



Taxonomic study on mammalian resources of Bagdara sanctuary, Sidhi (M.P.)

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Abstract

Bagdara sanctuary is famous for the beautiful animal roaming in the forests of this part of Central India - 'the black bucks' - popularly known as Krishna Mriga. Its frequency of occurrence is very good. It is one of the most spectacular and numerous of wild animals living in close proximity to human settlement. It can be seen in the fields in all the season in the sanctuary. There are variety of vertebrates mammals, small fishes, amphibians, reptiles and birds, which are still to be identified. The Bagdara sanctuary along with great variety of flora and its remarkable altitudinal and topographic variations provide an ideal habitat for the animal of wild life.

Keywords: taxonomic, mammalian, Bagdara sanctuary, Sidhi district

Introduction

Recent environmental research has given a great thrust on the aspect of animal resources and biodiversity as a viable parameter for monitoring environmental status of an area. Species assemblages have been characterized in terms of diversity and density of individuals in their respective biomes. On this basis these assemblages are characterized with regard to their cohesiveness. The more hospitable the environment the grater will be its biodiversity. Several ecologists of the world have devised several formulae for this purpose. Conservation of the evolutionary heritage of the diversity on the biosphere is one of the challenges modern humanity is facing. Conservation of the gene pool, species, biological populations and their habitats have to be given priority in the effort of conservation.

The basic component in the biodiversity can be named as the species. Different status given to these species as rare, endangered, threatened have to be identified first. After this preliminary study the respective habitats of these species have to be studied. The causative factors for the reducing numbers have to be identified and then the respective biomes be categorized as hospitable, inhospitable or antagonistic according to different levels of hospitality indices to the respective organisms. After this is achieved, the occurring species should be categorized up to assemblages. Various species diversity indices like the Shannon Wiever index, Menhinneck index etc. should be evaluated and the assemblages as a whole be evaluated to find out their range of cohesion. A large variety of indices are available to quantify the diverse biological communities. Ecologists recommend that any measure of biodiversity should incorporate biological differences or the heterogeneity of the community as an important component.

The mammalian resources of eastrengard was reported by (Allen, 1938; Anderson, 1971; Balakrishnan & Essa 1986; Biswas and Khajuria 1957; Flerov, 1960; Krishnan, 1972; Simpson, 1945; Walker, 1969 and Zuckerman, 1953) [1-9].

Gadgil 1993 [10] reported the biodiversity of the western and eastern gard.

Materials and Methods

Boundaries

Boundary description of the sanctuary is as under - North - Mirzapur and Sonbhadra district of U.P., East - Sonbhadra district of U.P., South - Son river, West Mirzapur district of U.P. and Rewa district of M.P.

Location

One of the largest forest sanctuary in the Distt. The forest boasts of one of the most beautiful rich and picturesque forests in M.P., though one of the least known forest at the same time. The nature has gifted to this area with somewhat virgin landscape which are sight-worthy especially during winters, just after the rainy seasons. It is situated in the Sidhi districts of Madhya Pradesh at the latitudes 24°30' N and 24°42' N and longitudes 82°20' E to 82°42' E. There are several range in this forest covering Sidhi. District Sidhi includes total 7 blocks.

The regular monthly observations of the stretch from S₁ to S₅ sampling sites have been studied for one year (November 2012 to October, 2013). The equipments and chemicals were taken on the spot as well as in the laboratory over for five sampling stations. The characteristics of water depend on:

1. The nature of material with which it is in contact.
2. The time of year
3. The effect of other substances
4. The rainfall and
5. The presence of wastes, hydrogen sulfide etc.

Results and Discussion

Bagdara sanctuary, Sidhi (M.P.) is very rich in mamalian fauna the taxonomic study has been given in Chapter-IV of this thesis. Ecologically the Mamals of this sanctuary has attracted the attention of the present author for this

investigation. The characteristic diagnosis of about 24 species are given in the thesis and their habitat have been studied in the field.

Talpa (Mole)

Family : Soricidae
Genus : *Suncus*
Species : *murinus*

Moles (*Talpa*) are also known as "chuchunder". They differ from shrews in being larger and in having enormous shoulder girdle and muscles so that head and trunk seem to merge. They are also efficient burrowers. Body is thick, cylindrical and covered by a soft velvety fur. Ears are minute and tiny eyes practically useless, but the elongated snout is highly sensitive. The front limbs are enlarged, heavily clawed, flattened and turned permanently outwards, an adaptation for digging. Moles are of some commercial value because of their fur and because of the insects they destroy.

