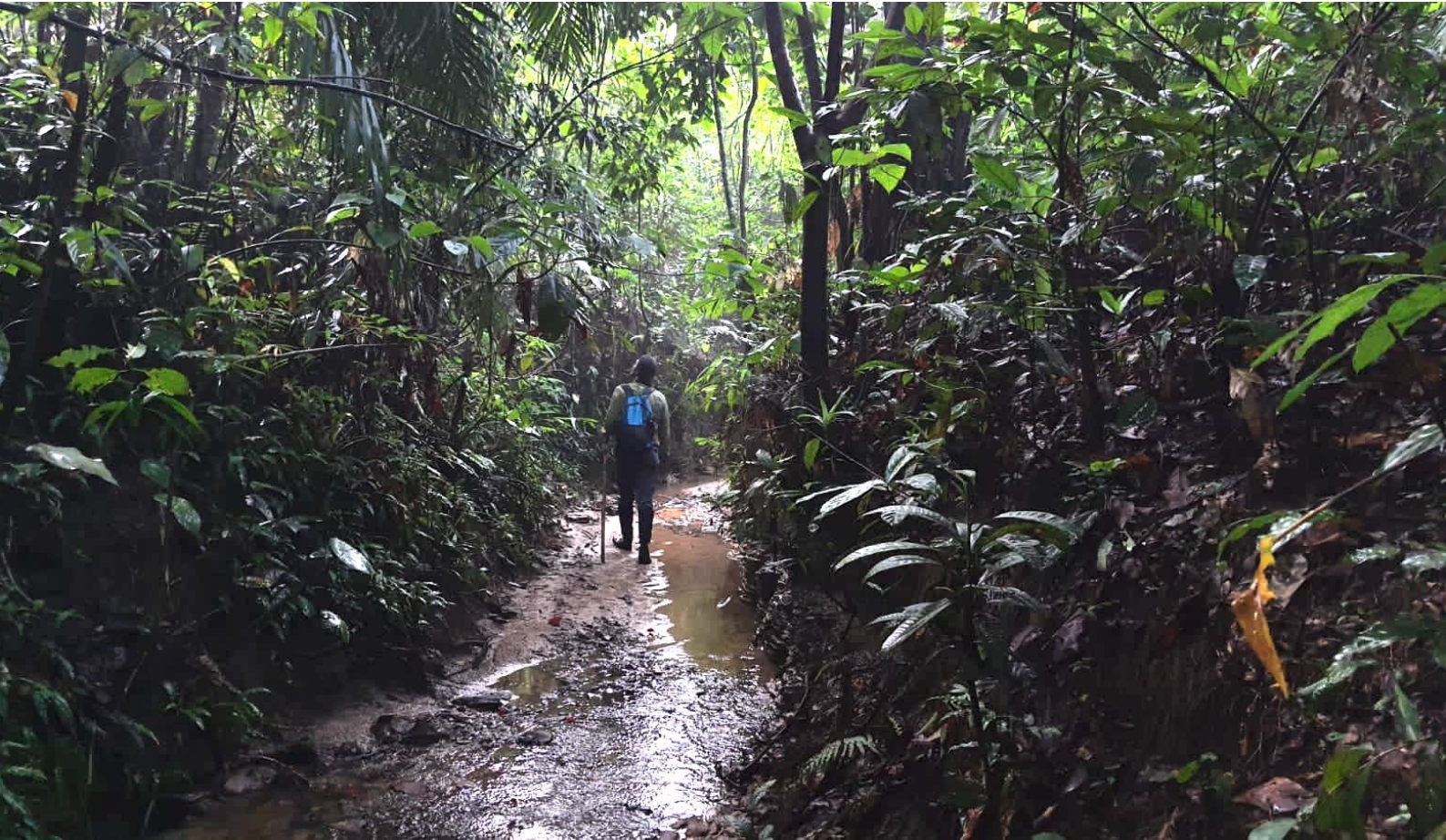


Private forest protected area conservation in Bangladesh

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Submitted by
Mahfuz Ahmed Russel

Pittachhara Forest & Biodiversity Conservation Initiative

Executive summary

Pittachhara, the first private protected area in Bangladesh, was established in 2018 in Matiranga Upazila of Khagrachari District in the Chittogram Hill Tracts. To preserve and restore this pioneering private protected area, a conservation initiative titled "Private Forest Protected Area Conservation in Bangladesh" was undertaken, funded by the Oriental Bird Club (OBC) in summer 2023. Under this project, over 3,000 native seedlings of 38 species were collected and a nursery was developed. More than 2,000 native seedlings were planted in a newly acquired degraded patch. To assess the impact of this intervention, seasonal bird monitoring was conducted in both natural and degraded patches during April, June, September and December. A total of 59 bird species were recorded, with 32% identified as undergrowth-dependent, 24% mid-canopy-dependent, and the remaining 44% as top-canopy-dependent species. Additionally, two local individuals were trained as bird guides to enhance conservation and ecotourism efforts.

