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Study of water resources of Chandoli National Park, Northern Western Ghats, Maharashtra, India

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Abstract

Chandoli National Park is present in Northern Western Ghats region of Maharashtra. It has been recently declared a World Heritage Site by UNESCO. Chandoli National Parkalong with Koyana Wildlife Sanctuary contributes the Sahyadri Tiger Reserve. It consists of typical semi-evergreen and evergreen type of vegetation mixed with grassland patches and hence the faunal diversity is also rich in this area. It harbours many species of plants and animals that are endemic to the Western Ghats. Water is an undifferentiated component of forest ecosystem. The existence of water resources in the forest decides the flora and fauna of the forest ecosystem. Ample water resources with good quality water are required for sustenance and abundance of wildlife. Forest areas from Western Ghats have abundant water in rainy and winter season but the situation is worst in summer season. Hence, in the present research article, we have focused on the study of water resources from Chandoli National Park. The study of water resources was carried out by surveying the study area for the availability of water in the form of water channels and water holes.

Keywords: *Water Resources, Chandoli National Park, World Heritage, Western Ghats, etc.*

Introduction

Chandoli National Park is located at the junction area of four districts i.e. Sangali, Kolhapur, Satara and Ratnagiri of Western Maharashtra. Recently, UNESCO declared it as World Heritage Site. Chandoli National Park along with Koyana Wildlife Sanctuary contributes the Sahyadri Tiger Reserve. Chandoli National Park is rich in flora as well as fauna. It harbours many species of plants and animals that are endemic to Western Ghats.

Water is an undifferentiated component of forest ecosystem. The existence of water resources in

the forest decides the flora of forest ecosystem. The fresh water habitats are suitable for variety of animals, birds and many aquatic plants. These form a typical food chain, food web and are responsible for several biological products. These fresh water habitats thus form a typical ecosystem which is very important in relation to their biological and ecological functions. The survival of wildlife depends upon the availability of water. In the absence of water, wildlife migrates to the other area. To avoid such migration of wild animals from forest, there is a need of sufficient water resources hence water resource management is also an essential part of forest management.

The forests from Western Ghats have abundant water in rainy and winter season, but the situation is worst in summer. Chandoli National Park acts as an origin for many perennial water channels and water holes. It also consists of the upper catchment area of Vasantsagar reservoir. Chandoli National Park is known for its biodiversity. It harbours many species of amphibians, reptiles, birds and mammals (Lawate & Mule, 2008 & 2009a and 2009b). The water resources such as streams, ponds, dam, water holes etc. from Chandoli National Parkaremostly used by wild life. They are also used by the forest staff, visitors, domestic animals and local people. The biodiversity of this area to thrive well for a long period of time, there is need of ample water resources in the Park area. Hence, in the present study, we have focused on the survey of surface water resources from study area. The outcome of survey helped the authorities in management of water resources in Chandoli National Park.

Materials and Methods

The quantitative study of water resources was carried out by surveying the study area seasonally from 2000 to 2010 for the availability of water in the form of pond, lake, man-made reservoir, springs, streams, rivulets, rivers and water holes. The perennial water resources, which provides water to wildlife in summer season were identified and tabulated from study area (Table No. 1 and 2).

