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Contents

Articles - News update

Zooreach – BOSCH Wetland Restoration Project
- Phase 1

-- Swaathi, Na., Pp. 01–04.

Chamba Chronicles

-- Aishwarya S Kumar, Kritika, P. & Namita
Nalamala, Pp. 05–10.

One healthy ocean for fishes and fisherfolk of
Kanyakumari District, Tamil Nadu

-- Priyanka Iyer, Pp. 11–14.

Reptile Rap

Record of Indian Spectacled Cobra predation
on Bengal Monitor Lizard in Mudumalai Tiger
Reserve, India

-- Arockianathan Samson, Natarajan
Balamurali, Palanisamy Santhoshkumar,
Manhendran Palanisamy, Perumal Yogeshwaran
& Jabamalainathan Leonaprinacy, Pp. 15–16.

Bird-o-soar

Casque-less Great Hornbill sighting in the
Nelliyampathy Hills, Kerala

- S. Sushanth & Mewa Singh, Pp. 17–19.

Lesser White-fronted Goose in Majuli Island,
Assam

-- Ankur Hazarika & Shyamal Saikia, Pp.
20–21.

First report of colour dilution in Yellow-billed
Babbler from Male Mahadeshwara Wildlife
Sanctuary, India

-- Deyatima Ghosh & Arjun Kannan, Pp.
22–23.

Sighting of Spot-winged Starling and Fire-capped
Tit from Bornadi Wildlife Sanctuary, Assam, India

-- Vivek Chetry, Pranjal Mahananda, Prasanta
Kumar Saikia & Malabika Kakati Saikia, Pp.
24–27.

First photographic documentation of Grey
Peacock-Pheasant from central Assam

-- Neeraj Bora & Chiranjib Bora, Pp. 28–30.

Two new additions to the avifaunal diversity of
Chamba District, Himachal Pradesh, India

-- Deepak Garg Sharma, Virender Kumar
Bhardwaj & Rakeshwar Kapoor, Pp. 31–32.

Reports

Deep dive into ocean education with Global
Pathways School

-- Tandrili Baruah, Pp. 33–35.

Exploring the blue horizon by students of CS
Academy

-- Level 3 Section A and Level 2 Teachers,
Pp. 36–37.

Making waves for Conservation by students of
Global Pathways School

-- M. Leelarani, Pp. 38–39.

Announcement

The Ram Hattikudur Advanced Training in
Conservation (RHATC), P. 40

ZOOREACH – BOSCH WETLAND RESTORATION PROJECT - PHASE 1



Recce site visit by the Zooreach team. © Trisa Bhattacharjee.

Freshwater systems are among the most threatened ecosystems in the world and wetlands in close proximity to urban areas are in dire need of attention. The Nallusamy check dam and Sambrani Kuttai are connected waterbodies in close proximity to the BOSCH office at

Keeranatham in Coimbatore. As with most waterbodies in India, they face many threats such as pollution, garbage dumping, and invasive species taking over native ones. To address these challenges Zoo Outreach Organisation has started a project in 2023 with support from BOSCH.

OUR PROGRESS SO FAR

BIODIVERSITY ASSESSMENTS

- Before changing the landscape we must first have a thorough understanding of the current status of the wetland. For this reason, conducting rapid biodiversity assessments over different seasons to understand the species assemblage in the site was needed. It is important because species are the true indicators of the health of the ecosystem.
- Experts specific to each taxon were called to do the surveys. We have completed our summer surveys for invertebrates, herpetofauna, birds, and plants. Approximately, 120 species of plants, 30 species of birds, 15+ species of herpetofauna and 100+ species of invertebrates were found at the Nallusamy check dam.



Huntsman spider documented during invertebrate assessment.
© Usha Ravindra.



Common Moorhen documented during bird diversity summer assessment. © H. Byju.

PERCEPTION STUDIES

- Any conservation project can succeed only if there is involvement from the community. Understanding the local stakeholders' perspective on the wetland and what they perceive as threats and their willingness to participate in the restoration activity is of paramount importance in curating outreach material for them. Studies have been done on the perceptions that the villagers from Sambrani kuttai and the apartment dwellers & shop keepers near the Nallusamy checkdam have towards the wetland. The results of the same are being analysed.

MEETING WITH NGO PARTNERS

- As we started working in the study area, we realised that there are a few other NGOs working in the same area. A meeting was organised by Zooreach with the other NGO partners and



Perception study with local shop owners.
© V. Sreenivasan.

ways to be mutually beneficial were discussed.

EDUCATION AND OUTREACH MATERIALS

- Education material specifically designed to ignite interest and create discussion points was designed and made for the program.
- A beta version of one activity was made specifically to get people to notice

the biodiversity at Nallusamy check dam. This activity was checked for effectiveness using the NGO partners and local community. The response was positive and the materials will soon be made available for a wider audience in Tamil.



Testing education materials with local community volunteers and NGO partners. © Payal B. Molur.



NBNP visit with Boschlers. © B. Ravichandran.

VOLUNTEER ENGAGEMENT

- 7 online talks on the various biodiversity around us, their importance in our lives, and the impact we have on them were given by Dr. Sanjay Molur, reaching approximately 500 people from BOSCH. Additionally, around 85 people from BOSCH were taken on a field trip to Nilgiri Biosphere Nature Park (NBNP) where they explored the concepts of native and invasive species and their effects on the ecosystem.

THE WAY FORWARD

- Monsoon rapid biodiversity assessments for the invertebrates is ongoing. The assessments for the other taxa will happen in the upcoming month. Two more rapid biodiversity assessments will be done in the respective seasons.
- Identify local champions interested in the restoration of the site and with the potential for further training to ensure sustainability.

- Develop education materials relevant to the schools and community nearby.
- Conduct outreach programs with the stakeholders through workshops, online talks, and informal interactions.
- Develop a master plan for the restoration based on the information on species and stakeholder interaction to formulate the next steps for phase 2.

Acknowledgements

We are grateful to BOSCH for their funding and for their involvement in helping us keep the ecosystem healthy. We thank the experts H. Byju, Shanmuga Mani, S.R. Ganesh, Hemant Ghate, and Pooja Patil for helping us with the biodiversity assessments. A special thanks to Nagoor Kani and Azariah Bezaleel for their help with coordination. We highly appreciate Payal B. Molur for her support in creating education materials. We thank BOSCH Volunteer, Sreenivasan V for his help with carrying out perception studies. We credit the local NGO partners - RAAC, Kowsiga Neerkaranga, Recompose Recycling Private Limited, and Let's Be The Change for their understanding and collaboration.

The Zooreach team consists of Dr. Sanjay Molur, Priyanka Iyer, Usha Ravindra, Latha Ravikumar, B. Ravichandran, and Swaathi Na.

**Swaathi, Na., Zoo Outreach Organisation Trust,
Coimbatore, Tamil Nadu 641006, India.**

Boschlers with Zooreach team at NBNP. © B. Ravichandran.





An adult female Chamba Sacred Langur spotted in Kalatop-Khajjiar Wildlife Sanctuary. © H. Byju.

CHAMBA CHRONICLES

Four months ago, we were welcomed as interns of the Himalayan Langur Project (HLP) by the broad-leaf oak and pine forests of the Chamba Valley, Himachal Pradesh. Little did we know where all it would take us. Here, we put together our works on various aspects of the project.

Langur behaviour

Our project- the Himalayan Langur Project, owes its name to this endangered primate, *Semnopithecus ajax* commonly known as the Chamba Sacred Langur or the Kashmir Grey Langur, named after the only two places it is found in. A number of threats in the landscape such as - human-

animal negative interaction due to their crop raiding behaviour, habitat degradation, forest fires, landslides, invasive plant species, improper garbage disposal, and over-tourism haunt the species. The Himalayan Langur Project has been involved in finding a solution to reduce these threats the species is facing and at the same time help with the livelihoods of the local communities whose crops are raided by the primate.

To create a refined conservation action plan for the species, we need to understand

the species. Recording and studying the behavioural aspect is an important step towards understanding the animal. Behavioural samples are taken in and around the Kalatop-Khajjiar Wildlife Sanctuary (KKWS), whenever a group or an individual is spotted. Samples



Kritika, an intern with the HLP, observing langurs in Kalatop-Khajjiar Wildlife Sanctuary. © Sanjay Molur.

of groups in and around agricultural lands are also taken. A good amount of time is spent in recording the number of individuals in the group and then recording behaviours of some of the group members. The study aims to decipher a comparison between the behaviours of the langurs when in their natural habitat (Wildlife Sanctuary) versus when in a human modified habitat (agricultural lands).

Along with the behavioural aspect, local population is also being focused on. Under the project, with the help of the Himachal Pradesh Forest Department, a langur census was conducted in KKWS. This is something we plan to

conduct every year to estimate the langur population and help analyse its trends in the Chamba valley.

Before this year's census, the team submitted a brief report of the last year's experimental census and presented the same to the DFO, along with some recommendations. Zooreach designed some information brochures and pamphlets of the the Chamba Sacred langur to be put up in the Wildlife Sanctuary by the Himachal Pradesh Forest Department to raise awareness of this endangered, endemic species.

Restoring the landscape

One of the main objectives of the HLP is to restore the highly

degraded forests of the Chamba Valley. After years of research, interaction with communities, and decoding of plant names in folklores, an idea of what could possibly be the native plant species of the region, was gained. This resulted in the setting up of a nursery in a place called Dugli, on land leased from a farmer, Shakti. He himself has been suffering from increased episodes of crop raiding and has thus given up farming in major portions of his land. Realising that these are impacts of degraded forests, Shakti has since become a conservation warrior, working tirelessly in the scorching heat of the sun; literally babysitting our native saplings. Started with eight species of native plants,

Forest guards noting GPS points during langur census 2023. © Kritika P.



