

Unusual Depredatory Birds in Sunflower and *Sorghum*

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Abstract

There are about 18 species of depredatory birds listed on *Sorghum* and Sunflower. Majority of the damage is done by Rose-ringed Parakeets, Common Myna, House Crow, Scaly-breasted Munia and Baya Weavers. Unusual instance of Red-breasted Parakeet in Hyderabad feeding on *Sorghum* was observed. Similarly, unusual instances of Great Tits, Indian Peafowl and Large Grey Babbler were observed to feed on Sunflower heads.

Keywords: Unusual depredatory birds; Feeding behaviour; Sunflower; *Sorghum*

Introduction

In India, a total of 63 species of depredatory birds are listed on all human grown crops [1]. These depredatory birds economically damage crops in one form or other. We had the opportunity to observe depredatory birds of Sunflower and *Sorghum* in Bengaluru and Hyderabad regions for three years under the project granted by National Agricultural Science Foundation (NASF), ICAR, New Delhi, on bio acoustical experiments.

A total of 18 species of depredatory birds have been listed to feed on Sunflower and *Sorghum* [1]. When a non-depredatory bird visits cropped areas for feeding, questions arise whether the bird is

depredating regularly or sporadically. Considering the complex dynamics of ecological balances, a major depredatory bird of one crop might in some conditions may act as minor depredatory bird in another crop. There arises a situation where a minor or unusual depredatory bird might attain importance in future years. This imperative, we made observations on the depredatory behaviour of unusual visitors to Sunflower and *Sorghum* for feeding.

Materials and Methods

Bio acoustical experiments were conducted at five locations viz., Sira (Karnataka) and Jukal, ICRISAT, ICAR-Indian Institute of Millet Research (IIMR) and Baswapur (Telangana). Sunflower was grown in Sira, ICRISAT and Baswapur, whereas, *Sorghum* was grown in Jukal and IIMR (Table 1).

Location	Duration	Crop	General habitat
Sira, Karnataka	Aug 2013	Sunflower	Predominantly agriculture intercepted by fallow lands and scrub jungle, Wetland areas.
	Oct 2013	Sunflower	
	Jan 2014	Sunflower	
	Mar 2014	Sunflower	
	Aug 2014	Sunflower	
Baswapur, Telangana	Dec 2013	Sunflower	Predominantly agriculture
	Mar 2014	Sunflower	
	Oct 2014	<i>Sorghum</i>	
	Apr 2015	Sunflower	
IIMR, Hyderabad	Feb 2013	<i>Sorghum</i>	Urban infrastructure with fragmented agriculture holdings
ICRISAT, Patancheru	Jan 2013	Sunflower	Agriculture
Jukal, Hyderabad	Sep 2013	<i>Sorghum</i>	Predominantly agriculture, Scrub jungle

Table 1: Location and crop details of experiments conducted.

Time series observations were done from sunrise to sunset without a gap for the entire period of crop protection in experimental and control plots [2]. Parameters like date, time, species, number visited, and activity of the bird whether feeding, resting, perching or overflying etc., and feeding time were noted.

Results and Discussion

Depredation by four unusual depredatory birds viz., Great Tit, Common Peafowl, Red-breasted Parakeet and Large Grey Babbler in Sunflower and *Sorghum* are discussed here. From the time series analysis, it was observed that Great Tits, Large Grey Babbler and Indian Peafowl ate on Sunflower achenes whereas, only four instances of Red-breasted Parakeet was observed feeding on *Sorghum* at Hyderabad. Of the four unusual depredatory birds, largest instances of Large Grey Babbler (971 instances) followed by Indian Peafowl (53) and Great Tit (47). Large Grey Babbler was observed to feed on Sunflower for 25 days, whereas Indian Peafowl 9 days, Red-breasted Parakeet on four days and Great Tit for 20 days (Table 2). Detailed notes of each species and their feeding behaviour is explained below:

Bird	Crop	Number instances	of Instances per day
Great Tit	Sunflower	47 in 20 days	2.4
Red-breasted Parakeet	<i>Sorghum</i>	4 in 4 days	1
Indian Peafowl	Sunflower	53 in 9 days	5.9
Large Grey Babbler	Sunflower	971 in 25 days	38.8

Table 2: Per cent instances of unusual depredatory birds in Sunflower and *Sorghum*.