Introduction

With the ongoing global biodiversity crisis and widespread environmental degradation, conservation initiatives on privately owned lands are becoming increasingly significant. In Bangladesh, private protected areas (PPA) are a novel concept, and Pittachhara, established in 2018, is one of the first such areas. Located in Matiranga Upazila of Khagrachari District within the Chittagong Hill Tracts, Pittachhara consists of a well-vegetated hill-forest patch with an active hill stream. The area supports approximately 150 species of resident and migratory birds, including the regionally endemic Cachar Bulbul and globally Near Threatened species such as the Red-breasted Parakeet and White-cheeked Partridge. Additionally, it harbours globally Endangered species like the Slow Loris, Vulnerable Pig-tailed Macaque, at least ten other mammal species, and a minimum of 20 species of herpetofauna.

Spanning 5.10 hectares, Pittachhara is situated at the western edge of the Indo-Burma Biodiversity Hotspot and is surrounded by degraded hilly landscapes interspersed with abandoned oil palm plantations. In 2021, an additional 3.65 hectares were acquired, bringing the total conservation area to 8.75 hectares. The primary goal of this initiative is to rewild the newly acquired land by propagating seedlings from the already restored areas and planting them in the newly acquired degraded land. The project, funded by the OBC and conducted from March 2023 to August 2024, also aims to establish facilities for visiting birdwatchers, generating income for both the conservation initiative and the local community. Formally the project objectives were categorised:

1. Collection of indigenous tree species seedling from the area and develop a nursery
2. Plantation and maintenance of plants in the newly purchased land
3. Develop facilities for visiting birdwatcher to generate income to sustain this initiative and support local people/guides

Methods

Collection of seedlings: In 2023, native forest species were collected from the existing natural forest patch, nearby forests and different parts of the country during the monsoon season. A nursery was established in the area and managed in collaboration with local communities.

Plantation: In 2024, during the monsoon season, seedlings from the nursery were planted in the newly acquired degraded patch. Regular maintenance, including weeding and monitoring, was carried out to ensure their survival.

Bird monitoring: Before initiating project activities, a team of volunteer ornithologists visited the site and conducted baseline assessments and established long-term monitoring point-count based transects across both forest patches (the existing forest and the newly acquired degraded patch).

A total of nine point transects were established across both the original forest patch and the rewilding patch. Bird observations were carried out primarily during the early morning and late afternoon in April, June, September and December in 2023, and April and June in 2024. At each transect point, observers recorded all bird species seen or heard during a 10-minute session.

Encounter frequency was defined as the number of times a particular bird species was detected (either visually or acoustically) across all survey sessions, providing an index of relative abundance and detectability within the study area.

Results and discussion

All three objectives were achieved: the first two were fully achieved, while the third was partially fulfilled.

Rewilding efforts: In 2023, 38 native forest species (Table 1, Plate 4), totalling around 3,000 seedlings, were collected from mature patches, nearby forests, and other parts of the country. A nursery was developed (Plate 1) and managed with the involvement of local community. In 2024, during the monsoon season, more than 2,000 surviving seedlings were planted in the newly acquired degraded land. Regular maintenance and monitoring were implemented to

ensure seedling survival. As a result, a significant percentage of the degraded area has now been covered with native vegetation. Continued nurturing and periodic monitoring are essential to ensure long-term restoration success. This initiative should be documented and promoted to encourage further private protected area establishment in Bangladesh.

