ZOO'S PRINT

Communicating Science for Conservation

Magazine of Zoo Outreach Organization
www.zoosprint.zooreach.org

ISSN 0971-6378 (Print); 0973-2543 (Online)
Vol. XXXVI, No. 8, August 2021

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Vol. XXXVI, No. 8, August 2021 ISSN 0971-6378 (Print); 0973-2543 (Online)

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Cover photo: Yellow-tailed Ashy Skimmer by Sachin Ranade.

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Newsletter of the
Invertebrate Conservation & Information Network of South Asia (ICINSA)

Dakhan Tricolour Pied Flat: new distribution record for Rajasthan, India

The Tricolour Pied Flat *Coladenia indrani* (Moore, 1866), is a butterfly of subfamily Pyrginae of family Hesperiidae (family of skippers). It is a medium-sized butterfly (Image 1) with a wingspan of 40–46 mm. Its dry season form is deep orange with bright yellow marginal spots while the wet season has uniform colour with ochreous hue. Upper forewing has large semitransparent spots and a marginal row of yellow opaque spots. Dark spots on upper hindwing separate and prominent and under hindwing has prominent basal black spots (Evans 1927; Kehimkar 2014). It is represented by three subspecies in India. *Coladenia indrani indrani* (Moore, 1866) (Himachal Pradesh to northeastern India excluding Manipur); *Coladenia indrani uposathra* (Fruhstorfer, 1911) (Manipur) *Coladenia indrani indra* (Evans, 1926) (Gujarat eastwards to West Bengal and southwards to Kerala; Evans 1949; Varshney & Smetacek 2016). The butterfly used to stay on wings from May to October.

Menal is a Vindhyan gorge in Rajasthan. There is a 142 feet high waterfall in the gorge situated in Bhilwara District of Rajasthan. On our field visit on 16 October 2018 to Menal Gorge (25.2341^{0}N & 75.2399^{0}E), we clicked an image of a butterfly from the gorge bottom, feeding on the flowers of *Lantana camara*. The butterfly was identified as the wet season form of Dakhan Tricolour Pied Flat, *Coladenia indrani indra* (Isaac Kehimkar *facebook* comm. 21.v.2020).

The habitat of the gorge was rocky having dry mixed deciduous type of vegetation which are preferred by Tricoloured Pied Flat (Padhye et al. 2012) including grasses, herbs, shrubs and trees. The important vegetation of the bottom of the gorge are Arjuna *Terminalia arjuna*, Kadamb *Mitragyna parvifolia*, Baheda *Terminalia bellirica*, Makhania Jamun *Syzygium heyneanum*, Umara *Ficus glomerata*, Karmala *Mallotus*

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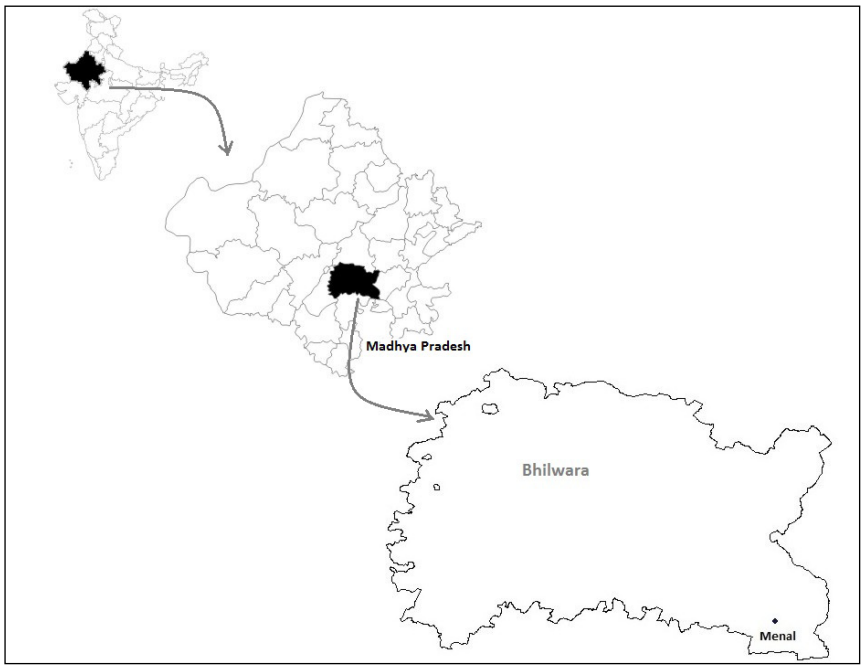

Location of Menal waterfall.

philippensis, and Khajoor *Phoenix sylvestris*. Among the vegetation present on the slope of the gorge are Dhauk *Anogeissus pendula*, Kadaya *Sterculia urens*, Tendu *Diospyros melanoxylon*, Kala Sirus *Albizia odoratissima*, Lampan *Bridelia retusa*, Amaltash *Cassia fistula*, and Kali Syali *Grewia flavescens*.

Trees of *Mallotus philippensis* and Grewia sp. are preferential host plants of Tricolour Pied Flat (Kehimkar 2014). The climate of the area is semi-dry type. Rainwater from the highland takes shape of a stream and falls as a waterfall in the gorge. The presence of water near the waterfall and shady trees maintain high moisture in the gorge in dry season too.

Distribution of the Dakhan Tricolour Pied Flat in Rajasthan has not been recorded previously (Palot & Soniya 2001; Kehimkar 2014; Sharma 2014; Kulshrestha & Jain 2016; Saji et al. 2020). This is widely distributed in the neighboring state of Madhya Pradesh. The immediate location in Madhya Pradesh from which this butterfly had been reported was Bhopal (Harsh 2014), having aerial distance of 305 km from Menal Gorge. The butterfly would have reached Menal Gorge through the dry deciduous forests distributed in Madhya Pradesh and eastern and southern Rajasthan. The suitable climate, habitat and favourable vegetation may have attracted the butterfly to the gorge.

This is the first observation of Dakhan Tricolour Pied Flat in Rajasthan and addition to the butterfly fauna of Rajasthan also. Authors are further studying to know its possible geographical range extension in Rajasthan.

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Acknowledgement: I am thankful to Peter Smetacek, Isaac Kehimker, and Mukesh Pawar for identity confirmation of the subspecies of Tricolour Pied Flat.

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Citation: Joshi, A.K. (2021). Dakhan Tricolour Pied Flat: new distribution record for Rajasthan, India. Bugs R All #199, In: *Zoo's Print* 36(8): 01–03.

Bugs R All is a newsletter of the Invertebrate Conservation and Information Network of South Asia (ICINSA) published with the financial support of Zoological Society of London.
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New larval host plant of the Copper Flash from Unakoti, Tripura, India

Butterflies and plants are closely associated as the larval stage and adult butterflies derive their food from green plant parts and nectar, respectively; while adult butterflies act as important pollinators. Therefore, documentation of larval host plants and nectary plants are as important as observation and recording butterfly diversity and distribution for the conservation of both plants and butterflies (Karmakar et al. 2018). The present study reports a new host plant for the tropical butterfly species Copper Flash *Rapala pheretima* (Hewitson, 1863) from Unakoti District of Tripura, northeastern India.

Copper Flash is a small sized butterfly belonging to the tribe Deudorigini, subfamily Theclinae and family Lycaenidae (Varshney 2015). *Rapala pheretima* is widely distributed among the Asiatic countries including India, Bangladesh, Nepal, Bhutan, and Myanmar (Kehimkar 2016). In India its population is mainly concentrated at Uttarakhand to northeastern Indian states (Varshney 2015). The species has also been reported from the states like West Bengal, Odisha, Andhra Pradesh, Madhya Pradesh, and Chhattisgarh (Mazumder et al. 2020).

Information regarding the larval host plant of the Indian subspecies of Copper Flash butterfly [*Rapala pheretima petosiris* (Hewitson, 1863)] is very scanty. The only reported study (Karmakar et al. 2018) conducted in Jayanti, Alipurduar District, West Bengal, India recorded that larvae of Copper Flash butterfly fed on floral buds and young leaves of *Ziziphus* sp. (Family: Rhamnaceae). As per information available in the website 'Butterflies of Singapore' (https://butterflycircle.blogspot.com) larvae of Copper Flash is polyphagous and fed on few locally available plant species in Singapore like *Mangifera indica* (Anacardiaceae), *Hibiscus tiliaceus* (Malvaceae), *Syzygium zeylanicum* (Myrtaceae), *Mallotus paniculatus* (Euphorbiaceae), and *Saraca thaipingensis* (Fabaceae).

Tripura is one of the seven northeastern Indian states which fall under the Indo-Burma Biodiversity Hotspot. Several studies have been conducted to document the diversity and distribution of butterfly species in Tripura (Mazumder et al. 2013; Lodh & Agarwala 2015; Agarwala & Mazumder 2020). But no comprehensive study has been carried out to document the early stages and larval host plants of the butterfly species found in Tripura.

During a field survey for documentation of butterfly diversity and larval host plant in Kailashahar area (24.3131^{0}N, 91.9950^{0}E) of

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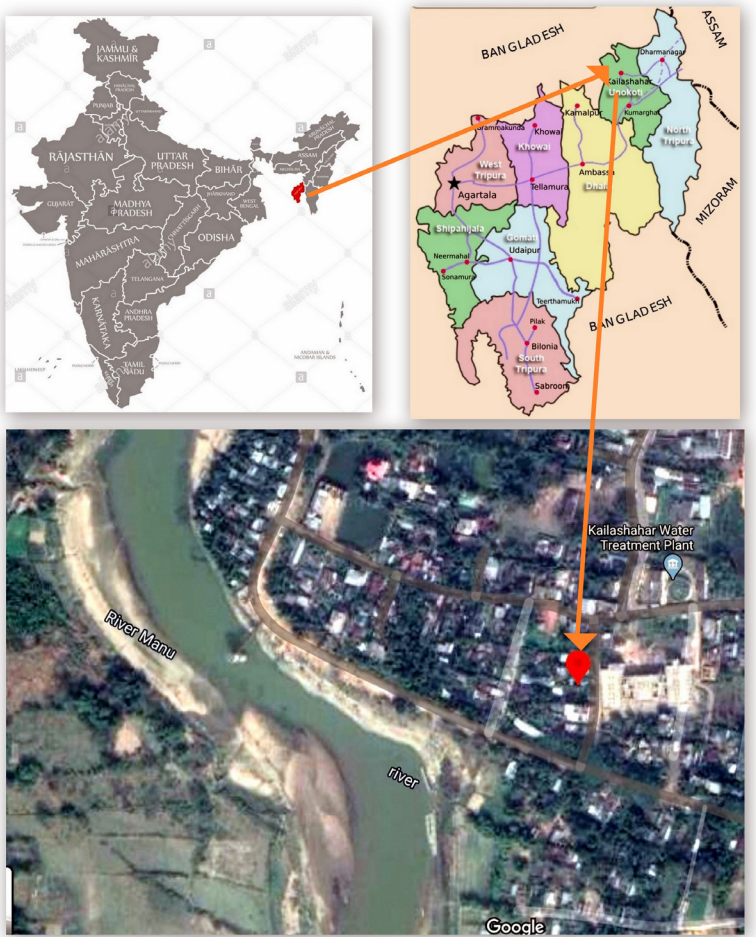

Google map showing location from where the caterpillar was collected.

