



An exploration of species composition of vertebrate fauna of Orchha Wildlife Sanctuary, Central India

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ABSTRACT

This research is an exploration of vertebrate fauna of the Orchha Wildlife Sanctuary (OWS) in central India. The study consolidates information from field surveys. A total of 15 fish (6 families), 6 amphibians (3 families), 13 reptile (9 families), 98 bird (43 families) and 19 mammal (15 families) species are reported. It was found that the birds were the most dominant vertebrates, followed by mammals, fishes and reptiles whereas amphibians were represented least. Four species of turtle and rare species of vulture including king vulture were present in the OWS. This is a first such extensive study for the Sanctuary and provides an initial baseline of vertebrate species for future research in this area.

Keywords: Biodiversity, Vertebrates, Central India, Orchha Wildlife Sanctuary, Species.

INTRODUCTION

Biodiversity incorporating all the living forms of life is the essence and manifestation of evolutionary history of life on earth. Vertebrates are the most prominent and an important constituent of the biodiversity (Negi & Banyal 2016b). The vertebrates with a total of about 62000 species comprises only 3% of global biodiversity (Nameer *et al.* 2015) with about 32447 species of fishes, 6515 amphibians, 8734 reptiles, 9990 birds (Chapman 2009) and 5416 species of mammals (Wilson & Reeder 2005). These vertebrate species occupying all elevations and depths, inhabiting most of the major habitat types, and displaying remarkable variations in body size and life histories (Nameer *et al.* 2015). With only 2.4% of world's land area, India accounts for about 7.52% of recorded animal species of the world (MoEF 2011). India, a mega biodiversity country, is a home to 2,546 species of fish belonging to 969 genera, 254 families and 40 orders (Talwar & Jhingran 1992). The amphibian in India are highly diverse with 342

species which includes 306 species of anura, 35 species of gymnophiona and 1 species of salamander (Dinesh *et al.* 2015) The reptiles in India are represented by 518 species which includes 3 species of crocodiles, 34 species of turtles and tortoises, 202 species of lizards and 279 species of snakes belonging to 28 families (Aengals *et al.* 2010). The fish, amphibian and reptiles of India make up about 12.23%, 6.59% and 8.8% of respective class of the world (Negi & Banyal 2016a). An updated checklist enlists 1263 species of birds from the country representing 12.5% of world avifauna belonging to 498 genera, 107 families and 23 orders (Praveen *et al.* 2016). The mammalian fauna of the country is also very rich, representing 7.81% of the global mammals with 428 species belonging to 48 families and 14 orders (Sharma *et al.* 2013). As per IUCN Red List (2015.4), a total of 521 vertebrate species of India are threatened which includes 216 fish species, 75 amphibians, 53 reptiles, 84 birds, and 93 species of mammals (Negi & Banyal 2016b).

To protect these wild flora and fauna from anthropogenic pressure, forests have been given legal status of Protected Areas. A network of 668 Protected Areas (PAs) has been established, extending over 16.12 MHa. (4.90% of total geographic area), comprising 102 National Parks, 515 Wildlife Sanctuaries, 47 Conservation Reserves and 4 Community Reserves (MoEF 2011). Besides, India is the second largest populated country in the world and a majority of its people directly or indirectly depends on forests resources for livelihood (Wagh & Jain 2016). Protected area may also prove to be attractive tourist destinations

and thus, provide income and livelihood opportunities to the rural people living in and around these protected areas (Das 2017). Considering the impact of ever increasing anthropogenic pressure and development on forest resources, there is a need to assess forests from a biodiversity perspective to indicate conservation measures. Assessment of flora and fauna species which form an integral part of animal ecology, in wildlife based protected areas is necessary before any meaningful conservation work can commence (Edet & Ijeomah 2012). Understanding species diversity is also important for helping managers to evaluate the complexity and resources of these forests (Jayakumar & Nair 2013). Documentation of the biological diversity of Orchha Wildlife Sanctuary (hereafter OWS) was lacking which prompted this study of species composition and diversity of vertebrates of the sanctuary to fill the gap. The outcome of the study will help take informed decision and formulate effective policies for biodiversity conservation and resource utilization of the sanctuary on one hand and in planning sustainability of both man and natural environment on the other hand. The present study provides a scientific and authentic taxonomic record of the diverse vertebrate fauna of the OWS.

