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First record of Blue-bearded Bee-eater bird *Nyctyornis athertoni* (Jardine & Selby) attacking *Apis mellifera* colonies in Himachal Pradesh

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Abstract

Bee eater bird identified as *Nyctyornis athertoni* (Jardine & Selby) was found attacking *Apis mellifera* colonies in the apiary maintained in the Department of Entomology, College of Horticulture, Dr. Y S Parmar University of Horticulture and Forestry Nauni, Solan during the year 2016 (February). The bird visited singly or in groups of two to three with maximum visits during day time (direct sunlight). The predations of the bird on *A. mellifera* is a first report from foothills of Himalayas

Key Words: Nyctyornis athertoni,, Bee eater bird, Apis mellifera

Introduction

Beekeeping with *A. mellifera* is popular in several regions in India, including Punjab, Haryana, Uttar Pradesh, Uttarakhand, Himachal Pradesh and Jammu and Kashmir. The honeybees are attacked by variety of pests and pathogens viz., virus, bacteria, fungus, mites, wax moths etc. They are also subjected to many predators, some attacking the bees themselves, others consuming the bees wax and stored food in the hive. Some predators are specialists on honeybees. The heavy traffic of honeybees flying out of the hives in the apiaries provides opportunity for insectivorus birds / bee eater birds. Bee-eating birds are widely distributed, and recognized as serious pest by many beekeepers (Ali and Taha 2012). Most of them are migratory species that spend part of the year in apiaries preying on honeybees before moving to another area. However, during their presence in/around the apiary they produce specific sounds that honey bees can recognize causing them to stay in their hives. *Nyctyornis athertoni* (Jardine & Selby) commonly called as Blue bearded bee eater is a large species of bee-eaters found in much of the Indian subcontinent and parts of Southeast. The species is reported to feed mainly on bees. It exploits the defensive behavior of giant honey bee (*A. dorsata*) colonies by provoking the mass release of guard bees which are then caught and eaten as they pursue the bird. It has been reported from the hill regions of the Satpuras, Western Ghats, Eastern Ghats, Nilgiris, Chota Nagpur and from the Sub-Himalayan forests.

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Materials and Method

A. mellifera apiary is being maintained in Department of Entomology, College of Horticulture, since 1980. The apiary is located at 33.3N° latitude, 70.70°E longitude and 1256 m above mean sea level (amsl). The annual maximum and minimum temperature ranges from 17.3°C to 32.6°C and 2.4°C to 18.6°C, respectively, whereas, the annual rainfall is between 1000-1300 mm (average 1150 mm). The present observations on appearance of bird have been recorded in university apiary where *A. mellifera* colonies were maintained as a part of stationary beekeeping which is also being monitored for incidence of diseases and enemies. The general description of the bird, apiary visiting hours and data on total number of bees eaten per day is being presented in this paper. The identification of the bird was confirmed from Dr. Anil Kumar (Ornithologist), High Altitude Regional Centre Zoological Survey of India, Solan Himachal Pradesh.

Results and Discussion

In the present study the bird identified as *Nyctyornis athertoni* (Jardine & Selby) (Coraciiformes;Meropidae) was found visting/ attacking *A. mellifera* apiary for the first time since the establishment of the apiary (Plate 1). The bird is presently reported to inhabit thick forests and found at all elevations from sea level to 1600m below and rearily to 2200m above mean sea level, it is reported to be quite common in Himalayan foothills from kandaghat and Dehra Dun (Fry and Fry 1999).

Appearance: It has a large sickle shaped bill, grass green plumage with turquoise forehead, face and chin. The abdomen is yellowish to olive with streaks of green or blue. The predation of this bird on *A. mellifera* is a first report in foothills of Himalayas.

