Butterfly Garden at District Legal Services Authority Campus, Muttambalam, Kottayam: Project Report

KIMSHEALTH

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Implemented by:
Tropical Institute of Ecologocal Sciences (TIES)
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In collaboration with:

Kerala Forest & Wildlife Dept., Social Forestry Division, Kottayam

District Legal Services Authority, Kottayam

April 2025

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KIMS Health

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CSR

Project Implemented by:

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Figure 1. Great Eggfly

Introduction

This report outlines a proposal for establishing an "open" butterfly garden at the Muttambalam campus, an initiative driven by the District Legal Services Authority (DLSA), Kottayam, with implementation support from the Tropical Institute of Ecological Sciences (TIES). This project represents a unique convergence of environmental conservation, education, and community well-being, aiming to transform underutilized spaces into vibrant ecological havens.

The Concept of a Butterfly Garden

Butterfly gardening is an innovative approach that fuses conservation with education by creating habitats specifically designed to attract and sustain butterfly populations. Butterflies, often overlooked amidst rapid urbanization, are crucial components of our ecosystem. In India, the success of "open" butterfly gardens in fostering appreciation for these delicate creatures has been significant.

The core principle of an 'open-butterfly garden' lies in cultivating specific host plants that cater to the entire butterfly life cycle. Larvae (caterpillars) feed on the leaves of preferred host plants, while adult butterflies rely on nectar from other specific plants for sustenance. By strategically planting a diverse range of these host and nectar plants, the garden naturally attracts butterflies, encouraging them to breed and flourish. During their blooming phase, these plants release chemical scents that draw butterflies from distant areas, creating a thriving ecosystem. Ideally, such gardens are established in serene, less polluted environments with abundant greenery.

Making a Butterfly Garden: Key Considerations

Creating a butterfly garden is a straightforward yet impactful method for enhancing campus eco-friendliness and maximizing the utility of often-neglected spaces. These areas can be transformed into vibrant havens, enriching both the environment and the campus's aesthetic appeal.

To attract and sustain a healthy butterfly population, it's crucial to plant approximately 25-35 diverse species of nectar-rich and host plants. Prioritizing **native species** is imperative, as indigenous butterflies show a strong preference for native garden plants. This strategic selection ensures that both caterpillars and adult butterflies have their feeding needs met, naturally drawing more butterflies to the campus and enhancing its visual allure.

Common larval host plants like **Citrus, Cinnamom, Aristolochia, and Mussaenda** will effectively attract a variety of butterfly species, promoting their breeding and life cycle progression within the garden. Additionally, incorporating nectar plants such as **Ixora, Lantana, and Clerodendron** will provide ample sustenance for adult butterflies, ensuring their continued presence and activity across the campus.

Figure 2. Butterfly Garden at DLSA, Muttambalam Campus, Kottayam

Ultimately, the creation of a butterfly garden not only contributes to the campus's ecological sustainability but also establishes a captivating oasis that harmonizes with the natural landscape, enriching the overall campus experience for its inhabitants and visitors.

Benefits of a Butterfly Garden in a Public Space

Establishing a butterfly garden within an industrial campus offers a multitude of benefits, encompassing environmental, educational, health, and aesthetic aspects:

i. Environmental and Ecological Benefits

- **Biodiversity Enhancement:** The garden will support local biodiversity by providing crucial habitat and food sources for butterflies and other pollinators, vital for maintaining ecological balance.
- **Pollination Support:** Butterflies will contribute to the pollination of various plant species, aiding their growth and propagation, thereby enhancing the overall health of the campus ecosystem.
- **Environmental Education:** The garden will serve as a dynamic "living classroom," offering opportunities for visitors and employees to learn about the significance of pollinators and their ecological roles.

ii. Educational and Recreational Benefits

- **Interactive Learning:** It will provide excellent interactive learning opportunities for school groups, employees, and visitors, fostering environmental education.
- **Nature Appreciation:** The garden will encourage engagement with nature, cultivating a sense of stewardship and respect for the natural world.
- **Recreational Space:** It will offer a tranquil and aesthetically pleasing space for relaxation, reflection, and meditation, contributing to the overall well-being of all who visit.

