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**Bird Diversity and Nesting Pattern of Some Birds in Monsoon Season
At Devi Ahilya Vishwavidyalaya, Takshashila Campus, Indore (M.P.)**

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ABSTRACT

Devi Ahilya Vishwavidyalaya (DAVV), formerly University of Indore, is a Premier University in Central India situated in Indore city which is number 1. Clean city in India. Takshashila campus of this university having ample greenery and number of birds are attracted here to construct their nest. This was the first record of nesting pattern of some birds found in this campus. Though this was very short period but, this work definitely helpful for the new researchers who work on the beautiful creature of the nature. During the study, total 34 bird species belonging to 23 families were identified and recorded. Out of 34 birds 8 birds are busy in their nesting, breeding activity and this was the first study in the campus.

KEYWORDS: Devi Ahilya Vishwavidyalaya, Indore, Nesting pattern, Takshashila, Monsoon.

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INTRODUCTION

Indore is most populous city in Madhya Pradesh State. Indore is located on the southern edge of Malwa Plateau, at an average altitude of 550 meters above sea level it has the highest elevation among major cities of Central India. It has been ranked first in Swachh Bharat Abhiyan two years in a row (2017 and 2018) and is the cleanest city in India. This city is not only clean but also green. Either side of the roads in the city having much plantation, the dividers also possess green blanket in the form of greenery. The peoples of Indore city are really enthusiastic for cleaning purpose. They are addicted for Swachhata. Devi Ahilya Vishwavidyalaya, Takshashila Parisar is also clean and well maintain. According to the officials of DAVV, the campus having 60,000 different plants.

Birds are the beautiful creature of the nature. They play a crucial role in pollination. Diversity of avifauna is one of the most important ecological indicators to evaluate the quality of habitats. Birds occupy a special position in an ecosystem. Biodiversity at present is better understood for birds in many respects than any other major group of organisms because they probably inspire more extreme interest in humans, are often spectacular, relatively easily observed and not too cryptic to identify. Diversity of avifauna is one of the most important ecological indicators to evaluate the quality of habitats. It has been said that birds can exist without man, but man would be in difficult situation without them. Birds are also great economic importance to man. They play an important role in controlling population of different pests. They are scavengers and pollinating agents and also help in dispersal of seeds and provide rich food for mankind. Considering the important of birds to human being researchers have studied birds since ages.

Survey, conducted in the year 2015 by a team of forest officials and ornithologists from Indore region. A total of 207 species of birds have made Indore and its surroundings their home, revealed a survey conducted by forest department. This was the first time the department has carried out an effort to document the species of birds and their habitat in this region. Out of the total 207 bird species, 126 are resident species, 45 are winter visitors from Siberia and other parts of Europe while remaining 36 are resident migratory species which migrates within the country said by Conservator of forest B S Annieri⁵. This was the only one record found on bird study after 2015 in Indore.

As this campus is with full of green zone various birds are attracted and constructed their nests here. So far there is no study on birds found in the DAVV, Takshashila campus; our attention goes through the nesting of different birds in their breeding season. This study was carried out to record the bird species and their nests in breeding season. This is the preliminary work; more work should be done on this line so exact diversity of birds can be recorded in this campus and it will helpful for the new comers in this field.

MATERIALS AND METHODS

Study area:

Devi Ahilya Vishwavidyalaya (DAVV) Fig No. 1, formerly University of Indore, is a premier University in Central India, has completed 54th years of establishment, educational commitment and services. It is the First State University of Madhya Pradesh which has been accredited with "A" grade by NAAC⁶. Takshashila Campus is one of the two campuses of Devi Ahilya University, Indore. The campus sprawls over a 200 acres. separated by a National Highway. The major portion has about 28 departments of the university⁷.

Survey of avian fauna was carried out by using line transect method⁸ birds were sighted by using binoculars of 7X and 8X magnification and spot identification was done as per⁹⁻¹⁰. The sighted birds were photographed by using N Sony Cyber shot Camera Model No. W570. The scientific and local names were given as per¹¹. A check list is prepared as per¹².



