

# Mammalian Diversity Of Central Aravalli Mountain Range With Special Reference To Rajgarh And Adjoining Areas Near Ajmer

Paper Id : 19168 Submission Date : 2024-07-11 Acceptance Date : 2024-07-21 Publication Date : 2024-07-25  
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DOI:10.5281/zenodo.13626567

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<b>Abstract</b>	Aravalli is the Oldest mountain range found as a residual mountain and broken residual hills. Central Aravalli including Aravalli range spread as parallel ranges and continuous rocky terrain interrupted by Valleys and sand dunes mainly spread Ajmer and Rajsamand districts. The Ajmer Aravalli including Rajgarh hills, Badliya and Pushkar Valleys are very rich in Mammalian biodiversity. The exploration and intensive trips were made during the year of 2020 , 2021 , 2022-23 revealed a total 31 large and small mammalian species of animals. wild boar ( <i>Sus scrofa</i> ) , Porcupine, ( <i>Hystrix indica</i> ), Mongoose ( <i>Herpestes edwardsii</i> ), Civet ( <i>Paradoxurus hermaphroditus</i> ), Hedgehog ( <i>Erinaceus europaeus</i> ), Siyar ( <i>Canis aureus</i> ), Panther ( <i>Panthera pardus</i> ) and Sloth bear ( <i>Melursus ursinus</i> ) are few rare species studied. Although the mammalian diversity reflects a satisfactory appearance, the habitat destruction, deforestation, Poaching and changing land use patterns are major and serious threats for these beautiful animals involved in ecosystem stability.
<b>Keywords</b>	Habitat destruction, Deforestation, Residual Mountain, Poaching, Rocky terrain, Ecosystem Stability.
<b>Introduction</b>	Rajasthan is the largest state of India, located in North-western boundary of the country. Four districts of the state borders the nearest western country of Pakistan, with the extension of Thar Desert in it. The total geographical area of the state is 3,42,239 km <sup>2</sup> with the extension of 23° 3' N to 30° 12' N and 69° 30' to 78° 17' East. The principal geographical and geological factor which determines the overall climate of Phytogeography and Zoogeography is the Aravalli range. Mammals derive their name from the specialized milk producing and secreting glands present in the female parent for their feeding. Mammals are very special and unique organism on the basis of their anatomy, morphology, physiology, ethology and ecological perspectives and habitual attributes. They were originated Mesozoic era from early therapsids of triassic period, which are considered as a connecting link between reptiles and early mammals. Most of modern day mammals are related to synapsids which initially originated in the carboniferous period. Modern day mammals are characterized their heterodonts, jaws, hearing, four chambered heart, hairs on the body, live birth, ear ossicles large braincase and expanded new cortex of the brain associated with their greater capacity and intelligence.
<b>Objective of study</b>	The objective of this paper is to study the Mammalian diversity of Central Aravalli Mountain range with special reference to Rajgarh and adjoining areas near Ajmer.
<b>Review of Literature</b>	The Aravalli mountain range runs in oblique direction from south-west to north-east direction from the State of Gujarat (Khedbrahma) to the Raisina hills in Delhi with a total length of 692 kms. The total 80% length is 550 km falls in Rajasthan (Bhalla R.L., 2018, Sharma SK and Sharma S ,2002). There are four major geographical and well defined climate zones in Rajasthan i.e The Thar desert with dry and Hot climate, The Aravalli mountain Range with moderate Climate, the Eastern plain with agriculture belt and the Haroti plateau and Mahi basin with highest rainfall and evergreen climate. (Saxena H.M. 2019; Chouhan T.S. 2020). Although the state principally falls in the Tropical zone and the rainfall is irregular and scanty with frequent droughts and famines, it is a treasure trove of biodiversity. The Central Aravalli Range mainly located in the Ajmer district and the Rajsamand district and harbors two wildlife sanctuaries namely Raoli – Todgarh and Kumbhalgarh wildlife sanctuary with a wide spectrum of floral and faunal diversity. The vegetation of the Area is characterized by a quite Xerophytic and Mesophytic as the area is located in the center Heartland of Rajasthan and is a transitional zone between the

