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Host Plant Relationship of Birds Species in Jhalawar Region of Rajasthan, India

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Abstract

The present study was carried out to know about the avian nesting behavior in relation to different host trees/ shrubs/ housing structures at different study sites in and around the Jhalawar area, from July 2019- April 2020. Total 17 bird's species belonging to 15 families were found nesting on 22 different plant / tree species on different study sites. It was observed that different bird species prefer different trees for nesting. During the study, it was observed that Acacia species were the most favoured host tree by birds for building nesting because of their thorny branches which were found to be beneficial for hiding their nests from the predators. Other than trees, some birds were found to build their nests at unusual sites. This study has generated the relation between the birds species with their specific host plants, as conservation of host plant is must in order to do the conservation of the bird species. Since, they both are directly linked to each other.

Keywords: Species, Families, Host plants, Structures, Nesting pattern

Introduction

Nest has been defined as a structure which is required for the egg laying, their protection and survival of young ones. Choice of nest site is influenced by various factors like food supply, risk of predation and nest ectoparasites which can affect survival of young ones. In birds, habitat selection for breeding may be affected by type and structure of vegetation, availability of food and nest site and chances of predation. Choice of trees on which the nest has been made also depends on the bird species making the nests. They choose plants based on the degree of threats to their nests. Sometimes birds choose trees with large canopies so that the predators can't reach their nests easily. Sometimes birds choose trees with thorny branches of so that these branches will help their young ones to be safe from predators. Sometimes they choose dense shrubs foe nesting so that their will not be discovered easily by predators not only they choose trees on this basis but they also Plants were also chosen for their appealing growth habit; their berry or fruit production, also noted, is an added bonus for birds. Dense clusters of stems are best for many birds to nest within, but some species need a more open branch structure to build their nests upon. Shrubs plants in clusters create a dense cover which birds desire for nest protection. But human disturbance affected the nesting behavior of birds by their habitat loss, changing housing structures and by introduction of exotic species replacing local endemics. Predation, desertion and human disturbance were the reasons for nest failure .Vegetation was the important factor to get shelter and to make nests. Bird nests were influenced by urbanization in many ways. The study on birds nesting on specific host plants is required to conserve both Flora and Fauna of Jhalawar.

Materials and Methods

Study Area:

The study was conducted at 10 different study sties in and around Jhalawar region of Rajasthan. Jhalawar district is one of the 33 districts of Rajasthan state in western India. Jhalawar is a city in South-eastern Rajasthan. Jhalawar once known as Brijnagar is located at 24.6 N 76.15 E. It has an average elevation of 312 m (1023 feet). Jhalawar is a part of Hadoti region and lies at the edge of Malwa plateau.

Methodology:

Extensive field surveys were performed at 10 different selected study sites in and around Jhalawar from June 2019 - April 2020 in different seasons that were rainy season, winter season and summer season. Each of the 10 selected sites was surveyed individually three times in a month.

Point count and Encounter methods were used to collect the data about the nesting sites and nests. The details on ecological conditions like the host tree; parasite etc. was also studied.

Birds were observed during the morning hours between 06.00 a.m. to 9.00 a.m. and between 4.00 p.m. to 06.00 p.m. with the help of 10-22X50 Nikon Binocular. Birds sighted during the study were identified using field guide (Grewal *et al.*, 2016, Salim, 2003 and Grimmett *et al*., 2016).

Nests were observed in different areas of Jhalawar by using binoculars and photographs were taken by the DSLR Nikon camera for better identification.

Host tree samples were collected from the study sites, which were later on identified in the laboratory. Tree names were visually noted and photographs were taken for the correct identification with the help of 10-22x50 Nikon Binocular.

Results

A total of 127 nests of 17 species belonging to 15 families were observed in all the 10 selected study sites in and around Jhalawar. During the study period, out of total 127 nests, highest number of nests were observed belongs of Baya Weaver (n= 43) followed by Blue Rock Pigeon (n=14), Red vented bulbul (n=12), Indian Silverbill (n=9) Table-4.1a. Their local status has been given according to their survey conducted at the selected study sites as well as according to Wildlife Protection Act -1972 has been given (Table - 1).

Table- 1: List of bird species observed nesting at 10 different study sites during survey period from July 2019-April 2020.