Unakoti District, Tripura on 25 January 2019, a caterpillar of about 22mm length was found feeding on the leaves and young fruit of a cultivated short-lived perennial vine *Lablab purpureus* (Family: Fabaceae). The caterpillar had wide triangular to semi-circular yellow and pink dorsal patches and lime green to yellowish-green broad triangular lateral patches. It seemed to be the final instar larva of some butterfly species. A weaver ant *Oecophylla smaragdina* was found in close association with the caterpillar. To confirm its identity and for further study, the caterpillar was carefully collected and brought to the laboratory for rearing. The caterpillar was kept in a plastic container in normal room temperature and given fresh leaves and young fruits of *Lablab purpureus* as food. The caterpillar ate voraciously for two days, and then it stopped feeding and entered into the pre-pupal stage as it settled under a hard surface. Gradually the pre-pupal stage transformed into a pupa with a drastic change in morphology and colouration. The surface of the pupa was a mixture of reddish and deep brown in colour and has numerous small dark speckles. The length of the pupa measured about 15cm. After 15 days, the pupa turned black initially in the wing pad and thoracic region and then in the abdominal part. The adult emerged the next morning. The upper side of the wings was copper red in colour with broad black apex and margins narrowly dark. Pale brown markings were present in underside of both the wings with broad cell-end bar and a brown post-discal band whitened on the outer side. The adult butterfly was identified as Copper Flash *Rapala pheretima* (Hewitson,

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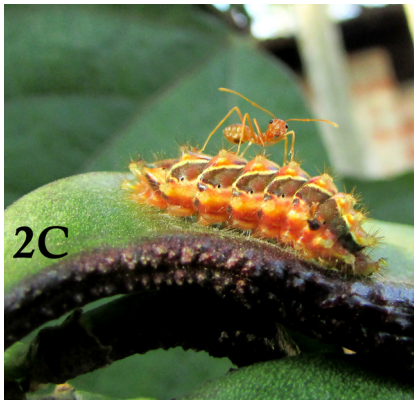
Larva of Copper Flash Butterfly on leaf of *Lablab purpureus.* © Nihar Chandra Deb.

Lablab purpureus, the newly reported larval food plant of Copper Flash Butterfly. © Nihar Chandra Deb.



Association of Copper Flash caterpillar and weaver ant. © Nihar Chandra Deb.

Pre-pupal stage. © Nihar Chandra Deb.

Pupal stage. © Nihar Chandra Deb.

Mature pupa just before emergence. © Nihar Chandra Deb.

Adult Copper Flash, open wing view. © Nihar Chandra Deb.

New larval host plant of the Copper Flash from Unakoti, Tripura, India

Adult Copper Flash, close wing view. © Nihar Chandra Deb.

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1863) using suitable keys (Evans 1932; Wynter-Blyth 1957; Kunte 2000; Kehimkar 2016). It was released into the wild after taking photographs for documentation. The present study clearly established *Lablab purpureus* as a larval host plant for *Rapala pheretima*. This finding adds a new plant species to the list of larval host plants for *Rapala pheretima* from India or abroad.

The Copper Flash butterfly is widely distributed in different parts of Tripura and can be seen throughout the year though maximum abundance is noted from October to March. *Lablab purpureus* is a short-lived perennial vine which is widely cultivated in Tripura during the winter months. The abundance of Copper Flash butterfly during the winter months strongly indicates that *Lablab purpureus* may be the principal larval food plant of this butterfly in this region. Therefore, findings of the present study may provide useful information in the conservation of butterfly diversity and setting up of butterfly gardens in this region.

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Citation: Deb, N.C. & S. Mandal (2021). New larval host plant of the Copper Flash from Unakoti, Tripura, India. Bugs R All #200, In: *Zoo's Print* 36(8): 04–07.

Bugs R All is a newsletter of the Invertebrate Conservation and Information Network of South Asia (ICINSA) published with the financial support of Zoological Society of London.
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Predatory attack of weaver ants on the pup of Common Palm Civet

The weaver ants of the genus *Oecophylla* (Hymenoptera: Formicidae) are social insects. They are primarily insectivorous, attacking and eating any ants or other insects that invade their nest (Holldobler & Wilson 1977). In southeastern Asia, often, the weaver ants are used as natural biocontrol agents against agricultural pests by indigenous farmers due to their predatory nature (Peng et al. 1997; Van Mele & Cuc 2000). Its defensive behaviours include biting it with their mandibles and spraying formic acid resulting in intense discomfort (Holldobler & Wilson 1977); due to this defensive behaviour, the weaver ants even can attack large animals, passing too close or spending too much time near the host tree of *Oecophylla*; thousands of ants may drop down to attack the intruder for territory as well as for predation (Holldobler &

A pup of Common Palm Civet *Paradoxurus hermaphroditus*. © M. Kamalakannan.

The weaver ants attacking the naked parts (ears, snout, feet and ventral side) of the Common Palm Civet pup. © M. Kamalakannan.

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The sleeping Common Palm Civet pup even while ants attack. © M. Kamalakannan.

Wilson 1990). However, neither information on species/taxa of the intruding larger animals nor recorded based evidence of the predatory attack of weaver ants on larger animals available.

Recently, one of the authors (MK) encountered a live and unaided civet pup having been attacked by hundreds of weaver ants on a walkway at the campus of Forest Research Institute, Dehradun, Uttarakhand, India (30.3457^0 N, 78.0098^0 E). The ants were attacking the naked parts of the civet pup such as ears, snout, feet and ventral side. Further, it was also noted that the civet pup was unable to react from the attack of ants and it was sleeping quietly. The pup was healthy and no injury marks were found. However, it was not clear how the civet pup was abandoned or moved away from its nest, as there were no signs of its nest or presence of its mother civet vicinity. The civet pup was identified as the Common Palm Civet *Paradoxurus hermaphroditus* (Pallas, 1777) based on the morphological features such as spotted and splotched dorsal pelage and long black tail (Menon 2014). The ant was identified as Weaver Ant genus *Oecophylla* (Smith, 1860) through its relatively larger, reddish, elongated, and three segmented body and presence of developed black eyespots (Bolton 2003).

Though Common Palm Civet is adapted for forest living, it is also adapted for inhabiting near areas of human habitation where they can take rest in, like tree hollows, boulder crevices, a drain, dense foliage or a roof to rest; it is nocturnal, omnivore, solitary and arboreal in behaviour, and very rarely seen during the day (Lekagul & McNeely 1977). This species breeds throughout the year and gives birth to two to five pups in tree hollows or boulder crevices; pups are born with fur covering bodies and eyes are closed; after around 10 days, their eyes are open, about two months they are weaned and after about three months they are considered fully grown, but they reach sexual maturity at about one

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year old (Lekagul & McNeely 1977; Nowak 1999; Grzimek et al. 2004; Duckworth et al. 2016). Further, it is also reported that young civets do not leave the nest until they are weaned; they need care from the mother until their maturity for survival (Duckworth et al. 2016). In the present observation, the pup was found relatively older (determined through its moving ability and developed fur). It could have fallen from the tree hollows (nest) during the night times when its mother civet was absent. And it is assumed that the milk smell of the civet pup might have attracted the weaver ants or the pup might have disturbed the nest of weaver ants while moved away from its nest. As the road had been loaded with the traffic during day time, the mother civet could not have been able to locate and rescue the pup. The civet pup was not found when the author searched in the same spot the next day morning. The present observational evidence that the weaver ants could make predatory attack even larger mammals which have not been recorded so far.

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Citation: Kamalakannan, M., C. Venkatraman & K. Chandra (2021). Predatory attack of weaver ants on the pup of Common Palm Civet. Bugs R All #201, In: *Zoo's Print* 36(8): 08–10.

Bugs R All is a newsletter of the Invertebrate Conservation and Information Network of South Asia (ICINSA) published with the financial support of Zoological Society of London.
For communication, Email: zp@zooreach.org

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Hornet Wasp feeding on the meat of Indian Bullfrog

The Black Shield Wasp or Hornet Wasp *Vespa bicolor* is the largest of the known eusocial wasps. It is a common species of the hornet group of wasps of the family Vespidae. It is found in a wide range of environment and can also be found near human habitations. This species plays a vital role in the pollination of orchids (Gillott 2012). Although hornets feed on nectar, their workers also prey on insects especially honey bees and are also known to feed on meat for nutrients (Gillott 2012; Sung et al. 2014; Dorji et al. 2017). Here we report the Hornet Wasp *V. bicolor* feeding on the fresh meat of Indian Bullfrog *Hoplobatrachus tigerinus*.

A road kill of Indian Bullfrog *Hoplobatrachus tigerinus* being fed by Hornet Wasp *Vespa bicolor* at Mahananda Wildlife Sanctuary, West Bengal. © M. Kamalakannan.

A road kill of this frog being fed by a number of yellow-coloured wasps was observed at Mahananda Wildlife Sanctuary, Darjeeling District, West Bengal, India (26.478^0 N, 88.223^0 E). The wasp was identified as a Hornet Wasp *Vespa bicolor* (Fabricius, 1787) through its bright yellow colour body with black stripes and a black triangular patch on the central part of the thorax. The smashed frog was identified as an Indian Bullfrog *Hoplobatrachus tigerinus* (Daudin, 1803) through its yellow spotted dorsum with a vertebral line. It was also noted that the Bullfrog kill was relatively fresh (determined through its fresh meat) while being fed by Hornet Wasps. Among vehicle-caused wildlife mortalities, amphibians especially Bullfrogs are the easier victims due to their slow mobility (Baskaran & Bhoominathan 2010). After

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the road kill of any wildlife, scavengers like the birds of prey, carrion insects, etc. feed on the remains. Hymenopterans like ants and wasps can promptly detect prey/food from far away due to their higher temporal sense organs (Gillott 2012). The present observation corroborates the immediate presence of wasps in the feeding of meat of unattended road kills.

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Acknowledgement: We thank Dr. Girish Kumar, Scientist at ZSI, WGRC, Kozhikode for helping with the identification of the wasp species.

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Citation: Kamalakannan, M., K. Deuti & K. Chandra (2021). Hornet Wasp feeding on the meat of Indian Bullfrog. Bugs R All #202, In: *Zoo's Print* 36(8): 11–12.

Bugs R All is a newsletter of the Invertebrate Conservation and Information Network of South Asia (ICINSA) published with the financial support of Zoological Society of London.
For communication, Email: zp@zooreach.org

ISSN 2230-7052
#203
21 August 2021
BUGS R ALL
Newsletter of the
Invertebrate Conservation & Information Network of South Asia (ICINSA)

Communal roost of Yellow-tailed Ashy Skimmer at Kamrup District, Assam

A communal roost of Yellow-tailed Ashy Skimmer *Potamarcha congener* Rambur, 1842 dragonfly (Family Libellulidae) was recorded at Rani (26.00^{0}N & 91.54^{0}E), Kamrup District in Assam. The roost was observed from 15 November 2020 for 32 days, until it was abandoned naturally on 18 December 2021.

The large gathering of *Potamarcha congener* at Rani, Assam. © Sachin Ranade.

The roost was on branches of a *Ficus* sp. plant growing on an old huge Sal tree *Shorea robusta*. The tree was about 60 meters from a perennial water body used for fishery. The dragonflies preferred two leafless branches at the heights of three and four meters from the ground. The maximum count of the dragonflies was about 125, while on an average 47 individuals were seen (n= 32).

The photographs revealed dominance of females (70%) in the roosts. In this species, the male appears bluish-grey in colour while female is yellowish (Subramanian 2005). Generally, the dragonflies started gathering by 1530 h and left the roost by 0800 h, but on a foggy day, a few individuals stayed throughout the day on the same twig.

A roost of the same species on the Indian gooseberry tree *Phyllanthus emblica* was observed at Rajabhatkhwa in Buxa Tiger Reserve, West Bengal during November 2010 for a couple of days.

The communal roost is assumed to serve as (a) a breeding facilitator, (b) as a preparation of gregarious emigration, and (c) an antipredator response (Miller 1989; May 2013). There are a few records of the roost of the species from peninsular India from Madurai, Tamil Nadu (Miller 1989), Gaganbawada, Maharashtra (Mahabal & Rane 2012) and on the website Odonata of India (Anonymous 2021). Miller (1989) had monitored nine roosts, some of them

ISSN 2230-7052
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Close up of dragonflies roosting. © Sachin Ranade.

