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RESEARCH ARTICLE

AVIFAUNAL DIVERSITY IN AND AROUND BHASKEL DAM RESERVOIR OF NABARANGPUR, ODISHA.

***Pramod Pal¹, Abhilash Acharya¹ and Hemanta Kumar Sahu².**

1. M.Phil student, Department of Zoology, North Orissa University, Takatpur, Baripada, Odisha, India.
2. Associate Professor, Department of Zoology, North Orissa University, Takatpur, Baripada, Odisha, India.

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Abstract

Birds are distributed all over the world occupying various habitats. Birds are important bio-indicators of nature so monitoring bird population is important. India's biodiversity is very rich with many types of rare flora and fauna. The present study has been conducted to record the avifaunal diversity in and around the Bhaskel Dam reservoir in the Nabarangpur district of Odisha. Though many varieties of birds are seen in and around the dam no study has been conducted so far on the bird diversity of the area. After a study of about one year a total of **3,633** birds belonging to 150 species, 115 genera, 56 families and 19 orders were recorded. The Shanon-Weiner's diversity index was found to be **4.724** and the Simpson's diversity index was found to be **0.99** which signifies a good avifaunal diversity in the study area.

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Introduction:-

Birds are one of the most successful group of organisms found on earth. These warm blooded vertebrates have adapted to a wide range of environmental conditions and they occupy diverse habitats. They are found on all the seven continents, including Antarctica. Birds play very important roles in various types of ecosystem as predators, scavengers, pollinators, seed dispersers and they are an important part of various food webs found in nature. Birds are ideal bio-indicators and useful models for studying a variety of environmental problems (Newton, 1995). Out of the 9,000 species of birds under 75 families found globally, India accounts for more than 1300 species under 48 families in 10 bio-geographic zones (Ali and Ripley, 1987). There are about 479 species of birds which are found in Odisha (Dev, 1997). The avifauna of Odisha has been mainly studied by Mukherjee (1952), Ripley (1979), Abdulali (1984), Sahu & Kar (1999), Sahu & Rout (2005), Gopi & Pandav (2007), and Das *et al.* (2010). In spite of various studies conducted on avifaunal diversity some remote places of the state like the present study area does not have any specific records of bird species which are found here and therefore no conservation or public awareness initiatives are being taken.

The area where the present study has been conducted i.e., the Bhaskel Dam reservoir of Nabarangpur district of Odisha is a picnic spot and has forested areas as well as woodland regions around them throughout, a variety of small mammals, reptiles and birds can be seen here. Though many varieties of birds are seen in and around the dam no study has been conducted so far on the avifaunal diversity of

Corresponding Author:-Pramod Pal.

Address:-M.Phil student, Department of Zoology, North Orissa University, Takatpur, Baripada, Odisha, India.

the area and no steps have been taken in the conservation of the natural habitat around this dam. The present study has therefore been conducted to know the bird diversity and to create awareness about the importance of the study area.

Materials and Methods:-

Study area:-

The area where the present study has been conducted is the Bhaskel Dam reservoir (Latitude-19°-42'-30" N and Longitude-82°-08'-00" E) which is located in the Umerkote town of Nabarangpur district of the state of Odisha. The dam is about 1535 M long and about 22.86 M high. It has been build on the river Bhaskel which flows through Nabarangpur district. The dam is mainly used for irrigation and pisciculture. Bhaskel Dam reservoir is a place of tourist attraction and draws many people every year due to its beautiful surrounding which is covered with lush green vegetation. The climate is sub tropical to temperate. It is characterised by hot and dry summer, cool and humid monsoon and cold and dry winter. December is the coldest month with mean daily average temperature of 25°C which reaches to a maximum of up to 40°C in May. The rainfall this area receives is mainly from the Southwest monsoons which lasts from June to October. The average annual rainfall varies from 1030.21 mm to 1569.50 mm. Two types of soils are mainly found in the area i.e., Red and Laterite soil. The soil pH is neutral to alkaline and its salinity is mainly normal. The vegetation around the study area is mainly of three types; dry mixed deciduous forest, dry peninsular dry forest and dry teak forest. The flora of the study area is predominated by plants like Tamarind (*Tamarindus indica*), Kusum (*Schleichera oleosa*), Sal (*Shorea robusta*), Teak (*Tectona grandis*), Kendu (*Diospyros melanoxylon*), Kadamba (*Neolamarckia cadamba*), Amla (*Phyllanthus emblica*), Jamun (*Syzygium cumini*) and Bamboo (*Bambusa vulgaris*) etc. The present study is an attempt to record the various species of birds found in this area and to understand the ecological significance of this place.

