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Cover photo: Coconut Crab by Chia-Hsuan Hsu.

Mugger Crocodile spotted in Kiliyur Lake, Tamil Nadu, India

The Mugger Crocodile *Crocodylus palustris* also called Marsh Crocodile and Swamp Crocodile is a medium-sized crocodile and living member of the family Crocodylidae. It is restricted to the Indian subcontinent and the species can be found in freshwater habitats, such as rivers, lakes, reservoirs, hill streams, ponds and man-made tanks, and sometimes in coastal saltwater lagoons too (Choudhury & de Silva 2013).

The species is listed under Schedule I of the Indian Wildlife Protection Act 1972, 'Vulnerable' under the IUCN Red List (Choudhury & de Silva 2013), and under Appendix I of the CITES.

In India, there are many human-mugger interaction cases reported (Choudhury & de Silva 2013). In the last 75 years, there is a 30% population decline of Muggers, which is caused



Mugger Crocodile spotted in Kiliyur Lake. © T. Siva.



by habitat destruction, rampant fishing, egg predations by human and dogs, illegal poaching for skin and meat consumption medicinal use of Mugger parts are now marginal (Groombridge 1982; de Silva & Lenin 2010; Choudhury & de Silva 2013).

Mugger Crocodile spotted in Kiliyur Lake

Kiliyur Lake (10.81346 N & 78.84825 E) is located in Kiliyur Village in Tiruvarambur Taluk of Tiruchirappalli District in Tamil Nadu. This lake receives water from Cauvery River via Vellar River. Kiliyur Lake is one of the bird diversity hotspots in Tiruchirappalli District. The surrounding area is fully surrounded by agricultural landscape and mostly cultivated for paddy. During bird watching on 31 January 2021 in Kiliyur Lake, we observed and recorded one Mugger (Muthalai - Tamil) basking on the central mound of the lake under the plant *Prosopis juliflora*.

The crocodile was photographed using Nikon D3300 with zoom lens 500mm and photos were analyzed and later identified using a field guide (Daniel 2002) as the Mugger.

We observed the species for more than thirty minutes and recorded the length of the crocodile as 4–5 feet. There can be many possible reasons for the crocodile's occurrence in this lake. In Tiruchirappalli District, crocodiles have been spotted in nearby Cauvery and Kollidam rivers. The Kiliyur Lake is connected to the Kallanai dam via Vellar River canal, so it may have probably come from the Kallanai.

The presence of the crocodile in this lake can become a suitable place to study its behavior, ecology, and biology.

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Bugs R All

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

Stop eating the largest land-dwelling marine creatures



Coconut Crab *Birgus latro* Linnaeus, 1767 is the largest land-dwelling marine crustacean.
Photo from Okinawa, Japan. © Chia-Hsuan Hsu.

Coconut Crabs *Birgus latro* Linnaeus, 1767 are the largest land-dwelling marine crustaceans. Although, they live on land and their larval stage is in the ocean, hence termed 'marine creatures on land'. They are distributed on the islands of the tropical Indo-Pacific Ocean (Burggren & McMahon 1988). Their habitats overlap with places of human

activities, where they are threatened with habitat loss because of agriculture and uncontrolled exploitation (Brown & Fielder 1991). In the breeding season, they migrate from the land to the seashore to release the larvae (Reese & Kinzie III 1968) during which they might die due to roadkill (Hsu 2018). Furthermore, the Coconut Crabs are eaten

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by some island residents or served as delicacies to tourists. Because of the slow sexual maturation and low reproductive rate (Schiller et al. 1991; Drew et al. 2010), their populations are slowly declining from human consumption.

The International Union for Conservation of Nature (IUCN) declared the level of Coconut Crabs as Rare in 1983 but changed to Data Deficient in 1996 (Eldredge 1996). We suggest the IUCN committee to re-evaluate the status of Coconut Crabs.

