



Observations on the Indian Pitta (*Pitta brachyuran*) in undulating plateau areas of West Midnapore, West Bengal, India

Sourav Ch. Dinda¹, Souti Khatua², Paresh Chandra Das³ and Kajal Nayan Majumdar^{2#}

¹Ektarpur, Bhagwanpur, Purba Medinipur, West Bengal, India -721633,

E-mail: dinda.sourav2011@gmail.com

²Post Graduate Department of Zoology, Midnapore College (Autonomous),

P.O. Midnapore, West Bengal, India-721101, E-mail: soutikhatua11@gmail.com

³Ex-Senior Auditor, Indian Audit and Accounts Department, Kharagpur, Paschim Medinipur,

West Bengal, India-721302, E-mail: pareshdaskgp97@gmail.com

Corresponding author. E-mail: kajalnm@gmail.com

Abstract

Indian Pitta is a thrush-like, small tailed colourful bird found in the deciduous and semi-deciduous forests in India and its neighbouring countries of South East Asia covering an area of about 2,200,000 sq km. Although the worldwide population size of Indian Pitta has not been measured, the overall population of this bird tend to be decreasing. In 2001, Indian Pitta has been listed as Least Concern (LC) species under IUCN red list version 3.1. They breed in the central and northern parts of the Indian peninsula and foothills of Himalaya. During winter they migrate towards different parts of south India and Sri Lanka. It is a moderate forest dependence species and prefers tropical and subtropical moist montane forests. Its nests are mainly located in the forks of the lower branches of trees, as well as on the ground in scrub jungle and thorny bushes. In our study we have found that during mid April to early August, Indian Pitta builds their nest on the high branches of Sal trees as well as breeds and nourished their chicks in the forests located in the undulating plateau areas of West Midnapore, West Bengal, India.

Keywords: Indian Pitta, Barnali, Deciduous forest, Sal forest, Courtship, Migration.

Introduction

The Indian Pitta is a small colourful bird, measuring 17 to 19 cm in length and 45 to 65 grams in weight. This bird is thrush-like, stubby-tailed with long strong pale pinkish gray coloured legs and dark gray coloured stout bill. The adult Indian Pitta has a buff coloured cap extending from the forehead to posterior crown. A black central stripe with a conspicuous white line beneath extends along the head meeting the white

supercilium at the nape. The throat and neck are white. The upperparts and wings are shaded green with blue tail. A large pale greenish-blue shiny patch on the side of the folded wings found in adults. In adults, the under parts are yellowish buff whereas the lower belly, vent and under tail are bright red. Male and female have similar plumage whereas the juveniles are duller. A thin white stripe present just below the eye. The eye-ring is gray with blackish irises (Fig. 1).¹



Figure 1. Indian Pitta (*Pitta brachyuran*).

Systematic Position:

Kingdom:	Animalia
Phylum:	Chordata
Class:	Aves
Order:	Passeriformes
Family:	Pittidae
Genus:	<i>Pitta</i>
Species:	<i>P. brachyura</i>
Binomial name:	<i>Pitta brachyura</i>

Geographical Distribution and Migration:

The Indian Pitta species are found in parts of South East Asia like, India, Pakistan, Bangladesh, Nepal and Sri Lanka. It breeds in the central and northern parts of the Indian peninsula and Himalayan foothills (Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Madhya Pradesh, Gujarat, Maharashtra and Andhra Pradesh) during March to August. During winter i.e., September to February they migrate to south Indian states like Goa, Karnataka, Tamil Nadu and Kerala and also to Sri Lanka. Passage birds have been recorded throughout the Indian subcontinent. In the early summer they return to their breeding grounds.¹

Ecosystem and Habitat:

Indian Pitta, a moderate forest dependent species normally found in altitudes from 0 to 1800 meters. In

general, the Indian Pitta chooses broad-leaved deciduous and semi-deciduous forests which have dense undergrowth. They also prefer tropical and subtropical moist montane forests, evergreen forests, moist shrublands dominated by bamboo, thorny bushes, scrub jungle.^{1,2} The presence as well as the breeding behaviour of Indian Pitta has not been previously recorded in undulating plateau areas of West Midnapore, West Bengal. Most likely, our study is revealing first to record the presence/migration of Indian Pitta in these areas.