Table 1: Communal roost of *Potamarcha congener* reported from India (Source: Odonata of India).

Date	Place	District	State	Observer
20.iv.2013	Ruppur	Nadia	W Bengal	Somen Sarkar
05.v.2016	Thumboor	Thrissur	Kerala	Rison Thumboor
11.i.2018	Thakurli	Thane	Maharashtra	Omkar Damle
15.xi.2020	Rani	Kamrup	Assam	Sachin Ranade

utilized for even 70 days, but none of the marked individuals used the same roost for more than 23 days. The observations made here appear similar for roosting duration and habitat to those by Miler 1989, although the individuals were not marked, neither intensive observations were carried out. The photographic records from the 'Odonata of India' are compiled in Table 1 (Anonymous 2021). My observations appear to be the first record of communal roost from northeast India.

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Acknowledgements: Gratitude is expressed to Bombay Natural History Society for their constant support and encouragement. I would like to thank the Facebook group DragonflySouthAsia for raising my interest in the subject.

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Citation: Ranade, S. (2021). Communal roost of Yellow-tailed Ashy Skimmer at Kamrup District, Assam. Bugs R All #203, In: *Zoo's Print* 36(8): 13–14.

Bugs R All is a newsletter of the Invertebrate Conservation and Information Network of South Asia (ICINSA) published with the financial support of Zoological Society of London.
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SARN
S. Asian Reptile Network

A live Keeled Skink trapped in the resin at Alipurduar, West Bengal, India

Amber is a fossilized resin from a tree. Organisms getting trapped in the resin and getting preserved for millions of years is a well-known phenomenon. There are a number of records of insects and spiders (Ross 2018), Gekkota (Daza et al. 2014), and lizards (Wanga & Xinga 2020) found preserved in amber. The resin secretion by plants began in the Carboniferous period, about 320 million years ago (Bray & Anderson 2009), but the oldest records of arthropods in amber date to early Cretaceous period, about 130 million years ago when the resins were produced in large quantities. The oldest lizard sample are about 120 million years old (Arnold & Poinar 2008). While these reports furnish information on animals that get engulfed and die by the resin, thereby getting naturally preserved for millions of years, this report is on a different case - one of a large, live adult skink getting entangled in resin drops shed on the ground under the tree.

An adult Keeled Skink entangled in the resin at Alipurduar, West Bengal showing the ventral contact of the skink that had accidentally crossed path on the dropped resin surface.

On 19 May 2006, in Alipurduar town (26.50^{0}N, 89.52^{0}E) in West Bengal, India, an incidence of a skink getting trapped in resin was observed. There was a medium sized tree *Lannea coromandelica* (Houtt.) Merr. in a residential colony, on the roadside. The tree had a broken branch and the resin was dripping from this branch copiously. The skink was in moribund condition as it had got entangled in the resin collected at the base of the tree, on a concrete floor. The ventral surface of the skink was in contact with the collected resin. It was photographed with a Nikon Coolpix camera. The skink was identified as a Keeled Skink *Eutropis carinata* (Schneider, 1801), from the photographs referring the field guide by Purkayastha (2013). The resin had entangled a pseudo-scorpion and a few individuals of *Camponotus* sp. ants around it which were dead by the time. It is unclear if the ants were attracted to the skink or

Resin dripping from the tree *Lannea coromandelica*.

the skink was attempting to eat the insects stuck in the resins. However, the prey and predators were captured together by the resin. The skink's interactions with fresh resin were visible as it might have moved its forelimbs vigorously creating marks in the resin, ultimately got caught in an abnormal position due to exhaustion (Arillo 2007). The scene remained as it was for a week after which I could not do the follow up.

This observation is more or less analogous to a natural 'glue trap' (Ribeiro-Junior et al. 2006). Adlassnig et al. (2010) and Voigt et al. (2015) suggested similar analogies between the secretions of the insectivorous plants and the artificial glues used in animal traps. Very recently, Horvath et al. (2019) explained about the detailed investigations they conducted in simulating tree resins using artificial glues, both aimed at attracting insects. This observation on the skink getting trapped on the sticky surface of fallen resin below a tree, adds one more to such a case.

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Acknowledgements: I am thankful to the reviewer for correcting the identification of the skink and reorientation of the short note. Also, thanks are due to the Bombay Natural History Society for their constant support.

Citation: Ranade, S. (2021). A live Keeled Skink trapped in the resin at Alipurduar, West Bengal, India. Reptile Rap #210, In: *Zoo's Print* 36(8): 15–17.

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Large congregation of Red-breasted Parakeet in Buxa Tiger Reserve, West Bengal

The Red-breasted Parakeet *Psittacula alexandri* (Linnaeus, 1758) is categorised as 'Near Threatened' due to its suspected decline in their global population. The species is found in southern and southeastern Asia. In India, it is reported as a common resident bird along the Himalayan foothills and in the northeast region (Ali & Ripley 1983; Rasmussen & Anderton 2012; BirdLife International 2017).

On 28 October 2019, while travelling along the Damanpur-Buxaduar road, a huge flock of Red-breasted Parakeet was observed. On the next day, on the same road at Panijhora (26.588N, 89.526E), the parakeet flocks were observed and photographed. In the morning, the flocks were observed from 0705 to 0720 h while it was 1530 to 1600 h in the evening. In the evening, 12 flocks were counted that included four small flocks (30–50 individuals) and eight large flocks (from 1500–3000 individuals). Altogether, more than 18,000 parakeets were counted during their flight from roosting to feeding ground and back. In the bird abundance study in Buxa Tiger Reserve during May 2000–July 2001, the densities of the Red-breasted Parakeets were quite high with 34.7 parakeets/km^2 in the monoculture plantation, 30.5 parakeets/km^2 in semi-evergreen forest, 85.7 parakeets/km^2 in riverine forest and 8.0 parakeets/km^2 in the village edge forest of Buxa Tiger Reserve (Sivakumar et al. 2006). During the months of July and August, a few hundred individuals of this species were observed being attracted to fruiting wild jackfruit tree *Artocarpus hirsutus* and to the paddy fields during October–November at Raja Bhat Khawa since 2005.

Globally, the population of Red-breasted Parakeet is on 'moderately rapid decline' due to on-going trapping pressure, persecution and habitat loss. At Buxa Tiger Reserve, this species gets assured nesting habitat, protection against trapping for trade, and the paddy fields in and around the protected areas serves as feeding ground. This species lays 3–4 eggs per clutch (Ali & Ripley 198) and the population has natural ability to bounce back from decline. It is known to breed during December to March, occasionally as late as May (Rasmussen & Anderton 2012).

The flock with backdrop of hillocks in Buxa. © Sachin Ranade.

Red-breasted Parakeet near its nest hole in late June (27 June 2012). © Sachin Ranade.

Flock of Red-breasted Parakeets at Raja Bhat Khawa, Buxa Tiger Reserve (21 July 2007). © Sachin Ranade.

During last decade, species breeding till end of June was witnessed which could be a result of their successful exploitation of the habitat. During the non-breeding season, they flock together for foraging and roosting. This opportunistic sighting is worth to record as an indicator of successful forest management. But, in uncontrollable situation, it could turn as the pest of paddy and orchards due to its raiding in huge numbers. In the United Kingdom, Singapore, and Kerala, this species has been introduced by human and has received invasive status (Butler 2002; John et al. 2016; Neo 2012). In this context, the detailed study of Red-breasted Parakeets for its breeding biology and flocking behaviour should be carried out in the Dooars landscape.

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Acknowledgements: I would like to thank the Forest Department of West Bengal and the Bombay Natural History Society for their kind support and encouragement.

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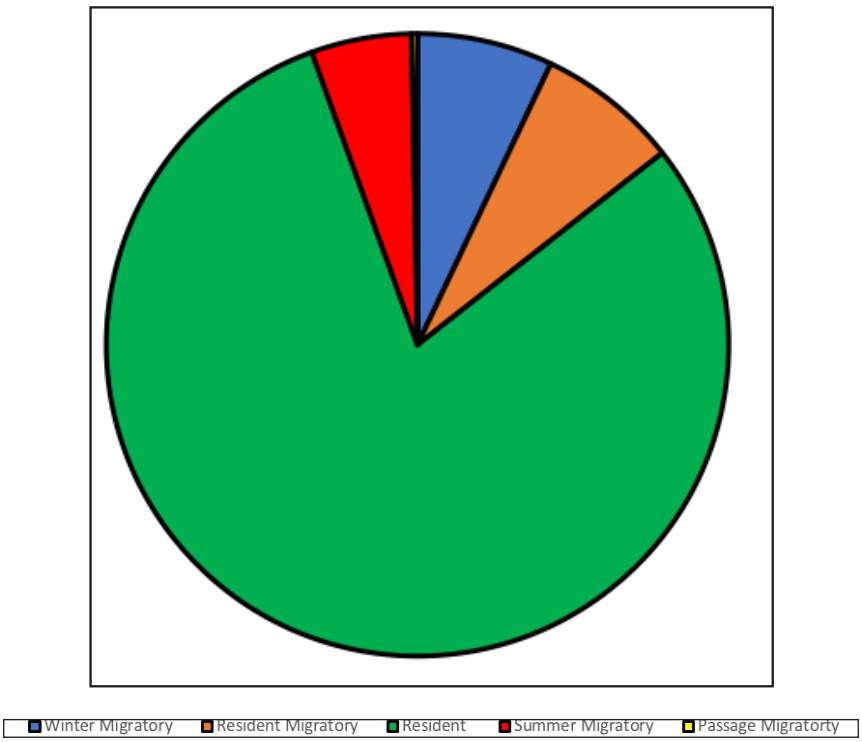
Citation: Ranade, S.P. (2021). Large congregation of Red-breasted Parakeet in Buxa Tiger Reserve, West Bengal. Bird-o-soar #96, In: *Zoo's Print* 36(8): 19–20.

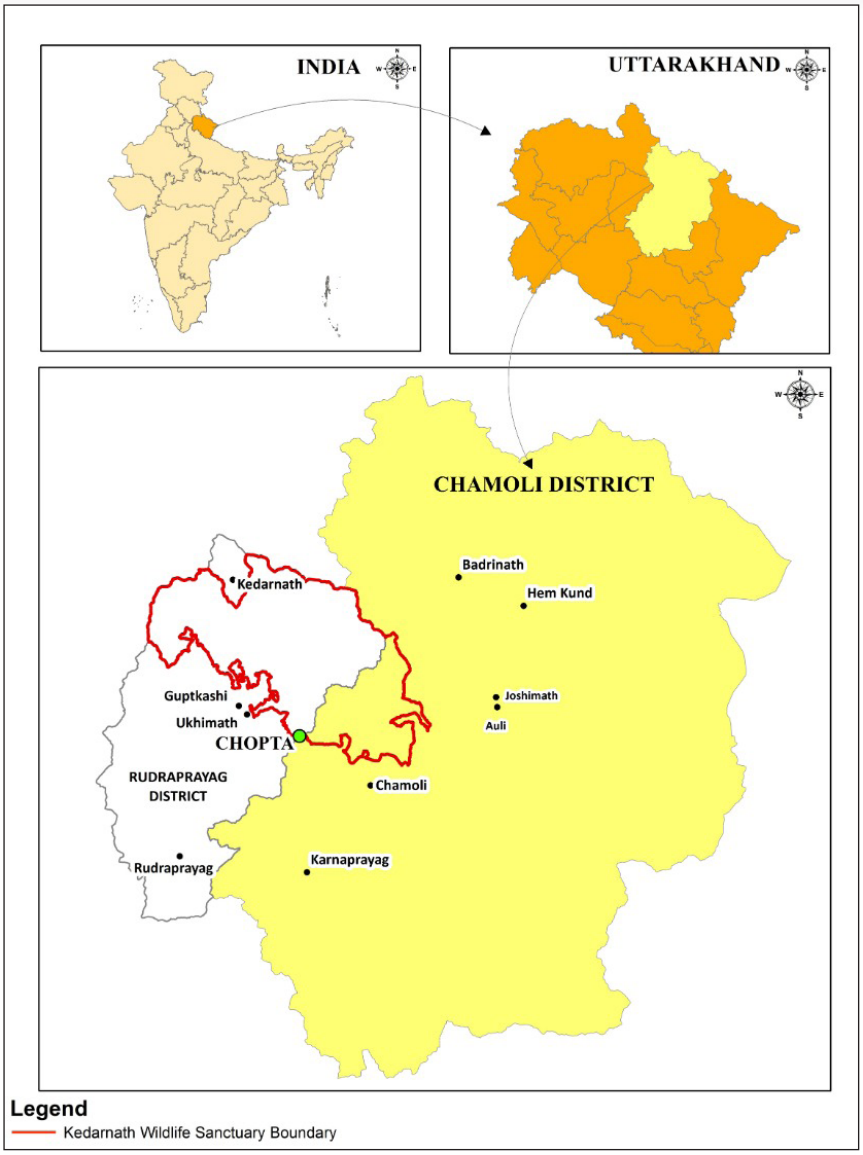
Checklist of birds of Rudraprayag Forest Division, Uttarakhand

