



## New records of forest birds in North and South Bank Landscapes of Assam, India

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### ABSTRACT

Survey of avian fauna has been carried out in South and North bank landscapes of Brahmaputra Valley of Assam from 1999 through 2014 and recorded seven new species altogether. Those were such as Common Starling-*Sturnus vulgaris poltaratskyi*, Yellow-wattled Lapwing-*Vanellus malabaricus*, Wall Creeper-*Tichodroma muraria nepalensis*, Black-breasted thrush-*Turdus dissimilis dissimilis*, White throated-Flycatcher-*Rhipidura albicollis albicollis* and Sultan Tit-*Melanochlora sultanea sultanea* and Lord derby's Parakeet-*Psittacula derbyana*. Those species were either non recorded or left undocumented from the state of Assam or may be due to new range extension of the species owing to climate change. It was an important finding of the forest bird species within north and south bank landscapes of the study area. The present findings were a part of detailed investigations of avian fauna and accidental records when visited the places.

**Key Words:** North and South bank landscape, Brahmaputra valley, new records, forest birds.

### INTRODUCTION

The major contributions to the avifaunal assemblages of Assam were made by several British Ornithologists (Hume, 1877, 1880, 1888; Inglis, 1896-1901; Baker, 1894-1901, 1913; Betts, 1947, 1956; Coltart, 1902; Stevens, 1914-1915; Koelz, 1925; Parson, 1939; Lightfoot, 1940) in long past. However, these studies were confined to few localities of Assam and covered only the taxonomic list of species. However, during recent years, few regional studies such as Saikia and Bhattacharjee (1987, 1990a, 1990b, c, d, 1991, 1993, 1996), Gogoi and Bhattacharjee (1992), Bora and Bhattacharjee (1985), Raj *et al.* (1992), Chaudhury

(1990, 1991), Deka *et al.* (1996), Das and Saikia (2012a, b), Devi and Saikia (2012a, b, c), Uppadhya and Saikia (2011a, b), Saikia (1995, 1998, 2000), Green (1993), Saikia and Kakati (1999) etc. have done few works on the diversity, distribution and ecology of birds in Assam. But, it is not covered all the ecological pockets of the region to uncover all the species.

Very little information is available about the overall bird status, distribution and habitat of candidate threatened and endemic species in various ecological areas of the state and almost no information regarding the critical analysis of the effects of bird's species on the recent habitat degradation. Apart from that, certain species have although distributed for long time but no such

informations are documented. This type of information is urgently been required to conserve the species in their specific habitats for our future generations. Thus, the present study has investigated to find out such types of species in various localities of Assam and documented for ready references. The study information are of some previously undocumented avian species in Assam but documented for other areas were also have been documented here in the present paper.

## STUDY AREA

### Manas National park

The investigations were carried out in the Core area of Manas Biosphere Reserve (MBR) in the state of Assam in Northeast India, located within the latitude of 25°45'- 26°50' N and Longitude 90° 30' – 91° 26' E, situated in the north bank of river Brahmaputra and about 200 km north of Guwahati City. The northern boundary of MBR is the common international boundary of the Bhutan Himalayas. The study area of MBR is a foothill of lower Himalayas and undulating in the northern boundary and then gradually merging into low lying flat plain on the southern side. The Manas river is the largest Himalayan tributary of the river Brahmaputra flowing from the north-Eastern to western boundary of the present study area. Tropical moist deciduous, tropical semi-evergreen and wet alluvial grasslands characterize the vegetation of MBR. The invasive trees on the alluvial grassland habitat have formed the characteristic tropical scattered forest of MBR. The climate of MBR is moist tropical with average annual rainfall between 300-400 mm. The major rainy season is from May to September. It rains often even in March, April and October, but rarely in February and November. The winter months of January and December are comparatively dry. January is the coldest month when the minimum temperature often drops to 5°C and the maximum stays between 19°C to 25°C. The summer from May to September that is also the rainy season, when the maximum temperature.