Study Area

This study was carried out in the Arabari forest range (22.69°N, 87.34°E), Salboni forest (23°03'55.1"N, 86°16'27.4"E), forest areas of Kumari near Chandrokona Ghatal Road (22°44'10.3"N, 87°22'30.1"E), forest areas of Teladanga near Khajra, Kharagpur, (22°12'08.1"N, 87°16'24.7"E) which is located in the West Midnapore Districts of West Bengal, India.

These areas and surroundings are predominantly a deciduous type forest, dominated by 25-35 feet high 'Sal' (*Shorea robusta*) trees, along with Haritaki, Bohera (*Terminalia sp.*), Mahua (*Madhuca sp.*),

Gamhar (*Gmelina sp.*) and Teak (*Tectona grandis*) trees with plenty of leaf-litter on the ground (Fig. 2). The sites also have bamboo (*Dendrocalamus sp.*), thorny bushes and scrub jungles.



Figure 2. Habitat of Indian Pitta. (A) Sal forest, (B) Leaf litter of forest ground.

The landscape adjacent to the study site was undulating plateau, surrounded by a few 'Santal' tribal dwellings; few check dams and small rivers, and a number of natural trails entering into the dense forest. The check dam remains semi-dry year-round, except during the monsoon. The average annual precipitation in the area is 1421.1 mm. The rainy season over the district starts by first week of June and withdraws by about the end of September. About 77% of the annual rainfall is received during monsoon months i.e. June to September. May is the hottest month when the mean daily temperature varies from 37⁰ C (maximum) to 25⁰ C (minimum). The highest maximum temperature may sometimes rise up to 47⁰ C. January is the coldest month when the mean daily temperature varies from 26⁰ C (maximum) to 13⁰ C (minimum). Spells of cold weather are sometimes experienced in the winter season with as low as 5⁰ C. The values of relative humidity are generally high throughout the year.³

Methodology

We followed a line transect method, involves, travelling a predetermined route and recording the activities of Indian Pitta on either side of us throughout the natural trail.⁴ Fieldwork was carried out in subsequent three years from 2017-2019 between 1st April to 30th August following the methods of Chowdhury et al. (2013) and Solanki et al. (2018) with little modifications.^{5,6} The site was visited frequently - at least twice a week. Observations were made at a minimum distance of 15 meter from the ground to

avoid any annoyance. All nesting trees were identified to species level and the height of the nests from ground was recorded. All measurements of an invasive nature, like exploring of nesting materials, the height and thickness of the nesting trees, the height of the nests above the ground level, etc., were performed only after the nesting pair disappeared from the nesting site. To avoid any disturbance to the nesting birds we did not measure the clutch size, egg size/weight, and fledgling size/weight.

Direct visual surveillances were carried out from the ground, from early morning to early evening, from a distance of 15–30 meter using binoculars (Olympus 8x40). Four observers were engaged in the direct visual observations, which included watching out for activities of Indian Pitta. Documentation on food items brought to the nest was based on our direct visual observations from 5.00 AM till 6.00 PM when the parents stopped feeding the chicks, as well as from the prey remains that unconsciously fell, or which slipped from the adults' beaks. Once an adult bird sighted, as well as arrived with prey, on a nearby tree, and when the parent approached the nest to feed the baby birds, photographs were taken (Nikon D500 with Nikkor 500 mm prime lens; Nikon B700; Nikon P600). Then photographs were carefully analysed to identify the prey (food) of the Indian Pitta. Besides, India Pitta's calls were recorded and played back with bluetooth speakers in different periods to determine the level of response.

