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**From the ENVIS Desk...**

The ENVIS Centre at CPREEC was established in April 2002 by the **Environmental Information System (ENVIS)** of the **Ministry of Environment, Forest and Climate Change (MoEF&CC)**, Government of India and assigned the responsibility for being the focal point for the thematic area of *“Ecological Heritage and Sacred Sites of India”*.

Heritage is the cultural, social and spiritual legacy that we inherit from our past and pass on to the future. Indian heritage is unique in its reverence for Mother Nature in all her manifestations. Ancient traditions, rituals and practices have embedded this reverence in religion and even in normal day-to-day living. The respect for nature and the belief that every organism on earth has a special role in life's cycle forms the core of our ecological heritage.

To maintain humankind's resilience in the face of change, it is necessary to draw on the best available knowledge, regardless of its origins. The process of updating knowledge systems provides opportunities to develop a deeper understanding of observed events and their consequences. It facilitates and leads to a joint assessment of information, resulting in new insights and innovations, and in better informed actions.

The main purpose of this **“Newsletter”** is to bring forth and publish articles concerning all aspects related to the knowledge of ecological traditions in India as well as novel interpretations and theoretical issues related to the conservation of the same.

This issue covers an article on **‘Sacred groves of north Kerala: The last refuge for biodiversity amongst urbanisation’**. In spite of urbanisation and development pressures, the northern districts of Kerala have managed to conserve many sacred groves. These sacred groves support a diverse bird life. Article shows that the number of species has remained almost constant over decades

in these groves whereas in other habitats, such as wetlands, they have reduced. An important threat is the expansion of the temples inside the groves. To maintain the biodiversity the temples need to remain in their original size and popularity. The author has referred and quoted CPREEC – ENVIS RP in her article.

CPREEC ENVIS Centre has already published books about the “Ecological Traditions” of fifteen (15) states of India, viz., Assam, Andhra Pradesh, Goa, Gujarat, Jharkhand, Karnataka, Kerala, Madhya Pradesh & Chhattisgarh, Maharashtra, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu, and West Bengal. The Centre has, over the years, promoted and encouraged communities to adopt local traditions, practices and rituals that possess ecological significance.

The Centre also focuses on eco-restoration, conservation, creation of environmental assets and advocates the sustainable use of natural resources. The Centre has restored several degraded sacred groves in Andhra Pradesh, Karnataka and Tamilnadu.

The Centre has also documented sacred groves/forests (10,377), sacred gardens (60), sacred plants (90), sacred animals (57), sacred rivers (25), sacred water bodies (365), sacred mountains (176), sacred cities/sites (219), sacred seeds (10), sacred caves (209) and sacred pilgrimages (37), traditional ecological knowledge (44) and UNESCO World Heritage Sites in India (33) till date.

We would like to thank our readers for sharing their articles, photographs and also for their queries and feedback regarding our newsletters, publications and about information provided in our website [www.cpreecenvis.nic.in](http://www.cpreecenvis.nic.in)

We cordially invite other scholars and interested persons to share their knowledge and information by contributing popular articles and good quality photographs on the subject areas present in our website.



## Cover Story

# SACRED GROVES OF NORTH KERALA: THE LAST REFUGE FOR BIODIVERSITY AMONGST URBANISATION

by Haritha John \*



*Kanathoor kavu in northern Kerala. Photo by S.K. Mohan.*

A stone idol as a deity and a lighted stone lamp placed amidst a thick, bushy forest patch, surrounded by the chirping of birds and beetles is the traditional image of a *kavu* (sacred grove) in Kerala. Decades ago, there were thousands of them across the state, some just a clump of trees and others expanding over acres of land. But these groves have been changing in the recent years. While many have disappeared, in others, the temples have grown to bigger structures and wide roads and pavements have been carved through forest patches.

Despite their decline, they still serve the purpose of reminiscing the past where people worshiped nature together with their deities, conserving biodiversity along with the culture. They exist even today, amidst human



*Kavus are groves of trees with religious significance in Kerala. A traditional kavu has a stone deity and a lighted stone lamp placed in a forest patch. Photo by S.K. Mohan.*

settlements and urban areas and are rich in biodiversity that has been protected by local people for their religious and cultural beliefs. The groves have different deities and varied legends associated with them.