Pteropus (Flying-fox)

Family : Pteropodidae
Genus : *Pteropus*
Species : *giganteus*

Pteropus is commonly known as flying-fox. It is a large bat with a wing-spread over one and a half metre though the body is only about 30 cm in length. The body is covered with brown fur. The snout is long and without nose leaf. The face is like that of a fox in appearance. Eyes are large. Ears are oval and the two edges of the ear are in contact at the base. Tail is absent the thumb and second digits are clawed. Dental formula is $i\ 2/2, c\ 1/1, pm\ 3/3, m\ 2/3$. The molars are not tubercular but marked with a longitudinal groove. Frugivorous, food chiefly consists of figs and guava. Social in habit and move about in droves of considerable size.

Distribution

Pteropus occurs in Bagdara sanctuary at all the five sites.

Bat

Family : Microchiroptera
Genus : *Rhinolophus*
Species : *ferrum*

It is small in size and the body is covered with soft fur. Snout is short with or without nose leaf. Pinna are large and often provided with flags, serving as tactile organs and also in making the power of hearing more acute. Eyes are small and the vision is weak as the visual rods are poorly developed. Tail is included in the inter-femoral membrane provided with a distinct flap. Only the thumb or first digit is clawed in the fore-limbs. Hind-limbs are weak and have five clawed digits. Molars have cusped crowns with transverse grooves. Nocturnal in habit. During the day they spend their time sleeping in caves or other dark sheltered places and come out at dusk for feeding. Insectivorous, though occasionally frugivorous or sanguivorous (blood sucking). Gregarious living in colonies of thousands. They produce ultra-sonic sound waves which after striking on the solid objects are reflected back and are picked up by their ears; guiding in their flight.

Distribution

Bats are cosmopolitan in all the sites of Bagdara sanctuary.

Macaca (Rhesus monkey)

Family : Cercopithecidae
Genus : *Macaca*
Species : *mulatta*

One of the best known Old World monkeys is the rhesus monkey or 'bandar', *Macaca mulatta*. It is common in northern India, southern China and Indochina (Vietnam). It is widely used in biological investigations. The Rh blood factor was first discovered in these monkeys. It has simple stomach and large cheek pouches for storing food.

Presbytis (Langur)

Family : Cercopithecidae
Genus : *Presbytis*
Species : *entellus*

The sacred or entellus langur, *Presbytis* (= *Semnopithecus*) entellus, lives in the forests of India and Pakistan. Colour is silvery grey with a black face. It has no cheek pouches but stomach is complex for feeding on leaves. Unlike other langurs, it lives mainly on the ground.

Mus (House mouse)

Family : Leporidae
Genus : *Lepus*
Species : *ruficaudatus*

Common house mouse (*Mus musculus*) is a miniature replica of the house rat in general built and appearance. It is also common throughout the world in association with man, and is active mainly at night.

Hystrix (Porcupine)

Family : Hystericidae
Genus : *Acanthion*
Species : *leucurus*

Hystrix is commonly called as porcupine or syahi in Hindi. Body is covered with long erectile spines which are modified hairs. The spines are solid in the middle of the body but on the tail they are expanded into hollow quills which make much rattling. The spines are black and white, the middle of the spine being banded with black. A great crest of stiff long hairs is present on the head. Eyes and pinnae are small. Tail is short and never prehensile. The soles of the feet are smooth and not covered with rough tubercles. The tongue has serrated scales arranged in transverse rows which are directed backwards. Nocturnal and herbivorous. The spines present on the body are, however, excellent weapons of offense and the animal charges somewhat backwards to make best use of them against the enemy.

Distribution

Hystrix (porcupine) is found at sampling sites S₂, S₄ and S₅ of the Sanctuary.

Funambulus (Squirrel)

Family : Funambulus
Genus : *Funambulus*
Species : *palmarum*

Funambulus is commonly called squirrel or gilhari in Hindi. Body is elongated and covered with fur. Five longitudinal stripes of dark colour are present on the back. Tail is long and bushy. The eyes and pinnae or ears are large. The fore-limbs have an inconspicuous thumb and hind limbs have four clawed digits. The soles of fore-limbs are naked and those of hind-limbs are hairy. Arboreal and active climber. Diurnal and builds nests of twigs and leaves. Feeds on nuts, seeds and fruits.