Great tit (*Parus major*)

Great Tits have varied feeding habits. They have been recorded to feed on insects in summer months and switching over to nuts and berries in the winter [3]. Tits are also known eat on table scraps and boiled rice [4]. Great Tits are the first song birds recorded to attack roosting pipistrelles bats in crevices, and eat the brains out of them in NE Hungary [5]. Tits readily take to Sunflower seeds from bird tables in winter months when insects are scarce [6].

Great Tits were recorded to feed on Sunflower achenes during the experiment conducted in Sira in the month of Sep 2014. Sunflower was in dough stage when Tits started feeding on them. Tits usually arrived at Sunflower plots one hour (713 h) after the sunrise (611 h) and fed intermittently till three and half hours after sunrise (1040 h). In the evening, the birds came three hours (1525 h) before sunset (1834 h) to 16 min before sunset (1818 h). Usually Tits arrived solitarily or rarely in pairs. Birds arrived at the field and directly descended down on the heads of Sunflower. They hopped from one head to another till about four to five minutes before settling down for feeding. In this process, birds checked the hardness of seeds for consumption. Tits never mixed with other species of birds that were foraging on the crop. The mode of

eating is as follows: The bird sat on the head and pulled one achene at a time. Using the bill, the integument of achene was removed and contents were eaten (Figure 1).



Figure 1: Feeding of Great tit on sunflower.



Figure 2: Unusual sighting and feeding pattern of Red breasted parakeet on sunflower.

Red-breasted parakeet (*Psittacula alexandri*)

Red-breasted Parakeet does not occur in South India. However, feral population of these birds have been recorded in Bengaluru, Chennai and Mumbai areas, but existence of such feral population has not been recorded from Hyderabad. Red-breasted Parakeets are residents of North Eastern States of India along the foothills of Himalayas [7]. A lone individual male was observed in the mixed company of 15 Rose-

ringed Parakeets feeding on *Sorghum* heads at farms of Indian Institute of Millet Research, Hyderabad (Figure 2) in Feb 2013.

Red-breasted Parakeets are wasteful feeders like Rose-ringed Parakeets. In one instance, they were observed to cut off the *Sorghum* head and carry elsewhere for feeding. Out of four instances, only once Red-breasted Parakeet appeared in the morning at 659 h, 19 minutes after Sunrise (640 h). Remaining three instances were observed during evening hours, again in the company of Rose-ringed and Plum-headed Parakeets between 1537 h to 1725 h (sunset 1820 h). The birds fed for 2 min to 7 min.

Indian peafowl (*Pavo cristatus*)

Indian Peafowls are known to damage many crops when they are at seedling stage. In the cultivated areas, Peafowls feed on wide range of crops such as Chilli, Groundnut, Paddy and Bananas [8]. They are also known to feed on human excreta around human habitations [9]. Peafowls visited Sunflower experimental and control plots at ICRISAT, Hyderabad in Feb 2013. They took advantage of weak plants in the border to trample down and access the head. Irrigated land with soft mud helped them achieve this feat. On the days of rains when Sunflower plants lodged, Peafowls took advantage of easily accessible food (Figure 3). Considerable damage was done by Peafowls in control plot where almost 80% damage by Peafowls in this manner was recorded. Peafowls ate the achenes one by one when the head was accessible to them. They raided the crop in the morning and evening. In the morning, they visited the fields at 744 h (sunrise 640 h) and in the evening they visited again at 1602-1702 h (sunset 1820 h).

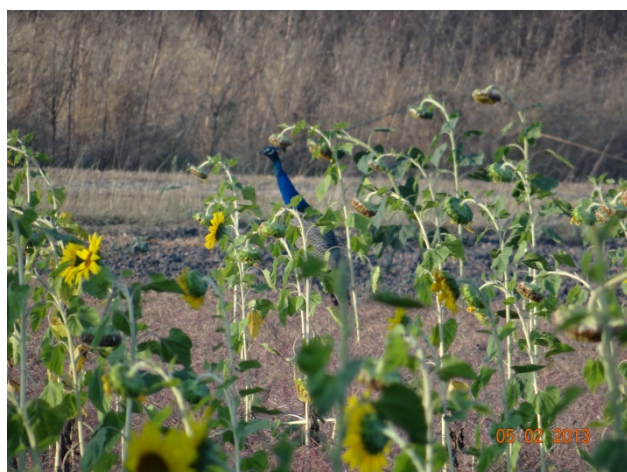


Figure 3: Feeding pattern of Indian Peafowl on sunflower head.