Methodology:-

Avifaunal diversity in and around the Bhaskel Dam reservoir was recorded from March 2016 to April 2017. Sampling was carried out for thirteen months to record seasonal variation in avifaunal diversity and vegetation. Regular field trips were made throughout this period to the study area. Visits were carried everyday during all the months of the study period to record the bird diversity. The birds were observed at most active period of the day, i.e., early morning from 06:00 to 09:00 hours and in the evening from 15:00 to 18:00 hours. However the observation was made throughout the day also. Nocturnal species were also recorded during the night time. Binocular Olympus 10*50 X, was used for close observation of birds. Apart from direct sightings the presence of birds was also confirmed by interviews with local forest staffs, villagers and hunters. The birds were identified and classified on the basis of standard field guides by Ali and Ripley (1987), Ali (2002). The birds checklist was prepared using standardized common and scientific names by Manakadan and Pittie (2001).

Data analysis:-

Bird diversity was calculated using both Shannon-Weiner and Simpson's diversity indices. Shannon-Weiner diversity Index 'H' was calculated using the formula:

$$H' = - \sum_{i=1}^R p_i \ln p_i$$

Where, P_i = Proportion of individual species and R = total number of species of the community (number seen and heard).

Simpson's diversity Index 'D' was calculated using the formula:

$$D = \frac{\sum n_i(n_i - 1)}{N(N - 1)}$$

Where, n_i = the total number of birds of each individual species and N = the total number of birds of all species. The value of D ranges between 0 and 1. With this index, 1 represents infinite diversity and 0, no diversity.

The percentage occurrence of birds in each family was calculated using the following formula.

Percentage Occurrence = (No. of species of each Family ÷ Total no. of different species seen) x 100

Results:-

A total of 3,633 birds belonging to 150 species, 115 genera, 56 families and 19 orders were recorded during the study period. Of the total birds, 134 (89.33%) species were resident (R) and 16 (10.66%) species were migratory (M) (Fig:2). According to the IUCN red list 96% (n=144) species were listed as Least Concern, 2.66% (n=4) species were Near Threatened, 0.66% (n=1) was Vulnerable and 0.66% (n=1) was Endangered (Fig: 3). The birds were also categorised as common (C) 76.66% (n=115), uncommon (UC) 14% (n=21) and rare (R) 9.33% (n= 14) (Fig: 4). Dietary pattern of birds showed that insectivores 36.66% (n=55) were dominating bird community followed by Piscivores 14% (n=21), omnivores 12% (n=18), carnivores 12% (n=18), frugivores 11.33% (n=17), granivores 8.66% (n=13) and nectarivores 4.66% (n=7) respectively (Fig: 5). Accipitridae and Ardidae were the most dominant families with 6% (n=9) species followed by Muscipidae 5.33% (n= 8) species, Columbidae 4.66% (n= 7) Motacillidae, Strigidae and Sturnidae 4% (n=6) etc (Table 2). To measure the avifaunal diversity both Shanon-Weiner's and Simpson's diversity indices were calculated. The Shanon-Weiner's diversity index was found to be **4.724** and the Simpson's diversity index was found to be **0.99** which signifies a good avifaunal diversity in the study area.

Discussion:-

Most of the bird species recorded were common however some rare species like the Brown fish Owl, Indian eagle Owl, Steppe Eagle, Pallid Harrier, Green Munia, Grey Francolin and Black headed Ibis etc. were recorded around the Bhaskel Dam reservoir. The Steppe Eagle which is an endangered bird was seen only once, the Brown fish Owl was also seen once during the study period so further study should be conducted to know about the status of these birds in the area. Apart from the species recorded sporadic reports of Vultures also occurred though no direct sightings happened during the study period so further investigation is required to know the present status of Vultures and which species if any are present in the area.

Apart from this the breeding and nesting status of birds along with the successful fledging rate is unknown. The attitude of the local human population towards the faunal diversity and their interaction with nature need to be better understood by further investigation.