Table 1: Plant species collected and planted in the Pittachara PPA

| SI | Common Name | Scientific Name | Planted | Survived |
|----|----------------------|---------------------------------|---------|----------|
| 1 | Chinese chaste tree | <i>Vitex Negundo</i> | 30 | 21 |
| 2 | Bombay ebony | <i>Diospyros montana</i> | 30 | 18 |
| 3 | Blood fruit | <i>Haematocarpus validus</i> | 25 | 20 |
| 4 | Indian red pear | <i>Protium serratum</i> | 60 | 45 |
| 5 | Buddha coconut | <i>Pterygota alata</i> | 50 | 43 |
| 6 | Java cedar | <i>Bischofia javanica</i> | 55 | 30 |
| 7 | Civit | <i>Swintonia floribunda</i> | 150 | 93 |
| 8 | Tali | <i>Erythrophleum ivorense</i> | 150 | 111 |
| 9 | Yellow snake tree | <i>Stereospermum tetragonum</i> | 100 | 66 |
| 10 | Devit rattan | <i>Daemonorops jenkinsianus</i> | 105 | 97 |
| 11 | Common Bamboo | <i>Bambusa vulgaris</i> | 100 | 59 |
| 12 | Punal | <i>Alstonia scholaris</i> | 70 | 57 |
| 13 | Golden shower tree | <i>Cassia fistula</i> | 75 | 68 |
| 14 | Lombatasi | <i>Milium longiflora</i> | 100 | 67 |
| 15 | Burma ironwood | <i>Xylia xylocarpa</i> | 80 | 59 |
| 16 | Telsur | <i>Drimycarpus racemosus</i> | 100 | 83 |
| 17 | Giant Bamboo | <i>Dendrocalamus giganteus</i> | 200 | 158 |
| 18 | Climbing rattan palm | <i>Calamus guruba</i> | 150 | 127 |
| 19 | Sil parul | <i>Fernandoa adenophylla</i> | 110 | 67 |
| 20 | Chooa oil tree | <i>Vatica lanceifolia</i> | 75 | 53 |
| 21 | Garjan | <i>Dipterocarpus turbinatus</i> | 100 | 86 |
| 22 | Yellow teak | <i>Haldina cordifolia</i> | 200 | 134 |
| 23 | Oleander podocarp | <i>Podocarpus nerifolias</i> | 50 | 36 |
| 24 | Ceylon ironwood | <i>Mesua ferrea</i> | 50 | 31 |
| 25 | Mauwa | <i>Engelhardtia spicata</i> | 55 | 23 |
| 26 | Star fruit | <i>Averrhoa carambola</i> | 20 | 14 |
| 27 | Neem tree | <i>Azadirachta indica</i> | 150 | 137 |

| | | | | |
|----|----------------------|--------------------------------|-----|----|
| 28 | Flame of the forest | <i>Butea monosperma</i> | 30 | 21 |
| 29 | Red silk-cotton tree | <i>Bombax ceiba</i> | 100 | 71 |
| 30 | Coral tree | <i>Erythrina fusca</i> | 40 | 27 |
| 31 | Indian banyan | <i>Ficus benghalensis</i> | 5 | 5 |
| 32 | White fig | <i>Ficus virens</i> | 50 | 40 |
| 33 | Indian cherry | <i>Flacourtia jangomas</i> | 20 | 13 |
| 34 | Queen's crape myrtle | <i>Lagerstroemia speciosa</i> | 40 | 29 |
| 35 | Indian ash tree | <i>Lannea coromandelica</i> | 50 | 33 |
| 36 | Burflower tree | <i>Neolamarckia cadamba</i> | 50 | 35 |
| 37 | Arjun trees | <i>Terminalia arjuna</i> | 100 | 68 |
| 38 | Black myrobalan | <i>Terminalia chebula Retz</i> | 20 | 13 |

Bird monitoring: Seasonal bird monitoring conducted in April, June, September and December in 2023, and April and June in 2024. During these six visits, a total of 60 bird species were recorded. Among them, 32% were undergrowth-dependent, 24% were mid-canopy-dependent, and 44% were top-canopy-dependent species based on habitat preference. The high encounter frequency (Table 2) of some undergrowth specialists suggests that the undergrowth forest health in the protected area is relatively intact. Continued monitoring will provide further insights into the ecological changes resulting from the rewilding efforts and guide future conservation actions.

Table 2: Bird species encountered during the seasonal bird monitoring in the Pittachara PPA. Encounter frequency indicate number of times a species was recorded across all six visits, separately in the existing natural and restoration patch. Habitat use indicate where a species was detected in the forest complex.