Thar desert in the west and Mewar plains in the south-east direction. The main vegetation is defined as deciduous and dry deciduous spiny forests dominated by trees and shrubs namely *Prosopis cineraria*, *Prosopis juliflora*, *Zizyphus nummularia*, *Zizyphus mauritiana*, *Salvadora persica*, *Capparis decidua*, *Capparis sepiaria*, *Acacia nilotica*, *Acacia senegal* etc. in the rocky terrain and rocky valleys with sandy plains, while at the upper reaches and height of hills. *Anogeissus pendula*, *Sterculia urens*, *Ficus species*, *Grewia davine*, *Acacia senegal*, *Acacia catechu*, *Boswellia serrata* and many species of Figs are common plants. The vegetation near by the river banks is dominated by Figs, *Grewias*, *Jamuns*, wild mangoes while in sand dunes spiny *Acacias*, *Acacia senegal*, *Euphorbias*, *Cactus* and *Zizyphus* species are common plants. The Faunal component especially the mammals which are directly or indirectly dependent for the regelation and plants of diverse nature in turn create a huge and varied nature of the diversity. Rocky and hilly terrain, large Sand dunes, high mountain peaks, large plateaus, sandy agricultural plains, valleys etc. a wide variety of Mammalian and other animal diversity. The mammals may be of many different types ie are Residents, Occasional visitors, migrators etc. The commonly occurring mammals are Mongoose (*Herpestes edwardsii*), Small Indian Mongoose (*Herpestes auropunctatus*), Striped palm Squirrel (*Funambulus pennanti*), Rhesus monkey (*Macaca mulatta*), Blue Bull (*Boselaphus tragocamelus*), Hare (*Lepus nigricollis*), Indian Gerbil (*Tatera indica*), House rat (*Rattus rattus*), Indian Field mouse (*Mus booduga*) Indian mole rat (*Bandicota bengalensis*) Sambhar (*Cervus unicolor*), Chital (*Axis axis*), Jackal (*Canis aureus*), Bat (*Pteropus giganteus*), langur (*Semnopithecus entellus*), wild cat (*Felis lybica*), Hedgehog (*Paraechinus micropus*), Panther (*Panthera pardus*) Indian wild Boar (*Sus scrofa*); are common and occasionally appearing mammals and usually spotted by a common man in the middle Aravalli's shrublands forest and agricultural belts (Sharma, S.K. ; Sharma, S and Sharma, S., 2003)

### Methodology

Assessment and studies of Mammalian fauna were carried out during the years of 2020 and 2021-22 with regular intervals at least thrice in a year. The citing was managed in every important time especially that of evening, morning, noon and rarely in Night for the nocturnal mammals such as wild cats, Jackals, foxes, wild boars etc.

Following methods were used.

#### For Collection of Primary Data (Direct Method)

##### Field survey

\* Olympus binocular (840) and relevant field guide and Taxonomic keys were used for proper siting and identification purposes. Binocular (840) is efficient for observation of the mammals which are running or located at a distance.

\* Photography was done for both kinds of mammals that may be visiting during the day and during the moonlight night with Nikon cameras. The photographs were taken using a Nikon camera.

#### The small Mammals and citing technique for (Quadrat method)

The line transects and square quadrats were used for small mammals. The transects of 50 Meter lengths for collection of dung, hair and excreta and 44 m<sup>2</sup> quadrants were used for observing small mammals and their associated remnants like dung, dung pellets, hairs, hoofs, foot prints etc.

##### Indirect method

During the field visit indirect identification methods were also used. Animal signs such as with dung pellets, scats, quills, Kill and Burrows with footprint (Pugmarks) which indicate the presence of the animal in the particular areas; were observed carefully and photographed with proper plinth.