Although, their distribution is restricted to some islands of tropical Indo-Pacific Ocean, the population has reduced considerably in several places such as Taiwan, and hence they must be protected under the Wildlife Conservation Act in Taiwan (Hsu 2018). They have been found to be extirpated in some regions such as Kaohsiung, southern Taiwan (Hsu 2017), and other areas and islands, e.g., Australia, Madagascar, Mauritius (Brown & Fielder 1991; Schiller 1992; Lavery et al. 1996).

Conservation action must be undertaken as early as possible. If we wait any longer, it might lead to a bottleneck effect. Moreover, we must wisely use our natural resources for sustainability. Coconut Crabs are not only sold in traditional markets such as in Indonesia but also online as pets and food in some countries. These crabs are captured from the wild rather than being bred in



Coconut Crabs sold at traditional market from Okinawa, Japan.
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captivity. I hope the science community, non-governmental organizations, and local governments realize the gravity of the situation and promote strategies for their conservation. Coconut Crabs are one of the special creatures on earth, we are looking forward that our next generation can still appreciate their beauty.

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A leucistic House Sparrow from West Bengal, India

House Sparrow *Passer domesticus* is a small member of the family Passeridae and commonly found in many parts of the world (Ali & Ripley 1987; Grimmett et al. 1999). On 21 November 2019, while birding at Howrah, West Bengal, India (22.5694° N & 88.3128° E), we observed a House Sparrow perching on a cable wire.



Leucistic House Sparrow *Passer domesticus*. © Anish Bera.

The individual was not normally coloured male, it was a partial leucistic individual with the following characters: the crown was white with some brown regular patches; the greater coverts in the wings are with white patches and the end portion of the wings are partially normal; median and lesser coverts covered with fluffy white hair; the under parts with white feathers all over; eyes and beak normal coloured; and body partially white in colour.

It clearly indicates that the bird we observed during our birding was partially leucistic. This kind of

colouration is due to the partial or complete lack of melanin in the individual (Grouw 2006). The unusual abnormal colouration has been seen in this species but the proportion and distribution of abnormally coloured individuals is not well known for this species (Grouw 2012).

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New record of Swinhoe's Minivet with a distribution note from West Bengal, India

Swinhoe's Minivet aka Brown-rumped Minivet *Pericrocotus cantonensis* is poorly known from the Indian Subcontinent with known reports only from Bangladesh (Grimmett et al. 2011; Rasmussen & Anderton 2012). Brown-rumped Minivet is enlisted to the Indian avifauna (Praveen et al. 2018), based on records from Odisha (Rajguru & Ukil 2016) and Karnataka (Sridharan et al. 2016). Three photographs of Ashy Minivet from Kuldiha Wildlife Sanctuary, Odisha, by Rakesh Khedwal

China, Korea, and Japan. The species is a winter migrant to southern and southeastern Asia (Robson 2008; BirdLife International 2021). Our note is the first published record of Swinhoe's Minivet in West Bengal.

Midnapore is located at 22.250°N & 87.650°E and 23m above the sea level. West Bengal is a state in eastern India between Bay of Bengal

and Ajoy Kumar Dawn on 01 (or 02) November 2011, which was next acceptably identified as a Swinhoe's by Inskipp in 2015. An updated compilation by Tim Inskipp, of all known Ashy- and Swinhoe's Minivet sightings in West Bengal, suggests the same (Inskipp 2016). In West Bengal, few photographs were taken only from Nadia District in 2016 and 2017 but no publication from this state. Swinhoe's Minivets breed in central, eastern, and southeastern China, and winter in parts of southern Myanmar, Thailand, and Vietnam (BirdLife International 2021). Whereas, the Ashy Minivet *P. divaricatus* breeds in parts of Siberia,

and Himalaya, rich in mangrove swamps to dense forest. The state's climate varies from tropical savanna in the south to humid subtropical in the north. During our continuous migratory bird monitoring on 29 November 2020, we spotted four birds near Rajbandh, Anandapur (22.576°N & 87.338°E) village area in West Medinipur, West Bengal. Perched on the top of a bamboo tree, we lost three but fortunately got one proper photograph. Seeing the white head and black eye stripe, we realized it was different. We took many photographs but were unable to take from front because of positional disadvantages.