### Nameri National Park

The study was carried out in the Nameri National Park, situated 40 km away from the town of Tezpur within the district of Sonitpur, Assam (27°35'-26°50' N latitude and 92° 39'- 93° 0' E longitude) with an area of 200 km<sup>2</sup>. The Pakhui Sanctuary of Arunachal Pradesh adjoins the study area on its northeastern point. The study area is a narrow strip lying between Kameng district of Arunachal Pradesh and river Brahmaputra, covered mostly by a tropical semi-evergreen forest patches. It is a part of Naduar reserve forest; the oldest reserve forest of Assam, which was constituted way back in 1878 (Das, 1998). The topography of the study area characterized by undulating terrains and

plains with a variation of altitude from 90-210m msl. During 1998, 200 km<sup>2</sup> of the study area has been declared as a National Park to protect the age-old habitat.

The detailed habitat characteristic of Nameri National Park was studied by Saikia and Kakati (1999) and the forest is mainly moist mixed semi-evergreen forest. The climate of study area could be characterized by high humidity and copious rain. The season can be classified into pre-monsoon (March –May), monsoon (June-Sep.), re-treating monsoon (Oct. & Nov.) and winter (Dec.-Feb.). Average annual rainfall in the study area from 1971-1998 is 2,141mm (data were collected from the Environmental Science Department, Gauhati University, Assam, India). More than 70% annual rainfall is received in the study area from May to September. The overall temperature variation between summer and winter is 36°C (sunny days of July-August) to 11°C (December and January).

### Holongapara-Gibbon WLS

The Hollongapara Gibbon Wildlife Sanctuary, formerly known as Gibbon Wildlife Sanctuary or Hollongapara Reserve forest is an isolated protected area of evergreen forests patches located in eastern Assam, India. It lies between 26°40'-26°45' N latitude and 94°20'-94°25' E longitude with a height of 100-120 msl near Mariani, Jorhat district, Assam (Ghosh, 2007). Set aside initially in 1881, its forests used to extend to the foothills of the Patkai hill range. Since then, the forests has been fragmented and surrounded by tea gardens and small villages. The Bhoogdoi River creates a waterlogged area dominated by semi aquatic plants along the border of the sanctuary, helping to create three distinct habitat zones or micro-ecosystems such as the up-slope zone, the down-slope zone and the flood-prone zone. The sanctuary remains fragmented into five distinct segments with a total area of 20.98 km<sup>2</sup>. In the early 20th century, artificial regeneration was used to developed well-stocked forest, resulting in the sites rich biodiversity. The upper canopy of the forest is dominated by the Hollong tree (*Dipterocarpus macrocarpus*), while the Nahor (*Mesua ferrea*) dominates the middle canopy. The lower canopy consists of evergreen shrubs and herbs. The sanctuary has a rich biodiversity and the potential home for the only apes of India, the Western Hoolock Gibbon (*Hoolock hoolock*) as well as the rare Bengal Slow Loris (*Nycticebus bengalensis*). Other important primate includes the Stump-tailed Macaque (*Macaca arctoides*), Northern Pigtailed Macaque (*Macaca leonina*), Eastern Assamese Macaque (*Macaca a. assamensis*), Rhesus Macaque (*Macaca mulatta*) and Capped langur (*Trachypithecus pileatus*). At least 219 species of birds and various types of snakes are known to harbours in the sanctuary (Devi and Saikia, 2010).

The climatic condition of the study area could be divided into four seasons viz., pre-monsoon, monsoon, retreating monsoon and winter. Pre-monsoon season prevails from March-April, monsoon from May to September, retreating monsoon from October to November and winter season from December to February. Average temperature ranges from 18.95°C - 27.9°C and average humidity ranges between 64.5% and 94.5%. It receives 249 cm (98 in) of rainfall on average per year.