METHODOLOGY

Study Area:

Orchha Wildlife Sanctuary, also known as Orchha Nature Reserve, is bestowed with unique floral and faunal diversity of Bundelkhand region, which otherwise is on the verge of extinction. It has strategic location

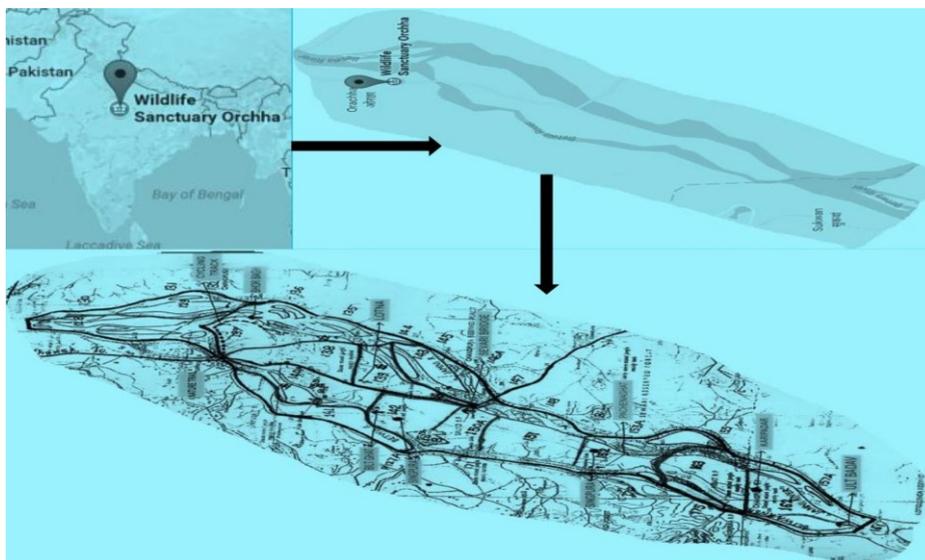


Fig. 1: Location and topographic map of OWS, Madhya Pradesh (Source: Forest Dept. Office, Orchha)

adjoining historical town of Orchha with the 17th century monuments situated in the backdrop adds to the importance and aesthetic value of the Sanctuary. This is the only area in the entire region blessed with lush green patch of Teak and Kardhai forests. Once this region was the home of carnivores like Tigers and Panthers, but now has totally lost these species. Orchha Sanctuary is situated between Betwa and Jamni rivers of Bundelkhand region of Madhya Pradesh. The two rivers along with their conjunctions and confluence form the boundary of the Sanctuary. The total area of the nature reserve is 45.86 square kilometer, which includes both land and water bodies. Geographical position of nature reserve is latitude 25° 13' 45" N to 25° 02' 30" N and longitude 78° 33' 45" E to 78° 40' 15" E. The altitude of the sanctuary varies from 207 to 357 meters above Mean Sea Level (Shrivastava *et al.* 2017).

Methods:

The faunistic surveys were conducted during April 2015 to July 2017 at various locations in the Sanctuary. The extensive exploration of OWS was carried out during the period. For recording the vertebrates from the study area, the standard methodologies were followed which are given in the "Handbook of Biodiversity methods Survey, Evolution and Monitoring" (Hill *et al.* 2005) and "Practical Methods in Ecology" (Henderson 2003). The vertebrate species were studied by visual observations, and vocal sounds. The standard field guides were referred for proper identification of the species. (Talwar & Jhingran 1992; Daniel 2002; Manakadan *et al.* 2011; Prater 1990). Besides, specific methods were adopted for the study of different group of vertebrates. Fish fauna of the Sanctuary was studied by periodically trapping them using locally available fishing gears from different locations. Fishes collected during premonsoon, monsoon, and post-monsoon seasons. These specimens were identified and then transferred back to the water body.

