



BIODIVERSITY AND SPECIAL INTERST IN KARNATAKA TOURISM

Tourism

**Mr.
Hanamantaraya
Gouda**

Assistant Professor, Department of Folk Tourism, Karnataka Folklore University
Gotagodi, Shiggaon TQ, Haveri Dist. Karnataka State-581197

ABSTRACT

Karnataka Biodiversity is unique and beauty. It has emerged as an important and one of the important contributions to the state's economy. Biodiversity is part of our daily lives and livelihood, and constitutes resources upon which families, communities, nations and future generations depend. The great variety of life on earth has provided for man's needs over thousands of years. This diversity of living creatures forms a support system which has been used by each civilization for its growth and development. Those that used this "bounty of nature" carefully and sustainably survived. Those that overused or misused it disintegrated

This paper is divided into three parts. Part one represents introduction, research methodology, and objectives of the study. Part two review of Biodiversity and Karnataka Tourism spots how it helps for adventurer this paper qualitative and Quantitative. This study is based on information obtained from secondary sources which includes many examples which as follows Final and third part includes suggestions of the study.

KEYWORDS

Biodiversity, Karnataka Tourism Hotspots, Ecosystems, Nature Tourism Sots, Flora and Fauna in Karnataka etc.

1. Introduction to Biodiversity

The terms *biological diversity or biodiversity* can have many interpretations. It is most commonly used to replace the more clearly defined and along established terms, species diversity and species richness biologists most often define biodiversity as the "totality of genes, species, and ecosystems of a region". An advantage of this definition is that it seems to describe most circumstances and presents a unified view of the traditional three levels at which biological variety has been identified.

- Species diversity
- Ecosystem diversity
- Genetic diversity

Wilcox commissioned by the International Union for the Conservation of Nature and Natural Resources (IUCN) for the 1982 World National Parks Conference. Wilcox's definition was "Biological diversity is the variety of life forms... at all levels of biological systems. The 1992 United nations Earth Summit defined "biological diversity" as "the variability among living organisms from all sources, including 'inter alia', terrestrial, marine, and other aquatic ecosystems, and the ecological complexes of which they are part this includes diversity within species, between species and of ecosystem" This definition is used in the United Nations Convention on Biological Diversity.

Measuring diversity at one level in a group of organism may not precisely correspond to diversity at other levels. However, tetrapod (terrestrial vertebrates taxonomic and ecological diversity shows a very close correlation.

Definition: 'Biological diversity' or biodiversity is that part of nature which includes the differences in genes among the individuals of a species, the variety and richness of all the plant and animal species at different scales in space, locally, in a region, in the country and the world, and various types of ecosystems, both terrestrial and aquatic, within a defined area.

What is biodiversity? Biological diversity deals with the degree of nature's variety in the biosphere. This variety can be observed at three levels; the genetic variability within a species, the variety of species within a community, and the organization of species in an area into distinctive plant and animal communities constitutes ecosystem diversity.

2. Objectives of the Study

1. To know Importance of Biodiversity in Karnataka
2. To Highlight Biodiversity Tourism Places in Karnataka
3. To Understanding the Biodiversity in Karnataka Tourism
4. To Know the Marketing opportunities in Biodiversity
5. To know the activates of Biodiversity in Karnataka

3. Research Methodology

This research paper is basically descriptive and analytical in nature. In this paper attempt has been taken to analyses the importance of Biodiversity in Karnataka The data used in it purely from secondary sources according to the need of this study. Government of Karnataka digest of statistics, books journal, Newspapers, Published and unpublished research work. Various search engines, are also used.

4. Biodiversity of Karnataka

The state of Karnataka is part of the highly biodiversity rich regions of India. The state is endowed with great diversity of climate, topography and soils. It Spans the seacoast with rich aquatic biodiversity and mangrove swamps at the mouths of estuaries. It harbours verdant tropical evergreen forests, paddy fields, and coconut and arecanut orchards on the narrow coast flanked by the hills of Western Ghats. It bears deciduous woods, scrub jungles, fields of sugarcanes support their own characteristic set of vegetation and animals Karnataka supports 10% of total tiger population and 25% of Elephant of the country.

