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Bio-geographical Distribution of Wild Life Scenario in Jhunjhunu Region, Rajasthan

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Abstract: ***The district is irregular hexagon in shape in the northeastern part of the State lies between 2702" east longitudes. It is surrounded by Churu district on the northwestern side Hissar and Mahendragarh district of Haryana State in the northeastern part and by Sikar district in the west, south and south eastern part-2. For the propose of administration the district is divided into five administrative subdivision viz, Chirawa, Udaipurwati, Jhunjhunu, Khetri and Nawalgarh Six Tehsil viz Jhunjhunu, Chirawa, Khetri, Nawalgarh, Buhana, Udaipurwati and eight Panchyat Samities viz Jhunjhunu, Chirawa, Khetri, Nawalgarh, Buhana, Udaipurwati, Alsisar and Surajgarh.***

1.1. STUDY AREA :

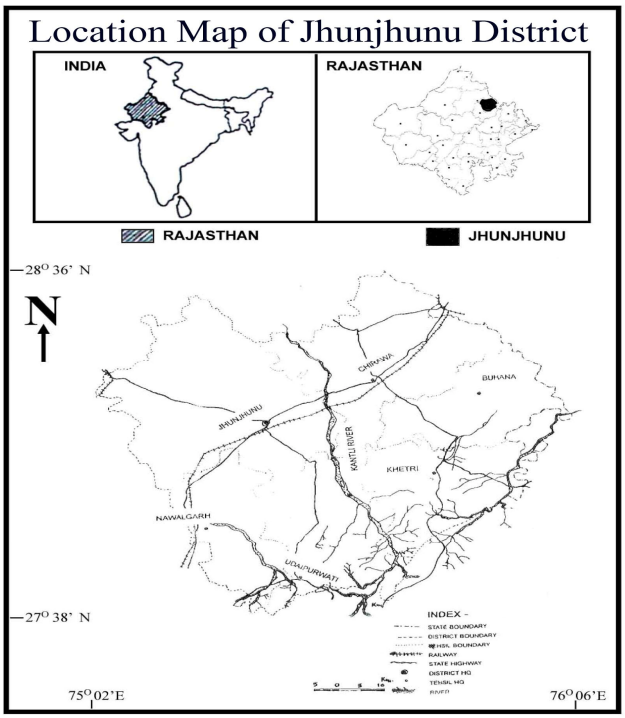
The total geographical area of the district is 2928 square Kms. This stands at 1.73 percent of the total area of the state from the points of area, Jhunjhunu district stand at 22nd place among the existing 33 districts of the state most of the part of the district is coerce by blow sand and dunes which for part of the great that desert sand shifting and active dunes are main hazards to cultivation. Soil erosion is the Result of constant deforestation and mining activity which have resulted in baring the slopes.

The hilly area in south eastern part of district is characterized by hills of Aravalli range, running in north easterly direction. The highest peak, 1051 m high is in the south of Lohagar village bordering Sikar district. Hills are almost barren of vegetation except a few bushes of acacia and cactus.

The undulating area with small isolated hills having steep slope lies in the south western part of district. The major portion of hills is found in Khetri and Udaipurwati tehsils. The general elevation above mean sea level rests between 300 and 450m Quaternary level forms are represented by sand and colluvial deposits of talus and scree at piedment slopes.

The desertic plain generally lying at an altitude of about 300m amsl occupies the northern part of the district and is covered with sand dunes. The general slope of the area is from south to north. Sand dunes are drifting in nature.

District Jhunjhunu is situated in Arid Rajasthan plain known as Rajasthan. It comprises of Rolling hills, some of the arrival ranges in the southeastern side running in the south eastern Direction and range of the Aravali Hills in extreme southeastern of Udaipurwati existing towards Singhana and Khetri in the east, viz Nawalgarh-Khetri upland its general elevation above means sea level is between 300 to 450 meters.



