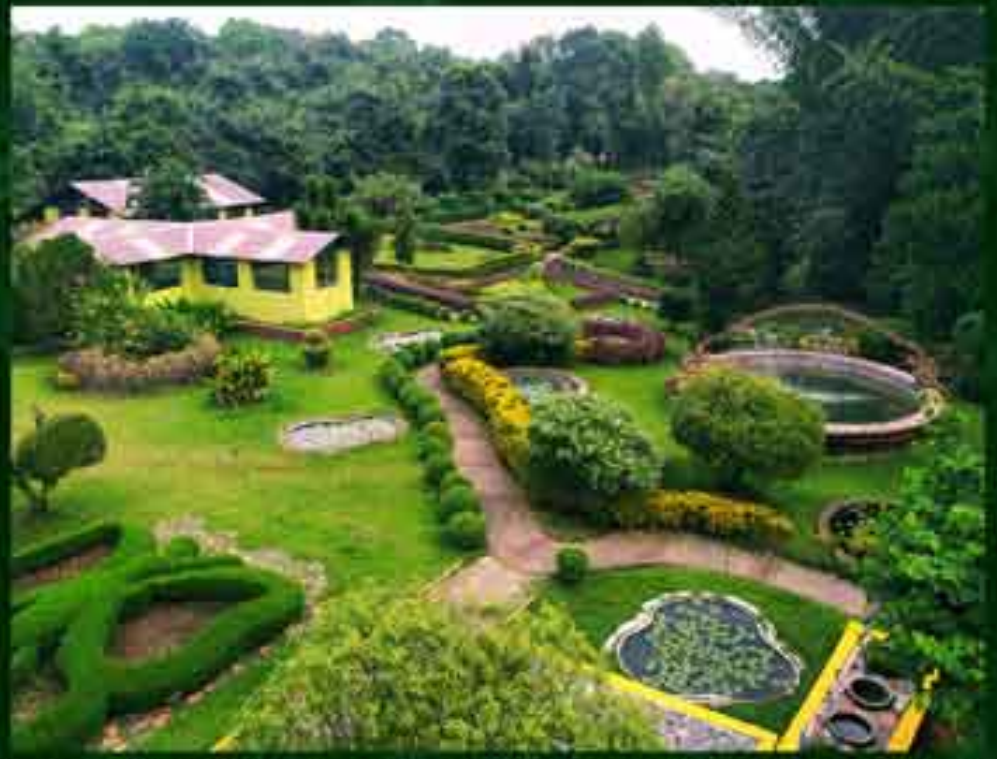
Bioresources Nature Park

KSCSTE-Kerala Forest Research Institute Sub Centre, Nilambur

The Western Ghats region of India is one of the hotspots of biodiversity in the world with rich plant and animal diversity, and some species are endemic to the region. Conservation of such vast biological resources for the future, while continuing to utilize them to meet the present needs, is really a challenging task. In this context, apart from reduction of habitat loss and in-situ conservation of flora and fauna, ex-situ conservation of unique plant and animal wealth of the region as well as education and awareness on biodiversity conservation, management and sustainable utilization are significant.



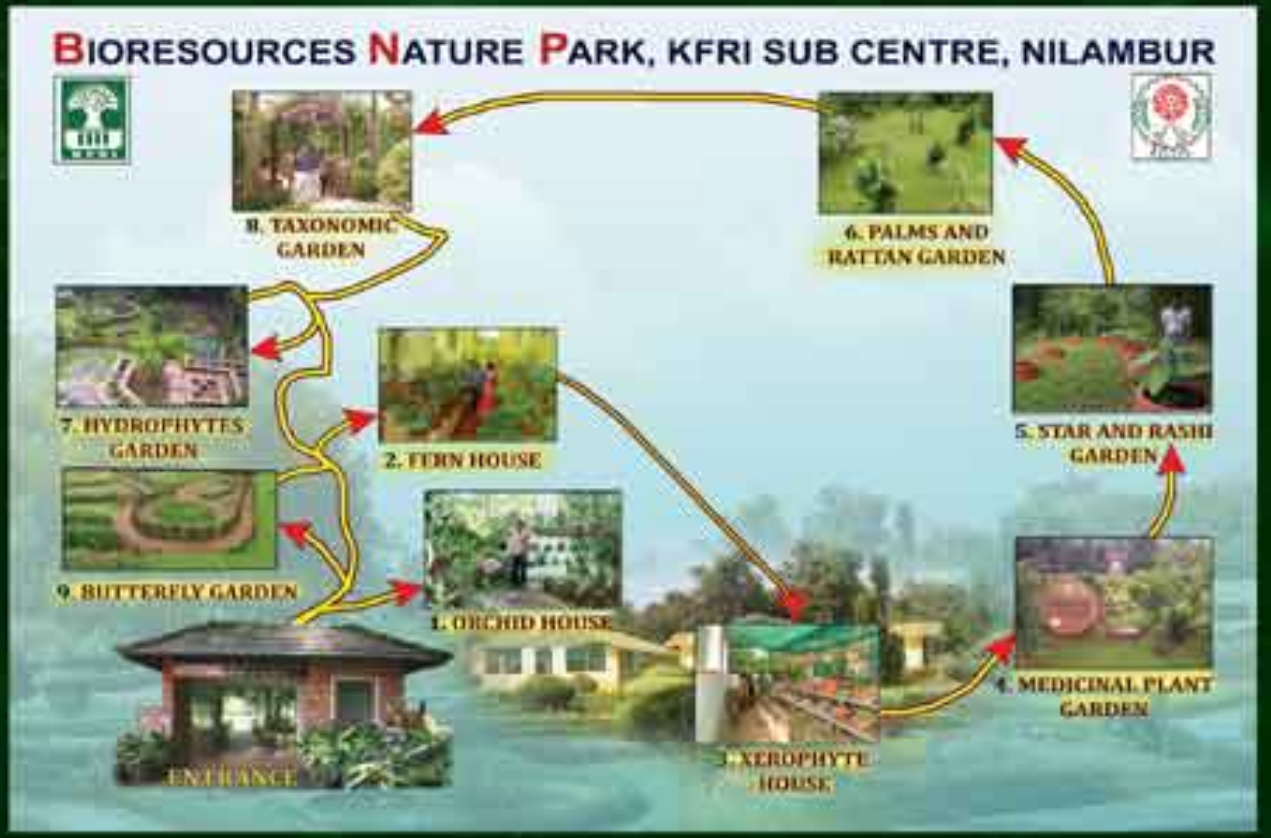
With this background, the Kerala Forest Research Institute, at its Sub Centre at Nilambur has developed about 10 ha of land into a Bioresources Nature Park to serve as a place for assembling a live collection of different taxonomic group of plants and as a platform for promoting nature education.