Table 1:-Checklist of Birds in and around Bhaskel Dam Reservoir

SL NO	FAMILY	SC. NAME	COMMON NAME	FEEDING HABIT	ABUNDANCE	STATUS	IUCN CATEGORY
1	Podicipedidae	<i>Tachybaptus ruficollis</i>	Little Grebe	P	C	R	Least Concern
2	Anatidae	<i>Dendrocygna javanica</i>	Lesser whistling Duck	P	C	M	Least Concern
3	Anatidae	<i>Nettapus coromandelinus</i>	Cotton pygmy Goose	P	C	R	Least Concern
4	Rallidae	<i>Amaurornis phoenicurus</i>	White breasted Water Hen	I,P	C	R	Least Concern
5	Rallidae	<i>Gallinule chloropus</i>	Common Moorhen	I	C	R	Least Concern
6	Rallidae	<i>Porphyrio porphyrio</i>	Purple Moorhen	I	UC	R	Least Concern
7	Rallidae	<i>Fulica atra</i>	Common Coot	O	C	M	Least Concern
8	Jacaniidae	<i>Hydrophasianus chirurgus</i>	Pheasant tailed Jacana	O	C	R	Least Concern
9	Jacaniidae	<i>Metopidius indicus</i>	Bronze winged Jacana	O	C	R	Least Concern
10	Charadriidae	<i>Vanellus duvaucii</i>	River Lapwing	I	UC	M	Near Threatened
11	Charadriidae	<i>Vanellus indicus</i>	Red wattled Lapwing	I	C	R	Least Concern
12	Charadriidae	<i>Vanellus malabaricus</i>	Yellow wattled Lapwing	I	UC	R	Least Concern
13	Phalacrocoracidae	<i>Microcarbo niger</i>	Little Cormorant	P	C	R	Least Concern
14	Phalacrocoracidae	<i>Phalacrocorax fuscicollis</i>	Indian Cormorant	P	C	R	Least Concern
15	Ardeidae	<i>Ixobrychus sinensis</i>	Yellow Bittern	I,P	C	R	Least Concern
16	Ardeidae	<i>Ixobrychus cinnamomeus</i>	Cinnamon Bittern	P	C	R	Least Concern
17	Ardeidae	<i>Ixobrychus flavicollis</i>	Black Bittern	I,P	C	R	Least Concern
18	Ardeidae	<i>Nycticorax nycticorax</i>	Black crowned night Heron	P	C	R	Least Concern
19	Ardeidae	<i>Ardeola grayii</i>	Indian pond Heron	I,P	C	R	Least Concern
20	Ardeidae	<i>Bubulcus ibis</i>	Cattle Egret	I,P	C	R	Least Concern
21	Ardeidae	<i>Egretta garzetta</i>	Little Egret	I,P	C	R	Least Concern
22	Ardeidae	<i>Mesophoyx intermedia</i>	Intermediate Egret	I,P	C	R	Least Concern
23	Ardeidae	<i>Ardea alba</i>	Great Egret	I,P	UC	R	Least Concern

24	Ciconiidae	<i>Anastomus oscitans</i>	Open billed Stork	P	C	R	Least Concern
25	Threskiornithidae	<i>Threskiornis melanocephalus</i>	Black headed Ibis	I,P	UC	M	Near Threatened
26	Columbidae	<i>Treron biceps</i>	Orange breasted Green pigeon	F	UC	R	Least Concern
27	Columbidae	<i>Treron phoenicoptera</i>	Yellow legged Green Pigeon	F	C	R	Least Concern
28	Columbidae	<i>Streptopilia orientalis</i>	Oriental Turtle Dove	G	C	R	Least Concern
29	Columbidae	<i>Spilopilia chinensis</i>	Spotted Dove	G	C	R	Least Concern
30	Columbidae	<i>Streptopilia decaocto</i>	Eurasian Collared Dove	G	C	R	Least Concern
31	Columbidae	<i>Chalcophaps indica</i>	Emerald Dove	G	C	R	Least Concern
32	Columbidae	<i>Columba livia</i>	Common Rock Pigeon	G	C	R	Least Concern
33	Psittaculidae	<i>Psittacula eupatria</i>	Alexandrine Parakeet	F	C	R	Near Threatened
34	Psittaculidae	<i>Psittacula krameri</i>	Rose ringed Parakeet	F	C	R	Least Concern
35	Psittaculidae	<i>Psittacula cyanocephala</i>	Plum headed Parakeet	F	C	R	Least Concern
36	Cuculidae	<i>Clamator jacobinus</i>	Pied Cuckoo	I	C	M	Least Concern
37	Cuculidae	<i>Hierococcyx varius</i>	Common Hawk Cuckoo	I	C	R	Least Concern
38	Cuculidae	<i>Eudynamis scolopaceus</i>	Indian Koel	F	C	R	Least Concern
39	Cuculidae	<i>Phaenicophas leschenaultii</i>	Sirkeer Malhoka	I	UC	R	Least Concern
40	Cuculidae	<i>Centropus sinensis</i>	Greater Coucal	O	C	R	Least Concern
41	Accipitridae	<i>Milvus migrans</i>	Pariah Kite	Ca	C	R	Least Concern
42	Accipitridae	<i>Elanus caeruleus</i>	Black Winged Kite	Ca	C	R	Least Concern
43	Accipitridae	<i>Accipiter badius</i>	Shikra	Ca	C	R	Least Concern
44	Accipitridae	<i>Pernis ptilorhynchus</i>	Oriental Honey Buzard	Ca	Ra	R	Least Concern
45	Accipitridae	<i>Circus melanoleucos</i>	Pied Harrier	Ca	Ra	M	Least Concern
46	Accipitridae	<i>Circus macrourus</i>	Pallid Harrier	Ca	Ra	M	Near Threatened
47	Accipitridae	<i>Spilornis cheela</i>	Crested serpent	Ca	C	R	Least Concern