The highest peek is in the south of Lohagarh village and its height is 1051 meters, this is no perennial river in the district katti and Dohan are only seasonal rivers. River katti originated from Khadela hill sides of Shrimadhopur Tehsil. Sikar and enters near south west of Udaipurwati tehsil running towards north –west direction and ultimately disappears in the sandy tracks of the Churu District. This river, however, divides the district almost into two parts. Similarly Dohan River also originates from Shrimadhopur hills and flows to north –eastern direction passing through some eastern part and ultimately disappears in sandy tracks of Mahendragarh district of Haryana Besides, there. Major streams of Udaipur Lohagarh ki nadi chandrawati and sukh nadi. There is no lake in the district however small tanks are in existence in some areas. There are only four tanks used for irrigation purposes. There is also a bound of "Ajit Sagar" about 11Km. from Khetri on Nizampur road.

The district of Jhunjhunu is poor in forest resources as the total area under forest including hills is reported to be 39613 hectares which is 6.65 % of total geographical area of the districts. The forest coverage is below the state average of about 9 % under forest. If compared to the 13 % of forest area at national average. The district comes out to be roughly half of the matomn average.The major species available in forest is 'Jant" tree or Khetri (prosaic specigera) it is found in abundance and is utilized' for various purpose as providing folder to the animals supplying fuel for domestic purpose and checking sole erosion. Other species found are Babul, Shisham, Neem, Pepal, Hingotia, Karli, Akara, Mango trees, Ber tree etc. Among the wild animals, Baghera, soor, Languor, Lakkar Bhaga, Bhedia, Lomari, Gidar, etc. are generally found snakes other poisonous and non-poisonous are also found in the district.

1.2. INTRODUCTION :

Among the dominant wild faunas, Panthera pardus (Baghera),Susserofa crestatus (Soor), Presbytis entellus (Langur),Hyaena hyaena (Jarakh), Canis lupus (Bhedia), Canis aureus (Gidar), Felis chaus (Ban Bilau), Vulpes bengalensis (Lomari), Boselaphus-tragocamelus (Roz), Golunda ellioti (Jhadi Undra), Lepus nigricollis ouieaudatus (Khargosh), Funambulus spps. (Gilheri), Herpestes edwardsir (Nevla) and Hemiechuiescollaris (Jhau Musa) are found in the region.

Large Mammals consists of Felis chaus, Hyaena hyaena, Lepus nigricollis ouieaudatus, Vulpes bengalensis. Adaptations of domesticated faunas living in deserts like camels, sheep and goats, donkeys, but not on wild faunas, In general, all herbivorous desert mammals need drinking water, whereas carnivorous desert mammals can apparently do without. With exception of large grazing species, most of species are exclusively night active. 1. Activity pattern; grazing activity by diurnal faunas is synchronized with favourable environmental conditions as described for rodents, with resting and hiding in shady localities during hot hours. 2. Water balance (a) evaporative cooling is achieved by panting and sweating, (b) many species are capable of surviving long periods without drinking water, (c) some are capable of losing body mass by water loss without change in volume and composition of blood, (d) water loss may be restored in few minutes by large drinking capacity, (e) faeces are relatively dry and (f) glomerular filtration rate and urine flow rate are reduced. 3. Heat Balance (a) there is facultative hyperthermic and nocturnal hypothermic (b) counter current heat exchange occurs and (c) fleece may provide protection against overheating and excessive water loss. 4. Nutritional balance (a) food reserves are built up during favourable season for use during meagre summer months and (b) metabolic rate are relatively low and food requirements modest.

All faunas are migratory and do not stay at one place but their movement are within a certain territory. Each species of faunas has its own habitat where it develops, grows and procreates at the optimum level.

Therefore their distribution pattern can be identified in an area and this pattern represents the habitat conditions where a particular species can stay for a longer period if the optimal environmental conditions continue to preveail.

The panthers prefer to avoid those areas where the tigers live in order to avoid any competition with the super-predator usually, they have been found to live on the fringes of the Region where the land is most rugged. Panthers and usually shy of coming out during the day. They come out in the night and make the kill in late hours when the entire jungle activity has ceased. Among the other faunas, the four species of herbivores, found predominantly in the Region are well distributed. Their preference to live in certain pockds is obiously visible chiefly on account of the availability of water forage and grasses, climatic conditions and the human activities.