This QR Code on Bioresources Nature Park is prepared by Dr. U.M. Chandrashekara, Ms. P.K. Reshma, Ms. K. Divya and Mr. A.P. Nizaruddeen of KSCSTE-Kerala Forest Research Institute Sub Centre, Nilambur.

Bioresources Nature Park

Since the Bioresources Nature Park established during the year 2007 is located adjacent to the world famous Teak Museum in the fringe of Nilgiri Biosphere Reserve, it also forms an important part of ecotourism in the Western Ghats of India. The Bioresources Nature Park, has following theme areas:

1. Orchid House
2. Fern House
3. Xerophytes and Succulents Garden
4. Medicinal Plant Garden
5. Star and Rashi Garden
6. Palm Garden
7. Hydrophytes Garden
8. Taxonomic Garden
9. Butterfly Garden



All the themes are presented in a landscaped garden carpeted with grass. The ambience of the general area is also enhanced by a wide variety of ornamental plants.

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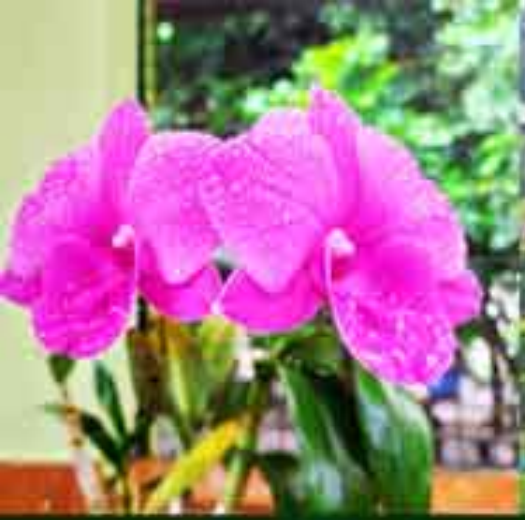

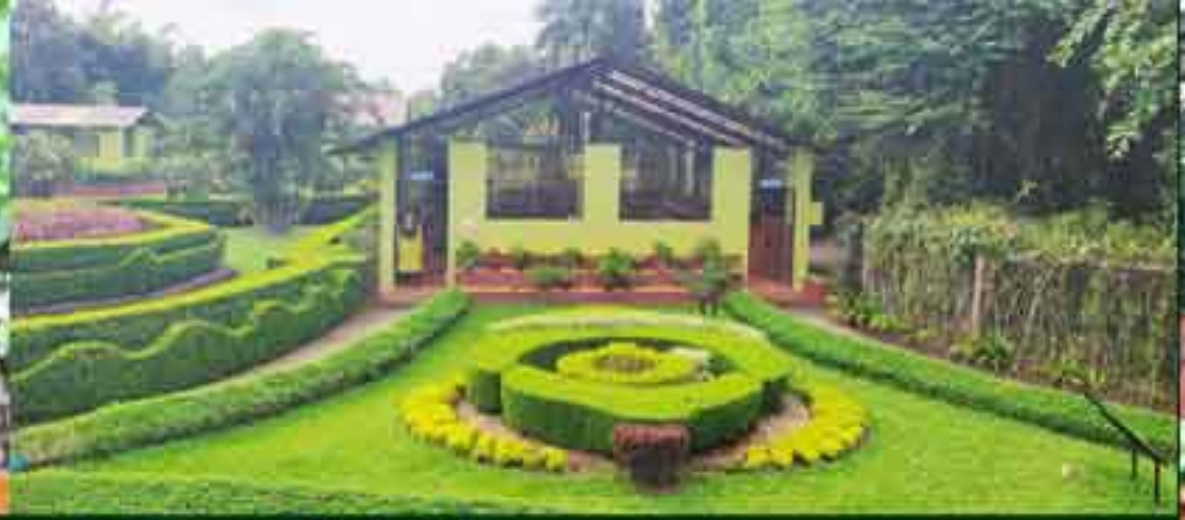

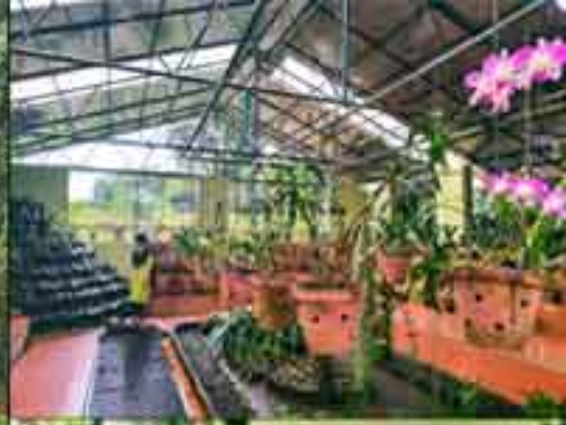

Orchid House

Orchids are the floral aristocrats of the flowering plant world. They form the largest group among plant families and represent highly evolved plants with most complicated flower structure. The Orchid House with more than 70 species, representing both epiphytic and ground orchids, is a floral paradise in the Bioresources Nature Park. Daily, the visitors here have an opportunity to see a variety of orchids in different stages of bloom and growth. One can also get familiarized with less common and endemic orchids like *Aerides crispa*, *Bulbophyllum rosemarianum*; medicinal orchids like *Flickingeria nodosa*, *Nervilia aragoana*, *Spathoglottis plicata*; commercially important orchid like *Vanilla planifolia* and the prettiest orchid in South India - *Rhynchostylis retusa*. Aside from its flora collection, the Orchid House mesmerizes the visitors with its crystalline water cascade and mystic misty atmosphere.