Identification of Swinhoe's Minivet

1. Distinct thin black eye stripe (vs thicker in Ashy Minivet).
2. Broad white forehead extending, beyond the eye (not much prominent because of juvenile bird), onto the fore-crown (white restricted on eyes in Ashy Minivet), which is one of the diagnostic features of a male Swinhoe's Minivet. Female different Ashy by paler rump and browner upperparts – our finding is female one.
3. Hind crown is dark grey (vs black in adult male Ashy Minivet).
4. Colour of rump is little buff-brown in Swinhoe's Minivet (vs grey in an Ashy Minivet).
5. Our pictures show the tail well, but the white shafts on the inner tail feathers that should ideally be present on a Swinhoe's Minivet cannot be seen.
6. Swinhoe's Minivets usually have a pale yellow-tinged wing patch (vs white in Ashy) but this is generally hidden in the folded wing and is not seen in any of our pictures. Very little is known about the status of this species in India due its similarity with the Ashy Minivet. Most of the dated published records of the Ashy Minivet did not consider Swinhoe's as it was nonfamiliar with Indian birders. This is especially significant as females and first winter males of both species are misidentified (Bakewell 2012). Inskipp (2016) placed the Swinhoe's Minivets as vagrant in their book. Grewal et al. (2016) placed the photograph of Swinhoe's Minivet under Ashy Minivet with no separate description. It is expected that upon deeper examination, more such photographs of Ashy Minivets, lying in online forums, may subsequently turn out to be of Swinhoe's.

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Abbott's Babbler *Malacocincla abbotti* in Purba Medinipur District, West Bengal, India. © Arajush Payra.

Sighting of Abbott's Babbler from Purba Medinipur District, West Bengal, India

Abbott's Babbler *Malacocincla abbotti*, a medium-sized bird of family Pellorneidae is widely distributed in the forests of the Himalaya from Nepal to Arunachal Pradesh, Assam, Meghalaya up to Lushai Hills of Mizoram and Tripura, and an isolated population in the Eastern Ghats (Grimmett et al. 2011, 2016) across southeastern Asia to Borneo (BirdLife International 2016; Collar & Robson 2019). Among the eight

subspecies recognized (Gill & Donsker 2018) two occur in India. These include *M. a. abbotti* (Blyth, 1845) from the eastern Himalaya to the Malay Peninsula and *M. a. krishnarajui* (Ripley & Beehler, 1985) from eastern India, the Vishakhapatnam Ghats. These stout birds forage in pairs in dense undergrowth close to the ground. They are easily noticeable by their distinctive calls. On 25 November 2019 around 11.30h,



Abbott's Babbler *Malacocincla abbotti* in Purba Medinipur District, West Bengal, India. © Arajush Payra

while birding around the village forests of Bara Solemanpur (21.672N & 87.575E, 7m.) in Purba Medinipur District, West Bengal, India, I heard a continuous bird call from the bushes. The moment I reached close to the bushes, the bird left the ground and perched on a Neem tree branch nearby. It was the moment I successfully captured some photographs of the bird using Nikon P900 Camera. For quite some time, the bird was busy foraging in the low vegetation, shrubs, and bamboo thickets. During my visit the next day, I again observed the bird continuously feeding in the bamboo bushes.

