Indian Journal of Environmental Sciences 19(1&2) 2015, pp.65-68
Green Earth Foundation

EXPLORATION OF NAHARGARH SANCTUARY FOR NATURE BASED TOURISM

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ABSTRACT

Nahargarh Sanctuary in Amber tehsil of Jaipur district is a hot destination for nature based tourism. A part of this sanctuary has been developed as a Biological Park in 1993 known as Nahargarh Biological Park with the sole objectives of Wild Life Conservation, Wild Life Education and Research. Sanctuary is rich in floral and faunal diversity. Efforts are on way to popularize it among tourists. State Forest Department should impart training to Tourist guides of Jaipur about interesting features of fauna and flora of Sanctuary and Nahargarh Biological Park. Eco Spots such as Herbal garden, Fishing points, Bird Watching Towers and Bush Walks be developed to promote ecotourism.

INTRODUCTION

People's interest is growing to visit wilder areas for serenity and uniqueness of landscape, flora and fauna. Such areas are becoming most preferred destination of national as well as foreign tourists. Nature based tourism also known as ecotourism is playing greater role in biodiversity conservation since it creates jobs for locals earlier exploiting such wilder areas for their livelihood. The popularity of ecotourism has many folds effects on local economy. The local's dependence on ecotourism is transforming them to be savior of flora and fauna in the protected areas.

India is rich in biodiversity since it is one the 12mega diversity centers of the world. Together with cultural diversity, there is great potential for nature based tourism, a smoke less industry, which may contribute to the Indian economy in a big way.

Endemic species of plants and animals attract tourists. 33% species of plants are endemic. Areas rich in endemism are north-east India, Western Ghats and north- western and eastern Himalayas. India is a home for more than 96,000 species of animals. Of them, a large number (57species) are rare and endangered species.

Wilder areas in Europe, North America and Australia have received great attention of scientists in relation to eco-tourism for almost 20 years (Boo 1990, 1992, Wall 1993, Honey 1999, Sven 2000, UNEP & TIES 2002, Preece and Oosterzee 2004), but such studies are only few in India (Gole 1997, Sapna and Rawat 2000, Pande et al. 2003, Apate et al. 2005).

Rajasthan is the largest state of India is a princely state rich cultural diversity. Because of diverse climate varying from moist subtropical in the South – East to semi-arid and arid conditions in the North – West, state is also unique in biological diversity. These unique features of state attract national and international tourists equally.

Jaipur, popularly known as "Pink City of India" is the capital city of the state of Rajasthan. Almost 300 years old Jaipur city boasts for first planned city of the country. This heritage city is part of "Golden Triangle" formed between Agra – Delhi – Jaipur and every second international tourist visiting India also visits Jaipur. Besides fort and fortress, this city offers several hitherto unexplored destinations for nature based tourism. We report our findings on scope of nature based tourism in Nahargarh Sanctuary in Amer tehsil.

STUDY AREA

Amber was the capital of former Jaipur State (Dhundhar) stands atop a range of rough hills to the north of Jaipur. Three forts viz. Amer fort, Nahargarh fort and Jaigarh fort have a splendid architectural fusion of Rajput and Mughal styles. These attract of large number of national and international tourists. Thick deciduous forest covering hills is a home for wild life. The State Government of Rajasthan has declared Nahargarh sanctuary in Amer tehsil.

Nahargarh Sanctuary spreading over 7.2 km^2 is about 3km from Amer on Delhi highway. A part of this sanctuary has been developed as a Biological Park in 1993 known as Nahargarh Biological Park with the sole objectives of Wild Life Conservation, Wild Life Education and Research.

MATERIALS AND METHODS

The regular visits were made through rout the year. The plant specimens were brought to the laboratory and matched with herbarium sheets in the Herbarium of Department of Botany, University of Rajasthan, Jaipur for identification that was confirmed by herbarium curator Lt. Sh. Roop Singh using standard flora (Sharma and Tyagi 1979).

The animals sighted during field visits were identified with the help of forest guards posted in the sanctuary for almost 5 years. They are experienced persons working with Forest Rangers during yearly census of wild life in the forest. Besides, check lists of plants and animal species in the Sanctuary prepared by the Rajasthan State Forest Department was consulted. Both resident and migratory birds in the forest and water body were noted during field surveys.