The Amphibians were recorded by visual encounter surveys, audio surveys and opportunistic records. Visual encounter survey was used for recording reptiles. This method involved searching for reptiles, examining all possible microhabitats such as boulders, fallen logs, holes in the cliffs etc. Apart from this some reptiles were observed especially on the large rocks sun basking during the early hours of day. Observations and sighting records of birds were taken from whole sanctuary. A pair of Binoculars, Digital Camera, and GPS were used for observations, photography as well as location record

respectively. The other important factor considered was the activity of birds. Since peak activity in most birds lasts for 1 or 2 hours after sunrise or before sunset, the birds were recorded during the most active period of the day i.e., morning and evening hours. The mammals were recorded by using a combination of direct and indirect methods. The direct methods utilized sighting of animals as the main data whereas indirect methods relied on quantification of indirect evidences such as pellet groups, scats, pug marks and hoof marks at various locations in the Sanctuary. No specimens were killed or brought to laboratory during the present study. Identification was based on morphological characters.

RESULTS AND DISCUSSION

The findings of the present study revealed that total number of Vertebrate species was 151 in OWS. Fifteen species of fishes representing twelve genera over six families occurred in the OWS (Table 1). Family Cyprinidae was represented by highest number (7 species) of species, followed by family Bagridae (4 species). Remaining four family were represented only one species each. Six species of Amphibians occurred in the OWS, representing six genera and three families (Table 2). Family Ranidae represented by highest number of amphibian species (3) occurred in the OWS. Thirteen species of reptiles belonging to nine families occurred in the OWS (Table 3). Highest number of species belongs to family Colubridae. Ninety eight species of birds belonging to eighty two genus and forty three family were occurred in the OWS (Table 4). Family Accipitridae has highest number of species (8) followed by family Ardeidae (7). Nineteen species of mammals belong to nineteen genera and fifteen families occurred in the OWS (Table 5).

OWS located in the Madhya Pradesh (M. P.), which is situated on the genetic highway connecting of Western Ghats and the North East, two of the biodiversity hotspots in the country, is one of the richest repositories of biological diversity. The State houses a diversity of ecosystems including plateaus, ravines, ridges, valleys, riparian areas and flat plains (Shrivastava *et al.* 2017). According to a study by Zoological Survey of India (ZSI) on faunal resources of national parks of M. P., Madhav National Park (Area 375 sq. KM), which is close to OWS (distance approx. 116 KM), inhabited by 347 species of Vertebrate (Ramakrishna *et al.* 2006), whereas OWS with an area of 45 sq. KM provides abode to 151 species.

Table 1: List of Fishes recorded from the OWS

SN	Common name	Local name	Zoological name	Family
1	Minnow	Chalar	<i>Danio devario</i>	Cyprinidae
2	Olive barb	Dodhra	<i>Puntius sarana</i>	Cyprinidae
3	Barb	Dodhra	<i>Puntius ambassis</i>	Cyprinidae
4	Major Carp	Catla	<i>Catla catla</i>	Cyprinidae
5	Mrigal Carp	Mrigal	<i>Cirrhinus mrigala</i>	Cyprinidae
6	Carp	Rehu	<i>Labeo rohita</i>	Cyprinidae
7	Carp	Kursa	<i>Labeo gonius</i>	Cyprinidae
8	Cat fish	Tengra	<i>Mystus cavasius</i>	Bagridae
9	Cat fish	Gegra	<i>Rita pavementata</i>	Bagridae
10	Cat fish	Singara	<i>Mystus aor</i>	Bagridae
11	Cat fish	Katera	<i>Mystus seenghala</i>	Bagridae
12	Live fish	Singhi	<i>Heteropneustes fossilis</i>	Heteropneustidae
13	Fresh water catfish	Sija, Bam	<i>Xenentodon cancila</i>	Belonidae
14	Loach	Gurguch	<i>Nemacheilus botia</i>	Nemacheilidae
15	Feather backs	Patala	<i>Notopterus notopterus</i>	Notopteridae