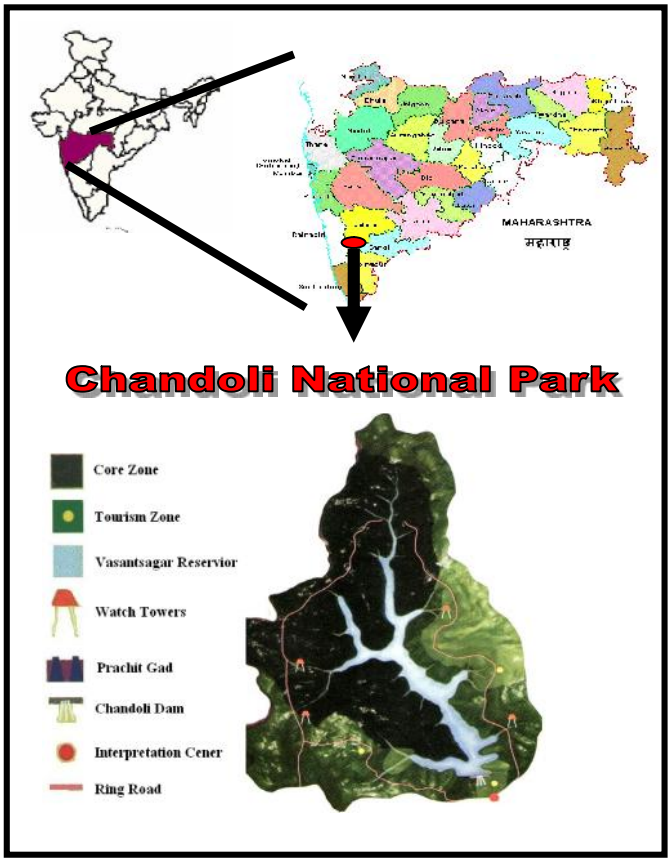
Study Area

Chandoli National Park is located at the junction area of four districts i.e. Sangali, Kolhapur, Satara and Ratnagiri of Western Maharashtra covering an area of 317.64 Sq.km. as shown in map. According to the geographical coordinates, the park area lies within the latitude range of 17°03’29’’ N to 17°17’17’’ N and longitudinal range of 73°03’29’’ E to 73°41’55’’ E. The National Park spreads along the hilly terrain of Sahyadri ranges of Western Ghatsand lies between Koyana and Radhanagari Wildlife Sanctuary. The National Park consists of the upper catchment area of Vasantsagar reservior constructed on Warana River which originates near village Patharpunj and flows west to east dividing the protected area in southern and northern halves. The most distinct feature of the park is the presence of numerous barren rocky and lateritic Plateaus, locally called 'Sadas'. Water bodies, open lands, dense forest and Sadas make this protected area an ideal habitat for wildlife endemic to Western Ghats.

Results and Discussion

During the study period it was observed that the water resources in Chandoli National Park were mostly used by wildlife. They were also used by the forest staff, visitors, local people and domestic animals. The important water resource in Chandoli National Park was Vasantsagar reservoir. Along with this, Warana, the main river and its tributaries Ram, Bhogiv and Karade are perennial rivers which originate in protected area. In addition to this, there were 18 perennial and 35 seasonal streams were drained in to Vasantsagar reservoir. 34 perennial, 48 seasonal and 74 artificial water holes were recorded in the protected area (Lawate, 2010). The most important perennial water resources were studied and are enlisted in table no. 1 and 2.

Map: **Chandoli National Park**



(Source: Forest Department, Chandoli National Park)

Table No.1: **Water channels of Chandoli National Park available during pinch period.**

Sr. No.	Village	Name of Water Resource	Sr. No.	Village	Name of Water Resource
1	Nandoli	Jondhal Nala	9	Rundiv/Javali	Payar Nala
2	Zolambi	Karambale Nala	10	Chandel	Hanuman Odha
3	Takale	Amberahat Nala	11	Dhakale/Bhogiv	Ketaki Odha
4	Londh	Thakicha Odha	12	Gothane/Bhogiv	Gangotri, Bhogiv Nala, Marleshwar
5	Nivale/Vetti	Shiv Nala	13	Dhakale/Tanali	Kasavi Nala / Kardi Nadi
6	Chandoli Kd.	Khadakali Nala	14	Nivale	Khadki Odha, Mahalange Odha, Ambicha Odha
7	Rundiv	Revali Nala	15	Sonarli	Ketkicha Odha
8	Siddheshwar	Ram Nadi	16	Patharpunj/Male	Warna Nadi to Chandoli Dam

Table No.2: Perennial Water sources (water holes) of Chandoli National Park available during pinch period.