#### **Jeypore RF and part of Dihing Patkai WLS**

Jeypore Reserve Forest and part of Dihing Patkai WLS is located at Dibrugarh District of Upper Assam which falls between 27°06'– 27°16'N and 95°21'–95°29'E. The total area of the study is 108 km<sup>2</sup>. The terrain of the area varies with slightly undulating plains to hills which are the foothills of the Patkai Range. The Reserve Forest is continuous with the forests of Arunachal Pradesh. Burhi-Dihing and the Dilli rivers form a part of the boundary of the study area. Many small perennial streams and nullahs also flow within the forest. Swamps and grassland patches also occur inside the forest. The habitat is tropical rainforest, Champion & Seth (1968) described it as “Assam Valley Tropical Wet Evergreen Forest” also called the upper Assam *Dipterocarpus – Mesua* forest. The forest is characterized by a top canopy dominated by *Dipterocarpus macrocarpus* reaching heights of 50m, a middle canopy dominated by *Mesua ferrea* and *Vatica lanceaefolia* and undergrowth consisting of woody shrubs such as *Saprosma ternatum*, *Livistonia jenkinsiana* and canes *Calamus erectus*, etc., (Kakati, 2004). Bamboo species such as *Dendrocalamus hamiltonii*, *Pseudostachyum polymorphum* and climbers such as *Derris oblonga* are common. The major fauna of the reserve include large mammals such as Elephant- *Elephas maximus*, Barking Deer- *Muntiacus muntjak*, Bengal Tiger *Panthera tigris*, Leopard *Panthera pardus*, Clouded Leopard *Neofelis nebulosa*, Wild Boar -*Sus scrofa*, etc. Primates such as Hoolock Gibbon *Hoolock hoolock*, Capped Langur *Trachypithecus pileatus* and Rhesus Macaque *Macaca mulatta* are also found in the reserve. Rock Python *Python molurus* and Banded Krait *Bungarus fasciatus* are some notable reptilian species. Besides these major faunas the reserve also harbours a large diversity of butterflies and arachnid species. Although the forest is located in a matrix of tea plantations, settled agriculture and rural settlements, the degree of disturbance is much less compared to other protected areas of the state. The peripheral areas of the forest are encroached by the local people for tea plantations but the core area of the forest is intact and without any disturbance.

#### **Chandubi Reserve forest**

Study has been carried out in Chandubi Tropical Forest during 2009-2012 (Coordinates: 26° 50'-26°55'N and 91°20'-91°30'; altitude: 40-200m MSL) with covering an area of 166 km<sup>2</sup> in Kamrup District, Assam, India. It is basically located in the hilly terrain covering a small-extended plain in the down slopes of the hills. The hills are actually continuation in the form of spurs of Khasi Hill ranges of Eastern Himalayan biodiversity hotspot. The habitat is an undulating hilly terrain, the forests are located in alluvial tarries and undulating terrain and these are cut up by numerous narrow water channels and streams. The study area has unique geologic and physiographic make up of the state and is composed of special habitat mosaic. The Meghalaya hill ranges on the North-west and North-east, and the Chandubi Tectonic Lake on the west. The climate of study area is mesothermal humid climate, gets heavy rainfall (300-450cm) in addition to periodic wind, storm and thunders (Borthakur, 1986). On the basis of temperature, humidity and precipitation pattern, the climate of Chandubi could be divided into four distinct season viz., Pre-monsoon, Monsoon, Re-treating monsoon and winter. The rainfall, fogs and temperature were found to change in relation to different seasons and in different physiographic areas within it.

#### **Garbhanga Reserve forest**

The study has been carried out in Rani-Garbhanga Reserve forest (RGRF) of Kamrup District, Assam from 2004 to 2008. The detailed physiography and location of the study area are given in the following sub sections. The study area of Rani-Garbhanga reserve forest is located within 25°45'-26°30' N latitudes and 9°0'-91°55' E longitudes with an elevation of 40-744 m MSL (Assam Forest Department Report, 2004). Majority of the study area is composed of hills and hillocks and the highest hill is found in Moinakhulung area. Total study area of the Garbhanga reserve forest is 18,860.50 hectares belonging to 4 different beats viz. Basistha, Mainakhulung, Lakra and Unthana; whereas, the total area of Rani Reserve forest is 6,624.85 hectares, under 3 different beats viz. Rani, Kawasing, and Jorsal. The Garbhanga reserve forest is the largest reserve forest of Kamrup district situated adjacent to Greater Guwahati and southern bank of river Brahmaputra, which has been declared way back in 1926, under Government notification No.1992–R-dt. 15.7.26. The Kawasing R.F. of the Rani range was notified under notification No. 12 dt. 7/3/1883 with an area of 998.00 hectares, the Jorsal RF was notified under notification No.5 dt. 17/10/1878 covering an area of 1,256 and the Rani R.F. was notified under notification No. 13 dt. 26/7/1882 covering an area of 4, 370 hectares. The entire study area is mainly positioned in the hilly terrain covering a small-