The state has around 4500 species of flowering plants, 600 species of birds, 160 species of Animals, 160 species of reptiles (turtles, snakes, lizards and crocodiles), 70 species of frogs, and 800 species of fish. These figures give a good account of the floral faunal diversity of the state.

The wealth of diversity of domesticated plants and animals in farms also holds much promise. The hill chain of Western Ghats is known to have greater diversity of wild relatives of cultivated plants than any other region of comparable size in the world. The aquatic biodiversity in Karnataka is very rich and harbors many endemic species.

Karnataka State Biodiversity Strategy:

- Need to focus not just on flagship species, but the entire spectrum of biodiversity.
- Need to focus on protected areas which are important repositories of Biodiversity.
- Connectivity of Protected areas.
- Need to go beyond Areas, to the entire landscape and waterscape.
- Need to focus on neglected eco- regions.
- Need to devise a variety of policy instruments, over and beyond regulatory measures.
- Need to ensure that biodiversity focused efforts contribute to the enhancement of quality of the broader masses of people.
- Need to combine conservation and sustainable use approaches.
- Need to ensure cross- sectoral co-ordination.
- Need to mainstream biodiversity concerns in the developmental process.
- Need to deal with newly emerging challenges such as intellectual Property Rights (IPR) issues and Genetically Modified Organisms

(GMO).

Biodiversity-Karnataka

Living Species	-	Around 1.20 Lakhs
Flowering Plants	-	4500 Species
Birds	-	522 Species
Mammals	-	158 Species
Reptiles	-	158 Species
Amphibians	-	121 Species
Fishes	-	405 Species
(Marine & Brackish water)		
Fishes (fresh water)	-	218 Species
Butterflies	-	300 Species
Medicinal Plants	-	1439 Species (808 genera & 108 families)
300 Species for Commercial use		

Protected Area more.....

National parks	5 (2500 kms)
Sanctuaries	22 (400 kms)
Fish Sanctuaries	6
Zoological Parks	5
Dhanvantri Van (Medicinal Plants)	15

5. Biological Diversity Act, 2002

The biological Diversity Act, Which came into force in February 2003, aims to promote conservation, sustainable use and equitable sharing of benefits biodiversity resources. It provides for establishment of a national Biodiversity Authority at national level, state biodiversity Boards at state level and Biodiversity Management Committees at the level of Panchayats and Municipalities.

The National Biodiversity Authority shall play a regulatory role with regard to access to biological resources by foreign citizens and grant of intellectual property rights. It shall play an advisory role in matters relating to the conservation, sustainable use and equitable distribution of biological resources.

As per the provisions of the Act, the state has up the State Biodiversity Board, with the Hon'ble Minister for Forest, Ecology & Environment as chairperson, five ex-officio member and five non-official members.

State Biodiversity Board is supposed to advice the state government on matters relating to conservation of biodiversity, sustainable use of its components etc. it shall also regulate access of biological resources by Indian citizens.

The Act provides for constitution of Biodiversity Management Committees that are to be constituted in each local body for the purpose of Promoting conservation, sustainable use and documentation of biological diversity and chronicling of knowledge relating to biological diversity. The Act also envisages setting up of a local biodiversity fund, at every area notified by State Government, where any institution of self-government is functioning. This fund will include any grants and loans made by the National Biodiversity Authority, grants or loans made by State Biodiversity Boards, all sums received by the local committee from other sources etc.

6. Tourism in Karnataka

Tourism has the deep efforts by people and nature Trekking in Karnataka is also one of the best interesting subject to tourists, there are many trekking places, some of them are coorg, Kemmanagundi, Agumbe, Western Ghats ranges re the best spot for perfect trekkers coorg has many trekking routes which contains lush forest, deep valleys, waterfalls and good landscapes.

Karnataka is the tourists paradise both human and efforts here to make Karnataka as a tourist places Its Long sea shore has beautiful beaches and ports. Coastline of Karnataka, called as ' Karavali region' covers 300 km between Dakshina Kannada District to Uttar Kannada Districts and has one major and ten minor ports in Mangaluru., Karwar, Old Mangaluru, Belekeri, Tadri, Honnavar, Bhatkal, Kundapur, Hangarakatta, Maple and Padubidri.