Fig. 1 Devi Ahilya Vishwavidyalaya (DAVV) Takshashila campus, Indore.

RESULT AND DISCUSSION

The present report is based on the observation made from June, 18 2018 to July, 09 2018. Daily observation was made twice, in the morning from 06:00 AM to 08:00 AM and at the evening

from 5:30 PM to 07:00 PM. During the study, total 34 bird species belonging to 23 families were identified and recorded. Table 1 depicts details about the scientific and common names, status and occurrence of bird species. Out of 34 birds 8 birds are busy in their nesting, breeding activity.

The DAVV campus is heaven for the White breasted water hen as this birds number was more as compared to other aquatic birds. The nesting of this bird (Snap- 8) was observed and recorded, their nest was constructed so beautifully in the tree, and no one can easily reach to the nest. The pair used green grass, dry grass along with some small twigs of plants. The male and female both are taking care of the nest both parents are involving in the incubation process. The female lays 3 eggs. The color of the egg is creamy white and it was oval in shape. Small black spots are observed on eggs. The sighted nest was constructed on back side of Dept. of Environment Science, DAVV, campus. This area having water along with some heavy vegetation and no disturbance hence may be this reason they construct their nest in this region.

The Red wattled lapwing, another bird which was seen abundance in this campus. This bird's population was in good number. There was three nest sighted along with their eggs first nest was in front of Motilal Nehru Boys Hostel near Law College (Snap -1) having 4 clutch size, second one recorded near Atal Bihari Vajpayee College Campus (Snap-2) with 2 eggs and third one observed near Auditorium DAVV Campus with 2 eggs. The eggs of Red wattled lapwing were pear shaped with color varying from a pale olive green to a reddish buff. On the surface deep brownish black markings or spots were recorded all over the egg. The breeding pair maintained a territory in the surrounding of their nest. It is treated as a special area and intrusion in this area by strangers is protected by parents. Male first acquires a territory and then gives a call note to the female, female gives response to male at the same time. These birds give alarming calls for the protection; simultaneously they sing a territory song to get it distinguished and noticed to avoid strangers¹³.

The Male and Female *Vanellus indicus* constructed an unusual ground nest which get perfectly exact with the surrounding land color and texture. It is very difficult to locate the nest of this lapwing as it camouflage to the surrounding environment. The nest was prepared by using small pebbles; small sticks etc. The central depression was prepared by excavating the soil using toes and pebbles were carried in beak one by one and placed in the nest. The central part of the nest was prepared as a cup by the male. The collected pebbles were spread inside the cup followed by small sticks were spread. This place is safe for the breeding of Red wattled lapwing.

Red vented bulbul a beautiful creature, also found in good number in the campus. Two nests were observed within the campus, one was at department of Life Science (DAVV, campus) snap 5 and 6. Another was at Human Resource Development Centre (DAVV, campus) snap 10 & 12.

The eggs hatched out and two chicks observed in the nest found at department of Life Science (DAVV, campus) snap 5 and 6 along with female who taking all responsibilities of the young ones. Another nest was found at HRDC (DAVV, campus), the site selection of nesting was really amazing, it was exact in the front of Directors office door. The nest contain 3 clutch size, the eggs are pale pink marked with large, irregular red-brown blotches. The nest was cup shaped and it was constructed with the help of rootles grass, small twigs etc. both the partner busy in their caring. Snap No. 2. The nest of Common swallow, this nest was constructed by using mud. it was observed that both partners are giving equal share for the construction of the nest till our study. The back side of department of Environmental Science, they have enough mud by which they are preferred for construction.

Snap No. 7. Nest of Ashy prinia with 2 chicks and one unhatched egg observed at the premises of Boys Hostel, DAVV, campus., Nest of Ring dove with 2 clutch size , it was observed in front of Girls Hostel , Near HRDC Guest House, DAVV, campus and the nest was constructed inside the barbed cover and that's why the eggs are safe from other predators like cat, dogs etc.

