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Cover photo: Female Golden Langur *Trachypithecus geei* eyeing the feeding site by Paris Basumatary.



First photographic record of the Indian Flying Fox from Jammu District, India



Image 1 (a,b). Dead specimens of Indian Flying Fox at the site. © Rahul Vikram Singh.

The Indian Flying Fox *Pteropus medius* (Pteropodidae) is distributed across southern Asia, including countries like India, Bangladesh, Bhutan, China, Maldives, Myanmar, Nepal, Pakistan, and Sri Lanka. There are no previous records of this bat residing in Jammu, a city of Jammu & Kashmir, India. Indian Flying Fox is widely spread throughout this range (Figure 1), but unfortunately there are hardly any scientific records available about its population. According to the IUCN Red list, it is classified as Least Concern (LC) species. The Indian Flying Fox is hunted for food and medicine in some parts of its range (Molur et al. 2008).

On Friday, 13 August 2019, during photography session at 09.00h, something

fell down from the Putranjiva tree *Putranjiva roxburghii* Wall on the ground (Image 2). At first, I thought it was a dead crow but when I went closer, it seemed like a flying fox to me. I immediately investigated the dead specimen and studied its morphological characteristics by comparing them with those written in Animalia (<http://animalia.bio/indian-flying-fox>). After the complete analysis, it was confirmed that it was an Indian Flying Fox *Pteropus medius* (Image 1). At the same night, I spotted a colony of Indian Flying Fox in two different places, one was the same place at Putranjiva tree *Putranjiva roxburghii* and the other was at 200m distance from the same place at Jamun tree *S. frniticosum*. There were around 10–15 individuals flying around the tree. It was impossible to capture

images due to the darkness in the shade of the trees. There is no previous scientific record on the report of this species in Jammu region. Thus, its occurrence puts on record the first-time existence of this species in the Shivalik range of Jammu region. Present sighting of Indian Flying Fox in Jammu region showed that this region is unexplored for other bat species. According to the author's best knowledge, this is the first report about the Indian Flying Fox from Jammu region.

Present evidence of the Indian Flying Fox in Jammu region indicates that weather condition, food availability and good shelter supports the growth of population of the Indian Flying Fox. Although Least Concern, individual numbers have decreased regularly (Venkatesan 2007), due to habitat loss and hunting, and from adverse weather conditions (Laurence 2010). In 2010, Ali recorded the decline rate of *Pteropus giganteus* about 48% and this was estimated in Assam during the ten-year study from 2001–2010.



Figure 1. Distribution of the Indian Flying Fox (google map) along with Jammu District (study site).



Image 2. Putranjiva's Tree *Putranjiva roxburghii* Wall at site. © Rahul Vikram Singh

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Occurrence of Indian Giant Flying Squirrel in the northern Eastern Ghats of Andhra Pradesh, India



Image 1. Indian Giant Flying Squirrel observed near Maredumilli.

The Indian Giant Flying Squirrel *Petaurista philippensis* (Elliot, 1839) belongs to the family Scuridae and sub-family Petauristinae (Oshida et al. 2000). It was earlier classified as a sub-species of *Petaurista petaurista* but first recognized as a distinct species by Corbet and Hill (1992) based on phylogenetic analysis and renamed *Petaurista philippensis* (Oshida et al. 2000; Johnsingh & Manrekar 2015). The Indian Giant Flying Squirrel is a frugivorous, nocturnal, arboreal mammal that nests in tree holes in well-vegetated habitats (Umapathy & Kumar 2000; Nandini & Parthasarathy 2008). Although currently classified as Least Concern (LC) by the

IUCN, their population is decreasing and sightings are becoming rare. They are also listed under Schedule II (Part II) of the Indian Wildlife Protection Act, 1972 which prohibits their hunting.

P. philippensis is distributed across southeastern and southern Asia in Myanmar, Thailand, Bangladesh, Bhutan, Nepal, and India (Srinivasulu et al. 2004; Walston et al. 2016). In India, its distribution was previously recorded across the northeast, Rajasthan, southern Western Ghats of Karnataka, and Tamil Nadu, and patchily across central India (Johnsingh & Manjrekar

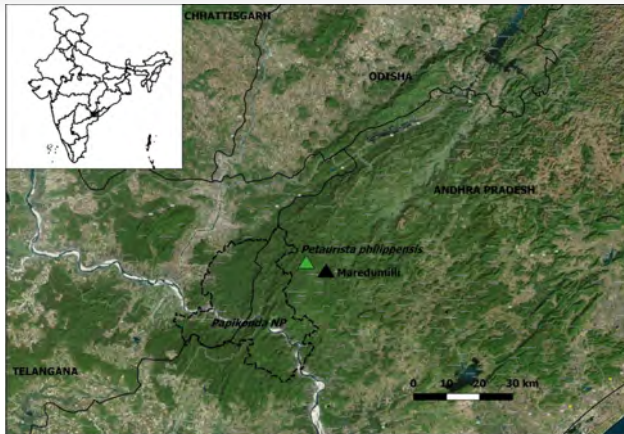


Figure 1. Location of *P. philippensis* recorded near Maredumilli, in the northern Eastern Ghats of Andhra Pradesh.

2015; Walston et al. 2016). Studies on their occurrence, population abundance, ecology and behaviour have been done in the Western Ghats and Rajasthan (Umapathy & Kumar 2000; Kumara & Singh 2006; Nandini & Parthasarathy 2008; Babu et al. 2015). However, no sighting or photographic evidence of this species has been reported from Eastern Ghats before (Srinivasulu et al. 2004; Aditya & Ganesh 2017). We present the first photographic record of the occurrence of *P. philippensis* in the Eastern Ghats of Andhra Pradesh (Figure 1). The sighting was made in the northern Eastern Ghats (NEG), spread between 18.491–19.181° N and 79.541–83.233° E. The NEG has an altitudinal range from 20m at the Godavari River to 1,690m at the Jindhagada peak, with steep undulating hills. The forest cover is largely of tropical dry and moist deciduous type (Aditya & Ganesh 2017).

The sighting and photograph of the flying squirrel was obtained from a coffee plantation near Maredumilli Village, East Godavari District, in the NEG landscape at

15.28h on 20 May 2020, by the first author (Images 1–3). The shade coffee plantation is managed by the Andhra Pradesh Forest Development Corporation (APFDC) since 1996 and is located approximately 7km from the nearest boundary of Papikonda NP (Image 2). Although largely arboreal, the squirrel was found at a burrow of an entrance next to the road.

The coffee plantation is bounded by dense canopy moist deciduous forests on all sides except the east where it borders revenue lands of Maredumilli Village. Papikonda NP stretches west and south of the plantation. The coffee plantation is densely wooded with large trees providing habitat for the squirrel and surrounded on all sides by forest.

The animal was observed to have a cataract in the right eye (Image 1). The finding of *P. philippensis* that was previously recorded from Western Ghats and northeast India (Johnsingh & Manjrekar 2015; Walston et al. 2016) adds evidence to the immense biological diversity of the Eastern Ghats and highlights its conservation importance, particularly in the face of various



Image 2. The surrounding habitat of the coffee plantation where the species was observed.



Image 3. Indian Giant Flying Squirrel on the ground.

development projects that are causing rapid landscape change and habitat loss (Aditya & Ganesh 2017). As *P. philippensis* largely prefers forested habitats, this finding emphasizes the need to streamline conservation efforts in the Eastern Ghats to mitigate long-term land cover changes (Nandini & Parthasarathy 2008).