RESULTS AND DISCUSSION

Two heritage sites near entry point of Nahargarh Biological Park are Ma JI ki Baori and Lord Shiva temple also known as Bhuteshwar. Jaipur Nagar Nigam renovated boari which is a good example of traditional rain water harvesting for visitors. Park has three historical buildings known as "Audi" for hunting in the heart of forest by erstwhile rulers of Jaipur and Amer. Nahargarh Sanctuary has diverse ecosystems such as wetland, riparian and Aravalli hill blending with each other support rich floral and faunal diversity. These features make it a perfect destination for nature based tourism.

Sanctuary is rich in flora. 85 species of trees, 19 species of shrubs, 29 species of climbers and 20 species of grasses are found in tropical dry deciduous and tropical thorn forests. *Anogeissus* is the key stone species of the forest because of which hill changes color from green (rainy season) to ash color in winter because of change in color of its leaves. This feature may be included in the slide show proposed hereafter in the text.

Three water bodies in the park had 9 species of hydrophytes. Platforms may be constructed in the water bodies for limited fishing by tourists. To ensure fish availability in not competing way to waterfowls (resident and migratory) and tourists, Forest Department may liaison with the State Fishery Department for introduction of fish fingerlings in the rainy season.

Considering carrying capacity of the water body, number of tourists may be decided for fishing on payment basis. Restaurants outside the Sanctuary may be encouraged to cook fish catch on tourist demand.

The good vegetation cover supports rich wild life. Thirty three species of mammals are found in the sanctuary, panther being the most beautiful animal amongst them. Other species are blue bull, hyaena, porcupine, jackal, fox, jungle cat, desert cat, civet and mongoose. The park is also rich in reptiles and amphibious animals sighted commonly near Ramsagar. There are 22 species of insects, 7 species of butterflies and 10 species fish.

Herbivores face competition with cattle's from surrounding villages. State Forest Department should promote Joint Forestry Program on the Gochar land/community land of the villages for which funds are available in State Government Scheme. This will increase availability of fodder and fuel wood that would lessen pressure on the sanctuary and strengthen food web of the sanctuary.

The park is rich in avifauna having 281species. The migratory birds are the major attraction during winter in Ram Sagar dam and few important ones are; large cormorant, grey leg-geese, pin-tail and teals. The surrounding forests are visited by golden oriole, golden back, wood-pecker and Indian pitta etc.

The resident birds are equally important. White napped tit is sighted rarely in the park whereas peacock, black-patridge, short eared owl, grey hornbill, tree-pie and falcons are mostly sighted.

State Forest Department should construct bird watching towers to promote bird watching without disturbance. Tourist guides can be trained in bird identification. Power point presentation of resident and migratory birds may be arranged on request of group of tourists on payment basis. Standard reference books for bird identification should be available on rent to the tourist in interpretation center.

- **Rare Species of the Park**

Vegetation: *Anogeissus sericia* and *Butea monosperma*

Reptiles: Fat Tailed Gecko, Saw Scaled Viper

Birds: White Naped Tit, White Bellied Minivet

Important Plant Species in the Forest

- *Anogeissus pendula*
- *Acacia senegal*
- *Balanites aegyptiaca*
- *Lannea coromandeliaca*
- *Acacia nilotica*
- *Tecomella unduleta*

- *Prosopis cineraria*
- *Acacia leucophloea*
- *Maytenus emarginata*
- *Bauhinia racemosa*
- *Adina cordifolia*
- *Jatropha curcas*

Medicinal Plants

- *Cissus quadragularis*
- *Boswellia serrata*
- *Plumbago zeylanica*
- *Terminalia bellirica*
- *Euphornia nerifolia*
- *Solanum surettense*
- *Boerhavia diffusa*
- *Jatropha gossypifolia*
- *Sterculia urens*
- *Commiphora wightii*
- *Eclipta alba*
- *Barleria prionitis*
- *Withania somnifera*
- *Baccopa monnieri*
- *Evolvulus alsinoides*
- *Andrographis paniculata*

A small herbal garden having medicinally important plant species of the sanctuary may be developed nearby Interpretation center. Both vernacular and botanical name of the species and its medicinal use may be displayed nearby species. Since many plant species grow only in a particular season, herbarium sheet of such plant species may be prepared for display in the interpretation center. Herbal preparations detailing composition and use may also be displayed.