HLP team presenting the census report 2022, at forest rest-house, Kalatop-Khajjiar Wildlife Sanctuary. © H. Byju.



Shakti making plant beds. © Aishwarya S Kumar.



Kritika making beds for the native *Celtis australis* saplings under the supervision of the project lead, Vishal Ahuja. © Aishwarya S Kumar.



the nursery now houses 12 different species sown as native over time (4 sown after we joined the project).

Each of these native species were sown in P-bags and, new beds were dug and arranged for each. Same species of plants sown at different times were maintained as different batches on separate beds. All species are monitored weekly wherein their germination is recorded and simultaneously, de-weeding is done. Each of these steps are being followed as and when new batches of seeds are sown.

Over the course of time, we have observed some species defying all odds of the harsh weather and flourishing. The walnuts (*Juglans regia*) stand tall in this. We have observed a rapid growth rate in them. Unlike the seeds of other species in the nursery which were collected from forest fragments and adjacent areas, the walnut seeds were purchased.

Untreated, we are unsure of what made these seeds outgrow other species' seeds sown at the same time and some even earlier. Within four months of their sowing, the plants started outgrowing the P-bags, mandating us to quickly shift these saplings into bigger bags. Additionally, we also dug a compost pit.

Most of our saplings were frequently being munched on by the goats and sheep of migrating shepherds. These animals devoured the young leaves which eventually was affecting the plants' growth. Hence, towards the end of May 2023, the area was fully fenced under the team's supervision.

A continuous learning process, maintaining the nursery for restoration also led us to paying visits to the different forest department nurseries in Chamba District. We learnt and enquired from them their nursery maintenance regimes to further implement (or not) in ours.



Left: The outgrown walnut sapling and the bigger bag into which these were shifted., Right: Vishal showing the outgrown roots of a walnut sapling. © Aishwarya S Kumar.

Our project involves gathering communities for plantation drives, essentially to be conducted post monsoon. However, since the saplings at our nursery are only a year old with most of them too small to be planted, we, with the permission from Dalhousie DFO, received a total of 325 plantable saplings comprising of nine different species from the Maila nursery.

Restoration pleads urgency as much as it is a long-term work. Waiting for us to establish a plant as native and only later deciding to collect their seeds would be no better than being foolish. Which is why, our seed collection happens on the go. Almost four months into our internship, we now have a collection of fruits of 15 species, the details of which we keep logging and nativity, we keep reviewing.

Our multiple visits to the wildlife sanctuary and areas in the vicinity helped us get familiarised with the flowering plant species found in this part of Chamba. We have also built on the

existing checklist of flora. Equipped with this dynamic list of natives and non-native plant species of the region, we are currently planning to map the abundance and distribution of the invasive species of the region, complementing the restoration project. The first of its kind from this region, this will follow the established MIREN protocol of assessing invasive plants along the roads of Gajnoi to Kalatop-Khajjiar Wildlife Sanctuary in Chamba. Nothing but the untimely rains and the resultant unpredictable landslides stop us from flagging off this at present.

Hearing out the communities

Zooreach has also been working on understanding local people's perceptions on crop raiding and their dependency on the forest. Surveys were conducted in 28 villages belonging to Rathiya panchayat of Chamba District. The objective of the survey was to identify the most consumed forest resources by local people and obtain an estimate of the

extent of consumption. We also wanted to look into various household factors which determined the level of dependency.

The altitude and accessibility of each village was varied, with some villages located right beside the road whereas others are situated deep inside the forest. The sample size was selected to be five per village but due to the variation in population sizes as well as weather constraints, the number of interviews varied from village to village.

A group of four surveyors led by Vishal conducted these surveys. The questionnaire covered a variety of topics involving aspects of income, occupation, types of forest resource collected, distance travelled (daily), and quantity of resource collected. A short follow up survey on crop raiding was also incorporated into the study based on a previous survey conducted in 2015–2016 to assess crop damage assessment Kalatop-Khajjiar Wildlife Sanctuary.

Each interview lasted 15 to 20 minutes. We received a variety of responses and conclusive results can only be established upon further data analysis. However, based on our observations, the local people mainly depend on the forest for two resources: fuelwood and fodder.

Those with livestock either take their cattle into the forest for feeding or venture out to cut grasses and fuelwood; this is a daily job. Meanwhile, some



Seed of *Ficus palmata* being collected from a trail in Kalatop-Khajjiar Wildlife Sanctuary. © Kritika P.

people use the vegetation and trees available in their own land.

For fuelwood, ban oak seems to be the widely available and therefore preferred choice. People also use a variation of Chir Pine, Deodar, and Horse Chestnut. In general, people use a combination of gas cylinders and wood to cook



A survey being conducted in the village of Jhalein, Chamba. © Aishwarya S Kumar.

their food; although some rely purely on wood since cylinders are expensive for them. For winter and heavy snowfall, people collect large quantities of wood and store them.

People occasionally collect *kasrod* (fiddlehead fern), and other edible plants for consumption from the forest as well. During festive occasions, the villagers obtain permits from the forest department to cut down trees (generally Ban oak) as it will be used to prepare large quantities of food; particularly a notable dish native to Chamba known as *Dham*.

Almost every household owns a collection of farms, and the main crop of choice is maize. Other crops include white radish, sorghum, mustard, and wheat. We found that *bandar* (Rhesus Macaque), *gaula* (Chamba Sacred Langur), and *bhalu/rik* (Asiatic Black Bear) were the main wild animals responsible for crop raiding. They are most commonly found in the fields during crop harvest season.

Crop raiding has severely affected the livelihoods of local communities, and some families have chosen to abandon their farms to pursue alternative income sources (labour work). At the end of every interview, we chose to



Fuelwood storage area. © Namita Nalamala.

engage in open dialogue with the communities explaining the causes for these conflicts and creating awareness on long-term and sustainable mitigation strategies.

We discussed the development of the native vegetation restoration project which can potentially act as a crop raiding deterrent. We also stressed on the importance of community engagement and education in effectively mitigating the heavy losses resulting from crop raiding.

Zooreach is also currently working on a documentary covering black bear attacks occurring in these regions. We hope that through our efforts, a deeper and greater awareness of community conservation can be achieved.



Survey conducted in the village of Saun. © Kritika P.

Acknowledgements

Documenting our work has always been a pleasure. We extend our gratitude to Dr. Sanjay Molur for giving us this opportunity. We cannot thank our project leader, Vishal Ahuja, enough for his unconditional support and patience in being all ears to our questions. Lastly, our heartfelt thanks to the people of Chamba, your love humbles us.

Aishwarya S Kumar, Kritika P & Namita Nalamala, Interns, Zoo Outreach Organisation Trust & Wildlife Information Liaison Development Society, Coimbatore, Tamil Nadu 641006, India.

A photograph showing three people, two men and one woman, leaning over a table and playing the game Jenga. They are focused on the wooden blocks stacked in the center. The woman on the left is wearing a pink top and a blue patterned sari. The man in the middle is wearing a red shirt and glasses. The man on the right is wearing a patterned shirt. A Jenga box is visible on the left side of the table.

Fisherfolk playing jenga to understand stability in diversity.
© B. Ravichandran.

One healthy ocean for fishes and fisherfolk of Kanyakumari District, Tamil Nadu

A two-day workshop was conducted to understand and discuss the needs of fishes and fisherfolk on 12-13 July 2023 at Coastal Peace Development Office, Nagercoil, Kanyakumari District, Tamil Nadu. The workshop was organised as part of the project titled, “Elasmobranch by catch study in Tamil Nadu, India” by Zoo Outreach Organisation in partnership with South Asian Fishermen Fraternity (with Father Churchill, Tech Camp-Kochi Alumnus), with support from the US Consulate General through their TechCamp initiative facilitated by Centre for Public Policy Research, Kochi.

Around 25 people participated in the workshop and all of them were from fishing communities with different roles including fishermen and women, boat owners, auctioneers, and social activists. This ensured that all the diverse perspectives were taken into account during the discussions. Both fisherfolk and the Zooreach team spoke about the need for healthy oceans to ensure healthy fishes, sustainable fisheries, and secure livelihoods. In this regard, the threats faced by oceans were voiced by the fisherfolk and as this happened they also realised their contributions to overfishing and the current status of depleting fish stocks.



Inauguration - Fr. Churchill addressing participants.



Talk on ocean biodiversity by Dr. Raffi, Associate Professor, University of Kerala, Thiruvananthapuram.



Species biology discussion.



Boat owner and fisherman talking about threats.



Fisherfolk observing species through microscope.



© B. Ravichandran

Stakeholder mind map with participants.

All of these topics were tackled using games, activities, scientists talk, and audio-visual presentations. This facilitated the fisherfolk to be active, alert, and have better recall value. Knowledge sharing regarding fishing practices, challenges and species was conducted between the Zooreach team and the fisherfolk.

The workshop concluded focusing on the importance of data gathering by the fisherfolk through audio recordings and visual documentation in order to understand what is happening to our fishes and oceans. The Zooreach team also requested them to measure all the different fishes including sharks and rays and provided them with measuring tapes as this will give the team an idea of the changes in size class that indicate the status of these species. All the fisherfolk were happy to support this endeavour and a whatsapp group has been started in tamil to facilitate better conversations.

A fisherman named Arul Raj, performed two songs. The first one focused on fishing in the deep sea for sharks and the second one focused on what the fisherfolk learnt from this workshop about species biology and ecology. In summary, the fisherfolk have a good understanding of the threats faced by oceans and its marine diversity and are happy to document it and work together to ensure sustainable fishing practices to conserve biodiversity and livelihoods.

Feedback/takeaways:

1. The fisherfolk would not pollute the sea with their plastics and old nets as well as collect any plastics and ghost nets found floating in the ocean for proper disposal on land.
2. Exposure to biodiversity of the ocean
3. Filling the void of interactive sessions and the opportunity to work in collaboration.