			Eagle				
48	Accipitridae	<i>Circaetus gallicus</i>	Short toed Eagle	Ca	C	R	Least Concern
49	Accipitridae	<i>Aquila nipalensis</i>	Steppe Eagle	Ca	Ra	M	Endangered
50	Falconidae	<i>Falco tinnunculus</i>	Common Kestrel	Ca	C	M	Least Concern
51	Falconidae	<i>Falco peregrinus</i>	Peregrine Falcon	Ca	UC	M	Least Concern
52	Strigidae	<i>Otus lettia</i>	Collared Scops Owl	Ca	C	R	Least Concern
53	Strigidae	<i>Glaucidium radiatum</i>	Barred Jungle Owlet	Ca	Ra	R	Least Concern
54	Strigidae	<i>Ninox scutulata</i>	Brown Hawk Owl	Ca	Ra	R	Least Concern
55	Strigidae	<i>Athene brama</i>	Spotted Owlet	Ca,I	C	R	Least Concern
56	Strigidae	<i>Bubo zeylonensis</i>	Brown fish Owl	Ca,P	Ra	R	Least Concern
57	Strigidae	<i>Bubo bengalensis</i>	Indian Eagle Owl	Ca	Ra	R	Least Concern
58	Tytonidae	<i>Tyto alba</i>	Barn Owl	Ca	C	R	Least Concern
59	Caprimulgidae	<i>Caprimulgus asiaticus</i>	Indian Nightjar	I	C	R	Least Concern
60	Caprimulgidae	<i>Caprimulgus indicus</i>	Jungle Nightjar	I	C	R	Least Concern
61	Alcedinidae	<i>Alcedo atthis</i>	Small Blue kingfisher	P	C	R	Least Concern
62	Alcedinidae	<i>Halcyon smyrnensis</i>	White breasted kingfisher	P	C	R	Least Concern
63	Alcedinidae	<i>Ceryle rudis</i>	Pied kingfisher	P	UC	R	Least Concern
64	Alcedinidae	<i>Pelargopsis capensis</i>	Stork billed kingfisher	P	UC	R	Least Concern
65	Meropidae	<i>Merops orientalis</i>	Common Bee eater	I	C	R	Least Concern
66	Meropidae	<i>Merops leschenaultia</i>	Chestnut headed Bee eater	I	C	R	Least Concern
67	Meropidae	<i>Merops philippinus</i>	Blue tailed Bee eater	I	C	M	Least Concern
68	Megalaimidae	<i>Psilopogon zeylanicus</i>	Brown headed Barbet	F	C	R	Least Concern
69	Megalaimidae	<i>Psilopogon asiaticus</i>	Blue throated Barbet	F	C	R	Least Concern
70	Megalaimidae	<i>Psilopogon haemacephalus</i>	Coppersmith Barbet	F	C	R	Least Concern
71	Coraciidae	<i>Coracias benghalensis</i>	Indian Roller	I	C	R	Least Concern
72	Upupidae	<i>Upupa epops</i>	Common	I	C	R	Least