This state has five National Parks, some of the main are Nagarhole national Park, Bandipur National Park and Bannerghatta National Park, and has 25 wildlife sanctuaries. Western Ghats region is home to many area Animals, Fauna and flora. The National parks has many kind of wild animal like deer's Bison Tigers, Lions, Elephants, Blackbucks, Bear, Wild Dogs, Leopards, water Buffaloes, and many

kind of animals in this beautiful state. Karnataka is also well known for sandal woods, and for many kinds of Medicine trees.

Major rivers originatintes in Karnataka and cross through, they are like this kaveri River, Krishna River, Kabini River, Tungabhadra River, Sharavathi River, hemavati River, Palar River, Ghataprabha River, Pennar River, Kali River, Kubja River, Malaprabha River, Chakra River, Honnuhole River, Kumaradhara River, Netravati River, Varathi River, Many dams and Reservoir built in Karnataka for formers and Electricity, the main Dams are Almatti Dam, and Basava Sagar Dam, Gajnur Dam, Gundal Reservoir, Harangi Dam, Hidkal Dam, Kadra Dam, Kanakanal Dam, Kanva reservoir, Kodalalli Dam, Krishna Raja Sagar Dam, Lakkavalli Dam, Linganamakki Dam, Sathanur Dam, Mari Kanive Dam, Narihall dam, Vani Vilas Sagar Reservoir.

Karnataka is well known place to best waterfalls in India, tallest waterfalls in India is Jog Falls created by Sharavathi River (jumps from height of 293m.) is at shivamogga district. Shivanasamudra falls in mandya district has twin jumps (Gaganchukki and Barachukki). Coorg Districts has a three beautiful falls, Abbey (Abbi falls), Irupu falls, Mallali falls, Hebbe falls, in Kemmanahundi, and many falls in Karnataka. Karnataka has great history in Hampi, Hassan, Mysore, Bijapure, Bidar, Mangalure, Chitradurga, Belagaum, Kolar, and other districts in the state. There are hundreds of historical Temples, Churches,, Darghas in Mangaluru, Bellary, Badami, Bengaluru, and some places in Karnataka. There dozens of Top Hill Stations in Karnataka with many attractive mountain ranges and waterfalls, best for adventures.

7. Biodiversity & Tourism In Karnataka

Karnataka has long history of efficient management of Forestry and Wildlife. The total geographical area in the State is 1,91,791sq. Kms of out of which the forest is about 43,356.56 sq. kms which constitutes about 22.6% The Karnataka Forest Act, 1963 and Rules 1969 regulate working in the forest areas. The State has 5 national Parks and 22 Wildlife Sanctuaries covering an area of 6576.76 sq.kms. Which forms nearly 15.17% of the total forest area as protected area?

Wildlife (Protection) Act was enacted during 1972 by Government of India to provide for the protection of wild animals, birds and plants and with a view to ensuring the ecological and environmental security of the country. The elephant population in India is around 25,000 of which the estimated population in Karnataka is around 5590 (census 2010), which constitutes about 22% of the total population.

Forest Occupancy of Tiger Co- Predators, pre and Population estimate of tigers:

State	Tiger (sq.km)	Leopard (sq km)	Dhole (sq km)	Bear (sq km)	Chital (sq km)	Wild Pig (sq km)	Sambar (sq km)	Tiger Number
Karnataka	18715	20506	15862	20749	42349	21999	43412	290

Estimation of lower limit for tiger population-241

Estimation of upper limit for tiger population-339

National Parks (5)

Name of the National Parks	Area (sq.km)	Nearest Dist. HQ	Season to Visit
Anshi National Park	33.866	Karwar -60 Bangalore-580	Nov-Jun
Bandipur National Park	870.36	Chamarajnagar-52 Bangalore-218	Jun-Oct
Bannerghatta National Park	102.74	Bangaluru-22.0	All Seasons
Kudremukha National Park	600.30	Udupi-90 Bangaluru-263	Dec-May
Nagarahole national Park	643.39	Mysuru-120 Bangalore-240	Sept-May

Wildlife Sanctuaries (25)**Conservation & Community Reserves**

Name of the Reserve	Area(sq.kms)	Year of Establishment
Bankapur Peacock Conservation Reserve	0.56	2006