Social activist voicing his opinion.
© B. Ravichandran

4. Long term investment of collaborative conservation action by all stake holders to make Kanyakumari District a model sustainable fishing village.

5. Decision to continue with more formal and informal interactions in order to address the above points.

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The Zooreach team also thanks Brindha Jayakanth, Public Engagment Specialist and Scott Hartman, Cultural Affairs Officer, from US Counslate General for funding the project.



Banner with all partners, collaborators and funders.

Priyanka Iyer, 10cean Coordinator, Zoo Outreach Organisation Trust, Coimbatore, Tamil Nadu 641006, India.



Working groups discussing role of different stakeholders.
© B. Ravichandran.



Group photo. © B. Ravichandran.



#237
21 July 2023

Record of Indian Spectacled Cobra predation on Bengal Monitor Lizard in Mudumalai Tiger Reserve, India



Indian Spectacled Cobra predation on Bengal Monitor Lizard in Mudumalai Tiger Reserve, Tamil Nadu, India.
© Natarajan Balamurali.

On 28 September 2022, we rescued an Indian Spectacled Cobra *Naja naja* (1.3 m total length) from the Vazithottam human settlement area of Mudumalai Tiger Reserve in Tamil Nadu. While capturing the snake, we found that the snake was regurgitated and later we identified the regurgitated species was Bengal Monitor Lizard

Varanus bengalensis. Daniel (2002) mentioned that Indian Cobras feed primarily on rats, frogs, and toads, and occasionally consume birds, bird eggs, lizards, and other snakes, including other cobras. The past literature showed that King Cobras are predominant in the region, and it has been documented that they predate on



Monitor Lizards (Sy & Ong 2019). Considering the Indian Spectacled Cobra, the predation on the Bengal Monitor Lizard was reported in Gujarat (Vyas et al. 2022). The present and the past observation envisaged that Bengal Monitor Lizard is a noteworthy addition to the dietary spectrum of the Indian Spectacled Cobra.

References

Sy, E.Y. & B.K.C. Ong (2019). King Cobra *Ophiophagus hannah* predation on Palawan Water Monitor Lizard *Varanus palawanensis* in the Philippines. *Southeast Asia Vertebrate Records* 44–45.

Vyas, R., Y. Bhatt & D. Mori (2022). Predators of the Bengal Monitor *Varanus bengalensis*. *Reptiles & Amphibians* 29: 264–265.

Arockianathan Samson¹, Natarajan Balamurali², Palanisamy Santhoshkumar³, Manhendran Palanisamy⁴, Perumal Yogeshwaran⁵ & Jabamalainathan Leonaprinacy⁶

^{1&6} Department of Zoology and Wildlife Biology, Government Arts College, Udthagamandalam, The Nilgiris, Tamil Nadu 643002, India.

² Snake Rescuer, Masinagudi, The Nilgiris, Tamil Nadu 643223, India.

³⁻⁵ Mudumalai Tiger Reserve, Theppakadu, The Nilgiris, Tamil Nadu 643223, India.

Email: ¹kingvulture1786@gmail.com (corresponding author)

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Casque-less Great Hornbill sighting in the Nelliampathy Hills, Kerala

Hornbills (Order: Coraciiformes, Family: Bucerotidae) are one of the most unique and interesting group of birds. An exclusive anatomical feature of hornbill is the presence of a casque, elevated or surmounted on the upper mandible or dorsal maxillary beak in some species (Poulsen 1970; Miller et al. 1985; Gamble 2007; Kasambe 2011;), which gives it the name 'Hornbill'.

Of the 54 species of hornbills known from the world (Kemp 1993), India is home to nine, and in the Western Ghats, there are four species of Hornbills (Mudappa & Raman 2008). The Great Hornbill (AKA Great Indian Hornbill or Great Pied Hornbill) *Buceros bicornis* is the largest of all the nine species found in India (Ali & Ripely 1983; Das 2014). It measures 95–130 cm (37–51in) in length, with a wingspan of 152 cm (60 in) and weighs 2.15–4 kg (4.7–8.8 lbs) (Das 2014). The most striking feature is the bright



Immature casque-less Great Hornbill sighted in the Nelliampathy Hills, Kerala. © S. Sushanth.

yellow and black casque. When it is viewed from front, it appears to be U-shaped with a concave top having two ridges along the sides which lead to a point in the front, to which Latin species epithet reference *bicornis* is made (Das 2014). Hornbill's casque actually initiates from a highly

vascular ridge of the maxillary rhamphotheca in the young ones, gradually increasing in size with time, age and sexual maturity (Gamble 2007). The casque is an air-filled cavity which is surrounded by the bone (Gamble 2007). Male Great Hornbills have been known to involve and use

casque in aerial casque butting where birds strike at each other in mid-air during flight (Das 2014). There are even reports of direct visual encounters of casque butting of Great Hornbills (Raman 1998). Here, we report a field sighting and observation of a casque-less Great Hornbill in one of the coffee gardens named Rajakkad Estate in the Nelliampathy Hills, Kerala. This sighting was made during our study on the biodiversity assessment of these hills. The study site has significant area coverage of coffee and tea plantations along with reserve forest area located next to each other.

The following observation was made by one of the authors (S.S.). At 1518 h on 28 May 2023, activity of three Great Hornbills was observed from a distance of 100 m in the Rajakkad Estate (10.49316N, 76.6761E; altitude 930 m). At 1520 h, as the observer approached the birds, one particular Great Hornbill individual flew from one tree to another at a distance of about 60 m. The bird was flying by producing loud and heavy whooshing sound through every wing beat (James & Kannan 2009) with a clear light blue sky background. The first thing that significantly struck the observer was its missing casque.

During that time, the bird had perched on a fig tree where two more Great Hornbills had also arrived. Then all the three individuals were observed in which, the first two individuals were spotted to have a normal and prominent bright yellow casque on their beaks where one individual was an adult male and another was an adult female. But, the third individual had no casque at all on its upper mandible or beak.

Instead, there was just a tiny little bump. Based on the sexual dimorphism characters by Das (2014) (other than the casque characters), this individual looked like an immature female. Such a kind of sighting is opportunistic and non trivial and it occurs infrequently. During the study on the breeding biology of hornbills in northern Bengal by Nature Conservation Foundation (NCF), a similar individual with no casque was captured by Karishma Pradhan. So, an immature individual which is very recently fledged and emerged will be casque-less, until its maxillary rhamphotheca grows and develops into a casque (Gamble 2007). Therefore, we can say that this individual could be a just fledged and emerged one. The absence of casque could also be a result of an injury but there was absolutely no sign of any physical damage and the bird did not even show any signs of pain or stress, as it happens when an animal is injured or loses a body part. The bird looked very young and immature. Such sightings throw light on the changes and modifications that happen to a biological organism during its development.

This also conveys that the 'Near Threatened' Great hornbill is breeding successfully in the above study site even though the site has many constraints like non-native plantations and anthropogenic disturbance which makes them vulnerable (Datta 1998; Raman 2001). Detailed and comprehensive studies on this are required and have to be conducted in order to know the exact reason of Great Hornbill being casque-less and to understand its breeding biology and development.

References

- Ali, S. & S.D. Ripely (1983).** *Handbook of the Birds of India and Pakistan together with those of Bangladesh, Nepal, Bhutan and Sri Lanka. Compact ed.* Oxford University Press, Delhi, 737 pp.
- Das, N. (2014).** Seasonal migration of Great Hornbill *Buceros bicornis* in the high forest areas of Nameri National Park. *Bird Populations* 13: 6–9.
- Datta, A. (1998).** Hornbill abundance in unlogged forest, selectively logged forest and a forest plantation in Arunachal Pradesh, India. *Oryx* 32: 285–294.
- Gamble, K.C. (2007).** Internal anatomy of the hornbill casque described by radiography, contrast radiography, and computed tomography. *Journal of Avian Medicine and Surgery* 21(1): 38–49.
- James, D.A. & R. Kannan (2009).** Nesting habitat of the Great Hornbill (*Buceros bicornis*) in the Anaimalai Hills of southern India. *Wilson Bulletin* 121:485–492.
- Kasambe, R. (2011).** The urban hornbills. *Nature Watch* 32–35.
- Kemp, A.C. (1993).** Conservation of Asian hornbills and their habitats: an introduction, pp. 4–23. In: Poonswad, P & A.C. Kem (eds.). *Manual to the Conservation of Asian Hornbills*. Hornbill Project, Thailand, Mahidol University, Bangkok.
- Miller, R.E., D.W. Trampel, W.J. Boever & M.A. Kling (1985).** Carcinoma in the Casque of a Greater Indian Hornbill (*Buceros bicornis*). *The Journal of Zoo Animal Medicine* 16: 131–136.
- Mudappa, D. & T.R.S. Raman (2008).** Hornbills and Endemic Birds: A Conservation Status Survey Across the Western Ghats, India. NCF Technical Report No. 17. Nature Conservation Foundation, Mysore.
- Poulsen, H. (1970).** Nesting behaviour of the Black-casqued Hornbill *Ceratogymna atrata* (Temm.) and the Great Hornbill *Buceros bicornis* L. *Scandinavian Journal of Ornithology* 1: 11–15.
- Raman, T.R.S. (1998).** Aerial casque-butting in the Great Hornbill *Buceros bicornis*. *Forktail* 13: 123–124.
- Raman, T.R.S. (2001).** Effect of slash-and-burn shifting cultivation on rainforest birds in Mizoram, North-east India. *Conservation Biology* 15: 685–698.

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S. Sushanth¹ & Mewa Singh²

^{1&2} Biopsychology Laboratory and Institution of Excellence, University of Mysore, Mysuru, Karnataka 570006, India.

Email: ²mewasinghltm@gmail.com (corresponding author)

Citation: Sushanth, S. & M. Singh (2023). Casque-less Great Hornbill sighting in the Nelliampathy Hills, Kerala. Bird-o-soar #202, In: *Zoo's Print* 38(7): 17–19.

