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C.P.R. ENVIRONMENTAL EDUCATION CENTRE

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ENVIS Newsletter

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

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From the ENVIS Desk...

The ENVIS Centre on the Conservation of Ecological Heritage and Sacred Sites of India at C.P.R Environmental Education Centre (CPREEC) has expanded the existing database on various aspects of Indian ecological heritage based on primary and secondary sources. The current database has listed

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

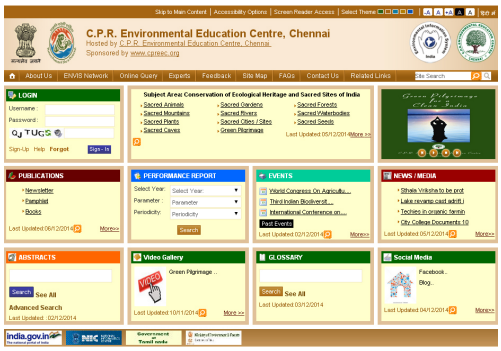
From 2014, we have been publishing 4 newsletters per annum, which are uploded on the ENVIS website.

In this issue

As a part of India's biggest ever cleanliness drive - Swachh Bharat Abhiyan - CPREEC is involved in the Green Pilgrimage Campaign to initiate changes in religious pilgrimage behaviour and reduce climate change impacts, with emphasis on the belief that humans have a responsibility to protect our planet. In this regard we have added Green Pilgrimage as a subject in our website along with a new sacred element - scared caves - in this quarter.

We are in the process of constantly adding material and updating primary and secondary data. The website is inter-active and dynamic. It is visited by environmentalists, ecologists and environmental historians from all over the world and is extensively used.

An important recent development from CPREEC's effort is a "Project to study the Sacred Grove Ecosystem Service Assessment in inland plains of Tamil Nadu" from the Ministry of Environment, Forests and Climate Change, Government of India.



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

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PERFUMES IN THE VALMIKI RAMAYANA

by

M.Amirthalingam

In India one can find references to the use of perfumes and scents right from the Vedic period. They were used mainly for religious practices, customs and domestic rituals. The women used perfumes and cosmetics as part of their makeup. The ancient Indians were aware of the medicinal values of many perfumes. For example, medicated fumigation *(dhupan)* was used in the treatment of diseases. Similarly, medicated oils, collyriums and powders were used in treatment. The practice of chewing betel leaves was also wildly prevalent so that the mouth could be clean and fresh. This was known as *thambulam*. Various scented oils were used to massage the body. This practice was known as *abhyanga*.

The *Ramayana* was written by Valmiki around 1000 BCE. Since the major events of the epic took place in the forest, one can identify India's forest wealth from the text. References can be found on the fragrance scented plants in the Valmiki *Ramayana.*

There are references in Valmiki's *Ramayana* to the use of traditional medicines and aromatics. Sandalwood figures prominently among the perfumes used in that period, as reflected in the *Ramayana*. Not only are two preparations of sandalwood, viz. *Candansara* and *Candanakalka* mentioned but it appears to have been widely used along the aloe wood to besmear the bodies of both men and women.

Some of the references that can be found in the Valmiki *Ramayana* are as follows -

The sandal tree is used as a cosmetic anointment with *aguru* (Eagle wood, Aloe wood) (2.15.33). Its breeze is wafting and cleans with the intoxicating scent of sandal (2.71.28). It is a tree of Panchavati (3.15.18). The wind bore the fragrance of padma saugandhika (lotus) (4.1.104) and the water reservoirs were charming with fully blown *padma saugandhika* (lotus), *kumuda* (Indian water lily) and *utpala* (Indian blue lotus or water lily).

Jasmines, water-lilies and red oleanders had grown on the banks of the Pampa, and were giving out the fragrance of nectar [4-1-76]. Hanuman saw the city of Lanka looking like heaven, decorated by moats filled with lotuses and water-lilies (5-2-14). The breeze that wafts through the sandal trees was very invigorating and cleaned the atmosphere with the intoxicating scent of sandal (2.71.28).

The *arjuna* tree during the rains exudes a pleasant fragrance (4.30.25). Giant *arjuna* trees were used in bridge construction (6.22.56). The charming wild cinchona tree found in abundance in the Chitrakuta forest (2.94.9) bore flowers that perfumed the whole forest (4.28.41). *Punnaga* (Alexandrian laurel) was a valuable garden tree and its flowers yielded scented materials (5.10.23).

