

Ecological study on plants and Birds of Jhilly Pakhiralaya in Jhargram District of West Bengal in India

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Abstract

In ecosystem, every element is important because both the components play a crucial role to improve the ecosystem processes. Plants and animals are therefore living components which are useful to run the process in combination with other non-living components. Like plants and microbes birds are very important component in living system because they help us in various ways to establish good vegetation. Therefore to establish, flourish and gradual change of any vegetation in connection with succession, role of birds is unpredictable. Plants and birds are a centre of attraction of tourists, students and researchers. Including plants and animals, all the mighty creatures have a great role in an ecosystem. Apart from the above one, birds are important from specific point of view because they help us to delimitate our monotony. They do various activities from dawn to dusk for their own. Jhilly Pakhiralaya is therefore a destiny of plants and birds but not only in park but other nearby forest too. All citizens have a good role to protect birds and their vicinity environment in various ways in which we can see them and record their behaviour which they perform from morning to evening nay dawn to dusk. The roosting, nesting, feeding, drinking, bathing, splashing in water, dusting, anting, sun bathing and oiling round the day make vivid activity acting by various birds. These are some social behaviour of birds. Some birds visit park, on surface soils, over the bushes and canopy of trees with other birds round the day but collection of the food from different habitats are specific for one kind of birds. Some birds migrate from a place to another place mainly during winter. Aquatic birds are such kind that uses the jhill and surrounding environments that is filled with many water plants. The trophic level and structure in the ecosystem differs from a group to other due to the varied characters and versatile collection

pattern of materials for food to nest. Some birds stay at buildings but others stay at trees and holes with flocks in the Jhilly surroundings. A large number of migratory birds visit during winter and in summer where they found singly or in flocks. Good example is yellow footed green pigeon and lesser whistling duck. In this article, a general discussion on plants and birds of Jhilly Pakhiralaya has been presented. This paper may be a helpful guide to everybody for protecting birds in their surroundings. We can help them through this idea and can make a peaceful environment for the protection of avifauna of local kind along with vegetation.

Jhilly is a park situated in Jhargram district of West Bengal. This garden has many plants, fruiting trees and big trees. Outside the park wild forest trees, shrubs, herbs and many woody climbers are available. Flowers and fruits of these plants provide food for birds and many wild animals. There is also a big water body which provides a place for the water birds and migratory birds to drink water, bath in water and splash in water, mostly during summer. So many birds visit the place and use the marshy bodies for their breeding and feeding purpose. Not only birds some other animals such as monkeys, squirrels, lizards, rats, snails, snakes and monitor lizards also visit this place. The monkeys mostly visit the garden when there are lots of green wood apple and mango in trees. The seven sisters (*Turdoides striata*) feast upon the mango inflorescence and tamarind flowers which attract insects. The red-vented and red whiskered bulbul (*Pycnonotus cafer* and *P. jocosus*) eat the thrown apple peels, and fruit peels such as guava, pear, etc. thrown by visitors. Some other birds such as spotted munia and tricoloured munia feed upon the small berries of *Lantana* and some seeds of grasses. The trees also provide a place for birds to rest and

roost during hot summer. During the summer the weather is hot and dry and some of the trees of the woodland are shady and cool so, the birds rest or roost there. Such as Asian Koel, and Pied Starling rest on the mango and *Terminalia chebula* tree and eat the fruits. Some birds carry nesting materials from the woodland even from the jhill premises in the park. These are like small sticks, dried leaves and sticks, small leaves etc. Rock pigeon (*Columba livia*) picks sticks from my gardens and build a nest on the corner of the roof the view points, small buildings etc. in the park which can be seen from the gate of the Jhilly. The barn owl (*Tyto alba*) comes during evening and eats some rats and drinks water and baths in water and goes. Many birds visit the park and jhill round the year. Some of the birds are Jungle babbler, Red-vented bulbul, Rock pigeon, Spotted munia, Red whiskered bulbul, Spotted dove, Eurasian collared dove, Tailor bird, Lesser goldenback, Black-naped oriole, Black- hooded oriole, Indian golden oriole, Raven, House crow, Sparrow, Asian koel, Rose ringed parakeet, Coppersmith barbet, Brown-headed barbet, Blue throated barbet, Oriental magpie robin, Purple sunbird, White wagtail, yellow wagtail, purple-rumped