extended plain in the down slopes of the hills. The hills are actually continuation in the form of spurs of Khasi Hill ranges. The plain forests are located in alluvial terraces and these are cut up by numerous narrow, winding low-lying tracts. The height of terrain may vary from 1-15 m from the neighbouring 'low-lying' tracts. The study area is the unique geologic and physiographic makeup of the state and is composed of special habitat mosaic. Jalukbari Proposed Reserve Forest, Deepor beel Bird Sanctuary and NH 37 is on the south border of the study area, Meghalaya Hill ranges on the north, the River Brahmaputra on west, and Khanapara and Amsang Reserve Forest on the east.

### Jalukbari University campus

The study sites of Gauhati University campus, Jalukbari has covered the area of Gauhati University Campus, University Botanical garden, Satmile area and Kaleswar Hill Area that have lies between 25°5" - 25°53" N latitude and 91°22" E to 91°28" E longitude in the direction of south west corner of Kamrup district and in the southern bank of river Brahmaputra. It is located about 8 km apart from the major cosmopolitan centre of Guwahati city. The average total area covered was approximately 40 km<sup>2</sup>, most of which are undulating hilly terrain and floodplains of river Brahmaputra. The plain includes the parts of Gauhati University Campus (including gardens, University residential campus, Institutional campus, etc.), Sundarbari, Satmile and the hilly area includes the hills of University etc. The area is highly rich with natural and cultivated flora. The vegetation of low hilly area within Gauhati University Campus and Botanical garden is highly dense but reduce gradually its density with the declination of height. Diverse types of vegetation are found throughout Gauhati University campus and Jalukbari, which represents evergreen, semi-evergreen, deciduous type, shrubs and grasslands of tall and short. The climate of Gauhati University campus, Jalukbari is tropical mesothermal with high humidity and moderate temperature. Climatically, the study area could be divided into four distinct seasons such as winter (December to February), pre-monsoon (March to May), monsoon (June to September) and retreating monsoon (October to November). Again, on the basis of average total rainfall, the months from May to September (total 6 months) could be distinguished as wet season and October to April could be distinguished as dry season (Source: Department of Environmental Science, Gauhati University). The temperature ranges between 10.6° C - 32°C and the average annual precipitation ranges between 300-400mm. The most rainfall takes place during monsoon period with a maximum temperature of 32°C and minimum temperature of 24° C and relative humidity between 55.5-85.5%.

## Methods of Study

### Survey techniques

Three randomly selected line transects were established along existing paths and trails (Bibby *et al.*, 1992) in each study areas of the forests. The bird data were obtained in a belt of 20 meters on either side of each transects. The transect method was standardized for the study purposes to increase accuracy and decrease biases, hence the only bird seen was recorded during preparation of field notes. Occasionally, the bird calls were followed during the estimation of census but species were not recorded without visual location of the species (except nocturnal species during night surveys), because most of the birds of tropical forests imitate the call of other species. Both day light hours and evening (also night) surveys were performed for recording diurnal, corpuscular and nocturnal birds species. Flash light was used for night surveys in the transect. The individual scorings of each species were also noted down in each transect during survey, but only the species of birds which were sighted within the limits of transects were used for analysis. If recordings were done outside the transect, it was not taken into consideration for analysis. Again, amongst all the individual scoring data of a particular transect, only the largest single count data was used for analytical purposes in each transect, if it had been surveyed more than once throughout the season covered. Most of the field survey trips were made on foot, but few elephant ridings and occasional rubber boats were used when necessary was felt (especially during monsoon). Total of eight different field trips were made throughout the study area from November, 1997, to April 2014 and each visit were of 8 field days on average (total 164 field days).

