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# ECO NEWS

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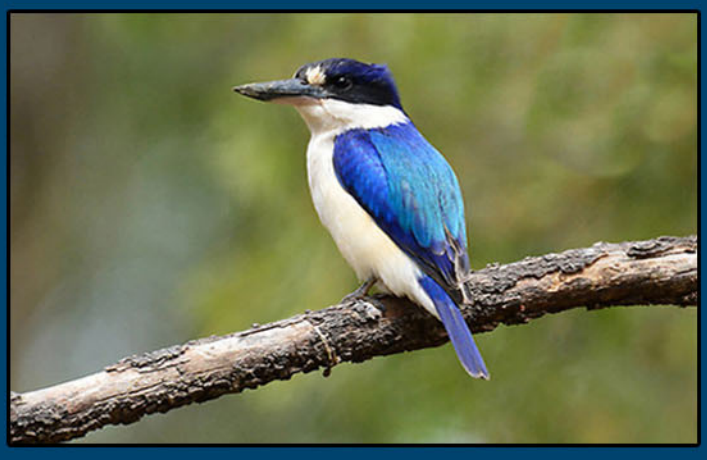

**C.P.R. ENVIRONMENTAL EDUCATION CENTRE**

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# C.P.R. ENVIRONMENTAL EDUCATION CENTRE

## Established in 1989

- ✯ **1980** - The C.P. Ramaswami Aiyar Foundation starts nature education for teachers and students.
- ✯ **1989** - C.P.R. Environmental Education Centre (CPREEC) established jointly by the Ministry of Environment and Forests and the C.P. Ramaswami Aiyar Foundation as a Centre of Excellence of the Ministry of Environment and Forests. Government of India.

## Our Mission

- ✯ To increase knowledge, awareness and interest among the public about the environment in all its aspects
- ✯ To develop resource materials for environmental education and awareness raising
- ✯ To conduct training programmes for a wide cross-section of people
- ✯ To take up environmental projects for demonstration and research

## Our Activities

- ✯ Training and awareness raising
- ✯ Awareness to and through action
- ✯ Awareness programmes in ecologically fragile areas
- ✯ Conservation of the ecological heritage
- ✯ Research and surveys
- ✯ Generation of resource materials
- ✯ Exhibitions
- ✯ Courses, seminars and symposia

## Facilities

- ✯ Environmental Laboratory
- ✯ Library
- ✯ Computer Division
- ✯ Publications Division

## Geographical Spread

CPREEC's activities extend to

- ✯ Andaman & Nicobar Islands
- ✯ Andhra Pradesh
- ✯ Goa
- ✯ Karnataka
- ✯ Kerala
- ✯ Maharashtra
- ✯ Orissa
- ✯ Tamilnadu
- ✯ Puducherry

## NGO Network

CPREEC has an extensive network of about 600 NGOs. All educational programmes are carried out in partnership with select NGOs, Universities, Colleges and Schools.

## Publications

- ✯ Activity and information books and pamphlets for children
- ✯ Environmental training guides and kits for teachers
- ✯ Researched Publications
- ✯ Colourful and informative posters
- ✯ *ECONEWS* - A quarterly magazine
- ✯ *Indian Journal of Environmental Education*, a peer-reviewed journal

## Exhibitions

CPREEC designs three new exhibitions every year and has a bank of mobile exhibitions that travel all over India.

## Environmental Education

- ✯ Green Schools of India (GSI)
- ✯ Training programmes for Teachers
- ✯ Training programmes for School and College Students
- ✯ Environmental Law Education

## Special Projects

- ✯ National Green Corps (NGC)
- ✯ Biomedical Waste
- ✯ Biodiversity Conservation

## Research and Surveys

- ✯ Sustainable Technologies
- ✯ Surveys of Natural Resources
- ✯ Socio-Economic Surveys
- ✯ Lab to Field Technology Transfer

# Contents

# Ecological footprint

**Dr. P. Sudhakar**

We get up in the morning, drink a hot cup of coffee, read the newspaper, take a bath and go to office by two wheeler and reach the office on time. This is our daily routine. Have we ever thought about the total environmental impact involved in each of these daily actvities? Most of us will answer in the negative. The technique used to calculate how our lifestyle impacts the environment and affects the planet is called ecological footprinting.

This technique was developed by Dr. William Rees and Dr. Mathis Wackernagel of the Department of Community and Regional Planning, University of British Columbia.