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\* Mongabay News & Inspiration from Nature's Frontline in India

The *kavus* are more famous and prominent in north Kerala, especially in Kannur and Kasaragod districts. There are many groves that have been maintained close to their original form. The presence of many forest species in these *kavus* makes them unique.

Theyyam is performed in these grove temples in northern Kerala, where deities are believed to take human forms and meet devotees. *Kavus* are classified based on the deities they support, like Ayyappan, Bhagavathy or Muthappan (an incarnation of Siva). Then, there are those for serpent gods and spirits (*sarpa kavu* and *yakshi kavu*).

The C.P.R. Environmental Education Centre (CPREEC), hosted by the Ministry of Environment, Forest and Climate Change (MoEF&CC) Government of India, in a report has identified about 1000 small and large *kavus* in Kannur and Kasaragod districts alone. But presently many of them have vanished.

C. Shashikumar, noted bird watcher and environmentalist, in his studies has mentioned that there are 576 known *kavus* in northern Kerala.

### **Bird life has remained stable in these groves**

P. O. Nameer, Professor and Head, Centre for Wildlife Studies, College of Forestry of the Kerala Agricultural University (KAU) and K.M. Jyothi of KAU did a study in 15 major sacred groves of Kannur and Kasaragod districts in 2015. “We observed 107 bird species belonging to 48 families and 17 orders, among which 25 percent of the bird species were forest birds and 17 species were migratory birds,” Nameer told Mongabay-India.

“The sacred groves of northern Kerala also support two endemic bird species of the Western Ghats, such as the Malabar Grey Hornbill (*Ocyrceros griseus*) and Rufous Babbler (*Turdoides subrufa*). Apart from that five species of raptors and four owl species were also reported in the study,” he said.

“In Thazhekavu (Kannur district) we had spotted the black headed ibis (*Threskiornis melanocephalus*), a near threatened bird,” Nameer added.

Sashikumar had identified four species of endemic birds including grey headed bulbul and small sun bird, in his study in 2004 of the sacred groves of north Kerala. His study had identified 129 species of birds from 15 sacred groves. Among these, 18.6 percent of the birds were migrants while the rest (81.4 percent) were residents, and 71 bird species were identified as forest birds.

“Out of the 115 species of forest birds found in Kerala, 61.74 percent were recorded in the sacred groves,” Sashikumar said in his study. “A total of 26 forest interior bird species were recorded from the 15 sacred groves. But the majority of the forest birds (53 percent) found in the sacred groves belonged to forest edge species.”

E. Unnikrishnan, an environmental activist who has studied the sacred groves of northern Kerala extensively since the beginning of 1990s told Mongabay-India that in his studies he has spotted 66 bird species in prominent *kavus* of northern Kerala.

“Among them, 12 species were migratory and 27 were forest birds. Rest of the 27 birds are urban-rural ones, but most of them are rarely sighted outside sacred groves,” he said. He also added that now about 250 species of birds



depend on these sacred groves for their survival. His study also revealed that 24 species of birds breed in these groves and 14 among them were forest birds.



*The sacred groves of Kerala are important for protection of bird species that rely on the groves for survival. The population of birds in these groves has remained stable over the years. Photo by S.K. Mohan.*

Sacred groves that include mangrove forests and swamps are the peculiarity of very few north Kerala *kavus*. They host rare wetland birds including migratory ones.

“As per recent studies the sacred groves of north Kerala host 17 species of migratory birds. There will be more for sure,” Nameer said.

According to Sashikumar, the numbers of species of birds which live in the groves are almost consistent over the years, even while the numbers of wetland birds have decreased. He studied and monitored Chirayil *Kavu* in Kannur district continuously for 23 years and has discovered that the population of the resident forest birds was almost constant during the study period and one species became extinct in the grove but made its reappearance after a gap of 10 years. This showed the importance of such groves in bird conservation.

“Except for one species, the dark-fronted babbler (*Rhopocichla atriceps*), the number of all other species has remained the same during the 23 years of monitoring. This species disappeared from the grove during the study and reappeared in June 2004, after an absence of 10 years,” Sashikumar said.

### Refuge habitats supporting a robust web of life

The presence of birds of prey or raptors in these groves is considered to be significant by environmentalists. The birds prey mainly on rodents.

“The predators such as eagles, hawks and large owls require large territories and are sensitive to disturbances of their habitat. They need intact forests for parts of their life cycles. Even small changes in the environment conditions or forest extent notably affect these species. Their presence in these sacred groves indicates a sufficient prey base and thus the high quality of the ecosystem,” Sashikumar said.