			Hoopoe				Concern
73	Picidae	<i>Jynx torquilla</i>	European Wryneck	I	UC	R	Least Concern
74	Picidae	<i>Dinopium benghalense</i>	Black rumped Flameback	F,I	C	R	Least Concern
75	Picidae	<i>Dendrocopos macei</i>	Fulvous breasted Woodpecker	F,I	C	R	Least Concern
76	Picidae	<i>Leiopicus marattensis</i>	Yellow fronted Pied Woodpecker	F,I	UC	R	Least Concern
77	Picidae	<i>Chrysocolaptes guttacristatus</i>	Large Flameback Woodpecker	F,I	C	R	Least Concern
78	Bucerotidae	<i>Anthracoceros albirostris</i>	Pied Hornbill	F,I	C	R	Least Concern
79	Bucerotidae	<i>Ocyeros birostris</i>	Indian Grey Hornbill	F,I	C	R	Least Concern
80	Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	I	C	R	Least Concern
81	Hirundinidae	<i>Hirundo smithii</i>	Wire tailed Swallow	I	UC	R	Least Concern
82	Hirundinidae	<i>Cecropis daurica</i>	Red rumped Swallow	I	UC	R	Least Concern
83	Hirundinidae	<i>Cecropis striolata</i>	Striated Swallow	I	C	R	Least Concern
84	Alaudidae	<i>Mirafra erythroptera</i>	Indian Bush Lark	I	C	R	Least Concern
85	Timaliidae	<i>Pteruthius rufiventer</i>	Black headed Shrike	I	C	R	Least Concern
86	Timaliidae	<i>Dumetia hyperythra</i>	Rufous bellied Babbler	I	C	R	Least Concern
87	Dicruridae	<i>Dicrusus macrocercus</i>	Black Drongo	I	C	R	Least Concern
88	Dicruridae	<i>Dicrusus caerulescens</i>	White bellied Drongo	I	C	R	Least Concern
89	Dicruridae	<i>Dicrurus hottentottus</i>	Hair crested Drongo	I	C	R	Least Concern
90	Dicruridae	<i>Dicrurus paradiseus</i>	Racket tailed Drongo	I	C	R	Least Concern
91	Sturnidae	<i>Acrida theresfuscus</i>	Jungle Myna	O	C	R	Least Concern
92	Sturnidae	<i>Acrida theresginginianus</i>	Bank Myna	O	C	R	Least Concern
93	Sturnidae	<i>Gracula religiosa</i>	Hill Myna	O	UC	R	Least Concern
94	Sturnidae	<i>Gracupica contra</i>	Asian pied Starling	O	C	R	Least Concern
95	Sturnidae	<i>Sturnia malabarica</i>	Chestnut tailed	O	C	R	Least Concern

			Starling				
96	Sturnidae	<i>Sturnia pagodarum</i>	Brahminy Starling	O	C	R	Least Concern
97	Corvidae	<i>Dendrocitta formosae</i>	Tree pie	O	C	R	Least Concern
98	Corvidae	<i>Corvus splendens</i>	Common crow	O	C	R	Least Concern
99	Corvidae	<i>Corvus macrorhynchos</i>	Jungle crow	O	C	R	Least Concern
100	Tephrodornithidae	<i>Tephrodornis pondicerianus</i>	Indian Woodshrike	O	C	R	Least Concern
101	Campephagidae	<i>Coracina macei</i>	Indian large cuckoo-shrike	I	UC	R	Least Concern
102	Campephagidae	<i>Pericrocotus speciosus</i>	Indian Scarlet Minivet	I	C	R	Least Concern
103	Aegithinidae	<i>Aegithina tiphia</i>	Common Iora	I	C	R	Least Concern
104	Chloropseidae	<i>Chloropsis jerdoni</i>	Jerdon's Chloropsis	I	C	R	Least Concern
105	Chloropseidae	<i>Chloropsis aurifrons</i>	Gold fronted Chloropsis	I	C	R	Least Concern
106	Pycnonotidae	<i>Pycnonotus cafer</i>	Red vented Bulbul	F,G,I	C	R	Least Concern
107	Pycnonotidae	<i>Pycnonotus Jocosus</i>	Red whiskered Bulbul	F,G,I	C	R	Least Concern
108	Pycnonotidae	<i>Pycnonotus atriceps</i>	Black headed Bulbul	F,G,I	C	R	Least Concern
109	Pellorneidae	<i>Pellorneum ruficeps</i>	Spotted Babbler	I	C	R	Least Concern
110	Sylviidae	<i>Chrysomma sinense</i>	Yellow eyed Babbler	I	C	R	Least Concern
111	Leiothrichidae	<i>Turdoides striata</i>	Jungle Babbler	I	C	R	Least Concern
112	Muscicapidae	<i>Ficedula parva</i>	Red breasted Flycatcher	I	UC	M	Least Concern
113	Muscicapidae	<i>Cyornis poliogenys</i>	Brook's Flycatcher	I	Ra	R	Least Concern
114	Muscicapidae	<i>Cyornis rubeculoides</i>	Blue throated Flycatcher	I	Ra	R	Least Concern
115	Muscicapidae	<i>Eumyias thalassinus</i>	Verditer Flycatcher	I,F	Ra	R	Least Concern
116	Muscicapidae	<i>Copsychus saularis</i>	Magpie Robin	O	C	R	Least Concern
117	Muscicapidae	<i>Copsychus fulicatus</i>	Indian Robin	I	C	R	Least Concern
118	Muscicapidae	<i>Saxicola caprata</i>	Pied Bushchat	I	C	R	Least Concern
119	Muscicapidae	<i>Copsychus malabaricus</i>	Indian Shama	I	C	R	Least Concern
120	Cisticolidae	<i>Prinia socialis</i>	Ashy Grey	I	C	R	Least

