ISSN : 0975 - 9387

C.P.R. ENVIRONMENTAL EDUCATION CENTRE

ECO-HERITAGE.COM

ENVIS Newsletter

Thematic Area: Conservation of Ecological Heritage and Sacred Sites of India

Website : www.cpreecenvis.nic.in **April - June 2015, Vol. XIV No. 1**

From the ENVIS Desk...

In 2002, an ENVIS Node was established at C.P.R Environmental Education Centre (CPREEC) on "CONSERVATION OF ECOLOGICAL HERITAGE AND SACRED SITES OF INDIA" under the World Bank Project. This Node developed into an ENVIS Centre on the same subject in April 2004.

The ENVIS Centre at CPREEC was identified as the SDNP Partner on the thematic area of Ecological Heritage. In 2005, the Indian Chapter of SDNP was implemented by the Environmental Information System (ENVIS) department of the Ministry of Environment and Forests, in collaboration with the India-Canada Environment Facility (ICEF). In 2006, CPREEC's ENVIS Centre received the "Best ENVIS Centre Award", from the MoEF& CC, Government of India.

From 2002 to March 2014, the Centre brought out a series of bi-annual newsletters. From April 2014, the ENVIS Centre publishes 4 newsletters a year which are uploaded on the ENVIS website. The ENVIS Centre on CONSERVATION OF ECOLOGICAL HERITAGE AND SACRED SITES OF INDIA at CPREEC has expanded the existing databases on various aspects of Indian ecological heritage based on primary and secondary sources. The current database includes the details about the following:

- 10,377 Sacred Groves/Forests
- 23 Sacred Gardens
- 90 Sacred Plants
- 57 Sacred Animals
- 25 Sacred Rivers
- 364 Sacred Waterbodies (Manmade/artificial)
- 124 Sacred Mountains/Hills
- 56 Sacred Cities/Sites
- 09 Sacred Seeds
- 99 Sacred Caves
- 37 Sacred Pilgrimage Sites

We are in the process of constantly adding data and updating primary and secondary data. The website is interactive and dynamic and has attracted the attention of environmentalists, ecologists, sociologist, anthropologist and environmental historians from all over the world for information.

Ministry of Environment and Forest, Government of India has granted CPREEC a project to undertake a study on "The Sacred Grove Ecosystem Service Assessment in inland plains of Tamil Nadu".

This issue addresses efforts taken up in India and elsewhere for providing mapping opportunities to the common man through freely available geo-spatial data and open source platforms.

Our Centre is using "Bhuvan", a Geoportal of Indian Space Research Organisation and an initiative of the Government of India, to enrich the country's spatial database on Sacred Caves and Sacred Mountains.

We are currently trying to document the ecological traditions of West Bengal and Gujarat and I cordially invite scholars and interested persons to share their knowledge and information with us with popular articles and good quality photographs on the above mentioned subject areas.

In this issue

Supported by

Ministry of Environment, Forests and Climate Change, Government of India

SACRED GROVE OF SADAIKATTI AYYANAR IN MUGAIYUR TALUK IN VILLUPURAM OF TAMIL NADU

by

M. Subramanian, S. Karthik and S. Ravikumar

P.G. and Research Department of Plant Biology and Plant Biotechnology,

Presidency College (Autonomous), Kamarajar Road, Chennai 600 005, Tamil Nadu

Introduction

A sacred grove, situated about 21 kilometres from Viluppuram and 25 kilometres from Tiruvannamalai, on the border of Viluppuram and Tiruvannamalai district, is to be found in the village of Sadaikattai in Mugaiyur taluk of Viluppuram district in Tamil Nadu state.

Sadaikatti has a small sacred grove, otherwise known as kovilkaadu in Tamil. It is one of the 1270 groves which have been recorded in Tamil Nadu. These groves have been protected since ancient times by local customs and taboos. Hence, they are still the repositories of biodiversity with various species of plants and animals that are not to be found in the neighbourhood.

