

**THE LIFE HISTORIES OF ASIAN BUTTERFLIES. Volume 1**

by Sugeru Igarashi and Haruo Fukuda

1997. Tokai University Press, 2-28-4 Tomigaya, Shibuya-ku, Tokyo 151, Japan. xix + 550 pp., 317 color pls., 302 distribution maps, text figures. Cloth (27 x 37cm). ISBN 4-486-01325-5. Price: £215. (Order from E. W. Classey, Ltd., P. O. Box 93, Faringdon, Oxon SN7 7DR, UK)

This book is a visual feast for anyone who loves butterfly life histories or beautiful books. In meticulously photographed, perfectly printed, oversized plates, Igarashi and Fukuda cover the life histories of 302 of the approximately 4,127 species (Heppner, 1991. *Trop. Lepid.*, 2 (Suppl. 1):1-85) of butterflies in the Oriental region. This coverage is actually close to one-third of the approximately 1,000 species (5% of the world butterfly fauna) for which the early stages are known, according to Igarashi and Fukuda. With many workers now recognizing the importance of the morphology of the early stages in the classification of butterflies at both the species level and higher levels (as recently pointed out by Sourakov, 1997. *Trop. Lepid.*, 8 (Suppl. 3):1-43), precise descriptions of the morphology of the egg, larva, and pupal stages as well as exact identifications of foodplants in published compendia such as this work make the comparative systematics task far easier for the majority of lepidopterists who have not had the personal experience of rearing these species. Consequently, this magnificent volume is sure to receive an eager worldwide audience.

The plan of this book includes complete rendering of each section of text in parallel English and Japanese presentations. The book begins with prefatory notes on the plan of the book and on the notable points brought out in the volume, and then launches immediately into 302 color plates which depict normally the lateral and dorsal view of the egg, dorsal and lateral and head views of the key larval instars, lateral and dorsal views of the pupa, and dorsal and ventral views of both sexes of the adult. These are not small figures. Both eggs and larval head capsules are highly magnified, and the larvae are represented many times life size in crystal-clear, perfectly exposed color photographs or extremely detailed paintings. Likewise, the pupae are represented at 4-5 times life size. An unusual and highly useful adjunct to the 302 color plates of Lepidoptera are Plates 303-317, each containing 9 color photographs of the host plants of butterflies selected as representative species from all the families included in the text.

The next section of the book, the main text, contains a detailed life history account for each species. The treatment includes the known larval foodplants, with complete Latin genus and species names as well as family affinity, and notes on what plants are not fed upon by the larvae even when expected to feed upon them in captivity. The detailed habits of the butterfly are then given, including the habitat, number of generations a year, emergence time, oviposition schedule, flight behavior of the adults, flower visitation by males and females or other nutritional sources, and notes on the mating and copulation behavior. Comparative remarks on ordinary flight behavior are given as well as the sequence of events for oviposition (including egg location on the plant and number of eggs laid). The behavior of the newly hatched larvae as well as the remaining instars is mentioned, when known, and the lengths of the egg, larval, and pupal stages are noted. Pupation and location of pupation is discussed. The section on morphological notes includes dimensions of the egg, larva, and pupa, as well as a note on the range of adult forewing length. A detailed geographic distribution is shown in an accompanying Asian map for each species. Occasionally, special text figures illustrating head capsules, seasonal abundances, host plants and feeding patterns of the larvae on host leaves, comparative measurements of projections on the larvae, diagrams of the silk girdle on the pupa, nest building, pupation posture, etc., are given.

The outstanding text section concludes with a References Cited listing and a detailed index to all species, presented in both English and Japanese. The last page of the book includes a brief biography of the

two authors.

Sugeru Igarashi, now 74 years old, is particularly known throughout the world for his amazing previous major publication, *Papilionidae and Their Early Stages* (Tokyo: Kodansha, 1979), with hundreds of meticulously hand-painted color plates of the life histories of a majority of the swallowtails of the world. Haruo Fukuda, 64 years old, has published a number of butterfly books in Japan on the Japanese fauna. Both authors have played key leadership roles in the Butterfly Society of Japan, the Lepidopterological Society of Japan, and other societies, as well as received many honors for their previous works. This newest book prepared jointly by them will undoubtedly confer well-deserved additional accolades on them, for this is a truly incredible work, one which will be an invaluable reference to all who are interested in butterfly life histories and in the evolution of butterfly taxa. It richly deserves a place in the library of every lepidopterist who is at all interested in these topics and in the rich butterfly fauna of the Oriental region.

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