

## Seed-eating birds

*Granivorous Birds in Ecosystems.* (International Biological Programme, Vol. 12.) Edited by J. Pinowski and S. C. Kendeigh. Pp. 431. (Cambridge University Press: New York, Melbourne, Cambridge and London, 1977.) £19.50.

THIS book describes the results of studies made under the auspices of the International Biological Programme, which was set up in 1964 as a counterpart of the International Geophysical Year, to encourage research within the theme of "the biological basis of productivity and human welfare". It arose because the rapidly expanding human population, and the increasing destruction of natural environments, called for more understanding of biological productivity and of how to manage natural resources without destroying them.

Some seed-eating birds are important to man because of their widespread occurrence as major crop pests. The chief subjects of this book are the House Sparrow *Passer domesticus* and the Tree Sparrow *P. montanus*, but it also covers the Red-billed Dioch *Quelea quelea* of Africa, and the Red-winged Blackbird *Agelaius phoeniceus*, Common Grackle *Quiscalus quiscula*, Brown-headed Cowbird *Molothrus ater*, Dickcissel *Spiza americana* and Horned Lark *Eremophila alpestris* of North America. The book presents a synthesis of ten years of co-ordinated research on these birds, and has been written by 12 scientists from North America, Europe and the Soviet Union.

Some of these birds are now among the best known in the world. Their abundance and status as pests have enabled large numbers to be collected for study. In consequence, certain chapters in the book are likely to serve as models for future studies. The introduction of the House Sparrow to North America during the last century, and the subsequent documented spread of the bird through a range of environments, has provided an unparalleled opportunity to study adaptation to local conditions, and has revealed some of the fastest rates of evolutionary change recorded in wild vertebrates (R. F. Johnston and W. J. Klitz). The chapter on avian energetics (S. C. Kendeigh, V. R. Dol'nik and V. M. Gavrilov) is the most up-to-date account in this field and provides a sound basis for further work. The chapter on pest management (M. I. Dyer and P. Ward) has application well beyond seed-eating birds. Other chapters deal with such topics as population dynamics, biomass and production, and adaptations of seed-eating birds and their role in the environment.

Perhaps the strongest feature of the book is the thorough integration of experience and ideas from widely separ-

ated parts of the world, reflecting the close cooperation between the authors at all stages of the project. One result of this is that regional studies can immediately be put into a wider context; for the first time the ecology of some of these birds is discussed over the range as a whole, rather than in particular localities (M. I. Dyer, J. Pinowski and B. Pinowska). Another result is that seemingly trivial findings of local studies are immediately revealed as widespread trends. Thus all the main avian pests of grain crops show tendencies to occur in huge aggregations; concentrate rapidly in areas of abundant food and disperse again when conditions change; breed rapidly; and resist the usual methods of control. Together with a seed-diet, these are the features that predispose certain species to become pests, when cereal monocultures are grown within their range.

Damage control schemes around the world also have certain tendencies in

## Prostaglandin synthesis

*Synthesis of Prostaglandins.* By C. S. Szántay and L. Novák. Pp. 262. (Akademai Kiado: Budapest, 1978.) \$16.

UNTIL very recently, scant attention had been paid to the problem of reviewing the vast field of prostaglandin synthesis. This timely book by Professors Szántay and Novák is the second independent work entitled *Synthesis of Prostaglandins* to appear in recent months (see *Nature*, 23 February, 271, 787; 1978) and seems, extraordinarily, to complement the previously reviewed volume in many areas.

The first chapter is devoted to a very detailed description of prostaglandin structure and nomenclature, followed by a generally excellent section on physical properties, particularly  $^1\text{H}$  nuclear magnetic resonance and electron-impact mass spectrometry. However, a discussion of the controversial subject of prostaglandin conformation is followed by the odd statement, apparently based on the theoretical Hoyland-Kier harpin model, that, with regard to analogue synthesis, "no modification . . . counteracting the dispersive interaction between the side-chains is worth trying"; presumably, prostacyclin is thus expected to be biologically inactive. A brief but clear discussion of the major reactions and inter-conversions of prostaglandins concludes the section.

Chapters 2 and 3 outline the development of the major stereocontrolled synthetic approaches to the prostaglandin family, describing a number of examples in detail. These two chapters contain some stimulating and informative discussions of the classic problems of prostaglandin synthesis, of which the

common: they are usually based on exaggerated estimates of damage; they are started in response to political pressure from farmers, rather than from any objective assessment; control is usually based on killing the pest in large numbers, often costs more than the damage itself, and has adverse effects on other animals; and even when these facts become apparent, control is often continued, again in response to political pressure from crop growers. Often the damage to the total crop is negligible, but it is concentrated on the land of a few farmers or small communities.

In conclusion, this book provides a well-integrated synthesis of international studies on sparrows and other grain-eating birds. It is a pity that the book is so highly priced.

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excellent analysis of the development of stereoselective reduction methodology for the 15-carbonyl to 15-S-hydroxyl conversion is an example. On the debit side, the mechanistic interpretation of some of the synthetic reactions is too brief to be of much value.

Chapter 4 outlines the concepts behind the development of asymmetric prostaglandin syntheses of both chemical and biochemical type. The lucid explanations are only slightly marred by occasional ambiguities in the diagrams. Chapter 5 is a summary of approaches to some modified prostaglandins, including oxo-, thio- and aza-analogues; as this section is stated not to be comprehensive it may be of limited value. Finally, Chapters 6 and 7 contain summaries of biosynthesis, isolation from natural sources, and the analytical chemistry of prostaglandins.

The book is printed on rather poor quality paper and, although the typeface is clear, the diagrams are perhaps a little small for easy scanning. There is, of course, the occasional inevitable error in terminology ("formolysis" instead of "thermolysis") but generally the script is written in good and readable English. For the specialist synthetic chemist, the two main criticisms must be that the coverage is not comprehensive and that the referencing and indexing are very sparse; once again in this field the patent literature is completely neglected. The coverage is, however, quite up to date, although prostacyclin is only just included. Taken as a whole, the book will make a very readable and valuable addition to the literature of prostaglandins and should be of benefit to all those interested in the field.

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