Ecological footprint is used to estimate the capacity of the land and water in food production, materials, energy utilization and find the amount of waste absorbed. Many materials and human labour are involved in the manufacture of a product. The product is manufactured at various places, various stages and assembled at one table. The product may be imported or exported and the consumer looks only at the end product and never thinks of the process involved in the manufacture which only the ecological footprinting looks upon.

## An example

Many of us drink coffee but we never think of the various stages and processes it passes through to reach our cup. Firstly, appropriate land is needed to grow the coffee plant and adequate water is required for cultivation. Chemicals, fertilizers and pesticides are used in raising the crops. Harvesting the beans, processing and transporting the coffee beans for packing involves labour, machinery and trucks for transportation. The trucks and machinery are made up of metals mined from one part of the earth, forests are cut to lay roads, fossil fuel is used to run the truck, milk from cow and sugar from sugarcane a high water using crop are added to prepare a coffee for consumption. The end product is a cup of coffee, but after a very laborious and environmentally costly process.

Based on the relationship between humanity and the biosphere, an ecological footprint is a measurement of the land area required to sustain a population of any size.

## Some earth facts

- The total area of the earth is 126 billion acres
- The total space occupied by low bio-productive oceans, deserts, ice caps, and human settlement on earth is 94 billion acres
- Total bio-productive land and sea is 32 billion acres
- Current human population is 6 billion

- Bio-productive land and sea available per person today is 5.3 acres
- If we leave 80% wild for the 25 million other species on earth the land available per person is 1 acre currently, the earth is ecologically filled with humans and as one species we overshoot the earth's bio-capacity by 30%!

The 6 billion humans all over the world thrive on the existing biologically productive land and utilize each individual virtual share of 5.5 acres for producing food, shelter, energy, material needs and absorb waste. With the increasing population and the increased consumption, the utilization power of humans has reduced. In this way, in thirty years, the available land for utilization by an individual will be reduced to half an acre.

Due to the industrial revolution, the availability of land and utilization of biological resources is higher in developed countries than in developing and third world countries in several parts of Asia and Africa. It is said that the North Americans are the world's greatest consumers and if people all over the world start consuming like them, we would need four Earths to meet the demand. Here we must remember the saying of Mahatma Gandhi that "Earth provides enough to satisfy every man's need but not every man's greed."

The most developed countries blame environmental degradation and increasing population in developing countries and forget that they contribute by over consumption. If a cake is shared between 4 people, it should be shared equally. But the present position is that a few developed countries consume 3 parts and the balance is left to be shared by the remaining developing countries.

## Aglimpse of Ecological Footprints around the World

- World Average 6.9 acres
- United States 24 acres
- Canada 18 acres
- Switzerland 12 acres
- Russian Federation 11 acres
- Mexico 6.4 acres
- Turkey 5 acres
- China 4 acres
- India 1.9 acres
- Bangladesh 1 acre

*(Source:www.lapostcarbon.org/footprint.htm)*

It is evident from the above that the earth is totally occupied ecologically. The share of the wealthy is much more than that of the poor. Everyone's share is not equally divided and it varies according to their utilization power.

Conclusion

Ecological footprint helps us to step out of a human centered culture and shape our life styles to value the ecology.

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- www.globallivingproject.org/footprint.html
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- www.footprintnetwork.org
- http://www.myfootprint.org/
- http://www.rprogress.org/programs/sustainability/ef

# Disappearing Elephants

**Dr. T. Sundaramoorthy**

The Asian elephant is the largest terrestrial mammal in Asia. The wild Asian elephant population is estimated at about 35,000–40,000. They are mainly living in the wild areas of 13 countries - India, Sri Lanka, Nepal, China, Bhutan, Burma, Bangladesh, Cambodia, Indonesia, Laos, Malaysia, Thailand and Vietnam. An estimated population of 16,000 domesticated elephants is also found in these countries About 50 % of the Asian elephant population is in India. The habitat of the Asian elephant includes savanna, scrub forests and closed canopy forests. The body length of the elephant is 18 to 21 feet and the height is 8–10 feet. The average weight of a mature elephant is about 5000 kg and the food requirement is about 200 kg of vegetation and 200 litres of water per day. The maximum life span of the elephant is 100 years. Elephants spend two-thirds of their day's in grazing. In many parts of India, elephants forage on cultivated crops such as bananas, rice and sugarcane.