A recently¹⁴ was carried out a study to record the avian fauna at Govt. (Model, Autonomous) Holkar Science College, Indore, (M.P.). This institute is near to the Takshashila campus of DAVV, they observed total 51 species of birds belonging to 14 Orders and 33 Families.

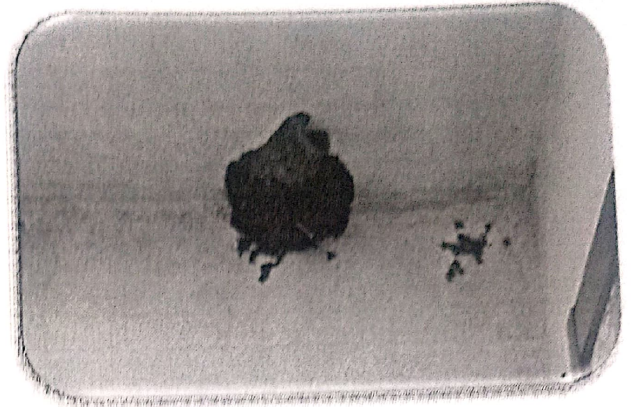
The DAVV campus having more space and greenery for the birds. These beautiful creatures having enough protection here to increase their number. On the basis of this study it can be concluded that, the Devi Ahilya Vishwavidyalaya (DAVV), Takshashila campus is in good ecological health and this is why many birds attracted here for breeding and nesting.

Table 1. List of Birds sighted in Devi Ahilya Vishwavidyalaya Takshashila Parisar, Indore during June 18, 2018 to July 09, 2018 along with their status and occurrence.
Abundance (++++), Few (+++), Very few (++) , Rare (+)

Sr. No.	Family	Common Name	Scientific Name	Status	Occurrence
1	Ardeidae	Cattle egret	<i>Bubulcus ibis</i>	RC	++++
2		Little egret	<i>Egretta garzetta</i>	RC	
3	Rallidae	White breasted water hen	<i>Amaurornis phoenicurus</i>	RC	++++
4	Sturnidae	Common myna	<i>Acridotheres tristis</i>	RC	++++
5		Brahminy myna	<i>Sturnus pagodarum</i>	RC	+++
6	Cisticolidae	Ashy prinia	<i>Prinia socialis</i>	RC	+++
7		Tailor bird	<i>Orthotomus sutorius</i>	RC	+++
8	Pyconotidae	Red vented bulbul	<i>Pycnonotus cafer</i>	RC	++++
9	Charadriidae	Red wattled lapwing	<i>Vanellus indicus</i>	RC	++++
10	Threskiornithidae	Black ibis	<i>Pseudibis papillosa</i>	RC	++
11	Accipitridae	Pariah Kite	<i>Milvus migrans</i>	RC	+++
12	Nectariniidae	Purple rumped sun bird	<i>Nectarinia zeylonica</i>	RC	+++
13		Purple sun bird	<i>Nectarinia asiatica</i>	RC	+++
14		Small sunbird	<i>Leptocoma minima</i>	RC	++++
15	Passeridae	House sparrow	<i>Passer domesticus</i>	RC	++
16	Psittacidae	Rose ringed parakeet	<i>Psittacula krameri</i>	RC	+++
17	Bucerotidae	Indian grey hornbill	<i>Ocyrceros birostris</i>	RC	++
18	Columbidae	Blue rock pigeon	<i>Columba livia</i>	RC	++++
19		Ring dove	<i>Streptopelia capicola</i>	RC	++++
20		Spotted Dove	<i>Streptopelia chinensis</i>	RC	++++
21	Phasianidae	Indian peafowl	<i>Pava cristatus</i>	RC	+++
22	Dicruridae	Black drongo	<i>Dicrurus macrocer</i>	RC	++++
23	Leiothrichidae	Large grey babbler	<i>Turdoides malcolmi</i>	RC	++++
24		Jungle babbler	<i>Turdoides striata</i>	RC	
25	Cuculidae	Crow pheasant	<i>Centropus sinensis</i>	RC	+++
26		Asian koel	<i>Eudynamis scolopacea</i>	RC	
27	Motacillidae	White wagtail	<i>Motacilla alba</i>	RC	+++
28	Hirundinidae	Common swallow	<i>Hirundo rustica</i>	RC	++
29		Dusky crag martin	<i>Ptyonoprogne concolor</i>	RC	
30	Muscicapidae	Oriental magpie robin	<i>Copsychus saularis</i>	RC	++
31		Indian robin	<i>Saxicoloides fulicata</i>	RC	++++
32	Alcedinidae	White breasted kingfisher	<i>Halcyon smyrnensis</i>	RC	+++
33	Coraciidae	Indian roller	<i>Coracias benghalensis</i>	RC	
34	Corvidae	Rufous treepie	<i>Dendrocitta vagabunda</i>	RC	