Table 2: List of Amphibians recorded from the OWS

SN	Common name	Zoological name	Family
1	Black Spectacled Toad	<i>Duttaphrynus melanostictus</i>	Bufoidea
2	Narrow Mouthed frog	<i>Microhyla ornata</i>	Microhylidae
3	Marbled Balloon Frog	<i>Uperodon systoma</i>	Microhylidae
4	Indian skipping Frog	<i>Euphlyctis cyanophlyctis</i>	Ranidae
5	Indian Bull Frog	<i>Hoplobatrachus tigerinus</i>	Ranidae
6	Cricket Frog	<i>Fejervarya limnocharis</i>	Ranidae

Table 3: List of Reptiles recorded from OWS

SN	Common name	Local Name	Zoological name	Family
1	Indian Softshell turtle	Patal Kachhua	<i>Nilssonina gangetica</i>	Trionychidae
2	Indian flapshell turtle	Sundri Kachhua	<i>Lissemys punctata</i>	Trionychidae
3	Indian tent turtle	Pachera Kachhua	<i>Pangshura tentoria</i>	Geoemydidae
4	Red-crowned roofed turtle	Kachhua	<i>Batagur kachuga</i>	Geoemydidae
5	Crocodile	Mugger	<i>Crocodylus palustris</i>	Crocodylidae
6	Python	Ajgar	<i>Python molurus</i>	Pythonidae
7	Common Cobra	Nag	<i>Naja naja</i>	Elapidae
8	Dhaman	Dhaman	<i>Ptyas mucosa</i>	Colubridae
9	Water snakes	Paniya Saap	<i>Xenochrophis piscator</i>	Colubridae
10	Tree snakes	Hara Saap	<i>Ahaetulla nasuta</i>	Colubridae
11	Viper	Ghora Pachhad	<i>Daboia russelii</i>	Viperidae
12	Chameleon	Girgit	<i>Chamaeleo Sp.</i>	Chamaeleonidae
13	Monitor lizard	Guhera	<i>Varanus sp.</i>	Varanidae