It was noticed that most of these faunas form their largest concentrations around the lakes. Heavy traffic of buses, automobiles and padestrians in this area scares the faunas to inhabit this place. Large concentrations of faunas exist in the well-crowned valleys on account of cool atmospheric conditions.

1.3. DOMINANT ANIMAL SPECIES :

Panthera pardus (Panther) : Panthers are found all over India depending upon the availiability of food. They are very powerful faunas and may scramble up a tree with a good-sized deer. The fauna is a predator and can climb up a tree and boune upon its prey from a tree. It can kill its prey but can also free upon the carcasses and left-overs of the tigers and the lions. It can become a cattle-lifter or man-eater also and is a very cunning fauna, which is dreaded more than the tigers and lions. The Region as sufficient number of these faunas and provided full protection. They live in caves, valleys, thick forests, crests of the mountains and in various other habitats where food and water are avatlable for them. They are mostly nocturnal and hunt for their prey in late evening or night.

Sus scrofa (Wild Bear) : This wild fauna exists in large number in the Region. It is highly gregarious, omnivorous and bold fauna. The adult male may sometimes prove a match even for the tiger. It is a fast breeder and so the number somtimes increases enormously. It prefers to live in the plateau areas of the Region sustaining mainly upon the grasses.

Hyaena hyaena (Striped Hyena) : The fauna belonging to the cat family is widely distributed in the Region, particularly inhabiting the areas of high grasses, bushes and mountain caves where it can find shelter. It generally feeds upon carrions, carcasses and left-overs of the tiger and is therefore called a

scavanger. At times it may even Iift small grazing faunas Iike sheep and goats or even the human babies.

Canis aurevis (Jackls) : These faunas move in large packs and surround a single herbivore fauna forcing, it to surrender and be killed. Belonging to the cat family these faunas are nocturnal and usually feed upon the left overs they mostly inhabit those areas of the Region where panthers live, so that food is easily available to thcm.

Vulpes bengalensis (Wild Fox) : These faunas are not so widespread in the Region. Generally shy of coming out of their burrows they are usually seen at night often preying smaller faunas. The colour is usually dull brown to ash black. They inhabit the sandy areas of the Region.

Boselaphus traqocamelus (Blue Bull) : Also called as Neelgai/Roz, this fauna belonging to the class of antelopes is very heavy and has a distinctive irony grey colour and short horns, the maximum length of which may reach 30 cm. Blue-bulls are tall and the maximum heights at the shoulder may reach 145 cm. They are heavy graziers and finish the most tender parts of the grasses in time. The faunas prefer to live in thickly shaded areas. They move in small packs and have the habit of depositing their faecal matter at one place in large heaps. The fauna can remain without water for a considerable time. Owing to their heavy size they cannot run fast and so fall an easy prey to the predators.

Presbytis entellus (Common Langur) : This fauna with a black mouth, ash-coloured body and a along tall is very common in the Region. Mostly living on the top of trees the fauna run taking long leaps on the ground. The favoured habitats of this fauna are thick forests having trees of succulent berries and fruits. Half eaten fruits are dropped by these faunas on the ground and these fruits are eaten by the Nilgai and other types of antislopcs, which remain sitting on the ground. They provide a suitable example of mutualism in the Region. Besidcs the above mentioned wild faunas, some others also exist in the Region but they are neither enumerated nor ever thought of any significance. Nonetheless, they impart a variety to the fauna of the Region and add to its wealth.

Lepus nigricolis inficandata (The Hare) : Among them the most common fauna is the hare (Lepus nigricolis inficandata) which is a burrowing fauna, having a small tail. The fauna is white to pinkish in colour and is considered to be abundant. They are commonly found in the Region, so census opretation for this species is not required. Taking long leaps on the ground the fauna runs in its close vicinity and somtimes tails a prey to the panthers.

Herpestes edwardsir (Mongooses) : Similarly mongooses are abundant. They live in small holes of the rocky surfaces and can be seen moving on the ground hiding themselves behind the grasses and shrubs. The fauna kills snakes and serpents and gives a tough fight even to the deadliest, poisonous varieties of snakes.Thus it is useful in maintaining the biotic equilibrium.