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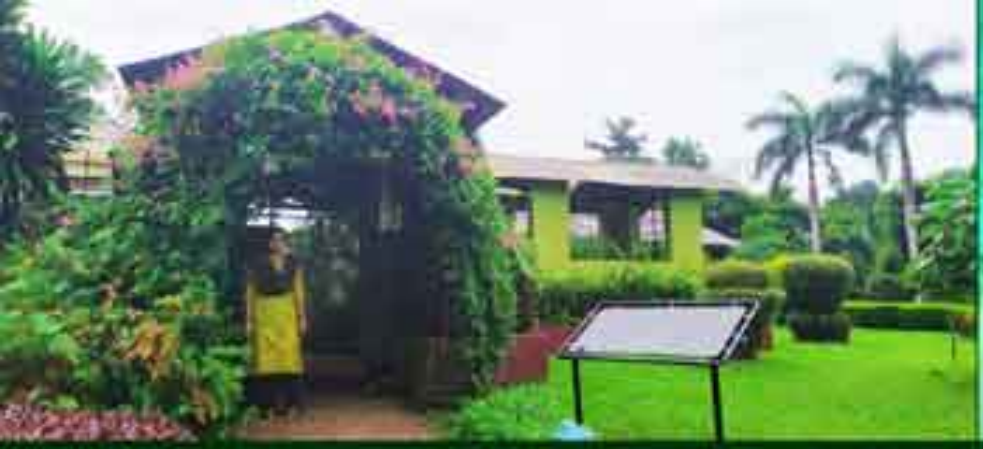
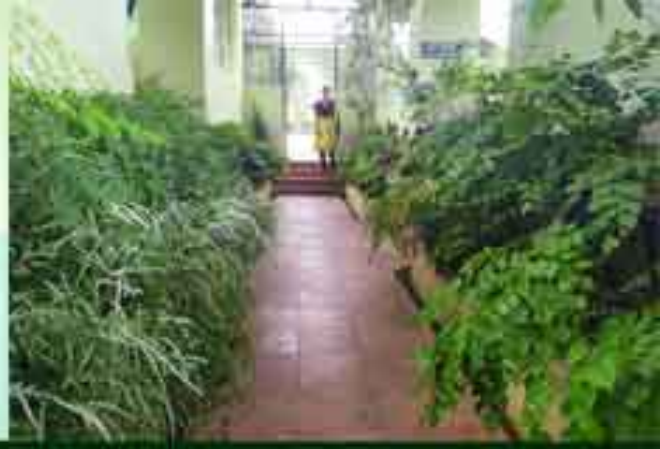
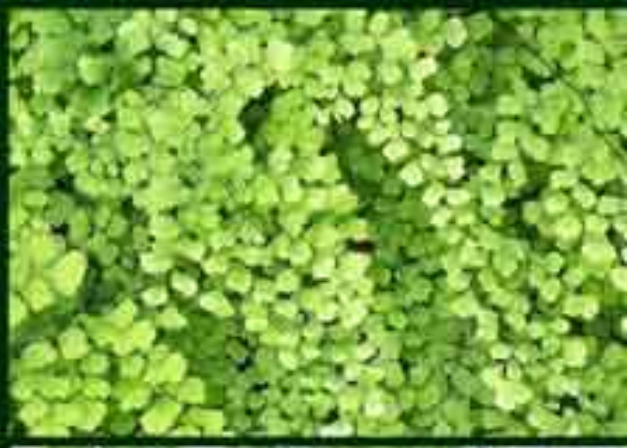
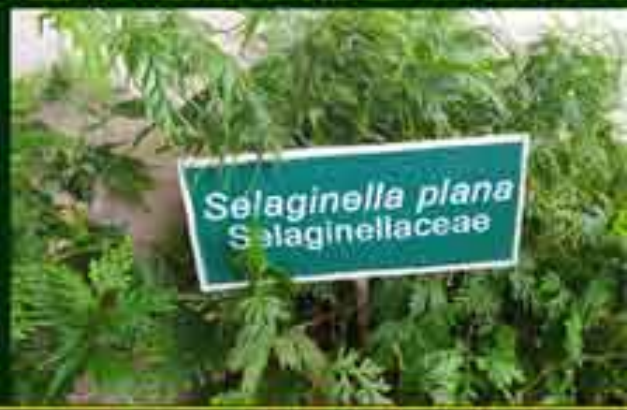




Fern House

Pteridophytes are the flower-less, seedless, spore-producing vascular plants with feather-like fronds. This group of plants includes ferns and fern allies. Ferns are the first true land plants- the dinosaurs of the plant world. Their ancestors are the source of fossil fuels such as coal and oil that we burn today. The Fern House in the Bioresources Nature Park contains about 75 species of plants which grow in terrestrial (eg. *Selaginella*, *Adiantum*), aquatic (eg: *Azolla*, *Salvinia*) or xerophytic (eg: *Equisetum*) habitats. In this Fern House, one can also see endemic ferns like *Bolbitis semicordata*, *Helminthostachys zeylanica*; rare and endangered ferns like *Angiopteris evecta*, *Equisetum ramosissimum*; and species with ornamental values such as *Huperzia phlegmaria*, *Microsorum punctatum* and *Davallia fejeensis*. The ferns are displayed along paths inside the plus-shaped house, which is provided with shade, sprinkler and mist facilities for their luxuriant growth.





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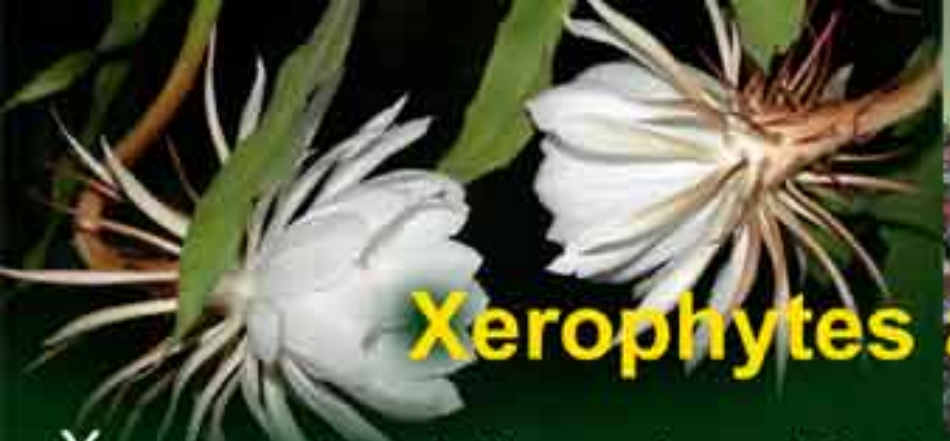