According to a study made by Bombay Natural History Society (BNHS), the maximum home range of elephant herds is 650 sq.km. The male female ratio varies from area to area i.e., 1:4 to 1:10. The female and the young elephant live in herds of 3 - 40. The males live separately and have no permanent ties with the females.

According to MoEF, the estimated population of wild elephants in 2002 was 28,274 and the elephant habitat in the country is 1,10,000 sq.km (approximately).

### Why should we protect the elephant?

Although the Asian elephant is a keystone species, its role in the ecological process is poorly understood. The role played by elephants in plant succession, regeneration and plant community pattern is highly valuable. In-depth study and research is required in different parts of the country to understand the role played by elephants in the local ecology.

### Conservation of Asian Elephants

Many people are not aware that the Asian elephant is critically endangered. Habitat loss is the main threat to the survival of a substantial number of Asian wild elephants. Fragmentation of forests, loss of elephant corridors, ivory poaching (622 cases between 1991 and 2001), killing of elephants by the farmers (25 elephants die annually due to poisoning) and decline of the male elephant population are some of the other problems.

While in many Asian countries the elephant is under increasing pressure due to poaching, habitat loss and habitat alteration, in India habitat loss is the most important factor for the decline of elephant population. For example, in the state of Assam about 100 sq.kms. of forests were lost every year between 1990 and 2000.

## Legislation relating to Elephant Conservation

The highest level of protection is given to the Asian elephants at both national and international levels. The Madras Wild Elephant Preservation Act, 1873 was the first legislation which gave protection to the elephant. It was also the first Act related to wildlife in India. Later, the Government of India enacted the Elephant Preservation Act in 1879. The Forest Act, 1927, also gave protection to elephants. The Wildlife (Protection) Act, 1972, superseded all the above mentioned acts and included the elephant in Schedule II (as special game animal it could be captured with a license obtained from the chief wildlife warden). But this Act could not control the ivory trade. Later, in 1976, the Asian elephant was recognized and included in appendix I of CITES (Convention on International Trade in Endangered Species of wild fauna). The IUCN also formed the Asian Elephant Specialist Group. Subsequently, the elephant was transferred to Schedule – I of the Wildlife Protection Act, 1972. This imposed a ban on hunting and capturing of elephants (except for specific purposes). In order to protect the elephant habitats, the Government of India launched Project Elephant in 1992. Under this project about 57,994 sq.kms. are protected. The population of the elephant increased from 15,627 (in 1980) to 28,274 (in 2002). The population increase is, however, not uniform throughout the country. Loss of elephant habitats is noticed in many parts of the country. If Asian elephants are to survive into the next century, habitats in the Nilgiris, Eastern Ghats and Eastern Himalayas should be protected.

Cultural and religious values continue to provide elephants exalted positions of worship and respect. A sincere attempt is essential to reimpose the value system through environmental education and awareness.

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# Project-based Environmental Learning

**U. Thirunavukkarasu**

A child wading through a pool of water; or watching a bird during its flight in total amazement; or exploring a crawling insect – the natural instinct to 'explore and learn' and the child's natural bent of mind for discovery are key to open up the inclination towards nature leading to fruitful environmental education.

Project method of teaching-learning is described generally as, "a defined plan of action by taking up problems and providing solutions through constructive thought and actions". The project method could be effectively employed for educating the children on conservation education. Sir John Dewey (1859 - 1952), philosopher and educationist, developed project method by combining his reflections and experiences. Kilpatric (1871-1965) later systematized it. Kilpatric describes project method as "a wholehearted activity proceeding in a social environment".

A project activity is an in-depth study or investigation of a problem/topic to find out probable working solutions for it. It is based on the principle of learning by doing. It allows the learner to make an in-depth analysis of the problem at hand by approaching it creatively while applying learnt-theoretical principles. The 'project method of teaching' stresses on 'systematic scientific investigation' by applying the 'principle of inquiry' into it.

The project method promotes independent learning by approaching the problem with a purpose to ascertain exact reality. The outcome encourages activities, by experiencing the social realities and guides the learner towards possible solutions or further learning.

The project method can be effectively used as a 'pedagogical tool' in promoting environmental conservation education at the primary and secondary levels of school education.

## Design of Projects

Using a variety of instructional practices, the Environmental Projects have to be designed and used to solve real-world problems including environmental challenges. Creating a curriculum based upon watertight disciplines discourages assimilation of concerns and does not aid in connecting the curricular content to real-life situations. The Project Method encourages understanding content through discovery of solutions to our real-life problems.