The body of Dasharatha (king of Ayodhya) was kept in an oil trough or *taila dronyaam*,

in order to preserve the body from decay (2.66.15). During the cremation of Dasharatha's dead body *chandana* (sandal wood), sweet aloes and different fragrant essences, with heaps of *sarala* (*Chir Pine/Pinus roxburgii*), *padmaka* (Wild Himalayan cherry/*Prunus cerasoides*), *agaru* (Agar wood/*Aquilaria agallocha*), *devadaru* (Himalayan cedar/ *Cedrus deodara*) were used (2.76. 16.17).

In the *Ramayana,* 95.9.27) it is mentioned that the air resounded with the cries of birds in heat and the fragrance of excellent perfumes. The palace of Ravana was splendid and hung with the best tapestries and other luxuries. Vibhishana, the brother of Ravana, caused to be brought various excellent varieties of firewood, the three sacred fires and logs of sandal wood, pieces of fragrant aloe-wood and sweet smelling perfumes for Ravana's cremation. The priests were also called in to perform the obsequies (6.111.106-7).

After Ravana's death, Vibhishana, full of grief, brought the body of Ravana to the consecrated spot. He then caused the sacred pyre to be built. Logs of sandal wood, moistened with perfumes called *Padmaka* and *Koshira,* were covered with the skin of black antelopes. Then the obsequies were performed in accordance with Vedic rites. (6.111.114-5)

Conclusion

Until the 20th century, all perfumes were made from ingredients derived directly from nature. The use of synthetic fragrance was borne of the industrial revolution of the early 1900's. Chemists were now able to artificially reproduce fragrances resembling flowers, fruits and woods in a laboratory with synthetic chemicals at a fraction of the cost. As is often the case, economics gave way to purity.

Of the 150 highest volume artificial chemicals used in fragrance products, almost 60% are known to be toxic at certain levels. In contrast to artificial fragrance, natural essential oils when added to skin care, make-up and natural perfume have quite a different effect. Essential oils contain elements that have a healing and stimulating biological effect on the body and an emotional effect on the brain. Evidence suggests that essential oils actually enhance mental health creating a feeling of well being and perpetuating uplifting states of mind.

Perfumes played a crucial role in providing the pleasant feel and improving the self-confidence of the people in India, since time immemorial. It is time to understand the importance of the therapeutic essential oils that make up the natural fragrances having healing elements that work on one's body, mind and spirit. The aim of this article is to understand this important heritage of India.

Reference

All the references are from *Srimad Valmiki Ramayana*, translated and presented by Sri Desiraju Hanumanta Rao (*Bala, Aranya* and *Kishkindha khanda*) and Sri K.M.K. Murthy (*Ayodhya* and *Yuddha khanda*) with contributions from Durga Naaga Devi and Vaasudeva Kishore (*Sundara khanda*) retrieved from http://www.valmikiramayan.net/.

News Clippings

RARE BIRD SIGHTED IN RAJAPALAYAM

(Courtesy : *The Hindu,* Chennai, January 23, 2015)

During the Pongal bird count, a team of birder spotted the Broad-tailed grass bird, which is endemic to the Western Ghats.

A group of young birders have spotted the Broad-tailed grass bird near a reservoir on the outskirts of Rajapalayam during the Pongal bird count.

On the final day of the count on January 18, the team, led by birder and wildlife photographer Sharan Venkatesh spotted this rare bird, which is endemic to the Western Ghats.

"We sighted just this bird among the prinias [small insectivorous birds]. It looked different. Initially, we were not sure what bird it was. After photographing it, we came to know that it was a rare sighting," says Sharan, a final year student at the Thiagarajar College of Engineering, Madurai.

The four-member team, comprising Sankar, Pranav and Lokesh, all members of the Wildlife Association of Rajapalayam (WAR), also sighted Osprey, Striated heron, Orange-headed ground thrush and Yellow-footed green pigeon among 150-species of birds identified in the count.

Disturbed habitats

After confirming with ornithologists, T.S. Subramania Raja of WAR, says the lack of recent records of spotting the bird is indicative of its disturbed habitats and declining population.

The bird has been sighted only in the Valparai ranges in recent years, he adds.

Happy at the sighting of the birds during the survey, the young birders plan to conduct more surveys to document bird life in the region.

News Clippings

TIGER NUMBERS GROW BY 30% IN 4 YEARS: CAN FORESTS SUSTAIN INDIA'S BIG CAT BOOM?

(Courtesy : *The Economic Times*, New Delhi, January 21, 2015)

NEW DELHI: The latest tiger census results showing a 30% increase in Big Cat numbers in four years throws up a crucial question for conservationists and policy-makers: how many tigers can India's forests hold without large scale man-animal conflicts coming into play?

