

Short Communication

New sighting records of the Critically Endangered White Bellied Heron in Raimona National Park, Assam, India

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ABSTRACT

The White-Bellied Heron (*Ardea insignis*) also known as the imperial heron or great white-bellied heron, is a large heron species that inhabits the foothills of the eastern Himalayas, spanning from northeastern India and Bhutan to northern Myanmar. A recent observation was made of the critically endangered White-Bellied Heron in Pekua, located within the recently established national park in Assam. This observation underscores the region's significance as a conservation stronghold for the species in Assam. Previously, the species had only been sporadically recorded in northeastern India, lacking consistent sighting records. Additionally, insights gained from questionnaire surveys and interviews with forest inhabitants reveal a positive trend in the species' conservation, marked by an increase in sighting records within parks since 2019. The findings from this study present an opportunity for focused conservation efforts in Assam, requiring close monitoring and proactive initiatives from the forest department and conservationists in the region.

Key words: Critically Endangered, Raimona National Park, White-Bellied Heron

INTRODUCTION

The Great White-Bellied Heron (Hume, 1878), *Ardea insignis* also known as the imperial heron, is a large heron species primarily found in the undisturbed rivers and wetlands in the foothills of the eastern Himalayas, spanning from northeast India and Bhutan to northern Myanmar. Classified as Critically Endangered on the IUCN Red List since 2007, its global population is estimated to be less than 300 mature individuals, facing threats from habitat loss and human disturbance (IUCN, 2018). Described as mostly dark grey with a white throat and underparts (Ali, 1993), this species has a highly fragmented distribution and a smaller population size, particularly in the eastern Himalayan and Indo Burma Biodiversity hotspot areas of India (Rabten *et al.*, 2022).

The White-Bellied Heron's survival is limited to a small area of 56,300 sq. km., known to occur in specific regions of Bhutan, northeast India, northwest Myanmar, and parts of China (Kyaw *et al.*, 2021; Menzies *et al.*, 2020). Historical records suggest likely extinctions in Bangladesh and Nepal during the 19th century (Stanley Price and Goodman, 2015). Facing risks since 2010 due to factors like habitat degradation, forest fires, hydropower projects, and poaching, the heron's largest known population is in Bhutan, with instances of deaths, potentially from collisions with live poles and electrocution, as well as local extirpation from Sunkosh Valley due to hydropower operations (Wangdi *et al.* 2017).

Characterized by poor reproductive rates, with generations lasting an average of 10.5 years and a relatively high mortality rate, the species is declining

despite its historically small population size. The specific reasons for the recent decline are not fully understood (Kyaw *et al.*, 2021; Menzies *et al.*, 2020). While there had been previous reports from Raimona National Park that lacked conclusive evidence, with only a single photograph taken in the Zomduar area, raising uncertainty about its origin, whether it was taken in Bhutan or India. Consequently, this study was undertaken to authenticate the sighting and confirm the continued existence of the species (Kyaw *et al.*, 2021).

Study Area

Raimona National Park, encompassing an area of 422 km², is located within the coordinates of 26°37' to 26°50' N latitudes and 89°51' to 90°14' E longitudes (Figure 1). Situated in the Kokrajhar district of Assam (Bodoland Territorial Region), India, it falls under the jurisdiction of the Kachugaon Forest Division. The park's geographical boundaries are defined by the Sankosh River to the west, the Saralbhanga River to the east, and the Indo-Bhutan International Border to the north. The terrain gradually slopes southward, ranging between 85 and 240 meters above mean sea level. Notably, the park is traversed by four prominent rivers—Sankosh, Pekua, Hel, and Saralbhanga.

Given the region's distinctive geographic location and geological features, a diverse array of twelve different types and sub-types of vegetation thrive within the park. These include the very moist Sal forests, sub-Himalayan high alluvial semi-evergreen forests, moist-mixed deciduous forests, savannah forests, riparian fringing forests, Khoir-Sisoo forests, and expansive riverbeds (Champion and Seth, 1968; Mahanta *et al.*, 2022; Islam *et al.*, 2022).