No.	Bird Species	Scientific Name	Family	Nest No
1.	Asian Pied Starling	*Sturnus contra*	Sturnidae	3
2.	Red Wattled Lapwing	*Vanellus indicus*	Charadriidae	2
3.	Indian Jungle Crow	*Corvusm acrorhynchos*	Corvidae	5
4.	Eurasian Collared Dove	*Streptopelia decaocto*	Columbidae	5
5.	Spotted Dove	*Spilopelia chinensis*	Columbidae	6
6.	Rock Pigeon	*Columba livia*	Columbidae	14
7.	Tailor Bird	*Orthotomus sutorius*	Sylviidae	1
8.	Red Vented Bulbul	*Pycnonotus cafer*	Pycnonotidae	12
9.	Baya Weavers	*Ploceus philippinus*	Ploceidae	43
10.	Indian Silver Bill	*Euodice malabarica*	Estrildidae	9
11.	Indian Robin	*Saxicoloides fulicatus*	Muscicapidae	1
12.	Rose Ringed Parakeet	*Psittacula krameri*	Psittacidae	8
13.	Common House Swift	*Apus nipalensis*	Apodidae	1
14.	House Sparrow	*Passer domesticus*	Passeridae	6
15.	Purple Rumped Sunbird	*Leptocoma zeylenica*	Nectariniidae	1
16.	Spotted Owlet	*Athene brama*	Strigidae	1
17.	Little Egret	*Egretta garzetta*	Ardeidae	10
	Total			127

Identification of nests host plant or trees:

Identification of the plant or trees on which nests were found was also done in this study. Nests were found in 22 tree species out of which most frequently used tree species was of Acacia sp. which was found to host about 4 to 5 species of birds nest. Other host trees were *Bougainvillea spectabilis, Azadirachta indica, Hibiscus rosa cinensis, Polyalthia longifolia, Ficus religiosa, Citrus reticulate, Jasminum sambac, Ailanthus excelsa, Terminalia arjuna, Zizyphus mauritiana, Acacia nilotica, Acacia leucophloea, Acaica catechu, Delonix regia, Bauhinia vareigata, Phoenix dactilyfera, Casuarina equisetifolia, Amaranthus viridis, Syzigium cumini.* Hole nesting birds used total 3 species of plants *ie., Dhokra, Eucalyptus globulus, Ficus religiosa, Azadirachta indica* (Table - 2)

Acacia spp. is common in the Jhalawar, which might account for the numbers of nests found in this tree. It was also observed that birds mostly preferred indigenous trees as compared to exotic trees. The study found that birds built nests in various positions in large canopy trees mostly to avoid predation. Birds were found to prefer roadside large trees for nesting despite human disturbance due to nest visibility. Risks were higher for nests at low height.

Table - 2: Nesting of different bird species observed on various host trees

S. No	Tree Species	Bird Species no.	Bird Species Nesting
1	*Acacia leucophloea*	5	Baya Weavers, Red vented Bulbul, Indian Silverbill, Eurasian collared Dove, spotted Dove
2	*Bougainvillea spectabilis*	3	Tailor bird, Red vented Bulbul, Spotted Dove
3	*Azadirachta indica*	1	House Crow, Rock Pigeon
4	*Hibiscus rosasinensis*	1	Red vented Bulbul
5	*Polyalthia longifolia*	2	Red vented Bulbul, Indian Silverbill
6	*Ficus religiosa*	1	Indian Jungle Crow
7	*Citrus reticulata*	2	Red vented Bulbul, Indian Silverbill
8	*Jasminum sambac*	1	Red vented Bulbul
9	*Ailanthus excels*	2	Asian pied Starling, Indian Jungle Crow
10	*Terminalia arjuna*	1	Red vented Bulbul
11	*Zizyphus mauritiana*	1	House Sparrow
12	*Acacia nilotica*	2	Baya Weavers, Indian Silverbill
13	*Acaica catechu*	2	Baya Weavers
14	*Delonixregia*	1	Baya Weavers
15	*Bauhinia variegate*	1	Red vented Bulbul
16	*Phoenix dactylifera*	1	Baya Weavers
17	*Casuarina equisetifolia*	2	Eurasian collared Dove, Spotted Dove
18	*Amaranthus viridis*	1	Red vented Bulbul
19	*Anogeisus pendula*	1	Baya Weavers
20	*Eucalyptus globulus*	1	Rose ringed Parakeet
21	*Durranta repens*	1	Red vented Bulbul
22	*Syzigium cumini*	1	Red vented Bulbul

Discussion

Various other researchers also studied the nests host plants or tree. Soni *et al.,* 2004 has recorded the total 13 tree species which included two climbers and cacti sp. They also found out that trees like Polyaithia longifolia has a dense canopies whereas Casia montana has thorns which protects the eggs and chicks from their aerial predators .