Felis Chaus (The jungle cats) : The jungle cats (Felis Chaus) feed upon the small kills or the carcasses of faunas and are flesh-eating faunas. Other faunas of the cat family which are present in the Region are caracals (Felis caracal). A Series of developmental activities related with human during last 25 years in the Region has worsened its ecological conditions. By all these activities a large area of forest have been converted into farm land and deplitation of ground water is reached at alarming situation and water and pasturage even in summer scare for herbivores. Gradual decline in flora cover and change in climo-vegetational factors converted the area in to a unformable habitat. Although, the Region is still living and colourful to support rich varied fauna life like the Jungle cat (Felis enaus,), Jackal (canisa ureus), Falcons, and the rarest of the Indian faunas the Neelgai/Roz (Boselaphus-tragocamelus), which are facing extinction throughout India as well as in Jhunjhunu (2011). The Region is rich and varied in birds like, Passer domesticus (Chiri), Corvus splendens (Kawwa), Corvus macrorhynohes (Kagla Bada), Columber Livia (Kabutar), Streptopelia decactor (Holda), Ploceus phillippinus (Baya). Psittacula Krameri (Tota), Dinopium bengalensis (Khati Chira), Criolus oriolus (Peelak), Babu bubo (Ghughoo), Glaucidium radiatum (Ghurel), Anthene brama (Ghurel), Pavocristatus (Mor), Francolinus pondicerianus (Titar), Pterocless exustus (Bhat Titar), Francolinus pictus (Titar Kala) and Peridicula asiatice (Lawa) The habitat of these colourful faunas and birds is equally fascinating. Most of the forest area is covered with flora.

The rich insect Faunas, which is characteristic of the Region, plays a remarkable role as the micro consumer in existing ecosystem. Although most elements of this Faunas are found to be present almost throughout the year, they exhibit a high popultation build up particularly during the rainy season (July to September). They cause much loss to the growing flora.

The termites, the most destructive species are Psammotermes rajasthanious, Anacanthotelmes macrocephalus, MictroteIms species, Andontotennes species, Grasshoppers breed in the region, especially in the rainy season when sufficient moisture is available in the soft soil. These pests do much loss to the growing flora. The predatory habitat of some insects like ant (camponotus gigas) and spider are quite marked in therainy season.

The amphibian Faunas of this region is restricted to species of toad and frogs. An derson's toad (budoandersonil) is widely distributed along", the ephemeral water courses and temporary ponds. The forest is quite rich in reptilian Faunas like lizard, snakes etc.

In the Region only those faunas could survive which could adopt to the changing land form scenerio and get enough food and water to survive and increase their progeny. Special variations are, therefore, for less among the large faunas. Habitat utilization varies according to the changing seasons. Name of the wild ungulates use the aquatic habitats in a significant way in any of the seasons and others in summer when the area is dry. As the water recedes towards the end of spring and as the new grass blades start sprouting, the ungulates begin to graze on them and abound such areas.

However, the number is too low to make an impact on the growth of grasses. Feral cattle rarely come near the aquatic areas for feeding otherwise they like to live normally in the terrestrial areas and remain confined to the Tinges of wetlands. Concentration of various faunas may vary from place to place but it does not harm the ecosystem as the optimum living condition of even a single species differs from one place to another. The life cycle, living style and food habits of wild herbivores exhibit marked changes in the region.

The Neelgai have also been seen to feed upon grasses and aquatic floras in marshes. The population of Neelgai is sufficient enough to serve as a sustained food supply of the predators. Natural salt licks are fen. They are in open meadows. Artificial salt licks have been created by providing salt bricks and by spreading common salt at places in the tourist zone more the benefit of the tourists. The organisms are dependent upon the other organisms for food. This dependence gives rise

to the idea of a food chain in which there is a series of organisms dependent upon one another for food. The population of higher faunas is significant to measure the fauna wealth of the Region for the reason that they form the higher trophiolevels of feeding. The floras are eaten by herbivorous faunas in which the energy is transferred to the second trophic level.

