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The study of birds species on based of diet at Vindhyachal forest reserve Khargone, district (MP)

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Abstract
The main aim of the present investigation was to study the of birds species on basis of diet at vindhyachal forest reserve at khargone district (M.P.). Study the of birds species were done from all the four sites (Wachoo point at Mandleshwar, Jamghat Temple at main Vindhyachal, Double golai Balwada and Gavalan Pati Charbhuja temple Katkut). Several species were observed on basis of different food in the present study. Total 205 Birds species were observed on the basis of diet. Out of which 45, 25, 66, 62 and 7 were carnivorous, frugivorous, insectivorous, omnivorous and Piscivorous respectively.

Keywords: bird, carnivorous, frugivorous, insectivorous, omnivorous and piscivorous

Introduction
Biodiversity, the totality of life forms is of great importance for this planet. Because t is just not variety of life animals and plants and variability in their life processes for their survival, but it is closely related to culture and welfare of human race [1]. Human beings depend on plants and animals for their survival.
Conservation of biodiversity can be in situ as well as ex situ. In the former, establishment of national park, protected parks and biosphere reserve and world heritage sites is included. Ex situ conservation is done by setting up botanical gardens, zoological gardens and gene banks. Tribal farmers and village communities also play very importance roles in both [2]. The goal of a conservation strategy should be to ensure that evolution continues. Allowing for the play of natural forces by which both wild and domestic species evolve, will maintain gene pools and retain genetic traits that may prove valuable in the future.
The birds are gregarious and highly mobile in nature since they occupy a various types of wetland habitats for search of shelter, food, breeding and chick rearing purposes [3]. The selection of habitat in birds may differ from species to species, depending upon the availability of prey and foraging behavior [4]. Thus, the present study "The study of birds species on based of diet at vindhyachal forest reserve khargone, district (M.P.)" was undertaken.

Material and Methods
Study Area
The Vindhyachal Forest Reserve area (Khargone District (M.P.), India was selected for present study. It is a complex, discontinuous chain of mountain ridges, hill ranges, high lands and Forest in west-central India. The Vindhya Range is also known as Vindhyachal.

Sampling Sites
The Four sampling sites were selected in Vindhyachal Forest Reserve for present study. They were following.
1. Wachoo point at Mandleshwar:-
2. Jamghat Temple at main Vindhyachal
3. Double golai Balwada
4. Gavalan Pati Charbhuja temple Katkut

Methods
The data of bird counting from intensive studies and surveys have been used to present study and estimate their densities. Javed and Rahamani [5] Diversity and density are very useful indicators for quality. Gibbons [6] Birds are may be identify by their calls or songs. Many persons are expertise to identify to birds in the field [7]. Colin [8] for birds counting various methods are available. Effort for counting is usually limited and accurate census is very difficult to obtain in various available methods. Good study is depending on what type of data is required in the possible counting methods. A definite bird count method does not exist. In various birds counting methods, we used following three methods for present study, which are suitable for present study
1. Point count
2. Direct count (Individual species) method
3. Look and see method

Result
Total 48 species were observed at Wachoo point at Mandleshwar the first study area and out of them we made a classification according to their diet and found out that 17 species were omnivorous that means they depend on various types of food. 16 species were insectivorous that depend on insects for their food. Only 2 bird species were Piscivorous that means that they depend on fishes for their food. 6 bird species were frugivorous as they depend on fruits for their diet and 7 bird species were carnivorous.
The percentage composition based on diet shows us that insectivorous birds constitute up to 33% in the total bird diversity. The percentage combinations of frugivorous and omnivorous birds are 13% and 35%. The lowest contribution is seen in piscivorous bird species which is only 4%. Carnivorous species institute around 15% of the

total bird diversity.

The highest contribution is of omnivorous species and lowest is of Piscivorous species at Wachoo point at Mandleshwar.

At Jamghat Temple at main Vindhyachal study area 53 species were recorded out of which 17 species were insectivorous 16 omnivorous and 12 were carnivorous bird species. Birds which depend on fruits as their food were only 7 in number and only one species which depend on fish for their food that is Piscivorous was 1 in count. Out of the total species insectivorous species were dominant and fish dependent species were least in number.

The percentage composition according to the bird food diet clearly depicts that insectivorous species were having 38% composition, omnivorous were 30% in composition frugivorous were 13% composition and carnivorous species constituent up to 23 % of the total bird diversity based on diet. The least percent composition was found to be of piscivorous species. At Jamghat Temple at main Vindhyachal the highest composition was shown by insectivorous species which were dominant in the area.

A total 44 bird species were recorded at Double golai Balwada and the highest percent composition according to the diet was seen in insectivorous and omnivorous. Birds' species which are equal in both that is 13 each. Carnivorous bird species composition was 11 and frugivorous bird species were 5 in number and least species were Piscivorous which is only 2 in number. The dominant species were insectivorous and omnivorous.