The Himalaya are one of the most biodiverse places on Earth with rich flora and fauna (Olson & Dinnerstein 1998; Myers et al. 2000; Brooks et al. 2006) and has nearly 10% of the world's bird species and around 330 important bird areas (Pandit et al. 2014; Elsen et al. 2016). The hill state of Uttarakhand (formed in 2000, then known as Uttaranchal) has terrific avifaunal diversity. Out of the total 1,303 bird species recorded from India, compiled from the IOC World Bird List (Gill et al. 2014), more than 50% are found in Uttarakhand. Rudraprayag supports more than 300 bird species with two supporting river systems, i.e., Alaknanda and Mandakini. Rudraprayag supports few migratory water bird species as well. Migration status of the species was assigned on the basis of field observations and Grimmett et al. (2011). Species frequently seen throughout the year were assigned as 'Resident', if seen during March to July only were assigned as summer visitor birds, observed between October and February only were assigned as winter visitor and for unconfirmed migration status, we followed Grimmett et al. (2011). Birds are the most important, beautiful, graceful, warm blooded, flying vertebrates. Birds are essential animal group of an ecosystem and maintain trophic level.

The Rudraprayag Forest Division (RFD) comprises of 59,867.26 ha of reserve forest. The division consists of five ranges—north Jakholi, south Jakholi, Khakra, Rudraprayag, Agasthymuni—and Guptkashi unit which has been recently separated from Agasthymuni for management purpose. The altitude of RFD varies from 565 m in Chauras compartment No 5 to 3,758 m in Lastargad compartment



Status of birds.



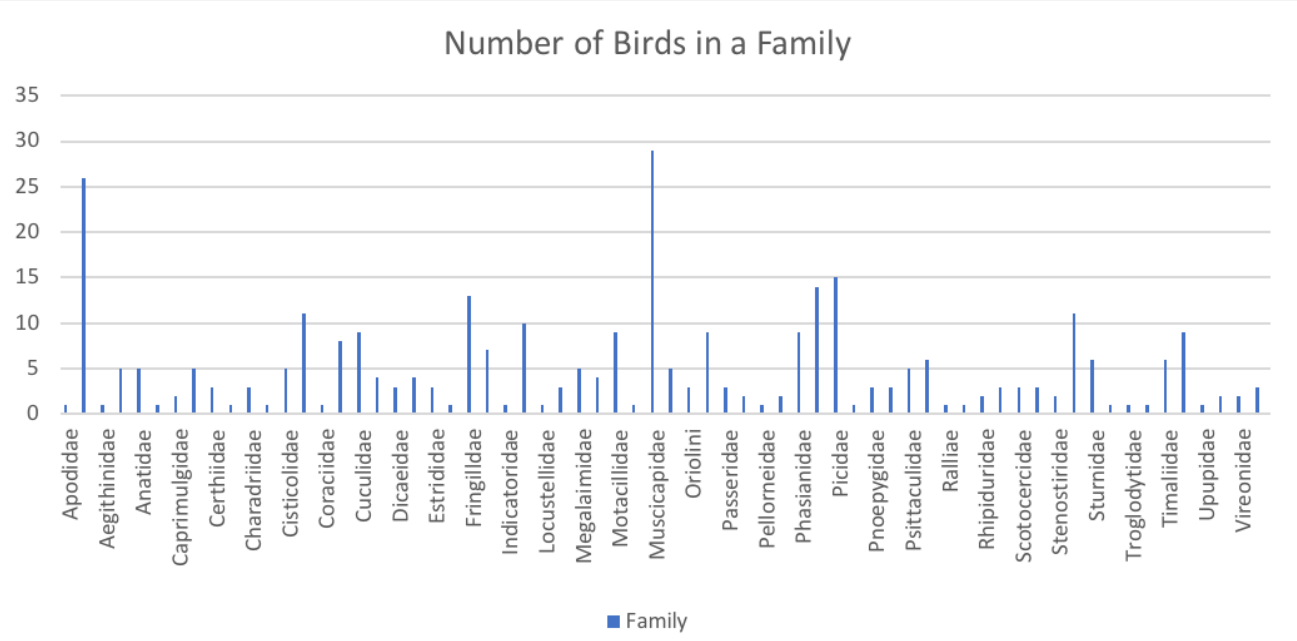
Chopta and Kedarnath Wildllife Sanctuary.

No 5. The division shares its boundary in the north & east with Kedarnath wildlife division, south with Pauri forest division, and westward with Tehri & Narendranagar forest division. Temperaure of the region varies 12–40 ^{0}C, approximately. Winter temperature drops to approximately -12^{0}C. It is one of the favourite bird destinations for every bird lover.

Alaknanda River: It enters RFD in Dhanpur II compartment no. 8c near Shivnandi in Rudraprayag Range and ends at Kaliyasaur in Chauras compartment no. 4 in Khankra Range. A total stretch of about 35 km of Alaknanda lies under the jurisdiction of RFD.

Mandakini River: It enters RFD in Maikhanda I compartment no. 1d near Sonprayag in Guptakashi Range and ends at Rudraprayag Sangam. A total stretch of about 45 km. Mandakini lies under the jurisdiction of RFD. Mandakini is a tributary of the Alaknanda River. It flows along NH 107 in Rudraprayag.

We conducted our survey between December 2019 and March 2021 in the mornings at 0700–1100 h and in the evening at 1530–1830 h when birds are known to be more active (Trnka et al. 2006). Birds were observed by the aid of Nikon 10x42 binoculars and identified using Grimmett et al. (2011); pictures were taken by different cameras like Canon 80D, Canon 60HS, and Nikon P1000. We maintained a distance of 150–200 m between each point to avoid double counting. All species seen or heard within 15 minutes were recorded (Menon et al. 2019). Some opportunistic sightings were also added to the list (Srinivasan et al. 2010; Shahabuddin et al.



Number of bird species according to family.

2017). Migration status of the species was assigned based on the field observations and Grimmett et al. (2011). Species frequently seen throughout the year were assigned as resident, if seen during March and July only as a summer visitor, and those observed between October and February as winter visitor, and for unconfirmed migration status, we followed Grimmet et al. (2011). Birds were surveyed visually as well as acoustically. Bird surveys were avoided during cloudy or rainy days.

During the study period, a total of 325 species belonging to 66 families were recorded, of which some first sightings like Red-fronted Rosefinch *Carpodacus puniceus*, Goldcrest *Regulus regulus*, Mrs. Gould's Sunbird *Aethopyga gouldiae* from Chopta and presence of Cheer Pheasant *Catreus wallichii* in Chirbatiya were encountered. Due to the forest density, it is sometimes difficult to detect the presence of birds so call playback method was used to check the presence of few birds like Grey-bellied Tesia *Tesia cyanivanter*. Pine dominating forest has the less number of species except rarity like Cheer Pheasant *Catreus wallichii*, Treecreeper like Bar-tailed Treecreeper *Certhia himalayana*, Nuthatches like Velvet-fronted Nuthatch *Sitta frontalis*, Chestnut-bellied Nuthatch *Sitta cinnamoventris* and White-tailed Nuthatch *Sitta himalayensis*, few species of woodpeckers like Brown-fronted Woodpecker *Dendrocoptes auriceps*, Grey-headed Woodpecker *Picus canus*,Grey-capped Pygmy Woodpecker *Yungipcus canicapillus*, and Brown-capped Pygmy Woodpecker *Yungipicus nanus* are in good numbers in these forests (VKS & PB pers. obs.). About 7% are winter migrants (September to March) to the district, 80%

Spotted Forktail. © Rajiv Bisht.

Fire-breasted Flowerpecker. © Rajiv Bisht.

Snow Partridge. © Rajiv Bisht.

Cheer Pheasant. © Rajiv Bisht.

Red-fronted Rosefinch. © Rajiv Bisht.

Grey-bellied Tesia. © Rajiv Bisht.

White-browed Fulvetta. © Yashpal Singh Negi.

Chestnut-eared Bunting. © Yashpal Singh Negi.

Blue-tailed Bee-eater. © Rajiv Bisht.

Eurasian Woodcock. © Yashpal Singh Negi.

Himalayan Monal. © Rajiv Bisht.

Collared Owlet. © Ashley Chui.

Speckled Piculet. © Rajiv Bisht.

Red-breasted Parakeet. © Ashley Chui.

Himalayan Woodpecker. © Parul Bhatnagar.

Checklist of birds of Rudraprayag according to family.

	Family	Common name	Scientific name	Status	Red List Status
1	Apodidae	Himalayan Swiftlet	*Aerodramus brevirostris*	R	LC
2	Accipitridae	Bonelli's Eagle	*Aquila fasciata*	R	LC
3		Crested Serpent-Eagle	*Spilornis cheela*	R	LC
4		Black Eagle	*Ictinaetus malaiensis*	WM	LC
5		Changeable Hawk-Eagle	*Nisaetus (cirrhatus) limnaeetus*	R	LC
6		Crested Goshawk	*Accipiter trivirgatus*	R	LC
7		Euriasian Sparrowhawk	*Accipiter nisus*	R	LC
8		Palla's Fish- Eagle	*Haliaeetus leucoryphus*	RM	EN
9		Mountain Hawk-Eagle	*Nisaetus nipalensis*	R	LC
10		Golden Eagle	*Aquila chrysaetos*	RM	LC
11		Oriental Honey- Buzzard	*Pernis ptilorhynchus*	R	LC
12		Long-legged Buzzard	*Buteo rufinus*	WM	LC
13		Upland buzzard	*Buteo hemilasius*	WM	LC
14		Himalayan Buzzard	*Buteo burmanicus*	R	LC
15		White-eyed Buzzard	*Butastur teesa*	RM	LC
16		Short-toed Snake-Eagle	*Circaetus Gallicus*	R	LC
17		Steppe Eagle	*Aquila nipalensis*	R	EN
18		Black Kite	*Milvus migrans*	R	LC
19		Black-winged Kite	*Elanus caeruleus*	R	LC
20		Shikra	*Accipiter badius*	R	LC
21		Besra	*Accipiter virgatus*	R	LC
22		Cinereous Vulture	*Aegypius monachus*	RM	NT
23		Egyptian Vulture	*Neophron percnopterus*	R	EN
24		Eurasian Griffon	*Gyps fulvus*	RM	LC
25		Himalayan Vulture	*Gyps himalayensis*	RM	NT
26		Red-headed Vulture	*Sarcogyps calvus*	RM	CR
27		White-rumped Vulture	*Gyps bengalensis*	RM	CR
28	Aegithinidae	Common Iora	*Aegithina tiphia*	R	LC
29	Alcedinidae	Common Kingfisher	*Alcedo atthis*	R	LC
30		White-throated Kingfisher	*Halcyon smyrnensis*	R	LC
31		Pied Kingfisher	*Ceryle rudis*	R	LC
32		Crested Kingfisher	*Megaceryle lugubris*	R	LC
33		Stork-billed Kingfisher	*Pelargopsis capensis*	RM	LC
34	Anatidae	Indian Spot-billed Duck	*Anas poecilorhyncha*	R	LC
35		Garganey	*Spatula querquedula*	SM	LC
36		Northern Pintail	*Anas acuta*	RM	LC
37		Red-crested Pochard	*Netta rufina*	WM	LC
38		Bar-headed Goose	*Anser indicus*	SM	LC
39	Ardeidae	Indian Pond Heron	*Ardeola grayii*	R	LC
40	Caprimulgidae	Gray Nightjar	*Caprimulgus jotaka*	SM	LC
41		Long-tailed Nightjar	*Caprimulgus climacurus*	R	LC

