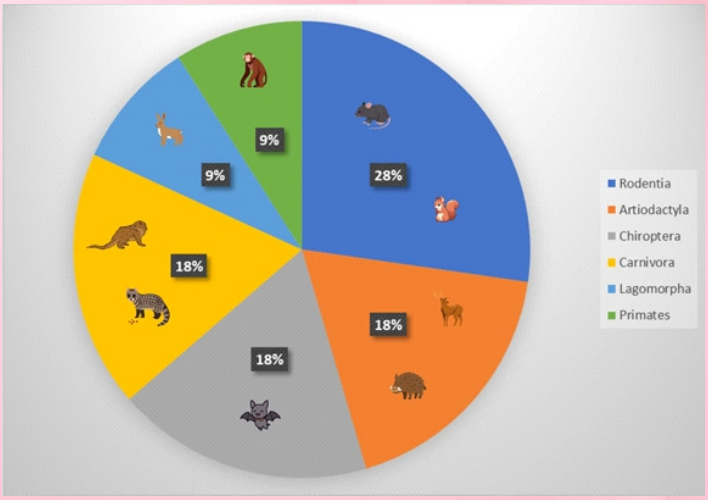

Fig 2: Percentage of no. of Species in each Orders;

Threatened (*Rousettus leschenaultii*) mammal have been recorded, the presence of mammals listed under Schedule II, III, IV, and V highlights the ecological significance of the non-protected landscape. Species falling under these categories often face threats, such as habitat fragmentation, habitat loss, and human-wildlife interaction.

The study site has an agricultural dominant and peri urban ecosystem, in which cultivations of corn, banana and coconuts were predominant. The farmlands attract sambar deer, wild boar and rodents, as they were observed near farmlands foraging. The high reptile diversity likely facilitated mongoose presence, and abandoned wells and buildings provided roosting habitat for *R. leschenaultii*. According to the farmers the wild boar and sambar deer were destroying their crops and is subjected to poaching.

Conclusion:
Despite the short duration of our study, we managed to record eleven species of mammals within the vicinity of Namakkal district highlighting the area's notable mammalian diversity and its potential. The presence of one Vulnerable (Rusa

unicolor) and one Near Threatened (Rousettus leschenaultii) species, alongside mammals listed under WPA Schedules II–V, demonstrates the ecological and conservation significance of this non-protected area. A similar diversity study has been done in Pakke Tiger Reserve (PTR) in 2017 and recorded 8 species of mammals [5].

Given the short-term, single-season nature of this study, the recorded checklist should be treated as preliminary. Future studies should employ multi-season, standardized survey protocols incorporating camera traps, live trapping, and acoustic monitoring to generate a more complete and statistically robust mammalian inventory. Also, many local villagers mentioned about the human-wildlife Conflicts in their area with sambar deer, wild boar, Indian peafowl, and rats, studies on these could be made.

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WORLD WATER DAY MARCH 22

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Observed annually on March 22, World Water Day is a global initiative established by the United Nations to highlight the critical importance of freshwater and advocate for the sustainable management of water resources. This abstract emphasizes the growing challenges associated with water scarcity, pollution, climate change, and unequal access to safe drinking water, which collectively threaten human health, food security, and ecosystem stability.

Despite water being a fundamental resource for life, billions of people worldwide still lack access to clean and safe water, underscoring the urgent need for integrated water resource management and inclusive policy frameworks. World Water Day serves as a platform to raise awareness, inspire action, and mobilize governments, communities, and stakeholders toward achieving Sustainable Development Goals, particularly Goal 6, which focuses on clean water and sanitation for all.

The observance calls for innovative solutions, conservation practices, and responsible usage to ensure water security for present and future generations. It reinforces the idea that safeguarding water resources is a shared responsibility essential for sustainable development, environmental protection, and global well-being.

Celebrating World Water Day, plays a vital role in raising

awareness about the significance of freshwater and promoting sustainable management of water resources. Established by the United Nations, this day highlights global water-related challenges and encourages collective action.

1. **Raising awareness of water scarcity:** World Water Day draws attention to the growing issue of water scarcity affecting millions worldwide. It helps people understand that access to clean and safe drinking water is not universal and remains a critical global concern.

2. **Promoting sustainable water use:** The observance encourages individuals, communities, and governments to use water responsibly. It emphasizes conservation practices such as reducing wastage, rainwater harvesting, and protecting water bodies.

3. **Highlighting global water challenges:** Issues like pollution, climate change, groundwater depletion, and unequal distribution of water resources are brought into focus. It aligns with the goals of UN-Water to ensure water security for all.

4. **Supporting Sustainable Development Goals:** World Water Day directly contributes to Sustainable Development Goal 6, which aims to ensure availability and sustainable management of water and sanitation for everyone by 2030.

5. **Encouraging community participation:** Schools, organizations, and local communities organize events, campaigns, and educational programs. These activities inspire people to take responsibility and become active participants in water conservation.

6. **Protecting ecosystems:** The day also emphasizes the importance of maintaining healthy aquatic ecosystems such as rivers, lakes, and wetlands, which are essential for biodiversity and human survival.
7. **Inspiring policy and action:** World Water Day serves as a platform for policymakers to discuss strategies, implement reforms, and invest in water infrastructure and management systems.

Celebrating World Water Day is crucial for building awareness, fostering responsible behavior, and encouraging global cooperation. It reminds us that water is a precious resource essential for life, and its conservation is a shared responsibility for present and future generations.

"Water is the driving force of all nature. Happy World Water Day!" – **Leonardo da Vinci.**

"When the well is dry, we learn the worth of water. Let's act before it's too late. Happy World Water Day!" – **Benjamin Franklin.**

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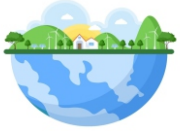
Chief Editor

Plant Tree  **Save Environment** 

Planting trees is essential for a healthier planet, as they clean the air by absorbing and pollutants while releasing oxygen. A single mature tree can provide oxygen for two people annually. They also cool cities, combat climate change, prevent soil erosion, and support biodiversity.

"Plant a tree and keep the flood at bay".

"Save the forests and change the climate".

"It is our collective and individual responsibility to protect and nurture the global family, to support its weaker members, and to preserve and tend to the environment in which we all live."

— Dalai Lama

Let's clear the air for Earth's future.

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