| Species | Scientific name | Encounter frequency | | Habitat use | |
|-----------------------|------------------------------|---------------------|-------------------|---------------|-------------------|
| | | natural patch | restoration patch | natural patch | restoration patch |
| Abbott's Babbler | <i>Malacocincla abbotti</i> | 7 | 0 | Undergrowth | - |
| Asian Barred Owlet | <i>Glaucidium cuculoides</i> | 1 | 0 | Top canopy | - |
| Black Drongo | <i>Dicrurus macrocercus</i> | 3 | 1 | Top canopy | Undergrowth |
| Black-hooded Oriole | <i>Oriolus xanthornus</i> | 6 | 0 | Top canopy | - |
| Black-backed Forktail | <i>Enicurus immaculatus</i> | 1 | 0 | Undergrowth | - |
| Black-crested Bulbul | <i>Rubigula flaviventris</i> | 5 | 0 | Top canopy | - |
| Black-naped Monarch | <i>Hypothymis azurea</i> | 6 | 0 | Mid canopy | - |
| Bronzed Drongo | <i>Dicrurus aeneus</i> | 4 | 0 | Top canopy | - |

| | | | | | |
|------------------------------|----------------------------------|----|---|-------------|-------------|
| Brown-cheeked Fulvetta | <i>Alcippe poiocephala</i> | 1 | 0 | Mid canopy | - |
| Buff-chested Babbler | <i>Cyanoderma rufifrons</i> | 2 | 0 | Undergrowth | - |
| Chestnut-headed Bee-eater | <i>Merops leschenaulti</i> | 5 | 0 | Top canopy | - |
| Chestnut-tailed Starling | <i>Sturnia malabarica</i> | 2 | 0 | Top canopy | - |
| Chestnut-winged Cuckoo | <i>Clamator coromandus</i> | 1 | 0 | Top canopy | - |
| Cinereous Tit | <i>Parus cinereus</i> | 1 | 0 | Top canopy | - |
| Common Iora | <i>Aegithina tiphia</i> | 3 | 0 | Top canopy | - |
| Common Tailorbird | <i>Orthotomus sutorius</i> | 15 | 5 | Undergrowth | Undergrowth |
| Crested Serpent-Eagle | <i>Spilornis cheela</i> | 1 | 0 | Top canopy | - |
| Dark-necked Tailorbird | <i>Orthotomus atrogularis</i> | 6 | 0 | Undergrowth | - |
| Eurasian Kestrel | <i>Falco tinnunculus</i> | 0 | 1 | - | Top canopy |
| Grey-breasted Prinia | <i>Prinia hodgsonii</i> | 1 | 0 | Undergrowth | - |
| Greater Coucal | <i>Centropus sinensis</i> | 0 | 5 | | Undergrowth |
| Green-billed Malkoha | <i>Phaenicophaeus tristis</i> | 1 | 0 | Top canopy | - |
| Green-crowned Warbler | <i>Phylloscopus burkii</i> | 3 | 0 | Undergrowth | - |
| Greenish Warbler | <i>Phylloscopus trochiloides</i> | 1 | 0 | Undergrowth | - |
| Grey Treepie | <i>Dendrocitta formosae</i> | 2 | 1 | Top canopy | Undergrowth |
| Grey-throated Babbler | <i>Stachyris nigriceps</i> | 1 | 0 | Mid canopy | - |
| Hair-crested Drongo | <i>Dicrurus hottentottus</i> | 2 | 0 | Top canopy | - |
| Hooded Pitta | <i>Pitta sordida</i> | 5 | 0 | Undergrowth | - |
| Indian Pied Starling | <i>Gracupica contra</i> | 1 | 0 | Mid canopy | - |
| Jungle Myna | <i>Acridotheres fuscus</i> | 1 | 0 | Mid canopy | - |
| Kalij Pheasant | <i>Lophura leucomelanos</i> | 1 | 0 | Undergrowth | - |
| Lineated Barbet | <i>Psilopogon lineatus</i> | 1 | 0 | Top canopy | - |
| Little Spiderhunter | <i>Arachnothera longirostra</i> | 7 | 0 | Mid canopy | - |
| Long-tailed Shrike | <i>Lanius schach</i> | 0 | 1 | - | Undergrowth |
| Nepal Fulvetta | <i>Alcippe nipalensis</i> | 2 | 0 | Mid canopy | - |
| Oriental Magpie Robin | <i>Copsychus saularis</i> | 2 | 0 | Mid canopy | - |
| Oriental Turtle Dove | <i>Streptopelia orientalis</i> | 1 | 0 | Top canopy | - |
| Pale-chinned Blue Flycatcher | <i>Cyornis poliogenys</i> | 3 | 0 | Mid canopy | - |
| Paradise Flycatcher | <i>Terpsiphone</i> | 2 | 0 | Mid canopy | - |
| Pied Bushchat | <i>Saxicola caprata</i> | 1 | 0 | Undergrowth | - |
| Pin-striped Tit-Babbler | <i>Mixornis gularis</i> | 13 | 0 | Undergrowth | - |
| Puff-throated Babbler | <i>Pellorneum ruficeps</i> | 6 | 1 | Undergrowth | Undergrowth |
| Red Junglefowl | <i>Gallus gallus</i> | 14 | 1 | Undergrowth | Undergrowth |
| Red-breasted Parakeet | <i>Psittacula alexandri</i> | 1 | 0 | Top canopy | - |
| Red-headed Trogon | <i>Harpactes erythrocephalus</i> | 3 | 0 | Top canopy | - |
| Red-vented Bulbul | <i>Pycnonotus cafer</i> | 10 | 4 | Top canopy | Mid canopy |