	Family	Common name	Scientific name	Status	Red List Status
42	Campephagidae	Scarlet Minivet	*Pericrocotus speciosus*	R	LC
43		Small Minivet	*Pericrocotus cinnamomeus*	R	LC
44		Rosy Minivet	*Pericrocotus roseus*	R	LC
45		Long-tailed Minivet	*Pericrocotus ethologus*	R	LC
46		Black-winged Cuckooshrike	*Lalage melaschistos*	SM	LC
47	Certhiidae	Hodgson's Treecreeper	*Certhia hodgsoni*	R	LC
48		Rusty-flanked Treecreeper	*Certhia nipalensis*	R	LC
49		Bar-tailed Treecreeper	*Certhia himalayana*	R	LC
50	Cinclidae	Brown Dipper	*Cinclus pallasii*	R	LC
51	Charadriidae	Red-wattled Lapwing	*Vanellus indicus*	R	LC
52		River Lapwing	*Vanellus duvaucelii*	R	NT
53		Little Ringed Plover	*Charadrius dubius*	R	LC
54	Chloropseidae	Golden-fronted Leafbird	*Chloropsis aurifrons*	R	LC
55	Cisticolidae	Ashy Prinia	*Prinia socialis*	R	LC
56		Grey-breasted Prinia	*Prinia hodgsonii*	R	LC
57		Zitting Cisticola	*Cisticola juncidis*	R	LC
58		Striated Prinia	*Prinia criniger*	R	LC
59		Common Tailorbird	*Orthotomus sutorius*	R	LC
60	Columbidae	Emerald Dove	*Chalcophaps indica*	R	LC
61		Oriental Turtle Dove	*Streptopelia orientalis*	R	LC
62		Eurasian Collared-Dove	*Streptopelia decaocto*	R	LC
63		Red Collared –Dove	*Streptopelia tranquebarica*	R	LC
64		Spotted Dove	*Stigmatopelia chinensis*	R	LC
65		Laughing Dove	*Stigmatopeli asenegalensis*	R	LC
66		Common Pigeon	*Columba livia*	R	LC
67		Yellow-footed Green-Pigeon	*Treron phoenicopterus*	R	LC
68		Snow Pigeon	*Columba leuconota*	R	LC
69		Wedge-tailed Green-Pigeon	*Treron sphenurus*	R	LC
70		Speckled Wood-Pigeon	*Columba hodgsonii*	R	LC
71	Coraciidae	Indian Roller	*Coracias benghalensis*	R	LC
72	Corvidae	Indian Jungle Crow	*Corvus ulminates*	R	LC
73		Eurasian Nutcracker	*Nucifraga caryocatactes*	R	LC
74		Large-billed Crow	*Corvus macrorhynchos*	R	LC
75		Red-billed Chough	*Pyrrhocorax pyrrhocorax*	R	LC
76		Yellow-billed Chough	*Pyrrhocorax graculus*	R	LC
77		House Crow	*Corvus splendens*	R	LC
78		Rufous Treepie	*Dendrocitta vagabunda*	R	LC
79		Grey Treepie	*Dendrocitta formosae*	R	LC
80	Cuculidae	Asian Koel	*Eudynamys scolopaceus*	R	LC
81		Greater Coucal	*Centropus sinensis*	R	LC
82		Common Hawk-Cuckoo	*Hieroccyx varius*	R	LC
83		Himalayan Cuckoo	*Cuculus saturates*	R	LC
84		Lesser Cuckoo	*Cuculus poliocephalus*	WM	LC
85		Indian Cuckoo	*Cuculus micropterus*	R	LC
86		Common Cuckoo	*Cuculus canorus*	R	LC
87		Pied Cuckoo	*Clamator jacobinus*	WM	LC
88		Large Hawk-Cuckoo	*Hierococcyx sparverioides*	SM	LC

	Family	Common name	Scientific name	Status	Red List Status
89	Dicruridae	Ashy Drongo	*Dicrurus leucophaeus*	R	LC
90		Spangled Drongo	*Dicrurus hottentottus*	WM	LC
91		Black Drongo	*Dicrurus macrocercus*	R	LC
92		White-bellied Drongo	*Dicrurus caerulescens*	R	LC
93	Dicaeidae	Thick-billed Flowerpecker	*Dicaeum agile*	R	LC
94		Pale-billed Flowerpecker	*Dicaeum erythrorhynchos*	R	LC
95		Fire-breasted Flowerpecker	*Dicaeum ignipectus*	R	LC
96	Emberizidae	White-capped Bunting	*Emberiza stewarti*	RM	LC
97		Rock Bunting	*Emberiza cia*	R	LC
98		Chestnut-eared Bunting	*Emberiza fucata*	WM	LC
99		Pine Bunting	*Emberiza leucocephalos*	WM	LC
100	Estrildidae	Scaly-Breasted Munia	*Lonchura punctulata*	R	LC
101		Indian Silverbill	*Euodice malabarica*	R	LC
102		White-rumped Munia	*Lonchura striata*	R	LC
103	Falconidae	Eurasian Hobby	*Falco subbuteo*	WM	LC
104	Fringillidae	Collared Grosbeak	*Mycerobas affinis*	WM	LC
105		Spot-winged Grosbeak	*Mycerobas melanozanthos*	SM	LC
106		Black-and-yellow Grosbeak	*Mycerobas icterioides*	WM	LC
107		Yellow-breasted Greenfinch	*Chloris spinoides*	RM	LC
108		European Goldfinch	*Carduelis carduelis*	WM	LC
109		Brown Bullfinch	*Pyrrhula nipalensis*	WM	LC
110		Red-headed Bullfinch	Pyrrhula erythrocephala	WM	LC
111		Pink-browed Rosefinch	*Carpodacus rodochroa*	R	LC
112		Common Rosefinch	*Carpodacus erythrinus*	R	LC
113		Scarlet Finch	*Carpodacus sipahi*	R	LC
114		Plain Mountain-Finch	*Leucosticte nemoricola*	R	LC
115		Dark-breasted Rosefinch	*Carpodacus nipalensis*	WM	LC
116		Red-headed Bullfinch	*Carpodacus puniceus*	SM	LC
117	Hirundinidae	Barn Swallow	*Hirundo rustica*	R	LC
118		Streaked-throated Swallow	*Petrochelidon fluvicola*	R	LC
119		Wire-tailed Swallow	*Hirundo smithii*	R	LC
120		Red-rumped Swallow	*Cecropis daurica*	R	LC
121		Dusky Crag- Martin	Ptyonoprogne concolor	R	LC
122		Pale Sand Martin	*Riparia diluta*	R	LC
123		Nepal House- Martin	*Delichon nipalense*	R	LC
124	Indicatoridae	Yellow-rumped Honeyguide	*Indicator xanthonotus*	R	NT
125	Leiothrichidae	Rufous Sibia	*Heterophasia capistrata*	R	LC
126		Bar-throated Minla	*Actinodura strigula*	R	LC
127		Blue-winged Minla	*Actinodura cyanouroptera*	R	LC
128		Variegated Laughingthrush	*Trochalopteron variegatum*	R	LC
129		White-throated Laughingthrush	*Garrulax albogularis*	R	LC
130		White-crested Laughingthrush	*Garrulax leucolophus*	R	LC
131		Chestnut-crowned Laughingthrush	*Trochalopteron erythrocephalum*	R	LC
132		Striated Laughingthrush	*Grammatoptila striatus*	R	LC
133		Streaked Laughingthrush	*Trochalopteron lineatum*	R	LC
134		Spotted Laughingthrush	*Ianthocincla ocellata*	R	LC
135	Locustellidae	West Himalayan Bush Warbler	*Locustella kashmirensis*	SM	LC

	Family	Common name	Scientific name	Status	Red List Status
136	Laniidae	Bay-backed Shrike	*Lanius vittatus*	R	LC
137		Long-tailed Shrike	*Lanius schach*	R	LC
138		Large Cuckoo Shrike	*Tephrodornis virgatus*	R	LC
139	Megalaimidae	Coppersmith Barbet	*Megalaima haemacephala*	R	LC
140		Blue-throated Barbet	*Megalaima asiatica*	R	LC
141		Brown-headed Barbet	*Megalaima zeylanica*	R	LC
142		Lineated Barbet	*Megalaima lineata*	R	LC
143		Great Barbet	*Megalaima zeylanica*	R	LC
144	Meropidae	Blue-Bearded Bee-eater	*Nyctyornis athertoni*	R	LC
145		Blue-tailed Bee-eater	*Merops philippinus*	R	LC
146		Green Bee-eater	*Merops orientalis*	R	LC
147		Chestnut- headed Bee-eater	*Merops leschenaultia*	R	LC
148	Motacillidae	White Wagtail	*Motacilla alba*	RM	LC
149		Grey Wagtail	*Motacilla cinerea*	RM	LC
150		Citrine Wagtail	*Motacilla citreola*	RM	LC
151		Yellow Wagtail	*Motacilla flava*	RM	LC
152		White-browed Wagtail	*Motacilla maderaspatensis*	RM	LC
153		Rosy Pipit	*Anthus roseatus*	R	LC
154		Olive-backed Pipit	*Anthus hodgsoni*	SM	LC
155		Water Pipit	*Anthus spinoletta*	R	LC
156		Upland Pipit	*Anthus Sylvanus*	R	LC
157	Monarchidae	Indian Paradise- Flycatcher	*Terpsiphone paradisi*	R	LC
158	Muscicapidae	Little Forktail	*Enicurus scouleri*	R	LC
159		Spotted Forktail	*Enicurus maculatus*	R	LC
160		Slaty-backed Flycatcher	*Ficedula erithacus*	R	LC
161		Blue Whistling-Thrush	*Myophonus caeruleus*	R	LC
162		Chestnut- Bellied Rock- Thrush	*Monticola rufiventris*	R	LC
163		Long-billed Thrush	*Zoothera monticola*	R	LC
164		Blue-capped Rock-Thrush	*Monticola cinclorhynchus*	R	LC
165		Black-throated Thrush	*Turdus atrogularis*	R	LC
166		Indian Robin	*Copsychus fulicatus*	R	LC
167		Oriental Magpie-Robin	*Copsychus saularis*	R	LC
168		Brown rock Chat	*Oenanthe fusca*	R	LC
169		White-caped Redstart	*Chaimrrornis leucocephalus*	RM	LC
170		Plumbeous Redstart	*Rhyacornis fuliginosa*	RM	LC
171		Black Redstart	*Phoenicurus ochruros*	WM	LC
172		Grey Bushchat	*Saxicola ferreus*	R	LC
173		Pied Bushchat	*Saxicola caprata*	R	LC
174		Small Niltava	*Niltava macgrigoriae*	RM	LC
175		Rufous-bellied Niltava	*Niltava sundara*	R	LC
176		Himalayan Rubythroat	*Calliope pectoralis*	R	LC
177		Slaty-blue Flycatcher	*Ficedula tricolor*	R	LC
178		Blue-throated Flycatcher	*Cyornis rubeculoides*	R	LC
179		Taiga Flycatcher	*Ficedula albicilla*	RM	LC
180		Tickell's Blue Flyctacher	*Cyornis tickelliae*	R	LC
181		Red-breasted Flycatcher	*Ficedula albicilla*	RM	LC
182		Ultramarine Flycatcher	*Ficedula superciliaris*	RM	LC
183		Verdict's Flycatcher	*Eumyias thalassinus*	R	LC
184		Golden Bush- Robin	*Tarsiger chrysaeus*	R	LC

