



An overview on reptiles, birds and mammals of Muthodi forest area of bhadra wildlife sanctuary in Chikmagalur district, Karnataka

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Abstract

The present review study deals with the reptiles, birds and mammals of Muthodi Forest area of Bhadra Wildlife Sanctuary in Chikkamagaluru district, Karnataka. In 1998 it was declared as the 25th Project Tiger of India and boasts of a substantially high tiger population. Endangered species like the Malabar Giant Squirrel and orangutan are housed here. It is also a habitat for reptiles like the Indian Rock Python and the King Cobra. Other animals found here include wild dog, barking deer, elephant, sloth bear, porcupine, wild boar, mouse deer, gaur, black leopard, spotted deer, sambar, common langur, jackal, jungle cat, black panther, common palm civet, bonnet macaque, small Indian civet, slender loris, pangolin, flying squirrel, leopard cat, rusty-spotted cat, ruddy mongoose, stripe-necked mongoose, otters. Bhadra Wildlife Sanctuary has some of the best habitats in the nation and may be home to many larger mammals, including elephants and Bison.

Keywords: Mammals, birds, reptiles, muthodi forest, bhadra wildlife sanctuary, vegetation

Introduction

India's rich and diverse wildlife is a magnificent gift from nature. More than 500 mammal species are thought to exist in the nation. India is home to one of the world's most abundant bird populations. Without human intervention, wildlife, a crucial component of the natural biotic complex, could coexist in harmony with its surroundings under the principles of natural selection. But without realizing how crucial wildlife is to preserving the balance of dynamic nature, man has been persecuting it to satisfy his needs. Many animal and bird species are either extinct or in danger of threatened with extinction.

The Western Ghats and their outskirts now contain the majority of Karnataka's once-rich wildlife heritage. More than 35% of Karnataka's total land area was covered by forests a few decades ago. Unfortunately, most forests were destroyed to accommodate the growing demand for grazing land and human needs due to the unchecked growth of the human and cattle populations. As a result, Karnataka's forest status has rapidly declined, currently at 19%. There are currently 5 National Parks and 18 Wildlife Sanctuaries, totaling 7340.38 km² of forest area under reserved status. The area of Muthodi Block is 135.46 km².

Bhadra Wildlife Sanctuary located in the Chikkamagaluru district, 23 km (14 mi) south of Bhadravathi city, 38 km (24 mi) 20 km from Tarikere town, northwest of Chikkamagaluru, and 283 km from Bengaluru city in Karnataka state, India, this is a protected area and tiger reserve as part of Project Tiger (Bhadra on Project Tiger, 2011)^[5]. With a diverse array of plants and animals, Bhadra Sanctuary is a well-liked destination for day trips. The highest peak in the sanctuary is 1,875 meters (6,152 feet) above MSL Hebbe Giri.

The Bhadra sanctuary is divided into two parts. The smaller eastern Bababudangiri section is located from 13°30' to 13°33' N latitude and from 75°44' to 75° 47' E longitude, while the main western Lakkavalli-Muthodi section is located from 13°22' to 13°47' N latitude and 75°29' to 75 45' E longitude. The highest point is Kallathigiri on the eastern border, with elevations ranging from 615 m (2,018 ft) to 1,875 m (6,152 ft) above MSL (Karnataka State Wildlife Board,

The highest point is Kallathigiri on the eastern border, with elevations ranging from 615 m (2,018 ft) to 1,875 m (6,152 ft) above MSL (Karnataka State Wildlife Board, 201). The picturesque hills and steep slopes of the Mullayanagiri, Hebbegiri, Gangegiri, and Bababudan giri hills encircle the sanctuary. The highest peak between the Himalayas and the Nilgiris is Mullayanagiri, which is 1,930 meters (6,330 feet) high and located in the Baba Budan Giri Range close to the sanctuary's southeast boundary.

The eastern portion of the sanctuary is home to the 551 feet (168-meter)-high Hebbe Falls. The tributaries of the Bhadra river flow west through the sanctuary, and the Manikyadhara Falls are situated on the nearby sacred Baba Budan Giri Hill. The sanctuary's western boundary shares a catchment area of 1,968 km² (760 sq mi) with the Bhadra Reservoir (Bhadra on Project Tiger, 2011)^[5].