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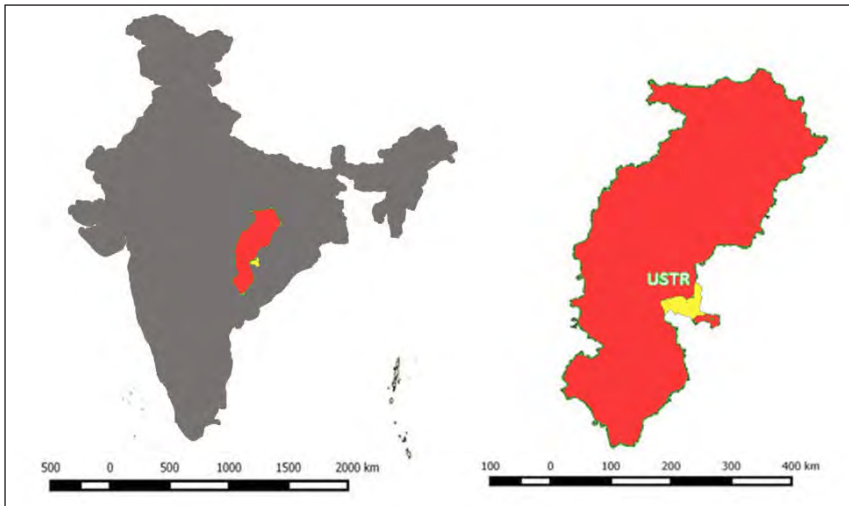
First record of Tricarinate Hill Turtle from Chhattisgarh, India



Tricarinate Hill Turtle in its natural habitat. © M. Suraj.

The Tricarinate Hill Turtle *Melanochelys tricarinata* (Blyth, 1856). The three-keeled land turtle belongs to the family Geoemydidae and order Testudines. It can attain a length of 174mm (straight carapace length) and inhabits the riverine plain at around 500m (Das 2009). The turtle derives its name from the three prominent yellow keels (lines) seen on its brownish-black carapace. The yellow plastron distinguishes it easily from similar appearing Indian Black Turtle *Melanochelys trijuga* and several other semi-aquatic pond turtles. They have been reported from the foothills of the Himalayan range, from riparian vegetation or grasslands along the rivers Ganga and Brahmaputra

(Das 1991; Choudhury & Bhupathy 1993; Busack 1994; Mitchell & Rhodin 1996; Kumar et al. 2009; Basumatary & Sharma 2013). The species has also been recorded from Sal *Shorea roxburghii* forests of Chaibasa, Jharkhand (Das 1991) from where it was originally described. A few instances were also recorded from Bangladesh which suggests its occupancy at considerable distance from the Himalaya (Khan 1987). Its distribution was confined to the northern parts of the Indian sub-continent (Das 2009) but was also reported from Simlipal Tiger Reserve, as first report of occurrence from northern Odisha (Dutta et al. 2009). The Tricarinate Hill turtle has a small body size



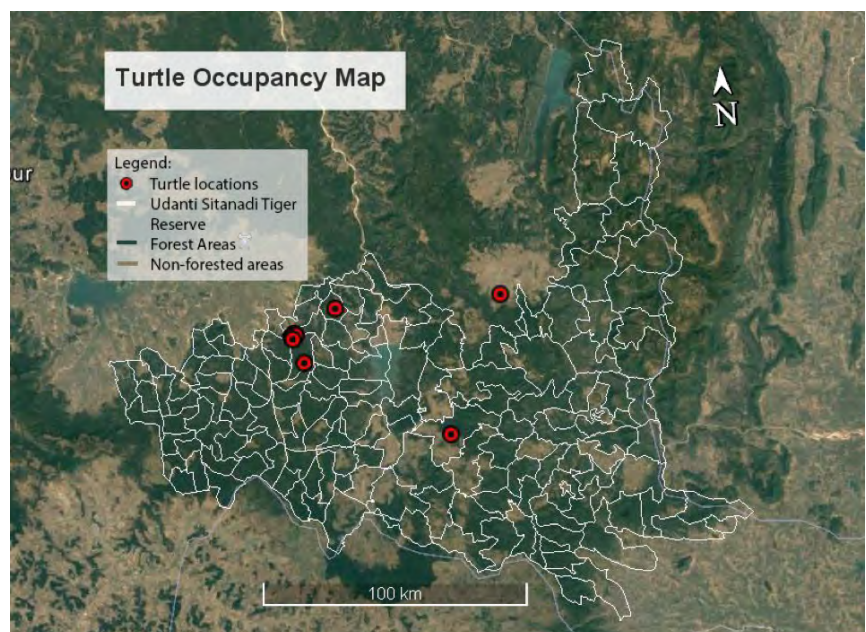
Location of study area.

(straight carapace length: 127–175 mm) and a home range of 8,000–15,000 m², with very specific habitat requirements and movement patterns (Mondal et al. 2016).

In November 2019, two individuals were found and after recording observations without disturbing the turtles, they were left in the same condition back at the same spot. Similar

observations were also confirmed by officials of the forest department (Mr. Ganveer Dhammshil IFS, DFO Keshkal, pers. comm.) and from Keshkal Division adjoining the Tiger Reserve. Following this, a series of its occurrences were also confirmed by the team and state forest department and local villagers. These turtles were mostly sighted during the post-monsoon until the advent of summer, i.e., from October till February at 480m above mean sea level and at an average distance of 1.5–2 km from a water source. The turtle was identified as *Melanochelys tricarinata*

Udanti-Sitanadi Tiger Reserve is situated in Chhattisgarh State, and is one of the 50 tiger reserves of India having source population of tigers. The Tiger Reserve spreads over an area of 1842.54km² of Gariyaband and Dhamtari districts in Chhattisgarh State. The turtle was first photographed by our tiger monitoring team member on 15 January 2016. Another turtle was again recorded in the winter month of October, 2018.



Regions where Tricarinate Hill Turtle was observed during the study.

Table 1. Individuals and their photographs obtained from different locations in and around Udanti-Sitanadi Tiger Reserve.

Date of sighting	Range	Beat	Latitude	Longitude
8.x.2017	Arsikanhar	East Lilanj	20.2708 N	82.0526 E
15.i.2018	Arsikanhar	South Gahnasiyar	20.2170 N	82.0136 E
14.xi.2019	Arsikanhar	South Lilanj	20.2423 N	82.0031 E
20.xi.2019	Arsikanhar	South Lilanj	20.2446 N	82.0023 E
21.xi.2019	Arsikanhar	South Lilanj	20.2458 N	82.0017 E
24.xi.2019	Arsikanhar	South Lilanj	20.24797 N	82.0048 E
24.xi.2019	Arsikanhar	South Lilanj	20.2461 N	82.0069 E
28.viii.2020	Tourenaga	Gona	20.13132 N	82.1691 E
19.x.2020	Mainpur Territorial	Mainpur kala	20.2718 N	82.2357 E
30.ix.2020	Keshkal	Mangilgarh	Location unspecified	Location unspecified



Dorsal & ventral view of captured turtle. © M. Suraj.

based on its striking three yellow stripes and other morphological characteristics following Hegde et al. (2013) and Dutta et al. (2009).

Two individuals recorded were found 200m apart

during weed eradication conducted by the forest department in south Lilanj beat of Arsikanhar Range in November 2019. The first turtle's straight carapace length was measured 145mm and the another, smaller

in size, 130mm in length.

Another two instances were recorded, one from Tourenaga Range of the Tiger Reserve and the other from Mainpur Range that is outside the Tiger Reserve. The vegetation of the site was predominantly Sal-mix forest with species like Sal *Shorea roxburghii*, Char *Buchanania cochinchinensis*, Saja *Terminalia tomentosa*, Tendu *Diospyros melanoxylon*, Amla *Phyllanthus embilica*, and Bija *Pterocarpus marsupium*.

While interviewing the resident villagers, it was understood that these turtles are mostly sighted during



weed-eradication conducted by the forest department, after the end of monsoons every year. As per them, the turtle produces a hissing sound when approached and because of this, the turtle was assumed to be venomous (snake).

Anecdotal record or less information is available for Tricarinate Hill Turtle from central Indian landscape, and only individual point locations are there from state of Odisha that is too from Eastern Ghats. Our observations confirm that the distribution and range extension of this turtle to the central plains from northern part and Eastern Ghats of the Indian subcontinent. Hence, this is the first record of the Trincarnate Hill Turtle extending its range into Chhattisgarh, India.

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Occurrence of Elongated Tortoise from the reserved forest area of Pauri Garhwal in Uttarakhand, India



Image 1. *Indotestudo elongata* found on 24 May 2019 in Pauri Garhwal, Uttarakhand. © Keyur Naria.