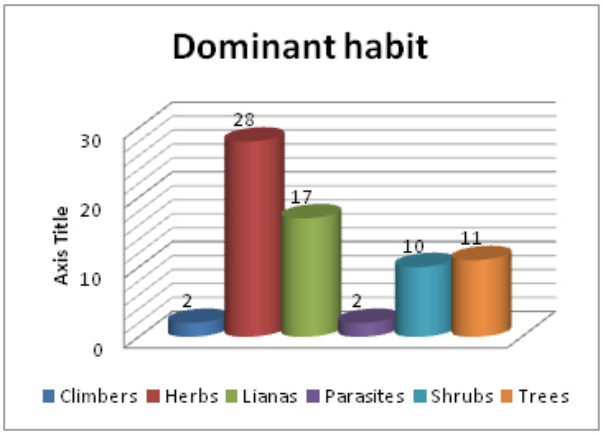
As per custom, each grove is protected by a presiding deity. In this case, the presiding deity is Ayyanar. There are several other subordinate deities which are also worshipped in this grove. There are relics of Shiva and Muruga situated adjacent to the grove. Directly ahead, one can observe some swings, hanging by chains from stone structures. There are some figurines on the swings. The devotees usually make offerings in the hope of being blessed with good health, a plentiful harvest or the birth of a child. One of the figurines is yellow in colour, from being constantly covered with turmeric by the devotees (Richard Clark, 2011). Once a year, there is a massive ritual celebrated with great fervour and enthusiasm. It is a common belief that the presiding deity of the grove, if angered, will punish those who violate the rules which govern the sacred grove. Every year, the local community celebrates the annual festival with elaborate rituals.

This grove is maintained by the Yadhava and Udaiyar communities, and is situated in the midst of a small forest. At the entrance to the grove, one can observe several clay / plaster guardian figures, such as men with horses and dogs. At the far end of the grove can be seen the presiding deities which are a male figure flanked by two female goddesses on either side. The goddesses are clad in sarees and the male god in a dhoti. Every day, the devotees adorn these figures with fresh flowers. During the annual festival, the important right of Kadanivila (the ear piercing) ceremony of the child is conducted. The first tonsuring of the child is also done on this occasion.

Plant diversity of the grove

There are about 70 plant species which belong to 67 genera in 35 families which have been identified. Among these 2 are climbers, 28 herbs, 17 lianas, 2 parasites, 10 shrubs and 11 trees have been recorded in this grove. The English names and the corresponding botanical names are given below. They are: Rosary pea (*Abrus precatorius L.*), Indian mallow (*Abutilon indicum (L.)* Sweet), Prickly chaff flower (*Achyranthes aspera L.*), Mountain knot gras (*Aerva lanata (L.) Juss. ex Schult*), Sage leaved (*Alangium salviifolium (L. f.) Wangerin*), Krishna siris (*Albizia amara (roxb.) Boivin*), Aloe vera

(*Aloe vera (L.) Burm.f.*), Prickly amaranth (*Amaranthus spinosus L.*), King of bitters (*Andrographis paniculata (Burm.f.) Nees*), Worm killer (*Aristolochia bracteata Retz.*), Indian atalantia (*Atalantia monophylla (L.)* DC.), Red hogweed (*Boerhavia diffusa L*), Asian palmyra palm (*Borassus flabellifer L.*), Crown flower (*Calotropis gigantea (L.) Dryand.*), Wild Caper bush (*Capparis sepiaria L.*), South asian pickles (*Carissa carandas L.*), Conkerberry (*Carissa spinarum L.*), Love vine, air creeper (*Cassytha filiformis L.*), Yellow leandar (*Catharanthus roseus (L.) G.Don*), Mountain Pomegranate (*Catunaregam spinosa (Thunb.) Tirven.*), Veldt grape (*Cissus quadrangularis L.*), Horse wood (*Clausena dentata (Willd.) M. Roem.*), Wild spider flower (*Cleome gynandra L.*), Asian spider flower (*Cleome viscosa L.*), Butterfly Pea (*Clitoria ternatea L.*), Little gourd (*Coccinia grandis (L.) Voigt*), Broom creeper (*Cocculus hirsutus (L.) W.Theob*), Piluki (*Combretum albidum G. Don.*), Purple popbush (*Crotalaria verrucosa L.*), Melon-gubat (*Cucumis maderaspatanus L*), Giant dodder (*Cuscuta reflexa Roxb.*), Bermuda grass (*Cynodon dactylon (L.) Pers.*), Indian snow berry (*Flueggea leucopyrus Willd.*), Orangeberry (*Glycosmis mauritiana (Lam.) Tanaka*), Indian sarsaparilla (*Hemidesmus indicus (L.) R. Br. ex Schult.*), Black creeper (*Ichnocarpus frutescens (L.) W.T.Aiton*), Birdsville indigo (*Indigofera enneaphylla L.*), Wild Jasmine (*Jasminum angustifolium (L.) Willd.*), black physicnut (*Jatropha gossypiifolia L.*), Malabar nut (*Justicia adhatoda L.*), Big sage (*Lantana camara L.*), Pongam oil tree (*Millettia pinnata (L.) Panigrahi*), Touch-me-not (*Mimosa pudica L.*), Mollugo (*Mollugo pentaphylla L.*), Basil (*Ocimum cannum Sims L.*), Chay root (*Oldenlandia umbellata L.*), Whitetop weed (*Parthenium hysterophorus L.*), Love-in-a-mist (*Passiflora foetida L.*), Indian Pavetta (*Pavetta indica L.*), Carry me seed (*Phyllanthus amarus Schumach. & Thonn.*), Doctorbush (*Plumbago zeylanica L.*), Purslane (*Portulaca oleracea L.*), Algaroba, Mesquite (*Prosopis juliflora (sw.) Dc.*), Indian snakeroot (*Rauvolfia serpentina (L.) Benth. ex Kurz*), Snake tongue (*Sansevieria roxburghiana Schult.& Schult. f.*), Leafless East-Indian Vine (*Sarcostemma acidum (Roxb.) Voigt*), Sickle senna(*Senna tora (L.) Roxb.*), Morning mallow (*Sida acuta Burm.f.*), Heart-leaf sida (*Sida cordifolia L.*), Poison nut (*Strychnos nux-vomica L.*), Indian almond (*Terminalia catappa L.*),