			Wren Warbler				Concern
121	Cisticolidae	<i>Orthotomus sutorius</i>	Indian Tailor Bird	I	C	R	Least Concern
122	Acrocephalidae	<i>Acrocephalus dumetorum</i>	Blyth's Reed Warbler	I	C	R	Least Concern
123	Turdidae	<i>Geokichal citrine</i>	Orange headed Thrush	I	C	R	Least Concern
124	Stenostiridae	<i>Culicicapa ceylonensis</i>	Grey headed Flycatcher	I	Ra	R	Least Concern
125	Rhipiduridae	<i>Rhipidura albicollis</i>	White throated Fantail	I	Ra	R	Least Concern
126	Paridae	<i>Machlolophus spilonotus</i>	Yellow cheeked Tit	I	C	R	Least Concern
127	Sittidae	<i>Sitta cinnamoventris</i>	Chestnut bellied Nuthatch	O	C	R	Least Concern
128	Motacillidae	<i>Anthus trivialis</i>	Indian Tree Pipit	I	C	R	Least Concern
129	Motacillidae	<i>Motacilla cinerea</i>	Grey Wagtail	I	C	M	Least Concern
130	Motacillidae	<i>Motacilla maderaspatensis</i>	Large pied Wagtail	I	C	R	Least Concern
131	Motacillidae	<i>Motacilla flava</i>	Yellow Wagtail	I	C	M	Least Concern
132	Motacillidae	<i>Motacilla alba</i>	White Wagtail	I	C	M	Least Concern
133	Motacillidae	<i>Dendronanthus indicus</i>	Forest Wagtail	I	C	M	Least Concern
134	Dicaeidae	<i>Dicaeum agile</i>	Indian thick billed Flower Pecker	N	C	R	Least Concern
135	Nectariniidae	<i>Leptocoma zeylonica</i>	Indian purple rumped Sunbird	N	C	R	Least Concern
136	Nectariniidae	<i>Cinnyris jugularis</i>	Yellow bellied Sunbird	N	UC	R	Least Concern
137	Nectariniidae	<i>Cinnyris asiaticus</i>	Purple Sunbird	N	C	R	Least Concern
138	Nectariniidae	<i>Arachnothera longirostra</i>	Little Spider Hunter	I,N	UC	R	Least Concern
139	Zosteropidae	<i>Zosterops palpebrosus</i>	Indian White Eye	I,N	UC	R	Least Concern
140	Passeridae	<i>Passer domesticus</i>	House Sparrow	G	C	R	Least Concern
141	Ploceidae	<i>Ploceus philippinus</i>	Baya Weaver	G,I	C	R	Least Concern
142	Estrildidae	<i>Amandava Formosa</i>	Green Munia	G	UC	R	Vulnerable

143	Estrildidae	<i>Lonchura striata</i>	White backed Munia	G	C	R	Least Concern
144	Estrildidae	<i>Lonchura punctulata</i>	Scaly breasted Munia	G	C	R	Least Concern
145	Fringillidae	<i>Carpodacus erythrinus</i>	Indian Rose Finch	G,I,N	C	R	Least Concern
146	Phasianidae	<i>Pavo cristatus</i>	Common Peafowl	O	C	R	Least Concern
147	Phasianidae	<i>Gallus gallus</i>	Red Jungle Fowl	O	C	R	Least Concern
148	Phasianidae	<i>Francolinus pondicerianus</i>	Indian grey Francolin	G	Ra	R	Least Concern
149	Phasianidae	<i>Coturnix coturnix</i>	Common Quail	G,I	C	R	Least Concern
150	Turnicidae	<i>Turnix sylvaticus</i>	Common Botton Quail	G	C	R	Least Concern

