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Granivorous birds in ecosystems

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INTERNATIONAL BIOLOGICAL PROGRAMME 12

Granivorous birds in ecosystems

Their evolution, populations,
energetics, adaptations,
impact and control

Edited by

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978-1-107-40383-3 - Granivorous Birds in Ecosystems: Their Evolution, Populations, Energetics, Adaptations, Impact and Control

Edited by Jan Pinowski and S. Charles Kendeigh

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Preface

Investigations in the IBP Section concerned with the Productivity of Terrestrial Ecosystems (PT) have taken two forms: *Major Biome Studies* concerned in the main with the mode of operation of total ecosystems, and *Special Studies* in which the ecology of important groups of consumers has been examined in considerable detail. It was as part of the Special Studies approach that scientists concentrated on the role of certain species of granivorous birds in ecosystems. The topic was clearly related to the general aim of IBP, namely *Biological Productivity and Human Welfare*. Granivorous birds are of worldwide occurrence, they are a component of man-made ecosystems and, because of their association with man's main food crops, their study was a matter of urgency and required international collaboration.

It is worthwhile reminding readers of this volume of the original aims of what was described in IBP News No. 13 (1969) as Theme 10. Granivorous Birds: 'Though this theme includes studies on energy flow through populations of a number of bird species, the major IBP objective is the integrated, cooperative study of the genus *Passer*, especially the house sparrow (*P. domesticus* (L.)) and the tree sparrow (*P. montanus* (L.)). These two species enjoy a world-wide distribution and live in a variety of habitat types under a wide range of different climatic conditions. The global study of the population dynamics, morphology and bioenergetics of this genus will provide information on the influence of a number of environmental factors on secondary production.'

This synthesis volume, in which full use is made of the systems approach, is based on a large body of data much of which is from non-IBP sources. The major IBP input has been concerned with the welding together of this background material. The quality of this achievement in synthesis is a resultant of very close collaboration between the many workers who willingly exchanged unpublished results, rough drafts of papers, chapters and guidelines to provide opportunities for maximum interaction.

During the last decade, ecological and evolutionary studies have tended to go their separate ways. This volume recognizes the need to unite these two highly interdependent biological disciplines. Furthermore, in linking them with fundamental work on bioenergetics, new insights are provided into the behavioural and applied aspects of granivory. Studies which encompass archaeological and anthropological investigations form a backcloth for the interpretation of detailed investigations of the population biology and bioenergetics of birds. Taken together, they provide a basis for assessing an organism's ability to exploit its adaptations for granivory. It is a measure of the confidence that can be placed in our present

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knowledge that Johnston & Klitz (Chapter 2, this volume) are, as a result of a thorough analysis of the adaptations of the house sparrow for commensal granivory, prepared to predict that other species '... will not make the same impress on man's agriculture or his life in general'. It is said that there are no problem children, only problem parents. This volume indicates that it is man who must accept responsibility for the extent to which granivorous species have become an obvious feature of his environment and it provides guidelines for the development of rational systems of management.

In spite of the wealth of detailed knowledge now available, many gaps exist in the data base. These will certainly be filled in by future studies but if we lack fundamental ecological information on species within the genus *Passer*, then how much do we know about other less numerous and less obvious species which are components of ecosystems altered by man? The chapters which touch on management highlight some of the unknowns. Of particular concern is our lack of knowledge of the behaviour of populations. Without adequate quantitative measures of behaviour under field conditions, full use cannot be made of the advanced and sophisticated information on the bioenergetics of birds which is given a prominent place in this volume.

In spite of their importance, the investigations on granivorous birds might be described as the Forgotten Theme of IBP(PT). Some countries, whose scientists have made major contributions to the development of the theme, have either not mentioned it at all or have only touched upon it in their National Reports. More to the point, many of the scientists found it difficult to obtain support from IBP National Funds. They received some help from the small budget of the Special Committee of IBP but the completion of this volume owes more to the dedication of the individuals involved than to the availability of adequate grants. Their cooperative effort is not to stop with the official end of IBP. Their *Newsletter* will continue to appear, thanks to the efforts of Dr Jan Pinowski and the financial support promised by the Polish Academy of Sciences. Furthermore, the group, which has now been formally recognized by the International Association for Ecology, has issued an invitation to other scientists who are studying granivorous birds to join in its activities.

The continued existence of collaborative endeavours of this type is necessary if biologists are to tackle problems of global concern and, in particular, problems which have pronounced cultural and social components. Apart from the scientific impact, IBP has provided scientists with many opportunities to become familiar with other cultures and other points of view. In this regard, those who were present at the final editorial meeting of the Granivorous Birds Theme will long remember one of Czechoslovakia's scientists, a specialist on the population dynamics of

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Passer domesticus and *Passer montanus*, giving a recital which included selections from Dvořák and Chopin, on a violin constructed by one of the staff of the Polish Research Station from wood grown in the grounds of the station.

J. B. Cragg
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