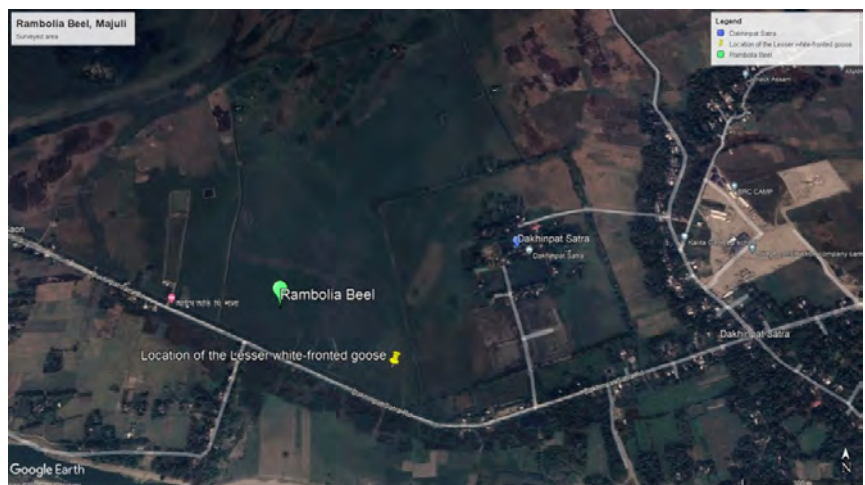
Lesser White-fronted Goose in Majuli Island, Assam

Lesser White-fronted Goose is a rare winter vagrant to India, mostly recorded from the northwestern regions (Carboneras & Kirwan 2020). In Assam the bird is mostly recorded from Kaziranga National Park, Dibru-Saikhowa National Park, and Pobitora Wildlife Sanctuary (Barua & Sharma 1999; Narasimmarajan et al. 2013; eBird 2022). There is no previous published record of this bird from Majuli Island (Choudhury 2000).

Rambolia Beel (wetland) is situated in the Dakshinpat area (26.916N, 94.263E) of Majuli Island in Assam, close to the Brahmaputra River. Every year thousands of winter migrant water birds such as Graylag Goose *Anser anser*, Bar-headed Goose *Anser indicus*, Gadwall *Mareca strepera*, Eurasian Wigeon *Mareca penelope*, Mallard *Anas platyrhynchos*, Northern Pintail *Anas acuta*, Green-winged Teal *Anas crecca*, and Ferruginous Duck *Aythya nyroca* congregate in this wetland (Rahmani et al 2016). On 26 December 2021



Lesser White-fronted Goose *Anser erythropus* with flock of Graylag Goose *Anser anser* at Rambolia Beel, Majuli. © Ankur Hazarika.



Map of Dakshinpat area of Majuli Island showing the location of Rambolia Beel and the Lesser White-fronted Goose seen on 26 December 2021 (Google Earth 2022).

at 1500 h, we observed two comparatively smaller geese among the Graylag Goose in a nearby agricultural field of the wetland. These geese had darker body colouration than the Graylags. When observed carefully with the

binoculars, prominent yellow ring around the eyes, black barring on the belly and white forehead were clearly seen (Grimmet et al. 2016; Carboneras & Kirwan 2020). The birds were identified as Lesser White-fronted Goose



Map of India indicating the location of Rambolia Beel of Majuli Island along with a map of Assam showing previous reports of Lesser White-fronted Goose (Google Earth 2023).

Anser erythropus from the photographs taken by the first author.

The Rambolia Beel and the adjoining areas of Dakshinpat is a great bird watching site, which fall under Majuli Island Important Bird and Biodiversity Area (Rahmani et al. 2016). Though, the area does not get much attention, it has potential for bird based tourism if managed properly with support from the local community. Although there are less developmental activities in this area, the wetlands nearby face threats from agricultural

expansion and development of culture ponds nearby.

References

- Barua, M. & P. Sharma (1999).** Birds of Kaziranga National Park, India. *Forktail* 15: 47–60.
- Carboneras, C. & G.M. Kirwan (2020).** Lesser White-fronted Goose (*Anser erythropus*). In: del Hoyo, J., A. Elliott, J. Sargatal, D.A. Christi & E. de Juana (eds.). *Birds of the World. version 1.0*. Cornell Lab of Ornithology, Ithaca, NY, USA.
- Choudhury, A. (2000).** *The Birds of Assam*. Gibbon Books and WWF-India North-East Regional Office, Guwahati, 240pp.
- eBird (2022).** Lesser White-fronted Goose. <https://ebird.org/species/lwfgoo>. Accessed on 13 August 2022.
- Grimmett, R., C. Inskipp & T. Inskipp (2016).** *Birds of the Indian*

Subcontinent: India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh and the Maldives. Bloomsbury Publishing, India, 448 pp.

Narasimmarajan, K., D. Chetri, C. Ri & M.T. Mathai (2013). Bird Species of conservation concern along the Brahmaputra river in Assam, Northeast India. *Podoces* 8(2): 31–37.

Rahmani, A.R., M.Z. Islam & R.M. Kasambe (2016). Important Bird and Biodiversity Areas in India: Priority Sites for Conservation (Revised and updated). Bombay Natural History Society, Indian Bird Conservation Network, Royal Society for the Protection of Birds and BirdLife International (U.K.), 1992 pp.

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Ankur Hazarika¹ & Shyamal Saikia²

¹ Hazarika Gaon, P.O. Hazarika Gaon, Dist. Majuli, Assam 785104, India.

² Kharichakhowa Gaon, P.O. Kamalabari, Dist. Majuli, Assam 785106, India.
Emails: ¹ankurankurh35@gmail.com; ²shyamalsaikia99@gmail.com (corresponding author)

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First report of colour dilution in Yellow-billed Babbler from Male Mahadeshwara Wildlife Sanctuary, India

Colour aberration can often take the form of a complete or partial lack of pigmentation which occurs frequently in domesticated species or populations bred in captivity but is a rare event in wild populations (Bensch et al. 2000; Srivastava 2013).

Loss of pigmentation has been reported in mammals (Mahabal et al. 2019), birds (van Grouw 2013), reptiles (Kolenda et al. 2017), amphibians (Venu et al. 2021), and fishes (Bigman et al.

2016). Colour aberrations are caused due to genetic factors that are expressed in one of the following forms- 1. Albino, 2. Brown, 3. Ino, 4. Leucism, 5. Progressive greying, 6. Dilution, and 7. Melanism (van Grouw 2021). However, non-genetic (environmental) factors, such as injury and nutritional constraints, can also cause pigmentation anomalies (Camacho et al. 2022).

We report the first observation of a case of dilution in colour in a Yellow-billed Babbler *Argya affinis* in the Male



Yellow-billed Babbler with colour dilution (60X zoomed image). ©Arjun Kannan.

Mahadeshwara Wildlife Sanctuary (12.084N, 77.299E), Hanur Taluk of Chamarajanagar District of southern Karnataka, India. The individual with the colour anomaly was spotted flying with a group of more than 10 individuals in a free-ranging population although, occasionally the anomalous individual was found foraging independently away from the group. The Yellow-billed Babbler is endemic to southern India and Sri Lanka. It is a social species, forming groups of five to seven individuals. However, birds are also

found in larger groups while foraging. They inhabit forest edges, shrubs and agricultural lands. The reported bird was observed from a long distance (photographed with a Panasonic Lumix FZ80 digital camera with the lens at 60x). The eyes and the beak had a pale-yellow colour, however, we could not observe the feet as the individual was mostly found foraging within the vegetation. Considering both the rarity of the event and the colouration in the eyes and beaks, the bird reported here has a colour dilution.

The colour aberration terminology used in this report is following van Grouw (2021).

This is the first report on dilution in Yellow-billed Babbler from India. There has been a single previous photographic report of an amelanistic Yellow-billed Babbler from India but there was data deficiency regarding the location from where it was observed (Mahabal et al. 2016). We suggest two ways that can enrich the data on colour aberrations in wild animals and though focused on birds, these recommendations can be used for other taxa as well.

1. Web-sourced datasets are increasingly proving to be a valuable source of ecological data (Zbyryt et al. 2021). Photographs sourced from dedicated online social media platforms such as iNaturalist, Macaulay library, and Instagram can help to understand any existing patterns in the emergence of colour anomalies within wild populations.

2. As a first step to advance this study, we have created a project page on the iNaturalist platform entitled “Colour Anomalies in Nature” (<https://www.inaturalist.org/projects/colour-anomalies-in-nature>) for reporting colour aberrations in Indian birds and the metadata will be publicly available.

The project created as a part of this study can be a good starting point to collate more data for a better understanding of colour aberrations in wild population of birds.