Table 2:-Avifaunal distribution based on percentage occurrence in families

SL NO	FAMILIES OF BIRDS RECORDED	PERCENTAGE OCCURRENCE
1	Podicipedidae	0.66
2	Anantidae	1.33
3	Rallidae	2.66
4	Jacaniidae	1.33
5	Charadriidae	2
6	Phalacrocoracidae	1.33
7	Ardeidae	6
8	Ciconiidae	0.66
9	Threskiornithidae	0.66
10	Columbidae	4.66
11	Psittaculidae	2
12	Cuculidae	3.33
13	Accipitridae	6
14	Falconidae	1.33
15	Strigidae	4
16	Tytonidae	0.66
17	Caprimulgidae	1.33
18	Alcedenidae	2.66
19	Meropidae	2
20	Megalaimidae	2
21	Coraciidae	0.66
22	Upupidae	0.66
23	Picidae	3.33
24	Bucerotidae	1.33
25	Hirundinidae	2.66
26	Alaudidae	0.66
27	Timaliidae	1.33
28	Dicruridae	2.66
29	Sturnidae	4
30	Corvidae	2
31	Tephrodornithidae	0.66
32	Campephagidae	1.33
33	Aegithinidae	0.66

34	Chloropseidae	1.33
35	Pycnonotidae	2
36	Pellornidae	0.66
37	Sylviidae	0.66
38	Leiothrichidae	0.66
39	Muscicapidae	5.33
40	Cisticolidae	1.33
41	Acrocephalidae	0.66
42	Turdidae	0.66
43	Stenostriidae	0.66
44	Rhipiduridae	0.66
45	Paridae	0.66
46	Sittidae	0.66
47	Motacillidae	4
48	Dicaeidae	0.66
49	Nectariniidae	2.66
50	Zosteropidae	0.66
51	Passeridae	0.66
52	Ploceidae	0.66
53	Estrildidae	2
54	Fringillidae	0.66
55	Phasianidae	2.66
56	Turnicidae	0.66

Abbreviations: R- Resident, M- Migratory, C- Common, UC- Uncommon, Ra- Rare, LC- Least Concern, NT- Near Threatened, VU-Vulnerable, EN-Endangered, I- Insectivores, P- Piscivores, Ca- Carnivores, O- Omnivores, F- Frugivores, G- Granivores, N- Nectarivores

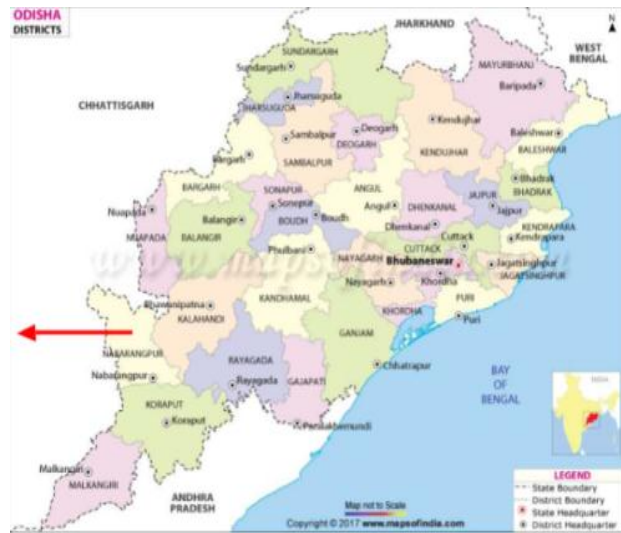




Fig 1:- Location map showing Bhaskel Dam Reservoir in Umerkote town, Nabarangpur district of Odisha.