Rosy periwinkle (*Thevetia peruviana (Pers.) K. Schum.*), Indian tinospora (*Tinospora cordifolia (Willd.) Hook. f. & Thomson*), Orange climber (*Toddalia asiatica (L.) Lam.*), Puncture vine (*Tribulus terrestris L.*), Panacea twiner (*Tylophora indica (Burm. f.) Merr*), Red creeper (*Ventilago maderaspatana Gaertn.*), Sneeze wort (*Wattakaka volubilis (L.f.) Stapf*), Dyers's oleander (*Wrightia tinctoria (Roxb.) R. Br*) and Jackal Jujube (*Ziziphus oenoplia (L.) Mill.*) (Gamble, 1987; Mayuranathan, 1994).

Conclusion

The sacred groves are the home of variegated biodiversity and hence need to be carefully conserved. However, in the modern world, the traditional role of the sacred groves will inevitably fade away unless supplemented by a new set of priorities for their protection. A matter of concern is the presence of Prosopis juliflora which is an invasive species which dominates and threatens the native species of the grove. The local people and temple priests of this study area possess sound knowledge of the sacred plants. It is therefore imperative that this traditional knowledge be preserved and also be passed on to future generations. This is essential if the sacred lore of the grove is to be maintained for posterity.

Reference

- Richard Clark, 2011. `Sacred Grove near Tirukkoyilur: Living in the Embrace of Arunachala our expat life in India', Mexico and the world.
- Mayuranathan, P.V. 1994. The Flowering Plants of Madras City and its Immediate Neighbourhood, Commisioner of Museum, Government of Tamil Nadu.
- Gamble, J.S., 1987 (ed.). Flora of Presidency of Madras, Vol. I – III, Bishen Singh Mahendra Pal Singh, Dehra Dun, India.

News Clippings

NEW SPECIES OF GECKO FOUND

(Courtesy : *The Hindu, Hyderabad, April 18, 2015*)

Zoologists say Hampi and surrounding areas are potentially rich in biodiversity and needs research to identify new species of smaller creatures.

A new species of the day gecko, a type of lizard usually found in warm climates, has been spotted at the ruins of the World Heritage Site of Hampi in Karnataka. The gecko has been named Cnemaspis adii after a young herpetology researcher from Hyderabad, Aditya Srinivasulu.

The discovery of the gecko and its name were published in the journal Zootaxa this month by researchers Chelmala Srinivasulu, G. Chethan Kumar and Bhargavi Srinivasulu from the zoology wing of Osmania University in Hyderabad.

The lizard belongs to the family of day geckos characterised by round pupils unlike regular geckos which have vertical pupils. The zoologists say Hampi and surrounding areas are potentially rich in biodiversity and not much research has been done to identify new species of smaller vertebrate and invertebrates.