The percentage of composition at the study area number 3, insectivorous birds were 30% composition and omnivorous bird species were also 30% composition. in the present study area.

Carnivorous birds' species were 25% and frugivorous species which depend on fruits as their food were 11% percent composition.

The least contribution was seen by piscivorous bird species which is equal to 5% of the total bird diversity recorded at the study area 3.

Omnivorous and insectivorous species contributed to 60% of the total bird diversity which is quite huge as compared to the other study areas.

At the Gavalan Pati total 60 bird species were recorded and out of which 20 species were found to be insectivorous, omnivorous species was 17, carnivorous species were 14 and frugivorous species was 7 which depend on fruits for their food were only seven in number, least species were 2 in number which belong to fish eating family Piscivorous. The highest dominant species of insectivorous bird's species, which depend on insects for their food.

In the Gavalan Pati Charbhuja temple Katkut study area highest percent composition according to diet was seen by insectivorous bird species which is 30% of the total diversity.

Omnivorous species constitutes 28% of the total bird diversity carnivorous species were 23%, frugivorous species were 12% and Piscivorous species were only 3% of the total bird diversity recorded at the study area 4.

The dominant species were belonging to insectivorous bird species and the least number was found by fish eating birds Piscivorous which is equal to 3% only.

Hence the bird composition showed as that these species are equally exploiting the available resources as their food.

Table 1: Total classification of Species based on diet at Wachoo point at Mandleshwar

Row Labels	Count of Diet
carnivorous	7
Frugivorous	6
Insectivorous	17
omnivorous	16
Piscivorous	2
Grand Total	48

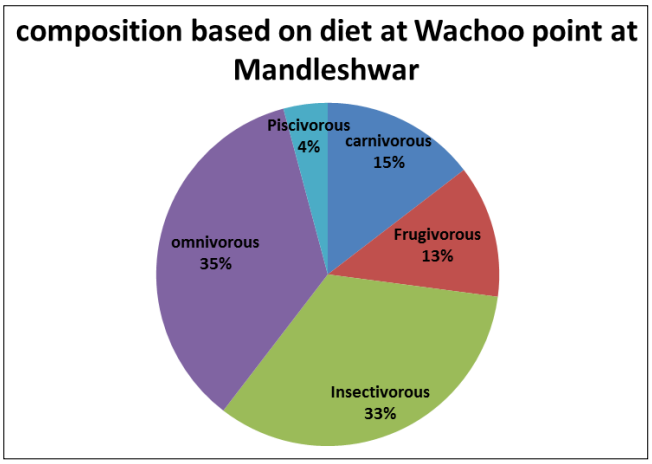

Fig 1: Species percentage composition based on diet at Wachoo point at Mandleshwar

Table 2: Total classification of Species based on diet at Jamghat Temple at main Vindhyachal

Row Labels	Count of Diet
carnivorous	12
Frugivorous	7
Insectivorous	16
omnivorous	17
Piscivorous	1
Grand Total	53

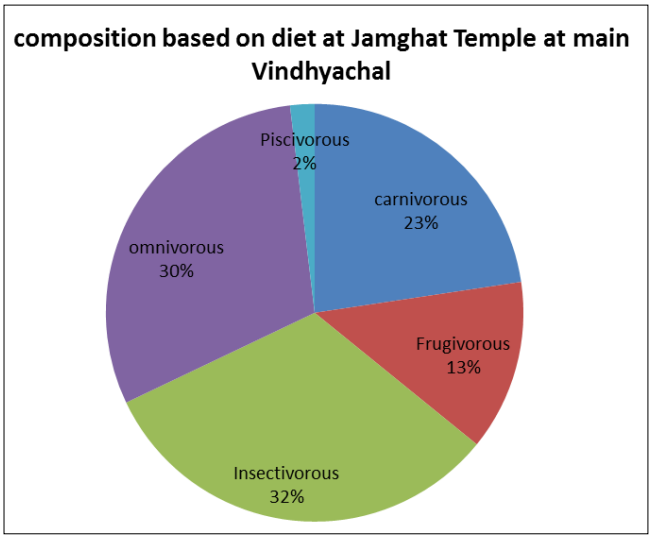

Fig 2: Species percentage composition based on diet at Jamghat Temple at main Vindhyachal

Table 3: Total classification of Species based on diet at Double golai Balwada

Row Labels	Count of Diet
carnivorous	11
Frugivorous	5
Insectivorous	13
omnivorous	13
Piscivorous	2
Grand Total	44