The villages inside the sanctuary are called Jagara and Sirivase. Nearby cities include Birur, Tarikere, and Bhadravathi. Bhadravathi and Birur have good bus and rail connections to larger cities. Both Bhadra Dam and Bhadra WLS are easily accessible by local bus from Bhadravathi. Bhadra Wildlife Sanctuary is about 163 kilometers (101 miles) from Mangalore, which has the closest airport.

It is crucial to note that the majority of the sanctuary's forest area, primarily the Thanigebyle area towards the northern portion of Bhadra Reservoir, is in extremely poor condition and does not support any wildlife population in a significant way. This is primarily done to provide a continuous corridor for the animals that have recently been added to the sanctuary.

Materials and Methods

Study area

While, Muthodi, one of its component areas, is 32 km away. Lakkavally, the third component, is likewise roughly 30 kilometers away from Shimoga. The sanctuary area is located between latitudes 13° 50' E and longitudes 70° 15' and 75° 50' N. The Western Ghats' finest forests and their outskirts make up the majority of the region (Figure 1).

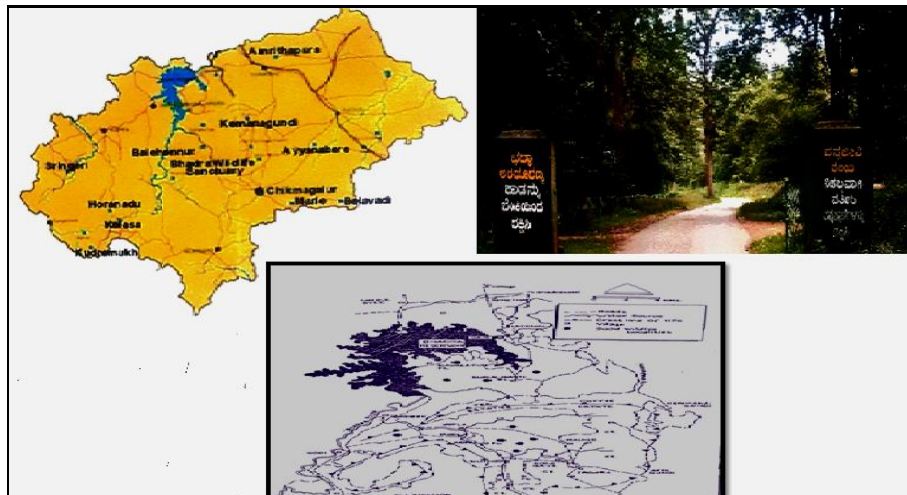


Fig 1: Location of the Study area

The North Bababudan hill range's cultivated plains and Bhadra reservoir, with coffee plantations to the east and south and the Bhadra river to the west, enclose this sanctuary. Bhadra Sanctuary is situated on the Western Ghats in Karnataka's highland Malnad belt. A rough crescent-shaped out spur of the Bababudan hill ranges rises sharply from the Deccan plateau. It's a gently rolling terrain. The typical elevation of the mountains is between 1000 and 1500 meters. December is the coldest month, with a mean low temperature of 13°C. March is the hottest month, with a mean high temperature of 36°C. The Bababundan range's distinct hill belts are home to the Dharwar schist.

Data Collection

Periodical animal censuses by the State Forest Department and regular animal censuses using ocular counts and other supporting evidence, such as droppings, calls, kills, etc., observed during their perambulation in the field, were used to gather data on the wildlife population. Hebbe, another Bhadra Wildlife Sanctuary component area, is 45 km from Chikkamagalore,

Primary data was collected in the form of Observation. Secondary data sources like catalogue journals and articles, internet sites and Literature reviews have been used.

Vegetation Profile

Bamboo brakes are a distinctive feature of the Bhadra Wildlife Sanctuary's vegetation. Four broad categories can be used to describe the general pattern of vegetation. The northern and eastern outer slopes of the valley floor typically have forests of the dry deciduous to moist deciduous types. In the trough, grassy downs with moist deciduous, semi-evergreen, and Shola forests cover the inner slopes and inner hill range. The forests tend to blend into the dry deciduous type on the outskirts of the Hebbe and Lakkavalli areas.

About 6% of the entire sanctuary area is made up of sporadic, expansive stretches of pure teak plantations, which frequently act as retrieval areas for the larger mammals housed there. Overall, the Muthodi and Hebbe regions are more humid and lush than the Lakkavalli region, especially during the dry seasons.