Experts say although more than 5,000 tigers can be accommodated across Indian forests through effective protection, a manageable number would be between 3,000 and 3,500. However, they add that sustaining even the current tiger population requires an economic agenda that's sensitive to conservation.

"Another 1,000-1,500 tigers would be manageable," said Yadvendra Jhala, wildlife biologist at Dehradun's Wildlife Institute of India and one of the men behind the tiger census. "But we require infrastructure development to be smart and green."

Jhala said the biggest conservation challenge was to strengthen forest corridors to enable movement of tigers across forests — migrations that add genetic diversity to local tiger populations and are key to their long-term survival.

"Most forest corridors today are degraded. Yet, studies have shown they are still being used by tigers to move from one protected forest to another. But any further degradation and they would become barriers," Jhala said.

Veteran tiger biologist K Ullas Karanth, director for science-Asia at Wildlife Conservation Society, felt tiger numbers could multiply manifold if more forest areas are brought under protection.

"Total area under forests that can support tigers exceeds 2,00,000 sq km. Less than 25% of that is well protected at the moment. We can have 5,000-10,000 tigers if we can increase the area under effective protection," Karanth said.

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

❖ Rajasri Ray, M. D. S. Chandran & T.V. Ramachandra, 2015. 'Hydrological importance of sacred forest fragments in Central Western Ghats of India', *Tropical Ecology* 56(1): 87-99, 2015.

Abstract: Sacred groves are patches of forests of special spiritual significance to humans, offering also a diverse range of ecological and environmental services. We have attempted here to understand the local hydrological dynamics of a sacred forest, in terms of the benefits the village community derive, in central Western Ghats region of India. A comparative assessment has been made between two small watersheds in terms of their landscape structure (woody species composition) with soil water properties and availability of water in the respective downstream villages. The result shows that, sacred site with more primeval vegetation has close association with soil moisture in comparison to non-sacred site during dry spell of the year. The higher soil moisture ensures year long availability of water in the downstream village of the sacred site which facilitates farming of commercial crops with higher economic returns to the farmers, unlike the farmers in the other village where they face water crisis during the lean season. The study emphasizes the need for conservation endeavour on sacred groves highlighting its potential for water conservation at local and regional levels.

Key words: Ecosystem service, native forest, sacred grove, water conservation, watershed.

❖ Laxmi Joshi Shrestha, Mohan Devkota and Bhuvan Keshar Sharma, `Phyto-sociological Assessment of Sacred Groves in Kathmandu, Nepal', *International Journal of Plant & Soil Science,* Vol. 4, Issue. 5, pp.437-444, 2015.

Phyto-sociological studies were conducted in Bajrabarahi and Pashupati Sacred Groves of Kathmandu, Nepal for the comparative analysis of tree species diversity in the year 2012-2013. Concentric circular plots with radius of 20m were used to collect necessary information along four and eight parallel transects in Bajrabarahi and Pashupati Sacred Groves, respectively. Similarity Index showed that more than 57% tree species are shared by both the groves whereas Maturity Index showed that Bajrabarahi Sacred Grove has more mature trees (33.9) than Pashupati Scared Grove (26). Based on Importance Value Index three different forest types, namely - Schima-Pyrus, Myrsine-Persea and Quercus-Myrsine, were identified in Pashupati Sacred Grove whereas, Bajrabarahi Sacred Grove incorporated only one forest type of Neolitsea cuipala. The Shannon-Weiner Species Diversity Index, Evenness and number of tree species of Pashupati Sacred Grove was higher than that of Bajrabarahi Sacred Grove, whereas the canopy coverage of Bajrabarahi Sacred Grove was higher than Pashupati Sacred Grove. Local community initiations are more effective management system than the government management system for tree diversity conservation, in sacred groves of Kathmandu.

Keywords: Bajrabarahi; pashupati; diversity index; similarity index; maturity index.

❖ Thandavamoorthy, M, 2014. 'Plant Biodiversity of Kothamangalapatti Karuppar Sacred Grove in Pudukkottai District, South India', *Trends in Biosciences*, Vol. 7, Issue 15, pp. 1948 -1951.

Abstract : Natural vegetation on the south-eastern coast of peninsular India has now been reduced to patches, some of which are preserved as sacred groves. These are the best examples for natural conservation subtended by belief system. These groves now play a vital role in the conservation and preservation of local species diversity. The plant biodiversity and population structure of woody plants (>20 GBH) in Kothamangalapatti sacred grove, occurring 18 kilometers away from Pudukkottai in Tamilnadu state of India have been analysed. A total of 680 individuals of angiosperms have been enumerated from this grove. The taxonomic and conservation values of the taxa were also assessed from the data.

