



THE ENVIRONMENTAL AND ECOLOGICAL FEATURES OF HAZARIBAGH WILDLIFE SANCTUARY

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Abstract

India is blessed with an immense diversity of land forms and plant and animal life. It is home to majestic snowclad mountain ranges as well as to endless sandy stretches of deserts or the salty seas. A diverse range of lifeforms thrive everywhere. It is our duty to conserve and protect the diversity for future generations and that is exactly why we have national parks, wildlife sanctuaries and bio-reserves. Hazaribagh wildlife sanctuary supports different kinds of eco-systems and the aim is to maintain them unaltered.

Hazaribagh wildlife sanctuary is a veritable shangrila of compact forest land endowed with distinctive flora and fauna. The wildlife reserves of Raja Ramgarh was declared as a wildlife sanctuary. The wildlife sanctuary has a separate range and distinction under Hazaribagh forest division. The biotic and environmental factors and strified ecological habitat has been already come to weigh heavy on the vitality of the wildlife sanctuary. The forest occupy a special significance on the wildlife map, so far as they are uniquely large and compact tract well connected to the district headquarters of Hazaribagh by Ranchi-Patna National Highway 33. The wildlife sanctuary has been known as the home of the sambhars, the largest species of India. The habitat is shared by some other herbivores also like the cheetal, wild boar and bluebull etc. The sanctuary provides an ideal place for behavioral studies of sambhar in their home land.

1. Introduction

Hazaribagh wildlife sanctuary situated in the north part of the present Hazaribagh district framed on 7th of August 1954 with enactment of the Bihar private forest act (1946-47). The notified boundaries of Hazaribagh sanctuaries extending over 89 villages fall under revenue thanas of Hazaribagh, Katakamasandi, Ichak, Padma and Barhi. The area of sanctuary comprises 52 sq. km of the X-reserve forest being free from rights of local people and 131 sq. km of protected forests burdened with local rights. The sanctuary is surrounded by a number of thickly populated villages with cultivation and settlements within the sanctuary which extends from village Simratari in east to Hathkona in the west in a roughly rectangular block of forests covering a length of about 26 kms is bisected by NH-33 connecting the capital city of Bihar and Jharkhand state. Just lagging behind the western side of the sanctuary, a railway track has been crossed. The main entrance to the sanctuary is Pokhariya Gate on NH 33 which is 23 km from Hazaribagh railway station. There are two more entrances to the sanctuary, one is the Sazua Gate and the other is Bahimar Gate on Hazaribagh Katakamasandi Road. The nearest air strip is Sindoor at a distance of 10 km. The sanctuary is surrounded by densely populated villages in the north and south. On the east and west is a continuous forest belt interspersed with villages and cultivations of the Hazaribagh and Simariya ranges of Hazaribagh west and Chatra south forest division respectively.

2. Wildlife and Tourists

During the transition period both the forest and the wild lives were heavily exploited leaving behind initially a very small seed stock of the wild ungulates, the carnivores and the other animals. The then land lord used to trap tigers and leopards for sale to circus and zoo or for skin. The trappings were done through trapping gadgets known as tiger traps. One tiger trap has been preserved by the sanctuary management as a sad memoir of the past practices. The hide outs in Rajderwa Dam of then Raja Saheb is an eye witness of cruel habits of shooters in the past.

Hundreds of breeding birds, a few rare species of migratory birds also are singing inside the sanctuary. The tract, the terrain, the climate and the vegetation make the habitat most suitable for the sambhars, cheetals, wild boars, dogs and blue bulls etc. The sanctuary provides an ideal place for many more herbivores as well as carnivores in their home land. The sanctuary which has long attracted tourists from far and wide is easily accessible in so far as well connected by rail, road and the Birsa Munda airport Ranchi specially for foreigner tourists. The scenic beauty and aquatic activities of birds from the window of the canteen situated inside the Rajderwa dam bound the tourist to turn the camera on. A cup of coffee with on the watch tower gives such a life time experience that can never be explained in words. The herds of sambhars cordially invite the nature loving tourists in this green paradise. The peacocks and the jackals will be your trafficator on the serpentine Morrur Road to Rajderwa.