The tree species recorded by Raju and Heggde (1995)^[9] were *Albizia lebbek*, *Anogeissus latifolia*, *Bridelia retusa*, *Cassia fistula*, *Diospyros montana*, *Greuiia tiliaefolia*, *Mitragyna parvifolia*, *Pterocarpus marsupium*, *Terminalia arjuna*, *Terminalia paniculata*. Among shrubs *Flacourtia indica*, *Ziziphus oenopolia* formulate second canopy. Some

of the common climbers are *Argyreia cuneata*, *Cardiospermum halicacabum*, *Cayratia pedate*, and species of *Ipomea* and *Lantana camara*. There are also species of *Calamus* and *Phoenix*. The bamboos are mainly of *Bambusa arundinacea* and *Dendrocalamus strictus*

These bamboo serves as food for Elephants and Bisons in addition to Deer family, and also retrieval area to many of the larger animals of the sanctuary. Some important middle canopy includes shrubby sps. like *Antidesma diandrum*, *Gmelina arborea*, *Grewia hirsuta*, *Kydia calycina*, *Sterculia guttata*, and *Stereospermum personatum*. These forests in the sanctuary serve as main feeding area for the animals, because of the existence of many palatable fodder species in the floristic composition. (Anon,1961. Anon.,1966; Anon,1992-93; Burton and Bajpai,1993)^[1, 2, 3, 4]

Reptiles, Birds and Mammals

Once regarded as a wildlife sanctuary, specifically for bisons, Bhadra Wildlife Sanctuary may also today simplest have a few measurable populations of each native representative. However, the Department of Forests, Government of Karnataka, accomplished a census in 1993 to examine the modern fame of natural world as appropriately as feasible. Other smaller vertebrates are not given the eye they need due to the fact the modern observe is constrained to large mammals, mainly Gaurs. Consequently, fewer observations had been product of amphibians, small reptiles, not unusual rodents, and bats.

The reptiles seen here are the marsh Crocodiles which are determined all along Bhadra river wherein much less disturbance. More usually those are discovered after Sangameswarpet thru in which river Bhadra enters into the sanctuary and similarly flows via midst of the undisturbed moist deciduous forests until joins Bhadra reservoir back water. Very not often the marsh Crocodiles are also discovered in the river Somavahani round woodland villages Kesave, Madla and Hipal areas. Illegal fishing using dynamite could be very frequent with the aid of locals in Bhadra river specifically in the sanctuary place. Due to this the Crocodile populace is believed to be decimated. Other exciting reptiles like rock Pythons and King Cobras are common in Muthodi place.

In addition to the exotic snakes, Bhadra Wildlife Sanctuary is also domestic to numerous reptiles that encompass marsh crocodiles, Gliding lizards, common place wolf snake, common vine snake, bamboo pit viper, king cobra, olive keelback, rat snake, Russell's viper, Common Indian monitor, and common cobra.

It is anticipated that many bird species were determined in Sanctuary. Probably the charming micro-weather to the location, non-devastating natural calamities made this region paradise for the Birds. Once in 1991 November the first author at some stage in short survey recorded 88 species other than few escaped unidentified. The greater frequently seen Birds on this location are King fisher, Ibis, Malabar pied horn bill, Common grey horn bill, Paradise flycatcher, Myna, Grey jungle hen, Fishing eagle, Pea fowl, Malabar trogon, Great black wood pecker, Black necked oriole, South Indian black bulbul, water birds like Cormorants, Darter, Larger egret, River tern and so on (Raju and Heggde,1995)^[9].

The Bhadra Wildlife Sanctuary is most surely a birder's paradise, given that extra than three hundred species of birds were recorded inside the Sanctuary, some of them being endemic to the location. The avian fauna populace of Bhadra Wildlife Sanctuary includes bee eaters, Malabar parakeets, paradise flycatchers, grey jungle fowls, Malabar trogon, emerald dove, red spurfowl, Malabar whistling thrush, southern green imperial pigeon, ruby throated bulbul, great black woodpecker, four species of hornbill, painted bush quail, Osprey, shama, racquet tailed drongo, Indian scimitar babblers, darters, egrets, and hill myna.

The representative mammals visible here are the Common Langur, that are quite considerable in all the 3 areas of Sanctuary. Few families of Bonnet Macaques also hardly ever arise however their presence is normally confined to Hebbe and Lakkavalli blocks probable because of their liking for dry forests.