#### Secondary Data collection

For the collection of the secondary data two ways or techniques are important were utilized;

##### Rural survey / Villager's Interviews

Rural people especially farmers, Cattle herders and tribal people who frequently visit the hills, sand dunes, forests and Valleys with grasslands and agricultural fields are masters of the faunal diversity and plants in the area. Hence, When Pictorial guide, and Photographs were shown during the interaction with these people and their responses

were noted and added as a fact; for identification and making checklists of the small & large herbivores and carnivore mammals.

#### **Data collection from forest department and wildlife experts.**

A general checklist and information of the mammalian faunal diversity, which has been previously recorded and documented at the forest and wildlife department of the state is a primary source of information, were utilized. The confusing and difficult mammals especially, smaller ones, Nocturnal, large predatory carnivores such as panther etc. and those which are identified by the minor differences at the species level are identified with the help of the wildlife experts and field zoologists, professors and research Scholars in the field.

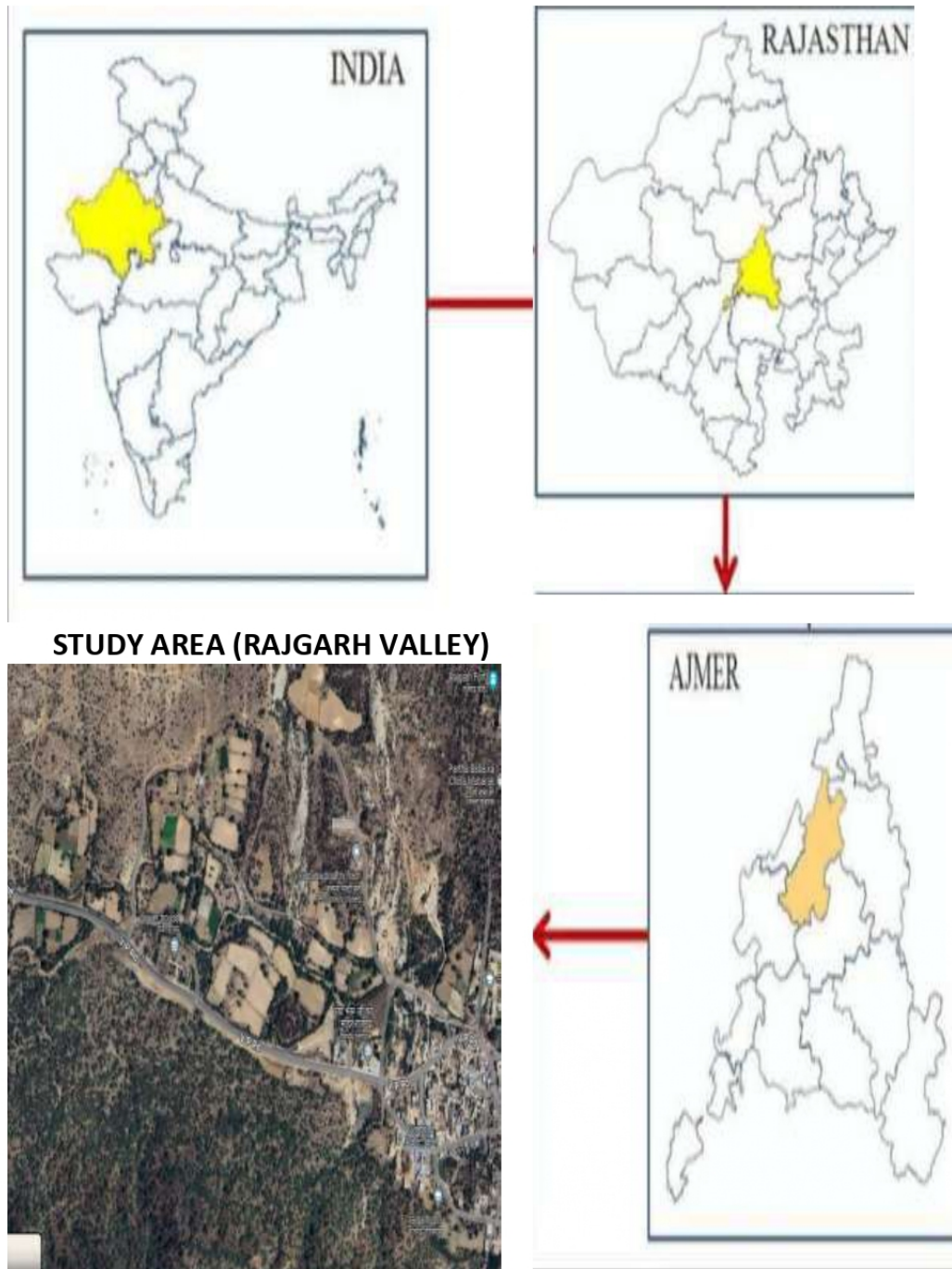
#### **Statistics Used in the Study**

#### **Historical and Geographical Aspect**

Ajmer is situated in the central part of Rajasthan, between 25°38' and 26°58' north latitudes and between 73°54' and 75°22' east latitudes. It is bounded on the north by Nagaur district, on the south by Bhilwara district, on the east by Jaipur and Tonk districts and on the west by Pali district. Rajgarh village is located in Nasirabad tehsil of [Ajmer](#) district in Rajasthan, India. It is situated 15km away from sub-district headquarter Nasirabad (tehsildar office) and 21 km away from district headquarter [Ajmer](#). As per 2009 stats, Rajgarh village is also a gram panchayat. The total geographical area of village is 1629 hectares. Rajgarh has a total population of 2,092 peoples, out of which male population is 1,068 while female population is 1,024. Literacy rate of Rajgarh village is 57.84% out of which 66.01% males and 49.32% females are literate. There are about 389 houses in Rajgarh village. Pin code of Rajgarh village locality is 305205. Ajmer is the nearest town to Rajgarh for all major economic activities, which is approximately 21 km away.