"The discovery is significant because other species of day geckos have been, so far, reported only from the Western Ghats and southern Eastern Ghats in peninsular India. This is the first time that day geckos have been found in the central regions of peninsular India between Eastern and Western Ghats," lead author Dr. Srinivasulu said.

The trio felt that presence of day geckos between Western and Eastern Ghats is interesting, indicating the need for more efforts to document the biological diversity, understanding habitat conditions, threats and diversity of local species.

The discovery and subsequent validation in Zootaxa did not happen overnight. The new day gecko species was first discovered by Dr. Bhargavi Srinivasulu in 2012 while they were doing research on bats in the Hampi complex.

Later, the zoologists studied the photographs of live animals and researched on known species of day geckos reported from other parts of India, which ultimately confirmed that the specimens belonged to a hitherto undescribed type. They managed to collect three specimens of the lizard that formed the basis of the scientific description of the lizard.

Source:

http://www.thehindu.com/news/cities/Hyderabad/new-species-of-gecko-cnemaspis-adii-found-at-hampi/article7117302.ece?homepage=true

INDIA, A VICTIM OF E-WASTE CRIME

(Courtesy : *The Hindu, May 15, 2015*)

News Clippings

"Exporting e-waste to Asia worked out 10 times cheaper than processing it in within these countries."

Much of the 40 million tonnes of electronic waste produced around the world - old smartphones, TVs, laptops and obsolete kitchen appliances - finds its way illegally to Asia and Africa every year, says a report by the United Nations Environment Programme (UNEP).

Close to 90 per cent of the world's electronic waste — worth nearly $19 billion - is illegally traded or dumped each year, to destinations half way across the world. While the European Union the U.S. and Japan are the primary origins of e-waste shipments, China, India, Malaysia and Pakistan are the main destinations, says the report. In Africa, Ghana and Nigeria are the biggest recipients of e-waste.

Destination India

Illegal trade is driven by the relatively low costs of shipment and the high costs of treatment in the developed countries. Quoting an U.S. Environmental Protection Agency study, the UNEP report says that exporting e-waste to Asia worked out 10 times cheaper than processing it in within these countries.

The Indian subcontinent has turned into an important destination for European waste. This goes beyond e-waste to include household waste, metals, textiles and tires — which are exported to India and Pakistan, says the report "Waste Crimes, Waste Risks: Gaps and Challenges in the Waste Sector."

"There is a significant trade in compressors to Pakistan. These should be depolluted prior to export, but waste operators seeking to avoid expense often omit this step," the report notes.

'Toxic time bomb'

The vast majority of illegal e-waste ends up in landfills, incinerators, and in ill-equipped recycling facilities. "The waste is dumped in areas where local residents and workers disassemble the units and collect whatever is of value... What is not reusable is simply dumped as waste, creating immense problems and leading to what has been described as a 'toxic time bomb'."

While Europe and North America are by far the largest producers of e-waste, Asia's cities are fast catching up as consumers of electronic goods and as generators of e-waste. In China, for instance, 73.9 million computers, 0.25 billion mobile phones, and 56.6 million televisions were sold in 2011, the report says. Forecasts say that in just two years, the total quantum of e-waste generated around the world will be 50 million tonnes.

Source: *http://www.thehindu.com/sci-tech/energy-and-environment/india-a-victim-of-ewaste-crime/article7202265.ece?homepage=true*

.....Abstracts of Recent Publications.....

❖ Nithyadevi, J. and Sivakumar, R., 2015. Phytosocialogical and ethno-medicinal studies of sacred groves in Konjikuppam village, Cuddalore district, Tamil Nadu, International Letters of Natural Sciences, Vol. 32, pp 77-91.

The konjikuppam village lies on the state highway linking panruti (5 km south) and Neyveli (10 km north). The sacred grove of konjikuppam is also situated on the main read and is proximate to the village. A large bond of about 3 ha. Size lies behind the temple complex and cannel bringing strong water from the neighboring shallow ferralitic terrain runs into it. An extensive floristic survey of carried out in the sacred groves at monthly intervals between December 2011 and October 2012. Specimen flowering plants were collected and identified taxonomically with the help of different floras. Nine plots were established in three different disturbance areas within the sacred groves and it is divided into three site I. Disturbances, II. Moderately disturbance III. Undisturbance. Present study revealed that a total number of 110 plants belonging to 96 genera and 45 families were recorded from three sites (I. Disturbed, II. Moderately Disturbed, III. Undisturbed) of konjikuppam sacred groves Cuddalore district. The present study revealed that more number of species found in undisturbed site III and least number and density in disturbed site I. a total of 24 plants used in herbal preparations. The local health traditions provide immediate and cheaper remedy or relief to the poor and down trodden inhabiting the villages. The devastation of species diversity in the study area there is an urgent need for regeneration of the species for conservation of species and biodiversity.