References

- Bigman, J.S., J.D.S. Knuckey & D.A. Ebert (2016).** Color aberrations in Chondrichthyan fishes: first records in the genus *Bathyraja* (Chondrichthyes: Rajiformes: Arhynchobatidae). *Marine Biodiversity* 46(3): 579–587.
- Camacho, C., P. Sáez-Gómez, P. Hidalgo-Rodríguez, J. Rabadán-González, C. Molina & J.J. Negro (2022).** Leucistic plumage as a result of progressive greying in a cryptic nocturnal bird. *Scientific Reports* 12: 3411. <https://doi.org/10.1038/s41598-022-07360-8>.
- Kolenda, K., B. Najbar, A. Najbar, P. Kaczmarski, M. Kaczmarski & T. Skawiński (2017).** Rare colour aberrations and anomalies of amphibians and reptiles recorded in Poland. *Herpetology Notes* 10: 103–109.
- Mahabal, A., H. van Grouw, R.M. Sharma & S. Thakur (2016).** How common is albinism really? Colour aberrations in Indian birds reviewed. *Dutch Birding* 38: 310309.
- Mahabal, A., R.M. Sharma, R.N. Patil & S. Jadhav (2019).** Colour aberration in Indian mammals: a review from 1886 to 2017. *Journal of Threatened Taxa* 11(6): 13690–13719.
- Srivastava, M. (2013).** Breeding Behavior of Babbler *Turdoides striata* as observed in a house courtyard in Bikaner, Rajasthan (India). *Poultry, Fisheries & Wildlife Sciences* 1(1): 104.
- Venu, G., G.N. Balakrishna, R.K. Browne, N.G. Raju, K. Varadh, S. Ramakrishna & G. Venkatachalaiah (2021).** First record of leucism in the amphibian order Gymnophiona: *Ichthyophis kodaguensis* Wilkinson et al., 2007 from the southern Western Ghats, India. *Herpetology Notes* 14: 77–81.
- van Grouw, H. (2013).** What Colour is that bird? The causes and recognition of common colour aberrations in birds. *British Birds* 106: 17–29.
- van Grouw, H. (2021).** What’s in a name? Nomenclature for colour aberrations in birds reviewed. *Bulletin of the British Ornithologists’ Club* 141(3): 276–299. <https://doi.org/10.25226/bboc.v141i3.2021.a5>.
- Zbyryt, A., P. Mikula, M. Ciach, F. Morelli & P. Tryjanowski (2021).** A large-scale survey of bird plumage colour aberrations reveals a collection bias in Internet-mined photographs. *Ibis* 163(2): 566–578.

Deyatima Ghosh¹ & Arjun Kannan²

¹ Laboratory of Animal Behaviour and Conservation, College of Biology and the Environment, Nanjing Forestry University, Nanjing 210037, China.

² SMS Foundation Centre for Biodiversity and Conservation, Ashoka Trust for Research in Ecology and the Environment (ATREE), Jakkur, Bangalore, Karnataka 560062, India.

² Manipal Academy of Higher Education, Manipal, Karnataka, India.

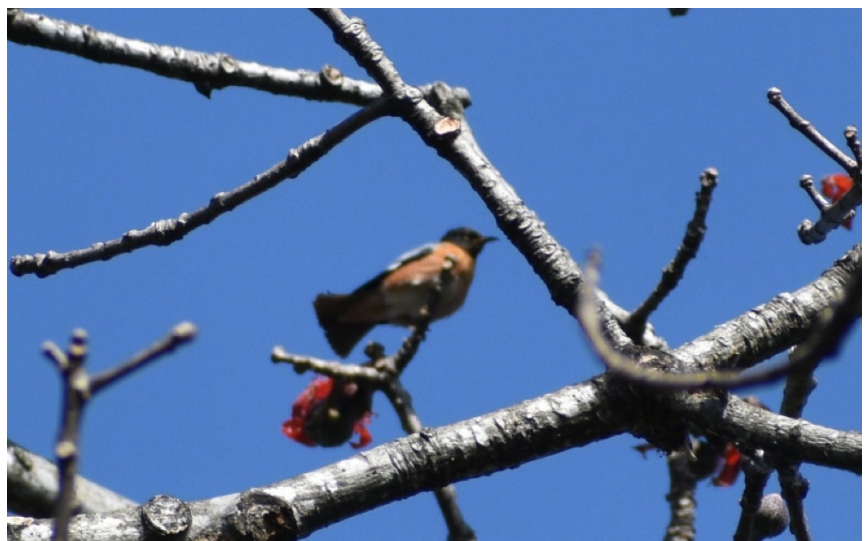
Emails: ¹deyatima@atree.org (corresponding author);

²arjun.kannan@atree.org

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Sighting of Spot-winged Starling and Fire-capped Tit from Bornadi Wildlife Sanctuary, Assam, India

The altitudinal migration of avian species within the Indian subcontinent primarily involves movement from the Himalayan regions to the plains and foothills of India. It has been observed that a significant portion of altitudinal migrants migrate from higher to lower elevations as winter approaches (Barçante et al. 2017). While the majority of winter migrants in the area comprise water birds, a number of forest birds are also known to migrate. However, due to the inherent challenges associated with detecting forest birds compared to water birds, there are limited sighting records for these species, resulting in a lesser understanding of their distribution patterns.



Male Spot-winged Starling *Saroglossa spilopterus* (Vigors, 1831). © Vivek Chetry.

The Spot-winged Starling *Saroglossa spilopterus* (Vigors 1831) is a migratory bird found in parts of the Himalayan foothills region. They are known for their seasonal east-west migration from their breeding grounds in the northern Indian Himalayan

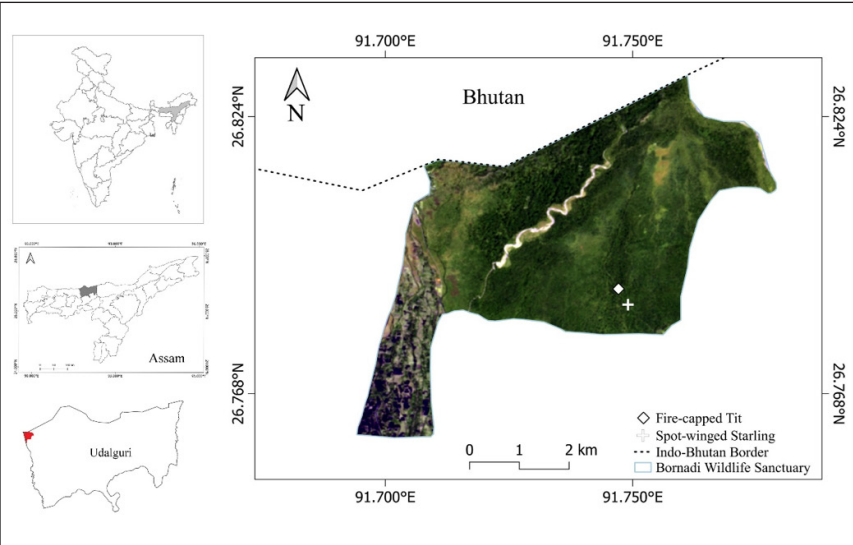
foothills in the summer to their wintering grounds in northeastern India (Grimmett et al. 2011). They are reported to reside generally between 700–1,200 m and up to 2,000 m, but up to 1,000 m in northeastern India (Ali & Ripley 1987). It is mostly found in

open forests, edge as well as cultivated areas occasionally in non-breeding ranges (Craig & Feare 2020).

The Fire-capped Tit *Cephalopyrus flammiceps* (E. Burton, 1836) is a tiny passerine bird found in the

Table 1. Observation notes of the two bird species.

Common Name	Individuals	Date	Time	Location	Activity	Remark
Spot-winged Starling	2 males	30.xii.2020	0946 h	26.785995°N, 91.749055°E 182 m	Foraging	Seen on top canopy of <i>Bombax ceiba</i>
	1 male	21.ii.2021	0843 h	26.789187°E, 91.747012°N 183 m	Foraging	Seen on top canopy of <i>Bombax ceiba</i>
Fire-capped Tit	1 male	21.ii.2021	0843 h	26.789187°E, 91.747012°N 183 m	Foraging	Seen on top canopy of <i>Bombax ceiba</i>



Map of the study area with specific sighting locations of the Spot-winged Starling and Fire-capped Tit.

Himalayan region mostly at elevations ranging from 1,800–3,000 m. They are recognized for their characteristic brilliant red or orange crown, which gives them their common name. Fire-capped Tit has two subspecies namely *Cephalopyrus flammiceps flammiceps* and *Cephalopyrus flammiceps olivaceus* (Madge 2020). The former is known to reside in the western Himalaya while the latter is found in the

eastern Himalaya (Grimmett et al. 2011). Fire-capped Tit is an altitudinal migrant known for its migration from higher altitude mountains to lower foothills in winter. The distribution of Fire-capped Tit in Assam is uncertain. Choudhury (2000) suspected its presence but was unsure about its abundance and distribution. The confirmed record with photographic evidence comes from Manas

National Park (eBird Basic Dataset 2023).

Located to the south of the foothills of the eastern Himalaya, Bornadi Wildlife Sanctuary spans an area of 26.22km². The sanctuary shares its northern boundary with Bhutan’s foothill region and is located in the Udalguri District of Assam. The sanctuary’s geographical boundaries are 26.7500–26.8352N; 91.7000–91.7793E. We encountered Spot-winged Starling and Fire-capped Tit at Bornadi Wildlife Sanctuary during two field trips. Two individuals of Spot-winged Starlings were sighted at 0946 h during our first field visit on 30 December 2020. The individuals were seen foraging on the upper canopy of a *Bombax ceiba* tree. Through the aid of binoculars, the species was identified by

its dark reddish throat, pale rusty-orangish breast, and a prominently visible white patch on the wing. Subsequently, the two individuals were last sighted flying toward the northern part of the sanctuary.

During another field visit on 21 February 2021 at 0843 h, we observed one individual Spot-winged Starling and another individual male Fire-capped Tit foraging on the topmost canopy of *Bombax ceiba* tree. Fire-capped Tit was identified by its small-sized bill, tail with a slight notch and greenish upper part with a yellowish underpart body.

The individual was identified as male by its bright orange colouration on the forehead and throat which is distinctive of breeding plumage. Both species are observed for the first time in the Udalguri District of Assam.

The Western race (*flammiceps*) has been observed migrating from the western Himalaya to sections of India's central plains, including eastern Rajasthan, Madhya Pradesh, and southern Uttar Pradesh (Madge 2020). However, little



Male Fire-capped Tit *Cephalopyrus flammiceps olivaceus* (E. Burton, 1836).
© Vivek Chetry.

is known about the range and breeding of the Fire-capped Tit subspecies *olivaceus* (Madge 2020). Ali & Ripley (1973) described its occurrence at 300–2,300 m from collected specimens in Sikkim and Bhutan. The sighting of a male individual in breeding plumage suggests that the subspecies *olivaceus* might breed early and also at lower elevations as compared to subspecies

flammiceps. Sighting such lesser-known birds from various regions might be helpful in understanding their distribution and life history.

