

Saving 10 Keystone Plant Species of Western Ghats

for the livelihood security of the tribal and rural communities of Wayanad district, Kerala, India

Sarcostigma kleinii W. & Arn.



Dendrobium aqueum Lindl.



Ipsaea malabarica Jerdon



Garcinia indica (Thouars) Choisy



We care !



Western Ghats in India

the most densely human populated biodiversity "hotspot"

Western Ghat region in India is one of the 25 species-rich "hot spot" and strongly under various pressures, especially human population and expansion of agricultural operations on its habitats. It is the most densely human populated threatened site among the 25 hot spots identified from all over the world. Preserving the habitats that support species populations is clearly the critical task for both conserving biodiversity and maintaining ecosystems. This ghat region abode 12,000 plant species with about 5000 flowering plant species, in which 1500 are endemic to this territory. Various studies show many of these wild species play a vital role in maintaining ecosystem services, supporting rural livelihoods and agricultural production.

The protected areas in Western Ghats are more like islands of wild habitats within a sea of agricultural activity and so the agricultural pressure on the protected areas are intense and likely to increase. Moreover, poaching of wild species or other such rogue activities take place in the so-called protected areas. It shows the system of conservation of its wild habitats and species is far inadequate in the Ghat region.

High Intensive Agriculture poses severe threats to many of the wild species (notably the soil born micro fauna and flora) in the Ghats. The major threats are: Modification of Landscapes (Fragmentation; loss of tree cover in agricultural lands); Modification in Hydrological Systems (Intensive irrigation;



Aristolochia tagala L.

drainage of wetlands; changing vegetation in watersheds); Habitat Pollution and Degradation (Pesticide pollution; Fertilizer pollution; Soil erosion and degradation; Forest degradation; Reduced Pollination and Seed dispersal).

Wayanad the "hottest spot" in terms of threat on habitats in Western Ghats

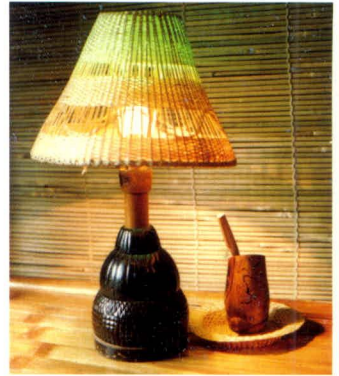
Wayanad, a region once known for its dense evergreen forests and with charismatic species such as tigers, elephants, hornbills, rosewood, iron woods and orchids is now described as a "hottest spot" in terms of threat on habitats, species and populations. The current understanding about the species of this district is woefully inadequate, particularly in case of the lower groups-algae, fungi, bacteria, viruses, protozoa, soil micorrhiza and faunal groups like arthropods, earthworms, nematodes, and molluscs. A floristic study undertaken by MSSRF to know the geographic distribution, environment and habitat of the Rare, Endemic and Threatened (RET) species resulted in many evidences of threats to their survival. The study shows over 500 species of flowering plants are under threat in the district of which 300 are endemic to Western Ghats and over 50 are critically endangered with many listed in Red Data Books.

Conservation of 10 th Promoting Sustain

Supported by IIN - India through NBRI, Lucknow, a project aimed at promoting sustainable utilization of 10 keystone species (2 trees; 3 shrubby climbers; 1 cane; 1 reed; 1 epiphyte; 2 tuberous herbs) of Western Ghats has been launched in Wayanad as a step towards integrating the conservation of biodiversity with the ecological, food, health and livelihood security of the poorest forest/wilderness dependent communities. These species will be mass multiplied, domesticated, conserved in an integrated manner and cultivated and used in various ways with the involvement of the primary conservers.

Objectives:

1. Identification of innovative approaches that effectively link conservation of the endangered species with improvement of livelihoods of the poor.
2. Increased availability of 10 most needful plant species to communities/ industries by ensuring the conservation of its wild resource base.



3. Enhanced food, health and livelihood security of forest-dwelling communities through utilization of the prioritized 10 species.
4. Improved awareness of local institutions and policy-makers on conservation and sustainable use of the threatened plant species.