❖ Srinivasa Rao, D., Shanmukha Rao, V., Prayaga Murthy, P., Narasimha Rao, G.M.and Venkateswara Rao, Y., 2015. Some Ethno Medicinal Plants of Parnasala Sacred Grove Area Eastern Ghats of Khammam District, Telangana, India, J. Pharm. Sci. & Res. Vol. 7(4), pp. 210-218.

Sacred groves are small patches of native vegetation traditionally been protected on the grounds of religious faith, these are dedicated to deities or ancestral spirits worshiped by local tribes along with surrounding plants and trees. Parnasala is a significant mythological sightseeing destination of Bhadrachalam. It is also one of the popular villages of Andhra Pradesh known for its ancient tales and beliefs. This village is famous as the place where Lord Rama Stayed with his wife and Brother during his 14 years exile. Parnasala sacred grove is one of the important sacred grove of Khammam district. Parnasala spreads between Latitude 17° 93' 33" N Longitude 80° 90' 00" at about 183 feet's above sea level. The approximate area is nearly 100 acres, the sacred grove is having hilly terrain with imageaus, ridges, gorges and deep Valleys which support dry deciduous scrub forest with an under growth of grasses along with dry thorny and dry evergreen forests surround the fringe. In this area the main medicinal plants like *Aegle marmelos, Andrographis paniculata, Terminalia arjuna, Azadirichta indica, Terminalia bellerica, Ficus benghalensis, Cocculus hirsutus, Aerva lanata, Anogeissus acuminata* and *Anogeissus latifolia* etc are present in the particular sacredgrove area. They are the treasure house of rare and endangered species of animals and abode of many medicinal, endemic, endangered and economically important plants. Sacred groves are valuable gene pools and the first major efforts of the society to recognize and conserve biodiversity. They harbor many rare, endangered, endemic plants and animals and have been preserving many rare and endemic wild plant species, which potentially benefit mankind in medicine, agriculture and

industry as a sources of natural products for drugs, food, fuel, fibre etc. The sacred grove with plant species diversity should be preserved and conserved as a mini spot of biodiversity. Hence exploration and conservation of medicinal plants diversity of these groves is therefore most important for the management and sustainable development in these fragile ecological and life support systems.

❖ Jain Smruti, Purohit Aayushi, Dobariya Payal, R.S. Patel And Patel, K.C., 2015. A Floristic Study of Some Sacred Groves Of Danta and Ambaji Forest Of North Gujarat, India, Life Science Leaflets, Vol. 61 pp. 82 to 89.

Sacred groves are a group of local god and surrounding trees of forest patches protected by the local people through religious belief and cultural practices evolved to minimize destruction. Conservation of relic forest patch on religious ground is well known and established practice in India since 'vaidic' period. These sacred groves are being protected for generations together to maintain the unique diversity, endemic, medicinal and useful valued species. Sacred groves are the forest patch preserved in their original form on the religious grounds. Sacred groves maintain the unique diversity of life forms. Present study deals with the floristic richness of the sacred grove of 'Digma bhankhro' and 'Antarsha pir' Sacred grove of Ambaji and Danta forest area of North Gujarat respectively. It covers an area of total 89 angiosperm species from 79 genera under 46 families are enumerated from the sacred grove. The 'Digma bhankhro' Sacred grove is situated near the village Padaliya in Ambaji range forest and 'Antarsha pir' Sacred grove is situated near the village Nargarh in Danta range forest. There is a need to support the ethnic people to traditionally preserve such important natural habitats. The grove is surrounded by 'Dhav', 'Timru', 'Gholdo', 'Kadayo', 'Indra jav', etc. Extensive floristic surveys were carried out in the sacred grove at monthly intervals. Specimens of flowering plants were collected and identified with the aid of different regional floras.

❖ Sundarapandian, S.M. and Subbiah, S., 2015. Diversity and tree population structure of tropical dry evergreen forests in Sivagangai district of Tamil Nadu, India, International Journal of Tropical Land Research, 2(1): 36–46.