Plate 1 Predatory bird *Nyctyornis athertoni*

The observation on visiting time of *Nyctyornis athertoni* in presented in Table 1. The bird visited the apiary alone or in pair during morning (10.00-10:20 am) and afternoon (2:15-2:50 pm) hours. Observations for continuous 9 days (9th February 2016 to 17th Feb 2016) revealed that the bird visited apiary most of the time alone. It visited apiary for a period of 7 days regularly during morning hours whereas, its presence was observed only for 2 days during afternoon hours. It attacked the bees both at the hive as well as free flying foragers while sitting on electric wire close to the apiary. The temperature during the appearance period varied from 14.50 to 19.00^{o}C, whereas, among the nine days, rainfall was recorded only for one day (3.00 mm, 16th Feb 2016) (Table 2). The total time duration the bird visited and stayed in the apiary varied from 10-35 (Table 1).The data on number of bees eaten per day when the bird set on electric wire and number of bees eaten per day on alighting board is presented in (Table 2). The climatic factors during the appearance of bird are also presented. The number of bees eaten by the bird/ day while sitting on electric wire varied from 0-68 i.e. when it rained (3.00 mm, 16th Feb 2016) and after that (17th Feb 2016), the bird did not appear. Highest number of bees (68) was eaten when the average temperature of the day was 16.00 ^{o}C. The total number of bees eaten by the bird while sitting on the electric wire and during its appearance period of nine days was 356.The data on number of bees eaten per day when the bird set on alighting board is presented in (Table 2). The bird was observed sitting on alighting board only on 2 days (10th and 12th Feb. 2016). It ate 12 and 15 bees in 20 minutes (10th Feb. 2016) and 12 minutes (12th Feb. 2016), respectively. The observations further revealed that a pair remained around the apiary for about 17.5 minutes in morning and 15 minute in evening hours. A pair of the bird ate about 22 bees in morning and 35 in evening hours, during its one day visit to A. *mellifera* colonies. The number of bees eaten by one pair of the bird in the present study was moderate, but if the bird appears in group, it can pose threat to sustainable beekeeping (Kastbergera and Sharma 2000). Further, there is need to carry detail research on its behavior and period of appearance. The behavior of eating foragers was different while attacking bees at

Table 1. Time of visiting of *Nyctyornis athertoni* in *A. mellifera* apiary at Nauni, Solan during February, 2016

Date	Time of appearance		Total duration (in minutes)
	Forenoon	Afternoon	
9-2-2016	10:00am-10:20am	2:15pm-2:50pm	35
10-2-2016	11:10am-11:40am	Not visited	30
11-2-2016	10:10am-10:45am	Not visited	35
12-2-2016	10:40am-11:15am	Not visited	25
13-2-2016	Not visited	2:00pm -2:35pm	35
14-2-2016	9:45am-10:15am	Not visited	30
15-2-2016	11:10am-11:20am	Not visited	10
16-2-2016	Not visited	Not visited	-
17-2-2016	Not visited	Not visited	-

Table 2. Incidence of *Nyctyornis athertoni* in *A. mellifera* apiary at Nauni, Solan during February 2016

Date	Weather parameters		Number of bees eaten (Number)	
	Temperature (°C)	Rainfall (mm)	Sitting on electric wire / visit	Sitting on alighting board per minute
9-2-2016	16.50	0.00	47	Not visited
10-2-2016	16.00	0.00	36	12 (20)*
11-2-2016	16.00	0.00	68	Not visited
12-2-2016	14.50	0.00	38	15 (12) *
13-2-2016	17.00	0.00	58	Not visited
14-2-2016	18.00	0.00	67	Not visited
15-2-2016	16.50	0.00	42	Not visited
16-2-2016	18.50	3.00	0	Not visited
17-2-2016	19.00	0.00	0	Not visited
Total			356	

entrance that is moved its head up and down fastily, eating bees breathlessly where as moment of head and beak was observed right and left while eating honeybees flying out of hives. The first appearance of the bird was on 9th February 2016 and continued till 15th February 2016 and did not appear thereafter. The disappearance of bird coincided with a shower of rainfall (3mm 16th Feb 2016). The first appearance of bird in this climatic zone may be correlated to changing climatic scanerio. There are evidence that birds have been altered by recent climate changes (Crick 2004). Kinzelbach *et al* (1997) in their study on *Merops apiaster* (bee eater bird) found close correlation of appearance of the bird with warmer winter temperature. Bee eaters were absent in years of longer colder winters.

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