Observation

During consequent three years from 2017-2019, Indian Pitta were observed at our study areas starting from mid April. In our study, we found this bird very shy in nature. Their appearance was first observed by hearing their loud scream all over the jungle, sounds like "Wheet toow". The calling was heard on the high branches of Sal trees at least 15 to 20 feet from the ground. During their signature calling they had been found to throw back the head and point the bill up in the air (Fig. 3). In the month of June, at the time of mate selection we found a very strange behaviour of

Indian pitta, a courtship dance of a Pitta couple, we named as "P- Dance" of Pitta (Fig. 4A-4D). In our study, we found that Indian Pitta makes nest on the forks of Sal trees at the height of 15 - 20 feet from the forest ground (Fig. 5A-5D). We have recorded at least 4-5 nests in 1000 sq feet study areas. We also observed that adult Pittas are little bit more careful while feeding the babies, feeding the babies sometimes happens on the branches of trees or sometimes in the bushes. If a human or animal approaches them, they stop feeding and give a strange alarm call.



Figure 3. Signature calling of Indian Pitta.



Figure 4A-4D. Courtship dance of Pitta couple (P- Dance).



Figure 5A-5D. Nest making of Indian Pitta.

Discussion

During the month of March in the studied areas and surroundings (like Midnapore, Chandrakona, Jhargram, Belpahari, Bankura and Purulia) the forest beds become covered with fallen leaves of Sal tree (deciduous in nature). At this time, local people set fire to the forest without the consent of forest department, as a result a terrible effect can be seen on the forest undergrowth vegetation, and all are burnt out. A "bottle neck effect" has been found in the forest floor. Then a little amount of subsequent rain changes dramatically at the forest floor, the dark black ashy coloured area converted into green vegetation. Many moths, butterflies, and other insects start rearing their young on new leaves. Indian Pitta starts to use the jungle bushes especially dense undergrowth of the forest for foraging on insects in leaf litter. The larvae

of these insects are the first targeted food of this small nine coloured bird, Pitta (in Bengali called "Barnali"). Gradually, larvae of several species, grubs, millipedes, centipedes, grasshopper etc. in the Sal forest or its surrounding areas become their staple food (Fig. 6). Throughout the mid of the May and June the temperature of the plateau gradually increases and the maximum temperature rises up to 38⁰C to 42⁰C. At this time, the seasonal thunderstorm (Kalbaisakhi) brings rains comparatively high in these areas in phases. So insects, spiders and butterflies start laying their eggs rapidly on that forest undergrowth vegetation, as a result the amount of food is increased for Indian Pitta. Eventually, they have no shortage of food; they face a special challenge for which they have come here via migration, mate selection and move forward to the next generation.



Figure 6. Collection of food by Indian Pitta.

While Indian Pitta shows seasonal monogamy, accordingly in June, at the time of mate selection we found a very strange behaviour of Indian Pitta. It is difficult to differentiate between male and female of Indian Pitta. Firstly 2-3 birds started to chase each other. but after few days we found a couple of birds hesitantly looking for something from one branch to another branch of the Sal tree and move their tail downwards, then suddenly one bird standing at a certain place made a sound "koonk koonk" and was shaking its head, another bird also came there and started making the same sound, we realised that the perfect place to build a nest had been chosen. By the

second half of June they started gathering small branches and leaves from the trees to build a nest (Fig.7A-7B). The nest is looking like a helmet, although from a distance, it looks like many branches and leaves are stacked in one place. Indian Pitta prefers to make nests mostly in the places/forks of the lower branches of trees,^{7,8} and also on the ground in scrub jungles which are protected under bushes.⁹ But, in our study we found that Indian Pitta makes nest on the forks of Sal trees at the height of 15 - 20 feet from the forest ground, this fact is also supported by the findings of Chowdhury et al. (2013).⁵



Figure 7. Collection of nesting materials.