The Elongated Tortoise *Indotestudo elongata* also known as Pineapple Tortoise, is a species belonging to the family Testudinidae (Das & Gupta 2015). The genus *Indotestudo* consists of three species of tortoise from southern and southeastern Asia, namely Elongated Tortoise *Indotestudo elongata* (Blyth, 1853), Forsten's Tortoise *Indotestudo forstenii* (Schlegel & S. Muller, 1845), and Travancore Tortoise *Indotestudo travancorica* (Boulenger, 1907) (Iverson 1992). The Elongated Tortoise is currently classified as Critically Endangered (CR) under criterion A2cd by the International Union for Conservation of Nature (IUCN) and the

current population trend shows a decrease in its population (Rahman et al. 2019). It is listed in Appendix II of CITES and is protected under Schedule IV of Wildlife Protection Act 1972 in India (Das & Gupta 2015; Ihlow et al. 2016).

The Elongated Tortoise is widely distributed throughout southern and southeastern Asia, including eastern and northeastern India (Das 1985; Iverson 1992; Rahman et al. 2019). Kaleshwar Wildlife Sanctuary in the foothills of the Himalaya in the Aravalli Range is the western-most boundary of the species range (Rahman et al. 2019). In the Chota

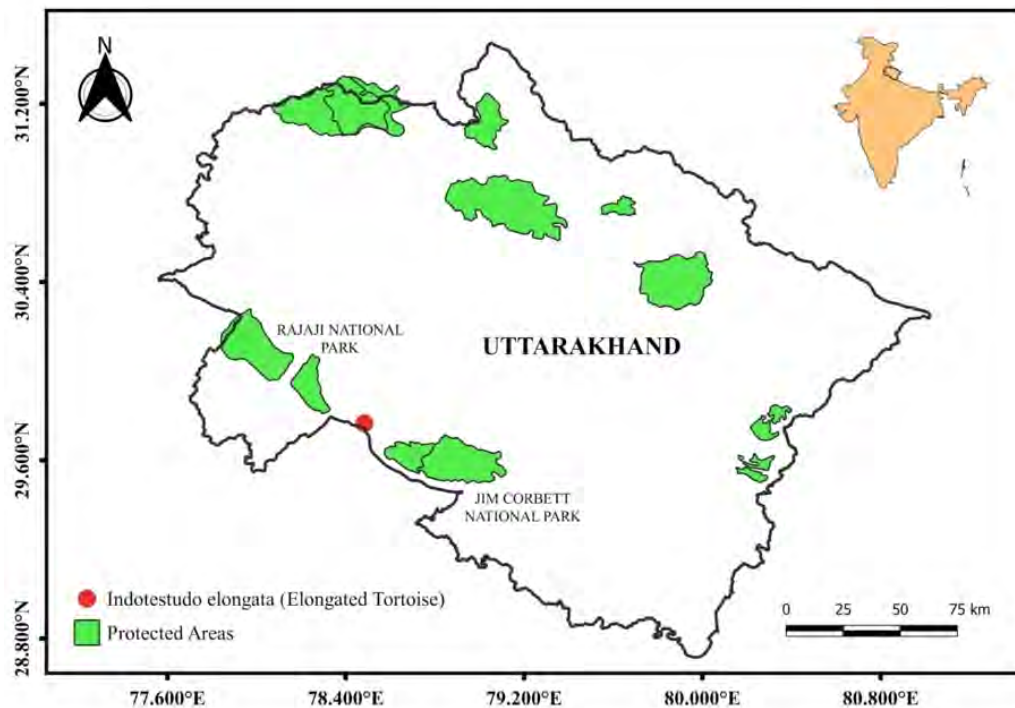


Figure 1. Map showing the occurrence of *Indotestudo elongata* in the reserve forest area of Uttarakhand.

Nagpur Plateau of eastern India, a disjunct subpopulation of *I. elongata* is present. The population might have been isolated from the Himalayan foothills by the alluvial plain and changing environmental conditions after the formation of the Indo-Gangetic Plain (Ihlow et al. 2016). Although the status and distribution have been well documented recently (Khan et al. 2020), its distribution in western Himalaya is from Phandowala (Frazier 1992), Lansdowne Forest Division (Bhupathy et al. 1994; Khan et al. 2020), Siggudi Forest near Kotdwara (Whitaker 1979; Bhupathy et al. 1994), Rajaji National Park (Khan et al. 2020), and Corbett National Park (Khan et al. 2020), the present record is from a different location in the Pauri Garhwal of Uttarakhand. The current note presents the occurrence of an Elongated Tortoise

from the Lansdowne Reserved Forest area (29.766°N & 78.483°E) of Pauri Garhwal in Uttarakhand State. The Lansdowne Forest Division is located between 29.616–30.033°N and 78.320–78.717°E and is surrounded by two national parks, i.e., Rajaji situated at 32km approximately in the north-west direction and Corbett situated at 38km approximately in the south-east direction from the site.

This record was obtained on 24 May 2019, as a part of regular bird watching trip around the reserved forest area of Pauri Garhwal (Figure 1). At around 18.21h, we heard some rustling through the fallen leaves. We searched the ground and finally found a tortoise when it came out into the open. Later, with the descriptions from Ihlow et al. (2016)

we confirmed it as an Elongated Tortoise owing to its greenish-yellow carapace and irregular black spots or blotches on each of its shield (Image 1). Although we did not handle the specimen, the body length was approximately 25–27 cm and it was a female. The location was at an altitude of 402m in deciduous forest, with some patches of semi evergreen and forests of *Sal Shorea robusta* (Image 2). There are only two published records of Elongated Tortoise in the Lansdowne Forest Division of Pauri Garhwal, Uttarakhand (Bhupathy et al. 1994; Khan et al. 2020) and the recent closest published locality record is about 20km away in Lansdowne Forest Division in Uttarakhand (Khan et al. 2020). The nearby area is a reserved forest and a corridor connecting Rajaji and Corbett national parks.

Out of five birding trips in the area, we saw this species only once. The species was photographed with the help of Canon 750D with 55–250 mm lens at the location 29.766°N and 78.483°E in the fairly open patch of the deciduous forest. The location was about 0.54km north from the Koh River Tributary separating Satichaur and Neenbuchaur. This record adds to the occurrence data and the conservation importance of the reserved corridor forest of Pauri Garhwal landscape in general.

From the available literature, it is seen that the population of the species has declined 80% throughout its distributional range due to habitat loss and illegal collection for pet trade (Moll 1989; Ihlow et al. 2016; Rahman et al. 2019). The area where we sighted



Image 2. *Indotestudo elongata* in its habitat. © Keyur Naria.



the Elongated Tortoise is approximately 200m close to the concrete road, human settlements, and farm. Some people cut trees for fodder requirement for their livestock. Also, construction of a road in the nearby area is in progress. However, the major threats to the habitat and species are human encroachment and livestock grazing in the area. Therefore, an eco-development plan should be made in such areas to reduce the biotic pressure from the villagers on the forest areas so that villagers, wildlife, and forests, can all co-exist in harmony. Further, as shown by Khan et al. (2020), that > 90% of the predicted distribution area falls outside of the PA network in the Indian Subcontinent, the present sighting is also from reserved forest land, which does not fall in the PA network. Hence, we suggest that such corridors and reserved forest areas should be given more protection.