Sohi and Kler (2017) recorded the nesting of different species of birds nests on different plants or tree species. According to their study Asian Pied Starling had constructed nests on *Ficus virens* tree, Spotted Munia had preferred two average heighted trees Dhek and cheeku, Nests of Baya Weaver Bird were found at indigenous trees (Ber) at both said locations; it also preferred fruit tree (Pear) at location I and exotic tree (Areca Palm) at location II.

House Crow preferred to build nests on *Populus alba, Eucalyptus globulus* and *Vachellia nilotica* (Awais *et al.*, 2017).

Moosavi *et al.*, 2013 observed *Ziziphus numullaria* as nesting tree in case of Eurasian Collared Dove.

Similarly in one of the studies in Bangladesh Nests were found in 33 tree species, of which *Albizia sp*. was the most frequently used tree hosting 13 species of bird (including Black-Rumped Flameback, Large-billed Crow, Black Drongo, Oriental Magpie-robin, Asian Pied Starling), other trees found hosting nests included: *Azadirachta indica, Ficus benghalensis, Delonix regia, Lagerstroemia speciosa, Tectona grandis, Terminalia catappa, Cocos nucifera, Araucaria cookie, Anthocephalus chinensis, Swietenia macrophylla, Shorea robusta Lagerstroemia indica, Alstonia scholaris, Roystonea regia, Spondias cythera, Leucaena leucocephala, Caryota urens, Zizyphus mauritiana, Areca catechu, Magnolia grandiflora*, and *Carica papaya* (Jahan *et al.*, 2018).

Conclusion

Study also revealed that some birds are adapted to residential areas or they used to build nests near human populations but most of them built their nests away from human populations, so that they will not get disturbed by humans.

Study revealed that birds prefer mostly vegetation's which are rich in food or which has diverse habitat, so that they can provide maximum protection to their young ones with all the important requirements essential for their young ones survival. It is clear from the study that both birds and plants have a co relation between them related to nesting so whenever trees are cut down there were destruction of nesting sites of birds also occur so it is suggested not to cut trees as they are also home to several birds.

References

Awais M., Ahmed S., Mahmood S., Mahmood T .and Alvi H. (2015)Breeding Biology of the House Crow *Corvus splendens* at Hazara University, Garden Campus, Mansehra, Pakistan. *Podoces*, **10**(1): 1-7.

Grewal B., Sen S, Singh S., Devasar N. and Bhatia G. (2016) *A pictoral field guide to birds of India, Pakistan, Nepal, Bhutan, Sri Lanka and Bangladesh*. Princeton University Press 792.

Grimmett R., Inskipp C., Inskipp T. and Baral H. S. (2016) *Birds of Nepal*, Christopher Helm London.

Jahan I., Begum S., Feeroz M. M., Das D. and Kumar D. A. (2018). Nesting patterns of Birds in Jahangirnagar University, Bangladesh. *Journal of Threatened Taxa*, **10**(5): 11618-11635.

Moosavi S. M. H., Rad B. B., Karimpour R. and Nasab S. M. A. (2013) Breeding Biology of Collared Dove (*Streptopelia decaocto*) in Khuzestan Province, Southwestern Iran. *Khouzestan Science and Research*, **1:51**-54.

Soni V. C., Sharma P., Dave S. and Bhalodia K (2004) Nesting Ecology of Some terrestrial birds in Rajkot city (Gujarat). *Journal of Current Bio Science*, **2**(1): 97-104.

Sohi G. K. and Kler T. K (2017) Adaptations in avian nesting behaviour in relation to indigenous trees. *Journal of Entomology and Zoology Studies*, **5**(5): 1045-1051.

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