We also studied a special phenomenon at the time of mate selection and nest building, often they shows a territorial fight like incident but we closely observed this and came to the decision that it's not a territorial fight, it's a courtship dance of a Pitta couple. They both reached to the height of 15-20 feet of the Sal tree and then jump from two separate branches, clasp each other's legs, and swoop down from 15 to 20 feet and keeps doing it again and again at least for 3-5 times as we noticed (Fig. 4A-4D). We named that courtship phenomenon as "P- Dance" of Pitta.

Meanwhile they started to build their nest, now it's time to lay eggs and hatch them. At the end of the June to the first of the July they lay eggs in their nest at a humidified climatic condition. Now the only thing they do is to seat upon the eggs for hatching and protect them from the predators. After three weeks of incubation, at the end of the July, we found that little

baby birds raise their heads and scream for food and their mother frantically searches for food and bring what she finds and stuffs it into young mouths.

At the end of the July to the first of August, mother Pitta brings the chicks out of the nest by showing the allurements of food. Within a few days, young Pitta starts to search their own food as well as grows to be ready for flight. Then the successful parents feel relaxed for their sub adult.

Acknowledgments

We wish to convey our deep gratitude and heartfelt reverence to Department of Forest, Government of West Bengal, India, for providing us necessary permissions to carry out this work.

References

1. <https://indianbirds.thedynamicnature.com/2017/10/indian-pitta-pitta-brachyura.html>
2. Lambert, F. & Woodcock, M., 1996. *Pittas, broadbills and asities*. Robertsbridge UK: Pica Press.
3. Climate of West Bengal, 2008. Designed, Printed & CD authored at the Meteorological Office Press, Office of the Addl. Director General of Meteorology (Research), Indian Meteorological Department, Government of India. Published by Controller of Publications, Government of India, Department of Publications. Civil lines, New Delhi-110054. (<https://imd pune.gov.in/library/public/Climate%20of%20WestBengal.pdf>)
4. Gregory R.D., Gibbons D.W. and Donald P.F., 2004. Bird census and survey techniques in Sutherland WJ, Newton I and Green RE (eds) *Bird Ecology and Conservation A Handbook of Techniques*, 17-56. Oxford University Press, Oxford.
5. Chowdhury, S. U., Sourav, M. S. H., & Mohsanin, S., 2013. Observations on the breeding of Indian Pitta *Pitta brachyura* in a human-dominated environment, Gazipur, Dhaka, Bangladesh. *BirdingASIA* 20: 44–48.
6. Solanki, R., Upadhyay, K., Patel, M.R., Bhatt, R.D. and Vyas, R., 2018. Notes on the breeding of the Indian Pitta *Pittabrachyura*. *Indian BIRDS*, 14(4), pp.113-118.
7. Dharmakumarsinhji, R. S., Undated [=1955]. *Birds of Saurashtra, India: with additional notes on the birds of Kutch and Gujerat*. 1st ed. Bhavnagar, Saurashtra: Published by the author. Pp. i–liii, 1–561.
8. Kala, H., 2008. *Bird communities in different forest types of southern Aravalli Hills, north Gujarat, India*. Ph.D. Thesis, Bharathidasan University, Tiruchirappalli, Tamil Nadu, India.
9. Ali, S., 1941. *The book of Indian birds*. 1st ed. Bombay: Bombay Natural History Society. Pp. i–xxxix, 1–395.

Access this Article in Online	
	Website: www.ijarbs.com
	Subject: Ornithology
Quick Response Code	
DOI: 10.22192/ijarbs.2020.07.11.022	

How to cite this article:

Sourav Ch. Dinda, Souti Khatua, Paresh Chandra Das and Kajal Nayan Majumdar. (2020). Observations on the Indian Pitta (*Pitta brachyuran*) in undulating plateau areas of West Midnapore, West Bengal, India. *Int. J. Adv. Res. Biol. Sci.* 7(11): 169-175.

DOI: <http://dx.doi.org/10.22192/ijarbs.2020.07.11.022>