

Observations on Habitat Use and Breeding Biology of Indian Nightjar: *Caprimulgus asiaticus* (Latham, 1790): Caprimulgidae

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Abstract: Nightjars are medium sized nocturnal or crepuscular birds belongs to the family Caprimulgidae, characterized by long wings, short legs and very short bills. From 98 species of nightjars in the world, the true nightjar species belongs to Caprimulgidae is 38. These nightjar species are distributed in Afghanistan, Iran, Myanmar, Thailand, Cambodia, Vietnam and Laos. These birds are difficult to locate and identify due to well camouflage of body coloration with the habitat. This species found to lay 1-3 eggs on an open land camouflaged with the habitat. To keep them in the camouflage is the principal defense mechanism. Nightjars are insectivores, prefers moths (Lepidoptera). They produce typical chirping (chik..chik..). These birds are one of least studied in the world hence present work is intended to find out Indian Nightjar, *Caprimulgus asiaticus* with respect to its habitat use and breeding biology.

Keywords: Nightjar, Habitat, Breeding, biology, Gondia, Maharashtra

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I. INTRODUCTION:

Nightjars are nocturnal birds mostly active only at dawn and dusk, when it flies about searching for tiny insects. You can only realize it hidden on the ground if you hear the distance chik..chik.. call it produces. Nightjars are classified under order Caprimulgiformes & family Caprimulgidae. Nightjars have typical plumage colour pattern that camouflages with its habitat and surrounding hence, it is one of the land birds difficult to site (Parasher et al., [1]). Indian Nightjar, *Caprimulgus asiaticus* is closely related to Madagascar nightjar. The two recognized subspecies of *Caprimulgus asiaticus* are: *Caprimulgus asiaticus* Latham, 1790 and *Caprimulgus asiaticus eidos* Peters, 1940. All the species are nocturnal in feeding (Jathar et al., [2]). They fly into the swarms of insects attracted to artificial light with their bill wide open. They are seen frequently resting on roads, during the night and feeding on insects under lights. Their bright reflective eye-shine makes them easy to spot in the beams of vehicle headlights. They may however be surprised by bright lights, and many are killed by vehicular traffic (Saxena) [3]. Human activity has always had an impact on biodiversity, but in recent centuries this impact has increased to a point, where we are in danger of declining the primary functions of the natural systems and therefore an extent that could ultimately threaten our own future. The needs of the surrounding biodiversity are forgotten by mankind and hence our knowledge is limited. The remaining natural habitats and the species living there may get disappeared from the globe before they are being discovered. Nightjars are one of the least studied land birds in the world (Luis et al., [4]). In this context the present study was planned.

II. MATERIAL AND METHODS

The study area situated near a small village Morgaon which is 5 Km far away from Arjuni town in Gondia district of Maharashtra State. The study area (20.8179° N and 80.0395° E) is near the lake and it is a kind of mixed plantation managed by State Forest Department. The plantation mostly of the Teak and rich diverse flora especially small bushes, grasses etc. Surveys were conducted weekly in morning 5am throughout the year during 2018-19. Our results are based on the visual observations, no nets or traps were used during the study. The nesting sites identified were flag marked. Birds were observed by using spotting scope (10x45 X) and binocular (07x50). They were identified using physical features with the help of guides and reference books, Ali and Ripley [5]; Manakadan [6]; Grewal [7]. During the breeding season nests were closely monitored by making hide-outs near the site. Photographs were taken by Canon 1200 D digital camera (Plate.I).

III. RESULT AND DISCUSSION

The Indian Nightjar, *Caprimulgus asiaticus* is a small bird, measuring about 24 cm in length. There is a great variation in the plumage of these Indian Nightjar species. A bird with a plumage that is mottled barred and streaked with grey, rufous, black and white, and gives an overall effect of a complicated, but very effective camouflage. Small white patches on the outer wing are prominent in flight. It is a solitary bird, active only in the

evening and at night. They have long pointed wings and short legs. The upper part are grayish brown with blackish brown streaks. The tail of this bird is short and has white corners. The cheeks are darker and there are whitish patches on the side of the throat. The breast region has fine brown bars. The males have more white on the tail, while female is more heavily marked on the crown. It flies after sun dawn with an easy, silent moth-like flight. During the day, Indian Nightjar remains silent upon the ground, concealed by its plumage; it is then difficult to detect, blending in with the soil.