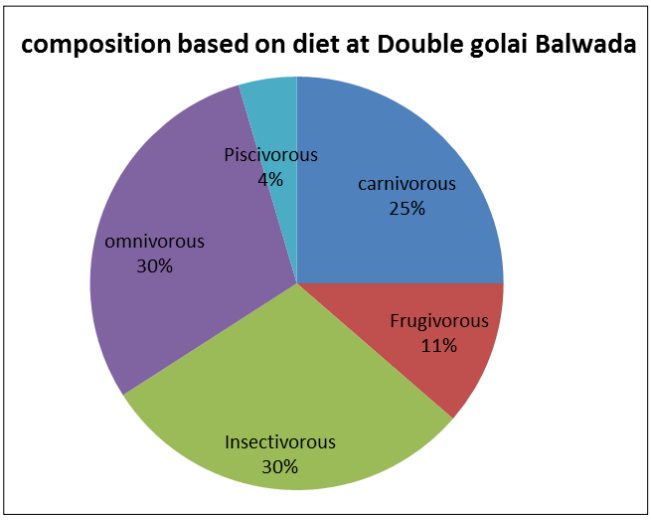

Fig 3: Species percentage composition based on diet at Double golai Balwada

Table 4: Total classification of Species based on diet at Gavalan Pati Charbhuja temple Katkut

Row Labels	Count of Diet
carnivorous	14
Frugivorous	7
Insectivorous	20
omnivorous	17
Piscivorous	2
Grand Total	60

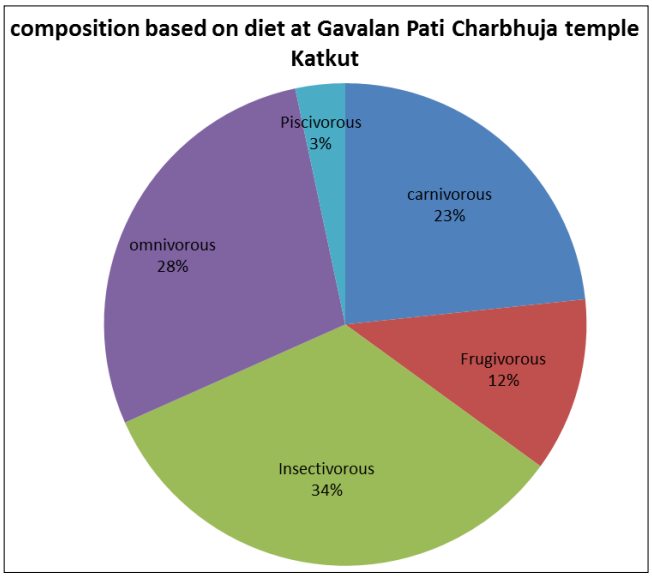

Fig 4: Species percentage composition based on diet at Gavalan Pati Charbhuja temple Katkut

Discussion

The percentage composition at Wachoo point at Mandleshwar shows us that insectivorous birds constitute up to 33% in the total bird diversity. The percentage combinations of frugivorous and omnivorous birds are 13% and 35%. The lowest contribution is seen in piscivorous bird species which is only 4%. Carnivorous species institute around 15% of the total bird diversity. The highest contribution is of omnivorous species and lowest is of Piscivorous species. Kumar and Sahu [9] reported 103 species and out of which 27 species were carnivorous, 26 species were omnivorous, 5 species were frugivorous and only 1 species were nectarivorous.

The percentage composition according to the bird food diet clearly depicts that insectivorous species were having 38% composition, omnivorous were 30% in composition frugivorous were 13% composition and carnivorous species constituent up to 23 % of the total bird diversity based on diet. The least percent composition was found to be of piscivorous species. At Jamghat Temple at main Vindhyachal the highest composition was shown by insectivorous species which were dominant in the area. Arya [10] observed feeding habits of several species. They reported that all the wetland species stressed upon the insects and aquatic organism for their food and survival. In their study many species were insectivorous and omnivorous.

The percentage composition at the study area Double Golai Balwada shows that insectivorous birds were 30% composition and omnivorous bird species were also 30% composition in the present study area. Carnivorous birds' species were 25% and frugivorous species which depend on fruits as their food were 11% percent composition. The least contribution was seen by piscivorous bird species which is equal to 5% of the total bird diversity recorded at the study area 3. Omnivorous and insectivorous species contributed to 60% of the total bird diversity which is quite huge as compared to the other study areas.

In the Gavalan Pati Charbhuja temple Katkut study area highest percent composition according to diet was seen by insectivorous bird species which is 30% of the total diversity. Omnivorous species constitutes 28% of the total bird diversity carnivorous species were 23%, frugivorous species were 12% and Piscivorous species were only 3% of the total bird diversity recorded at the study area 4. The dominant species were belonging to insectivorous bird species and the least number was found by fish eating birds Piscivorous which is equal to 3% only. Hence the bird composition showed as that these species are equally exploiting the available resources as their food.

Pasha [11] classified birds according to 5 different diets. Around 25 percent species were omnivorous, 16 percent species were carnivorous, 10 percent species were frugivorous 6 percent species were granivorous and Piscivorous species were only 7 percent.

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