Figure 3. Lesser Grass blue butterfly in Tecoma plant

iii. Health and Well-being Benefits

- **Mental Health:** Spending time in nature is known to reduce stress and improve mental health. The garden will provide a peaceful retreat for individuals to unwind and find solace.
- **Physical Activity:** It will encourage outdoor activity through walking, gardening, or simple exploration, thereby promoting physical health.
- **Sensory Stimulation:** The vibrant colors, diverse scents, and subtle sounds of a butterfly garden will offer a rich sensory experience that is both calming and invigorating.

Figure 4. Butterfly garden act as an informal education hub.

iv. Practical and Aesthetic Benefits

- **Beautification:** The garden will significantly enhance the visual appeal of the campus, creating a beautiful and inviting environment.
- **Educational Signage:** Informative signs about butterfly species and plants will educate visitors while adding to the garden's aesthetic value.
- **Low Maintenance:** Once established, butterfly gardens, particularly those using native plants, often require less maintenance compared to traditional gardens, as these plants are well-suited to the local climate

Project Background

The butterfly garden at the **District Legal Service Authority Campus**, Muttambalam aligns with KIMS's broader mission to promote access to justice and foster community well-being, recognizing the intrinsic link between a healthy environment and a thriving society. The project was implemented in collaboration with TIES and with the support of KIMS Health, in association with the Social Forestry Division of the Kerala Forest & Wildlife Department.

KIMS Health is deeply committed to Corporate Social Responsibility (CSR), focusing on “Inclusive Growth" through various initiatives. Their core efforts revolve around healthcare accessibility, providing free or subsidized treatments and environmental sustainability. KIMS HEALTH prioritizes environmental sustainability as a key pillar of its CSR, recognizing its direct link to public health. The organization actively implements eco-friendly practices, including robust water conservation campaigns and stringent pollution control measures.

Tropical Institute of Ecological Sciences (TIES), a premier environmental research organization headquartered in Kottayam, was established in 2004. TIES is dedicated to fostering a synergy between humans and nature through education and practice, integrating science, tradition, and environmental conservation. TIES is a research center of Mahatma Gandhi University, and an approved laboratory of the Kerala State Pollution Control Board, and a registered non-profitable charitable organization with 12A, 80G, and FCRA status. It holds ISO 9001:2015 accreditation and is ISO 17020:2015 certified.

The **Social Forestry Division of the Kerala Forest & Wildlife Department**, established in 1982, focuses on forest management, conservation, and reforestation of barren and deforested land. Its activities include afforestation efforts, organizing awareness and educational programs, collaborating with local self-governments on forestry and biodiversity issues, as well as planning, monitoring, and reporting several activities. Social forestry aims to contribute to environmental sustainability, social well-being, and rural development.

The **District Legal Services Authority (DLSA), Kottayam**, established under the Legal Services Authorities Act of 1987, plays a vital role in promoting access to justice in the Kottayam district of Kerala. DLSA ensures legal aid, especially for marginalized and economically disadvantaged communities, offering free legal services and conducting awareness programs. This project aligns with DLSA's commitment to fostering legal awareness and support, contributing to a more equitable society

Figure 5. Proposed area for the butterfly garden

Objectives of the Project

The proposed butterfly garden project at the Muttambalam campus has two primary objectives:

1. **Promoting Biodiversity:** The foremost objective is to enhance biodiversity within the urban environment of the campus. By creating a habitat conducive to butterfly populations, the project aims to support local ecosystem health and contribute to the conservation of native flora and fauna.
2. **Enhancing Green Spaces:** The project seeks to transform underutilized areas of the campus into vibrant green spaces. These spaces will not only beautify the surroundings but also provide significant ecological benefits. By creating an aesthetically pleasing butterfly garden, the project aims to enhance the overall environment of the campus, improving visitor morale and well-being.