	Family	Common name	Scientific name	Status	Red List Status
185	Muscicapidae	Isabelline Wheatear	*Oenanthe isabellina*	SM	LC
186		Siberian Stonechat	*Saxicola maurus*	R	LC
187	Nectariniidae	Purple Sunbird	*Cinnyris asiaticus*	R	LC
188		Green-tailed Sunbird	*Aethopyga nipalensis*	R	LC
189		Crimson Sunbird	*Aethopyga siparaja*	R	LC
190		Black-throated Sunbird	*Aethopyga saturata*	R	LC
191		Mrs. Gould's Sunbird	*Aethopyga gouldiae*	R	LC
192	Oriolidae	Black- hooded Oriole	*Oriolus xanthornus*	R	LC
193		Maroon Oriole	*Oriolus trailli*	R	LC
194		Indian Golden Oriole	*Oriolus kundoo*	R	LC
195	Paridae	Great Tit	*Parus major*	R	LC
196		Green-backed Tit	*Parus monticolus*	R	LC
197		Grey-crested Tit	*Lophophanes dichrous*	R	LC
198		Yellow-browed Tit	*Sylviparus modestus*	R	LC
199		Rufous-vented Tit	*Periparus rubidiventris*	R	LC
200		Fire-capped Tit	*Cephalopyrus flammiceps*	R	LC
201		Coal Tit	*Pariparus ater*	R	LC
202		Black-throated Tit	*Aegithalos concinnus*	R	LC
203		White-throated Tit	*Aegithalos niveogularis*	WM	LC
204	Passeridae	House sparrow	*Passer domesticus*	R	LC
205		Russet sparrow	*Passer cinnamomeus*	R	LC
206		Chestnut-shouldered Petronia	Gymnoris xanthocollis	R	LC
207	Pellorneidae	Puff-throated Babbler	*Pellorneum ruficeps*	R	LC
208	Phalacrocoracidae	Great Cormorant	*Phalacrocorax carbo*	R	LC
209		Little Cormorant	*Phalacrocorax niger*	R	LC
210	Phasianidae	Red Junglefowl	*Gallus gallus*	R	LC
211		Indian Peafowl	*Pavo cristatus*	R	LC
212		Grey Francolin	*Francolinus pondicerianus*	R	LC
213		Black Francolin	*Francolinus francolinus*	R	LC
214		Khalij Pheasant	*Lophura leucomelanos*	R	LC
215		Chukar Partridge	Alectoris chukar	R	LC
216		Hill Partridge	*Arborophila torqueola*	R	LC
217		Rufous-throated Partridge	*Arborophila rufogularis*	R	LC
218		Snow Partridge	*Lerwa Lerwa*	R	LC
219	Phylloscopidae	Grey-hooded Warbler	*Phylloscopus xanthoschistos*	R	LC
220		Greenish Warbler	*Phylloscopus trochiloides*	PM	LC
221		Blyth's Leaf Warbler	*Phylloscopus reguloides*	SM	LC
222		Buff-barred Warbler	*Phylloscopus pulcher*	SM	LC
223		Tickell's Leaf Warbler	*Phylloscopus affinis*	R	LC
224		Sulphur-bellied Warbler	*Phylloscopus griseolus*	R	LC
225		Whistler's Warbler	*Phylloscopus whistleri*	SM	LC
226		Ashy-throated Warbler	*Phylloscopus maculipennis*	R	LC
227		Lemon-rumped Warbler	*Phylloscopus chloronotus*	R	LC
228		Western Crowned Warbler	*Phylloscopus occipitalis*	SM	LC
229		Grey-sided Bush Warbler	*Cettia brunnifrons*	SM	LC
230		Large-billed Leaf Warbler	*Phylloscopus magnirostris*	SM	LC
231		Hume's Warbler	*Phylloscopus humei*	R	LC
232		Common Chiffchaff	*Fringilla collybita*	WM	LC

	Family	Common name	Scientific name	Status	Red List Status
233	Picidae	Fulvous-breasted Woodpecker	Dendrocopos macei	R	LC
234		Brown-capped Pygmy Woodpecker	*Dendrocopos nanus*	R	LC
235		Black-rumped flameback Woodpecker	*Dinopium benghalense*	R	LC
236		Rufous Woodpecker	*Micropternus brachyurus*	R	LC
237		Brown-fronted Woodpecker	*Dendrocopos auriceps*	R	LC
238		Lesser yellownape Woodpecker	*Picus chlorolophus*	R	LC
239		Greater- yellownape Woodpecker	*Picus flavinucha*	R	LC
240		Himalayan flameback	*Dinopium shorii*	R	LC
241		Himalayan Woodpecker	*Dendrocopos Himalayensis*	R	LC
242		Rufous-bellied Woodpecker	*Dendrocopos hyperthrus*	R	LC
243		Scaly-bellied Woodpecker	*Picus squamatus*	R	LC
244		Greater Flameback Woodpecker	*Chrysocolaptes lucidus*	R	LC
245		Speckeled Piculet	*Picumnus innominatus*	R	LC
246		Streak-throated Woodpecker	*Picus xanthopygaeus*	R	LC
247		Wryneck	*Jynx torquilla*	WM	LC
248	Pittadae	Indian Pitta	*Pitta brachyura*	R	LC
249	Pnoepygidae	Nepal Cupwing	*Pnoepyga immaculata*	R	LC
250		Pgymy cupwing	*Pnoepyga pusilla*	R	LC
251		Scaly-breasted Cupwing	*Pnoepyga albiventer*	R	LC
252	Prunellidae	Alpine Accentor	*Prunella collaris*	R	LC
253		Black-throated Accentor	Prunella atrogularis	R	LC
254		Rufous-breasted Accentor	*Prunella strophiata*	R	LC
255	Psittaculidae	Plum-headed Parakeet	*Psittacula cyanocephala*	R	LC
256		Alexandrine Parakeet	*Psittacula eupatria*	R	NT
257		Red-breasted Parakeet	*Psittacula alexandri*	R	NT
258		Rose-ringed Parakeet	*Psittacula krameri*	R	LC
259		Slaty-headed Parakeet	*Psittacula himalayana*	R	LC
260	Pycnonotidae	Ashy Bulbul	*Hemixos flavala*	R	LC
261		Himalayan Bulbul	*Pycnonotus leucogenys*	R	LC
262		Red-whiskered Bulbul	*Pycnonotus jocosus*	R	LC
263		Red-vented Bulbul	*Pycnonotus cafer*	R	LC
264		Black-crested Bulbul	*Pycnonotus (melanicterus) flaviventris*	R	LC
265		Black Bulbul	*Hypsipetes leucocephalus*	R	LC
266	Rallidae	White-breasted Waterhen	*Amaurornis phoenicurus*	R	LC
267	Regulidae	Goldcrest	*Regulus regulus*	WM	LC
268	Rhipiduridae	White-browed Fantail	*Rhipidura aureola*	R	LC
269		White-throated Fantail	*Rhipidura albicollis*	R	LC
270	Scolopacidae	Green Sandpiper	*Tringa ochropus*	R	LC
271		Common Sandpiper	*Actitis hypoleucos*	R	LC
272		Eurasian Woodcock	*Scolopax rusticola*	R	LC
273	Scotocercidae	Brownish-flanked Bush Warbler	*Horornis fortipes*	SM	LC
274		Chestnut-headed Tesia	Cettia castaneocoronata	R	LC
275		Grey-bellied Tesia	Tesia cyaniventer	R	LC
276	Sittidae	Chestnut-bellied Nuthatch	*Sitta cinnamoventris*	R	LC
277		White-tailed Nuthatch	*Sitta himalayensis*	R	LC
278		Velvet-fronted Nuthatch	*Sitta frontalis*	R	LC

	Family	Common name	Scientific name	Status	Red List Status
279	Stenostiridae	Grey-headed Canary-Flycatcher	*Culicicapa ceylonensis*	R	LC
280		Yellow-bellied Fantail	*Chelidorhynx hypoxantha*	R	LC
281	Strigidae	Barn Owl	*Tyto alba*	R	LC
282		Rock Eagle-Owl	*Bubo bengalensis*	R	LC
283		Indian scops-Owl	*Otus bakkamoena*	R	LC
284		Himalayan Owl	*Strix nivicolum*	R	LC
285		Mottled Wood- Owl	*Strix ocellata*	R	LC
286		Asian Barred Owlet	*Glaucidium cuculoides*	R	LC
287		Spotted Owlet	*Athene brama*	R	LC
288		Collared Owlet	*Taenioptynx brodiei*	R	LC
289		Jungle Owlet	*Glaucidium radiatum*	R	LC
290		Tawny Fish-Owl	*Ketupa flavipes*	R	LC
291		Brown Fish-Owl	*Ketupa zeylonensis*	R	LC
292	Sturnidae	Brahminy Starling	*Sturnia pagodarum*	R	LC
293		Jungle Myna	*Acridotheres fuscus*	R	LC
294		Asian pied Starling	*Gracupica contra*	R	LC
295		Common Myna	*Acridotheres tristis*	R	LC
296		Bank Myna	Acridotheres ginginianus	R	LC
297		Spot-winged Starling	*Saroglossa spilopterus*	R	LC
298	Sylviidae	Asian Desert Warbler	*Sylvia nana*	WM	LC
299		Yellow-eyed Babbler	*Chrysomma sinense*	R	LC
300		White-browed Fulvetta	*Fulvetta vinipectus*	R	LC
301	Troglodytidae	Winter Wren	*Troglodytes hiemalis*	R	LC
302	Tichodormadidae	Wallcreeper	*Tichodroma muraria*	R	LC
303	Timaliidae	Tawny-bellied Babbler	*Dumetia hyperythra*	R	LC
304		Black-chinned Babbler	*Cyanoderma pyrrhops*	R	LC
305		Streak-breasted Scimitar-Babbler	*Pomatorhinus ruficollis*	WM	LC
306		Rusty-cheeked Scimitar- Babbler	*Erythrogenys erythrogenys*	R	LC
307		Jungle Babbler	*Argya striata*	R	LC
308		Chestnut-capped Babbler	*Timalia pileata*	R	LC
309	Turdidae	Orange-headed Thrush	*Zoothera citrina*	R	LC
310		Tickell's Thrush	*Turdus unicolor*	R	LC
311		Chestnut Thrush	*Turdus rubrocanus*	R	LC
312		Mistle Thrush	*Turdus viscivorus*	R	LC
313		Alpine Thrush	*Zoothera mollissima*	R	LC
314		Scaly Thrush	*Zoothera dauma*	RM	LC
315		Pied Thrush	*Geokichla wardii*	R	LC
316		White-collared Blackbird	*Turdus albocinctus*	R	LC
317		Grey-winged Blackbird	*Turdus boulboul*	R	LC
318	Upupidae	Common Hoopoe	*Upupa epops*	R	LC
319	Vangidae	Bar-winged Flycatcher-Shrike	*Hemipus picatus*	R	LC
320		Common Woodshrike	*Tephrodornis pondicerianus*	R	LC
321	Vireonidae	Himalayan shrike-Babbler	*Pteruthius ripleyi*	R	LC
322		White-bellied Erpornis	*Erpornis zantholeuca*	R	LC
323	Zosteropidae	Indian White-eye	*Zosterops palpebrosus*	R	LC
324		Stripe-throated Yuhina	*Yuhina gularis*	R	LC
325		Whiskered Yuhina	*Yuhina flavicollis*	R	LC

species are resident that are seen throughout the year, 7% are resident migratory, 5% are summer migratory, and around 1% are passage migrants (Figure 3). We recorded more than 200 bird species in Chopta. Muscicapidae is the dominating order of birds in the study area with 31 species recorded (Table 1).