Distribution

Squirrels are distributed at all 5 sites of the Sanctuary.

Rattus (Rat)

Family : *Funambulus*
Genus : *Rattus*
Species : *rattus*

Rattus rattus is commonly called common rat. The body of rat is slender with thick-set fine fur mixed with stiff hairs. It is usually grayish or brownish in colour. Rat measures about 25 cm including tail. Body is divisible into four distinct regions: head, neck, trunk and tail. Head is elongated, somewhat conical in shape and tapering anteriorly to a terminal nose. The head bears nostrils - a pair of nostrils or nares lying at the tip of the nose which is slightly elevated. Harelip - a cleft situated below the nostrils in the upper tip exposing the two upper incisors. Mouth - Somewhat ventral in position, bounded by an upper and a lower lip. Eyes - two, one on each side. These are dorso-lateral situated about mid-way between the muzzle and the base of ears. External ears or pinna - two lying at the base of head in the postero-lateral area. Vibrissae - long hairs developed on the face at the sides of the snout.

Distribution

Rattus rattus is found throughout the Sanctuary. It prefers warm and dry climate.

Herpestes (Mongoose)

Family : *Herpestidae*
Genus : *Herpestes*
Species : *bengalensis*

Herpestes is commonly known as mongoose or nyola in Hindi. Body is elongated and covered with yellowish grey fur. Head is elongated and possesses pointed snout. Eyes are small and pinnae are small and rounded. Pinnae possess complicated folds so as to close the ear-openings when the animal is burried in the mus. Tail is long. Fore-and hind-limbs have five digits with fossorial claws. Carnivorous and highly prdaceous. It also takes vegetable food. Mongoose is famous for its fight with the snakes. It kills the snakes and feeds on their blood.

Distribution

Herpestes is distributed at all the sites of the Sanctuary. *Herpestes* is very common in India and represented by *H. bengalensis*, *H. edwardsii*, *H. fuscus* and *H. vitticolis*.

Felis tigris (Tiger)

Family : *Felidae*
Genus : *Panthera*
Species : *tigris*

Tiger, *Panthera tigris* or *Felis tigris*, is a large and much dreaded carnivore living in forests of Asia including India. Its coat is orange-yellow, striped with black. Tiger is solitary and male has no mane. It can kill the largest herbivorous animals and attacks even man. Since 1972, the tiger has become the national animal of India. Under save tiger project, it is protected in several sanctuaries such as at Sariska, Ranthambore, Simlipal, Corbett, etc.

Hyaena (Hyaena)

Family : *Hyaenidae*
Genus : *Hyaena*
Species : *hyaena*

Heaena is a scavenger feeding chiefly on carrion. It looks like a dog, but its hind quarters are low, while front quarters are heavy with massive jaws and neck and large ears. Cheek teeth are well developed for crushing. Limbs have 4 digits with non-retractile claws. Spotted or laughing *hyaena* (*Crocuta*) of African plains produces a characteristic laughing cry when excited. The striped Indian *hyaena* (*Hyaena striata*), commonly called "Lakad baggha", is nocturnal, lives in burrows, and also produces sound similar to crackling human laugh.

Jungle Cat

Family : *Felidae*
Genus : *Felis*
Species : *chaus*

Felis chaus and *Felis affinis* are commonest examples generally distributed both in jungles and settled areas of Nepal. Its colour is yellowish to sandy grey with black rings on its short tail. It has longer limbs and larger than the domestic cat. It is distinguished from domestic cat by the shortness of the tail and uniform tawny colour. It is also found in the suburbs of India.

Sorex (Shrew)

Family : *Hyaenidae*
Genus : *Hyaena*
Species : *striata*

Shrews superficially resemble mice. The smallest mammal known is the pigmy shrew (*Sorex*), which is 4-5 cm long and weighs about 3 grams. The common long-tailed shrew, *Sorex araneus*, ranges through moist areas of Europe and Asia. Body is slender, about 7.5 cm long, with a short, dense fur, short legs, sharply pointed sensitive, bewhiskered muzzle or snout and small weak eyes. They live in burrows but come out on surface at night. Cats avoid eating them because of their rancid odour. They have high metabolic rate and enormous appetite. The Indian genus is *soriculus* commonly known as "chuchunder". *Suncus marinus* is the common short-tailed shrew.