Project Implementation: Key Steps

Implementing the butterfly garden on campus will involve several key steps:

i. Assessment, Planning and Design :

This initial phase will involve evaluating the available space within the campus to identify the most suitable location for the butterfly garden. Crucial factors such as sunlight exposure, soil quality, and existing vegetation will be thoroughly considered. A comprehensive design plan will be developed for the butterfly garden. This will include the layout, careful selection of plant species, and the integration of features such as pathways, seating areas, and educational signage (depending on available space). Special attention will be given to incorporating elements that actively attract butterflies, such as nectar-rich flowers and specific host plants for caterpillars. The butterfly garden was built in an area spanning 4 cent.

Figure 6.Proposed design for butterfly garden

ii. Site Preparation:

The selected site will undergo thorough preparation to establish the garden. This involves **clearing any existing vegetation** and **leveling the area** to create a uniform foundation. Following this, the ground will be meticulously **cleared of all unwanted debris, including stones, roots, and other organic matter**, to ensure an unhindered growth environment for the new plants. Finally, **additional soil will be incorporated** to enrich the nutrient content and optimize drainage, providing an ideal base for the diverse plant species crucial for attracting and sustaining butterfly populations.

Figure 7. Site leveling using machineries

Figure 8. Land preparation and weeding out

iii. Planting Host and Nectarine Plants

Once the site is meticulously prepared, the next crucial step is to **plant the host and nectar plants precisely according to the garden's design**. This isn't just about aesthetics; it's about creating a comprehensive food source for butterflies at every stage of their life cycle.

Figure 9. Host and nectarine plants for the garden

The chosen **host plants** will be strategically positioned to serve as essential nurseries for butterfly larvae, commonly known as caterpillars. These specific plants are the sole food source for the developing caterpillars, making their presence non-negotiable for successful butterfly breeding within the garden. Simultaneously, a diverse array of **nectar plants** will be incorporated. These vibrant, flowering species provide vital sustenance for adult butterflies, offering them the energy they need for flight, mating, and egg-laying. By providing both host and nectar sources, the garden becomes a self-sustaining ecosystem that actively encourages butterflies to not only visit but to settle, breed, and thrive. To give these newly planted species the best possible start, we'll **incorporate organic fertilizers and growth promoters at the time of planting**. Organic fertilizers, rich in natural nutrients, will gently nourish the soil and foster robust root development, ensuring the plants establish themselves firmly. Growth promoters, derived from natural sources, will further stimulate healthy growth, helping the plants quickly mature into attractive and bountiful resources for our winged visitors. This careful attention to initial nourishment is key to establishing a vibrant and productive butterfly habitat that will consistently attract and support a wide variety of butterfly species.

Figure 10. Planting of host and nectarine plants

Beyond its ecological function, the garden's design carefully considered visual appeal. To that end, a lush bed of vibrant pearl grass was thoughtfully integrated, creating a striking visual contrast and adding a layer of sophisticated beauty.

Figure 11. Pearl Grass planting at the garden

SI. NO	SCIENTIFIC NAME	COMMON NAME
1.	*Cuphea hyssopifolia*	CUPHEA
2.	*Jatropha spp.*	JATROPHA
3.	*Plumbago auriculata*	PLUMAGO
4.	*Stachytarpheta jamaicensis*	AFRICAN BLUE SPIKE
5.	*Ixora coccinea*	IXORA MINIATURE
6.	*Melastoma malabathricum*	MELASTOMA
7.	*Clerodendrum paniculatum*	CLERODENDRUM
8.	*Bamboo spp.*	BAMBOO
9.	*Cinnamom malabatrum*	CINNOMON
10.	*Mangifera indica*	MANGO TREE
11.	*Cassia fistula*	GOLDEN FLOWER TREE
12.	*Mussaenda philippica*	MUSSANDA
13.	*Murraya koenigii*	CURRY LEAF
14.	*Lantana camara*	LANTANA
15.	*Citrus spp.*	LEMON
16.	*Crotalaria retusa*	CROTALARIA
17.	*Pentas lanceolata*	PENTAS
18.	*Hibiscus rosa-sinensis*	HIBISCUS
19.	*Crossandra infundibuliformis*	CROSSANDRA
20.	*Calotropis gigantea*	GAINT MILK WEED
21.	*Crateva magna*	LARGE GARLIC PEAR
22.	*Tecoma stans*	TECOMA
23.	*Caesalpinia pulcherrima*	PEACOCK FLOWER
24.	*Aristolochia indica*	INDIAN BIRTH WORT
25.	*Ruta graveolens*	COMMON RUE
26.	*Flacourtia montana*	MOUNTAIN SWEET THORN
27.	*Palmacea*	PALM
28.	*Aegle marmeloes*	INDIAN BEAL
29.	*Hydnocarpus pendandra*	WOOD APPLE
30.	*Durandha erecta*	GOLDEN DEW DROPS
31.	*Thottea siliquosa*	THOTTEA