Tigers though not common but they're commonplace in their sightings in the Sanctuary. Frequent cattle killings are observed around Tagurgudda, Kagemanegiri, Huluvathi, Hipla and Madla regions. Leopards are unusual in this Sanctuary. Sloth Bears are uncommon and more often than not constrained to Lakkavalli and Tanigebyle areas and also Tegurgudda and Kodi regions of Hebbe block. The Giant squirrels (Malabar squirrel) are pretty plentiful in block however they're also determined in Lakkavalli and Hebbe areas.

Elephant population occurs in all parts of the Sanctuary and periodically preserve migrating all alongside the stream banks and hence migrate between Muthodi, Hebe,

Lakkavalli and Tanigebyle area. Very not often the crop riding lawsuits are acquired from farmer's in contrast to in other regions of Mysore and Shimoga Districts. During summer time all of the Elephants congregate inside the Bhadra back water area. Regular human deaths are noticed round Muthodi and Lakkavalli region by way of Elephant trampling. Availability of the lush green Bamboo perennial water supply and Bhadra back water is the boon for the Elephants of this area. No poaching prevalence are to this point noticed.

Gaurs virtually are the pride of Bhadra Wildlife Sanctuary. Ecologically suitable habitat for Bisons with more fodder and perennial water supply makes this vicinity specific and ecologically suitable for Bisons than another Sanctuary. This vicinity because of function geographical barriers no longer best presents protection but guarantees potentiality for renovation and perpetuation of this species. Karanth (1978,1979)^[7,8] reported the presence of around 1000 Gaurs in this region. 1983 census reports that there are 3057 Gaurs in the Sanctuary. Further, 1989 census reviews 787 Gaur (215 Gaurs from Bhadravathi Division in Lakkavalli location and 562 Gaurs from Chikkamagalore Division such as few Gaurs outside the Sanctuary location in Mudigere and Aldur areas however majority are from Muthodi and Hebbe vicinity). The census performed in 1993 reports the presence of only 139 Gaurs inside the Sanctuary. It is essential to be aware that the outbreak of Rinderpest, a dreaded sickness, spread in Bhadra Sanctuary in the course of 1990 has victimized massive variety of Guars. But nevertheless, as in step with the natural ideas of population dynamics the populace size is notably diverse now not giving any particular reasons for such high fluctuation in population (Raju and Heggde,1995)^[9].

The sanctuary also well-known to guard and preserve massive mammals such as elephants and gaurs, which can be taken into consideration the pleasure of Bhadra. The different fauna population that is living beneath the thickets of shola trees encompass wild dog, common langur, pangolin, sambar, jungle cat, jackal, wild boar, spotted deer, sloth bear, flying squirrel, Malabar giant squirrel, Common palm civet, bonnet macaque, small Indian civet, porcupine, black leopard, mouse deer, muntjac, chital, orangutan, bison, and slender loris.

Table 1: Present status of the major animals of Bhadra Wildlife Sanctuary at Muthodi

Scientific Name	Muthodi area	Favoured Localities
<i>Macaca radiate</i> (Bonnet macaque)	Rare	Around villages. All over
<i>Presbytis ontelus</i> (Common Langur)	Very Common	
<i>Panthera tigris</i> (Tiger)	Frequent	
<i>Panthera pardus</i> (Tiger)	Very Common	
<i>Canis aures</i> (Jackal)	Very Common	
<i>Cuon alpines</i> (Wild Dog)	Very Common	
<i>Melursus ursinus</i> (Sloth Bear)	Rare	
<i>Rutufa indica</i> (Malayan giant squirrel)	Very Common	
<i>Hystrix Indica</i> (Indian Porcupine)	Frequent	
<i>Elephas maximus</i> (Elephant)	Frequent	
<i>Bos gaurus</i> (Guar)	Very Common	
<i>Tetracerus quadric</i> (Four horned antelope)	Present	
<i>Cervus unicolor</i> (Sambar deer)	Frequent	
<i>Axis axis</i> (Spotted Deer)	Very Common	
<i>Muntiacus muntjak</i> (Barking Deer)	Frequent	
<i>Sus scrofa</i> (Wild Pig)	Very Common	
<i>Python molurus</i> (Python)	Frequent	
<i>Ophophagus Hannah</i> (King Cobra)	Present	
<i>Crocodylus palust</i> (Marsh Crocodile)	Rare	

Source: Raju and Heggde,1995^[9]