## RESULTS AND DISCUSSION

### 1. Sultan Tit-*Melanochlora sultanea sultanea* (Hodgson)

#### Past Distribution

Ali and Ripley (1983) have been reported the species from the Himalayan foothills from central Nepal, east through Darjeeling, Sikkim, Bhutan, Arunachal Pradesh and adjacent plains thence south through Meghalaya, Nagaland, Manipur, Chittagong hill tract.

#### New records

The species of *Melanochlora sultanea sultanea* has been first recorded in Bogijuli dense forest in Nameri National Park near Pakhui Wildlife Sanctuary of Arunachal Pradesh on 11, November, 1999 (Saikia and Saikia, 1999, Unpublished) and later recorded in Namrup Reserve forest near Dilli river of Dibrugarh District on 8, March, 2008. A

group of 7 birds were sighted in a low hill forest composed of bamboo clumps nearby. The bird has been photographed although not good quality owing to spotting in upper canopy of a tree and frequently moved from one tree to another. The species was also sighted in Jeypore Reserve forest and Gibbon WLS during 2007 through 2009 survey (Devi and Saikia, 2010; Saikia and Devi, 2011) but not reported as new records (Fig. 1).



Fig.1. Sultan Tit

## 2. BLACK-BREASTED THRUSH: *Turdus dissimilis dissimilis*, Blyth

### Past recorded distribution

The Black breasted Thrush was recorded to distribute in Garo, Khasi and Cachar hills, South of Brahmaputra, Nagaland and Manipur, from c. 1200m to the highest summits (Meghalaya) and up to 2400 m (Nagaland). The species extends in winter to neighbouring plains (Dibrugarh, Margherita) and south to Tripura and the Chittagong region (Ali and Ripley, 1983).

### New Records

The species was recorded regularly in the Gauhati University campus, Jalukbari, Kamrup district Assam. A lone individual of the Species was sighted in the backyard of university residential campus about 80 m msl (Quarter No. 72(B) from 2006 to 2008 that was adjacent to the residential Compound of the Authors. The species was observed at 15:00-17:00 hours of the day during later parts of winter (Month of February). At dark, the species was sighted in a scrub jungle associated with trees and produce vocalization. The species was observed continuously three to four days and later disappeared from the place and not observed again (Fig. 2). The species was recorded at considerable lower altitudes than the earlier recorded altitudes. It is also confirmed that the species was not vagrant but regularly observed as was also observed during late February, 2015 in the same localities.



Fig. 2. Black-breasted Thrush

## 3. COMMON STARLING-*Sturnus vulgaris poltaratskyi* Finsch

### Past distribution

Common Starling is winter visitor to North Subcontinent. It is also partly resident in Pakistan and summer visitor to Kashmir (Grimmett *et al.*, 1999). It is also passage migrant through Gilgit in October-November and then again mid-March to Mid-April and a few overwintering in the valley (Ali and Ripley, 1983). The species is also abundant winter visitor to Northern India-Panjab, Delhi, Nepal Terai and the Gangetic plain east (rare) to Bihar, West Bengal and East Pakistan (Bangladesh). It was also recorded southward to Rajasthan, North Gujarat (including Kutch and Saurashtra), northern and western Madhya Pradesh and two records from Madras. However, there were no such records of the species from Assam boundary (Ali and Ripley (1983).

### New Records

The Common Starling- *Sturnus vulgaris poltaratskyi* was recorded for the first time in Assam at Pobitora Wildlife Sanctuary in the year 2013. There was no earlier record of the species in entire northeast India. On 17 March, 2013 a single Common Starling was sighted on a leafless *Ficus* tree branch in road side of Pobitora Wildlife sanctuary at around 10:00 hours along with *Sturnus contra*. The species was sighted while the authors conducting a bird watching field tour programme of masters students of 'Animal Ecology and Wildlife Biology'. The bird was spotted several minutes on the tree branch and several photographs have been taken. It was a new finding of the species recorded in northeastern states of Assam (See Figure 3 for species and its habitat).