| | | | | | |
|-----------------------------|--------------------------------|----|---|-------------|-------------|
| Red-wattled Lapwing | <i>Vanellus indicus</i> | 0 | 1 | - | ? |
| Red-whiskered Bulbul | <i>Pycnonotus jocosus</i> | 11 | 9 | Top canopy | Mid canopy |
| Ruby-cheeked Sunbird | <i>Chalcoparia singalensis</i> | 1 | 0 | Top canopy | - |
| Rufous Treepie | <i>Dendrocitta vagabunda</i> | 1 | 0 | Top canopy | - |
| Spotted Dove | <i>Spilopelia chinensis</i> | 2 | 0 | Top canopy | - |
| Square-tailed Drongo Cuckoo | <i>Surniculus lugubris</i> | 3 | 0 | Top canopy | - |
| Striated Yuhina | <i>Staphida castaniceps</i> | 1 | 0 | Undergrowth | - |
| Taiga Flycatcher | <i>Ficedula albicilla</i> | 1 | 0 | Mid canopy | - |
| White-rumped Munia | <i>Lonchura striata</i> | 1 | 0 | Undergrowth | - |
| White-rumped Shama | <i>Copsychus malabaricus</i> | 12 | 4 | Undergrowth | Undergrowth |
| White-throated Bulbul | <i>Alophoixus flaveolus</i> | 14 | 5 | Top canopy | Mid canopy |
| White-throated Kingfisher | <i>Halcyon smyrnensis</i> | 3 | 0 | Top canopy | - |
| Yellow-browed Warbler | <i>Phylloscopus inornatus</i> | 2 | 0 | Undergrowth | - |
| Yellow-vented Flowerpecker | <i>Pachyglossa chrysorrhea</i> | 1 | 0 | Top canopy | - |

Develop facilities for visiting birdwatcher to generate income: To achieve this objective a bird hide has been built (Plate 3). For some logistical issues the income generation has not yet been successful. We are working to solve the issues and hopefully soon we will be able to generate the income.

Project photos:

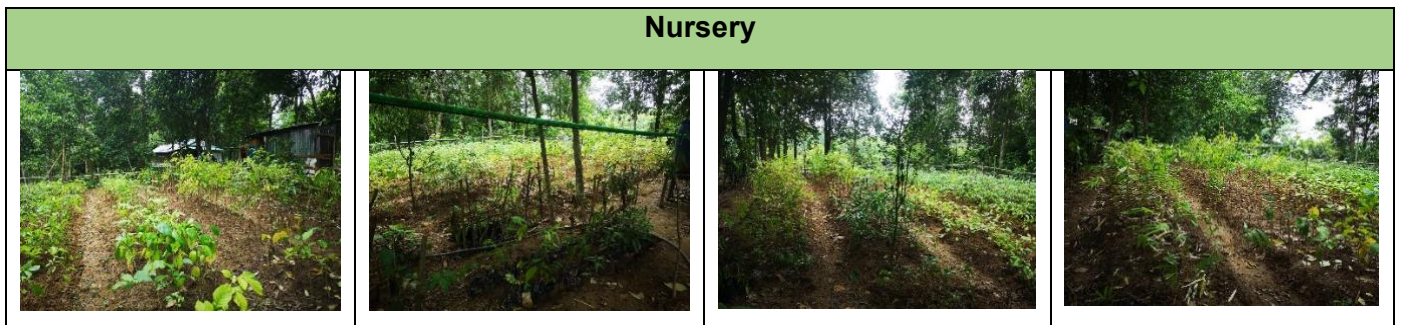


Plate 1: A nursey of indigenous plants has been developed in Pittachara PPA

| Images from before plantation and forest growth after plantation | |
|---|--|
| Before plantation – October 2022 | After plantation – April 2025 |
|  |  |
|  |  |



Plate 2: Images of plantation in the newly purchased land in Pittachara PPA





Plate 3: Images of bird hide, built in the Pittachara PPA



Plate 4: Images of some planted indigenous seedlings in the Pittachara PPA.