Table 1. List of plants

Figure 12. Garden after planting

iv. Information boards

Figure 13. Preparation of information boards

Information boards were strategically placed to educate visitors about the local butterfly population. One board details the **Common Butterflies located in and around our Garden**, showcasing 30 + species frequently sighted species with their identifying features and active periods. Another, board titled food **Plants for Butterflies: Host & Nectar**, explains the critical role of host plants (where caterpillars feed) and nectar plants (food for adult butterflies), listing key species planted in the area like Curry Leaf for swallowtails, Milkweed for Monarchs, and nectar sources such as Lantana, Ixora, and Hibiscus. A third board, **The Butterfly's Journey: Life Cycle**, visually illustrates the four stages of metamorphosis – egg, caterpillar, chrysalis, and adult – with a brief explanation for each. Finally, ten dedicated board focuses on individual species that are very commonly seen in our garden, like common emigrant, common Mormon, psyche, common rose etc. A 'Butterfly Garden' title board was also placed in our garden. All the boards were constructed using GI pipe frames, with vinyl stickers pasted onto the GI sheets.

COMMON BUTTERFLY

Commander
Moduza procris
വെള്ളിലത്തോഴി

Blue Tiger
Tirumala limniace
നീലക്കടുവ

Peacock Pansy
Junonia almana
മയിൽക്കണ്ണി

Grey Pansy
Junonia atlites
വയൽക്കോത

Chocolate Pansy
Junonia iphita
ചോക്ലേറ്റ് ശലഭം

Common Indian Crow
Euploea core
അരളിശലഭം

Plain Tiger
Danaus chrysippus
എരിക്കുതപ്പി

Striped Tiger
Danaus genutia
വരയൻകടുവ

Common Grass Yellow
Eurema hecabe
മഞ്ഞപ്പാപ്പാത്തി

Giant Red Eye
Gangara thyrsis
വൻ ചെങ്കണ്ണി

Southern Birdwing
Troides minos
ഗരുഡശലഭം

Blue Mormon
Papilio polymnestor
കൃഷ്ണശലഭം

Common Rose
Pachliopta aristolochiae
നാട്ടുറോസ്

Crimson Rose
Pachliopta hector
ചക്കരശലഭം

Common Blue Bottle
Graphium sarpedon
നീലക്കുടുക്ക

Tailed Jay
Graphium agamemnon
വിറവാലൻ

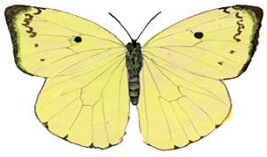
Common Mormon
Papilio polytes
നാരകക്കാളി

Common Mormon
Papilio polytes
നാരകക്കാളി

Lime Butterfly
Papilio demoleus
നാരകശലഭം

Common Mime
Papilio clytia
വഴനപൂമ്പാറ്റ

Common Mime
Papilio clytia
വഴനപൂമ്പാറ്റ



Common Emigrant
Captopsilia pomona
മഞ്ഞത്തകരമുത്തി

Mottled Emigrant
Captopsilia pyranthe
തകരമുത്തി

Common Evening Brown
Melanitis leda
കരിയിലശലഭം

Common Palmfly
Elymnias hypermnestra
ഓലക്കണ്ടൻ

Southern Rustic
Cupha erymanthis
വയ്യാങ്കതൻ

Common Leopard
Phalanta phalantha
പുലിത്തെയ്യൻ

Gaudy Baron
Euthalia lubentina
കനിവർണൻ

Common Baron
Euthalia aconthea
കനിത്തോഴൻ

Common Sailor
Neptis hylas
പൊന്തച്ചുറ്റൻ

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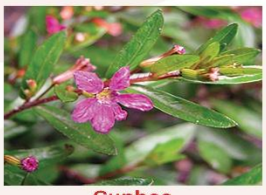
Organizing partner:
KERALA FOREST & WILDLIFE DEPT.
SOCIAL FORESTRY DIVISION, KOTTAYAM