Apart from huge trees as shelter, constant availability of food and water also nurtures breeding of birds in the *kavus*. Shallow rock ponds are the water sources inside many sacred groves. Water gets stored in these tanks during rainy season and it slowly dries up in summer. These ponds also have fish and frogs on which the birds feed.

“The breeding of white-bellied sea eagle in the sacred groves is very significant for the conservation of the species. In our study we have spotted them in *Edayilakadu kavu*, a sacred grove in Kasaragod District,” Nameer noted.

### These groves face multiple threats

“Several threats like dumping of waste including plastic, encroachment, people extensively using



*Theyyam is performed in these grove temples in northern Kerala, where deities are believed to take human forms and meet devotees. Photo by S.K. Mohan.*

the trails passing through the sacred groves and quality deterioration due to urbanisation are affecting these groves,” Nameer mentioned in his study.

Unnikrishnan raised much more serious concerns over conservation of these groves. Since most of these groves are in private lands people find different ways to get rid of them.

“Earlier people were scared to destroy them, but now there are certain religious practices to destroy a sacred grove and just maintain a deity. With certain prayers and offerings people cut off all the trees and just keep the deity in a corner,” he said, adding that there should be some legal rules and institutional mechanism to protect and conserve the *kavus*.

There is also the threat caused by the expansion of the temples inside the *kavus*. Earlier the deities were just a stone carving or a wooden sculpture. Only a small space was provided for the worship and rest of the area were dense forest patch. “That has changed and many big temples are being constructed inside. This is not a good trend. So rather than religious reasons people should realise the ecological importance of these groves,” Sashikumar opined. It would be best if these godly abodes inside the sacred groves are preserved in their original forms, so that they can continue to be the refuge for biological diversity.

**Source:** <https://india.mongabay.com/2019/01/sacred-groves-of-north-kerala-the-last-refuge-for-biodiversity-amongst-urbanisation/>



## — News —

### ADAPT TO PERFORM

by Angshuman Dutta\*

The term ‘adaptogens’ broadly refers to a group of herbs and botanicals that can have positive effects on the body’s physiological system, including improvements in immunity, strength, cognition, and protection against various external pathogens. While India and China have been using adaptogens since ancient times, other countries and communities, too, have identified and used numerous such adaptogens to prevent, cure, or simply improve their health and vitality.

In the mid-20th century, the Russian sports scientists were tasked with developing super athletes – athletes who could dominate world sports.

A substantial number of modern sports techniques, including dietary interventions, can be attributed to these Russian Scientists. A few of them started their research on how these ancient herbs and botanicals could impact the athletes’ performance. They established a positive correlation between the intake of these adaptogens and performance. The Russians were the first to use adaptogens is that they do not fall in the prohibited list, which means they can be used without the fear of getting entangled in a doping test.

While adaptogens have a wide range of applications not limited to sports, a few of them do show considerable positive impact on



Courtesy: The Assam Tribune – Guwahati, 13.08.2021, pg.17.

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athletic performance. A few notable ones are Ashwagandha (*Withania somnifera*), Rhodiola (*Rhodiola rosea*), Siberian Ginseng (*Eleutherococcus senticosus*), etc. Ashwagandha is well-known in the fitness circuit as a potent tonic. It has shown to increase anaerobic exercise capacity or strength-based training and power. It has other potential benefits including anxiolytic, improvement of mood and cognition, and also testosterone.

Rhodiola, is a herb native to Canada, Siberia, and Scandinavia. For athletes, it seems to have multiple benefits, including reduction of muscle-induced fatigue, enhanced recovery from intensive training, improvement in power and aerobic capacity.

While most types of ginsengs are used as a general health tonic with numerous potential benefits, the Siberian Ginseng is one of great interest to athletes. It has shown to increase mitochondrial density, reducing recovery

times, decrease cortisol production, and also improving immunity. It may potentially improve Vo2 max, fat oxidation, and anaerobic work capacity. Vo2 max basically means the capacity of your body to use the available oxygen. The more oxygen your body is able to use, the more work it can do; which, in athletic terms, means higher endurance and cardiovascular capacity – an asset for any athlete.

At a time when athletes are constantly looking for means to improve their performances, and sometimes falling prey to illegal drugs and substances, adaptogens may be a safer alternative. The best part is that these adaptogens can be used by regular fitness enthusiasts, too, as they improve the overall quality of life and sense of wellbeing.