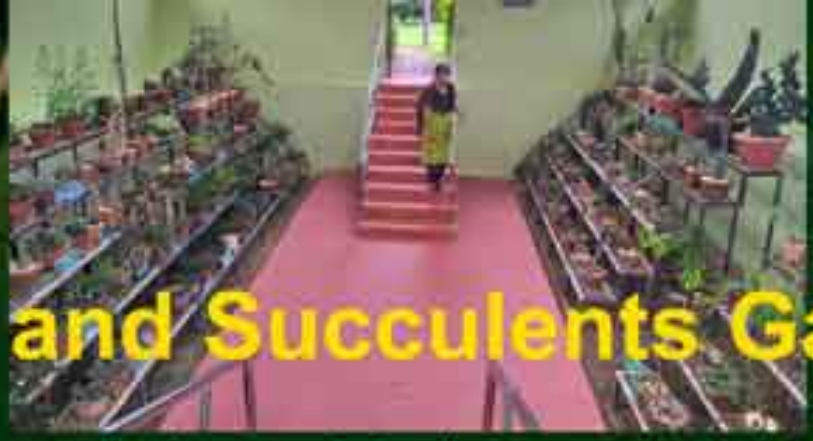

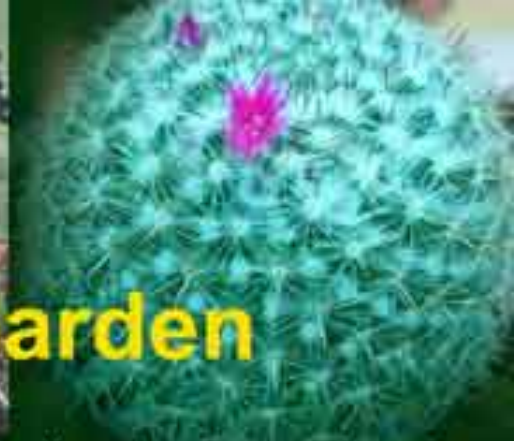

Xerophytes and Succulents Garden

Xerophytes (Greek: Xero = dry and Phyton = plant) are plants that are adapted to live in dry or desert condition. They achieve this by reducing transpiration and increasing water storage, modifying plant parts into structures like thorns, and growing normally during early hours and cooler seasons. Xerophytes can be of different types, namely, drought escaping, drought enduring or drought resistant plants. Succulents (eg: *Opuntia, Aloe*) are plants that have highly developed and specialized ways of storing water. This water stored in leaf, stem or root produces a wide array of swollen appearance to plant parts, and is consumed during period of extreme drought. Non-succulents (eg: *Casuarina, Nerium*), however, are drought resistant plants which do not have any water storage tissue, but are able to withstand critical dry conditions.

This Xerophytes and Succulents Garden in the Bioresources Nature Park is designed to exhibit live plants adapted to dry and drought conditions. The Garden has an outdoor landscaped rocky mound and a green house to display medicinal (eg. *Aloe vera*, *Cissus quadrangularis*, *Sarcostemma acidum*, *Asperagus racemosus*), ornamental (eg. *Echinocactus grusonii*, *Echeveria glauca*, *Agave angustifolia*, *Pandanus sanderi*, *Opuntia decumbens*), bio-fence (eg. *Agave americana*, *Bryophyllum pinnatum*, *Opuntia dillenii*) and bio-fuel (eg. *Jatropha curcas*) species.

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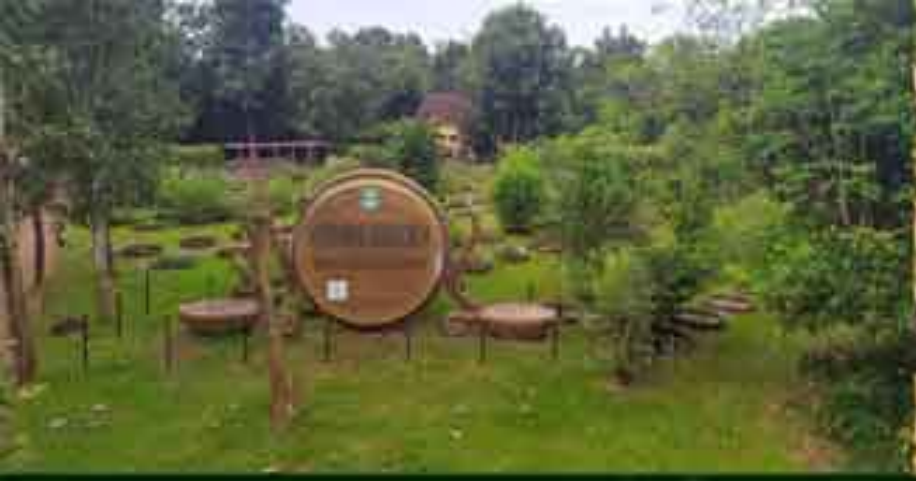

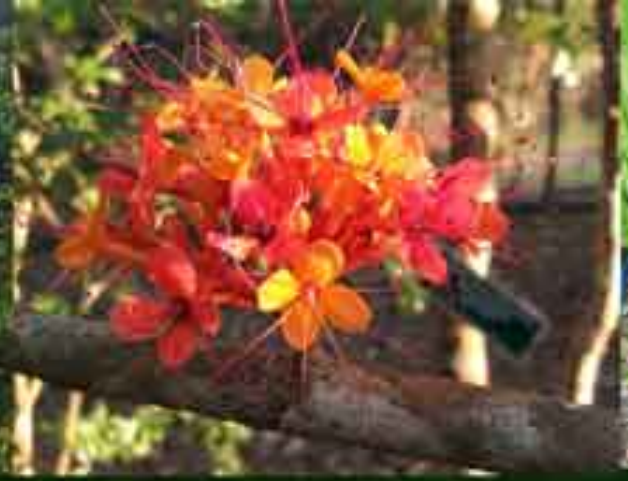

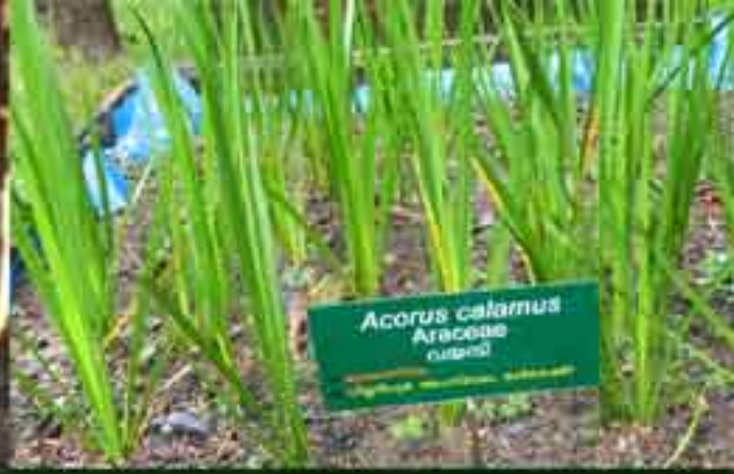

Medicinal Plant Garden

The Medicinal Plant Garden is an assemblage of around 500 species of plants, many of which are mainstay drug-producing, whose products such as alkaloids, glycosides and steroids are used in clinical practice around the world. The Garden functions as an educational display and source of information to the visitors on conservation, management and sustainable utilization of medicinal plants. The pathways which crisscross this formal style garden provide easy access for visitors to examine the labeled plants including some rare species like *Acorus calamus*, *Baliospermum montanum*, *Coscinium fenestratum*, *Cymbopogon flexuosus*, *Embelia ribes*, *Gloriosa superba*, *Nilgirianthus ciliatus*, *Rauvolfia serpentina*, *Terminalia arjuna*, *Terminalia bellirica*, *Terminalia chebula*, *Trichopus zeylanicus* and *Zingiber zerumbet*. In addition, this Garden, with several medicinal plants which have aesthetic value, forms a model for developing urban green spaces using medicinal plants.