Melursus (Sloth bear)

Family : *Ursidae*
Genus : *Melursus*
Species : *ursinus*

Bears are the largest carnivores, heavily built, with short powerful legs, plantigrade feet, short tails, and elongated snouts. The polar bear (*Thalarctos maritimus*) of the Arctic

region is the biggest and strongest predator which feeds mainly on fishes and seals. It has a dense white pelage and fully furred feet. The sloth bear (*Melursus ursinus*) found in India has body covered with long and coarse black hairs with a white crescentic mark on chest. Lower lip is elongated, tongue extensible and some of the teeth rudimentary. They feed on fruits, honey and insects, and can climb trees. The grizzly (*Ursus horribilis*) or brown bear (*Ursus arctos*) is found in Europe, Asia and N. America. The Himalayan black bear is *Selenarctos thibetanus* with a white V-shaped mark on chest.

Erinaceus (Hedgehog)

Family : Canidae
Genus : *Canis*
Species : *aureus*

Hedgehog range throughout Europe, Africa and Asia. They have a small globular body, pointed snout, stumpy tail and short legs. Skin is covered with short barbless spines intermingled with hair, except on the belly. When disturbed they roll up into a ball for protection, so that the spines project outwards like pins in a pincushion. They are omnivorous creatures feeding on insects, snails, young birds and snakes. It lives under bushes or in subterranean channels. Common Indian name is "*Jhau Chuha*". Common Indian genera are *Erinaceus*, *Hemiechinus* (Rajasthan) and *Paraechinus* (South India).

Canis lupus (Wolf)

Family : Canidae
Genus : *Canis*
Species : *lupus*

Wolves are restricted to the relatively uninhabited areas of N. hemisphere. They have slender limbs and are generally good runners moving on the tips of their toes (digitigrade). They hunt in packs of about 30 and prey on small mammals. *Canis lupus* has coarse brown or grey fur, bushy tail and pointed ears. It is a great menace to stock raisers, killing calves and other young domestic animals.

Elephants

Family : Elephantidae
Genus : *Elephas*
Species : *maximus*

Elephants are characterised by the massive body, mobile trunk with terminal nostrils. Five toes enclosed in a common sheath in each foot with short hoofs. Incisor teeth are in the form of two very large cylindrical ever growing and curved tusks in upper jaw. Canine teeth are absent. Mainly vegetarian.

The family includes two species of elephant: (1) Indian or Asiatic elephant, *Elephas maximus* and (2) African elephant, *Elephas africanus*.

Equus (Horse, Ass, Zebra)

Family : Equidae
Genus : *Equus*
Species : *hemionus*

The horse family Equidae, which also includes asses and zebras, are large, fast running animals having only one functional toe with a large hoof on each foot. They live in

herds. Their molars are specially well-developed for grinding plant food. *Equus caballus przewalskii* of Mongolia is the only surviving wild horse from which all the 50 to 60 domesticated races have descended.

While Asiatic wild ass is *Equus hemionus*. They are on the verge of extinction. Their domesticated variety is known as donkey. The main differences in the external features of an ass or donkey and a horse. *Mule* is the hybrid between male ass (jack) and female horse (mare). It has the stamina of ass and size of horse, but is sterile. Similarly, the cross between male horse (stallion) and female ass is called *hinny*. Zebras (*Equus zebra*) are found in open grassy lands of Africa. They resemble an ass except that their white or buff coloured body is fully striped with black or brown, and they are seldom domesticated.

Barahsingha or Swamp deer, Cervus duvauceli

Family : Cervidae
Genus : *Cervus*
Species : *duvauceli*

This deer is found in large number in grassy plains of western Terai of Nepal. Few animals live across the border in northern and central India. Now they are conserved in Shukla Phanta wildlife reserve. Bryne (1968-69) estimated the number of these deer as 1250 during winter months. He has also mentioned that it is the largest population concentration in Asia. According to him, the central India herds are very much reduced and the remaining one are scattered groups in North Uttar Pradesh of India.