KIMSHEALTH CSR

BUTTERFLY FOOD PLANTS

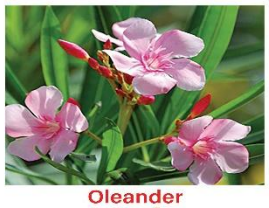

Ixora
ചെത്തി

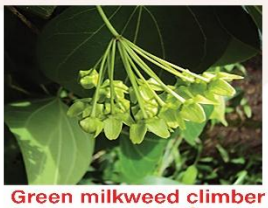

Tridax
കമ്മൽപ്പൂ


Cuphea
കുഫിയ


Clerodendrum
കൃഷ്ണകിരീടം


Jatropha
ജട്രോഫ


Oleander
അരളി


Green milkweed climber
വട്ടക്കാക്കൊടി


Lantana
അരിപ്പൂ

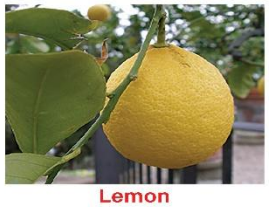

Duranta
ചെമ്പഴുക്ക

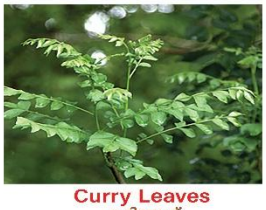

Zinnia
സീനിയ


Crossandra
കനകാംബരം


Mussanda
മുസാണ്ട


Cinnamon
വഴന

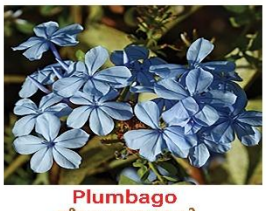

Lemon
നാരകം


Curry Leaves
കറിവേപ്പ്


Golden Shower Tree
കണിക്കൊന്ന


Hibiscus
ചെമ്പരത്തി


Pentas
പെന്റാസ്


Plumbago
നീലക്കൊടുവേലി

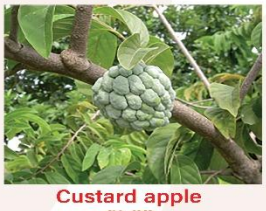

Giant Milkweed
എരുക്ക്

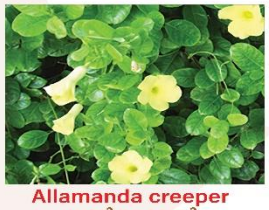

Crotalaria
കിലുക്കി


Champak
ചെമ്പകം

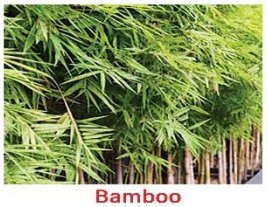

Bael
കൂവളം


Melastoma
കദളി


Custard apple
ആത്ത


Allamanda creeper
വള്ളി കോളാമ്പി


Palm
പന


Bamboo
മുള

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LIFECYCLE OF BUTTERFLY

Egg

Butterfly

Larva

Butterfly
emerging from pupa

Pupa

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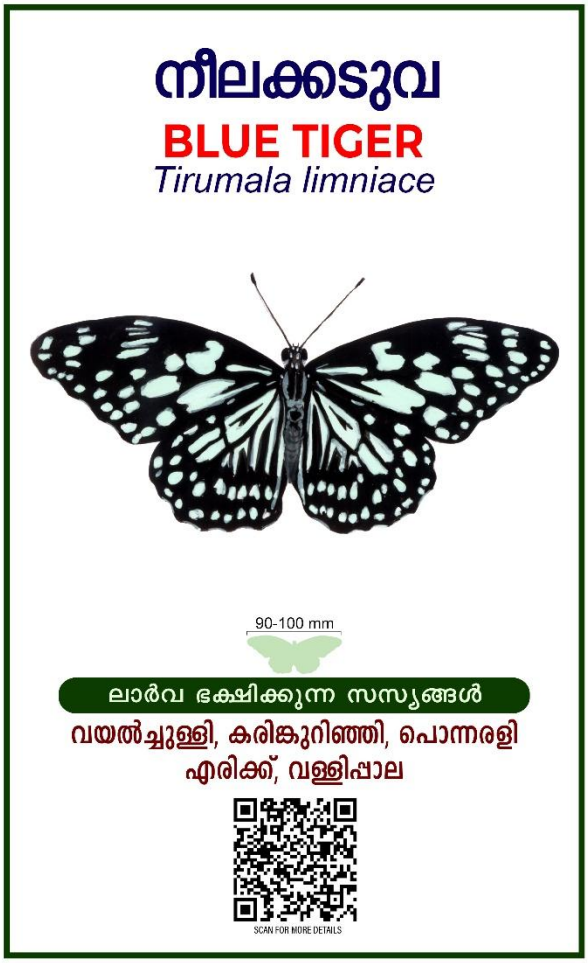

Figure 14. Various information boards kept in the garden

Figure 15. Boards placed inside the garden

V. Sprinklers for watering

Nine sprinklers will be strategically placed throughout the garden, enabling an **automatic watering system**. This modern irrigation solution will significantly enhance the efficiency of garden maintenance. By automating the crucial task of watering, it will drastically **reduce the manual labor and time commitment** for the maintenance staff, freeing them to focus on other vital aspects of garden upkeep like pruning, weeding, and pest management. This system ensures consistent and optimal hydration for all plants, promoting healthier growth and overall garden vitality, while simultaneously making the **maintenance process more streamlined and effortless** for the staff.

Figure 16. Plumbing work and sprinklers placed.

vi. Civil Works

Civil works, including walkways, fencing, seating, and entrance arches, will be designed with a strong emphasis on aesthetics. These elements will enhance the overall appeal and functionality of the space, creating an integrated environment that is both beautiful and practical, while complementing the natural landscape and enhancing user experience.