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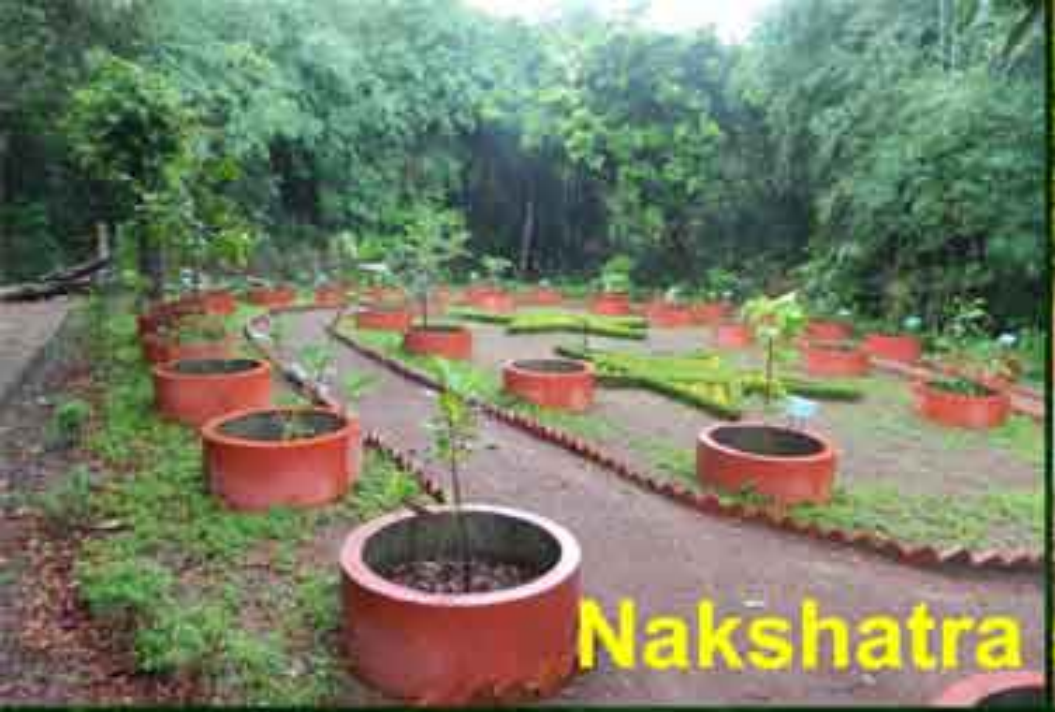

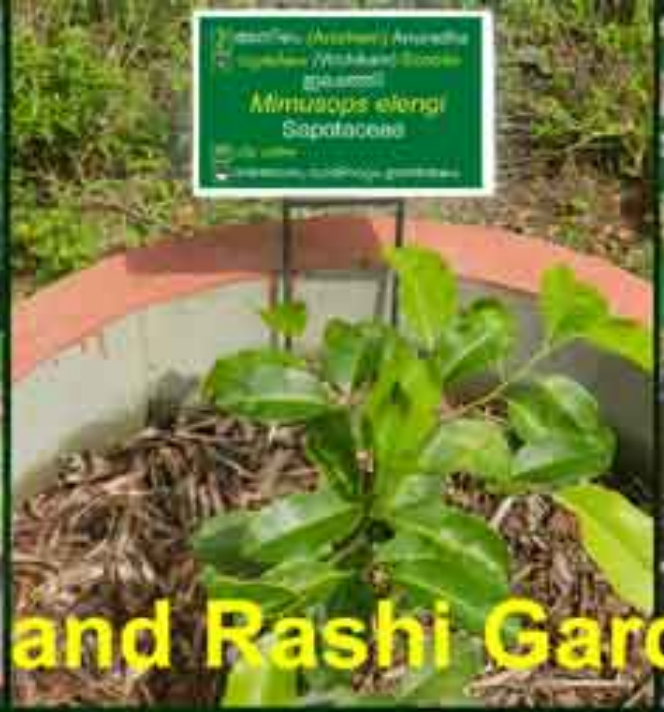

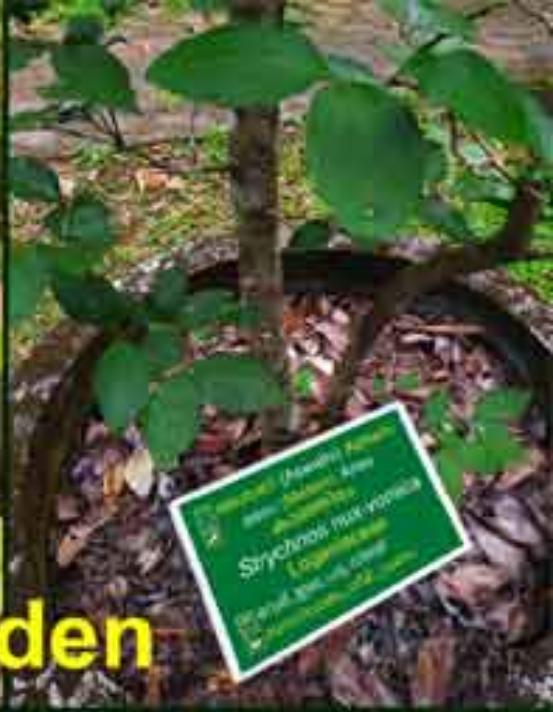

Nakshatra and Rashi Garden

In Indian culture, every Nakshatra (Star) and Rashi (Zodiac sign) has a symbolic tree or plant that defines its connection with the eternal nature. These plants also have myriad medicinal, aesthetic, cultural, social and economic values. It was a tradition in our country that when a baby is born, parents plant a seedling of the tree of the child's Nakshatra/ Rashi. The tree will be nurtured with a belief that the better the growth of the tree the more health and happiness to the child.

In the Nakshatra and Rashi Garden of this Bioresources Nature Park, plants associated with 27 Nakshatras and 12 Rashis are planted and in front of each plant, a board depicting the details including medicinal use/s of the plant is displayed. The intension of this Garden is to popularize the concept of Nakshatra and Rashi Garden to promote cultivation, management and utilisation of medicinal plants.