Large grey babbler (*Turdoides malcomi*)

Large Grey Babblers are seen in scrub lands, open forest and gardens in loose flocks. They eat on seeds and insects and sometimes take to lizards. Adult and juvenile Babblers were recorded to peel off Maize cobs and feed on dough stage grains. Otherwise, they are known to glean on fallen seeds after harvest of paddy in winter. The food preference of Babblers has been recorded more predominantly insectivorous than frugivorous [10].

Babblers were recorded to feed on Sunflower in the experiments of Feb-Mar 2013 at Sira. From (Figure 4), Babblers fed from 28 min after sunrise (631 h) to 1015 h and again in the evening at 1601 h to 1807 h (sunset: 1823 h). Instances in the evening were more when compared to morning.



Figure 4: Secondary feeding of Baya weaver on sunflower.

Initially, an individual Babbler approached Sunflower plot hopping on ground. Others would soon join and a flock of up to 8 birds gleaned on the floor of Sunflower plots. Then they individually climbed Sunflower plants and ate from the head. All of them fed from damaged heads by Parakeets and no attack on undamaged heads was seen (Figure 5). They hopped from one head to another and eating about three to four grains from a head.

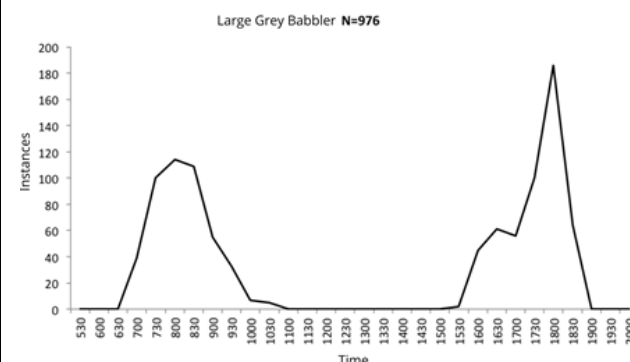


Figure 5: Time series analysis of Large Grey Babbler foraging in Sunflower.

Among the four unusual depredatory birds, potential of crop damage is less for Great Tits and Large Grey Babblers. Grey Tits fed on Sunflower seeds only in winter and do not form flocks like depredatory birds. Though large instances of Babblers were recorded in Sunflower, the amount of damage caused was negligible. They could be safely concluded as secondary feeding birds of minor economic importance.

Red-breasted Parakeets have become feral in Mumbai and small populations thrive in Bengaluru and Chennai. Two individuals were

spotted in Vellayani-Punjakari wetlands near Thiruvananthapuram, Kerala [11]. A lone individual was spotted in Hyderabad [12]. Considering the situations of Bengaluru and Chennai, there is a probability of establishment of a small population of Red-breasted Parakeet in Hyderabad in the coming decades. Red-breasted Parakeets are equally damaging and wasteful like Rose-ringed Parakeets. Red-breasted Parakeets are known to raid maize and rice fields in their native range [13]. Apart from field crops, Red-breasted Parakeets also causes damage to green nuts of Cashew in Andamans [14]. Hence potential of this bird becoming a pest in Hyderabad is not ruled out.

Indian Peafowls have the potential to become pests of Sunflower. They have already become major pests of various crops during sowing and ripening stage in Telangana, Andhra Pradesh, Madhya Pradesh, Chhattisgarh, Gujarat, Punjab, Haryana, northern Karnataka, Maharashtra, and parts of UP [15]. During the present experiment conducted at ICRISAT, it is evident that an extent of 12% damage was caused by Peafowls in Sunflower. Peafowls damaged Sunflower plants mostly in the periphery. In the future, Peafowls may become pests of Sunflower and suitable management strategy may have to be designed for protection of the crop.

Conclusion

Birds like Peafowls and Babblers prefer Sunflower seeds as a major diet and food source expansion. This is mainly due to the fact that unsustainable levels of exploitation, non-availability of preferred food, habitat destruction and less predatory pressure, new depredatory bird populations are increasing and dependency on alternative food resources are diminishing. It is because of this, the unusual depredations by new set of birds are increasing with every progress human beings making.

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