The design of the project should give the learner opportunities to delve deep to find out their own way of solving the problem. The multiple ways of approaching an environmental problem in different situations increases the applicability of solutions in varied conditions.

The projects should provide opportunities for real-time experience to the learners by relating it to real-life situations.

The process of projects should provide scope for the learners to understand or unravel the mechanics of micro/macro environmental problems.

The environmental project should provide a platform for the learners to deliberate, argue, collaborate and exchange views on possibilities of arriving at a common consensus.

## Characteristics of a good environmental project

- A good environmental project advocates freedom in approaching an environmental challenge.
- It has a noble purpose of solving micro/macro environmental challenges in a given situation.
- The process of an environmental project should educate the learner.
- It promotes problem-solving approach and inquiry.
- It paves way for crystallisation of positive environmental attitudes in the mind of the learner.
- In the long run, by associating the learning outcomes it should promote concern for the environment.
- A good environmental project does not promote creating 'junk data' which cannot be used or hampers conservation of the rare natural resources.
- It promotes creativity.
- A good environmental project considers the resources involved in the process as scarce and uses them judiciously. Wastage of resources be they financial or material is minimised.
- A good environmental project does not go against the principles of environmental conservation.
- It allows explicability of the solutions, thereby reducing the reinvestigation process costs.

## Purpose of the environmental projects

The project may be to learn about the problem and find solutions to support theoretical learning in mock situations.

- The environmental project may also be carried out to understand the process involved, to find solutions and to solve the micro problems.
- It may be aimed at developing skills in a particular area.

## Merits of environmental projects

- The project method promotes scientific approach towards environmental challenges.
- It guides the learners to choose their individual mode and pace of learning.
- Project method promotes critical thinking and ability to analyse problems.
- The project method creates a conducive learning atmosphere, cohesiveness and exchange of ideas among learners.

The project method requires a creative teacher to facilitate the whole process. The possible role of a facilitator/teacher would be to:

- select a suitable theme for the project - appropriate for the age group
- specify the parameters of investigation
- brief the exact curricular elements
- develop benchmarks and measurement systems for the project
- write out/ inform the code of conduct while on the field
- train the learners on necessary skills for approaching a problem
- guide the learners on relevant resources for cross verification / reference for further study
- form groups to promote teamwork

- ❖ act as a liaison agent between experts, community and the school
- ❖ help the learners to arrive at outcomes of learning set earlier as objectives of the project study

The project method requires various steps on arriving at solutions. It includes identification of the problem; specifying the purpose; planning the work; carrying out the components of the project; identification of variables; recording the interaction and collecting the data; evaluating the outcome and documenting the entire process for further learning. The process can be further elaborated or truncated as per the necessity of the study.

### Conclusion

Projects provide learners the chance to delve deeply and find their own way through challenging intellectual processes. If given a chance, the learner proves his/her credentials in an effective manner. It is for the environmental educators and the teaching community to devise innovative project - learning methods and use them to develop proper consciousness and attitude towards natural resources and their conservation.

# Impact of Genetic Modification on Environment and Biodiversity

**R. Sabesh**

Genetic modification is a technology developed about 30 years ago for altering the characteristics of living organisms such as plants and animals including microorganisms in order to make them capable of performing new or different functions. Genetic modification is also termed genetic engineering. Scientists across the world recommend genetic modification/Biotechnology so as to accelerate the efficiency and extent of further crop improvement. This is achieved by the transfer of genes conferring resistance to pests, diseases, herbicides, environmental stress as well as quality traits such as improved post-harvest storage, flavour, nutritional content and colour. Genetically modified (GM) organisms could have positive and negative effects on the environment, biodiversity and economy.

### Genetically modified crops: overview

The global demand for food is increasing because of the growing world population and decreasing arable land. At the same time food and agricultural systems have to respond to several changes such as increasing international competition, globalization and rising consumer demands for improved food quality, safety, health enhancement and convenience. Modern biotechnology involving the use of DNA technology/ genetic engineering has emerged as a powerful tool with many potential applications for improving the quantity and quality of food supply. Various methods have been developed with the aim of enhancing productivity, decreasing the use of certain agricultural chemicals, modifying the inherent properties of crops

and improving the nutritional value. Foods derived from genetically modified crops, commonly referred to as genetically modified food and food ingredients have already become available worldwide.

