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RESEARCH ARTICLE

ECOTOURISM OPPORTUNITIES IN BRAHMAGIRI WILDLIFE SANCTUARYOF KODAGU DISTRICT, KARNATAKA, INDIA

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ABSTRACT

Ecotourism is one of the conservation tools to save wildlife and forests. Globally, there is a debate on the term ecotourism as there are many controversial issues running with the use of the same terminology. This study was carried out to know the ecotourism opportunities that can be implemented in Brahmagiri Wildlife Sanctuary in the specified localities without disturbing the wildlife habitats. Sampling sites were selected randomly inside the Wildlife Sanctuary and marked using GPS. Faunal density and diversity, canopy studies, tourist zone marking and eco tourist's density which are the ecotourism encouraging factors were studied. Possible ecotourism activity zones were marked near to the anti-poaching camps. Based on the observation it is suggested that the activities like bird watching, canopy walk and trekking kind of activities can be organized for Eco tourists which can increase revenues for the management.

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INTRODUCTION

As globalization continued increasing, several fragile protected Areas in the world became popular ecotourism destinations, whereas others remain less known and undeveloped.But tourism is usually responsible for environmental degradation and local cultural heritage loss, due to the "invasion" of large numbers of visitors who also bring foreign behaviors and material assets. The most suitable practice for tourism in protected areas is ecotourism. Not only because it supports local communities, but also because it deals with environmental conservation (Natali and Vicky, 2016). This study offers an overview and sets the basis for ecotourism opportunities in Brahmagiri wildlife sanctuary. High bird diversity and the increased eco tourist's inflow every year is a positive indication for the betterment of ecotourism in the protected area which will increase the quality of the protected area and revenue for the management if managed in a better manner (Nandagopal & Venkataramana 2016). Selected study area nestles inside the Western Ghats, which is one of the biodiversity hotspots of the world. Wildlife density and eco tourist flow was studied using ecological samplings and techniques. Based on the observation and studies an attempt was made to suggest possible ecotourism activity zones in and around the study area.

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MATERIALS AND METHODS

Study was undertaken at Brahmagiri wildlife sanctuary which is located in Kodagu District of Karnataka state, India. Sanctuary nestles between $11^0 55^l$ to $12^0 09^l$ N latitude and $75^0 44^l$ to $76^0 04^l$ E longitude and the altitude varies from 65 to 1607 mts. The study in the wildlife sanctuary was a result of work comprising of 6 study sites (1 study site = 3 randomly selected quadrate sampling to access canopy cover + one belt transect line observation for birds/animals + questionnaire for eco tourist visiting the study area). Samplings sites were selected close to the existing anti-poaching camps. One kilometer line was identified using GPS and observation was done in each site (Fig 1). Permanently marked transects covered a total distance of 6 km from the entire wildlife Sanctuary. Using this method, the faunal density and diversity was noted (Nandagopal and Venkataramana, 2015). Birds were recorded by visual and calling methods. Canopy cover estimation was done by using photographic method. 60 Eco tourists of different age groups were interviewed to know their opinion on the wildlife sanctuaryto develop it as an ecotourism site (Dixit and Narula, 2010).

RESULTS AND DISCUSSION

Faunal diversity and density is one of the prime factors which attract more eco tourists to the sites. Counting animals to estimate their population sizes is often essential for their management and conservation. Since practitioners frequently

rely on indirect observations of animals, it is important to better understand the relationship between such indirect indices and animal abundance (Keeping and Pelletier 2014). Table 1 depicts the mean animal diversity recorded on line transect. 29 different varieties of faunal species were recorded in a total 6 Km of the transect study.