Table 4: List of Birds recorded from OWS

Sl. No.	Common name	Local Name	Zoological name	Scientific name
1	Black winged kite	Kapasi	<i>Elanus caeruleus</i>	Accipitridae
2	King vulture	Raj giddh	<i>Sarcogyps calvus</i>	Accipitridae
3	Egyptian vulture	Gobar giddh	<i>Neophron percnopterus</i>	Accipitridae
4	White-rumped vulture	Safed pushth giddh	<i>Gyps bengalensis</i>	Accipitridae
5	Long billed vulture	Desi giddh	<i>Gyps indicus</i>	Accipitridae
6	Crested serpent eagle	Dogri cheel	<i>Spilornis cheela</i>	Accipitridae
7	Pariah kite (Black Kite)	Cheel	<i>Milvus migrans</i>	Accipitridae
8	Shikra	Shikara	<i>Accipiter badius</i>	Accipitridae
9	Red winged bush lark	Ageeya	<i>Mirafra erythroptera</i>	Alaudidae
10	Ashy-crowned sparrow-lark	Diyora	<i>Eremopterix griseus</i>	Alaudidae
11	White breasted kingfisher	Safed chhati kilkila	<i>Halcyon smyrnensis</i>	Alcedinidae
12	Pied kingfisher	Chitla Kilkila	<i>Ceryle rudis</i>	Alcedinidae
13	Small blue kingfisher	Chhota kilkila	<i>Alcedo atthis</i>	Alcedinidae
14	Brahmini duck	Surkhab	<i>Tadorna ferruginea</i>	Anatidae
15	Bar headed goose	Sarpatti savan	<i>Anser indicus</i>	Anatidae
16	Cotton teal	Gurguri pandubbi	<i>Nettapus coromondelianus</i>	Anatidae
17	Spot billed duck	Gugral batak	<i>Anas poecilorhyncha</i>	Anatidae
18	Knob-billed duck	Nakta	<i>Sarkidiornis melanotos</i>	Anatidae
19	Darter	Banvai	<i>Anhinga rufa</i>	Anhingidae
20	House swift	Ababeel	<i>Apus affinis</i>	Apodidae
21	Grey heron	Anjan	<i>Ardea cinerea</i>	Ardeidae
22	Pond heron	Andha bagla	<i>Ardeola grayii</i>	Ardeidae
23	Night heron	Waak bagla	<i>Nycticorax nycticorax</i>	Ardeidae
24	Cattle egret	Gaay bagla	<i>Bubulcus ibis</i>	Ardeidae
25	Little egret	Kilchiya	<i>Egretta garzetta</i>	Ardeidae
26	Large egret	Malang bagla	<i>Ardea alba</i>	Ardeidae
27	Intermediate egret	Patakha bagla	<i>Ardea intermedia</i>	Ardeidae
28	Common grey hornbill	Chalotara	<i>Tokus birostris</i>	Buceprotidae
29	Stone curlew	Barsiri	<i>Burhinus oedicnemus</i>	Burhinidae
30	Great stone plover	Karvanak	<i>Esacus magnirostris</i>	Burhinidae
31	Common wood strike	Samanya tarti tuiya	<i>Tephrodomis pondicerian</i>	Campephagidae
32	Small minivet	Bulal	<i>Pericrocotus cinnamomus</i>	Campephagidae
33	Indian nightjar	Chhapka	<i>Caprimulgus asiaticus</i>	Caprimulgidae
34	Red-wattled lapwing	Tituri	<i>Vanellus indicus</i>	Charadriidae
35	Little ringed plover	Jeera Batan	<i>Charadrius dubius</i>	Charadriidae
36	Kentish plover	Kalar wala batan	<i>Charadrius alexandrinus</i>	Charadriidae
37	Spur winged plover	Surma	<i>Vanellus spinosus</i>	Charadriidae
38	Common Red shank	Samanya chaubala	<i>Tringa totanus</i>	Charadriidae
39	White necked stork	Galgal	<i>Ciconia episcopus</i>	Ciconiidae
40	Black necked stork	Leharganj	<i>Ephippiorhynchus asiaticus</i>	Ciconiidae
41	Open bull stork	Godheela	<i>Anastomus oscitans</i>	Ciconiidae
42	Blue rock pigeon	Kabutar	<i>Columba livia</i>	Columbidae

Table 4: Continued...