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Newsletter of the
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Butterfly diversity in Tumkur University Campus, Karnataka, India

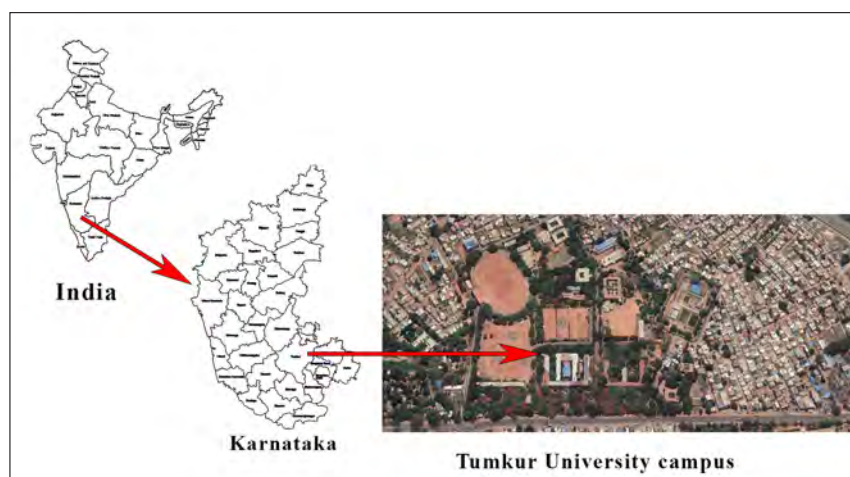
The faunistic survey of butterflies, their occurrence and characteristics provide crucial information on the ecology of a particular region (Ghazoul 2002). The reports of Kunte (2001), Tiple (2011), and Tiple et al. (2006) signifies the study of butterfly fauna and its role in the ecology of a particular habitat. The present study was conducted to document the diversity, abundance, and status of butterfly species of Tumakuru. There is hardly any published data on the butterfly fauna of this region.

Tumakuru is one of the districts of Karnataka situated at a distance of 70km from north-west of Bengaluru. It covers an area of 48.60km² and is located geographically at 13.34°N & 77.12°E. Tumakuru includes a well-known Devarayanadurga State Reserve Forest. The city was recorded with

a minimum temperature of 19°C and a maximum temperature of 36°C. It receives an average annual rainfall of about 300–900 mm. The present study was carried out in the Tumkur University campus, Tumakuru. It is located at the centre of the city (13.34°N & 77.12°E) and is spread over 90 acres of land with thick vegetation.

The survey was carried out thrice a week from 07.00h to 10.00h and from 16.00h to 18.00h. The visual encounter method was followed. Most of the

species were identified on the spot with the help of field guides (Kunte 2000; Kehimkar 2016). After identification, the species were photographed (Nikon D3400, 18–55mm lens) and released. The whole survey followed keen observation and search for the butterflies in the campus environment such as the trees, bushes, herbs, flowering plants, and dry areas of playing ground. Most common trees and plants with a high abundance of nectar-feeding were also documented in the study period.



Map.



Table 1. List of butterfly species distributed in the Tumkur University campus, Tumakuru.

	Family	Species covered under Wildlife Protection Act 1972 (WPA 1972)	Species	Common name
1.	Papilionidae	WPA 1972	<i>Pachliopta hector</i> *	Crimson Rose
			<i>Graphium doson</i> *	Common Jay
			<i>Graphium sarpedon</i> *	Common Bluebottle
		-	<i>Pachliopta aristolochiae</i>	Common Rose
			<i>Graphium agamemnon</i>	Tailed Jay
			<i>Papilio demoleus</i>	Common Lime Butterfly
			<i>Papilio polytes</i>	Common Mormon
			<i>Papilio polymnestor</i>	Blue Mormon
2.	Pieridae	WPA 1972	<i>Eurema andersonii</i>	One-spot Grass Yellow
			<i>Catopsilia pyranthe</i> *	Mottled Emigrant
			<i>Eurema brigitta</i> *	Small Grass Yellow
			<i>Eurema hecabe</i> *	Common Grass Yellow
			<i>Catopsilia pomona</i> *	Common Emigrant
		-	<i>Eurema blanda</i>	Three-spot Grass Yellow
			<i>Delias eucharis</i>	Common Jezebel
			<i>Leptosia nina</i>	Psyche
3.	Nymphalidae	WPA 1972	<i>Euploea core</i> *	Common Indian Crow
			<i>Melanitis leda</i> *	Common Evening Brown
			<i>Lethe europa</i> *	Bamboo Treebrown
		-	<i>Danaus genutia</i>	Striped Tiger
			<i>Libythea myrrha</i>	Club Beak
			<i>Elymnias hypermnestra</i>	Common Palmfly
			<i>Tirumala limniace</i>	Blue Tiger
			<i>Melanitis zitenius</i>	Great Evening Brown
			<i>Danaus chrysippus</i>	Plain Tiger
			<i>Mycalesis anaxias</i>	White-bar Bushbrown
			<i>Acraea terpsicore</i>	Tawny Coster
			<i>Neptis hylas</i>	Common Sailer
			<i>Symphaedra nais</i>	Baronet
			<i>Ariadne merione</i>	Common Castor
			<i>Junonia hierta</i>	Yellow Pansy
			<i>Junonia iphita</i>	Chocolate Pansy
			<i>Junonia lemonias</i>	Lemon Pansy
			<i>Hypolimnas bolina</i>	Great Eggfly
			<i>Hypolimnas misippus</i>	Danaid Eggfly
			<i>Parantica aglea</i>	Glassy Tiger
4.	Lycaenidae	WPA 1972	<i>Castalius rosimon</i> *	Common Pierrot
			<i>Euchrysops cnejus</i> *	Gram Blue



	Family	Species covered under Wildlife Protection Act 1972 (WPA 1972)	Species	Common name
5.	Hesperiidae	-	<i>Matapa aria</i>	Common Branded Redeye
			<i>Gangara thyrsis</i>	Giant Redeye

Table 2. Distribution of butterfly species in different nectar plants in Tumkur University campus, Tumakuru.

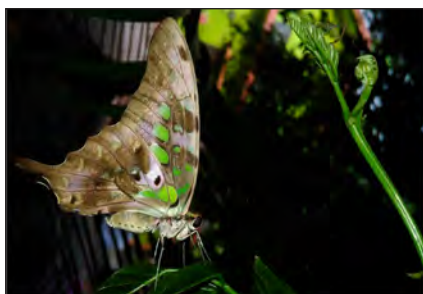
	Nectar plants	Butterfly species found
1.	<i>Vernonia elaeagnifolia</i>	<i>Hypolimnas misippus</i>
		<i>Junonia lemonias</i>
		<i>Euploea core</i>
		<i>Catopsilia pyranthe</i>
		<i>Castalius rosimon</i>
		<i>Catopsilia pomona</i>
		<i>Graphium doson</i>
		<i>Delias eucharis</i>
		<i>Thirumala limniace</i>
		<i>Ariadne merine</i>
		<i>Neptis hylax</i>
		<i>Hypolimnas bolina</i>
2.	<i>Tridax procumbens</i>	<i>Acraea terpsicore</i>
		<i>Danaus chrysippus</i>
		<i>Eurema hecabe</i>
		<i>Eurema andersonii</i>
		<i>Eurema blanda</i>
3.	<i>Polyalthia longifolia</i>	<i>Graphium doson</i>
		<i>Pachliopta hector</i>
		<i>Graphium sarpedon</i>
4.	<i>Pennisetum orientale</i>	<i>Acraea terpsicore</i>
		<i>Euchrys opsenejus</i>
5.	<i>Euphorbia milli</i>	<i>Hypolimnas bolina</i>
		<i>Hypolimnas misippus</i>
		<i>Libythea myrrha</i>
		<i>Graphium agamemnon</i>
		<i>Papilio polymnestor</i>
6.	<i>Ixora coccinea</i>	<i>Papilio demoleus</i>
		<i>Lethe europa</i>
		<i>Melanitis leda</i>
7.	<i>Peltaphorum pterocarpum</i>	<i>Parantica aglea</i>
		<i>Libythea myrrha</i>
		<i>Papilio polymnestor</i>
8.	<i>Bougainvillea glabra</i>	<i>Eurema blanda</i>
		<i>Pachliopta hector</i>
9.	<i>Santalum album</i>	<i>Graphium doson</i>
		<i>Graphium sarpedon</i>
		<i>Danaus genutia</i>
10.	<i>Lantana camara</i>	<i>Parantica aglea</i>
		<i>Catopsilia pomona</i>
		<i>Papilio demoleus</i>
11.	<i>Hibiscus</i>	<i>Papilio demoleus</i>

The study unveiled the presence of 40 butterfly species belonging to 26 genera of five families which accounts for 2.67% of the Indian butterfly species population (Table 1). The distribution of five families of