Habitat ecology: Gondia district is easternmost part of Maharashtra state, harbors rich biodiversity, forest cover and abundance of water resources. Very few works have done in the district on avian biodiversity, ecology, and habitat conservation. Some of the pioneer studies available in Gondia district are Paliwal [8]; Paliwal et al., [9], [10]; Paliwal & Bhandarkar [11], [12], [13]; Bhandarkar & Paliwal [14]. Habitat is a distinctive set of physical environmental factors that a species uses for its survival and reproduction and a way in which an individual or species uses habitat to meet its life history needs (Block and Brennan [15]). Habitat selection refers to a hierarchical process of behavioral responses that may result in the disproportionate use of habitats to influence survival and fitness of individuals, Hutto, [16]; Block and Brennan, [15]. In addition, many non-habitat related phenomena influence habitat selection in birds, Cody [17], [18]. Including nest predation, Svardson [19], Martin [20], Petit & Petit [21]. Intra-specific attraction (Danchin et al., [22], Forsman et al., [23], Poysa et al., [24], and food limitation, Martin [21], McCollin [25]. This is first report of its kind on habitat use and breeding biology of Indian Nightjar, *Caprimulgus asiaticus* from this area. In the first instance during the survey it was very unpredictable to locate the bird, but due to recurring and regular visits as well as careful observations, the exact site made easy to identify the bird and its nests. Two active nests with eggs were found at the site, that two nests were separated roughly 20-22 meters from one another. We made it flag mark that site for further regular observation. This particular habitat is rich in diverse flora particularly small bushes, grasses which harbor variety of insect fauna (Fig. 1). Nightjar species prefers habitats with meadowland, bushes & rare woody area for diurnal roosting and egg laying, Tiwari and Dadu [26]. Therefore probably the Indian Nightjar (*Caprimulgus asiaticus*) prefers this habitat.



Fig. 1. Habitat of Night Jar



Fig. 2. Active nest & Eggs



Fig. 3. Bird incubating Eggs



Fig. 4. Eggs about to Hatch



Fig. 4. Newly hatched young one

Plate: I: Figure 1 to 5: Breeding biology of Night Jar.

Breeding biology: Indian Nightjar *Caprimulgus asiaticus* is a sexually dimorphic resident breeder in India, Sri Lanka and Southeast Asia. Nightjars have multiple habitat requirements during the breeding season, Camacho et al., [27]. The breeding season of Indian Nightjar is from February to September in India with a peak in April and May. The nest is an unlined scrape on the bare ground. They do not construct a nest; they simply place the eggs on the ground in a spherical shallow depression with dry grass sticks (Fig. 2). Shape roughly rounded about 15 cm in diameter (Fig. 4). It is observed during survey that after the disturbance the bird flew away suddenly

without making noise 1-3 feet from the nest and returning the nest after 5-10 minutes. Nesting appears to be timed in such a way that the moon is more than half full at the time they are feeding their young during night, which facilitates caring for the young and foraging for food. Female laid two eggs that are creamy pink and marbled with brown and grey spots. During the day the incubation of the eggs is undertaken by the female, with both the parents share incubation at night. The incubation period is about 19 to 21 days (Fig.3). The hatchlings covered in down and are capable of short distance within 24 hours of hatching. The parents shove them with their feet as they come out of the eggs so as to protect these helpless young ones from the predators. The male usually stands guards and defends the nest and the young. He hovers (remain in one place in air) in the place near the nest with his body nearly in a vertical position with his tail spread. Both the parents feed the young regurgitated food and they continue to brood them. The young took their first flight in about 25 days. It was shocking to observe that the chick survive in the scorching heat of the May with the day temperature was 44°C (Fig. 5). It was noticed that the nest, eggs and the chick was fully exposed to sunlight, there was no any shade. The soil texture was sandy, rough and irregular with small stone particles. Nightjars try to survive under camouflage cover of habitat which was most preferred factor for nesting and breeding; in doing so they get adopt with the harsh conditions of the habitat (Chavan et al., [28].

IV. CONCLUSION:

This is the first report on habitat use & breeding biology of Indian Nightjar, *Caprimulgus asiaticus* from this area. Nightjars are special group of avifauna that needs careful observations of habitat to know their biology. This Nightjar species have developed several behavioral adaptations to minimize predation. Their nocturnal lifestyle reduces the likelihood of being detected by day time predators. When nesting, they sat quietly on the nest minimizing any movement that could get them detected. The parents who are not incubating the eggs or involved in brooding will roost away from the nesting area. They also found to move eggs or young to prevent them from being preyed upon. Nightjars are the least studied birds & therefore needs further investigation for their conservation. There is a further scope for the entomologists to study the diversity of insect fauna from this habitat as these birds' feeds on insects.

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