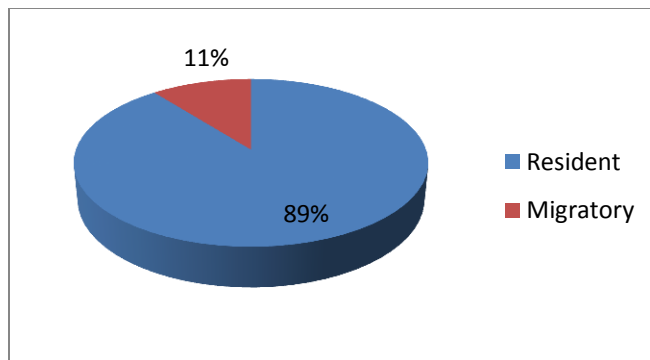


Fig 2:-Avifaunal distribution (in percent) based on abundance

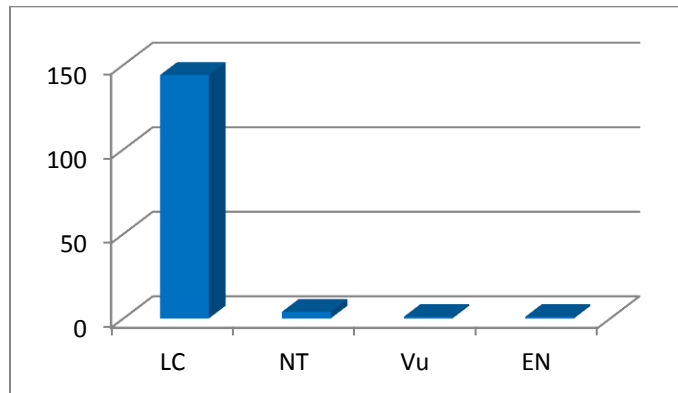


Fig 3:-Avifaunal distribution based on IUCN category

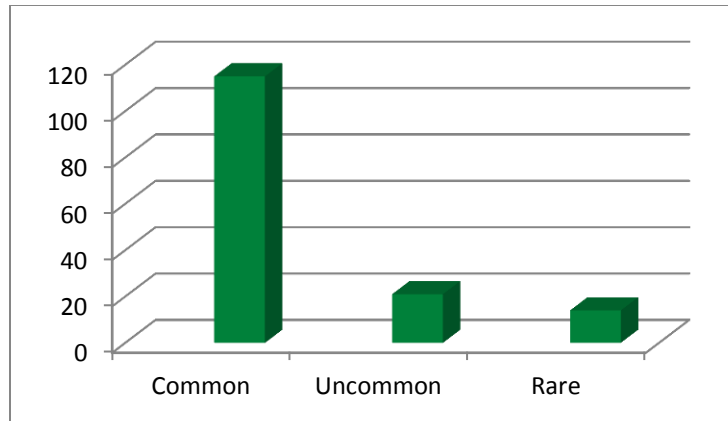


Fig 4:-Avifaunal distribution based on status

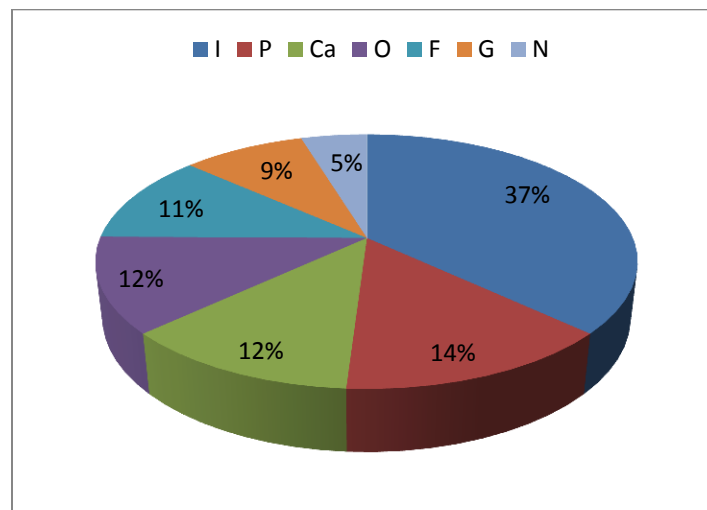


Fig 5:-Avifaunal distribution (in percent) based on dietary pattern

Conclusion:-

The present study which recorded 150 species of birds reflects a moderately healthy overall biodiversity for the study location. But it must be mentioned that the study location under present investigation are facing anthropogenic disturbances in the forms of urbanization, mining activities, livelihood dependence (mainly in the form of cattle grazing and fuel wood collection). To add salt to the wound poaching of birds is a major issue for this area like most other parts of India. Natural calamities like forest fire also have disastrous effects on wildlife from the present study location. To conclude it may be noted that the area was studied for short time span, a more intensive study would surely result in identifying more bird species. The impact of anthropogenic alteration of the habitats in and around the present study location also needs intensive studies.

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