Mydhanahalli(Jayamangali) Black Buck Conservation Reserve	3.23	2007
Basur Amruth Mahal Kaval Conservation Reserve	7.36	2011
Hornbill Conservation Reserve	52.5	2011
Aghanashini Conservation Reserve	299.52	2011
Bedthi Conservation Reserve	57.3	2011
Kokkare Bellur Community Reserve	3.2	2007

Tiger Reserves

Name of the Tiger Reserve	Area (sq.kms)	Year of Establishment
Bandipur	870	1973
Bhadra	492	1998
Nagarahole	643	2000
Dandeli- Anshi	475	2006
Biligiri Ragan tiger Sanctuary	539.27	2011

Biosphere Reserves

Name of the Reserve	Area(sq.kms)	Year of Establishment
Nilgiri	2053.27	1986

5. Biodiversity hotspots

Biodiversity hotspots Biodiversity hotspots Biodiversity hotspots Biodiversity hotspots Biodiversity hotspots are areas that are unusually rich in species, most of which are endemic, and are under a constant threat of being overexploited. Among the 18 hot spots in the world, two are found in India. These are two distinct areas: the Eastern Himalayas and the Western Ghats and are also depicted in the National forest vegetation map of India. Together these 18 sites contain approximately 49 955 endemic plant species, or 20% of the world's recorded plants species, in only 746 400 sq km or 0.5% of the earth's land surface.

1. Eastern Himalayas

Phytogeographically, the Eastern Himalayas forms a distinct floral region and comprises Nepal, Bhutan, neighboring states of east and north-east India, and a contiguous sector Yunnan province in south western China. In the whole of Eastern Himalayas, there are an estimated 9000 plant species, with 3500 (i.e. 39%) of them being endemic. In India's sector of the area, there occur some 5800 plant species, roughly 2000 (i.e. 36%) of them being endemic.

At least 55 flowering plants endemic to this area are recognized as rare, for example, the pitcher plant (*Nepenthes khasiana*). The area has long been recognized as a rich centre of primitive flowering plants and the area is recognized as 'Cradle of Speciation'.

Species of several families of monocotyledons, Orchidaceae, Zingiberaceae and Arecaceae abound in the area. Gymnosperms and pteridophytes (ferns) are also well represented in the area.

The area is also rich in wild relatives of plants of economic significance, e.g. rice banana, citrus, ginger, chilli, jute and sugarcane. The region is regarded as the centre of origin and diversification of five palms of commercial importance namely, coconut, arecanut, palmyra palm, sugar palm and wild date palm.

Tea (*Thea sinensis*) is reported to be in cultivation in this region for the last 40,000 years. Many wild and allied species of tea, the leaves of which are used as substitute of tea, are found growing in the North East in the natural habitats.

The 'taxol' plant *Taxus wallichiana* is sparsely distributed in the region and has come under red data category due to its over exploitation for extraction of a drug effectively used against cancer.

As regards faunal diversity, 63% of the genera of land mammals in India are known from this area. During the last four decades, two new mammals have been discovered from the region: Golden Langur from Assam – Bhutan region, and Namdapha flying squirrel from Arunachal Pradesh indicating the species richness of the region.

The area is also a rich centre of avian diversity – more than 60% of the Indian birds are recorded in the North East. The region also has two endemic genera of lizards, and 35 endemic reptilian species, including two turtle. Of the 204 Indian amphibians, at least 68 species are known

from North East, 20 of which are endemic.

From Namdapha National Park itself, a new genus of mammal, a new subspecies of bird, 6 new species of amphibia, four new species of fish, at least 15 new species of beetles and 6 new species of flies have been discovered (Babu and Arora 1999).

2. Biodiversity of the Western Ghats

The biological diversity of the Western Ghats is one of the world, next only to the Amazon Valley. The high level of biodiversity and endemism in the Western Ghats have conferred on it the status of one of the biodiversity "Hot Spot" of the world. High rate of endemism is one of the most interesting aspects of the floristic of the western Ghats are endemic to them (Ramesh, 1991). The Western Ghats are estimated to be 1500. Of the total 15000 flowering plant species, over 4500 species occur in the Ghats. Out of the 4500 plant species, 1720 are 230 endemic. The region has 490 arborescent taxa, of which as many as 308 are endemics this endemism of tree species shows a distinct trend, being the highest (43%) in 8N-10°30'N location and declining to 11% in 16N - 16°30'N location.