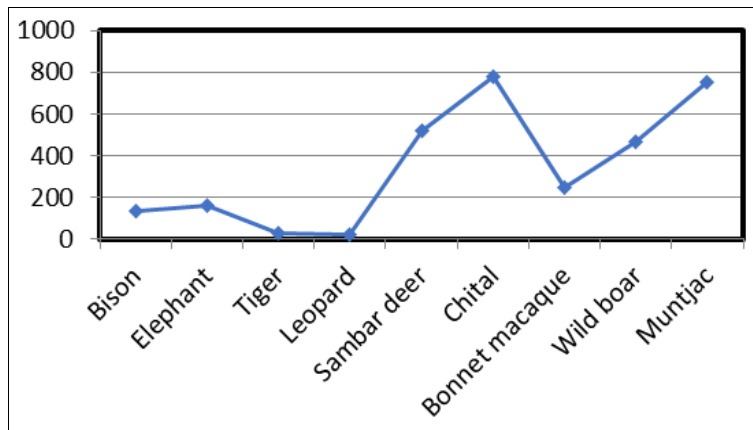


Fig 2: Population Statistics of important animals of the Bhadra Sanctuary near Muthodi

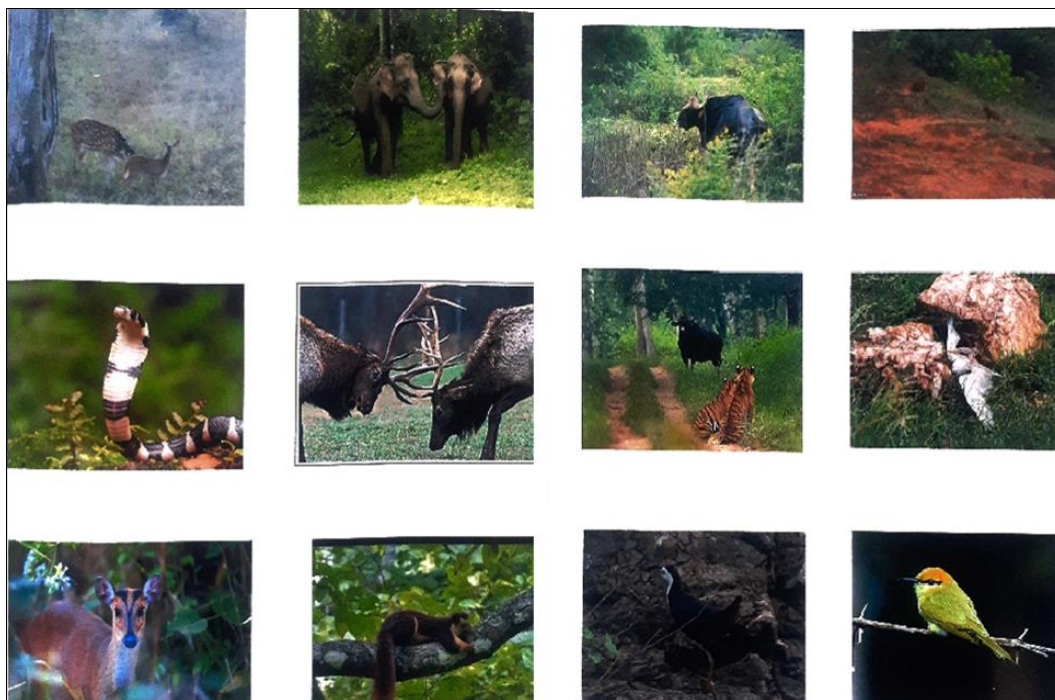


Fig 3: Mammals, Reptiles and Birds of Muthodi forest region

Conclusion

In terms of vegetation, Bhadra Wildlife Sanctuary has some of the best habitats in the nation and be home to many larger mammals, including elephants and gaur. This sanctuary is unique due to its steep terrain and three-story canopy of dry to wet tropical forests. Lofty, thick bamboo brakes that cover a large portion of the sanctuary's land provide the animals with year-round food and shelter. Feeding and breeding grounds are provided by the area's extensive artificial teak plantations and wide stretches of marshy glades, which are dotted with bamboo brakes. The wildlife in this sanctuary benefits from these factors. Sadly, despite the abundance of food and water in this sanctuary, along with proper protection, the wildlife population is not growing as it should. Additionally, there is a serious risk that the bison and elephant populations will disappear from this sanctuary due to their declining numbers. As a result, the sanctuary is currently in a "fragile ecosystem" that is important for the environment and needs habitat enrichment as well as planned conservation and propagation of these endangered elephant and bison populations.

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