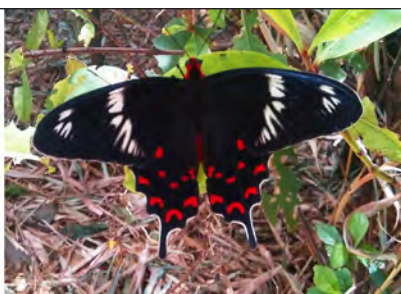
butterfly species in the campus is graphically represented in Figure 1. The Nymphalidae family was also found to be a dominant family of the butterfly by Harisha et al. 2019. The abundance of butterfly species in the

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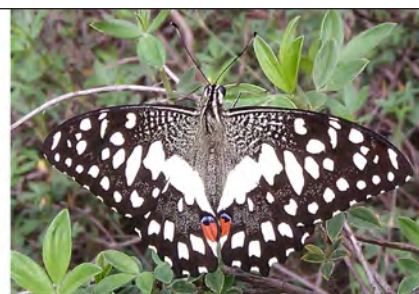
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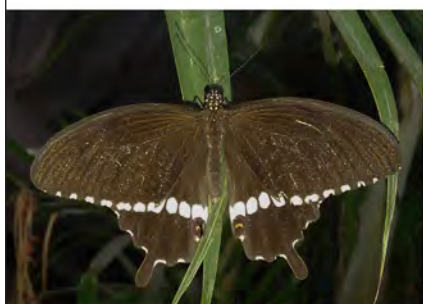
Graphium agamemnon



Paclioptra hector



Papilio demoleus



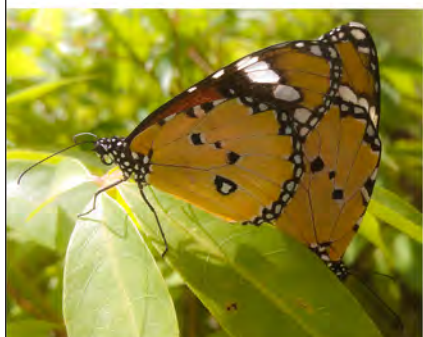
Papilio polytus



Eurema blanda



Eurema hecabe



Danaus chrysippus



Danaus genutia



Melanitis leda (Dry season)



Melanitis leda (Wet season)



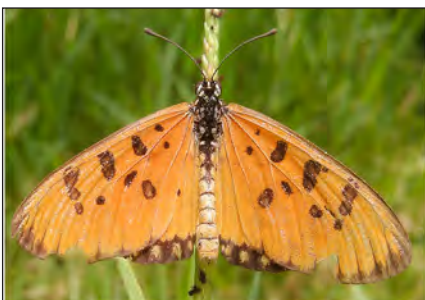
Melanitis zitenius



Lethe europa

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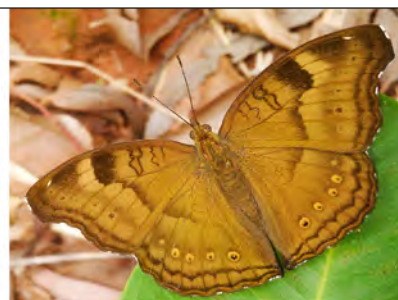
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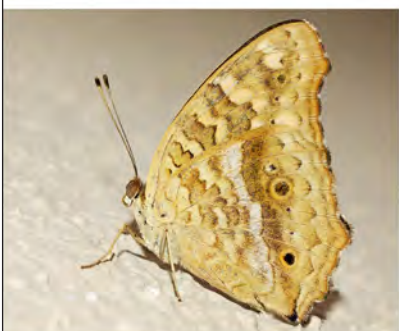
Acraea terpsicore



Neptis hylas



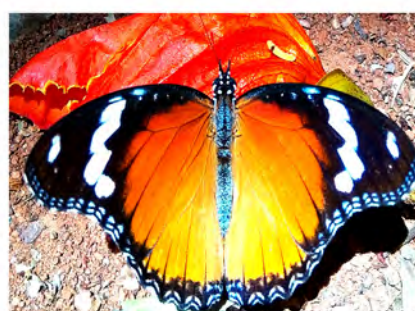
Junonia iphita



Junonia lemonias



Hypolimnas bolina (Male)



Hypolimnas misippus (Female)



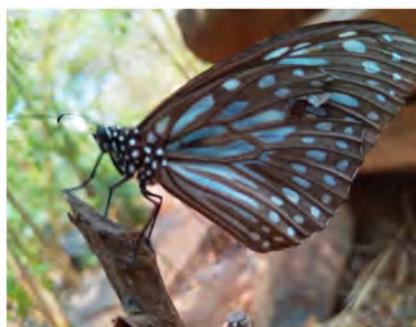
Castalius rosimon



Euchrysops cnejus



Matapa aria



Thirumala limniace

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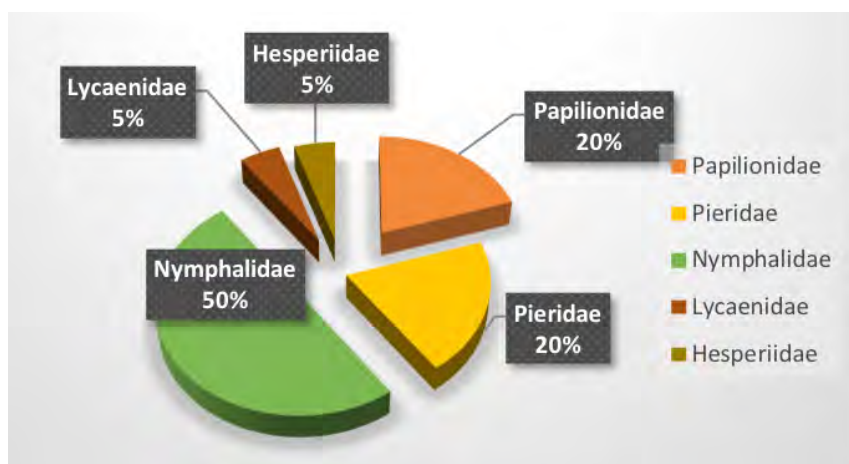


Figure 1. Percentage distribution of Butterfly species in Tumkur University campus, Tumakuru.

campus might be attributed to the thick vegetation which includes diverse trees and plant species.

From the present investigations, it is concluded that the study area has rich diversity of butterfly species with 40 species belonging to 26 genera of five families; 13 species listed in Wildlife (Protection) Act 1972. The campus, though surrounded by the city, harbours diverse vegetation that provide enough nectar plant species and as larval host plants. The presence of 13 protected species demands the need for implementation of conservation strategies in the campus.

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Leucism in Sambar at Mukurthi National Park, Tamil Nadu, India



Leucism affected Sambar *Rusa unicolor* at Mukurthi National Park. © Cleamant Kiran Kumar.

Surveillance of colour abnormalities in wild mammals is remote incident because these abnormalities are rare (Caro 2005). Inherited colour defects, such as albinism and leucism, are well known in several animal species. Leucism is a total lack of pigmentation in the whole body due to an inherited defect in the pigment transfer process affecting the hair (turning white) and skin (turning pale), but having normal coloured eyes (van Grouw 2006; Samson et al. 2017). In this note, we describe leucism in Sambar *Rusa unicolor* (Family Cervidae) at Mukurthi National Park, The Nilgiris, Tamil Nadu, India.

Mukurthi National Park (MNP) is a 78.46km² protected area located in the western

corner of the Nilgiris Plateau, west of Udhagamandalam Hill Station in the northwest corner of Tamil Nadu State in the Western Ghats mountain range of southern India. The park was created to protect its keystone species, the Nilgiri Tahr. The park is characterized by montane grasslands and shrub lands interspersed with sholas in a high altitude area having high rainfall, near-freezing temperatures, and high winds.