sunbird, barn owl etc. Water birds like lesser whistling duck, little cormorant, little egret, great egret, grey headed lapwing, yellow-wattled lapwing, little grebe, white throated kingfisher, common kingfisher, pied kingfisher, Indian pond heron, bronze winged jacana, white breasted waterhen, common sandpiper, purple moorhen etc. So, the jhill site is interesting as biodiversity rich environment that may be a centre of attraction for researchers and students for near future. Remembering this theme in mind the present study has been taken into account.

Area under study including Microclimax:

The area was Jhilly Pakhiralaya, which is in Jhargram district of West Bengal. It is under Gopiballavpur I Panchyat Samiti (Fig. 1, 2). It is situated approximately 59 km from Jhargram Railway station and 189 km from Kolkata, state capital of West bengal. It is a nice place which filled with good number of trees like *Mangifera indica*, *Bombax ceiba*, *Polyalthia longifolia*, *Anthocephallus cadamba*, *Nyctanthes arbor-tristis*, *Sapindus trifoliatus*, *Saraca asoca*, *Murraya koeignii*, *Muraya exotica*, *Psidium guajava*, *Trema orientalis*, *Tamarindus indica*, *Annona squamosa* and many more. Herbs and shrubs found in a large number in the ground as well as in nearby natural forest dominated by sal (*Shorea robusta*). The important plants planted here are *Ichnocarpus frutescens*, *Asparagus racemosus*, *Aristolochia indica*, *Sterculia foetida*, *Mimusops elengi*, *Lagerstroeimia indica*, *Casuarina equisetifolia*, *Tterminalia chebula* including various types of *Croton* and *Dracaena*. Beautiful

bushy plants found here along with *Hibiscus*, *Thuja*, *Tabernaemontana*, *Cascabela*, *Allamanda* etc. which encourage a large number of birds and butterflies due to a gentle slope with a big jhill filled with different aquatics. As a whole the study area was a beautiful landscape to boost and attract a large number of birds.

Jhilly Pakhiralaya area occupies in a small piece of land in the territory but for general consideration but outside it a large water bodies and surrounding forest have been found. In the present study nearby bushy trees and shrubs along with high canals, jhills and other vegetation which were seen from the centre of the watch tower of the park. As a whole 1 km radius of a circle was taken into consideration for the entire study. Canon Powershot A1200 HD camera and binocular 30 x 60 were used. To record the sound and bird call Swipe tab recorder was used. Morning time from dawn to dusk was used since 2016 to 2020 in a regular basis based on the three times per annum. Sometimes in holidays a whole day round the clock was used to record the roosting nesting, sitting on ground even flying were recorded for each species. Some standard literature was used including listed literature used here¹⁻⁷. 2nd semester UG students were involved from Lalgarh Govt. College time to time to monitor during winter for migratory bird study. Some fruits, husk of coconut, ripe but semi rotten fruits were placed in forest road to attract birds during study. At the same time we used line transect to record the wild species. *Lantana*, *Odina* and *Asparagus* plants were studied separately as these were source of fruits for birds.

So, we have taken the study material for birds from our area to record the list of birds in our Jhilly territory including study of some social behaviour. The present study includes some birds attracted in the wetland as well as in woodland. These are red vented bulbul, red whiskered bulbul, jungle myna, bank myna, common myna, Asian koel, brainfever bird, brown shrike, Indian roller, common kingfisher, white breasted water hen, scaly breasted munia, tri coloured munia, black throated munia, black drongo, house crow, northern raven, spotted owl, barn owl, coppersmith barbet, blue throated barbet, brown headed barbet, fulvous breasted woodpecker, lesser goldenback, Indian pond heron, black crowned night heron, black-hooded oriole, black-naped oriole, Asian paradise flycatcher, common sandpiper, intermediate egret, yellow footed green pigeon, white breasted kingfisher, stork billed kingfisher, oriental magpie robin, jungle babbler, Asian pied starling, chestnut tailed starling, common hoopoe, great cormorant, little cormorant, rufous treepie, oriental darter, purple sunbird, house sparrow, Eurasian collared dove, night heron, spotted dove, laughing dove, rock pigeon, paddy field pipit, ashy headed sparrow lark, common chiffchaff, greater coucal and green bee-eater. Some birds listed here are nocturnal like barn owl and spotted owl. The spotted owl and night heron are nocturnal but are also seen during day time. Only these two nocturnal birds are observed by me in the Jhilly study area. May be more are there, so need regular observation. Other birds are diurnal but sometimes the greater and lesser coucals are seen in night times. The green bee eaters also stay here till 6: 30 p.m. during late monsoon. This is the highest time the bee eaters