**Fig.3a.** Common Starling



**Fig.3b.** Students and teachers watching the birds.

#### 4. White-throated Fantailed Flycatcher-*Rhipidura albicollis albicollis* (Vieillot)

##### Past distribution

The species is resident and subject to vertical movements. The species was distributed in Western Nepal east to Sikkim, Darjeeling and the Jalpaiguri district and south through the plains of East Pakistan and lower west Bengal (Ali and Ripley, 1983).

##### New Records

The species has been recorded on 17 August, 2011 at Nameri National Park in Bhalukpung range and Sijusa forest range towards Bagijuli forest camp near Assam-Arunachal Border and on 13 July, it was also observed in Lakhimpur town, North Bank of River Brahmaputra. A group of 3 individuals was observed to play in the undergrowth vegetation in a dense forest near roadside forest in Nameri National park and 2 individuals in the field type habitat of residential garden (at Lakhimpur). The observation of the species was also made in Jeypore RF in Dibrugarh district and Gibbon WLS (Saikia and Devi, 2011; Devi and Saikia, 2010) by the author. So, it was an important finding of the species sighted within the limits of Assam.

#### 5. Yellow Waddled Lapwing-*Vanellus malabaricus* (Boddaert)

##### Past records

*Vanellus malabaricus* was distributed in Cis-Indus, Lower Sind and East-Pakistan, India to west

Bengal, eastward through North India to east Pakistan (Ali and Ripley, (1987).



**Fig. 4.** White throated Fantailed Flycatcher

##### New records

Records of two (2) individuals were recorded on 17 February, 2010 at Chandubi near Kathalguri grasslands. Again, a small group (about 2-4 birds) of the species was also recorded in Goalpara District of Assam in grassland by two students from animal ecology and wildlife biology during their project field works on February, 2014. There were no other such records of the species from Assam since the present report. The species was recorded in a dry grassland habitat both the occasions during late winter season.

#### 6. Wall Creeper- *Tichodroma muraria nepalensis* Bonaparte

##### Past records

Wall creeper is a sparrow sized small residential birds subject to vertical movements and winter wandering. It is fairly common but sporadic. It was reported to distribute in Pakistan through Sofed Koh to Hunzas, thence east through Ladakh, Kashmir and along the Himalayas through Arunachal Pradesh. Breed mostly above 3300 m. In winter, it commonly reaches the foothills in suitable country, and sometimes wanders considerable distance into the plains (Ali and Ripley, 1987).

##### New Records

The species was recorded in a cutting rock face of a Stone Quarry's cliff of Gopeswar Dewalaya hills, back side of the temple, where the bird was perched and flicking in and around on the cliffs. The study site was situated about 23 km apart from the Guwahati city in the north bank of river Brahmaputra. The bird was recorded during the month of February, 2007 and only single bird was

seen. The authors have carried field survey using one pair of binoculars without Camera, thus, no photographs have been taken. However, bird was observed using binocular almost 10-20 minutes and then flying away towards another rock cliff located either side of the hills and become out of sight (Fig. 5).



Fig.5. Wall Creeper

### 7. Lord Derby's Parakeet-*Psittacula derbyana* (Fraser)

#### Past distribution

Presumably summer visitor to Siang and Subansiri Division of Arunachal Pradesh, also recorded in SE Tibet between 2700 and 3500m, where according to Ludlow, it only arrives during the first half of May and departs about end of September. Evidently does not occur west of about the 93<sup>rd</sup> meridian.

#### New Records

The species was recorded on 17 April, 2000 in Kaziranga national at Bagori range and during 2006, the species was further recorded in Narangi, Guwahati during early parts of April. In both the cases, two individuals (one pair) were sighted perching noisily on the branch of the *Albizia lebbek* tree. No photographs have been taken but continuously observed clearly using good pairs of binoculars almost about 5-10 minutes in each occasions (Fig.6).



Fig.6. Male and Female Lord Derby's parakeet

From the present study, it must be concluded that, continuously watching of birds in various seasons and years, more new birds could be detected in near future and is important for the proper documentation of the distribution records of forest birds in Assam and its surrounding states of Northeast India. Again, it may also be the results of climate change phenomenon that triggered the changes of distribution pattern of avian fauna in tropical country.

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