**Source:** The Assam Tribune – Guwahati, 13.08.2021, pg.17.





## — In-focus —

### ONLINE QUIZ CONTEST FOR INTERNATIONAL TIGER DAY 2021 CELEBRATION

As part of observing International Tiger Day, CPREEC ENVIS –RP, Chennai organized an online quiz contest for School / College students and General public.



## INTERNATIONAL TIGER DAY

### ONLINE QUIZ CONTEST

- 29 JULY, 2021

Click here to join the Online Quiz Contest  
at 11.00 a.m.

Winners will be  
announced  
and awarded on  
5 August, 2021  
E-certificate will be  
awarded to  
all participants.





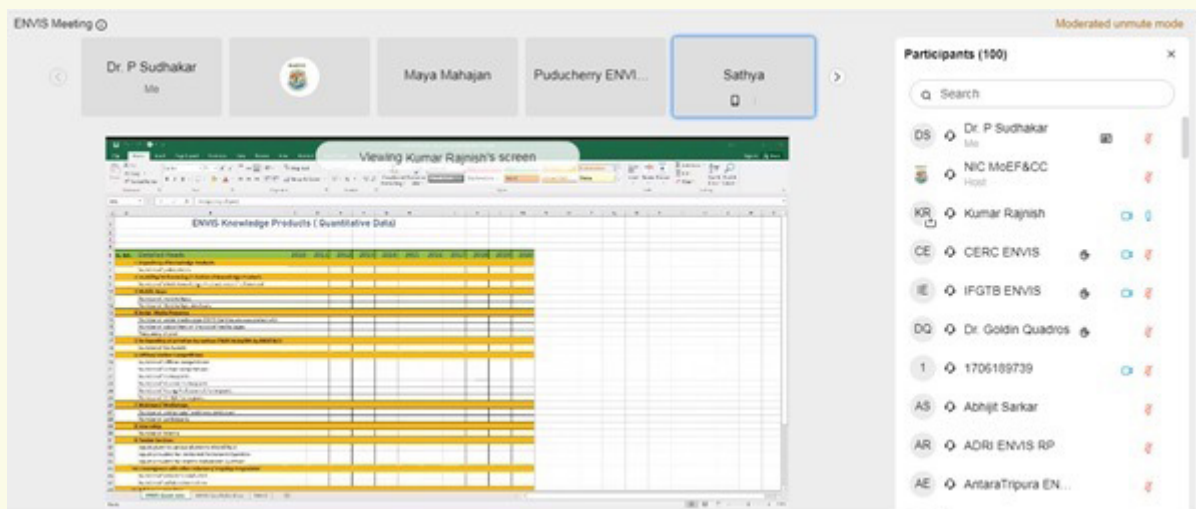
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### VC (VIDEO CONFERENCING) MEET 2021

The Video Conference (VC) was organized by the MoEF&CC for discussion on ENVIS Questionnaire Proforma (from F.Y. 2011 – 2020) on 18th August 2021. The VC was chaired by Dr. Lipika Roy, Deputy Director, MoEF&CC. Dr. P. Sudhakar, ENVIS Coordinator and Dr. A. Abirami, ENVIS Programme Officer attended the meeting.



## Abstracts of Recent Publications

❖ **Chandra Singh Negi., “Developing sacred forests into biodiversity heritage sites-experiences from the state of Uttarakhand, Central Himalaya, India”, *Indian Journal of Traditional Knowledge*, Vol. 1 (1), pp. 96-102, 2015.**

The provision of declaring Biodiversity Heritage Sites (BHS) in the National Biodiversity Act 2002 provides an opportunity to give recognition to the community initiatives vis-à-vis the institution of the sacred natural sites (SNS). In brief, the salient feature of the Biodiversity Act 2002, as relates to the BHS, is that the state government in consultation with the local bodies may notify in official gazette, biodiversity rich areas, including the SNS as BHS. Subsequently, under sub-section (2) of section 37, the state government in consultation with the Central government may frame rules for the management and conservation of BHS. As per the guidelines framed by the National Biodiversity Authority of India (NBAI), Chennai, for the selection of the sacred natural sites as BHS, and for the constitution of Biodiversity Management Committee (BMC) to manage the BHS, 13 sacred forests across eight hill districts of Uttarakhand were selected. The present paper in brief, attempts to bring forth the salient features of the sacred sites as relates to the precise status of the taboo system or the traditional norms governing the resource utilization, the floral diversity, ecosystem services provided, importance in terms of refuge for wild endangered species of fauna, eco-tourism potential, and else. The paper in addition incorporates the experiences gained

in the constitution of BMC, and ends with recommendations as to how to proceed with the establishment of the biodiversity heritage sites vis-à-vis sacred forests.