Sr. No.	Village	Name of Waterhole	Sr. No.	Village	Name of Waterhole
1	Chandoli Bk.	Burumbwadi pani	12	Patharpunj	Ramtek Pani, Musaldar Pani
2	Khundalapur	Trimbak pani	13	Kolane	Gaonthan nala pani
3	Nandoli	Bashidara	14	Rundiv	Lodho nala pani, shiv nala pani
4	Zolambi	Devulpani, Bhatachi Bav, Hanumantache Pani, Etalai Pani	15	Siddheshwar	Kalavantin vihir, Shishilyache Pani
5	Takale	Burambache Pani, Devache Pani	16	Chandel	Kotharwadi pani
6	Nivale	Malichital Pani	17	Gothane	Sambartake pani, Gaonthan pani
7	Vetti	Yshur odha pani	18	Sonarli	Dhangarwada Pani
8	Londh	Thakiche Pani	19	Tambave	Tambave nala pani
9	Chandoli Kd.	Donhi nala pani, Amba nala Pani, Kandhar odha	20	Chandoli Bk to Chandoli kd	Vasantsagar reservoir
10	Gave	Gavyacha odha, gaonthan pani	21	Dhakale	Pavanai Nala Pani
11	Male	Lamb Nala pani, Dhobinala Pani, Suli nala pani			

The hills of Chandoli National Park receive heavy rainfall up to 4764 mm per annum (Lawate, 2010). The rainwater is drained away very fast by streams and rivers and some water percolates in top soil and rocks. The small streams and rivulets of hilly area become dry during summer and create shortage of water to wildlife as well as associated people. In wildlife, survival and propagation of their population, enough water resources are essential (Basak *et al*. (1986). About 80% of protected area is effectively covered with water facility throughout the year but the remaining 20% of park area in higher reaches of hilly areas of Gave, Chandoli Khurd, Male, Patharunj, Rundiv, Javali were facing the problem of water scarcity during summer season. Availability of water in summer becomes more critical in this region. The vertical migration of wild animals has also recorded from hilly areas for getting drinking water.

The protected Park area had originally 32 villages located with a human population of 7894individuals. During study period, we observed that only 4 villages of them remained within forest area, named Gothane village of Ratnagiri district and Male, Kolane and Patharpunj villages from Satara district. Along with this the huts of few communities in the area of Khundalapur, Sonarli, Dhakale, Durgewadi etc. in the park area were staying there with their livestock during study period. The rest of the villages have been rehabilitated. The source of water to these remaining villages was sufficient in the rainy and winter season as the source of waters were plenty off, but in the summer season, there was scarcity of water in some parts. The demand of water is increasing along with increasing population and type of use (Porter, 1978). Bharadwaj, *et al*. (1993)also reported that thickly vegetated high range hills of Western Ghats were sparsely populated and facing water shortage problem.

Therefore, management authorities of Chandoli National Park have to find new fresh water resources or develop existing water resource in water scarce areas for wildlife as well as the associated people and domestic animals.

Conclusions

Over all 34, perennial, 48 seasonal and 74 artificial water holes are present in park area and mostly all of them get refilled from monsoon rain. The small streams and rivulets of hilly area become dry during summer in the upper escarpment of study area and create shortage of water to wildlife and associated people. The quantitative data of this decade long study has been submitted to the forest authority of the national park which is a valuable addition to the repository of water resources here. The emphasis must be given on the management of water resources in this region by developing artificial / man-made water management systems / reservoirs for a sustained wildlife.

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References

1. Basak P, Gopakumar P, Prabhasankar PN. (1986)*Development of springs in Western Ghats*. Proc. of Seminar on Ecodevelopment of Western Ghats, pp 178-180.
2. Bharadwaj AK, Thakur TS,Sharma VK, Ahluwalia SK, Vaidya NK. (1993)*Problems and prospects of traditional sources of potable water in hilly terrains*. Indian J. Public Health, 37(4):111-113.
3. Lawate DV, Mule MB.(2008) *Birds of Chandoli National Park of Western Ghats of Maharshtra*, Electronic Journal of Environmental Science,(2):13-18.
4. Lawate DV, Mule MB. (2009a) *Mammals of Chandoli National Park of Western Ghats of Maharshtra*, Electronic Journal of Environmental Science,(2):73-75.
5. Lawate DV, Mule MB, (2009b) *Herpatofauna of Chandoli National Park of Western Ghats of Maharshtra*, Electronic Journal of Environmental Science, (2):33-36.
6. Porter E. (1978) *Water management in England and Walse*, Cambridge University Press, London.
7. Lawate DV. (2010) *Study of Wildlife Conservation and Management at Chandoli Wildlife Sanctuary*, thesis submitted to Shivaji University, Kolhapur.

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