During the past six years commercially grown genetically modified crops have increased more than thirty-fold all over the world. In developing countries in particular the genetically modified crop area is anticipated to increase rapidly in the coming years. Despite the potential benefits of this new technology to improve the reliability and quality of the world food supply, public and scientific concerns have been raised about the environmental and food safety of genetically modified crops. Safety concerns are being converted into extensive bodies of regulation and legislation. Any assessment and accompanying regulation of the impact of a particular human activity, requires a baseline for comparison. Regulatory approaches for genetically modified organisms in the European Union are based on the process of making genetically modified crops whereas in the US, they depend upon the characteristics of the GM product. Many other countries are in the process of establishing regulation based on either system or their combination. Without the consent of the society at large, GM crops will fail in the marketplace.

## Trends in the regulation and legislation of genetically modified organisms

The ongoing globalization of agricultural production and the projected or increased role of GM crops in that production put pressure on the global harmonization of regulation and legislation of genetically modified crops. Greater harmony over key terms in legislation is clearly important. Harmonization will not only address the safety of growing and consuming genetically modified crops, but will also include various issues raised by various organizations and interest groups. These apprehensions arise because genetic engineering crosses the species barrier as compared to classical selection techniques, thereby permitting the gene transfer among microorganisms, plants and animals. Although there is no evidence that any unique hazard exists in the development of genetic modification, the risk because of novel combinations of genes cannot be discounted. Further the concerns in agriculture do not necessarily lie with the characteristics of the products but rather with the way it is produced particularly in case of food crops. Any innovation in the process of production of crops particularly the food crops, raises suspicion particularly with consumers and food experts. Therefore bio-safety legislation and regulatory institutions to implement them have been put in place by many countries including India. This is mandatory both for research and trade of genetically modified crops and food ingredients derived from them. There are elaborate steps to manage these risks and it is the responsibility of the scientists, industry and the government to assure the public about the safety of the food products derived through genetic modification. Eco The regulatory framework for transgenic crops in India consists of the following rules and guidelines.

- Rules and policies Rules 1989 under Environment Protection Act (1986)
- Seed Policy 2002
- Guidelines Recombinant DNA guidelines,1990
- Guidelines for research in transgenic crops,1998

The Ministry of Environment & Forests, Government of India notified the rules

and procedures for the manufacture, import, use, research and release of genetically modified organisms (GMOs) as well as products made by the use of such organisms on December 5,1989 under the Environmental Protection Act1986 (EPA). These rules and regulations commonly referred to as Rules 1989 cover the areas of research as well as large-scale applications of GMOs and the products made through the genetic modification in India. A copy of the rules can be accessed through the Ministry of Environment and Forests website (*http://envfor.nic.in*).

## Conclusion

There are different views on genetic modification. Some scientists say the potential benefits of genetic modification are very important hence we cannot ignore them. Some other scientists say that we should wait until we know more about the technology before proceeding to the application level. Many people consider the potential risks to be too great to allow release, but will support laboratory research. Some environmental activists say that all genetic modification goes too far in "tampering with nature" and should be completely stopped. Any new variety of genetically modified plants/animals must be tested thoroughly for its qualities before being released. Genetically modified plants before they are approved for cultivation need to be tested for their quality particularly to ascertain whether they are toxic to the environment or a threat to the biodiversity. Proper precautions and controls have to be exercised before they are marketed. It is certainly self-defeating if we ban all genetically modified organisms on account of certain problems and fears. Instead, the enforcement of the above said regulations by the concerned authorities must be strengthened in all possible ways.

# Folk deities associated with the Sacred groves of India

**M. Amirthalingam**

Sacred groves are small patches of forest left untouched by the local communities protected by the local folk deities. Several such groves are reported in many parts of India. The deities protecting the sacred groves vary from state to state. In India, dedicating groves to the local deities was a common practice of pre-agricultural, hunting and gathering societies. These groves safeguard many plant species like trees, climbers, orchids and ferns and also provides food and shelter for myriad of birds and animals which otherwise would have become extinct. Thus sacred groves are playing a crucial role in the conservation of forests, water and soil.

Sacred groves dedicated to the deities are found throughout India. The deities may be a male god, a female goddess, animals or ancestors (Patnaik and Pandey, 1998). At the dawn of religious thinking, deities were imagined by primitive societies to reside in stones, trees, animals and woods.