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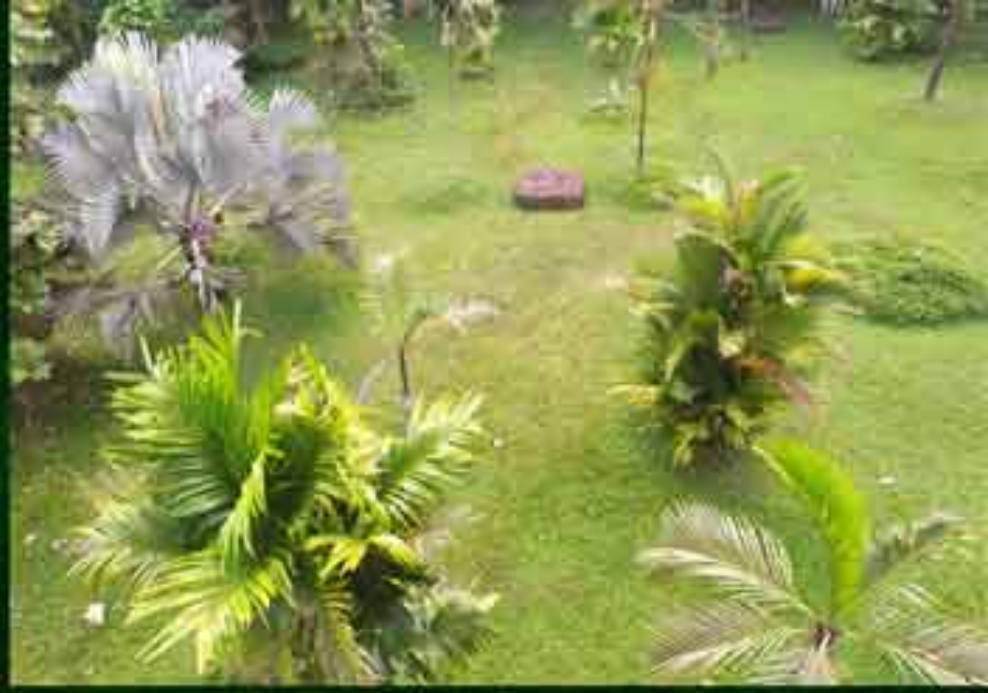
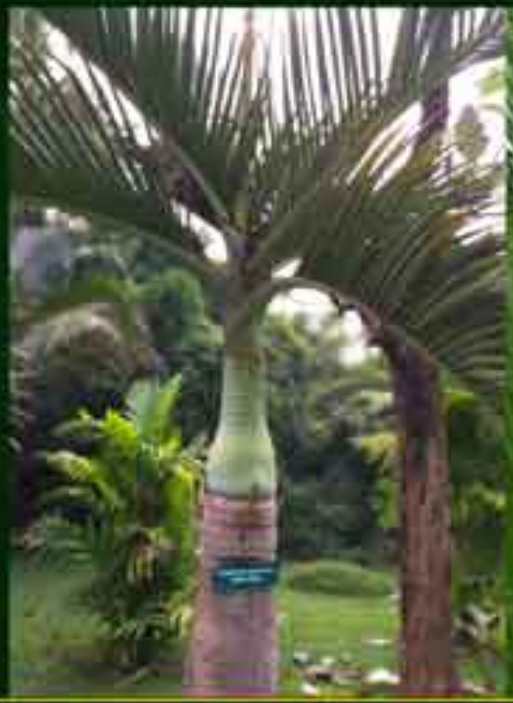
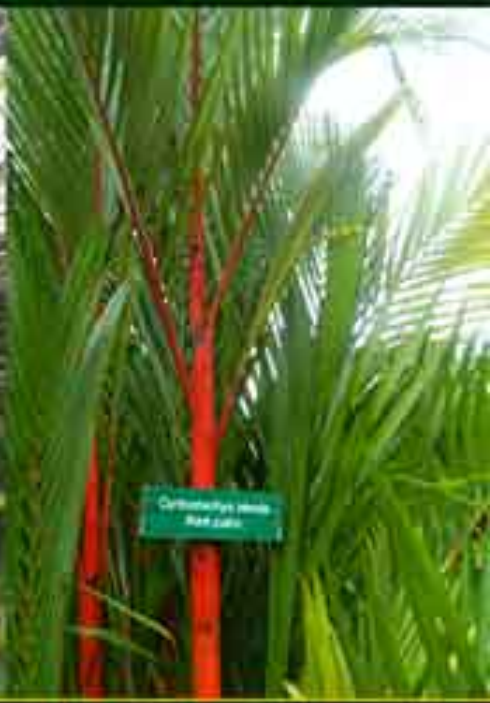
Palm Garden

Palms are the 'prince among plants' and stand next to grasses in the socio-economy of the human race apart from their significant contribution to beautify the landscapes as horticultural ornamentals. The Palm Garden in the Bioresources Nature Park contains rare and endangered species like *Arenga wightii* and *Pinanga dicksonii* along with many other palms of great economic significance, such as, *Areca catechu*, *Phoenix sylvestris* and *Borassus flabellifer*. Besides, over 40 ornamental palm species popularly known as Royal palm, Queen palm, Majesty palm, Table palm, Shampine palm, etc. growing in the garden also attract the visitors. Rattans, a group of climbing and spiny palms are represented in the garden with rare and endemic species like *Calamus vattayila* and *Calamus nagbettai*.







