

Butterfly Gardens: Nurturing Nature's Winged Wonders

Nandhakumar S*, Sushma C Meti, Anusha Sanjay Revankar & Rahul H K

College of Forestry, Ponnampet, KSNUAHS, 571216

Corresponding Author

Nandhakumar S

Email: snandhakumar350@gmail.com



OPEN ACCESS

Keywords

Butterfly, Puddling, Host plant, Butterfly shelter

How to cite this article:

Nandhakumar, S., Meti, S. C., Revankar, A. S. & Rahul, H. K. 2025. Butterfly Gardens: Nurturing Nature's Winged Wonders. *Vigyan Varta* 6(4): 234-239.

ABSTRACT

Butterfly gardens are purposefully designed green spaces that attract and support butterflies by providing nectar plants, host plants, shelter and water. These gardens serve as both ecological havens and educational tools, promoting biodiversity and environmental awareness. In response to declining butterfly populations caused by habitat loss, climate change and pesticide use, butterfly gardens offer a simple yet effective conservation solution. Incorporating native flowering plants, host species for caterpillars and shelter vegetation ensures butterfly survival throughout their life cycle. Additional features like shallow water sources, basking rocks and organic gardening practices enhance garden suitability. Planting in colourful drifts and reducing mowing frequency further supports butterfly activity and diversity. Beyond their ecological role, butterfly gardens offer opportunities for learning about pollination, plant-insect interactions and sustainable gardening. They can be established in various settings from backyards to schoolyards and transforming ordinary spaces into vibrant ecosystems. By creating and maintaining butterfly-friendly habitats, individuals contribute to pollinator conservation while enriching their surroundings with natural beauty and life.

INTRODUCTION

Butterfly Garden:

A butterfly garden is a specially designed outdoor space that attracts and supports butterflies by providing essential resources such as nectar-rich flowers, host plants for caterpillars and a suitable habitat for shelter and reproduction. These gardens not only enhance the beauty of a landscape but also play a crucial role in conserving butterfly populations, which are essential pollinators in the ecosystem. Butterfly populations have been declining due to habitat destruction, climate change and pesticide use. By creating a butterfly-friendly garden, individuals can contribute to biodiversity conservation while enjoying the presence of these colorful insects.

Beyond ecological benefits, butterfly gardens serve as educational spaces, allowing people of all ages to observe and learn about butterfly life cycles, pollination and plant-insect interactions. Whether in home gardens, schoolyards or community parks, butterfly gardens can transform ordinary green spaces into thriving ecosystems that support wildlife and promote environmental awareness.

Essential elements of butterfly garden:

Creating a successful butterfly garden requires careful planning and the inclusion of key components (Figure 1) that cater to the needs of butterflies throughout their life cycle. A well-designed butterfly garden provides food, shelter, water and suitable breeding grounds, ensuring that butterflies thrive and contribute to local biodiversity. A well-planned butterfly garden includes a mix of native plants, flowering species that provide continuous blooms and water sources like shallow puddles for hydration and mineral intake.

By incorporating these elements, a butterfly garden becomes a vibrant and self-sustaining

ecosystem that not only supports butterfly populations but also enhances pollination, improves biodiversity and adds beauty to any landscape.

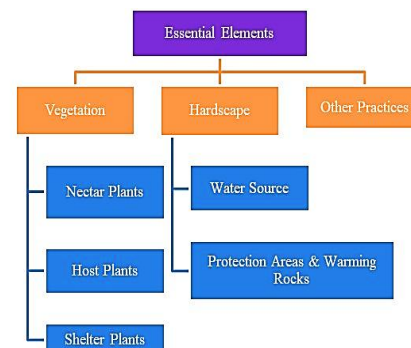


Fig.1 Key elements of a butterfly garden

- a. **Vegetation:** Butterfly diversity is influenced by various environmental factors, both positively and negatively. One of the key positive influences is canopy cover, as areas with more tree cover tend to support a higher richness of butterfly species. Additionally, the presence of diverse shrub species and flowering plants plays a crucial role in attracting butterflies by providing essential nectar sources. Native vegetation also enhances butterfly abundance, as native plants serve as familiar host and nectar sources. Furthermore, dense vegetation creates suitable microhabitats, offering shelter and breeding sites for butterflies.

Conversely, certain factors negatively impact butterfly diversity. Open grass and bare ground areas tend to reduce butterfly presence due to the lack of food and shelter. Frequent Park maintenance, such as heavy mowing, removes wildflowers and limits nectar availability, making the environment less hospitable for butterflies. Lastly high human disturbance especially in areas with heavy foot traffic has been observed to lower butterfly populations, likely due to habitat disruption

and reduced plant diversity (Jasmani *et al.*, 2020).