About 1 500 endemic species of dicotyledonous plants are reported from the Western Ghats. 245 species of orchids belonging to 75 genera are found here, of which 112 species in 10 genera are endemic to the region.

As regards the fauna, as many as 315 species of vertebrates belonging to 22 genera are endemic, these include 12 species of mammals, 13 species of birds, 89 species of reptiles, 87 species of amphibians and 104 species of fish.

Along with many endemic species scores of economically and medicinally important species are also found. In addition wild varieties of cultivated plants are found in the region viz. rice, papper, turmeric, ginger, nutmeg etc. Nearly a third of these are rare and threatened and several are believed to have become extinct. About 1000 species are so far listed as endangered in the Western Ghats of the Karnataka region. (Anandara, 1993)

The Uttar Kannada District alone supports about 1750 species of flowering plants, which amounts to 40% found in the Western Ghats, in addition to a variety of ferns, algae, mosses etc. Many more plants are being identified over the years of the 112 Medicinal plants of South India India considered endangered about 60 are found in the Uttar Kannada District The forests of the

Western Ghats may be classified into Evergreens, Semi-evergreens, Solas, Mist Deciduous, Dry Deciduous, Degraded Scrub and Grass lands. The interesting and rare evergreen species include *Dipterocarpus indicus*, *Calophyllum elatum*, *Toona cilista*, *Chukrasia tabularis*, *Amoora* spp, *Canarium strictum* *Dysoxylum malabricum*, *Listsea* spp, *Artocarpus* spp, the Moist and Dry Deciduous forests contain Teak Laurel Wood, Ben Teak, Sandal Etc.

About 586 bird species are listed in the Western Ghats, of Which Uttara Kannada District itself boasts of having 464 species. This comes to 79% of the total species found in the western Ghats. The avifauna of the Western Ghats consists of interesting birds like the Fairy Blue Bird, the southern Trogon, and the Spur fowl etc. The wild animals found in the region are also rare and interesting like the Tiger, the Panther, including the Black Panther, Dhole, Leopard Cat, Rusty spotted Cat, Civets, Stipedecked, Brown and ruddy Mongooses, Elephant, Gaur, Sambar, Chital Barking Deer, Mouse Deer, Fourhorned Antelope, Giant and Grizzled Squirrel, Flying Squirrel, Pangolin Porcupine, Sloth Bear, draco, Wroughtons's Free-Tailed Bat (found only at Bhimgad forests in the entire world), Theobald's Tomb Bat (the only third place found at Bhimgad in the world). The endangered Nilgiri Langur and the Liontailed Macque, are 231 found in karnataka in the genus 'nyctibatrachus' (night frog), endemic to the estern Ghats, has been discovered at the kudremukh National. It is named in the as 'Nyctibatrachus hussaini' after S.A Hussain, the famous naturalist of Dakshina Kannada in the bordering Eastern plains endangered animals like the Wolf, Blackbuck Chinkara, Ratel, Fox and the rare bird the Great Indian Bustard are found.

6. Suggestion

1. Conservation of biodiversity,
2. Generation on income and employment from tourism (long –term and short-term).

3. Proportion of tourism income retained in the local community.
4. Effectiveness of multi-stakeholder processes for management of biodiversity and sustainable tourism.
5. Effectiveness of impact Management.
6. Contribution of tourism to the well-being of the local population.
7. Visitor impacts and visitor satisfaction
8. Awareness campaign explaining the link between cultural diversity and biological including consumers of tourism, developers and tourism operators.
9. Education and awareness-raising is required at all levels of government. This should include processes for increasing mutual understanding between relevant ministers, including joint and innovative approaches for dealing with tourism and environmental issues.
10. The tourism sector as a whole , along with tourist should be encouraged to minimized any negative impacts and maximize positive impacts on biodiversity and local cultures associated with their consumption choices and behavior, for example through voluntary initiatives.
11. Poaching, wild fires, Diseases and grazing are four enemies of the protected areas. These should be effectively controlled by strengthen the infrastructure and by taking preventive measure to preventive the wildlife normally spread into the protected areas through the domesticated cattle.

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