3. Ecological Features

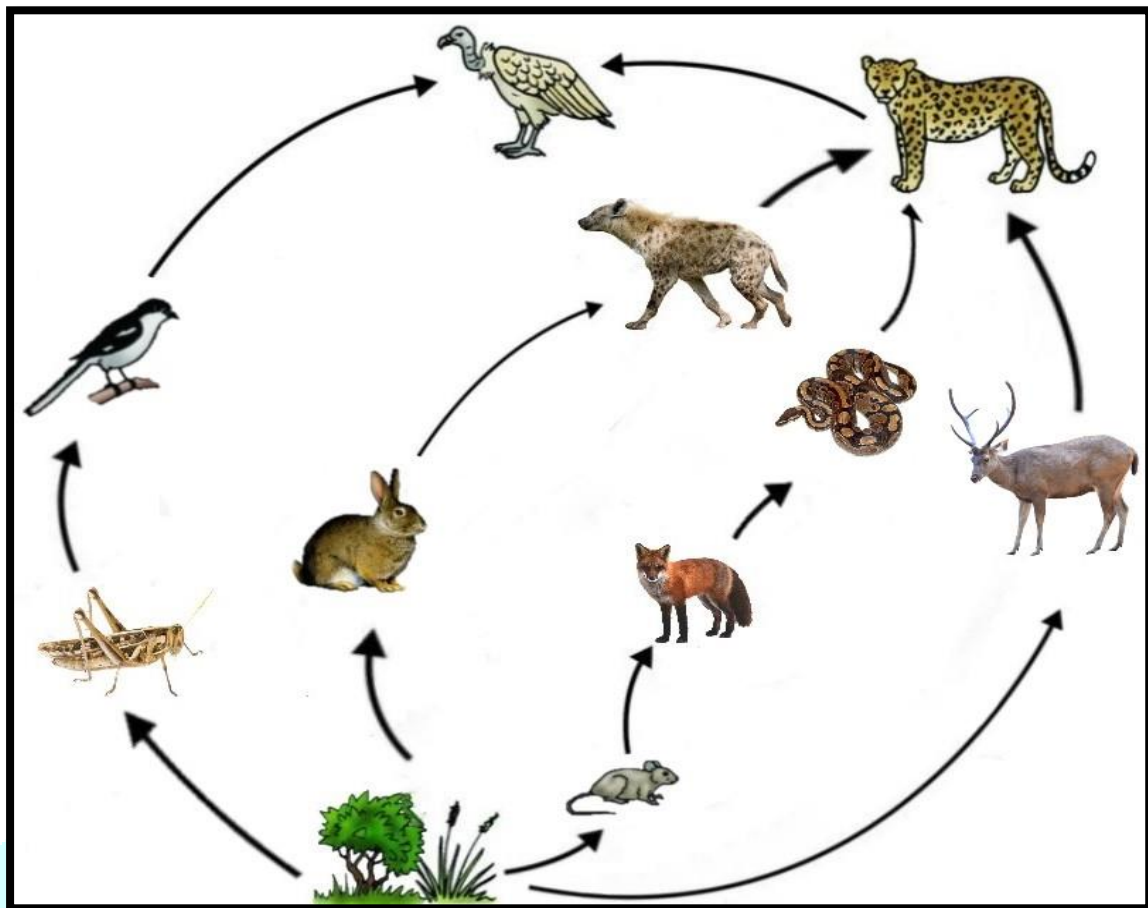
Every ecosystem has several interrelated mechanisms that effect human life. These are the water cycle, carbon cycle, oxygen cycle, nitrogen cycle and energy cycle. While ecosystem is controlled by these cycles biotic and abiotic features of the ecosystem are distinct from each other. Human life is closely linked to the proper functioning of these cycles of life. The forest ecosystem of the Hazaribagh wild life sanctuary is community of trees, shrubs, climbers and ground cover. The natural undisturbed forest of the sanctuary forms a specific community of animals which are adapted to live in it. The sanctuary is governed and managed in different way from other forest area. The forestry operations are very minimized in the sanctuary and strict measures are taken to protect the forests from fire, illicit cutting and poaching. As a result of that, wild animals dwell and this sanctuary creates a changed ecology.