#### **Topography & Climate**

The district is surrounded by the Aravalli ranges. Nag Pahar range of mountains separates the district from the Thar Desert and safeguards it from the sandy storms that flow from the desert. In the east, the district is plain land, while in the west the area is hilly since it is close to the Aravalli ranges. The western part of the district comprises many valleys of sandy deserts, which are a part of the Thar Desert. There are portions of land with fertile soil as well where cultivation is possible. There are five rivers which flow through the district viz. Banas, Khari, Sagarmati, Saraswati, and Rupnagar. All rivers are mere rivulets in hot weather but become torrents in the rains. Additionally, there are many lakes as well, like Pushkar Lake, Foy Sagar Lake and Ana Sagar Lake. Ajmer district lies in the Semi-Arid Eastern Plains Agro-Climatic Zone, according to the classification by the Department of Agriculture, Government of Rajasthan. Soils in this zone are sierozem. The eastern part is alluvial, west and north-west regions have lithosols while the foothills are characterized by brown soils. Commonly grown crops in this zone in kharif season are pearl millet, sorghum and cluster bean and in rabi season are wheat, mustard and gram.









Observation Table

The zoological name of the species	Common name	Habitat subtype	Major Threat	Conservation status (IUCN. latest 2018-2024)
<i>Axis axis</i>	Chital /hiran	Plains / Ag land	Poaching	Not evaluated
<i>Boselaphus tragocamelus</i>	Roj /rojda	Ag land / Plains	None/Nil	Not evaluated
<i>Bandicota bengalensis</i>	Mole / Chuchundar	Store houses of grains	Nil	Least concern
<i>Cynopterus Sphinx</i>	Short nose of fruit bat	Trees	Loss of Tree cover	Least concern
<i>Canis aureus</i>	Jackal/siyar	Rocky terrain	Habitat loss	Near threatened
<i>Felis lybica</i>	Desert cat	Sand dunes	Habitat loss	Vulnerable
<i>Felis silvestris</i>	Bilav / wild cat	Forest / Rocky terrain	Habitat loss	Near threatened
<i>Felis Caracal</i>	Desert lynx	Forest / Rocky terrain	Habitat loss	Near threatened
<i>Funambulus pennantii</i>	Five striped palm squirrel	Omnipresent	Loss of Tree cover	Least concern

