

RESEARCH ARTICLE

Studies of Valmiki National Park, Bihar with Reference to ecological Conservation

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Judicious manipulation and conservation of habitat will increase the carrying capacities of the reserve area. Carrying capacity of dense forest is always little. Hence, the habitat of forest needs manipulation in a manner that forest is always kept at a minimum utilization during the different periods of the year. Habitat manipulation and conservation should always be done to benefit all wild animals without causing much disturbance to them. It includes conservation of soil and water, development of new water sources, improvement of food and cover, and control of grazing.

Key words: Ecology, habitat conservation, soil, Valmiki National Park, water conservation, wild animals

INTRODUCTION

The Valmiki National Park, the 18th Tiger reserve of the country and second in Bihar, is located in the northernmost part of the West Champaran district of the state. Core area was declared as a National Park in 1989.^[1,2] The Valmiki tract is broken and undulating often showing highly fragile geological formations. As a result, there are steep ravines, knife-edge ridges, and precipitous walls formed by landslips and soil erosion.^[3,4] The great Gandak and Masan rivers collect all the water from the numerous, tortuous tributaries. These rivers and streams keep changing course from side to side and facilitated by the erosion probe sandy and immature soil of the banks. Seasonal rivers such as Panchnad, Manor, Bhaspa, and Kappan display peculiar behavior of erosion at one place and deposition of transported soil at another place.^[5,6] Due to the fragile nature of parent rock material, the soil produced at the foothill is immature, loose sand, and display sheet. The menace is further aggravated by maltreatment of the forest by people in general and heavy grazing.^[7,8]

MATERIALS AND METHODS

Two years' visiting were performed in the selected areas of the park to observe the nature of the

patches and to predict the nature of water and soil. Only five blocks were selected to observe the nature of grazing and soil-water conditions.

RESULTS AND DISCUSSION

For improving the habitat, it is essential to conserve water and soil. The prerequisite for conserving water and soil is the implementation of effective fire control measure and protection of area against grazing. Small check dams may be erected in the Nalas where the flow of silt is excessive. Improvement of the moisture regime will improve the moisture condition, and the grasses will remain for longer periods, and mesophytic species will replace the xerophytic.

Development of new water sources

Although the reserve area has many perennial waters in the form of rivers, Nalas, streams, etc., certain points need to be selected where the construction of water holes and earthen dams will prevent the wild animals to move longer distances for quenching their thirst. The water holes and earthen dams should be constructed in the following areas [Table 1].

At the periphery of the reserve area in the buffer zone, some species may be selected for digging small ponds for the village cattle so that the cattle may not utilize the water sources of wild animals and complete with them for water. Every year the water holes should be renovated to remove the silt so that they can carry water during summer months.

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Improvement of food and cover

Improvement of food and cover with water will enhance the carrying capacity of the reserve. Improvement of food is essential both qualitatively and quantitatively for supporting a greater number of animals.

Pasture development

For the proper development of a population of the herbivores, grassland should be developed by raising palatable grasses of nutrient value and perennial nature in the existing open areas and natural blanks inside the forest. Fruit trees and shrubs of fodder value such as *subabul* will be planted in pasture areas at subtle intervals. The development of grassland will not only provide for herbivores but also essential for the development of wild animals. The grassland will be developed as per the following Table 2.

Control of grazing

No grazing will be allowed in the core area. Controlled grazing will be allowed in the buffer zone especially near the villages.

Weed control

There should not be weed menace in the area; hence, no specific weed eradication work is needed.

Development of browse

Since young shoots and palatable grasses are required by the herbivores; therefore, young shoots are to be induced by cutting the browsable shrubs. Congested crops should be thinned only to open the forest.

Monitoring change in vegetation

Changes in the vegetation will be recorded after a span of time with reference to benchmark. For this purpose, a series of parameters are measured which adequately describe the actual state of vegetation. The plot will be laid out in the forest as well as grassland to determine the changes that are taken place due to the closure of area against

Table 1: The water holes and earthen dams should be constructed in the following areas

Block	Water holes	Earthen Dams
Triveni	2	1
Kaushik	2	1
Naurangia	2	1
Raghia	3	1
Someshwar	6	1
Total	15	5

Table 2: The grassland will be developed as per following table.

No. of Block	Area (Hect.)
Madanpur	120
Triveni	50
Naurangia	15
Kaushik	15
Raghia	15
Someshwar	35
Total	250

grazing, fire, etc. The plots will be located on the basis of stratified sampling techniques. These areas will be monitored at regular intervals.

CONCLUSION

From the present study concluded that the improving the habitat, it is essential to conserve water and soil. Improvement of food is essential both qualitatively and quantitatively for supporting greater number of animals. Controlled grazing will be allowed in buffer zone specially near the villages.

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