On 8 May 2018, we recorded a group of Sambar (n=7) in MNP. Unexpectedly, we observed a single adult female individual which was creamy white in colour, and eyes, nose, and hoof were normal coloured and completely different from the group. Hence,

it appears to be a case of leucism and not the albinism in which whole body of albino is totally white with reddish eyes (Samson et al. 2017). Mahabal et al (2019) reported that a total of seven individuals of Sambar were affected by colour aberration in India of which three of them were confirmed as albinism, three were “undetermined” because of lack of information (but white in colour) and one was declared as leucism because the coat colour was white and eyes were normal coloured (exhibited in City Palace Archaeological Museum, Udaipur, Rajasthan). Bensch et al. (2000) and Samson et al. (2017) reported that leucistic individuals are more frequently in small and isolated populations due to inbreeding, which causes recessive alleles to be expressed. Probably, many animal species from different orders occur with anomalous colouration, but many of these records are not officially reported, probably due to lack of knowledge. We highlight the significance of photographs as important tools for documentation about natural history as a whole. In conclusion, researchers must be encouraged to report the records of colour aberration in wildlife.

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A note on feeding observation of Golden Langur on Water Hyacinth

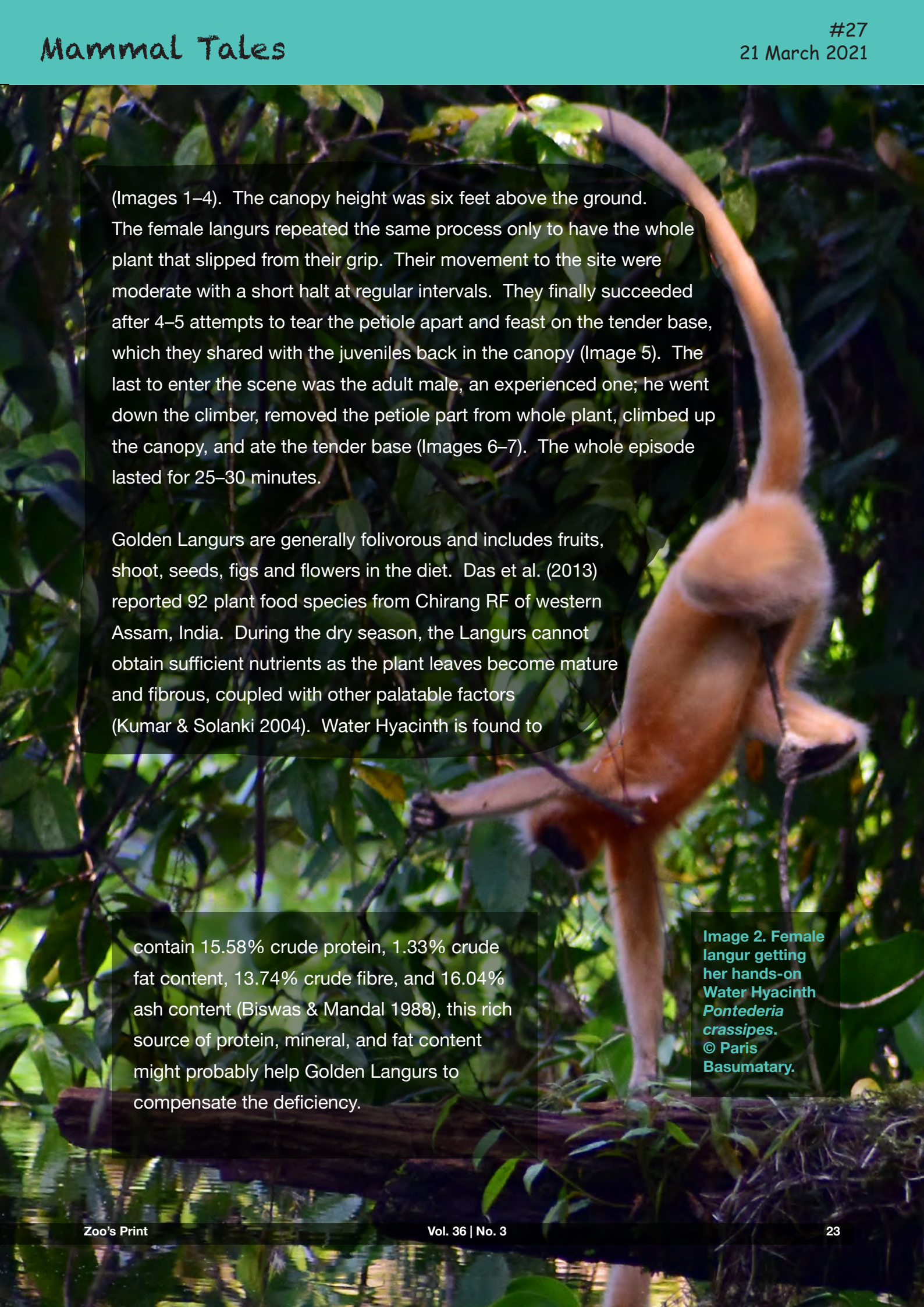
The Golden Langur *Trachypithecus geei* Khajuria, 1956 is a rare and endemic colobine monkey found in a few forest patches of Assam, northeastern India and Bhutan, with its restricted distribution lying north of the Brahmaputra River, bounded on the east by Manas River, and on the west by Sankosh River (Chetry et al. 2010). It occurs in moist evergreen, dipterocarp, riparian and moist deciduous forest, and occasionally in degraded habitats with secondary growth (Srivastava et al. 2001). It is classified as Endangered in the IUCN Red List of Threatened Species (Das et al. 2008).

During the month of November 2019, we observed an interesting behaviour by a group of Golden Langurs on two occasions at Maachbhandar of Samokha River in Chirang Reserve Forest (26.763N, 90.284E), Assam, India. The surrounding habitat of the langur group was full of shrubs, climbers, woody plants, and river flowing through, harbouring the deadly invasive aquatic macrophyte, Water Hyacinth *Pontederia crassipes*, which is located in this part of the reserve forest only. Maachbhandar is a large wetland inside Chirang Reserve Forest (BirdLife International 2020), which is an oldest part of Manas Biosphere Reserve in Assam (Bhattacharjee et al. 2014) and recognized as a buffer area of the Biosphere Reserve and Ripu-Chirang Elephant Reserve (Das et al. 2013). This historical reserve forest comprises of dense tropical semi-evergreen, tropical moist deciduous and riverine forests along with small patches of woodland and grassland (BirdLife International 2020).

A group of Golden Langurs (consisting of 1 adult male, 2 adult females and 3 sub-adults) were observed feeding on the tender petiole base of Water Hyacinth. They specifically fed only on the base of petiole out of the whole plant. The female langurs descended with the support of climbers, got hold of the whole plant and jumped back to the tree canopy



Image 1. Female Golden Langur *Trachypithecus geei* eyeing the feeding site. © Paris Basumatary.

A female golden langur is shown hanging upside down from a thin branch in a dense forest. She has a long, thick tail that is curled upwards. Her body is a light brown color, and she is holding onto the branch with her hands and feet. The background is filled with green leaves and branches, creating a natural, forest-like setting.

(Images 1–4). The canopy height was six feet above the ground. The female langurs repeated the same process only to have the whole plant that slipped from their grip. Their movement to the site were moderate with a short halt at regular intervals. They finally succeeded after 4–5 attempts to tear the petiole apart and feast on the tender base, which they shared with the juveniles back in the canopy (Image 5). The last to enter the scene was the adult male, an experienced one; he went down the climber, removed the petiole part from whole plant, climbed up the canopy, and ate the tender base (Images 6–7). The whole episode lasted for 25–30 minutes.

Golden Langurs are generally folivorous and includes fruits, shoot, seeds, figs and flowers in the diet. Das et al. (2013) reported 92 plant food species from Chirang RF of western Assam, India. During the dry season, the Langurs cannot obtain sufficient nutrients as the plant leaves become mature and fibrous, coupled with other palatable factors (Kumar & Solanki 2004). Water Hyacinth is found to

contain 15.58% crude protein, 1.33% crude fat content, 13.74% crude fibre, and 16.04% ash content (Biswas & Mandal 1988), this rich source of protein, mineral, and fat content might probably help Golden Langurs to compensate the deficiency.

Image 2. Female langur getting her hands-on Water Hyacinth *Pontederia crassipes*. © Paris Basumatary.