Later, on 9 December 2019 around 11.25h, a single individual was sighted at the same location foraging among the bushes. I identified the bird by its thick stocky bill, light grey supercilium, pale greyish breast and throat, rufous side breast, rufous short tail and vent duly verifying from Grimm et al. (2011), Arlott (2015), and Grewal et al. (2016). Though there are several records of its presence in northern West Bengal (Inskipp 1971; Sivakumar et al. 2006), its distribution in the southern parts of the state is scanty. These include a few sightings from Bibhutibhushan Wildlife Sanctuary,

Chintamani Kar Bird Sanctuary, and Sunderban Tiger Reserve in north and south 24 Parganas, respectively (Prasad 2012; Ash 2016; Modak 2017; Akhter 2019). The present sighting of the bird in Bara Solemanpur Village of Purba Medinipur District is about 115km south-west from its nearest known locality Chintamani Kar Bird Sanctuary, West Bengal (Prasad 2012) and about 90km south-east from the Panchalingeshwar Temple of Odisha (Modak 2019). Its frequent sightings in the southern most districts of West Bengal suggest its range distribution throughout the territory of West Bengal.

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The first nesting record of the Lesser Adjutant from Rautahat District of Nepal



Pair of juvenile Lesser Adjutant. ©Prashant Rokka; Field Survey 21 December 2020.

Lesser Adjutant (LA) *Leptoptilus javanicus* (Horsfield, 1821) is categorized globally “Vulnerable” in the IUCN Red List of Threatened Species (BirdLife International 2017). LA has been recorded from southern and southeastern Asia including Nepal (Karki & Thapa 2013). In Nepal, presence of LA has been recorded from 14 different important bird and biodiversity areas (IBAs), four national parks as well as in different forests patches and farmlands (BirdLife International 2017; Baral et al. 2020).

Furthermore, population of LA has been estimated between 300 to 1,000 individuals with distribution reported from almost entire stretch of lowland Nepal from east to west (Inskipp et al. 2016). The species has

previously been recorded to have breeding colonies from far east to far west Nepal (Inskipp et al. 2016). Recent studies reported the existence of LA in Sindhuli and Sarlahi districts of Nepal (Baral et al. 2020; Bajagain et al. 2019). Findings of the colonies as described by prior studies provide account for recent achievement in exploration of LA population and breeding sites in Nepal (Karki & Thapa 2013; Inskipp et al. 2016; Bajagain et al. 2019; Baral et al. 2020); however, there is no previous record of its nesting in Rautahat District.

In this context, this survey was conducted in Brinda Ban Municipality of Rautahat District in central lowland of Nepal (Figure 1). The study area lies in the lower tropical



Lesser Adjutant nesting trees location in Rautahat District, Nepal.

bioclimatic zone with a tropical forest ecosystem. The lower tropical zone lies below 300m with two types of ecosystems, namely, Terai tropical Sal forest and Terai cultivated land (BPP 1995). Rautahat District consists of 26.11% (294km²) forest including the central broad strip of the Siwalik Forest known as 'Charkoshe Jhadi'.

Survey was conducted from 15 to 21 December 2020 from 08.00–11.00 h each day and covered an area of 45.24km². Localities such as farmland, marshy areas, open grounds near forests were scanned for observing nest of LA which was similar as recorded earlier by Bajagain et al. (2019). The area search method applied

by recording the colonies seen by random walking in the area of the forest. Direct visual observations made using a pair of 8x42 Olympus binoculars. Likewise, birds as well as nesting trees photographs were captured by using Nikon P900 digital camera afar from the nesting sites to minimize disturbance. Coordinates of the nesting locations were ascertained using Garmin GPS MAP 64s (Table 1).

During the survey, a total of six colonies with 19 nests and 36 juveniles were recorded in the study site. A total of seven adults was observed out of which four were found resting in nesting trees while three were seen at farmland. We observed the colony for a short period of time which coincided with

Table 1. Nesting colony record of Lesser Adjutant from Rautahat District, Nepal.