References

- Ali, S. & S.D. Ripley (1987).** *Handbook of the birds of India and Pakistan-Volume 5*. Oxford University Press, New Delhi, 278 pp.
- Ali, S. & S.D. Ripley (1973).** *Handbook of the birds of India and Pakistan-Volume 9*. Oxford University Press, New Delhi, 310 pp.

Barçante, L., M.M. Vale & M.A.S. Alves (2017).

Altitudinal migration by birds: a review of the literature and a comprehensive list of species. *Journal of Field Ornithology* 88(4): 321–335.

Choudhury, A.U. (2000) *The Birds of Assam*. Gibbon

Books and World Wide Fund for Nature-India, North-East Regional Office, Guwahati, India, 240 pp.

Craig, A.J.F. & C.J. Feare (2020). Spot-winged Starling *Saroglossa spilopterus*, version 1.0. In *Birds of the World* (J. del Hoyo, A. Elliott, J. Sargatal, D.A. Christie & E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA.

eBird Basic Dataset (2023). Version: EBD_relFeb-2023. Cornell Lab of Ornithology, Ithaca, New York.

Grimmett, R., C. Inskipp & T. Inskipp (2011). *Birds of the Indian Subcontinent*. Christopher Helm, New Delhi, 528 pp.

Madge, S. (2020). Fire-capped Tit *Cephalopyrus*

flammeiceps, version 1.0. In: del Hoyo, J. A. Elliott, J. Sargatal, D.A. Christie & E. de Juana (eds.). *Birds of the World*. Cornell Lab of Ornithology, Ithaca, NY.

Vivek Chetry¹, Pranjal Mahananda², Prasanta Kumar Saikia³ & Malabika Kakati Saikia⁴

¹⁻⁴ Animal Ecology and Wildlife Biology Lab, Department of Zoology, Gauhati University, Assam, India.

Emails: ¹vivekchetry127@gmail.com (corresponding author), ²pranjalmahananda@gmail.com, ³saikiapk@rediffmail.com, ⁴malabika8370@gmail.com

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First photographic documentation of Grey Peacock-Pheasant from central Assam

The Grey Peacock-Pheasant *Polyplectron bicalcaratum* (Linnaeus, 1758), Assamese; *Deodurug*, *Deodirrik*, is a sedentary, loud calling, ground-dwelling bird (Thunhikorn 2018). It belongs to the order Galliformes and ranges from Sikkim through Assam and Myanmar to Siam. It inhabits dense forests that are situated in hilly terrain. However, although it stays on or near hills, it is not a bird of high elevations and does not range above 6,000 ft (Finn 1911). It is a little-known bird that is more heard than seen. Male birds call and whistle loudly to mark their territory. The bird makes a repeating call by blowing the harsh whistle which can be described as ‘trew-tree’, ‘taa-pwi’, or ‘phee hoi’ (with a longer and rising second note) which is made at varying intervals. The alarm call is characterized by the sounds ‘qua quaqua’ or ‘wakwakwak’ which is loud, guttural, and deep (Wildlife Institute of India 2018).

The Grey Peacock-Pheasant is drab, finely speckled with

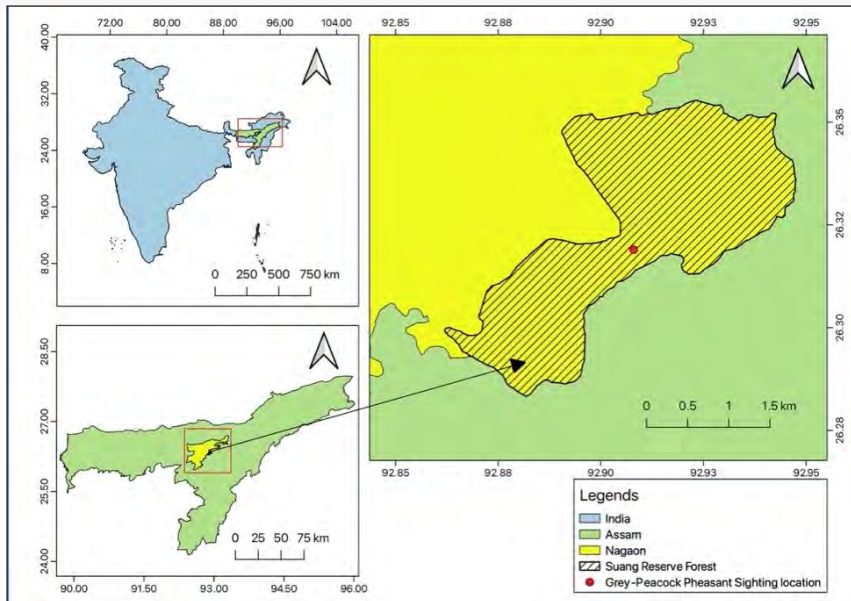


Grey Peacock-Pheasant. © Chiranjib Bora.

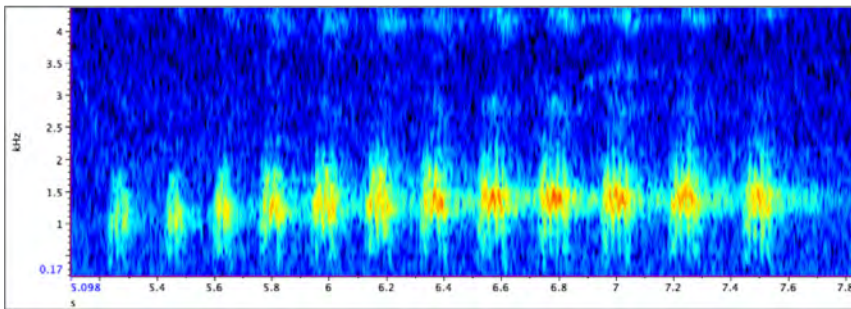
cream color that produces a grey impression when viewed from a distance. The wings, back, and tail are adorned with beautiful metallic “eye spots” of green and violet, shaded so exquisitely that they appear to stand out from the surface of the feather. However, this pertains only to the male of the species. The hen, which is smaller and has a shorter tail and crest, has the “eye spots” replaced by simple blackish spots which are slightly glossed (Finn 1901). Grey Peacock-Pheasant’s global conservation status is Least Concern (BirdLife International 2023), as the population estimate does

not meet the threshold for threatened category. However, its population is declining mainly due to habitat loss and the practice of hunting by the tribal community of the region (Aiyadurai 2011). It is classified as schedule I species under the India Wildlife Protection Act of 1992 and CITES has listed it as an Appendix II species since 1975.

Although the Grey Peacock-Pheasant has been reported and photographed from various protected areas of upper Assam, no written as well as photographic documentation is reported



Showing location of Suang Reserve Forest and Grey Peacock-Pheasant sighting.



Spectrogram of alarm call of Grey Peacock-Pheasant, recorded from the study site.

from any part of the central Assam region. Here we are reporting a sighting and the first photographic documentation of the bird from Suang Reserve Forest located near the Karbi Hills of Nagaon District in central Assam. The Suang Reserve Forest (26.28329N, 92.86198 E & 26.35529N, 92.94753E) is a dense forest with scenic beauty and undocumented biodiversity. It is a moist deciduous forest with

evergreen vegetation. It is surrounded on the north by Lungsung tea garden, on the south by Chapong pahar, on the east by Chapanala tea garden, and on the west by Balijuri and Jiajuri tea gardens. A hill stream called Champawati runs through it.

The bird was observed while surveying the reserve forest for documenting the avian fauna of the area. During the field survey, we had instances to

hear the call of the bird from time to time and were also able to record the alarm call of the bird from the location. We only got glimpses of it once or twice but couldn't capture it on camera. However, on 10 May 2023 we encountered an individual from very near and were lucky enough to capture the elusive bird on camera. The bird was photographed very close to the hill stream (26.31897N & 92.90799E, 118.82m). Nikon D500 camera mounted with 200–500 mm lens was used for photography. Zoom H1 hand held recorder was used for recording the alarm call of the bird and Raven Pro 1.6.4 software was used to generate the spectrogram of the alarm call.

Pheasants are very useful biological indicator of the habitat quality of a particular area (Bhattacharya et al. 2009). Presence of the Grey Peacock-Pheasant in the reserve forest reflects a healthy ecosystem of the region. Furthermore, this observation highlights the significance of the region and creates opportunities for further exploration and research on avifauna in the region.

References

- Aiyadurai, A. (2011).** Wildlife hunting and conservation in Northeast India: a need for an interdisciplinary understanding. *International Journal of Galliformes Conservation* 2(2): 61–73.
- BirdLife International (2023).** Species factsheet: *Polyplectron bicalcaratum*. Downloaded from <http://datazone.birdlife.org/species/factsheet/grey-peacock-pheasant-polyplectron-bicalcaratum>. Accessed on 18 May 2023.
- Bhattacharya, T., S. Sathyakumar & G.S. Rawat (2009).** Distribution and abundance of Galliformes in response to anthropogenic pressures in the buffer zone of Nanda Devi Biosphere Reserve. *International Journal of Galliformes Conservation* 1: 78–84.
- Finn, F. (1901).** *Fancy pheasants and their allies*. The Feathered World, London, 32 pp.
- Finn, F. (1911).** *The game birds of India and Asia*. Thacker, Spink & Company, Calcutta, 180 pp.
- Thunhikorn, S., M.J. Grainger, P.J. McGowan & T. Savini (2018).** Spatial distribution of display sites of Grey Peacock-Pheasant in relation to micro-habitat and predators during the breeding season. *Avian Research* 9: 1–12.
- Wildlife Institute of India (2018).** *National Studbook of Grey Peacock-pheasant Polyplectron bicalcaratum: III Edition*. Wildlife Institute of India, Dehradun and Central Zoo Authority, New Delhi. TR. No.2018/49, 38 pp.
- Neeraj Bora¹ & Chiranjib Bora²**
¹ Nowgong Girls' College, Nagaon, Assam, India.
² Department of Zoology, Gauhati University, Guwahati, Assam, India.
 Emails: ¹neerajbora15@gmail.com, ²chiranjibbora9@gmail.com (corresponding author)
- Citation:** Bora, N. & C. Bora (2023). First photographic documentation of Grey Peacock-Pheasant from central Assam. *Bird-o-soar* #206, In: *Zoo's Print* 38(7): 28–30.