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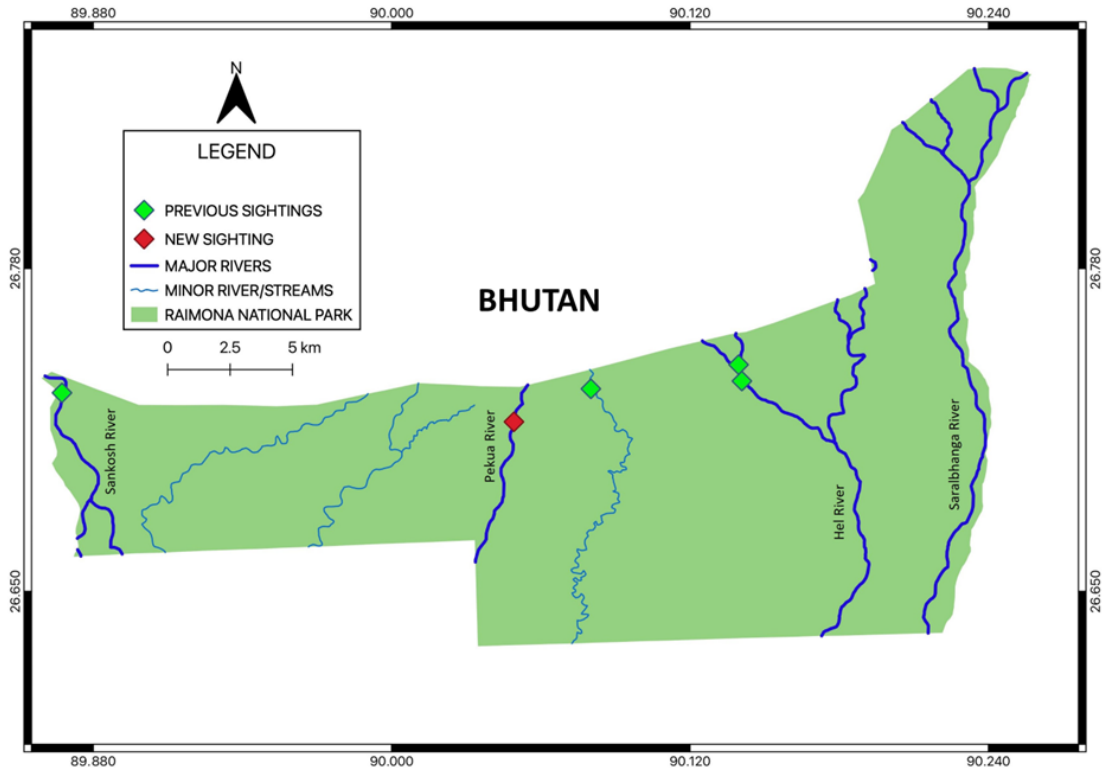


Figure 1. Sighting records of Great White-bellied heron in Raimona National Park, Assam, India.

MATERIALS AND METHODS

From January to June 2023, a comprehensive survey of avian species, with a specific focus on the Great White-Bellied Heron, was conducted in the study area, particularly within the newly established Raimona National Park in Assam. The observation of the White-Bellied Heron in the Pekua region of Raimona National Park was an incidental finding during the broader avian diversity study. To ascertain information about this critically endangered heron species in Assam, both active searching and opportunistic sighting methods were employed.

The survey also involved interviews with the forest staff members of Raimona National Park to gather insights into the presence of the species within the park. Initially, photographs were shown to the frontline staff, and those who identified the White-Bellied Heron or any bird with similar characteristics were briefly queried. Direct field surveys were conducted using Carl Zeiss 8×40 FM binoculars for observation and species identification, while a Canon 7D MK-2 camera and Canon 400mm lens were utilized for capturing bird photographs. The birds field guide was used for identification of bird species (Grimmett *et al.*, 2011). The map was created using ArcGIS v10.6 software.

RESULTS AND DISCUSSION

In an extensive survey conducted in Raimona National Park, a lone adult Great White-Bellied Heron was sighted once in the Pekua River at GPS coordinates 26.71833N latitude and 90.04916E longitude. This observation took place within a three-minute timeframe throughout the entire study period. The sighting occurred on February 27, 2023, at 14:30 hours, under clear and sunny weather conditions.