Date	Colony	Locality	Coordinates	No. of Nests	No. of Juveniles
20.xii.2020	One	Forest land	27.048 N 85.388 E	Three	Seven
20.xii.2020	Two	Forest land	27.049 N 85.388 E	Two	Four
20.xii.2020	Three	Forest land	27.051 N 85.391 E	Two	Four
21.xii.2020	Four	Forest land	27.047 N 85.390 E	Six	Nine
21.xii.2020	Five	Farmland	27.044 N 85.391 E	Four	Seven
21.xii.2020	Six	Farmland	27.049 N 85.386 E	Two	Five



Adult Lesser Adjutant in farmland. © Prashant Rokka; Field Survey 20 December 2020.

Table 2. Information on nesting colonies with dimensions of nesting trees.

Colony	Tree height	Tree girth	Nearest settlement
One	25m	4.26m	65m
Two	22m	3.35m	75m
Three	20m	2.74m	510m
Four	22m	3.96m	122m
Five	25m	3.96m	128m
Six	25m	3.65m	5m

the lack of adults in other nests. Based on our field experience, we assume that adult LA might have gone for foraging. Details on the date, colony, locality, coordinates, number of the nests and juveniles are shown in Table 1.

This study documents the six new colonies as first nesting records of LA from the Rautahat District outside the protected area network. With no previous record from the district,

the survey has led to the discovery of a new breeding population for Nepal. All the colonies were located on *Bombax ceiba* and the heights of the trees ranged from 20–25 m (Table 2).

LA being large and conspicuous, build their nests at the uppermost and general top-level branches (Tamang 2003). Moreover, the finding of the LA colonies near human settlement in Table 2 was similar to the findings of Koju et al. (2019) and Baral and Inskipp (2004). Previous study on LA suggests that farmland supports the breeding activities of LA (Koju et al. 2019) while other studies assumes avoidance of such lands for breeding by LA (Sundar et al. 2016, 2019). In this study, we found that nesting trees were close to human settlements (Table 2) which also indicates that LA are tolerant to

some degree of human disturbance (Karki & Thapa 2013). These findings contradict with each other hence, suggests the necessity of further detailed study on landscape use by LA.

The study highlights the need for the conservation of forest land adjacent to the human dominated landscape. Additionally, protection of nesting tree species such as *Bombax ceiba* should be given a high priority as they are crucial for LA conservation.

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Leucism in Black Drongo from West Bengal, India

On 12 July 2020, while birding in the agricultural fields of Purulia, West Bengal, India (23.1931°N, 86.0539°E), we spotted a partially leucistic Black Drongo *Dicrurus macrocercus*. It possessed distinct black coloration of the body with white feathers on its crown and a white beak. But the patch did not extend down to the body. It also had one white nail/talon on its right leg and some small white patches on its body. A closer examination of the bird in the photograph revealed that it was a partially leucistic individual because the pigments were only seen on the head portion and some parts of the body and talon.

In the avifaunal world, different types of colour aberrations are seen (Grouw 2006) and leucism is the most common type (Guay et al. 2012). Basically, Black Drongo comes under the family Dicruridae which are small passerine birds commonly resident to tropical southern Asian parts, with body measuring about



Partially leucistic Black Drongo *Dicrurus macrocercus* from Purulia, West Bengal. © Adarsha Mukherjee.

28cm with a forked tail; it commonly feed on insects (Ali & Ripley 1987; Grimmett et al. 1999). This is probably the first instance of partially leucistic Black Drongo being reported from West Bengal, India.

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Occurrence of beak deformity in Indian Eagle Owl in Tamil Nadu, India

Beak deformities are abnormal growth of beak- either shortening or elongation of the beak or in abnormal shape and size. Different forms of beak deformities were observed among birds, but the exact causes of these abnormalities are unknown. Many reasons could be attributed for bird beak deformity which may be environmental contamination, nutritional deficiencies, injury, bacterial or viral infections, fungal or parasitic infections (Handel et al. 2010). Earlier, observations had been made and documented on birds with abnormal beak growth (Craves 1994). According to Handel et al. (2010), environmental contamination of organochlorine compound of selenium from Great Lake in California could be responsible for high rates of beak malformations. The beak deformity will affect the behaviour of birds for feeding (Benkman & Lindholm 1991; Temeles & Kress 2003), preening (Van Hemert et al. 2012), feather maintenance, cleaning of ectoparasites (Clayton et al. 2005). Birds with beak deformity change their habits and adapt to the malformations for their survival (Verea & Verea 2010).