Herbal garden should also focus on multiplication of medicinal plants for their reestablishment in other areas of sanctuary. The peoples of nearby villages may be employed in such activities. The villagers may also be encouraged to cultivate these species on their farms to relax pressure in the sanctuary. The participation of locals will improve their livelihood.

Elephant Safari covers 15 points in the park. It has two paths starting from main gate and finally meeting at main water source Ramsagar. The tourists enjoy nature without disturbing wild life. The route passes through hilly track (400m MSL) from where one can enjoy superb views of jungle. The first route takes 2h while second takes 5h. For adventure, one may opts tracking through wilder areas covering a distance of 5 km. due to lack of publicity, safari is not popular among tourists.

The park also houses a rescue center housing tigers and Asiatic lions rescued from the Circus. During day (winter), they move out in to large cages on the way to Elephant Safari and are major tourist attraction.

Two new proposals in active consideration of State Government are; Lion Safari (36.32 hectare) in near future in which Asiatic Lions will be the major tourist attraction. Deer park (15 hectare) is another attraction.

Interpretation center should be constructed in the Park where power point presentation of rare plant and animals of the sanctuary may be made by forester on payment basis for groups. Some of these slides may educate visitors about do's and don'ts in the park.

Challenges to Ecotourism & Solutions: The good health of wilder areas is the key for success of nature based ecotourism. Today, they face great threat from increasing population and its ever growing needs.

Invasion of exotic species *Prosopis juliflora* is a major challenge in the sanctuary. It is altering biodiversity slowly. Concern about deforestation, desertification and fuel-wood shortages in the late 1970s and early 1980s promoted a wave of projects that introduced *Prosopis juliflora* and other hardy tree species to new environments across the world (Mwangi and Swallow 2005).

Initially peoples supported *Prosopis juliflora* introduction in Rajasthan since it provided them readily available fuel wood as well as fencing material of the agricultural lands. However, soon the species entered in agricultural land and open pastures and was a menace. Other negative impacts include change in water availability, soil chemistry, formation of impenetrable thickets and in some cases livestock poisoning. The thick impenetrable thickets hinder bird's flight and deprive ground-nesting birds of nesting sites. The raptors find it difficult to find perching places in areas where there is monoculture of *P. juliflora*. There is also a lack of food for the insectivores, since the percentage of invertebrates dependent on *P. juliflora* for survival is relatively low.

Long piercing thorns of *Prosopis juliflora* injure animals whose infection made their limbs useless. Black bucks in Tal Chapper sanctuary were the major victim of its prickly thorns. Its sugary pods attract herbivores. The villagers in Ranthambore National Park, Sawaimadhopur, reported that animals eating the pods from *Prosopis juliflora* have suffered from damage to the dental structures in the past. Leaves are grazed during scarcity but prolonged use impairs digestive system of the animals (Mwangi and Swallow 2005).

The locals are now totally in favour of complete eradication of the species. In 2004, it was rated as one of the world's top 100 least wanted species (Invasive Species Specialist Group of the IUCN, 2004). Local's participation eradicated its infestation completely in Tal Chapper sanctuary (Personnel observation). Similar movement in Keola Dev National Park, Bharatpur helped in controlling this weed in 2007-2008. Similar participation of locals may eradicate *Prosopis* in the sanctuary. It is important to remember that seed bank in the soil may still contains enough seeds of *Prosopis* that will re-infest site. Therefore, regular watch must be made to uproot emerging seedlings. Normally exotic weeds invade in the disturbed forest ecosystem. It is therefore, essential to replant cleared infested sites with native species of the forest**.** The State Department of Tourism should include this Sanctuary in the list Hot Destinations for tourists visiting Jaipur. Rajasthan Tourism Department Corporation should arrange slide shows highlighting Nahargarh Sanctuary in hotels and resorts, particularly at Jaipur –Delhi road.

Forest Department should impart training to Tourist guides of Jaipur about salient features of fauna and flora of Sanctuary. Eco Spots such as Herbal garden, Fishing points, Bird Watching Towers and Bush Walks be developed to promote ecotourism. These may be developed on the principal of Built, Operate and Transfer.

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