Upon initial encounter, the individual heron was standing in the rushing waters of the river. However, after a few minutes and upon detecting the presence of a human observer, the bird swiftly took flight. It proceeded to travel along the river, perching momentarily on a defoliated Simul tree (*Bombax ceiba* L.) before embarking on a prolonged flight and disappearing from view. Subsequent observations revealed the heron perching on a nearby Sida tree (*Lagerstroemia parviflora* Roxb.) before taking flight and vanishing towards the mountains. Throughout the observation, a single photograph was captured during the bird's flight, as it was predominantly observed in motion (Photoplate-1; Table 1).

A questionnaire survey and interviews with frontline forest staff revealed a total of three sightings of the Great White-Bellied Heron from 2019 to 2023.



Photo Plate 1. Great White bellied heron in Flight at Pekua area of Raimona National Park, Assam.

Table 1. Sightings of White Bellied Heron *Ardea insignis* from Raimona National Park

Sighting date, Number count and weather	Sighting location and GPS Coordinates	Habitats, where it was observed and characteristics	Activity observed	Information source (interview/sighting)
One (1) Adult bird was sighted on 15 September 2019 at 1100hrs. when it was rain	Observed in Phipsoo area; GPS location: 26.73472° N; 90.14083° E; height 180m	Observed in a rapidly flowing stream (torrential habitat) with water level at thigh-depth at the time of observation. The northern bank of the Riparian habitat was dominated by <i>Shorea robusta</i> , whereas, southern riparian zone was dominated by perennial grasses and sandy riverbeds.	The bird was observed to do foraging activities at first observation but started vigilance behaviour afterward for a few seconds and flew above the forest biotope and became out of sight.	Tunu Basumatary and other Forest Officials of Raimona National Park. Only sighted, but no photograph was taken
One (1) adult individual on 10 th October 2019 at 1400hrs in cloudy weather.	Polo area; Coordinates: 26.72517N; 90.08335E; at 180m height	A small stream with shallow water level and riparian zones on either side were covered with moist mixed deciduous forests.	When observed by the forest Patrol personnel, the bird immediately flew away from the foraging sight.	Interviewed with forest Patrolling Staff of Raimona NP who observed on 10th October 2019 at 14:00 hrs. No photographs were taken.
One (1) adult individual on 12 th , December, 2020, at 1400hrs. in cloudy weather.	Phipsoo area; Coordinates - 26.73099N; 90.08144E; 180m	Torrential flowing stream with thigh-depth water at the time of the observation. The riparian zone habitats were dominated by <i>Shorea robusta</i> -dominated hill forest on the north bank and riverbed and perennial grasses on the south bank.	When the foraging White-bellied heron saw the existence of human presence, it flew towards the riparian forest biotope and immediately disappeared.	Observed by Tunu Basumatary and other Forest Officials of Raimona National Park on 12 th December 2020.
1 Adult Individual; 27 February 2023; 1430hrs; Sunny	Pekua; 26.71833N; 90.04916E; 160m	High-speed stream with shallow water depth, moist woodland on one side, and Sal-dominated hill on the other.	Standing on water	Sighted by the author and Photograph taken

Among these, two sightings occurred in the Phipsoo area, with GPS locations as follows: (1) 26.73099° N, 90.081544° E, where an adult heron was observed on December 12, 2020, and (2) 26.73099° N, 90.14083° E on September 15, 2019. Additionally, one adult individual was spotted in the Polo area on October 10, 2019, at GPS coordinates 26.72517° N, 90.08335° E. Another sighting took place in the Zomduar area, with GPS coordinates 89.86740° E and 26.72998° N, on August 15, 2020 (refer to Figure-1 for distribution records in Raimona National Park). If the authenticity of the 2020 sighting locations is confirmed, it could indicate regular breeding activity in Raimona National Park, aligning with the species' breeding seasons recorded by Ali (1993), ranging from July to October.

The potential for the conservation of the Great White-Bellied Heron in Assam is promising, especially if continuous monitoring and protection efforts are implemented during both breeding and non-breeding seasons in Raimona National Park. Most sightings occurred during high river water levels and rainy weather, while observations during the winter season were made on sunny days. Notably, sightings predominantly took place at an altitude of 160–180 meters, possibly due to mlower human pressure in these areas, reinforced by the

government of Assam designating Raimona as a protected area (National Park). The sighting of the heron in the Pekua area represents a new location and the first record from this location. In the future, the Rimona National Park holds considerable potential for an in-depth study of the Great White-Bellied Heron species (or Blue Imperial species) in Assam, contributing to the conservation and protection of this globally critically endangered heron species.

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