As a part of our research work on radio-telemetry studies on Indian Eagle Owls *Bubo bengalensis* (Franklin, 1831), they were captured from Paithamparai Village (11.074° N & 78.458° E) in Tiruchirappalli District, using Bal-chatri trap on 4th September 2019. After capturing, morphometric measurements



Front view of Indian Eagle Owls: (a) normal beak and (b) beak deformity. © T. Siva.

were taken in the field. It was a male bird and weighed 855g. The beak of the bird was observed to be deformed; however, all other body parts like wings and legs were well developed and found to be normal.



Beak deformity observed in an Indian Eagle Owl with cut nostrils. © T. Siva.

In general, Indian Eagle Owls have curved and thick bill with a pointed tip. The upper and lower mandibles of this bird was different from the normal bird. The upper mandible appeared as curved towards right side but the nostrils had a small cut in the beak. The upper mandible was slightly crossed over lower mandible and the cutting edges of lower beak was found to be abnormal with thin structure, however, the claws were found to be normal. These nocturnal birds hunt their prey with the help of beak and claws. The bird may hunt the prey species with the help of claws and kill it quickly. After killing, the bird may swallow the prey as a whole and lead a healthy life. Earlier, Bai et al. (2016) concluded that the over-expression of LOC426217 gene in the beak of poultry birds (pure line of a local breed Beijing You in China) may be related to the malformation. The observed deformity in the Indian Eagle Owl may be correlated to over-expression of a gene or genes which requires further investigation and confirmation.

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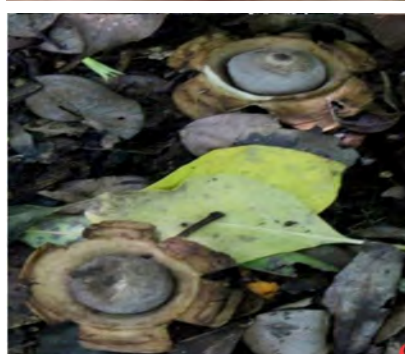
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New distribution record of Fringed Earthstar Fungus from the Western Ghats of Nilgiris, Tamil Nadu, India

Elias Magnus Fries described *Geastrum fimbriatum*, as *Geastrum fimbriatus* Fries, 1829 belonging to the family Geastraceae. The family Geastraceae was first described by Corda (1842) as the Geastrideae and subsequently classified in the Lycoperdales (Kruger & Chagas 2008).

It is commonly known as the Fringed Earthstar or the Sessile Earthstar (Verma et al. 2018). The species '*fimbriatum*' means "fringed" referring to the characteristic of spore sac. The fruit bodies are roughly spherical and hypogaeous. When the fruiting body pushes up through the soil and the other layer of the spore sac (exoperidium) splits open to form 5–8 rays that curve downward. *Geastrum fimbriatum* is similar to *Geastrum saccatum*, but this species is larger up to 5cm across and has a clearly delimited ring-like area around the pore opening.



Stages of *Geastrum fimbriatum*:
a—young globose basidiomata |
b—matured globose basidiomata |
c—split exoperidium | d—specimen
preserved in KASC-M.

Although it was listed in field guides as inedible (Roody 2003), it was reported to be eaten by the tribal people of Madhya Pradesh (Roman 2010).

The genus *Geastrum* was distributed in different continents except Antarctica and is more frequently abundant in the temperature zones as well as in the tropics (Ponce de Leon 1968).