Some opportunistic sightings and first record were also recorded. We have also witnessed a huge flock of Bar-headed Goose *Anser indicus* in the month of March. Few water birds like Great Cormorant *Phalacrocorax carbo* in breeding plumage, River Lapwing *Vanellus duvaucelii*, Red-crested Pochard *Netta rufina* were also seen near Kund and Bhatwarisain. Since no earlier reports are available, data presented here may be taken as a base line data to study the status of birds of Rudraprayag District.

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Acknowledgements: We thank the forest department, Government of Uttarakhand for providing permission to access the wildlife sanctuary. The infrastructural facilities provided by the Department of Zoology and Environmental Science, GKV, Haridwar is gratefully acknowledged. We would also like to thank Mr. Rajiv Bisht, Ms. Ashley Chui, and Mr. Yashpal Singh Negi for providing photographs during the field work.

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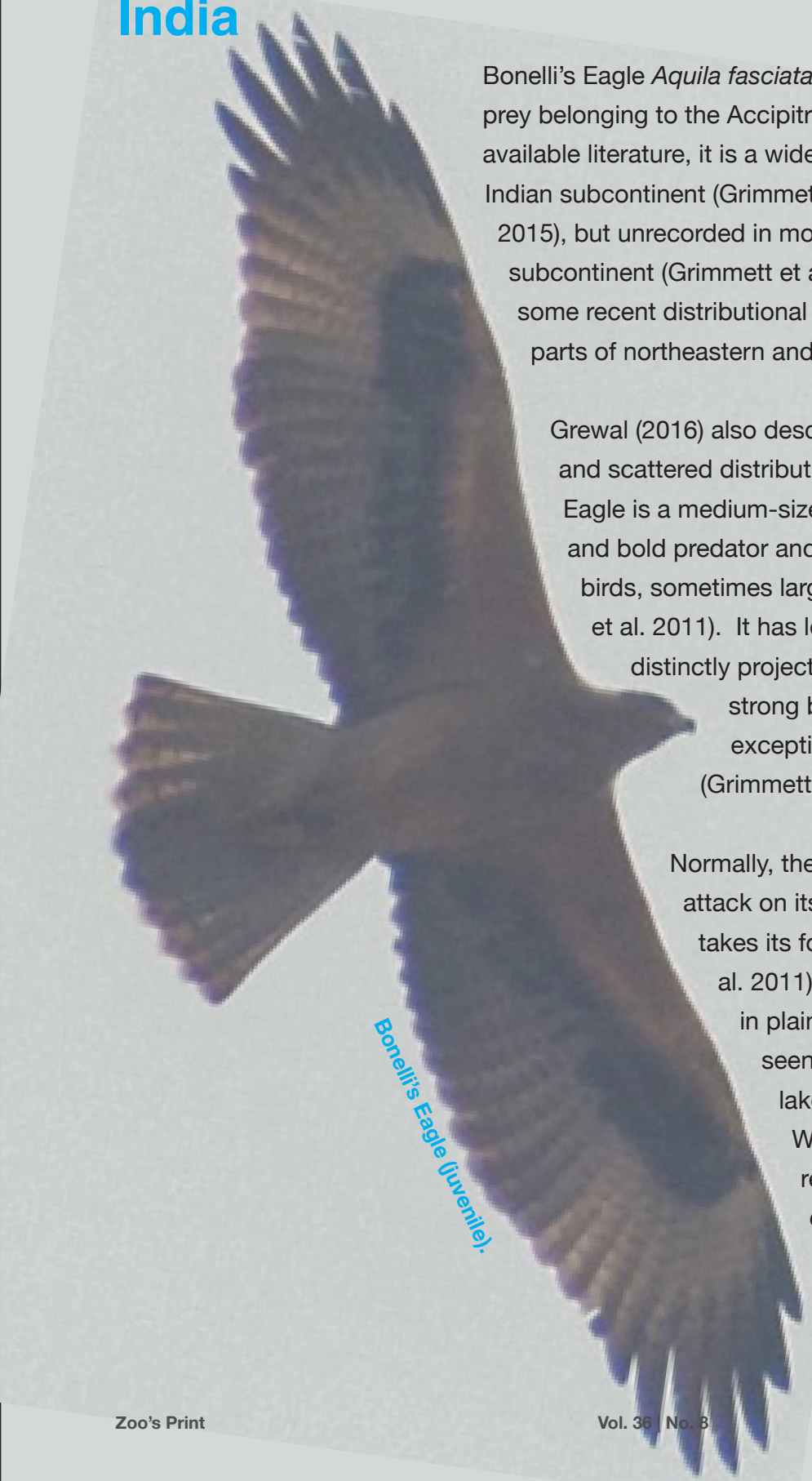
Citation: Singh, V.K. & P. Bhatnagar (2021). Checklist of birds of Rudraprayag Forest Division, Uttarakhand. Bird-o-soar #97, In: *Zoo's Print* 36(8): 21–32.

First photographic report of Bonelli's Eagle from Bankura District, West Bengal, India

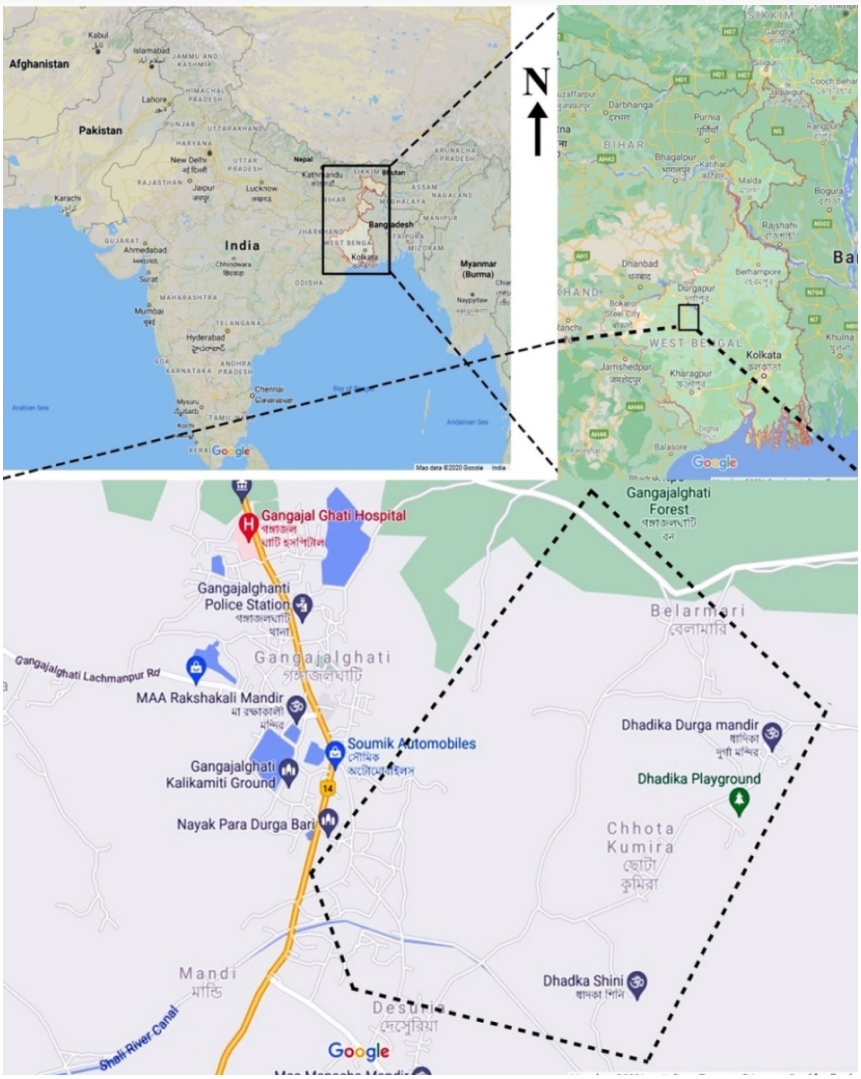


Bonelli's Eagle (juvenile).

Bonelli's Eagle *Aquila fasciata* (Vieillot, 1822) is a bird of prey belonging to the Accipitridae family. According to the available literature, it is a widespread resident throughout the Indian subcontinent (Grimmett et al. 2011; Ali 2012; Arlott 2015), but unrecorded in most of northeastern and eastern subcontinent (Grimmett et al. 2011). However, there is some recent distributional record of the species from some parts of northeastern and eastern India (eBird 2021).

Grewal (2016) also described its range all over India and scattered distribution in the Himalaya. Bonelli's Eagle is a medium-sized eagle (65–72 cm) powerful and bold predator and active hunter of mammals and birds, sometimes larger than their size (Grimmett et al. 2011). It has long and broad wings, with distinctly projected head on a fairly long neck, a strong bill, a long square-ended tail and exceptionally long, well-feathered legs (Grimmett et al. 2011).

Normally, they hunt by making a surprise attack on its prey and most of the time takes its food on the ground (Grimmett et al. 2011). It prefers well wooded habitat in plains and hills although it can be seen in edges of deserts and around lakes (Grimmett et al. 2011). In West Bengal, the species is recorded from Bakreswar Dam of Birbhum District and forest in Ajodhya Hills of Purulia District (eBird 2021). However, Gauntlett (1986) reported



Study site under present investigation (surrounded by black dotted lines) in Bankura District, West Bengal, India. Source – Google Maps.

one adult Bonelli's Eagle from Rondhia, Durgapur in 1969. It has been reviewed that this bird has no previous photographic record from Bankura District using online citizen science platforms (eBird 2021; Oriental Bird Images 2021) from India. Author also found reports of the species from Assam, Jharkhand, and Odisha, northeast and eastern states of India (eBird 2021). In this communication, the author claims the first photographic report of the species from Bankura District, West Bengal.

The present study was conducted in November 2020 in Gangajalghati village (23.4200^{0}N; 87.1200^{0}E) and adjacent forested area situated in Bankura Sadar Sub-Divison, Bankura District, West Bengal. This area is a peneplain part of the Bankura Uplands in the west, gradually merging with the Bankura-Bishnupur Rarh Plains in the northeast. The western portions are characterized by undulating terrain with many hills and ridges. The present study site is having a gradual descent from the Chota Nagpur Plateau. The soil is laterite red and hard beds are covered with scrub and the forest patch is dominated by *Shorea robusta* (sal tree). An irrigation canal from the Shali River (a tributary of the Damodar River) passes through the present study area.

On 28 November 2020 (around 1000 h) direct search and opportunistic survey of birds and other fauna in the study site was started. At 1057 h, a long call was heard and three birds were found hovering in the sky above a playground through the camera. Several photographs of the three birds were taken of which

two of them were identified as Bonelli's Eagle (juvenile) and the other one was later identified as Oriental Honey Buzzard *Pernis ptilorhynchus* (Temminck, 1821), with the standard field guide Grimmett et al. (2011). According to Grimmett et al. (2011), call of the species are rarely heard since they are usually silent. So, the call heard may be the call of the other bird. Nikon D5300, Nikkor Af-P 70–300 mm lens was used for observation and photography during the present study.

Bonelli's Eagle is categorised as a species of 'Least Concern' on the IUCN Red List (Global) of Threatened Species (BirdLife International 2021). However, the population trend is gradually decreasing (BirdLife International 2021). Major threats to the species are increasing anthropogenic activities inside the forests and hills, agricultural intensification, urbanization, deforestation and declining prey availability (Carrete et al. 2002; Freguson-Lees & Christie 2006).