Two new additions to the avifaunal diversity of Chamba District, Himachal Pradesh, India

Birds are crucial to ecosystems because they function as biological indicators, manage pests, pollinate and disperse seeds (Gregory et al. 2003). The avifauna of India is incredibly diverse, comprising 485 genera and 1,332 distinct species (Praveen et al. 2020).

Previous scientific studies on the avifauna of Chamba District, conducted by Marshall (1884), Littledale (1898), Singh (2011), Singh & Banyal (2013), along with valuable insights from other researchers, were accurately compiled by Shah et al. (2016). Their comprehensive work identified 302 bird species in Chamba District, with subsequent publications by Verma & Abhinav (2021) on the Rustic Bunting and Abhinav et al. (2022) on the Nepal House Martin added new records to the district.

It is important to note that the data mentioned above do not include the Chestnut-headed Bee-eater *Merops Leschenaultii* (Vieillot, 1817) and Rock Eagle-Owl *Bubo bengalensis*



Rock Eagle-Owl *Bubo bengalensis* (Franklin, 1831). © Deepak Garg Sharma.



Chestnut-headed Bee-eater *Merops Leschenaultii* (Vieillot, 1817). © Deepak Garg Sharma.

(Franklin, 1831). Thus, we present two new bird records for the Chamba District in this note, contributing further to our understanding of its avian

diversity. On 4 November 2022, at 0856 h, the first author visited Mangla Village in the Chamba District for birding. He photographed an owl species

using a Canon EOS 700D camera mounted with a 150–600 mm Tamron G2 telephoto lens at coordinates 32.5419N, 76.1167E, 1,069 m. The owl species was identified as the Indian Eagle-Owl *Bubo bengalensis* (Franklin, 1831) based on Grimmett et al. (2016) and consulting with experts. Over the next five days, the owl's activity was observed and sighted four times during this duration. The owl was predominantly found perched on top of electricity poles in open fields, with a sparse Pinus Forest nearby.

On 1 April 2023, at 0534 h, another noteworthy avian observation was made by us in the Chamba District. A pair of Chestnut-headed Bee-eaters *Merops Leschenaulti* (Vieillot, 1817) was sighted and photographed in Sach Village, located at coordinates 32.5667N, 76.0978E, at an elevation of 1,162 m. The bee-eaters were spotted perched on a *Bombax ceiba* tree.

It is worth noting that the avifaunal diversity of the Chamba District is not extensively documented. Exploring and studying the avian population in the district may unveil several new and exciting species waiting to be recorded.

References

- Abhinav, C., A. Vikrant, P. Dogra & D.G. Sharma (2022).** Range extension of the Nepal House Martin *Delichon nipalense* into Himachal Pradesh and Punjab, India. *Indian BIRDS* 18(4): 126–129.
- Gregory, R.D., D. Noble, R. Field, J. Marchant, M. Raven & D.W. Gibbons (2003).** Using birds as indicators of biodiversity. *Ornis Hungarica* 12–13: 11–24.
- Grimmett, R., C. Inskipp & T. Inskipp (2016).** *Birds of the Indian Subcontinent: India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh and the Maldives*. Bloomsbury Publishing, UK, 448 pp.
- Littledale, H. (1898).** Camping in Chamba. *Journal of the Bombay Natural History Society* 11(3): 482–505.
- Marshall, C.H.T. (1884).** Notes on the Birds of Chamba, in the N.W. Himalayas. *Ibis* 26(4): 404–425.
- Praveen, J., R. Jayapal & A. Pittie (2020).** Taxonomic updates to the checklists of birds of India, and the South Asian region-2020. *Indian BIRDS* 16(1): 12–19.
- Shah, T.A., V. Ahuja, M. Anandam & C. Srinivasulu (2016).** Avifauna of Chamba District, Himachal Pradesh, India with emphasis on Kalatop-Khajjiar Wildlife Sanctuary and its surroundings. *Journal of Threatened Taxa* 8(1): 8333–8357.
- Singh, A.P. (2011).** Birds of the upper catchment of Ravi River, Chamba District, Himachal Pradesh, India. *Indian BIRDS* 7(4): 97–103.
- Singh, V. & H.S. Banyal (2013).** Avian fauna of Khajjiar Lake, district Chamba, Himachal Pradesh, India. *Proceedings of the Zoological Society* 66(2): 130–136.
- Verma, G. & C. Abhinav (2021).** A Rustic Bunting *Emberiza rustica* in Chamba District, Himachal Pradesh: An addition to the northern Indian avifauna. *Indian BIRDS* 17(3): 80–81.

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Deepak Garg Sharma¹, Virender Kumar Bhardwaj² & Rakeshwar Kapoor³

¹ House No 234, Ward 3, Chamba, District Chamba, Himachal Pradesh 176310, India.

² Department of Zoology, Mizoram University, Aizawl, Mizoram 796004, India.

³ Department of Zoology and Environmental Sciences, Punjabi University, Patiala, Punjab 147002, India.

Email: ³rakeshwarkapoor123@gmail.com (corresponding author)

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Deep dive into ocean education with Global Pathways School

I, Dr. Monta Ray, the mascot of IOCEAN, along with the Zooreach educator team comprising of Payal Molur, Tandrili Baruah, and Swaathi Na made its first official visit to Global Pathways School on 12 July 2023, to conduct an engaging and informative workshop on ocean education for the students. Ms. Sruthi M., the teacher in charge had attended our IOCEAN workshop for educators and decided to invite us for a special workshop with her class 6 students. With a mission to promote ocean education, the workshop aimed to spread more awareness about the ocean and its biodiversity. However, little did we know that an unforgettable adventure was about to unfold.

Students captivated by an array of fascinating ocean specimens.



Immersed in wonder.

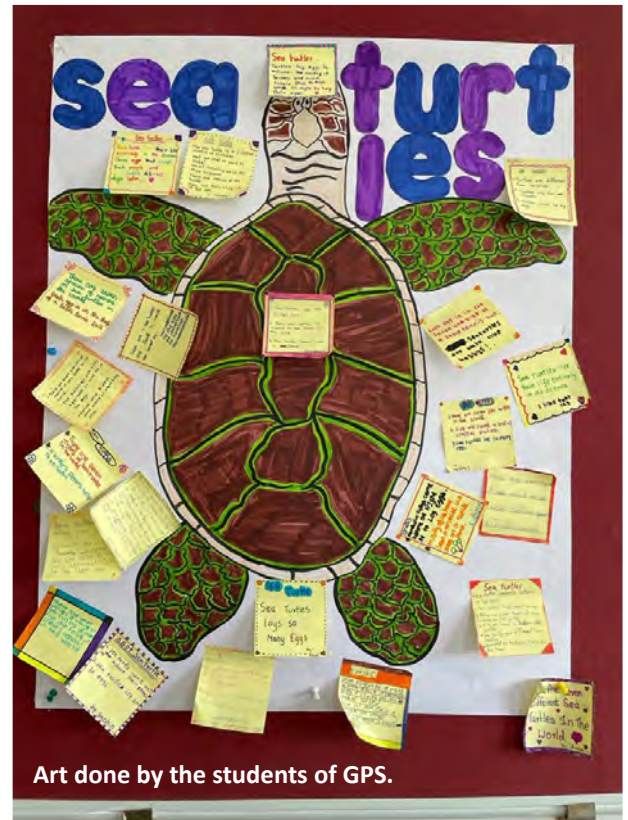


Students taking a vow to protect the ocean.

All fifty students gathered in anticipation in one classroom, their eyes shining with excitement welcomed us with a warm 'good morning'. As the workshop began, Payal introduced me, Dr. Monta Ray, to the kids as they took pledge to be friends with me and communicate whatever they learnt in the workshop to other people.

To kickstart the event, Tandrali gave a presentation to all the kids present in the classroom. She spoke briefly about my home, the ocean, the friends that share the space with me, the interconnectedness between humans and the ocean, the threats we face, and how everyone can work together to make the ocean healthy. The students listened intently; their minds transported to the depths of the ocean. At the end of the presentation, the kids were astonished by the number of species present in the ocean and how much is left to be discovered.

The students were then divided into two groups of twenty-five each. One group of students taken up by Tandrali and Swaathi was introduced to the different marine specimens. They learnt about the different parts of the species, how to differentiate between a male and a female and the vital role



Students sharing their feedback on the workshop leaving their thoughts on sticky notes.

they play in protecting our planet and us. The students marvelled at how tiny the species looked compared to the ones shown in cartoons. They were also amazed to see with their naked eyes the intricate life that existed just beyond their shores.

The second group was given the task of making their own imaginary animal based on the information they had learnt till now by Payal. It was wonderful to see students exploring their creativity and coming up with such imaginative ideas like a jelly fish that had tentacles made of heart, a fish that had the structure of a map and many more. After one hour, the teams were switched allowing them to take part in both the activities.

To encourage continued learning, the team provided students with a wildlife booklet and they urged them to explore further and

6-4
I Learnt more about Bio diversity thank you for teaching me.
I saw crab, shell, sea horses etc... and thank you for showing me the those sea animals. I want to now more about sea animals

D. Aniga

It was intresting to learn about and it and I was willing to see the animals which you all showed next
as I want learn more about sea animals.