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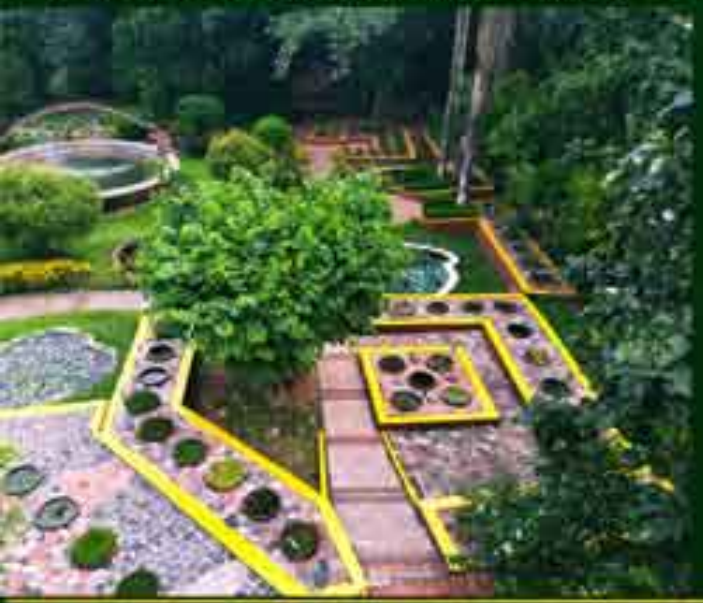
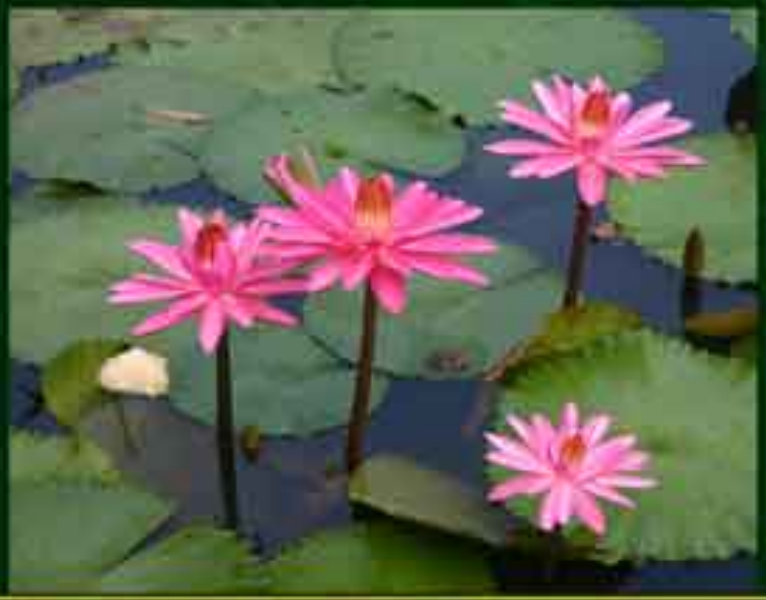
Hydrophyte Garden

Hydrophytes literally mean water-plants. The Hydrophyte Garden in this Bioresources Nature Park is an assemblage of more than 50 species which represent different forms such as floating hydrophytes (eg: *Azolla pinnata*, *Salvinia molesta*), submerged and rooted hydrophytes (eg: *Hydrilla verticillata*, *Ottelia alismoides*), floating leaved, anchored or rooted hydrophytes (eg: *Nymphaea omarana*, *Trapa natans*) and emergent rooted hydrophytes (eg: *Bacopa monnieri*, *Monochoria vaginalis*). The Garden is developed not only for educational purposes, but also for the enjoyment to the visitors by having scores of magnificent water-lilies and lotus in various stages of bud and bloom. Among the featured plants are the sacred lotus (*Nelumbo nucifera*), immortalized in literature, religion and history for its purity of bloom. The visitors can stroll down a winding walk to see interesting water plants.





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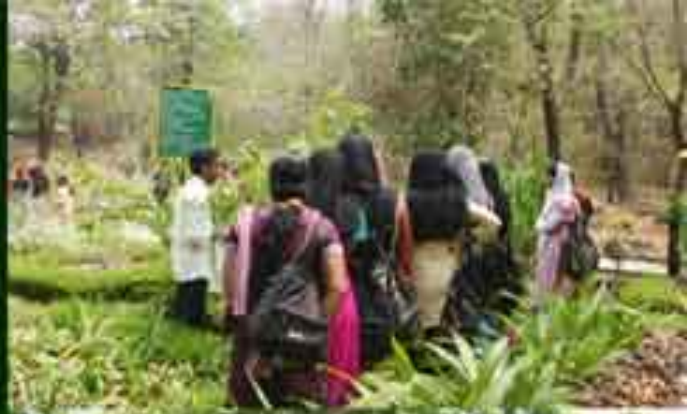
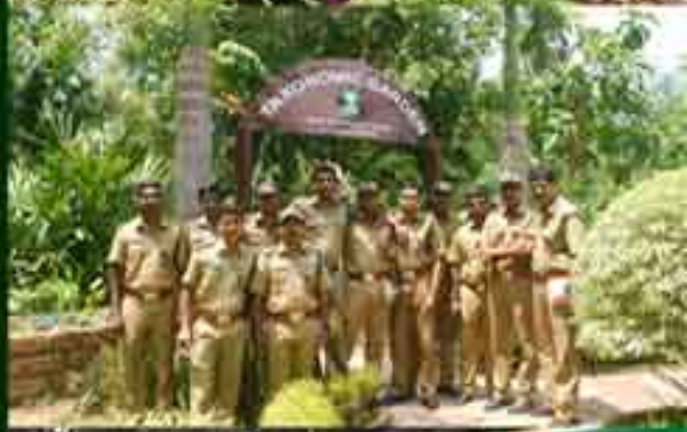
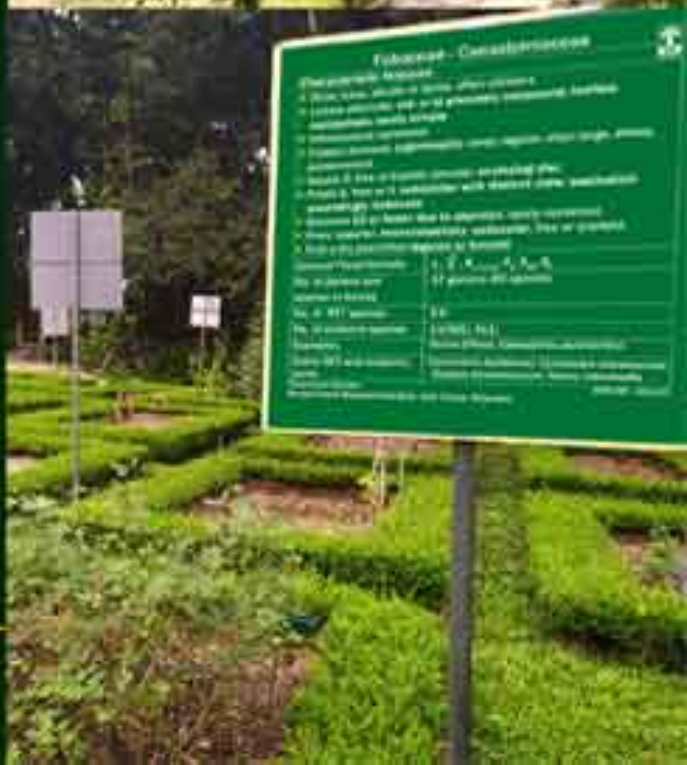
Taxonomic Garden

Taxonomy is the science of naming, describing and classifying organisms on the basis of shared characteristics. The term is derived from the Greek *taxis* (arrangement) and *nomos* (law). Organisms are grouped together into taxa (singular: taxon) and these groups are given a taxonomic rank; groups of a given rank can be aggregated to form a super-group of higher rank, thus creating a taxonomic hierarchy. The knowledge on taxonomy is important to appreciate the rich biological diversity present in our region and to take collective decision to conserve, manage and sustainably use the bio-resources. Recognizing the importance of taxonomy in fields like biological diversity, medicine, horticulture, agriculture and plantation, this Taxonomic Garden of flowering plants is established to introduce basics of taxonomy to the visitors. In this Garden, over 1,000 flowering plants belonging to about 120 families are planted. Plants belonging to different families are arranged in separate blocks. In front of each family block, a board providing information on family characters, floral formula, total number of species of the family seen in Kerala, endemic, rare, endangered and threatened species in the family is installed. The visitors can stroll down a winding walk to view interesting plants in each flowering plant family.