The sanctuary experiences the usual seasons common to the tropical zones. These seasons are summer, rain and winter. The summers are characterized by hot winds but these are not exactly the loo hence there is no threat of dehydration to animals or human life. The average temperature ranges between a maximum of 180°F during summer and 142°F during winter season. During the winter nights temperature slides down. Wildlife and vegetation are much inter related in the sanctuary. In due course vegetation changes sometimes due to interaction in wild life behaviors. Changes in vegetation may be brought about directly or indirectly by number of factors such as competition between individuals for a limited source of disease, senility, selective consumption by herbivores, microclimatic variation, catastrophic events such as fires or human interference.

The north westernly winds in the winter cause severe cold conditions in the area and account for a few animal and human deaths. The winter season rarely brings frost also in the sanctuary area. Due to frost the leaves, buds and tips of small plants only gets dry. So damage due to frost is not large in the sanctuary. The environmental and ecological feature of Hazaribagh sanctuary is very good for both the flora and fauna.

3.1. Ecosystem of the Sanctuary

A forest ecosystem is a natural woodland unit consisting of all living things as plants, animals and micro-organisms of the defined forest area. In other words the Forest ecology is scientific study of the inter related patterns, process, flora and fauna in that forest. An ecosystem is a region with a specific and recognizable landscape form, such as forest, grassland, desert, wetland or coastal areas. The nature of the ecosystem depends on its geographical conditions such as sunlight, rainfall and temperature. The geographical, climatic and soil characteristics form its abiotic components while the living part of the ecosystem forms biotic components of that ecosystem. The forest ecosystem of the sanctuary may be shown as below:-



Forest Ecosystem

3.2 Ecological Succession

Ecological succession is a process through which ecosystems tend to change over a period of time. Succession can be related to seasonal environmental changes, which create changes in the community of flora and fauna of the ecosystem. The successional change in a pond ecosystem fluctuates from a dry terrestrial habitat to the early colonization stage by small aquatic species after the monsoon, which gradually passes through a mature aquatic ecosystem and then reverts back to its dry stage in summer when its aquatic life remains dormant.

3.3. Migration of wild life

No distinct migration patterns of wild animals is discernible in the sanctuary, except in the case of elephants which migrate to the sanctuary in herds from the forests of Chatra and Palamu districts. Only local migration of the wild population in search of food and water within the sanctuary can be noticed. A wide variety of migratory birds are however sighted during the winter season.