1. Nectar Plant: A nectar plant in a butterfly garden is a flowering plant that provides food for adult butterflies. These plants produce nectar, a sugary liquid that butterflies feed on using their long, tube-like tongues called proboscis. Nectar plants are essential for sustaining butterfly populations by offering energy for flight, reproduction and migration. In addition to flower nectar, they also consume tree sap, pollen, fallen fruit and animal dung (Mitter *et al.*, 2017).

Key Aspects of Nectar Plants:

Butterflies are naturally drawn to brightly coloured flowers, particularly those in shades of red, orange, pink, purple and yellow. These vivid hues help attract butterflies searching for nectar. Additionally, flowers with shallow or clustered blooms provide easy access to nectar, allowing butterflies to feed efficiently.

To support butterflies throughout the seasons, it is essential to select nectar plants with staggered blooming periods. This ensures a continuous nectar supply, helping sustain butterfly populations year-round. Some excellent choices for nectar-rich flowers include coneflowers, butterfly bush, milkweed and verbena, all of which provide abundant food sources for butterflies while adding beauty to the garden.

2. Host Plant: A host plant in a butterfly garden is a plant that serves as a breeding and feeding ground for butterfly larvae (caterpillars). These plants are essential because butterflies lay their eggs on them and once the eggs hatch, the caterpillars feed on the plant before undergoing metamorphosis into adult butterflies (Mitter *et al.*, 2017).

Key Aspects of Host Plants:

Host plants play a crucial role in butterfly gardens as many butterfly species have evolved to rely on specific plants for reproduction and survival. For example, Common crow butterflies lay their eggs exclusively on Rosebay (*Nerium oleander*) as their caterpillars can only feed on this plant (Fig.2). Similarly, Emigrant depend on plants from the Fabaceae family such as *Cassia fistula* and *Senna Siamea* to support their larval stage (Fig.3).

The presence of host plants is essential for completing the butterfly life cycle. Without these plants, butterflies would be unable to lay eggs and sustain their populations. By incorporating suitable host plants, gardeners can help ensure a steady presence of butterflies in their landscape.

When designing a butterfly garden, it is important to strategically place host plants in sunny, undisturbed areas where butterflies can easily find them. Grouping these plants in clusters enhances visibility and accessibility, increasing the chances of attracting butterflies and supporting their life cycle.



Fig. 2 Common crow butterfly larva feeds on Rosebay



Fig. 3 Emigrant butterfly larva feeds on *Senna Siamea*

3. Shelter plants: Shelter plants are an essential component of a butterfly garden, providing butterflies with protection from harsh weather, predators and disturbances. These plants create safe resting places, roosting sites and overwintering habitats for butterflies.

Key Roles of Shelter Plants:

➤ **Protection from Wind & Weather:**

Butterflies are delicate creatures that struggle in strong winds and heavy rain. Dense shrubs, trees and tall grasses act as windbreaks, creating calm microhabitats where butterflies can rest safely.

➤ **Roosting & Overwintering Sites:** At night and during cold weather, butterflies seek leafy plants, evergreens and dense vegetation to roost. Some species, like the Mourning Cloak and Comma butterflies, overwinter in bark crevices or under leaves.

➤ **Hiding from Predators:** Shelter plants provide camouflaged resting spots, allowing butterflies to blend in and avoid predators like birds and lizards. Bushy plants with thick foliage such as native shrubs, ferns and vines offer ideal hiding spaces.

Some of the best shelter plants for a butterfly garden include Hibiscus (*Hibiscus rosa-sinensis*), Spicebush (*Litsea glutinosa*), Guava (*Psidium guajava*) and Indian Almond (*Terminalia catappa*), all of which offer dense foliage and shaded roosting spots.

Tall grasses such as Lemon Grass (*Cymbopogon citratus*), Vetiver (*Chrysopogon zizanioides*) and Wild Sugarcane (*Saccharum spontaneum*) help protect butterflies from strong winds while creating a suitable microhabitat. Climbing and evergreen plants like Bougainvillea (*Bougainvillea glabra*), Indian Ivy (*Hedera nepalensis*), Jasmine (*Jasminum* spp.) and Money Plant (*Epipremnum aureum*) provide excellent hiding and resting spaces.

b. **Hardscape:** Hardscape refers to the non-living, structural elements of a landscape that provide form, function and aesthetic appeal. These elements are typically made

of materials such as stone, wood, concrete and metal.

1. **Water Source:** Providing the right water and mineral sources is essential for supporting butterflies in a garden. Unlike birds, butterflies do not drink from deep water bodies like ponds or fountains. Instead, they rely on shallow puddles, moist sandy areas and damp surfaces such as soil, sand, rocks and decomposing organic matter to obtain moisture and essential minerals.