In view of the family Geastraceae, which totally have eight genera, *Geastrum*, *Myriostoma*, *Trichaster*, *Geasteropsis*, *Phialastrum*, *Pyrenogaster*, *Radiigera*, and *Terrostella*, the genus *Geastrum* has the largest number of species with 50 accepted taxa worldwide (Kirk et al. 2008). According to the Mycobank database, so far, approximately 334 records of *Geastrum* have been reported from all over the world.

In India, several interesting Geasters are studied by various investigators in different states. Gogoi & Vipin (2015) reported that *Geastrum schweinitzii* (Berk & M.A. Curtis) Zeller, *G. lloydianum* Rick, *G. saccatum* Fr., *G. coronatum* Pers. were collected in the state of Maharashtra, whereas, *G. fimbriatum* was reported in Nagpur District. Cunningham (1942) reported *G. fimbriatum* growing on the ground in Himachal Pradesh. Karun & Sridhar (2014) reported the occurrence of *Geastrum fimbriatum* in Kerala Western Ghats. Soosairaj et al. (2012) reported the species was found in Kodaikanal Hills, Tamil Nadu.

To my knowledge, this is the first scientific documentation of *Geastrum fimbriatum* from the Nilgiris, southern Western Ghats of Tamil Nadu.

Habit: The Geaster is a saprophytic fungus.

Habitat: *G. fimbriatum* is a saprobic species, and its fruit body grows on the ground in solitary or cluster, usually near the stumps of hardwood trees of shola forest of the Nilgiris.

Distribution: The restricted distribution of *Geastrum fimbriatum* found in India in the states of Karnataka, Kerala, Tamil Nadu, and in central India.

Key to the species of *Geastrum* sp.

1. Pseudoparenchymatous layer breaking down at maturity, leaving a conspicuous collar around the endoperidium *G. triplex*
2. Basidiomata without such aspect, mycelial

layer without longitudinal ridges, outer mycelial layer with simple-septate hyphae *G. saccatum*

3. Exoperidium with involute rays at maturity, endoperidium smooth (without hyphal pegs) *G. fimbriatum*

Basidiospores

Basidiomata epigeous when young, globose to depressed-globose, 1.7cm diam. x 2cm high, epigeous maturity, 2–2.4 cm broad, 0.4–0.6 cm high. Exoperidium non-hygroscopic, saccate, splitting into 3–6 rays; mycelial layer dark blond; fibrous layer adherent, greyish-yellow; pseudoparenchymatous layer brown. Endoperidium sessile, globose to subglobose, 0.8–1.5 cm diam., brown. Peristome absent in fibrillose. Gleba dark brown; columella present. Basidiospores 3–3.5µm in diameter, globose, ornamentation columnar. Capillitial hyphae thick walled, with surface debris and verrucose, 3.2–4µm diameter.

Specimen examined: TF 4050, 19.vii.2018, under *Delonix rigia* tree, TFRI campus, Jabalpur specimen deposited in Mycology Herbarium, Tropical Forest Research Institute, Jabalpur, coll. Verma et al.; S. Santhoshkumar et al. 16 (KCMS) Longwood shola, Kotagiri from 2,040m, 27.vi.2017; S. Santhoshkumar et al. 21 (KCMS) Sholur beat, North Division of Nilgiri's from 1,700m, 24.vi.2018.

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Vultures: heroes of the ecosystem - International Vulture Awareness Day Celebration at Mudumalai Tiger Reserve, Tamil Nadu, India

International Vulture Awareness Day (IVAD) is celebrated every first Saturday of September to create awareness on vulture conservation across the world. IVAD was observed on 05 September 2020 by the Department of Zoology & Wildlife Biology, Government Arts College, Udhamandalam in collaboration with 'Arulagam' at Mudumalai Tiger Reserve, Masinagudi Division (MTR, MD).