Swamp deer is very shy animal. Schaaf (1975) mentions that they do not congregate to form herds. During rutting season stags roam in search of receptive females. Master stag does not have any harem during rutting season in Shukla phanta reserve.

Manis (Pangolin)

Family : Antelopidae
Genus : *Manis*
Species : *aurita*

Manis is commonly known as scaly-ant-eater or pangolin. It is fairly large animal, measuring upto 2 metres in length including the tail. Body is covered by imbricate epidermal scales arranged in trunk region on the back and at the sides and in the tail above and below. Scattered true hairs occur between the scales. The snout is elongated and the teeth are entirely absent. The eyes are small and the ears are reduced. The tongue is long, sticky and protrusible. The limbs are short and bear five digits. Fore-limbs have well developed claws. Nocturnal and burrowing in habit. Feeding on ants and termites. This animal has the habit of rolling into a ball when alarmed. At the time of walking the claws are bent under the soles and the hind-limbs are plantigrade.

Distribution

Manis or Pangolins are found in A, C and E sites of the Sanctuary.

Sus (Pig)

Family : Suidae
Genus : *Sus*

Species : *scrofa*

The wild boar or pig, *Sus scrofa*, found in the woodlands of Europe, N. Africa and almost whole of Asia, is the ancestor of all domesticated pigs used for meat (pork) and fat (lard). Its stocky body is covered with short stiff hair. They have a long head, mobile snout and canines of both jaws curved upwards for rooting. There are 4 toes on each foot, but only the 3rd and 4th reach the ground. Stomach is simple, food is both plant and animal, but they do not ruminate.

Sambar, *Cervus unicolor*

Family : Cervidae
Genus : *Cervus*
Species : *unicolour*

In the members of this family except in reindeer and caribou, males possess branched horns or antlers. Horns of deer differ from hollow horned ruminants as they have no horny sheath and are periodically shed and renewed. Widely distributed. This family is divided into two sub-families.

Chital or Axis or Spotted deer

Family : Cervidae
Genus : *Axis*
Species : *axis*

Axis axis is the most beautiful deer. It has fawn coloured coat spotted with white. Antlers are very-long and not palmated. They occur along forest edges bordering on cultivations or grasslands in Chitwan Dun and Terai. These deer are large; height at shoulder is about 0.95 m.

Barking deer (*Muntiacus muntjak*)

Family : Cervidae
Genus : *Muntiacus*
Species : *muntjak*

Muntiacus muntjak is a common deer found at an altitude of 915-274 m. in Mahabharat Lekh and Middle hills in the subtropical and temperate zone. It is also found in the grassy country of the lowlands.

Wild Buffalo (*Bubalus bubalus*)

Family : Bovidae
Genus : *Bubalus*
Species : *bubalus*

Bubalis bubalis has outline of the black as nearly straight. Horns are crescentic and big. Ears are of moderate size. It measures about 1.82 m. at shoulder. Wild water buffaloes are very robust, stronger and large animals. Both sexes are blackish gray in colour. These mammals are very ferocious and are very dangerous, especially in dense cover. Sometimes even tigers are being defeated by large bulls. They are closely related to domestic buffalo and sometimes interbreed.

These mammals are very limited in number estimated to be about 63 individuals according to Dahmer (1976).

Gazella gazella

Family : Antelopidae
Genus : *Gazella*
Species : *gazella*

Gazella bennetti and *Gazella gazella* are commonly called Chinkara also. These antelopes are confined to the plains of

Nepal. Both sexes have horns which are medium to long. Hornless females are also seen. They are straight or curved like an 'S'. All horns have rings. Small head has a narrow muzzle. Eyes are large. Preorbital glands are well developed.

Acinonyx (Cheetah)

Family : Felidae
Genus : *Acinonyx*
Species : *jubatus*

Cheetah or hunting leopard, *Acinonyx jubatus*, inhabits grasslands and semideserts of Africa and S.W. Asia. It is 1.5 meters long, leanly built and with non-retractile claws. It is the fastest running land animal reaching a top speed of 70 miles per hour. It hunts in groups. Easily tamed they make docile pets. Cheetah became extinct in India early in the present century.

Other Mammals

Many and wonderful are differences we find among mammals living today. Their diversity seems almost infinite. They differ widely from one another in their mode of life and in their adaptations to environment, showing great adaptive radiation. Only some of the more interesting groups are being presented here.

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