Image 3. Female langur with whole plant of Water Hyacinth. © Paris Basumatary.



Image 4. Female langur goes up to the canopy. © Paris Basumatary.



Image 5. Female langur sharing the fare with sub-adult. © Sinaiti Dwimary.



Image 6. Adult male Golden Langur with torn petiole part of Water Hyacinth. © Sinaiti Dwimary.

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Image 7. Adult male langur feeding on the tender petiole base of Water Hyacinth *P. crassipes*. © Sinaiti Dwimary.

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A new record of Pin-tailed Parrotfinch from Phibsoo Wildlife Sanctuary, Bhutan



Image 1. Ventral (a & d) | dorsal view (b & c) of PP species sighted from Alley under PWS, Bhutan. © Tendel Wangdi.

The Pin-tailed Parrotfinch *Erythrura prasina* Sparrman, 1788 is newly recorded from Alley in Nichula under Phibsoo Wildlife Sanctuary (PWS). With this record, Bhutan now has 745 bird species out of 770 bird species predicted to occur in Bhutan Himalaya. These findings recommend separate study to double check the live presence within previous sighted locality and requires comprehensive morphometric measurements

to ascertain the maximum and minimum limits of total body length (TBL), total body weight (TBW), and wing span length (WSL) including total leg length (TLL) and tarsus length (TL) to ease species identification in future.

The Pin-tailed Parrotfinch (PP) is a popular caged bird species under Estrildidae family. According to Payne (2010), BirdLife

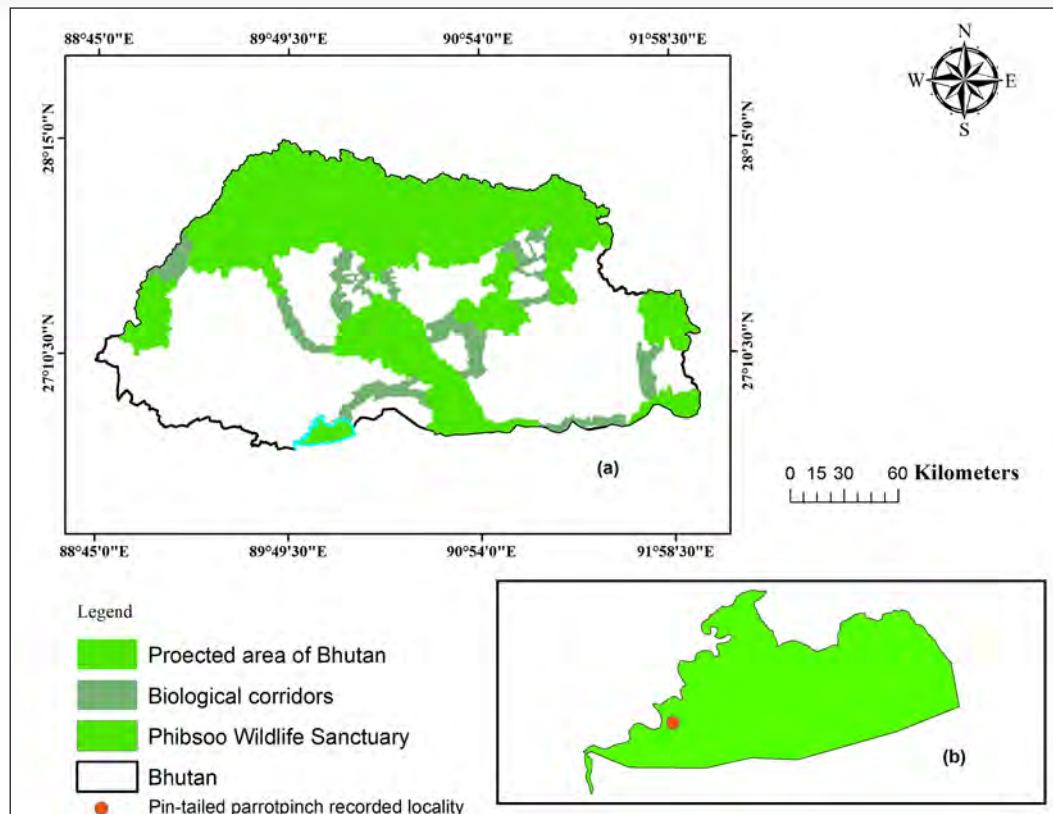


Figure 1 . Map of Bhutan showing protected areas and biological corridors (a) depicting PWS (b) where PP was first sighted from Bhutan (red point).

International (2018), and Grimmet et al. (2011), the male has grassy green back and wings; bright blue mask over face; black lore with black bill; orange-yellow flanks with under-tail coverts. Belly is red with bright red rump; flesh-colored legs with upper tail coverts and long central tail feathers while females have buff; lack red coloring underside and pale red rump with shorter tail. Juveniles are similar to female except dull greenish under-parts, dull orange-red tail and olive rump with yellow mandible.

The parrotfinches are globally distributed across southeastern Asian countries (Brunei, Myanmar, Cambodia, Indonesia, Laos, Malaysia, & Thailand) with estimated global extent of occurrence of 10,000,000 km²

(Birdlife International 2018). It was also recorded from Yunnan Province in China, besides being common caged birds (Sreeker et al. 2014). Recent study found that finches have extended their range towards southern Palawan Province of Philippines (Birdlife International 2018) due to semi-nomadic behaviour and seasonally wandered following the paddy harvest and seeding bamboo (Payne 2010). Meanwhile, the PP is Least Concern (LC) as per IUCN (Birdlife International 2018).

Recently, the PP was newly recorded from PWS in Bhutan (Figure 1). PWS has total area of 286.82km² (DoFPS 2020) located in between 26.700⁰–26.850⁰N and 89.933⁰–90.200⁰E in southern central part of Bhutan

and its smallest protected area in Bhutan with elevation ranging 200–1,600 m (PWS 2012).

The Sanctuary is connected with other protected areas through biological corridor no. 3 (Tenzin & Wangyal 2019) and further connected with Ripu-Chirang Reserved Forest Landscape (RCRFL) in India (PWS 2012). The forest is broadly classified into three different types: sub-tropical semi-evergreen Forest (100–300 m); sub-tropical moist deciduous forest (300–700 m), and sub-tropical moist evergreen forests (700–1,200 m) (PWS 2012). Meanwhile, the sanctuary has recorded 36 mammals, 23 fishes, 50 herpetofauna, 176 butterflies, and 360 bird species including two new species in 2018 and one in 2019 (PWS 2019). Today, PWS is the only protected area where all four hornbill species (Rufous-necked Hornbill *Aceros nipalensis*, Great Hornbill *Buceros bicornis*, Oriental-pied Hornbill *Anthracoceros albirostris*, and Wreathed Hornbill *Rhyticeros undulates*) are found with other globally threatened species.

Tendel Wangdi, ranger from the sanctuary, had recorded PP at around 10.30h on 16 July 2018, from Alley (26.757°N & 89.938°E) under Nichula Range at 176m. The bird was identified using the field guide of Grimmett et al. (2011) and measured the morphometric as per Winker (1996), besides location and habitat details. The species was confirmed by Dr. Sherub, Ugyen Wangchuck Institutes for Conservation and Environmental Research, Bumthang under Department of Forests & Park Services.

The PP is declared as a new record to Bhutan and PWS. Within a decade, PWS has 360 bird species (PWS 2019) which exceeded the initially predicted figures of 200 bird species in the sanctuary (PWS 2012). The diversity of avian fauna is due to intact and diverse sub-tropical ecosystem that falls inside the Indo-Malayan region (PWS 2012). Morphometric measurement revealed that PP had TBL of 14.2cm, 15.1cm WSL with TBW of 14.7g. While, PP has a TLL of 4.1cm with 2.4cm TL. Sreeker et al. (2014), however, reported that the finches recorded from Menglun, China (21.931°N, 101.237°E) has a TBL of 13.7cm with TBW of 12.5g, which indicates that the specimen found by Sreeker et al. (2014) was moderately smaller than the current specimen in terms of TBL, WSL, and TBW, respectively.