Butterflies engage in a behaviour known as puddling (Fig.4), especially during hot and dry conditions, where they absorb water along with vital nutrients like salts and minerals needed for reproduction and survival. To create a suitable water source, place a shallow dish or plant saucer filled with moist sand, soil and small rocks in a sunny location near nectar plants. Keeping it moist daily by watering or using a drip irrigation system ensures a continuous supply of hydration. Additionally sprinkling a bit of salt or organic compost helps replenish essential minerals, making the garden a more butterfly-friendly habitat (Jasmani et al., 2020).



Fig. 4 Puddling by Mottled migrant butterfly

Key Roles of a Water Source:

Butterflies need water to stay hydrated especially in warm and dry climates. Many butterflies engage in puddling, where they gather on damp surfaces like moist soil, sand or shallow water to absorb nutrients such as

salt and minerals, especially male butterflies which pass minerals to females during mating.

2. Protection Areas & Warming Rocks:

Like shelter plants, another valuable source of shelter in a butterfly garden is a log pile, which can be placed in a secluded corner of the yard. This provides a hidden, undisturbed space where butterflies can seek refuge from harsh weather and predators.

Since butterflies are cold-blooded, they rely on the warmth of the sun to maintain their body temperature. This is why they are most active during the warmest parts of the day. To support their thermoregulation, placing flat, smooth rocks or other heat-retentive materials in sunny areas of the garden gives butterflies a warm resting spot to bask and recharge.

c. Other Practices:

1. Go Organic: To support butterflies, bees and other wildlife, it is essential to maintain a chemical-free garden. Chemical fertilizers and pesticides can be harmful to these pollinators, making organic gardening a crucial practice for their survival. Avoiding toxins create a safe and thriving habitat for butterflies and bees.

Implementing strict organic gardening methods ensures that your garden remains a sanctuary for pollinators. Instead of herbicides, alternative methods such as layering cardboard boxes and thick newspaper under mulch can effectively suppress weeds without harming the environment. Managing pests organically involves hands-on approaches, such as pruning off infested branches and manually removing pests from plants. Use organic pest and weed control techniques, natural fertilizers and chemical-free soils are not only protect pollinators but also contribute to a healthier and more sustainable ecosystem.

2. Plants in Drifts: A colourful garden is more inviting to butterflies, as they are naturally attracted to bright, vibrant hues. To enhance butterfly visibility and garden aesthetics, it is best to group plants in drifts, creating large swaths of each color. This planting technique makes it easier for butterflies to locate nectar-rich flowers while also providing a concentrated food source in one area.

For maximum impact, plant in drifts of 3 to 5 of the same species, ensuring a dense, eye-catching display that butterflies can easily spot from a distance. This arrangement not only improves the visual appeal of the garden but also supports butterfly activity by offering ample nectar within easy reach (Hundelhausen et al. 2024).

3. Management practices: Managed urban parks with short, mowed grass are generally preferred by people but increased biodiversity requires more unmanaged, natural areas. It is recommended to leave some tall grass uncut during mowing to support biodiversity in butterfly garden. Reducing mowing frequency allows for natural succession processes to occur enhancing ecological benefits (Ollerton 2017).

CONCLUSION:

A well-designed butterfly garden serves as a vital sanctuary for butterflies by providing essential resources such as nectar plants, host plants, shelter and water. These gardens not only contribute to butterfly conservation but also enhance biodiversity, support pollination and create a visually appealing landscape. The inclusion of native vegetation, organic gardening practices and strategic planting arrangements ensures a thriving ecosystem that benefits both butterflies and other pollinators.

Beyond their ecological significance, butterfly gardens offer educational opportunities, allowing individuals to observe butterfly life cycles and their interactions with plants. Implementing sustainable management practices, such as reducing mowing frequency and avoiding chemical pesticides, further enhances the garden's role in promoting wildlife conservation. By creating and maintaining butterfly-friendly habitats, individuals can play an active role in protecting butterfly populations, fostering environmental awareness and enriching green spaces with the beauty and vibrancy of these delicate creatures.

REFERENCES:

- Hundelhausen, M.E.M., Duran, O.P. and Barriosnuevo, M.D.C.J., 2024. Design of a school butterfly garden as an experiential learning strategy to strengthen students' scientific and environmental competencies. *International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.*, 9(12): 8.
- Jasmani, Z., Mohamad, S., Hamid, A.R. and van den Bosch, C.C.K., 2020. Planning and design considerations for birds and butterflies' diversity of small urban parks: a case of petaling Jaya, Malaysia. *Alam Cipta*, 13(2): 69-81.
- Mitter, C., Davis, D.R. and Cummings, M.P., 2017. Phylogeny and evolution of Lepidoptera. *Annual review of entomology*, 62(1): 265-283.
- Ollerton, J., 2017. Pollinator diversity: distribution, ecological function and conservation. *Annual review of ecology, evolution and systematics*, 48(1): 353-376.