Sl. No.	Common name	Local Name	Zoological name	Scientific name
43	Indian ring dove	Dhawar Phakhta	<i>Streptopelia decaocto</i>	Columbidae
44	Spotted dove	Chitrokha Phakhta	<i>Spilopelia chinensis</i>	Columbidae
45	Red turtle dove	Kalhak	<i>Streptopelia tranquebarica</i>	Columbidae
46	Indian roller blue jey	Desi neelkanth	<i>Coracias benghensis</i>	Coraciidae
47	Indian tree pie	Mahalat	<i>Denocitta vagabunda</i>	Corvidae
48	House crow	Kauaa	<i>Corvus splendens</i>	Corvidae
49	Jungle crow	Jangli kauaa	<i>Corvus macrorhynchos</i>	Corvidae
50	Crow pheasant	Bharadwaj	<i>Centropus sinensis</i>	Cuculidae
51	Koel	Koyal	<i>Eudynamys scolopaceus</i>	Cuculidae
52	Thick billed flower pecker	Phulchuki	<i>Dioacum agile</i>	Dicaeidae
53	Tickell's flower pecker	Bhimchoch phulchuki	<i>Dicaeum erythrarhynchus</i>	Dicaeidae
54	Black drongo	Bhujang	<i>Dicrurus adsimilis</i>	Dicruridae
55	Sarus crane	Saras	<i>Grus antigone</i>	Gruidae
56	Barn swallow	Ababil	<i>Hirundo rustica</i>	Hirundinidae
57	Rumped swallow	Lal putti Ababil	<i>Hirundo haurica</i>	Hirundinidae
58	Wiretailed swallow	Lesra	<i>Hirundo smithii</i>	Hirundinidae
59	Pheasant tailed jacana	Pihuaa	<i>Hydrophasianus chirurgus</i>	Jacaniidae
60	Grey shrike	Dhusarpiti lathora	<i>Lanius excubitor</i>	Lamidae
61	Rufous backed shrike	Kagla latora	<i>Lanius schach</i>	Lamidae
62	Indian river tern	Jalkukri	<i>Sterna aurantia</i>	Laridae
63	Black bellied tern	Kalpati Kukri	<i>Sterna acuticauda</i>	Laridae
64	Coppersmith barbet	Thathera basanya	<i>Megalaima haemacephala</i>	Megalaimidae
65	Blue tailed bee eater	Neel duma bada patranga	<i>Merops philippinus</i>	Meropidae
66	Green bee-eater	Hara Patranga	<i>Merops orientalis</i>	Meropidae
67	Grey wagtail	Pilkiya	<i>Motacilla caspica</i>	Motocillidae
68	Large pied wagtail	Khanjan	<i>Motacilla maderspatensis</i>	Motocillidae
69	Magpie robin	Daiya	<i>Copsychus saularis</i>	Muscicapidae
70	Indian robin	Kalchuri	<i>Suxicoloides fulicata</i>	Muscicapidae
71	Pied bush chat	Kalapidda	<i>Saxicota caprata</i>	Muscicapidae
72	Goloden oriole	Pikal	<i>Oriolus oriolus</i>	Oriolidae
73	Osprey	Machhalimar	<i>Pandion haliaetus</i>	Pandionidae
74	Large cormorant	Bada pankauaa	<i>Phalacrocorax carbo</i>	Phalacrocoracidae
75	Little cormorant	Chhota pankauaa	<i>Microcarbo niger</i>	Phalacrocoracidae
76	Grey francolin (Grey partridge)	Safed titar	<i>Francolinus pondicerianus</i>	Phasianidae
77	Common peafowl	Mor	<i>Pavo cristatus</i>	Phasianidae
78	Mahratta woodpecker	Kanthphoda	<i>Leiopicus mahrattensis</i>	Picidae
79	House sparrow	Gauraiya	<i>Passer domesticus</i>	Ploceidae
80	Dabchick	Dubdubi	<i>Tachybaptus ruficollis</i>	Podicipedidae
81	Rose-ringed parakeet	Tota	<i>Psittacula krameri</i>	Psittacidae
82	Blossom headed parakeet	Tuiya Tota	<i>Psittacula roseata</i>	Psittacidae
83	Red vented bulbul	Bulbul	<i>Pycnonotus cafer</i>	Pycnonotidae
84	White cheeked bulbul	Safed bulbul	<i>Pycnonotus leucogenys</i>	Pycnonotidae

Table 4: Continued...

Sl. No.	Common name	Local Name	Zoological name	Scientific name
85	White breasted water hen	Safed Chhati jalmurgi	Amaurornis phoenicurus	Rallidae
86	Moorhen	Samanya Jalmurgi	Gallinula chloropus	Rallidae
87	Coot	Tikdi	Fulica atra	Rallidae
88	Black winged stilt	Gajpav	Himantopus himantopus	Recurvirostridae
89	Common sand piper	Kottan	Actitis hypoleucos	Scolopacidae
90	Black headed myna	Brahman maina	Sturnus pagodarum	Sturnidae
91	Pied myna	Tablak maina	Sturnus contra	Sturnidae
92	Common Indian myna	Maina	Aeridotheres tristis	Sturnidae
93	Bank myna	Ganga maina	Acridotheres ginginianus	Sturnidae
94	Spoon bill	Chamcha	Platalea leucorodia	Threskiornithidae
95	Common babbler	Samanya gogai charkhi	Turdoides caudatus	Timalinae
96	Gungle babbler	Saat bhai	Turdoides striatus	Timalinae
97	Large grey babbler	Badi gogai charkhi	Turdoides malcolim	Timalinae
98	Hoopoe	Hudhud	Upupa epops	Upupidae