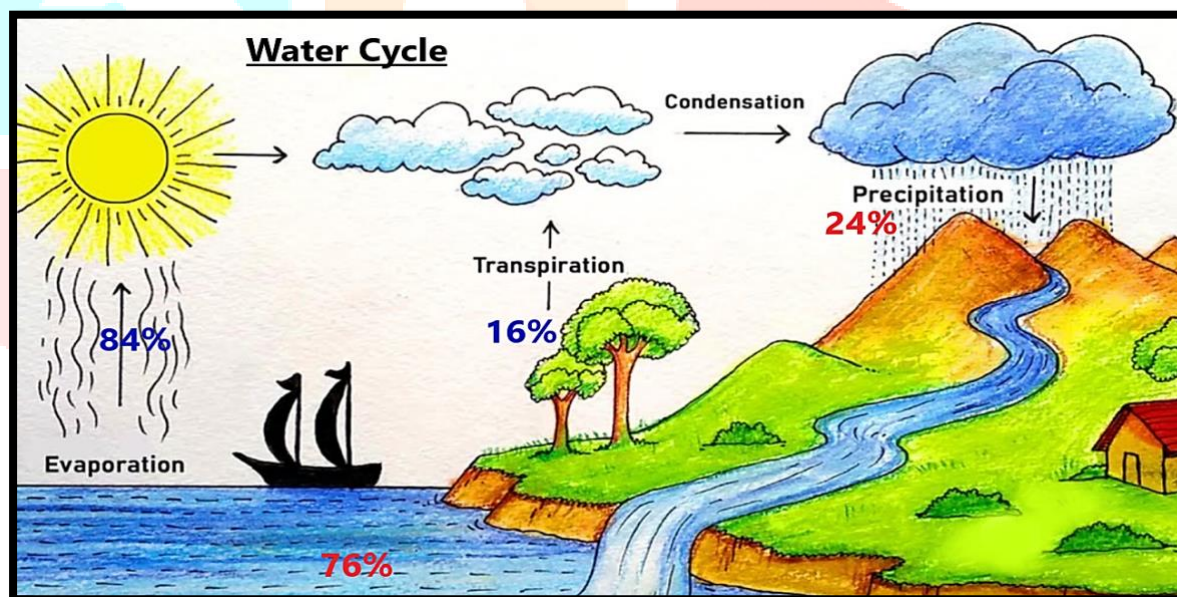
3.4. Water

To protect the wildlife population many measures for water retention have been carried out in the sanctuary. During rains there is no dearth of water as the rainfed streams and their tributaries spread all over the sanctuary area. Rain occurs mostly during the months of July to September and are mostly caused by south west monsoon. The average rainfall during the rainy season is

about 180 mm. In the rest part of the year rainfall is very little. Such erratic behavior of monsoon sometimes cause draught which adversely effect the supply of food materials of primary consumers and drinking water. Some artificial reservoirs like Dumri, Rajaderwa, Pakariakhal and Salparni remain permanent source of water throughout the year. But other artificial reservoirs generally dry up during summer. As a result the wild animals usually migrate to neighbouring forests in search of water thus adversely affecting the status of wildlife in the sanctuary. The north westernly winds in the winter cause severe cold conditions in the area and account for a few animal and human deaths. There is no remarkable Wet land or marsh exists under the boundary of the sanctuary.

3.4.1. Water Cycle

The water cycle also known as the hydrologic cycle. When it rains the water runs down along the ground surface and flows into rivers or rains directly into the sea. About 8% of total rain fall water only reach underground. The underground water is drawn up by plants, trees and grasses and transpires as water vapour from the leaves and returns to the atmosphere. Evaporation of water from seas and glaciers also take place with rise in atmospheric temperature. Since water vapour is lighter than air, the winds blow up it high and formation of clouds take place. This water vapours get condense and rain falls. This is an endless cycle on which life depends.



Water Cycle

4. Global threats to the forest ecosystem

As forests grow very slowly so, we cannot use more resources than they produce during one growing season. Over utilising of forest resources for fuel wood, for timber or for roots (medicinal) is resulting forest loss. The forests are rapidly shrinking as the need for agricultural land increases. Forests are also lost by minings and building dams. As the forest resources are exploited, the forest canopy is opened up, the ecosystem is degraded, and its wild lives are seriously threatened. The insects that live and breed in the forest such as honey bees, butterflies

and moths decrease in numbers when forest degraded. As their numbers decrease they are unable to effectively pollinate the crops and fruits which leads to decline in yields. Wild plants and animals become extinct, and these can never be brought back. It is estimated that the forest cover of our country has decreased from 33% to 11% in the last century. The rain that falls on deforested land layers of soil flows directly into nearby rivers. Thus water is not retained underground so worldwide crisis of water supply throughout the year has been faced by the people.

