Literature

Watt, A. D., Leather, S. R., Hunter, M. D. & Kidd, N. A. C. (eds.) 1990. Population Dynamics of Forest Insects. 408 pp. — Intercept Ltd. Hampshire. ISBN O-946707-28-6. Price GBP 40.00.

Population dynamics is an inexplicit but still much used term under various branches of insect population biology. It can deal with almost any aspects of population biology, when the changes of population, or its dynamics, in time and space are emphasized. An understanding of population dynamics closely contributes to forest pest management and forestry planning. Thus, a book devoted to the population dynamics of forest insects is warmly welcomed by biologists and foresters as well.

The title and contents of the book may lead the reader to expect coverage of forest insects generally, but the book limits itself to foliage feeding insects, which belong to the most important group of forest pests. Unfortunately, other important pest insects like bark beetles, and shoot and timber insects, are excluded.

The origins of this publication are somewhat concealed: there is only a brief allusion in the last lines of the introduction to the fact that the book is based on the papers presented at a conference held in Edinburgh, September 1989. It would have been more advisable to quote the source of the papers on the title page.

The book constitutes a collection of 34 exquisite articles, both reviews and research papers, from a total of 57 authors. The material is divided into four sections, consisting of general population studies, insect-plant relationships, natural enemies, and mathematical models. The articles fit into the sections fairly well. However, two articles on the effects of air pollution on insects would have been more relevantly placed under general population studies, rather than under insect-plant relationships.

At the beginning of the book, emphasis is laid on the long-term population studies which inherently form the mainstay of population ecology. The first article by D. Klimetzek about the long-term dynamics of the pine looper (*Bupalus piniarius*), the pine beauty moth (*Panolis flammea*), the nun moth (*Lymantria monacha*) and the common pine sawfly (*Diprion pini*) embraces interesting data from Southwest Germany over the years 1811-1988.

The second section draws together several fascinating examples on how the host plant may affect the population dynamics of insects. The topics deal with feeding-induced, damage-induced, or stress-induced plant defenses, brought about by plant chemicals. On the other hand, these topics are covered more exhaustively in other recently published books, devoted to pure herbivory rather than population dynamics, but the theories of herbivory may lead in the future to useful applications in tree breeding and practical forest protection.

The third section, on the natural enemies of forest insects, emphasizes the important role of predators and pathogens in the natural control of several insect pests.

Finally the book deals with population models and pest management with selected pest insects, e.g. the large pine aphid (*Cinara pinea*), the Sitka spruce aphid (*Elatobium abietinum*), the Douglasfir tussock moth (*Orgyia pseudotsugata*), the gypsy moth (*Lymantria dispar*), and the spruce budworm (*Choristoneura fumiferana*). Modeling of their dynamics serves as an important catalyst in understanding and conceiving the reasons for pest fluctuations. Another important goal of modeling is to assess the risks of pest outbreak in order to contribute towards justifiable decision-making in forest protection. The articles are brief, but they still elegantly feature current activities.

"Population dynamics of forest insects" concisely reveals the prevailing state of knowledge on insect population dynamics. This publication is not a textbook, but it is an excellent review of the dynamic work going on in this important field of research.

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