stay. Black drongos catches insects during night in presence of street light because insects are attracted towards the light. So the drongos sit near the light on the electric poles and on electric wires. In the early morning we have seen spotted owlets on banyan tree but they fly freely from one big tree to another mango tree even observed in nearby santal village. Bushy bamboos attract rodents and also for owls. Crows follow the spotted owlets in that time. As per the observation we have collected behaviours of some birds. These are given below:

Yellow footed green pigeon appear in large flocks in a whole tamarind tree found nearby. They will feed on the fruits till evening, and then they will go to residence which is on other trees. Next day at early morning when no people come to the area for jogging they will start feeding on the fruits. They do this because they are afraid of people, and when the people start coming to that area they hide and feed on the fruits. They will not stay in a tree after its fruits are over. They will go to other trees nearby after seeing the fruits on those nearby trees. After the whole area's tree's fruits are over they will go to another area. This means that they go to another area searching for food. In a whole week they will finish a whole tree's fruits. In our station, a very large tamarind tree appears with many fruits on it, but I observed no yellow footed green pigeon is there. This is because they are afraid of people.

White breasted water hen nests on *mahul* tree (*Madhuca longifolia*) on its forks. It gives four eggs. There is no father only a mother means a female white breasted

Photo Plate



Fig. 1 Entry point of Jhilly at Jhargram District



Fig. 4. *Nymphoides* in wetland of Jhilli



Fig. 2 Students during study inside Jhilly park in the Year, 2020 before Pandemic



Fig. 5. Sal dominated Forest near by the Lake



Fig. 3. Flock of lesser whistling duck in Jhilly Lake

water hen gives the eggs and took care of the chicks. But in case of other birds, the male also takes care of the chicks but in the water hen's case. In this case only there is a mother which takes care of the babies. I could not see the new born babies but after some days the babies started walking. They look like small black fluffy cotton balls when seen from far away, but they really were very small. When the mother went to nearby marshy pond to gather food for the babies, the babies did not walked after the mother instead of that the

freely walked everywhere and got lost, but anyhow the mother would gather the babies and take them to the nest again. Once there was a heavy rain in that area and the drains were flooded, one of the babies was walking near the drain, I thought that the mother would again take the baby back to the nest but the mother did not do that, so the baby fell into the drain and was also flooded along with the water. After some weeks when the babies grew, they and their mother left the nest and went somewhere that was out of my knowledge. Then after some days the nest was broken somehow and the tree was cut. But after some days I saw them roaming and staying in a nearby bamboo thicket. Spotted dove roosts on big woody trees like mango, margosa, peepal, banyan etc. in noon and afternoon. When other doves like Eurasian collared dove sits on the same tree where the spotted dove is roosting the spotted dove allows it to sit on the same tree, but when other birds like green bee-eaters sit on the same tree the spotted dove did not allows it to sit on the same tree instead it fights with it and sends it away from the tree. When it roosts it calls differently, after its calling is finished another spotted dove from somewhere comes there and sits there for some times and again flies somewhere else. But when another spotted dove sits on the tree the spotted dove which was already sitting on the same tree did not fights with it. When the sun sets the spotted dove which was sitting on the tree flies away and another bird comes and sits in its place. Wagtails such as white wagtail, yellow wagtail and citrine wagtail bath in small water body sides in the evening. There we saw 5 grey headed lapwings searching foods from dense marshy vegetation. We observed a few flocks of lesser whistling ducks