<i>Golunda ellioti</i>	Bush rat	Shrub land	Habitat loss	Least concern
<i>Hystrix indica</i>	Indian Sehi / Porcupine	Shrub and Rocky terrain	Habitat loss	Vulnerable
<i>Hyaena hyaena</i>	Iakarbaggga	Forest	Habitat loss	Vulnerable
<i>Herpestes edwardsii</i>	Common mongoose	Plains	Habitat loss	Least concern
<i>Herpesles smithii</i>	Forest mongoose	Forest	Poaching	Least concern
<i>Herpestes javanicus</i>	Small Indian mongoose	Plains / Dunes	Poaching	Least concern
<i>Mus musculus</i>	House mouse	Human settlement	Loss of Tree cover	Least concern
<i>Mus booduga</i>	Field mouse	Agri land	Nil	Least concern
<i>Melursus ursinus</i>	Rich sloth bear	Rocky / Hills terrain	Habitat loss	Critically endangered
<i>Panthera pardus</i>	Panther/nar	Rocky Hills	Habitat loss	Vulnerable
<i>Macaca mulatta</i>	Hanuman langur	Trees / Arboreal	Tree loss	Least concern
<i>Semnopithecus entellus</i>	Monkey	Rocky Hills	Habitat loss	Least concern
<i>Pteropus giganteus</i>	Flying fox	Rocks	Loss of Tree cover	Least concern
<i>Pteropus rodricensis</i>	Fruit bat	Trees / Fig trees	Loss of Tree cover	Vulnerable
<i>Tatera indica</i>	Indian Gerbil	Plains	Nil	Vulnerable
<i>Gazella bennettii</i>	Chinkara	Sand Dunes	Habitat loss	Near threatened
<i>Antilope cervicapra</i>	Black buck	Sand Dunes	Habitat loss	Near threatened
<i>Sus scrofa</i>	Wild boar	Rocky Hills / Agri land	Poaching	Least concern
<i>Manis crassicaudata</i>	Pangolin	Rocky terrain	Poaching	Least concern
<i>Lepus nigricollis</i>	Hare	Shrub and Agri land	Poaching	Least concern

#### Conclusion

Total 31 Mammalian species were encountered and studied which are present in the Aravalli range of Aimer, especially Rajgarh Hills, Nag Pahar, Badiya valley, Pushkar valley, sand dunes near pushkar and Govindgarh Rocky and Hilly mountain tracts of Taragarh Hills

MangaliyawasNasirabad and Sandra village. The ever increasing population encroachments in the habitats of the wildlife and resulting fragmentation of the habitat are a major threat to the mammalian biodiversity of the area. At the same time tree cutting and expansion of human settlement as well as poaching of small mammals is another threat. The large predatory mammals present in the area are leopard, Jackal, Hyaena (Iakadbagha) etc. Whereas small carnivores are civets and other related cats, Desert cat and Bilav.

Large herbivores include Roj / Nilgai, chital, Sambhar, wild boar, Black buck etc. Smaller ones are House rat, Mole, Grey musk shrew, five striped palm squirrel. Arboreal Animals are etc. Monkeys, langurs, flying foxes, bats etc. Indian wild Boar, Indian Porcupine, Indian grey musk shrew, Brown Mongoose, siyar, Jackal, Hedgehog, Pangolin, civet are very rare mammals in the area.

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