Ocean insights with captivating presentation.

embrace their roles as ocean ambassadors. The workshop concluded with feedback from the students and what more they want to learn about the ocean. The students left the workshop filled with a sense of responsibility and a newfound passion for the ocean.

Acknowledgments: I would like to extend my heartfelt gratitude and appreciation to the principal of Global Pathways School, Latha Ma'am and Shruthi M. Ma'am for the trust and belief in our efforts and for their support in conducting the workshop successfully.

Testimonial from Sruthi M, Teacher, Global Pathways School: "IN ONE DROP OF WATER ARE FOUND ALL THE SECRETS OF ALL THE OCEANS" -Kahlil Gibran

It was a good kick start for our students of Grade 6 to know more about ocean biodiversity. We are feeling privileged to thank Ms. Payal and the team who took initiative to sharpen the knowledge of our students in the ocean and its current situation in this era through their engaging presentations, sharing experiences, activities, learning the sea creatures through touch and feel concept. The interesting part of this session from our students' end was, they got an opportunity to see many rare sea specimens which broadened their level of thinking to the next level. As a teacher it's easy for us to collaborate their workshop experience with our academics in teaching science. As one GPS community, we thank the team for keeping up their good work in empowering the student's community on ocean biodiversity which will be a slingshot to tomorrow's future in conserving many ocean species.

Tandrali Baruah, Educator, Zoo Outreach Organisation

Exploring the blue horizon by students of CS Academy

IOCEAN conference-cum-workshop conducted by Zooreach held on 26 May, 2023, gathered passionate educators dedicated to addressing the pressing environmental challenges faced by our ocean. Following the program, CS Academy enthusiastically embraced the cause of ocean conservation, becoming a driving force in implementing monthly ocean-related activities within their school campus. The current month witnessed the students of grades 2 and 3 taking the lead, with the invaluable guidance of their teachers, in conducting a series of engaging activities focused on ocean conservation at CS Academy.

The Grade 3 students showcased their talent and knowledge during their assembly, celebrating Ocean Day. The purpose of the assembly was to raise awareness about the importance of our ocean and the needs to protect them. The students displayed creativity, enthusiasm and a deep understanding making the assembly an educational experience. The assembly hall was beautifully decorated with blue streamers, posters of marine creatures and a banner that read "Ocean Day." The atmosphere was filled with excitement as the students eagerly awaited their turn to showcase their performances.

The students delivered a series of engaging presentations, each focusing on different aspects of the ocean. They began by sharing fascinating facts about the ocean's diverse range

of creatures that inhabit it. The students dressed in costumes representing various marine animals, such as fish, dolphins, jellyfish, and seahorses, sealion capturing the attention and imagination of the audience.

The students highlighted the importance of protecting the ocean through their informative speeches and act. They discussed the harmful effects of plastic pollution on marine life. They also emphasized the significance of saving ocean life.

To captivate the audience further, the students performed a heartfelt song, the song incorporated catchy lyrics and concluded with a synchronized and lively dance move, encouraging everyone to join in and celebrate the beauty and wonders of the sea.

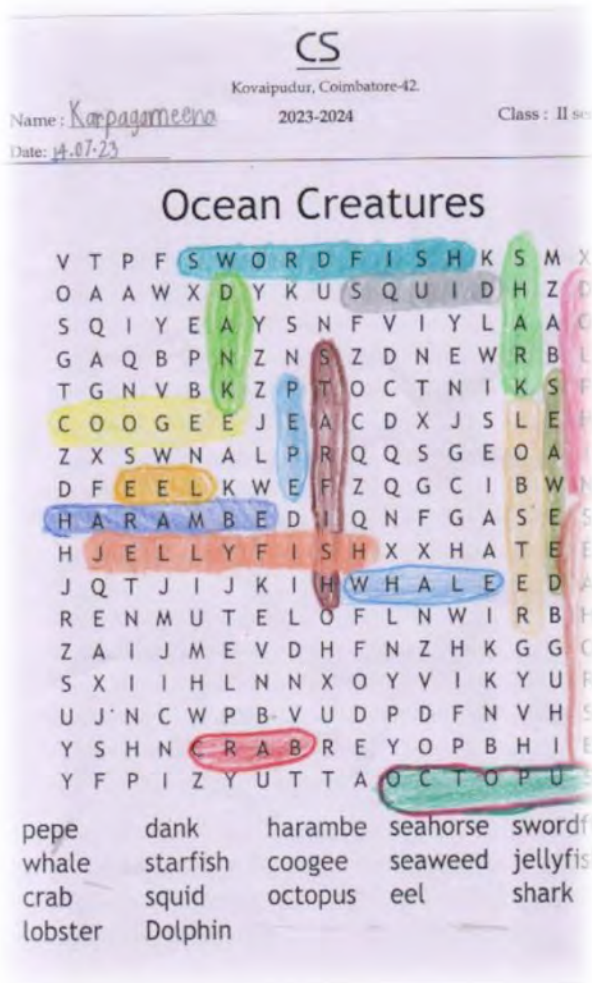
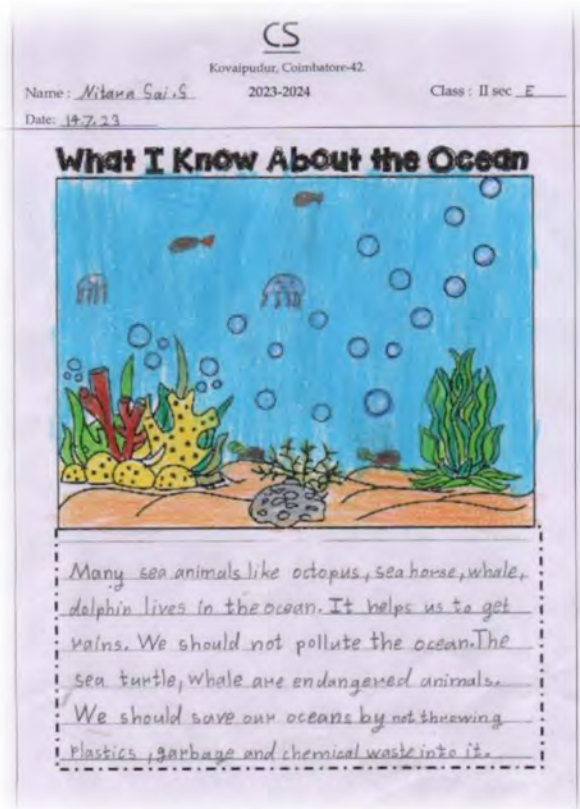
In addition, grade 2 students also engaged in various activities related to the ocean such as completing crosswords about ocean biodiversity along with expanding their knowledge about the ocean through several activities.

As teachers, we are incredibly proud of our grade 2 and 3 A students. We commend the efforts of 3A students for their hard work, creativity and passion displayed throughout the assembly inspite of their time constraints to prepare for the assembly.

Submitted by Level 3 Section A and Level 2 Teachers, CS Academy, 262 VLB Engineering College Road, Kovaipudur, Tamil Nadu 641042, India.



Students highlighting the importance of protecting the ocean through their informative speech



Raising awareness and championing ocean conservation through an act



Students dressed in costumes representing various marine animals.

Making waves for Conservation by students of Global Pathways School

Zooreach launched the marine program 1OCEAN (Ocean Conservation Education Action Network), with a conference-cum-workshop on 26th May 2023. 1OCEAN project focuses on addressing the environmental challenges that ocean currently faces through an integrated approach of research, conservation and education. I, Ms. M. Leelarani, the teacher in charge had attended the 1OCEAN workshop for educators and decided to conduct an awareness program in the school campus for the grade 4 students of the Global Pathways School on the importance of non-renewable resources and the need to save and reduce the usage of

energy. The students had a discussion on the interconnectedness between humans and the ocean and the role they can play to combat climate change.

Learners insisted their peers to follow a few tips to promote energy conservation in and around their surroundings and within their community.

- Turn off lights, electrical and electronic appliances when they are not in use.
- Use energy-efficient LED lights.
- Unplug devices when not in use.
- Generate your own electricity with solar power.



- Use stairs instead of elevators.
- Don't open the refrigerator door again and again.
- Don't waste paper-Let save the trees.
- Use both sides of the paper.
- No water, No life
- Don't waste water, Close the tap after usage.
- Take a short shower.
- Don't waste food, Share the food.
- Get the food whatever you need and finish it off.
- Close the lid, while cooking.
- Use public transport. You can also walk or ride a bicycle to get around over short distances.
- Shut down the engine when not using it.
- Avoid ocean harming products like food wrappers, beverage bottles, straws, bottle caps, single-use bags...

They united and took a pledge to actively engage to protect and save the ocean for the sake of our future survival on this planet. In addition, the students went on a field trip- to Aliyar Dam to learn about water conservation.

To conclude, most students believe without conserving energy, there is no way in which they can survive in the future. A change in their habits can bring about a difference in the world. It can be done by either using the power in lesser quantities. Ocean feeds us, regulates our climate and generates most of the oxygen we breathe. Therefore, it is their duty to protect it.

Submitted by M. Leelarani, Teacher, Global Pathways Matriculation Hr. Sec. School, Chettipalayam, Tamil Nadu. Email: leela1@globalpathwaysschool.org

Artwork done by students to celebrate conservation.



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Type — Articles of semi-scientific or technical nature. News, notes, announcements of interest to conservation community and personal opinion pieces.

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Cartoons, puzzles, crossword and stories

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Editor: Sanjay Molur

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Managing Editors: Latha G. Ravikumar & B. Ravichandran

Editorial Assistant: S. Radhika

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Address

Zoo Outreach Organisation

3A2 Varadharajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India

Phone: +91 9385339862 & 9385339863

E-mail: zooreach@zooreach.org

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