

BOOK REVIEW

PESTICIDES AND FRESHWATER FAUNA. By R. C. Muirhead-Thompson, 1971, pp. 248, Academic Press, New York.

Muirhead-Thompson has had a great deal of experience in tropical diseases and is an expert on the epidemiology of vector-borne diseases in Africa and elsewhere. This book is a selection of his long-held views on vector suppression, and control or eradication of vector-borne diseases. It will be a welcome addition to the source material of aquatic biologists, environmentalists, public health scientists, medical entomologists, parasitologists, and specialists managing natural resources.

The subject matter is covered in 7 chapters. At the end of the book chemical descriptions and structural formulae of most commonly used piscicides, insecticides, and molluscicides are included in the Appendix, followed by an impressive bibliography. Both author and subject matter indices as well as an index to scientific names of genera and species are provided.

In the introductory chapter the author has brought together information on the development and use of various chemical control agents for mosquitoes, snails, and rough fish. He then reviews the problem of environmental contamination, biomagnification of persistent pesticides, residues in fish, invertebrates and aquatic plants in a general manner. The present lack of quantitative standards for the evaluation of the impact of pesticides on the biota and the environment is pointed out strongly.

In chapter 2, the author reviews some of the most commonly used techniques and procedures for the assessment of the biological effects of pesticides on freshwater fishes. Laboratory, semi-field and field bioassay techniques are discussed. Criteria for assessing acute as well as chronic effects are enumerated. The role of physicochemical and biotic factors as related to the effects of pesticides on fish mortality and behavior is discussed.

The development and use of piscicides in the management of game and food fish is discussed in chapter 3. Extent of selectivity, utilization of special formulations, selective placement of formu-

lations and other features of several piscicides such as copper sulfate, rotenone, Toxaphene, Polychlorpyrene, and Antimycin A are critically evaluated. A special formulation of Antimycin known as Fintrol-5 (granular formulation releasing the active ingredient in the top 5 feet of water) for example, renders this material quite toxic to trash fish but relatively safe to food and game fish. Selective chemicals for the control of the sea lamprey are also presented in reasonable detail.

Great importance is attached to the use of molluscicides and their impact on freshwater ecology. The evolution and development of molluscicides are discussed in great detail. The author points out that in snail control programs the chemical control agents are generally applied to selected parts of the aquatic habitats, seldom to the whole habitat, thus inflicting minimal effects on the non-target biota.

In chapter 4, the author has compiled detailed information on evaluation and bioassay techniques for molluscicides, especially in connection with bilharziasis control. Very little is presented on the effects of molluscicides on Cladocera, ostracods and other nontarget organisms.

Chapter 5 deals exclusively with laboratory and field evaluation and development of larvicidal control of mosquitoes, blackflies, and nonbiting midges and gnats. The history of the development of larvicidal programs is detailed and the various evaluation techniques are presented and documented. This information should be of great help to persons involved in the management of insects of public health importance.

Impact of pesticides on aquatic invertebrates and the influence of physicochemical factors determining the intensity of such an impact are discussed in chapters 6 and 7. Toxicity and hazards of various pest chemical control agents discussed in the earlier chapters are elaborated upon here. The role of adsorption of suspended solids is adequately covered and finally formulations and combinations of pesticides are discussed in good detail.

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