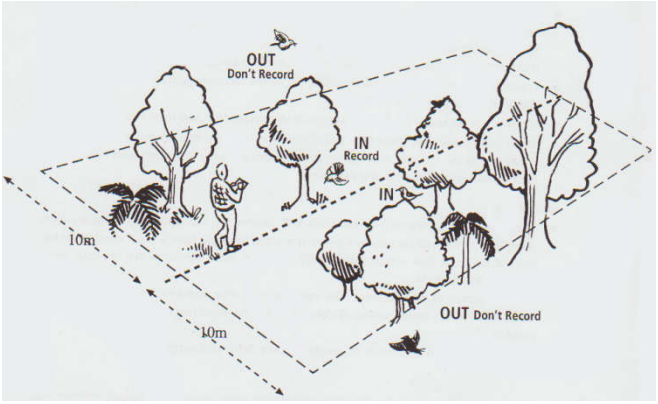

Fig.1. Belt transect method

Table 1. List of Birds and Animals sighted in Brahmagiri Wildlife Sanctuary

S. No.	Common Name	Scientific Name
1	Ashy Drongo	*Dicrurusleucophaeus*
2	Asian Fairy Bluebird	*Irena puella*
3	Asian Paradise Flycatcher	*Terpsiphoneparadisi*
4	Black Headed Cuckoo Shrike	*Coracinamelanoptera*
5	Black Shouldered Kite	*Elanuscaeruleus*
6	Common Hill Myna	*Gracularegiosa*
7	Common Iora	*Aegithinatiphia*
8	Crested Serpent Eagle	*Spilornischeela*
9	Drongo Cuckoo	*Surniculuslugubris*
10	Gold Fronted Chloropsis	*Chloropsisaurifrons*
11	Great Pied Hornbill	*Bucerosbicornis*
12	Grey Jungle Fowl	*Gallus sonneratti*
13	Indian Scimitar Babbler	*Pomatorhinushorsefieldii*
14	Jungle Babbler	*Turdoidesstriatus*
15	Jungle Owlet	*Glaucidiumradiatum*
16	Large Tailed Wagtail	*Motacillamaderaspatensis*
17	Long Tailed Shrike	*Laniusschach*
18	Malabar Giant Squirrel	*Ratufaindica*
19	Malabar Parakeet	*Psittaculacolumboides*
20	Malabar Trogon	*Harpactesfasciatus*
21	Malabar Whistling Thrush	*Myiophonushorsefieldii*
22	Orange Headed Thrush Synotus	*Zoothera citrine cyanotus*
23	Paddyfield Pipit	*Anthusrufulus*
24	Spotted Dove	*Streptopeliachinensis*
25	Stone Curlew	*Burhinusoedicnemus*
26	White Bellied Drongo	*Dicruruscaerulescens*
27	White Bellied Shortwing	*Brachypteryx major*
28	White Bellied Treepie	*Dendrocittaleucogastra*
29	White Cheeked Barbet	*Megalaimaviridis*

Forest canopies are dynamic interfaces between organisms and atmosphere, providing buffered microclimates and complex microhabitats. Canopies form vertically stratified ecosystems interconnected with other strata (Nakamura *et al.* 2017).Figure 2 shows the graphical representation of the canopy cover in all six sites of the study area. Canopy cover in the selected sites was found to be high and uniform. Successful management of tourism in natural areas depends on knowledge of both visitorand use characteristics (Buckley and Pannell, 1990). In this study, males and females wereequally represented within the sample of visitors surveyed. Most of the eco tourists were aged between 16 to 40 years (80%), results supported by studies conducted inBrahmagiri wildlife sanctuarywas found that wilderness visitors tended to be younger than the generalpopulation. The relative visitors to Brahmagiri whenconsidered alongside the fact that a large proportion of were from local origin, belonging to the same state. Very less percentage of visitors stayed less thana day in and around the Wildlife sanctuary. Based on the site visits and observations few prospective ecotourism sites were marked inside Brahmagiri wildlife sanctuary. Table 2 shows the geological coordinates of the identified prospective ecotourism sites.