(Fig. 3). They do the food searching work within colourful *Nymphaea* and *Nymphoides* (Fig. 4) in Jhill this after the whole day passes; they do this to clean themselves after a whole day's work. They come to small water bodies in a flock of ten to twelve. They bath, roam and search food to eat, and stay there for a little while and go their nests. They wash their feathers and their body. First they come and eat and then bath, they do this because if first they clean themselves and then roam around to search food to eat, the sand dust will again make them dirty, so they eat first and then bath. Little grebes found farthest corner of the Jhill where other birds were not found. But near to jungle (Fig. 5) and margin of Jhill we observed mant bronze winged Jacana. If any animal such as dog come there to drink water, the jacanas and wagtails will fly away from there because they are afraid. Green bee-eaters come to an area filled with sand and small pebbles in a large flock. There are 40 to 50 in a flock. They then will sit in a row there and dust for a long time; they also sometimes fight, play and do many things that are out of my knowledge. If any person or any animals come there they will fly and sit in a row on the electric wire and when the animal goes, they will again come and dust. Many Asian palm swift were observed in the sky above the blue Jhill water which also attracts people. A gentle sound of lesser whistling duck and cormorants make the area beautiful and the natural beauty was recorded by us forever through our brain not through computer. Landscape of such undiscovered virgin makes the people more romantic but time is limited so we returned our place with some memories. As a whole the Jhill is undiscovered for us.

Every house should have a garden with big trees, fruiting trees, shrubs, bushes with berries and a jhill like water bodies such as fountain or small reservoir of water. If this thing is done in every house the birds will visit and have no deficiency of water and food. The site will be beautiful and the ecosystem will have a beautiful and good scenario. We can make our area like Jhill Pakhiralaya with beautiful plants and animals. Need plan for planting more and more trees, flowering plants, fruiting plants not only for us but other creatures. If we plant flowering plants the butterflies will visit our area, if we plant fruiting plants the birds and other animals will visit our sites. If we keep a water source in our natural sites or manmade area many animals will visit it and drink water, bath in water and they will have no deficiency of water during the hot summer. We have to keep this thing in every house and save the birds and the animals. We have to save them because they protect our environment, nay ecosystem also. Plants get ready to onset the ground after ready dispersal of seeds through birds. During germination seedling are being affected by a large number of microbial organisms which grow and help to grow plants in various ways. Therefore, to keep the environment vegetation rich by the help of birds we need special protection for those creatures. They also provide birds who help pollination, scavenging activities and good indicators of various ecosystems. The small birds are the prey of some predators like raptors, vultures etc. as a ready source of nutrient which is not only for our water bodies, forests, wastelands but applicable in case of large woodland ecosystem also. Dawn to dusk the birds give us melodious songs by chirping near our habitats that refreshes our minds.

Birds are also natural time indicators. Such as the birds chirp when it is morning, they chirp when it is evening. When it is eclipse of the sun the birds think that it is evening so they chirp. So, we can identify the time by hearing there calls. Birds are helpful to us and the ecosystem in many ways so we should be also helpful to them by providing them food, water and safe place to live. Everybody should make an environment eco-friendly in their premises so that it will protect environment. Not only that the premises would be a lovely area for bats and other nocturnal birds that have the characteristic features to visit the areas. Hope that this paper would transfer knowledge based interest to all citizens to make a sound environment for biodiversity conservation where trophic levels might be a proper blanket to cover all the organisms under a single umbrella. This means go and start your study now in your area to know meaningful strategies for better understanding by gathering sound knowledge on ecosystem and environment.

Conflict of interest:

Conflict of interest is none.

I am thankful to the Director, BNHS, Mumbai. I am also thankful to the Director, Rishi Vally Foundation, Andhra Pradesh. I convey my thanks to my beloved Sir of CEC, BNHS, Dr. Raju Kasambe, Sri Nandkishore S. Dudhe, for encouragement to make a research article on common birds. Thanks to local interested people for their help. Lastly I thank to officers and staff members of Jhill development authority. Officer-in-Charge, Lalgah Govt. College is highly acknowledged. Special thanks to Atmaja Avirupa Das for her readymade identification of birds on Jhill area.

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