Kosambi (1962) and Gadgil and Vartak (1976, 1981) state that most of the cults associated with the sacred groves in Maharashtra are Mother Goddess cults. The Mother goddesses are usually found in the form of unshaped stone lumps smeared with vermilion, lying in the open air. The Mother goddess never has a male consort, a reminder of the age when marriage in the present form was totally unknown. The red paint smearing the goddess represents the course of the blood of sacrificial victims.

The principal deity of the Mahadeokoli in Maharashtra is *Maruti,* the monkey god. The forest male gods are *Vaghoba, Vira, Cheda, Bhiroba, Khandoba, Vetal, Mhasha, Chevata,* etc. The deities may be installed in the forest patch or even under a single tree. Female deities include *Kamaljai, Mariai, Bhavani, Bhagvati and Tathawade.* Sontheimer (1989) traces the origin of Khandoba to the worship of the ant-hill, the seat of snakes. For the forest tribes and pastorals the ant-hill was also the seat of wealth.

In West Bengal, the cults surrounding the sacred groves range from tribal deities and ancestral spirits to deities such as *Kali, Grama Devta*, *Jaher*, *Sitala*, *Manasa*, *Bhairabhi*, *Sabitri*, *Gouri*, *Chakrasini*, *Santalburi*, *Jugithakur* etc. (Malhotra, K.C., S. Stanley, N.S. Hemam and Ketaki Das, 1997; Dev, 2007). In southwest Bengal and in Koraput district of Orissa, the deities are mostly female (Hemam, et. al., 1997). Tribes of Chhattisgarh believe that the goddess *Mata* resides in the groves such as '*devgudi*' and '*Gaondevi*' and guards them.

The '*Umanglai*' (sacred deities or sylvan-deities) of Manipur are the mysterious deities believed to reside in the sacred groves. Mayokpha sacred grove at

Elangbam Leikai Keisamthong is associated with the deity '*Pungjao Lakpa*', an incarnation of '*Pakhangba*' (snake). There are few other sacred groves which are associated with snakes and they provide natural shelter for birds and mammals, particularly the Rhesus monkey and flying fox (Ashalata Devi, Khan and Tripathi, 2004).

In Uttaranchal, the *Dev Vans* are dedicated either to female goddesses *Nanda, Hariyaji, Kotgari, Aeri, Kanardevi, Kalika, Kokila, and Chamunda* or to a male deity like *Haru Saim, Gangnath, Chaumu,* etc. One such example is *Shyahi* Devi forest in Almora, which was recently offered to the goddess for conservation.

Sacred groves of Kalbisht, Chamarkhan, Chitai and Ghorakhal in Kumaun region of Uttarakhand are supposed to be protected by the folk deities such as *Golu/ Gwal/Gwel Devta* or *Goria baba* (Dhaila and Adhikari, 2007).

Presiding deity of the sacred groves in the Karnataka and Kerala are '*Ayyanaar*', '*Sastha*' '*Bhagavathi*' '*Sarpa kavu*' 'Amman' '*Jatakappa*', '*Bhutappa*' and '*Choudamma*'. God '*Mailara*' of Karnataka and the ubiquitous '*Bhairava*' and '*Govardhan*' of Braj belong to a group of ancient folk deities inhabiting forests and mountains.

In Tamilnadu sacred groves are guarded by the folk deities and spirits *(vanadevathai)* such as *Ayyanar* - the guardian deity; *Sastha, Muniyappa, Karuppuswami, Veeran* are the *Kaaval teivam* or protective deity, *Andavar* is believed to a powerful wish-fulfilling deity; goddesses *Selliyamman, Kali, Ellaikali, Ellaipidari, Pechiyamman, Rakkachiyamman and Nagadevadhai* are the deities of fertility and wealth and the *Sapta Kannis* are the deity which are associated with stream that is the source of water (Amirthalingam, 1998).

It is interesting to note that the sacred groves are offered to the local folk deities because, these deities are associated with the local people's socio-religious and socio-cultural life and thus are protected with fear and faith. People believe that any damage to the sacred grove, harm to the fauna residing in it or felling of any tree may invite the wrath of the local deity, causing diseases and failure of agricultural crops. Even taking a dry twig is forbidden in some groves. Therefore, many people will not even take dead wood out of sacred groves. Folklore plays an important role in conservation of sacred groves. Not only tribal people, the rural people also preserved the sacred groves by their traditional customs, rituals, ceremonies and folk-beliefs.