The carnivorous faunas which form the third trophic level prey upon the herbivores and take energy from them. Amongest the carnivores there are super carnivorous which eat both the carnivores and the herbivories. Infact, if two species of faunas share the same habitat and eat the same food, there would be still competition and it is a general rule that the size of the predator population is influenced by the quantity, especially when the prey population increases each year. Prey species, such as Neelgai is in abundance in early days and have become extinct from the chain. The Neelgai depends much on water and drink it frequently, establishing its range near the water bodies but neelgai can do without water for long periods. Neelgai enjoys complete protection and are not killed for being associated with the name of cows.

The ecosystem of the Region today is dominated by wild faunas andbirds, without faunas the productivity of the reserve would decline. So it is important to maintain their all available species. The precise roles in the ecosystem amplified by protecting the Faunas and flora. The abundance of faunas both in regard to species diversity and in absolute numbers indicates that this is the only survival food chain befitting this reserve. The availability of sample food at every trophic level in this food webs is the most important factor for their survival and constant multiplication.

1.4 DOMINANT BIRD SPECIES :

Among the dominant birds, Passer domesticus (Chiri), Corvus splendens (Kawwa), Corvus macrorhynohes (Kagla Bada), Columber Livia (Kabutar), Streptopelia decactor (Holda), Ploceus phillippinus (Baya). Psittacula Krameri (Tota), Dinopium bengalensis (Khati Chira), Criolus oriolus (Peelak), Babu bubo (Ghughoo), Glaucidium radiatum (Ghurel), Anthene brama (Ghurel), Pavocristatus (Mor), Francolinus pondicerianus (Titar), Pterocless exustus (Bhat Titar), Francolinus pictus (Titar Kala) and Peridicula asiatice (Lawa) are found in the region.

Birds are most migratory of all and can fly to long distances in a single day. The avi-faunas has been less studied generally because the Region does not have peculiar types of birds; nor are its lakes and water bodies so attractive to invite migratory birds.

The common Parrot (Psittacula Krameri) are very abundant. Their common habitat are the valleys where trees leaves, seeds, fruits, insects etc. are available to them as food. They are also located under the shades of thickets and grasses searching for their food. The black partridge, peafowl, bulbuls, wood packer are also most commonly seen in the shrubs of the Region. The wood pecker has its natural abode in the thickets of dhok forest and Acacia trees.

Among the carnivores birds only Jungle crow is common. In recent years the The peafowl and The grey partridge are gradually disappearing. The Crow bird feed upon the carcasses. Few The peafowl still are seen over the hill tops from where they can have an easy sight of the carcasses and dead faunas. Some other which have been noticed in Region, especially in the winter and rainy season are the Indian sandgrouse, etc. The region deserves a special mention for its avi-faunas beafowl (Pavo cristatus) is the largest gallancious bird. It would not be wrong to Staten that the population a density of this species is highest as compared to any other reserve in India. It feeds on almost every thing including seeds, fruits, growing shoots, insects, white ants, lizards and snakes. They have not been seen feeding on left over carcasses.

The study along forest roads give an impression that the region of Grey partridges (Francolinus pondicerianus) and Bush quails (Peridicula asiatice), black partridge (Francolinus pictus) too is found in pairs but in much fewer units. Flocks of blue rock pigeons (Columber Livia) are commonly seen on trees and they rarely come on ground except for drinking. The outskirts of the reserve are full of the common sandgrouse. The blossom headed parakeets feeding on berries makes themselves conspicuous. Bulbuls (Molpestes cafer) live near water holes. At night rising of night jars from the road give a pleasant surprise owls. The homed owl fishing owl and Ghurel (Anthene bramas) are often seen at night. Species richness and diversity of all types of birds were totally same in the early years of the past century in this area. Vegetative cover and wildlife grow together and in the absence of good vegetative cover wildlife will not reproduce. So the Region has to be taken for different types of vegetative covers required for different birds. Four types of covers are needed for wild life and birds, such as all the four types of cover are available in this reserve but they need slight improvement and protection. Attempts have been made to enlist the various species of birds which were found in last 5 years and enlisted by the naturalists of that time. They may not be exhaustive as some of the bird species were not known in those times. Nevertheless, the present enumeration of the various species of birds and mammals found presently in the region gives an explosion to the fact that some of these birds and faunas have now become extinct or disappeared from the reserve.