a. Walkways

Walkways made from **interlock blocks** cover the entire garden, providing clear paths for visitors to easily view and explore the area. These well-defined walkways ensure accessibility and enhance the visitor experience by guiding them through different sections of the garden.

Figure 17. Walkway were build using interlock blocks

b. Fencing

The entire garden is secured with **Tata chain-link fencing, supported by robust metal poles**. This comprehensive fencing solution serves as a vital protective barrier, effectively safeguarding the garden from various external disturbances. It prevents unwanted entry from animals such as **stray dogs and cattle**, ensuring the garden's delicate plants remain undisturbed and well-maintained. Furthermore, the sturdy construction acts as a deterrent against **potential intruders**, thereby enhancing the overall security of the garden's features, plants, and information boards, preserving it as a pristine and controlled environment for visitors.

Figure 18 The entire garden was covered with chain-link

c. Garden seats

Two **designer seats** have been strategically placed within the garden. These aesthetically pleasing and comfortable seating options are intended to enhance the visitor experience significantly. **They allow visitors to rest and relax, encouraging them to linger longer and truly immerse themselves in the garden's beauty.** By providing a comfortable spot for contemplation and observation, these seats foster a deeper engagement with the plants, butterflies, and overall serene environment, making the garden a more inviting and enjoyable space.

Figure 19. Garden seats were placed inside garden for the visitors

d. Entrance arches

An inviting **entrance arch** will be erected at the garden's front, serving as a prominent gateway for visitors. A dedicated **'Butterfly Garden' title board** will be elegantly hung from this arch, clearly identifying the space. To further enhance its appeal and function, the arch will be adorned with various **climber plants suitable for butterflies**, creating a living, blooming welcome. This entrance feature is designed not only to attract visitors and pique their curiosity but also to significantly boost the garden's overall aesthetic beauty, offering a picturesque first impression.