Table 5: List of Mammals recorded from OWS

Sr. No.	Comman name	Local Name	Scientific Name	Family
1	Blue bull	Neel Gai	<i>Boselaphus tragocamelus</i>	Antilopinae
2	Chinkara	Chinkara	<i>Gazelle gazelle</i>	Antilopinae
3	Jackal	Geedad	<i>Canis aureus</i>	Canidae
4	Indian fox	Lomdi	<i>Vulpes benglensis</i>	Canidae
5	Cheetal (Spotted Deer)	Cheetal	<i>Axis axis</i>	Cervidae
6	Barking deer	Bhedki	<i>Muntiacus muntjak</i>	Cervidae
7	Red faced monkey	Lal Muh Ka Bander	<i>Macaca mulata</i>	Circipthecide
8	Black faced monkey	Kale Muh Ka Bander	<i>Presbytis entellus</i>	Colobidae
9	Jungle cat	Jangli Billi	<i>Felis chaus</i>	Felidae
10	Magoose	Nevla	<i>Herpestes edwardsi</i>	Herpestidae
11	Hyena	Lakadbagga	<i>Hyaena hyaena</i>	Hyaenidae
12	Porcupine	Sehi	<i>Hystrix indica</i>	Hystriidae
13	Indian hare	Khargosh	<i>Leupus nigricollis</i>	Leporidae
14	Indian field mouse	Chuha	<i>Rettus refescena</i>	Muridae
15	Bigoos	Bijju	<i>Melivora capensis</i>	Mustelidae
16	Short-nosed fruit bat	Chamgadarh	<i>Cynopterus sphinx</i>	Pteropodidae
17	Indian flying fox	Chamgadarh	<i>pteropus giganteus</i>	Pteropodidae
18	Wild boar	Jangli Suar	<i>Sus scrofa</i>	Saidae
19	Five striped palm squirrel	Gilhari	<i>Fanambulus pennant</i>	Sciuridae

Another study by ZSI reveals that Madhya Pradesh freshwater fish fauna includes 172 species belonging to 68 genera, 27 families and 10 orders (Zoological Survey of India 2007). In this context, OWS accommodates about 9 percent of fish fauna of the state in terms of

species number. A study of Jabalpur district, nearby to the OWS findings suggest similar diversity of amphibians (9 species), , birds (194 species), mammals (50 species) (Zoological Survey of India 2008). The Amphibians largely represented by species of Anura

including Indian Bullfrog, Common Toad and Common Tree Frog. The common toad *Bufo melanostictus* is very common. OWS is specially known for four species of turtle and four species of vulture. The Vulture species are rare and largely restricted to the Sanctuary. The most commonly seen birds are the House Sparrow, Common Crow, Common Myna and Red-vented Bulbul. Common water birds are represented by Grey Heron, Pond Heron, Cattle Egret, Little Egret, and Black winged Stilt. Other commonly occurring birds include kingfishers, orioles, babblers, wagtails, pipits and flycatchers. The common mammals in the Sanctuary are Chital, Nilgai, Wild boar, Fox and Monkey. Similar species diversity of mammals observed in nearby Panna National Park (Harshey & Chandra 2001).

CONCLUSION

Our effort is intended at providing a peer-reviewed and open-access compilation of vertebrate fauna of the OWS, which highlights the Sanctuary's ecological significance. We believe that findings of this study will serve as a baseline for assessing changes in species status, distributions and occurrences in the face of threats; inform protected area managers, conservationists and environment impact assessors, and serve as a base for resource management and utilization planning of biodiversity for non-consumptive use like ecotourism development.