Snap 1. Nest of Red wattled lapwing near Motilal Nehru Boys Hostel near Law College.



Snap 2. Mud Nest of Common Swallow outside of Department of Environment Science.(DAVV campus)



Snap 3. Nest of Red wattled lapwing near Atal Bihari Vajpayee College Campus.



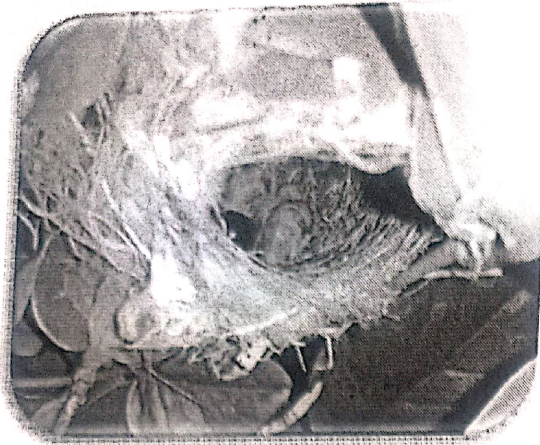
Snap 4. Nest of Red wattled lapwing near Auditorium DAVV Campus.



Snap 5. Red vented bulbul with her nest at Department of Life Science (DAVV, campus)



Snap 6. Red vented bulbul's chicks after hatching at Department of Life Science (DAVV, campus)



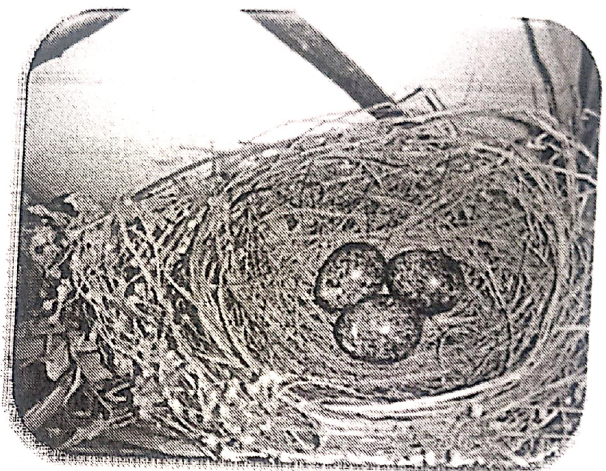
Snap 7. Nest of Ashy prinia with 2 chicks and an one unhatched egg (Boys Hostel, DAVV, campus)



Snap 8. Nest of White breasted water hen with 3 clutch size (Back side of Dept. of Environment Science , DAVV, campus)



Snap 9. Nest of Ring dove with 2 clutch size (In front of Girls Hostel , Near HRDC Guest House, DAVV, campus)



Snap 10. Nest of Red vented bulbul 3 clutch size (at HRDC, DAVV, campus)



Snap 11. Nest of Small sun bird (DAVV, campus)



Snap 12. Site selected for Nest by Red vented bulbul at HRDC (DAVV, campus)

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