The Activities and Expected Results

1. Survey the biodiversity hotspots and documentation of TK related to the Selected species in Wayanad.
 - *A comprehensive Report highlighting the Taxonomy, Ecology, Threats, Conservation and Ethno-Botanical aspects of these 10 species.*



Threatened Species by Sustainable Utilization



2. Development and dissemination of protocols for the micro-propagation of the selected species.

- Conservation gardens of the 10 species established at different levels - communities, NGOs and Educational institutions in Wayanad District.
- Cultivation of the three medicinal species in the list involving tribal/rural communities started in the district.



Mangifera indica L.

- Report on the protocols for the micro propagation of the 10 species.
 - Report on the agro-technology for the cultivation of the 10 species.
3. Introduction of the three medicinal and three wild food species listed to commonly accessible landscapes and farmers' fields.
- Improvement of agro-technologies for cultivation of the medicinal (3 Sp.) and wild food plant species (1 Sp.) is achieved.
 - Convenient availability of the species that are in demand ensured.
4. Establishment of market tie-ups for selling the cultivated harvests and wider

self-use of the products/raw materials in demand.

- Awareness raising campaigns, workshops/seminars, training of trainers at various levels with a view to disseminate approaches and technologies in conservation and development have been conducted.
- Market tie-up established with the pharmaceutical companies.



Calamus thwaitesii Becc. & Hook

- Printed and electronic communication and training modules for conservation of the 10 species are available.
5. Documentation of case studies on conservation of the 10 species by communities/individuals.
- A Database designed that gives all available information on the 10 species.
 - Printed Publications available in local language and in English with reference to conservation of these species.
 - Germplasm collections available for all the species listed, in the field gene banks of the Centre.

10 Key RET species chosen for an integrated conservation

1. *Ipsea malabarica* Jerdon

The Malabar Daffodil Orchid. Believed to be extinct till it's rediscovery from silent valley in 1984. Seasonal with beautiful showy flowers.

2. *Dendrobium aqueum* Lindl.

A rare orchid endemic to Southern Western Ghats with robust, pendulous spikes with large white fragrant flowers.

3. *Sarcostigma kleinii* W. & Arn.

A rare liana. Once an important source for oil for treating rheumatism, ulcers, leprosy and skin diseases and lighting traditional lamps.

4. *Aristolochia tagala* L.

A rare, medicinal plant species known for its use in the treatment of rheumatism, malaria, dyspepsia, snakebite, fits and bowel complaints.

5. *Calamus thwaitesii* Becc. & Hook

Once a much used rattan, now rare and threatened due to over exploitation.



Ochlandra travancorica Gamblé



Dioscorea hamiltonii Hook.f.



Embelia ribes A.DC.

6. *Embelia ribes* A.DC.

A multifaceted rare medicinal shrub whose leaves, berries, seeds and root barks are employed in the manufacturing of medicines, dyes and cosmetics.

7. *Dioscorea hamiltonii* Hook.f.

This yam is getting extremely rare due to some biological factors? Once a much consumed species by the forest dependent communities.

8. *Mangifera indica* L.

This was one of the most common varieties of Mango for culinary preparations. But now is extremely rare in wild.

9. *Ochlandra travancorica* Gamble

The highly exploited forest species for its pulp value, so endangered in wild. Local people struggle now for its collection for making baskets, mats etc- their livelihood option.

10. *Garcinia indica* (Thouars) Choisy

The wild camboge, which is highly valuable for its commercial use as fat reducer. Restricted only in forests of central Western Ghats.

About Community Agro biodiversity Centre

CABC is a grassroot organization of M. S. Swaminathan Research Foundation with a mandate to empower the marginalised communities for conservation and sustainable use of agrobiodiversity of the southern Western Ghat and southwest coast regions of India.

Mandated Mission

The experience of Community Agrobiodiversity Centre of M S Swaminathan Research Foundation over the last seven years in Wayanad district of Kerala has enabled us to occupy a pride place in the minds of local communities. Inspired by this, the mission is tuned to imparting skills to marginalised communities for conservation and sustainable utilisation of Natural Resources and biodiversity. Bridging the information divide through enabling an enhanced out reach and access for betterment of livelihood of local communities is a prime area of action. For this goal, Community Agrobiodiversity Centre focuses its efforts in harmonious synthesising of frontier and traditional knowledge systems.

CABC Main building



Arboretum

Shade House



Orchidarium

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