A wall painting with a slogan on "Vultures - Heroes of the Ecosystem" was drawn on the wall of the forest check post building at Vazhaithottam. This wall painting was opened to the public by Mr. L.C.S. Srikanth, deputy director, MTR, MD. After inaugurating the wall painting, he said that the Segur forest range is an important breeding area for White-rumped Vultures and hence the awareness board was erected last year and this year a wall painting has been



Wall Painting inauguration.



T-shirt distribution to anti-poaching watchers.

drawn to sensitize the people before they enter the forest range. B. Ramakrishnan (second author), during his talk highlighted the importance of monitoring vulture populations and

breeding aspects of White-rumped and Long-billed Vultures. He further stated that the populations of these two vulture species are steadily increasing and the methodology to



Goshala visit by team of members.

ascertain vulture population has been finalized to carry out synchronized vulture population estimation in this year for entire south India with the active participation of the Vulture Conservation Working Groups.

Bharathidasan, Secretary of the Arulagam told that once predominantly seen vulture population is now confined only in the Nilgiri Biosphere Reserve. He further emphasized that local people should feel proud of vultures' presence in their vicinity.

Manigandan, research scholar conveyed the people's perceptions on vulture conservation and prevalence of Non-steroid anti-inflammatory drugs (NSAID) in the landscape. Mr. S. Murali, forest range

officer (FRO) at Segur Forest Range, distributed T-shirts with vulture icons to anti-poaching watchers, those who are working in vulture presence forest beats. Mr. N. Mariyappan, FRO, Masinagudi Forest Range and Mr. S. Kaanthan, FRO, Singara Forest Range gave presentations highlighting vulture conservation. After the wall painting inauguration, the team headed by Mr. S. Murali, FRO, Segur Forest Range visited the Goshala run by the Nilgiri Animal Welfare Society of the Nilgiris District at Mavanalla.

Mrs. I. Nisha, Manager of the Goshala explained the administration and medical aspects of cattle in the Goshala. She also stated that on an average 150 cows are being managed on the

farm and 2–3 cattle die every month. She also ensured that the cattle in the Goshala are not treated by diclofenac, ketoprofen, aceclofenac, flunixin, and nimesulide that are harmful to vultures. The Goshala management is willing to provide dead cattle carcasses for vultures to feed. We hope it will materialize soon and Arulagam will take care of all logistics support to facilitate the cattle carcasses to vultures from the Goshala.

The event was well organized by the staff of the Segur Forest Range, MTR, MD.

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News and announcements — short items of news or announcements of interest to zoo and wildlife community

Cartoons, puzzles, crossword and stories

Subject matter: Captive breeding, (wild) animal husbandry and management, wildlife management, field notes, conservation biology, population dynamics, population genetics, conservation education and interpretation, wild animal welfare, conservation of flora, natural history and history of zoos. Articles on rare breeds of domestic animals are also considered.

Source: Zoos, breeding facilities, holding facilities, rescue centres, research institutes, wildlife departments, wildlife protected areas, bioparks, conservation centres, botanic gardens, museums, universities, etc. Individuals interested in conservation with information and opinions to share can submit articles ZOOS' PRINT magazine.

Manuscript requirements

Articles should be typed into a Word format and emailed to zooreach@zooreach.org. Avoid indents, all caps or any other fancy typesetting. You may send photos, illustrations, tables.

Articles which should contain citations should follow this guideline: a bibliography organized alphabetically and containing all details referred in the following style: surname, initial(s), year, title of the article, name of journal, volume, number, pages.

Editorial details

Articles will be edited without consultation unless previously requested by the authors in writing. Authors should inform editors if the article has been published or submitted elsewhere for publication.

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ZOO'S PRINT magazine is informal and newsy as opposed to a scientific publication. ZOO'S PRINT magazine sometimes includes semi-scientific and technical articles which are reviewed only for factual errors, not peer-reviewed.

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