

NATURAL REGULATION OF ANIMAL POPULATIONS

Ian A. McLaren, editor

Surveying an area dense with conflicting observations and ideas, this volume vividly depicts the current state of knowledge as well as the great diversity of opinion in the field of population ecology. Ten papers by outstanding authorities focus on three main issues—the effects of environment and population density on population dynamics, the influence of animal behavior on population growth, and the possibilities of genetic feedback or short-term evolutionary change on control of animal populations. An incisive introduction by the editor establishes a frame of reference and supplies succinct resolutions of some of the important controversies dealt with in these pages.

Choosing from a vast literature that has been polemical, often confusing, and at times acrimonious, the book offers several classic arguments that clarify the functional, statistical, and evolutionary aspects of the relationship of population density to population growth. M. E. Solomon lays the groundwork for the ensuing debate by classifying the terms and relevant concepts of "density-dependence" as they apply to population dynamics. Other probing articles question whether the density of animal populations is actually regulated by particular mechanisms or by random chance.

Aside from the negative effects or responses of the environment, including hazardous weather and food shortages, increasing evidence shows that a definite social or behavioral regulation may result from the interaction of individuals or groups within the animal population. This concept, ignored by some ecologists and considered universal by others, is discussed by several of the contributors. Perhaps the most noteworthy proponent of the idea that "social regulation" is for the "purpose" of preventing overpopulation and consequent destruction of resources is V. C. Wynne-Edwards. His paper outlines a theory that has stimulated wide discussion and caused reevaluation of many established views.

About the Editor

Ian A. McLaren is professor emeritus, Department of Biology at Dalhousie University, Halifax, Nova Scotia. His expertise is population and evolutionary biology of plankton, seals, and birds. Dr. McLaren has contributed numerous papers to books and scholarly journals in the fields of population and evolutionary ecology. Dr. McLaren is also a fellow of the Arctic Institute.



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