1.5 DOMINANT REPTILES :

Snakes; both poisonous and non- poisonous; and lizards are found in the region. However, no definite information about their type is available. Reptiles e.g. lizards, snakes etc show various types of adaptations to desert environments. Lizards are feed on termites, beetles, saw-flies, moths, butterflies, while snakes are feed on warm blooded faunas using their heat sensing pits to detect prey and some species eat lizards which are easy to swallow. 1. Activity pattern; (a) through high mobility and use of stress protected microhabitats, diurnal reptiles are exposed to heat and water stress only for short periods and (b) nocturnal reptiles avoid environmental stress by remaining in deep burrows or in shady micro niches like geckos below stones. 2. Heat balance; (a) temperature control by counter-current heat exchange and cutaneous vasodilation with heating and vasocontraction with cooling and (b) colour change from dark to light may occur by contraction of melanophores. 3. Water balance: (a) prey constitute water source of carnivorous reptiles of herbivorous reptiles, (b) excess electrolytes taken up perforce from halophytes eater are eliminated through salt-gland excretion enabling fauna to balance its hydrature and osmotic potential and (c) body water is conserved by excreting semi-solid urine. 4. Reproduction : Some lizards abandon social behaviour and reproductive activity altogether during drought years.

The reasons for their extinction may be varied and range from change of habitat diversity to even killings and over shooting of faunas and birds. But in the total scenario, these facts are the pointers to conserve the habitat of this area in the most

primeval form and for the preservation of this biosphere component which is the most precious possession of Rajasthan. Similarly, with the developed habitat a few bird species have abandoned this area for whom the habitat was unsuitable for those who could not adopt them selves to the changes in a short span of time.

Faunas and floras are most important factors of ecosystem and both have co-existence with each other. Faunas help floras in survival by eating harmful insects and floras are helpful for faunas for hiding, feeding and evolutionary process. Basic difference between floras and faunas is of mobility and photosynthesis and both have developed in deserts similar convergent survival strategies. Faunas spread flora seeds in different parts which germinate during rains while trees and shrubs provide shelter to faunas. Floras and faunas have developed tendencies to co-exist in same environment without harming each other. Anatomical, morphological, ecophysiological and behavioural adjustments of floras and faunas to desert conditions can form impression that these types of adaptations are only found in desert organisms. There is not single adaptation, which cannot be found to some degree in non-desert organisms. Desert and non-desert organisms differ in this regard only quantitatively, in so far as amplitude, degree and magnitude of these adjustments are larger in desert organism than in their non-desert counterparts. In creating organisms able to survive in deserts, evolution has used basic structural and physiological characteristic attributes typical for and constitutionally present in various taxonomic groups (phyla, orders, genera), only amplifying, intensifying and combining then in various ways, without any necessity to produce adaptations exclusive to desert organism.

Faunas can survive in plantation areas especially forests, which provide protection and survival base. Existence of faunas is only possible when floras are existent. Both are major factors of ecosystem, which helps man and faunas in many ways especially meeting their short term and long term requirements. Floras and faunas are necessary for occurrence of precipitation, conservation of moisture, controlling extremes of temperature, helping in soil conservation and creating sustainable environment for survival of man and faunas on earth. The region has many inherent problems mainly low precipitation, dry climate and extreme temperatures and existence of floras in the region is pre-requisite for maintaining ecosystem.

The study of fauna life of the Region suggests that the area abounds in wild faunas and avian fauna, although suitable conditions do not exist for the latter. Nonetheless, the birds are significant parts of the ecosystem here and they help in thinning the population of insects and other arthopods. The also help in the dispersal of various seeds of trees and grasses which are edible to faunas. They are also the informers of the predators to the herbivores. Thus they maintain an equilibrium in the ecosystem of the area under study, Rajasthan.

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