We can conserve forest only if we use forest resources very carefully. This can be done by leading sustainable lifestyles. The natural forests with all their diverse species must be protected as national parks and wild life sanctuaries where flora and fauna can be preserved. Movements to save trees like 'Chipko Aandolan' and 'Raksha Bandhan' of trees by NGO and local societies of people are needed regularly.

5. Salt Licks

Natural salt licks are available at certain places in the sanctuary and these occur in natural soil, but it is not adequate for the animal population. Artificial salt licks are therefore being provided with other essential elements and put at several places.

6. Flora

The forest of the sanctuary has a large number of variety of plants, trees, herbs and runners. In the valley area of Kaile, Pokharia, Rajghat, Parasi, Lotawa and Simratari contain dry peninsular saal vegetation. The crop consist of almost Shorea robusta (Saal), Terminalia tomentosa (Asan), Pterocarpus masipicum (Bija Saal), etc. While the area of lower part of valley and dipressions northern dry mixed deciduous forest are found. The main species in the upper canopy are Terminalia tomentosa (Asan), Boswellia serrata (Salai), Anogeissus latifolia (Dhaw) etc.

6.1. Northern Dry Mixed Deciduous Forest

This type of forest is spread all the areas of the sanctuary except the valleys and dipressions. The main species of the upper canopy are Boswellia serrata (Salai), Bridelia retusa (Kino), Diospyros melanoxylon (Kend), Bahuchania spp (Piar), Cleistanthus collinus (Garrari), Holarrhena antidysenterica (Korela), Zizyphus spp (Ber), Emblica spp (Amla), Bauhinia (Konar) etc. are also found.

6.2. Dry Bamboo Brokes

In the area of Harhad, Hathkona, Gardi and Simratari the vegetation mixed with dry miscellaneous type of forest.

6.3. Understorey Vegetation

Almost in the entire area except the pure patch of Shorea robusta (Sal) trees, the understorey consists of Zizyphus spp, Nyctanthes arbor-tristis, Woodfordia fruticose, Ixora parviflora, Carissa spinarum, Flemingia chappearr, Phoenix spp, etc.

6.4. Climbers

Bauhinia vahilii, Combretum decandrum, Butea superba and Smilax spp etc. are the the comma climbers of the sanctuary area.

6.5. Grasses

Main grasses of the area are Heteropogon controtus, Chrysopogan, Diachanthium, Saccharum, Vetiveria etc.

6.6. Aquatic Vegetation

Aquatic vegetation is found in the areas of permanent water accumulation. Few species like Tamarix hispida, Saccharum spontaneum are found in the moist beds of river. Among regular aquatics may be mentioned Cratophyllum demersum, Najas spp, Valisneria spiralis, etc. Paederia foetida is found along banks of rivers that are frequently submerged.

6.7. Sub-terrestrial Vegetation

Among the sub-terrestrial vegetation the plants having modified roots, rhizomes, tubers etc. may be mentioned. These are the main food for wild population like boar, porcupine, rodents and monkeys. The main species which found under the area of sanctuary are- Dendrocalamus strictus (Bans), Salmalia malabarica (Simar), Asparagus spp (Satawar) and a few other species having tuberous roots.

7. Fauna

The wild life of the sanctuary may be explained in to two class one is Fauna while another is Avi-fauna. The main fauna is sambhar. The fauna can further be explained into primates, carnivores, ungulates, bears, badgers, otters, civets and other species. These are common langurs, sambhars, deers, wild boars, sloth bear, otter, mongoose, civets, jackel, Indian fox, wild dogs, hyena, wolf etc.

8. Conclusion

Desired plants for the sanctuary should be planted in required areas. Area of grass land should be developed. Weeds like Lantana, parthenium and Flemingia chappar (Wild hops) etc. should be cut off before the seeds of the weed ripens. Local rights of people and grazing of pet animals inside the sanctuary should be stopped.

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