Ecologically, sacred groves are playing an important role in the conservation of species diversity. They are home for indigenous flora and fauna, which contain some endangered, rare and threatened and indigenous medicinal plant species. Soil fertility is maintained by the decomposition of the leaves, wood, twigs and thus they maintain the nutrient cycle. Sacred groves control the soil erosion and surface water runoff and thus help in retention of subsoil water and in recharging the ground water level. They also serve as a seed source through the dispersal by birds for the ecological restoration of degraded landscapes. Sacred groves are the last remnants of the native vegetation and it is the deities of the sacred groves that are protecting them for the future generation.

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# Threatened Bird Diversity in the Nilgiris

**M. Kumaravelu**

In India, the term 'forest' is generally used for thick evergreen vegetative covers. The green patches such as grasslands and scrub jungles are being largely neglected and often prone to degradation. The attitude of considering the evergreen patch of forests alone for conservation strategy will not support in maintaining undulating forest ranges. In 1950s, the grasslands in the upper reaches of the Nilgiris, were replaced by exotic plantations including the wattle and the eucalyptus species. Of late, the unclassed forest (UF) i.e. the wooded land recorded as forest but not included in reserved forest category are being encroached by the people mainly for cash crops.

## Eastern slopes of Nilgiris

The eastern slopes of the Nilgiris from Kaniyanpura corridor of Karnataka to the Palakkad pass encompass a wide variety of green cover that includes evergreen to thorny scrub jungle. Likewise, the faunal and avian diversity is also rich in this area. Many parts of the eastern slopes facilitate elephants to move from Eastern Ghats to Western Ghats; and from the Sigur plateau to other upper reaches of Nilgiris. The importance of this eastern slope is evident from the words of Dr T. Sekar, who says "*Gajalhatti* (name of the place) stemming from the Sanskrit translation of 'elephant' has been an elephant corridor that served as a passage for elephants migrating between the eastern and western Ghats in search of food, water and for breeding for thousands of years". Besides, the Sujilkuttai sanctuary has been proposed for conserving Black buck in the Sathyamangalam division.

Avifauna is abundant in these slopes; birds like shama, racket-tailed drango and hornbills are common. More than 350 resident as well as migratory birds have been recorded on the hill and plains region of Nilgiris. The threat in this area to avian diversity is high compared to other areas of the Nilgiris.

## Threat to Eastern Slopes of Nilgiris

Increasing human population in Thengumarahada village constantly poses a threat to diversity of this region. The Thengumarahada was originally given to the indigenous Badaga community of Sholurmattam on long lease for rearing cattle for their livelihood. In due course, the people from nearby towns entered, established and expanded their settlement. Since, the Thengumarahada village is on long lease on the forestland, they should vacate the same by 2013.

Without knowing this fact many Non-governmental organisations and government departments are encouraging and supporting the activities of the villagers. These kinds of support promote their demand for roads and railways through the virgin forestland. On the other hand, the large scale illegal felling of tall trees on the eastern slopes of the Nilgiris hastens the disappearance of endangered bird species including major birds of prey.

Every bird species has a particular habitat which has evolved along with the

birds over thousands of years. If the characteristics of their environment are changed, the survival of the species cannot be assured for long. It is a well known fact that these specialized ecological niches enable a wide range of animals to exist. The flora and fauna go together and one cannot exist without the other. Different birds have different ecological niches. For example, hornbill, owl, vulture, hawks, eagle species choose tall trees for nesting. Hence, naturally, if the tall trees are removed, the birds of prey will become extinct. Fast disappearance of tall tree cover from the eastern slopes - particularly Sholurmattam, Kunchappanai, Pillur, Siruvani and Velliangiri slopes - have hastened the disappearance of such magnificent bird species.

Innumerable buildings and amusement parks are mushrooming all along the slopes from Kallar to Palakad pass. This has resulted in fragmentation of forests and paralyzing animal movement. The only successful incident that took place in Karnataka to save the corridor is that of the acquirement of Kaniyanpura corridor.

Rapid spreading of exotic plant species like lantana camera and parthenium curbs the regeneration of forests. Within these forests cattle grazing increases depletion of undergrowth. Simultaneously the herbivore species find it difficult to obtain forage.

## Conclusion

Forests of any kind from tall tree canopies to grasslands should be protected at any cost. Failing which, not only will the corridors disappear, but many bird species will also become extinct.

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