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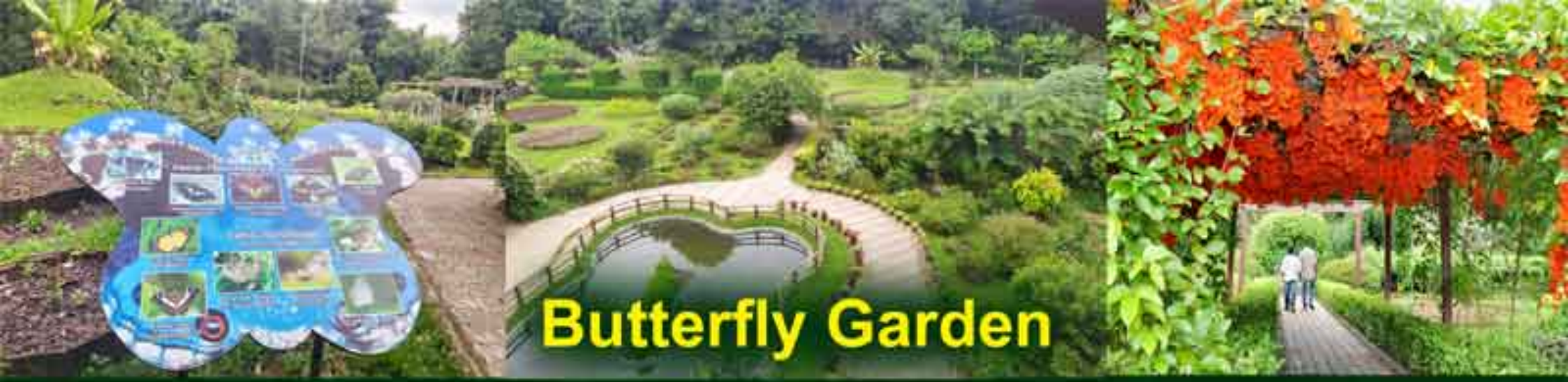

Butterfly Garden

Butterflies are scaly winged insects (Lepidoptera) with fascinating life-cycles. The transformation from egg to caterpillar to pupa is one of the wonders of nature. This Garden is designed to attract butterflies and enthuse them to live here. This is achieved by planting larval and adult host plants and a subtle modification of the habitat. The juvenile or caterpillar stage of butterflies feed on foliage of specific plants. The adult (butterfly) feeds on nectar or sap of over-ripe fruits and sappy exudations from plants. Some adults even feed on the fluid content of excreta of animals and birds. Nectar plants such as *Ixora coccinea*, *Lantana camara*, *Clerodendrum paniculatum* and *Zinnia elegans*; larval host plants such as *Murraya koenigii*, *Mussaenda frondosa*, *Aristolochia indica* and *Wattakaka volubilis*; and butterfly roosting plants such as *Crotalaria retusa* and *Heliotropium keralense* are introduced in this garden. The common butterflies present here are Common Mime, Common Rose, Crimson Rose, Lime butterfly, Blue Mormon, Southern Bird-wing, Blue Glassy Tiger, Blue Tiger, Dark Blue Tiger, Emigrants and Grass Yellow. In this Garden, visitors can look out for not just the adult butterflies, but also for the diverse forms of eggs, caterpillars and pupae of a variety of butterfly species.

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By having a rich plant diversity assembled in above mentioned theme area, this Bioresources Nature Park is now developed as an ex-situ plant conservation area and an important nature education and ecotourism hub in Kerala. The increasing trend of annual visitors is also indicating that the visitors have acknowledged the educational and recreational value of the Bioresources Nature Park. For intensifying the educational role of Bioresources Nature Park, the Kerala Forest Research Institute is aiming to organize more educational programmes from the perspective of biodiversity conservation, ecology, economic botany, horticulture, ethno-medicine and ethno-botany and other allied subjects.

Acknowledgements

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Bioresources Nature Park

Visiting time: 10.00 am to 5.00 pm (Monday- Holiday)

For Further Details

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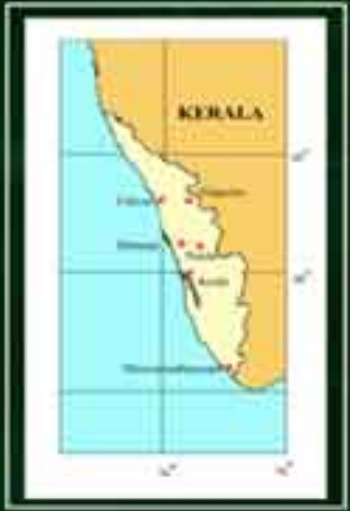

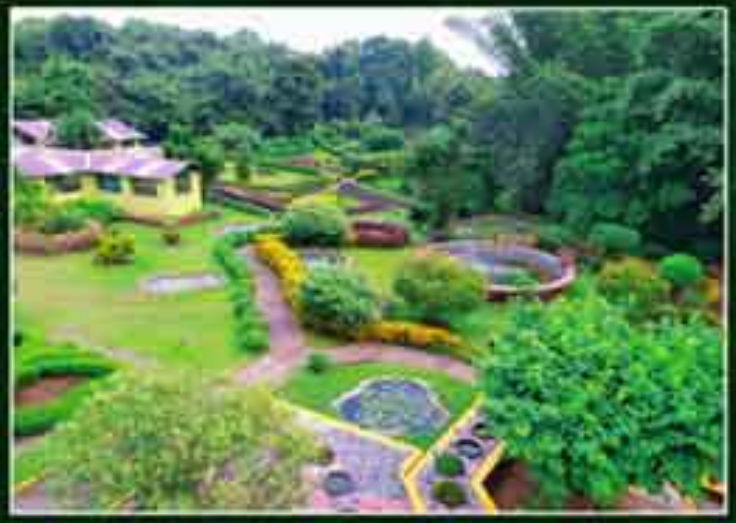

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