The current specimen was dead, which might have resulted in morphological shrinkages as reported by Winker (1996). Similar dead specimens were also recorded from Xishuangbanna Tropical Botanical Garden (XTBG), Yunnan Province, China on 19 December 2013 (Sreeker et al. 2014). Sreeker et al. (2014) later confirmed their presence on 4 January 2014 through photographic evidences from the edge of secondary rainforest in XTBG which confirmed that they were not escaped caged birds, rather a new record for China.

In terms of habitat, PP was recorded from seeded bamboo thickets *Bambusa nutan* with flocks of Scaly-breasted Munia *Lonchura punctulata* Linnaeus, 1758 in Alley,

PWS. Similarly, Evans et al. (1992) reported the same species from open bamboo thickets and secondary forest edges around XTBG in China. Current specimen was recorded from lowest elevation of 176m, while, Evans et al. (1992) reported from higher elevation (1,500m) in XTBG, China which might have shifted to higher elevation due to habitat fragmentation and degradation at lower elevation. Nevertheless, PP is also reported as a pest to agriculturalists due to high preference around agricultural habitats (paddy growing countries) within southern Asian countries (Evans et al. 1992; Payne 2010).

Therefore, newly recorded PP requires separate scrutiny to confirm their live presence from Bhutan. Study on abundance, population size and distribution inside PWS are also imperative. Simultaneously, PP morphometric is critically required to ascertain the maximum and minimum limits for TBL, TBW, and WSL including TLL and TL to ease correct species identification for future studies.

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Marsh Sandpiper - first record of a Leucistic individual from Coimbatore

On the evening of 13th February 2021, I was birding at, Krishnampathi lake. While photographing a group of waders, a flock of Black-winged Stilts flew in and joined the group in the water. One of the birds in this group of stilts had a white head and neck distinguishing it from the flock, and its legs were green and much shorter compared to other birds. I recognized that it was a leucistic individual and immediately recorded some photographs. The bird was initially confused to be either a Marsh sandpiper or a Green Sandpiper. This bird has a straight bill compared to the Common Greenshank and was bigger in size and taller than the Wood sandpiper. The other confusion species, Green sandpiper, have shorter legs when compared to Wood sandpiper. Furthermore, the bird's bill was long and dark, whereas a Green sandpipers' bill would be much thicker and greyish green in color. Another identification feature was that this bird had a bigger, more

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rounded head than the latter. The photographs were thoroughly examined and confirmed the individual as a Marsh sandpiper *Tringa stagnatilis* (Hayman et al. 1986).

According to Van Grouw et al. (2016), the most commonly inheritable aberrations found in wild birds are albino, leucism, brown, dilution, ino, and

melanism. Albino birds have an all-white plumage, red eyes, and pink feet and bill. On the contrary, leucistic birds have all-white feathers next to normal-colored ones and possibly normal-colored bill and feet (partial leucism). The eyes are always normal-colored. Leucism is defined as a total lack of both melanins in all or parts of plumage and skin due to the heritable absence of pigment cells in all or parts of the skin. This makes our bird a particularly good candidate for a partially leucistic individual.

Altogether, from 180 records of colour aberrations reported in 72 different bird species in India over a period of 129 years, (Van Grouw et al. 2016), this is possibly the first photographic record of leucistic Marsh sandpiper in the country.

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Long-toed Stint - first inland record from Coimbatore

On 2nd September 2019, I was birding at Ukkadam Lake, and was looking for passage migrant waders. The month of September is usually the peak migration time in Coimbatore since some uncommon and interesting vagrants like Terek Sandpiper, Whimbrel, Ruddy Turnstone and Slender-billed Gulls have been recorded. At around 0730 hrs, I noticed a rather different looking wader vigorously feeding amidst a flock of Little Stint, Temminck's Stint, Kentish Plover, Lesser Sand-Plover and Little ringed Plover. The bird that I noticed was bigger and had a different posture compared to the aforementioned stints and plovers. Photographic record was done after further perusal of the photograph thoroughly I found the neck was long and slender, and the upperparts were brown with dark brown centres to the feathers. The breast was speckled with pale brown, the underparts were white, and

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the legs were yellow. The bird was identified as a Long-toed Stint *Calidris subminuta* (Heyman et al. 1986). According to eBird, previous records in Tamil Nadu are mainly from the eastern coast. The only other inland record from Tamilnadu is from Kadangulam, Tirunelveli (TheNatureTrust, 2016). This is the first scientific record from inland Tamilnadu.

According to Rasmussen & Anderton (2012), Long-toed Stint breeds in N Asia and winters in Asia and Australia. It is a regular winter migrant to an extensive part of the eastern coast of India, and a slightly lesser extent to the western coast. In China, it is common in inland locations during non breeding season (Brelsford 2020), while in India inland records are scarce.

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Unsuccessful rearing record of White-breasted Waterhen *Amaurornis phoenicurus* at CSIR-IIIM Campus, Jammu, India



Image 1. White-breasted Waterhen searching for food (25 May 2019, Day 1). © Rahul Vikram Singh.

The former state of Jammu & Kashmir has a rich biological heritage owing to its location in the northern part of the Indian subcontinent which has been reorganised as two new Union Territories of Jammu & Kashmir and Ladakh region. About 554 bird species belonging to 13 different orders have been recorded in both the regions (Khuroo et al. 2020). Out of these, 262 species have been reported from the Kashmir Valley, and 225 species from Ladakh. Around 183 species have been recorded from the plains of Jammu region (Singh 2020; <http://jktourism.org>). White-breasted Waterhen of Rallidae family is a common resident wetland bird of the area. The species is widely distributed across southern and southeastern Asia and their breeding habitat is marshes across tropical Asia from eastern Pakistan to Indonesia (Grimmett et al. 2013).

This is the first report to document a case study on the unsuccessful breeding of White-breasted Waterhen at campus of the Indian Institute of Integrative Medicine (IIIM), a national institute of the Council of Scientific & Industrial Research (CSIR), Jammu (32.732° N, 74.851° E). At 15.00h on 25 May 2019, during a photography session at the campus of CSIR-IIIM Jammu, we found a White-breasted Waterhen carrying a food item (Image 1).

Following that direction for approximately five minutes, we located its probable destination near the freshwater stream. Further, after 10 minutes of observation, a nest with another White-breasted Waterhen hatching the eggs was observed. We tried to record the number of eggs with the help of binoculars but failed due to low visibility in the nest cavity. After



Image 2. New born White-breasted Waterhen chick resting on the ground (Day 8). © Rahul Vikram Singh.



Image 3. Dead Waterhen chick (Day 10). © Rahul Vikram Singh.



Image 4. Predator Mongoose *Herpestes edwardsii* near the nest (evening, Day 10). © Rahul Vikram Singh.



Image 5. White-breasted Waterhen searching for its chicks (Day 15). © Rahul Vikram Singh.

a gap of seven days, the identified pair of White-breasted Waterhen was found roaming with three chicks searching for food at the same site. The chicks seemed to be 5–6 days old. On the next day, a chick was found resting on the ground (Image 2).

When we approached the chick, it suddenly got up and started running towards the bush. After two days of this incident, the chick was found dead on the ground (Image 3) at the same site, for some unknown reasons. That evening, a Mongoose *Herpestes edwardsii* (Image 4) was seen roaming at the same location.

After 35 minutes of observation, suddenly the White-breasted Waterhen pair started calling (krr-kwak-kwak). After a few seconds, we saw that two chicks were killed by the mongoose that immediately ran from the bushes to its cave carrying the dead chicks in its mouth. Due to low visibility in the cave region, we could not capture the image. The same pair of birds were seen searching for their chicks continuously for five days (Image 5) and after the sixth day, they left and were never seen again in that place.

Predation can limit breeding success in ground-nesting birds (Fletcher et al. 2010). Field predators like mongoose, snakes, cats, Black Kite, Common *Shikra*, Jungle Crow, etc. are threats to ground-nesting birds in the study area. This is the first report on unsuccessful rearing of White-breasted Waterhen in the campus of CSIR-IIIM Jammu region.

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