Figure 20. A GI arch placed in front of the garden

e. Miscellaneous Works

Maintenance work was also carried out on the **retaining wall and foundation**, ensuring the garden's structural integrity. For convenient access for the maintenance team, a **gate** was incorporated into the chain-link fencing, allowing workers easy entry and exit without compromising the garden's security. Painting was done for the walkways and plant border stones.

Figure 22 . Retaining wall maintenance

Figure 21. Painting of walkways and boarder

vii. Maintenance of the Butterfly Garden

Once the butterfly garden is planted and has achieved stable growth, it will require minimal maintenance efforts. However, regular watering and care will be necessary for the initial six months. Within this six-month period, the garden is expected to attract and host 20-30 species of butterflies.

Periodic manuring and weeding will be conducted by TIES personnel on a quarterly basis, totaling four visits per year, to ensure the continued health and vibrancy of the garden.

viii. Inauguration and handing over of the garden

The Butterfly Garden at the District Legal Services Authority (DLSA) Kottayam campus was formally inaugurated today on World Biodiversity Day by Shri M Manoj, Principal District & Sessions Judge and Chairman, DLSA Kottayam. The inaugural event was attended by a distinguished group of dignitaries, including, DLSA; Shri Praveen Kumar G, Civil Judge (Senior Division) and Secretary, DLSA; Shri Subhash K B, Assistant Conservator of Forest, Social Forestry Division, Kottayam; Captain Ajitha Nair, CEO, KIMS Health, Kottayam; Smt. Reshmi Aysha, Director, KIMS Health, Nagercoil; Shri A Shahul Hameed IPS, District Police Chief; Shri Renjith D, Sub Collector, Kottayam; Shri K S Vinod Kumar, President, BAR Association, Kottayam; Dr Punnen Kurian, Secretary, TIES; Shri Arun Krishna R, Section Officer and other staff members from DLSA and TIES.

The Butterfly Garden was developed through a joint initiative by DLSA Kottayam, the Social Forestry Division, and the CSR Wing of KIMS Healthcare, with a shared vision of integrating environmental values into civic and institutional spaces.

Figure 23. Inauguration of Butterfly Gardenby Shri M Manoj, Principal District & Sessions Judge and Chairman, DLSA Kottayam

CONCLUSION

The establishment of the butterfly garden at the District Legal Services Authority (DLSA) in Muttambalam, Kottayam, has successfully transformed a previously underutilized space into a vibrant ecological asset. This initiative has not only achieved its primary objective of fostering local butterfly populations but has also yielded significant benefits for the community and the broader environment. The garden is built with eighteen host plants and thirteen nectar plants. In the case of hostplants, it will be specific for each butterfly, so we placed host plants based on this. Along with this fifteen information boards were also placed inside the garden.

Through the careful selection and cultivation of native host and nectar plants, the garden has demonstrably attracted a diverse array of butterfly species, enriching the local biodiversity. Observations have consistently shown the presence of various life stages of butterflies, from eggs and caterpillars to pupae and adults, indicating a thriving and self-sustaining ecosystem within the garden's confines. This flourishing insect life, in turn, supports other beneficial organisms and contributes to the overall ecological balance of the area.

Beyond its ecological success, the butterfly garden has emerged as a valuable educational and recreational resource. It serves as a living laboratory for environmental awareness, particularly for students and legal aid beneficiaries visiting the DLSA. The garden provides a tangible example of conservation efforts, inspiring an appreciation for nature and highlighting the importance of biodiversity protection. Furthermore, its tranquil beauty offers a much-needed green space for relaxation and contemplation, enhancing the well-being of visitors and staff alike.

In essence, the butterfly garden at DLSA Muttambalam stands as a testament to the power of thoughtful environmental stewardship. It is a shining example of how even small-scale initiatives can create significant ecological impact and foster a deeper connection between humans and nature. Its continued maintenance and development will undoubtedly ensure its enduring legacy as a vital green lung and a symbol of environmental responsibility in Kottayam.

TIES PROJECT REPORT

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