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Book Review: Animal Population Dynamics

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MOSS, R., WATSON, A. and OLLASON, J. **Animal Population Dynamics**. Chapman and Hall, London, 1982, 80 pp. \$6.50/£2.75.

This booklet is one of a series offered by the publisher as an alternative to a single textbook in ecology. Each is intended to be a self-contained and concise summary of some topic in ecology. This one attempts to cover a major subject in a few small (13 × 22 cm) pages. It achieves but limited success.

The first chapter, on methods of counting animals, comprises only five pages. Many key concepts are touched on, albeit superficially, but some, such as line-transect methods, are totally ignored. Some word usages may be confusing, such as 'accurate' meaning 'unbiased'. Chapter 2, 'Evolution and Population Dynamics', briefly discusses natural selection and how population characteristics might have evolved.

Chapter 3, 'The Numerical Analysis of Population Change', is at 19 pages the longest in the book. It is a perfunctory overview of basic methods in population dynamics, including life tables and *k*-factor analysis. Modern multinomial methods, such as Jolly-Seber, are not mentioned, although they are superseding life-table approaches. Population regulation is briefly introduced here, and pursued further in Chapter 4, 'The Natural Limitation of Animal Numbers'. Typical limiting factors such as food, weather and the like, are mentioned in passing. A section on fluctuating populations introduces a number of hypotheses that have been offered to explain temporal variation in numbers of animals. The authors offer the following maxim, worth heeding when population studies are being planned: 'The "holistic" view that many factors affect animal densities is unassailable but woolly. It may lead a worker to collect data on as many factors affecting a population as he can. Such studies tend to produce statistical correlations, but little improvement in understanding'.

In Chapter 5 the authors discuss mathematical models of populations, such as exponential growth, logistic growth (including time lags), and predator-prey models.

Chapter 6 is on decision-making; here the authors clearly distinguish different mechanisms of population regulation and consequently different strategies for exploitation or control. The last chapter, 'Time, Space and Chance', is a three-page conclusion that presents ideas in only enough detail to tantalize the reader.

Our initial reaction to this small booklet was scepticism about its size in relation to the breadth of its subject. After reading it, we were impressed by how well so many ideas could be touched on in so few words. Nonetheless, too many important concepts were omitted, and the topics included were covered too superficially, to enable it to be recommended for classroom use or independent study.

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