**Keywords:** *Biodiversity; Biodiversity heritage site; Biodiversity management committee; Ecosystem services; Sacred forests and taboo.*

❖ **Sabeen Ahmad Sofi., and Mohd Ashraf Amit., “Garden system in Kashmir history: A case study of Shalimar Garden”, *Journal of Shanghai Jiaotong University*, Vol. 16 (12), pp. 430-435, 2020.**

The history of garden creation doesn't go back the Mughals in valley; instead its history goes back to earlier period. The garden tradition improved by sultans of Kashmir and also the Mughals took it to new heights. During Muslim period in valley, the kings were very fond of laying gardens and to construct structures, However, similar structures are currently a region of history. Mughal rulers in Kashmir valley laid beautiful gardens throughout length and breadth with vast experience and exposure of Persian garden system. Kashmir opened up a new world and released a flood of creativity to the Mughals whom the making of gardens was a ruling passion.

**Keywords:** *Ancient; Charm; Garden; Floriculture; Persian; Passion.*

❖ **Sheba, L. A., and Anuradha, V., “An updated review on *Couroupita guianensis***



**Aubl: a sacred plant of India with myriad medicinal properties”, Journal of Herbmec Pharmacology, Vol. 9 (1), pp. 1-11, 2020.**

From ancient times, medicinal plants have been making important contributions to mankind owing to their healing properties. Their fundamental aspects such as safety, quality, and efficiency ensure the role of plant-based medicines in healthcare. *Couroupita guianensis* Aubl, commonly known as cannonball tree, is a member of the family *Lecythidaceae* (Brazil-nut family). Cannonball tree has gained worldwide attention because of its immense therapeutic values including antibiotic, antiseptic, anti-inflammatory, antimicrobial, anti-mycobacterial, analgesic, anti-arthritis, anti-biofilm, antidiarrheal, antifertility, antipyretic, anti-stress, antitumor, antiulcer, anti-dermatophytic, wound healing and immunomodulatory activities. Almost all parts of the tree have been used traditionally for treating various ailments. It has been reported that *C. guianensis* is a rich source of bioactive compounds, specifically the presence of isatin, tryptanthrin, and indirubin is noteworthy. The present review covers in-depth literature survey concerning ecology, morphology, ethnopharmacology, phytochemistry and toxicological information of *C. guianensis*. This review attempts to summarise information relating to the medicinal value of *C. guianensis* to date in order to provide baseline knowledge for future works.

**Keywords:** Cannonball tree; Wound healing; Anticancer; Isatin; Tryptanthrin; Indirubin.

❖ **Gairola, S. U., “Protection of environment through green pilgrimage: A review article”, International Journal of Ecology and Environmental Sciences, Vol. 2 (3), pp. 199-203, 2020.**

A pilgrimage is a divine experience. In Hinduism, pilgrimage is the practice of journeying to the sites of religious powers and knowledge. The word ‘pilgrim’ denotes a person who is on a religious travel. The word pilgrim is derived from a Latin word ‘peregrinus’ which means traveller, globetrotter or a person belonging to other country. In today’s world, pilgrimages have become corrupted by consumerism. Pilgrimage sites are often located in spots of natural beauty. In earlier days, a pilgrimage was considered as a holy journey which was full of odds. Increased and improved transportation had enhanced the accessibility of the tough religious sites which had led to multifold dumping of filth and waste. Natural forests had also been affected due to religious observances. Thus, there is an urgent need to shift from the concept of just a “pilgrimage” to “green pilgrimage”. This paper highlights the significance of green pilgrimage and its beneficial effects on the environment of the present day. Green pilgrimage is need of an hour. The sustainable behaviour of green pilgrimage surely shows the way to protect the environment by changing the mindset of the pilgrims.

**Keywords:** Pilgrimage; Consumerism; Accessibility; Dumping; Religious observances; Green pilgrimage.

Website: [www.cpreecenvis.nic.in](http://www.cpreecenvis.nic.in)

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- Sacred Animals
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