Key Words: Plant biodiversity, sacred groves, angiosperms, conservation.

❖ Amal Bawri , Padma Raj Gajurel , Ashish Paul & Mohamed Latif Khan, 2015. `Diversity and distribution of Primula species in western Arunachal Pradesh, eastern Himalayan region, India', *Journal of Threatened Taxa*, Vol. 7(1): 6788–6795.

Abstract: The paper highlights the diversity, distribution and population status of Primula species in western Arunachal Pradesh. The present study has established the rich diversity of Primula species in western Arunachal Pradesh with a record total of 25 species, out of which five species, viz., Primula ioessa W.W.Sm., Primula munroi Lindley, Primula obliqua W.W.Sm., Primula prolifera Wall. and Primula jigmediana Hook. f. & Thomson ex Watt, are new to Arunachal Pradesh. More than 60% of the taxa of Primula of the state occurs in two districts of the western part of the state. A maximum diversity (76%) of Primula species was recorded between 3500m and 4000m and a minimum (4%) was between 1500m and 2000m. This study showed the poor population of some Primula species in the study area. Among the four sampling sites the Panga-Teng-Tso is highly disturbed which is clearly reflected by very poor population density of P. hookeri (1.36 individuals m-2). Various natural and anthropogenic threats have led to the pressure on the habitat of Primula species. Considering the rich species diversity of Primula and their distributional affinities, western Arunachal Pradesh may be considered as a centre of diversity of Indo-Chinese Primula species and appropriate conservation strategies should be adopted for the conservation of this genus.

Keywords: Arunachal Pradesh, distribution, diversity, population, Primula, threats and conservation.

Events

◆ **Regional Evaluation-cum-Training Workshop (Southern Region), 2015**

A 2-day evaluation-cum-training Workshop for ENVIS Centres of Southern Region (i.e., Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Puducherry) was held at Coimbatore, Tamil Nadu hosted by ENVIS Centre at Institute of Forest Genetics and Tree Breeding and on 5th and 6th February, 2015. Around 50 participants of thematic as well as State/UT ENVIS Centres particpated in the Workshop. Speaking on the occasion, Economic Adviser, Shri M. Kannan stressed on the need to evolve the ENVIS Scheme as a one of the tools of Decision Support available to the Government of India for formulating various envioronmental policies and decisions. Among the experts who attended the Workshop for evaluation included Dr. Rajasenan, Dr. Rajaannan, Dr. G Srinivas Rao, Dr. Haripriya Gundimeda and Prof. Kavikumar. Two parallel sessions for evaluating the activities of Thematic and State ENVIS Centres were carried out in the workshop. The second day of the Workshop was marked by a crucial training by NRSC officals Shri P. G. Diwakar and Shri Arul Raj on Bhuvan portal, a geospatial portal to enable the GIS-based information in the websites of the ENVIS Centres. The Workshop concluded with a thought-provoking session by experts who shared their remarks and experiences as well as the concluding address by Economic Adviser, Shri M. Kannan. A cultural programme was also conducted on the second day.

◆ **International Conference on Ethical Prospects : Economy, Society and Environment (EPESE-2015) on 13th & 14th March 2015 at Ratnagiri Sub-centre, University of Mumbai, Maharashtra**

Email : ratnagirisubcentre@mu.ac.in

For More Details: http://www.mu.ac.in/ratnagiri/interntnal%20conf%20RTN%20EPESE.pdf

◆ **IInd Uttarakhand Spring Bird Festival :** Pawalgarh Conservation Reserve 4th-8th February 2015 (5 days) This Programme was launched in February 2012 by the Ecotourism Wing of the Uttarakhand Forest Department. Aim of this festival is to promote Uttarakhand as a bird-watching destination by scaling-up guiding and bird-watching activity. The specific objectives of the 2nd Uttarakhand Spring Bird Festival 2015 are: to increase awareness about birds and mobilise public support for bird conservation.: to improve bird-watching and interpretation skills of bird guides, rural tourism operators and researchers; to promote community-based tourism enterprises and provide an opportunity for networking amongst bird guides and bird-tour operators in the state and to promote Pawalgarh Conservation Reserve as a bird-watching destination.

Venue: The Pawalgarh Conservation Reserve situated close to Kaladhungi / Ramnagar in Nainital District of Uttarakhand. Guided bird-watching will be conducted at Kyari, Sitabani, Pawalgarh and at Kaladhungi.

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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

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