



Butterfly Gardening – Theory and Practices

By George Mathew and Elizabeth George

Here is a book on butterfly gardening by an author whose commitment to the subject is unique. Dr. George Mathew is a Forest Entomologist, with basic specialization in insect taxonomy, and particular knowledge of the groups, moths, butterflies, and beetles. In the 1990's, as part of his investigations on insect biodiversity, he experimented with setting up a butterfly garden in a patch of degraded natural forest, in the Kerala Forest Research Institute (KFRI) campus at Peechi, with limited resources. Initial success and the lessons learnt from careful observations led him to continue these studies and soon the KFRI butterfly garden became a favourite spot for visitors to the institute, particularly, school children. Demands were made to the Institute to help establish butterfly gardens in schools, colleges and other public places and Dr. Mathew's services were made available. He studied various aspects related to setting up butterfly gardens and in the following years several successful butterfly gardens were set up in public places in Kerala and elsewhere, under his guidance. These include gardens at KFRI campuses at Peechi and Nilambur; Higher Secondary Schools at Thrissur and Elanthikkara (Paravoor); Army Head Quarters at Pangode, Thiruvananthapuram; Orange County Resorts, Kabany; Vandaloor Zoo; Indira Gandhi Atomic Research Centre, Kalpakkam; Indian Oil Corporation, Pongam; Tropical Butterfly Conservatory, Trichy; and Butterfly Conservatory at Reng Reng in Sikkim. The success of these gardens is due to the imaginative planning and scientific management of the gardens under the guidelines set by Dr. Mathew, who may be called the Father of Butterfly Gardens in India. In recognition of his contributions to biodiversity conservation, he has been selected as 'Green Hero of Conservation' by CNN – IBN in 2008.

Butterfly gardening is a process in which the butterfly fauna of a specific area is conserved and enriched

by introduction of suitable butterfly host plants and habitat improvement. This is an in situ Conservation cum educational programme. In contrast to this is the ex situ Conservation programme or Butterfly Farming, which must be resorted to when the natural populations of the butterflies in an area have disappeared due to habitat degradation. Here the method adopted is captive breeding of butterflies and reintroducing them in recreated habitats. In situ and ex situ Conservation programmes (Outdoor Conservatory or Butterfly Gardening and Indoor Conservatory or Butterfly Farming, respectively) call for entirely different approaches.

The book deals comprehensively with all these aspects. The setting up and running of a Butterfly Garden or Farm call for integration of knowledge not only on butterflies and plants but also from art, science, technology, and management, at large, and the authors have done full justice to that. In this task, Dr. Mathew is joined by his co-author, Dr. Elizabeth George, who holds a doctorate degree in horticulture, and who is also his daughter, although he does not mention it in the book.

The book is organized into 7 Sections, References, 7 Appendices and an Index to Plants. The first Section gives a brief introduction to butterflies, describing their life stages, behaviour like flight, courtship, migration and mud puddling, with suitable photographs. A brief account is also given of the seven Families of butterflies, with photographs of representatives. Sections 2 and 3, together covering 3 pages of text, explain the butterfly conservation strategies – the In vitro Conservation Strategy involving Butterfly Gardening and the Ex situ Conservation Strategy involving Butterfly Farming, as indicated above. The following two Sections are devoted to explaining and providing detailed guidelines on setting up these two types of Conservatories, viz.,

In situ Conservatory or Butterfly Garden and Ex situ Conservatory or Butterfly Farm. Section 4, dealing with Butterfly Garden, indicates the need to conduct a pilot study on the butterfly fauna of the proposed project area, preparation of a design, land preparation, landscaping, retention of the existing vegetation and introduction of additional native butterfly host plants and creation of new landscapes. A diagram is given to illustrate the generalized design of a Butterfly Garden. Its various components, viz., Entrance; Nature Trail; Streams and Ponds; Fountains, Sprinklers and Foggers; Cascades; Mud-puddling Spot; Irrigation System; Garden Arches and Pergolas; Garden Hedges; Information Boards; Models of Butterflies; Interpretation Centre; Curio Shop and Public Amenities are identified and their importance and making are discussed. Photographs of these components from various Butterfly Gardens are used to illustrate the ideas presented in the text. For plants which form the most important component of a Butterfly Garden, detailed instructions are given here as well as in Appendix II, on how they should be introduced by dividing the garden area into four zones or strata adjacent to the path and how they should be looked after. Brief accounts are given of Butterfly Gardens established in various States in India. The next Section starts with a diagram depicting the general design of a typical Indoor Butterfly Conservatory or Butterfly Farm/Butterfly House. In addition to the components described for the Butterfly Garden, an Indoor Butterfly House must contain some specialized facilities for breeding, maintaining and exhibiting butterflies. A glass house or net house with roofing, with provision for maintaining appropriate levels of temperature and humidity is necessary. Butterfly houses are usually made for selected butterflies because their flight cages, mating chamber, egg production facilities and larval rearing units will have to be designed based on a clear understanding of their biology and ecology. These aspects are discussed with some details on techniques and the facilities required (Section 6). The comparative advantage of in situ conservation over ex situ conservation for conservation of butterfly genetic diversity is also discussed.

Information is given on 131 plants, with photographs, comprising 76 herbs and shrubs, 28 trees, and 27

creepers, which may be used in Butterfly Conservatories as sources of nectar, larval food or as ornamental plants. For each plant, the scientific name, common names, plant family, natural distribution range, brief botanical description and status (nectar source, ornamental or larval host of specified butterflies) are given. This is followed by a list of 135 butterflies that may be encountered in Butterfly Conservatories, with photographs and their host plants.

There are some minor deficiencies of printing and editing. For example, labelling in some figures is inadequate and some references are not arranged in alphabetical order. The following suggestions are made for the next edition of this book which I am sure will soon be forthcoming. First, re-organize the Sections as follows (present Sections shown in brackets): 1. Butterflies – an introduction [1]; 2. Butterfly conservation strategies [2, 3]; 3. Methodology for setting up an Outdoor Conservatory or Butterfly Garden (*In situ* Conservation) [4]; 4. Methodology for setting up an Indoor Conservatory or Butterfly Farm (*Ex situ* Conservation) [5, 6]; 5. A list of butterflies and their host plants [Appendix 1]; 6. A list of plants for Butterfly Conservatories that serve as butterfly larval host, nectar source or ornamental [7]. Second, in the list of butterflies (Section 5 above), print the photographs of butterflies at twice the present size. You may also cull some photographs showing repetitive themes from different Gardens, in order to improve the flow of text and reduce the cost of book.

To summarise, this book is the first, authoritative, comprehensive, well-illustrated guide for establishment of both in situ and ex situ Butterfly Conservatories and fulfils a need. Cost estimate is the only missing information, which of course can be worked out from the details given. The book will also serve as a Pictorial Handbook for the general public, for identification of garden plants and the butterflies associated with them. Every school in India should have a copy of this book in their library.

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