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REFERENCES

- Aengals R, Kumar VMS & Palot MJ (2010) Updated Checklist of Indian Reptiles phylum: chordata class: reptilia order: crocodylia order: testudines Suborder: Cryptodira. *Order A Journal On The Theory Of Ordered Sets And Its Applications*, 6(2008).
- Chapman AD (2009) Numbers of Living Species in Australia and the World. *Heritage*, 2nd(September), 84..
- Daniel JC (2002) *The book of Indian reptiles and amphibians*,
- Das D (2017) Park , People and Biodiversity Conservation in Kaziranga National Park , India. 36–48.
- Dinesh KP et al. (2015) A Checklist of Amphibians of India. , (January), 1–14.
- Edet D & Ijeomah H (2012) Preliminary assessment of tree species diversity in Afi Mountain Wildlife Sanctuary, Southern Nigeria. *Agriculture and Biology Journal of North America*, 3(13): 486–492.
- Harshey DK & Chandra K (2001) Mammals of Madhya Pradesh and Chhattisgarh. *Zoos' Print Journal*, 16(12): 659–668.
- Henderson PA (2003) *Practical methods in ecology*, Blackwell Pub.
- Hill D et al. (2005) *Handbook of Biodiversity Methods Survey, Evaluation and Monitoring*,
- Jayakumar R & Nair KKN (2013) Species Diversity and Tree Regeneration Patterns in Tropical Forests of the Western Ghats , India. *ISRN Ecology*, 2013, 14.
- Manakadan R et al. (2011) *Birds of the Indian subcontinent : a field guide*
- MoEF (2011) Annual Report - Indian Ministry of Environment and Forests 2010-2011.
- Nameer PO et al. (2015) A checklist of the vertebrates of Kerala State , India. , 7(November). 7961–7970.
- Negi RK & Banyal HS (2016a) A Preliminary Study of Herpetofauna of Rakchham-Chhitkul Wildlife Sanctuary in Trans-Himalayan Baspa (Sangla) Valley , District Kinnaur, Himachal Pradesh, India., 4(11): 145–149.
- Negi RK & Banyal HS (2016b). A Preliminary Study on the Species Composition of Vertebrates in Rakchham-Chhitkul Wildlife Sanctuary in Trans-Himalayan Baspa (Sangla) Valley, District Kinnaur, Himachal Pradesh, India. , 4(11), pp.145–149.
- Prater SH (1990) *The book of Indian animals*, Bombay Natural History Society.
- Praveen J, Jayapal R & Pittie A (2016) A checklist of the birds of India. *Indian Birds*, 11(5 & 6): 113–172.
- Ramakrishna et al. (2006) *Faunal Resources of National Parks of Madhya Pradesh and Chhattisgarh RAMAKRISHNA*,
- Sharma G et al. (2013) Mammals of India with their distribution and conservation status A Checklist of A Checklist of Mammals of India with their distribution and conservation status. , (July 2015).
- Shrivastava VK et al. (2017) Preliminary study on flora of Orchha wildlife sanctuary (Madhya Pradesh), India. , 9: 1681–1685.
- Talwar PK & Jhingran AG Arun G (1992) *Inland fishes of India and adjacent countries*, A.A. Balkema.
- Wagh VV & Jain AK (2016) New addition to the flora of Madhya Pradesh, India. *Annals of Plant Sciences*, (January), 1233–1235.
- Wilson DE & Reeder DM (2005) *Mammal species of the world : a taxonomic and geographic reference*, Baltimore: Johns Hopkins University Press.
- Zoological Survey of India (2007) FAUNA OF MADHYA PRADESH (Including Chhattisgarh) PART-1.
- Zoological Survey of India (2008) *Faunal Diversity of Jabalpur District Madhya Pradesh*,