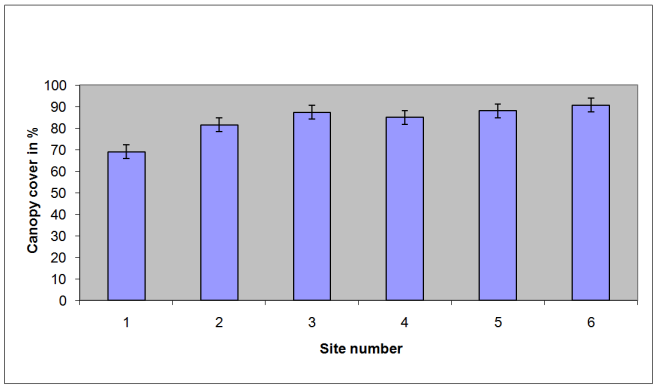

Fig.2. Canopy covers of Brahmagiri Wildlife Sanctuary

Table 2. GPS coordinates of the identified ecotourism sites in Brahmagiri Wildlife Sanctuary

S. No.	Longitude	Latitude
1	76◦ 02' 28.2" E	11◦ 57' 08.2" N
2	75◦ 59' 00.2" E	11◦ 58' 11.8" N
3	75◦ 52' 42.7" E	11◦ 59' 19.7" N
4	75◦ 49' 46.6" E	12◦ 03' 37.0" N
5	75◦ 54' 01.2" E	12◦ 04' 04.5" N
6	75◦ 48' 08.2" E	12◦ 04' 37.3" N

The Sanctuary has panoramic view, scenic spots with beautiful waterfalls, hillocks, grassy lands embedded with shola forest, valleys, thick forest with variety of flora and fauna. It is a paradise of birds. Figure 3 represents the prospective ecotourism sites that can be developed by the management inside or at the vicinity of the Brahmagiri Wildlife Sanctuary.

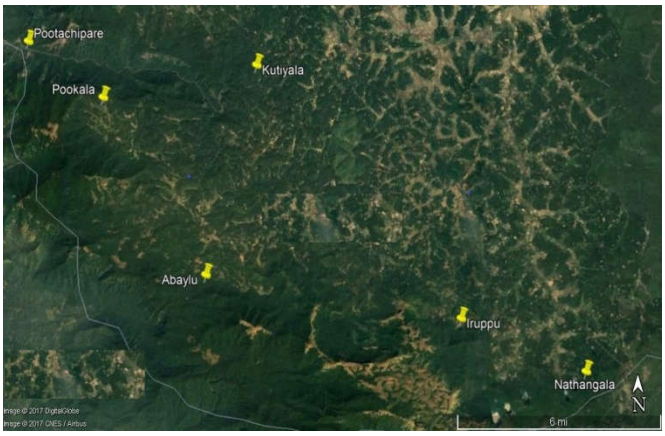

Fig.3. Prospective Ecotourism sites identified inside Brahmagiri Wildlife Sanctuary

Management has identified eco-sensitive zones inside the Brahmagiri wildlife sanctuary which is not to be disturbed.

Hence, apart from eco-sensitive regions, tourism zones should to be declared and developed by the management.

Conclusion

During the field visits it was found that the sanctuary is rich in faunal diversity and density. The fantastic variety ranges from small insects and rodents to majestically roaming elephants. Rare species like Malabar Giant Squirrel, Malabar Parakeet and Malabar Trogon were sighted. It is a paradise of birds. It has ample scope for trekking and exploring the nature. This could help in developing new ecotourism ventures in the identified sites inside the sanctuary. Thick canopy cover will also be one of the encouraging factor to conduct trekking, nature education and other recreational activities like bird watching for the visitors. Based on the views of the eco tourists who visited the sanctuary opined that, facilities are to be improved for the tourism purpose and also management should support for ecotourism activities as such there is no organized way of taking tourists into the sanctuary for wildlife viewing. The spots are having high demonstration value for education/recreation of tourist and nature lovers which has been identified and marked. Facilities like watchtowers and saltlicks need to be created for better sighting of animal and appreciation of the values associated with the sanctuary.Other facilities like nature camping, wildlife viewing, treks and trails, rest houses, interpretation center and watch towers could be developed to develop the sanctuary as a viable ecotourism zone.

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