Bonelli's Eagle has been known to prey upon variety of small or medium-sized birds and mammals, including some reptiles and some instances on carrion (Ferguson-Lees & Christie 2006). Orta (2020) also describes diets of Bonelli's Eagle in different regions. Pande et al. (2018) discussed about diet and habitat affinities of six raptors including Bonelli's Eagle in India. Kumawat et al. (2018) studied predation of Bonelli's Eagle in Jodhpur, Rajasthan, India. The present study area is surrounded by forest, open grassland, agricultural field and the 122 m high Koro hill near Amarkanan which is just 10 km away from the study area. The availability of prey likes rodents, lizards and skinks, snakes, Black-naped Hare and birds attracts many birds of prey. Hence the location may be an ideal place of breeding population of Bonelli's Eagle and findings of these two juvenile birds has significance in this regard. For conservation and protection of the species, a study in different patches of Bankura District specially in forested and hilly region is recommended in this communication.

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Acknowledgements: The author thankfully acknowledges the co-operation and support in field by Mr. Pratyay Bhattacharya. Author also acknowledges Mr. Arijit Mondal, Mr. Subhajit Roy, Mr. Sagar Adhurya, Mr. Debayan Gayen, and Mr. Sankha Mishra for their help in modification of this manuscript.

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Citation: Nayak, A.K. (2021). First photographic report of Bonelli's Eagle from Bankura District, West Bengal, India. Bird-o-soar #98, In: *Zoo's Print* 36(8): 33–36.

Hostile habitat led to electrocution of Endangered Phayre's Leaf-Monkey at Assam University, Silchar

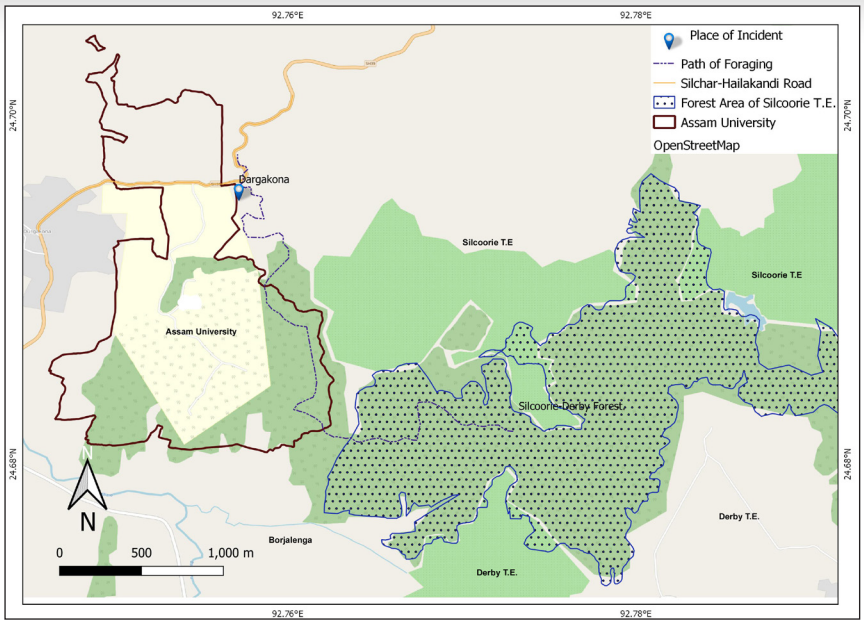
Primates are mostly arboreal animals that usually cruise the canopy in search of food and shelter. As per the IUCN Red List, Phayre's Leaf-Monkey *Trachypithecus phayrei* is a globally endangered primate; included under Schedule I of the Indian Wildlife Protecton Act 1972.

Phayre's Leaf Monkey after electrocution with both the forelimbs burned. © Biswajit Singh.

The dead animal being buried. © Biswajit Singh.

This species is fighting the last battle for its survival in the fragmented habitats in the backyard forest areas of Assam University, Silchar. Other than this remote forest of Barak Valley of Assam, a number of them are found in Tripura and Mizoram and nowhere else within the country (Choudhury 2001; Bose 2003; Borah 2010).

These primates commonly called Spectacled Monkeys forage mostly in the deep forest areas and their reclusive nature make them a lesser-known species. Locally, they are called 'Kala Hanuman' or 'Chasma Bandor'. Their population is fast declining across their habitat range in the country which demands the adoption of immediate steps for their conservation. During recent years, infrastructure development related activities are on the rise in Assam University and its surrounding areas, as a result the habitat here is fast degrading and this degradation has led to



The place where the incident took place along with the path of foraging from the nearby forest to the human habitat that was fragmented by roads. The monkey got electrocuted as it crossed the road.

the split up of the surviving group into two or three smaller groups.

On the morning of 1 June 2021, a very sad and unfortunate incidence was noted when we got the news regarding the death of one Spectacled Monkey near the electric power grid of the Assam University campus.

The incidence as reported here took place when a small group of three individuals was trying to cross the road behind the university campus, and thus one got injured after coming in contact with low-lying high-tension wire of the electric substation and ultimately succumbed to death. Earlier, the death of Phayre's Leaf-Monkey due to electrocution was also reported from Bangladesh (Al-Razi et al. 2019).

We measured the body weight of the dead individual (Table 1), but the weight was only 4.2 kg with respect to the mean weight of adult male individuals (i.e., 7.3 kg) (Fleagle 1988). The small troop came from the forested areas of the adjoining Silcoorie Tea Estate. It needs mentioning here that the small troop was separated from the parent troop of 17 individuals and the causes of fragmentation were narrated in our earlier study (Singh & Choudhury 2020).

The habitat here is no longer safe for the primates. These low-lying electric lines pose a threat to the species fighting for survival. Over time, habitat destruction has directed them to move towards human settlement areas, which once were the exclusive habitat for primates and other wildlife (Mazumdar & Dey 2010). This had been the first incidence when the monkey troop was trying to reach an area that is close to human habitats. The reason can be attributed to the anthropogenic pressure on the forest area (Dattagupta et al. 2014) of Silcoorie Tea Estate (Dargakona Sub-division) that triggered them to move out of their habitat.

In earlier studies (Singh & Choudhury 2020) it was highlighted that the Silcoorie Tea Estate located adjacent to the Assam University, Silchar, and in the last leg of Inner Line Reserve Forest (Assam) has good forest patches that harbour eight species of primates, Wild Boar, Barking Deer, Chinese Pangolin, Porcupine, Civets, Jungle Cat and many species of birds, reptiles, and amphibians (Dutta et al. 1998; Mazumdar et al. 2011; Islam et al. 2014).

Table 1. Body-weight measurements of the dead individual species.

Species	Phayre's Leaf-monkey *Trachypithecus phayrei*
Sex	Male
Body Measurements	
Head-body length (cm)	50.5
Tail length (cm)	72.3
Hindlimb length (cm)	51.5
Hindfoot length (cm)	15.5
Forelimb length (cm)	41.1
Forefoot length (cm)	14.8
Upper canine length (cm)	1.15
Lower canine length (cm)	0.89
Weight (kg)	4.2

It is thus recommended that the forest area adjoining the university and the surplus land areas of tea estate may be converted to a community conservation area to protect the variety of threatened species that thrive herein. Such steps, if taken up would enable the animals to forage well within their habitat and might not come close to the human habitations from the forest areas. Since the university is having a good forest patch which is a foraging area of many a species, it is recommended that the high voltage electric wires be insulated to avert such incidences in the future.

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Acknowledgements: We would like to give our sincere thanks to Mohan Bhar and the villagers of Dargakona for providing first-hand information and their sincere effort to provide first aid support to the dying monkey.

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Citation: Singh, B. & P. Choudhury (2021). Hostile habitat led to electrocution of Endangered Phayre's Leaf-Monkey at Assam University, Silchar. Mammal Tales #34, In: *Zoo's Print* 36(8): 37–39.

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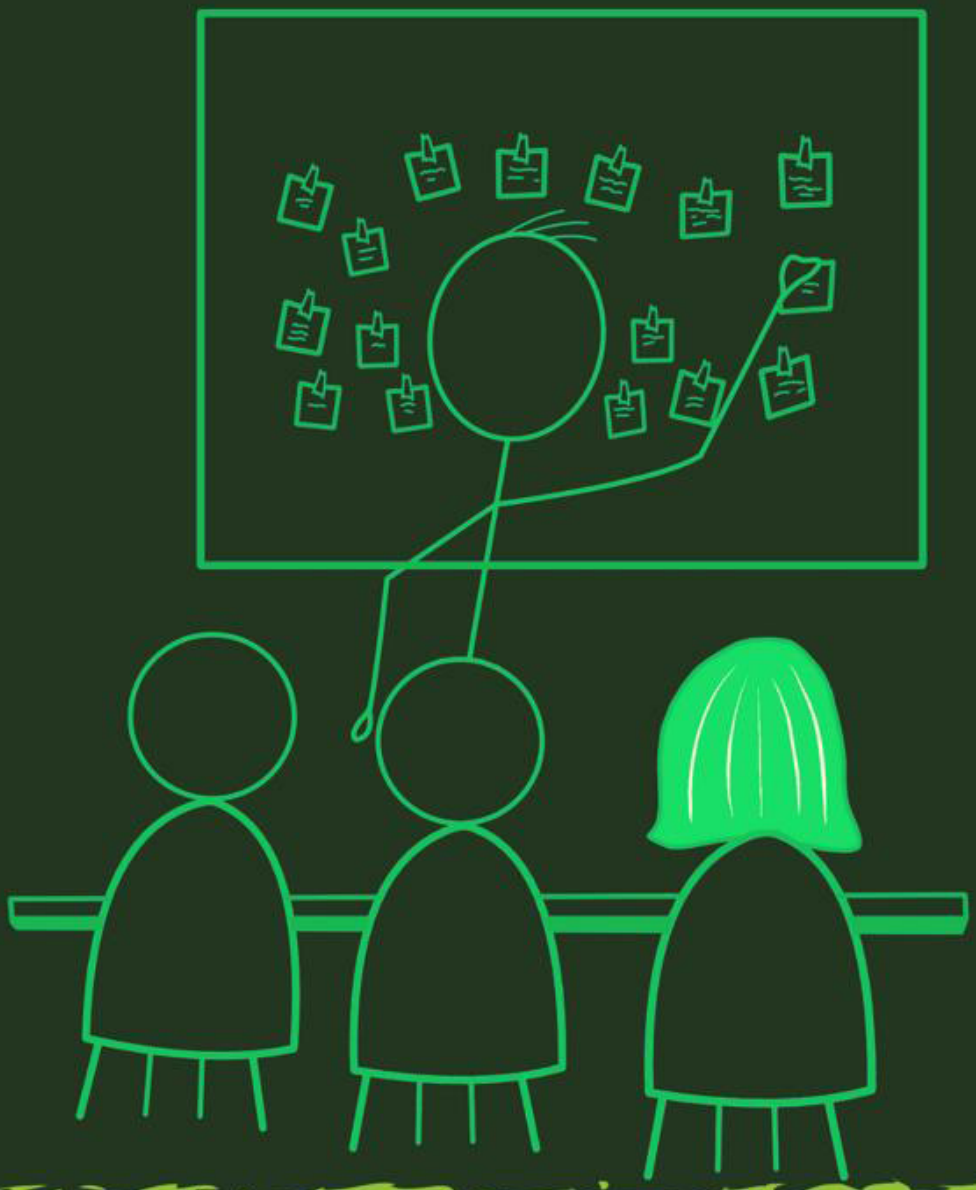

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Publication Information

ZOO'S PRINT, ISSN 0973-2543
Published at: Coimbatore

Owner: Zoo Outreach Organisation, 12, Thiruvannamalai Nagar, Saravanampatti - Kalapatti Road, Saravanampatti, Coimbatore, Tamil Nadu 641035, India.

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