Vegetation structure and species composition were studied in the four selected undocumented sacred groves (tropical dry evergreen forest patches) in the Karaikudi taluk of Sivagangai district of Tamil Nadu, India. A total of 106 plant species were recorded in all the sacred groves. The number of species and diversity indices of trees and understory (which includes tree seedlings and saplings, climbers and shrubs) community showed greater values in site III (Thiruparkkadal Chellayae Amman Kovil sacred grove) compared to other study sites. In contrast, a reverse trend was observed in the case of herbaceous community. Albizia amara was the dominant tree species in site I (Vidathudaiyar kovil sacred grove) and site IV (Aakkamudaiyar kovil sacred grove) followed by Acacia leucophloea. In site II, (Koodaiyakkaruppar kovil sacred grove), Drypetes sepiaria was the dominant tree species. Ficus benghalensis is the dominant species in site III. The understory community was dominated by Acacia leucophloea in sites I, II and III, whereas in site IV, Randia spinosa was dominant. Tephrosia purpurea was the dominant species in the herbaceous community in site I while in site II, grasses were dominant. Leucas aspera was the dominant species in the herbaceous community of site III and site IV. These sacred groves still possess a sizable proportion of the region's characteristic flora. They also have rich cultural tradition associated with them. These sacred groves should be protected to conserve the regional flora adjacent to human habitats as well as to sink carbon during global warming.

Events

◆ **Environment, Forest & Climate Change Shri Prakash Javadekar, on the Occasion of the International Day for Biological Diversity, 22 May 2015.**

Today we celebrate the International Day for Biological Diversity, to recognise the pivotal role of biodiversity to life on earth and human well-being. On this day in 1992, the text of the Convention on Biological Diversity (CBD) was adopted. To mark this, 22nd May has been proclaimed by the United Nations as the International Day for Biological Diversity, to increase awareness about the importance of and threats to biodiversity.

◆ **National Conference on Biofuels & Bioenergy (NCBB-2015), Organized by University of Petroleum & Energy Studies , Dehradun, Uttarakhand, India , 12th to 13th June 2015.**

This conference intends to provide an opportunity to the experts from all over the country to showcase their innovations and findings towards the advancement of the 'Biofuels'. In addition, the conference also anticipates educating the people about the worth of biofuels production and consumption. This conference will be able to provide a good platform for young scientists, engineers, research scholars and students to exchange their ideas, and to encourage further development of the existing knowledge on energy harvesting. Although the conference is focused on the biofuels, its scope is in no way limited only to this area. In fact, starting from the search of frequently available feedstock to production of biofuel, it's testing and commercialization including the socio-economic aspects will be addressed in this conference. Therefore, the conference invites participation of researchers working in all the aspects of advancement of biofuel technologies and their sustainable growth.

◆ **Paryavaran Mahotsav begins in Sikkim – June 15- 30, 2015.**

State Paryavaran Mahotsav 2015 began here today with the flagging off of four sapling-laden trucks at MG Marg by Sikkim Minister for Forest, Environment and Wildlife Management TW Lepcha. The Minister also released garbage collection bags, distributed saplings and signed in the signature campaign board during the programme. The two week long Mahotsav will witness several environment-related programmes across the State. Events planned includes plantation and cleanliness drives, greenathon, essay and painting competition, signature campaign and lectures by Forest officials and environmentalists.

For more details: http://voiceofsikkim.com/sikkim-kick-starts-paryavaran-mahotsav-2015/

Homepage of CPREEC ENVIS Centre.
Web : *http://www.cpreecenvis.nic.in*

ENVIS Team :

Dr. P. Sudhakar
Joint Director - Co-ordinator

Fowmitha Banu
Programme Officer

M. Vaithiyanathan
Information Officer

M. Mariyappan
IT Assistant

Readers are welcome to contribute articles, photographs with details, news clippings, etc., pertaining to the Ecological Heritage for publishing in our subsequent newsletters. Please send your views and opinions to

ENVIS Centre on Conservation of Ecological Heritage and Sacred Sites of India
C.P.R. Environmental Education Centre
1, Eldams Road, Alwarpet, Chennai - 600 018, Tamil Nadu, India.
Phone: 044 - 24346526 / 24337023 Fax: 91 - 044 - 24320756
E-mail: cpreec@envis.nic.in / cpreec@gmail.com Website: www.cpreecenvis.nic.in