

Population Cycles

THE CASE FOR TROPHIC INTERACTIONS



EDITED BY **Alan Berryman**

Population Cycles The Case For Trophic Interactions

Lev Ginzburg, Mark Colyvan



Population Cycles The Case For Trophic Interactions:

Population Cycles Alan Andrew Berryman, 2002 For over sixty years understanding the causes of multiannual cycles in animal populations has been a central issue in ecology This book brings together ten of the leaders in this field to examine the major hypotheses and recent evidence in the field and to establish that trophic interactions are an important factor in driving at least some of the major regular oscillations in animal populations that have long puzzled ecologists **Population Cycles** Alan Berryman, 2002-11-07 For over sixty years understanding the causes of multiannual cycles in animal populations has been a central issue in ecology This book brings together ten of the leaders in this field to examine the major hypotheses and recent evidence in the field and to establish that trophic interactions are an important factor in driving at least some of the major regular oscillations in animal populations that have long puzzled ecologists *Forest Insect Population Dynamics, Outbreaks, And Global Warming Effects* A. S. Isaev, Vladislav G. Soukhovolsky, O. V. Tarasova, E. N. Palnikova, A. V. Kovalev, 2017-03-16 This new approach to insect modeling discusses population dynamics regularities control theory theory of transitions and describes methods of population dynamics and outbreaks modeling for forest phyllophagous insects and their effects on global climate change Research in insect population dynamics is important for more reasons than just protecting forest communities Insect populations are among the main ecological units included in the analysis of stability of ecological systems Moreover it is convenient to test new methods of analyzing population and community stability on the insect related data as by now ecologists and entomologists have accumulated large amounts of such data In this book the authors analyze population dynamics of quite a narrow group of insects forest defoliators It is hoped that the methods proposed herein for the analysis of population dynamics of these species may be useful and effective for analyzing population dynamics of other animal species and their effects and role in global warming What can insects tell us about our environment and our ever changing climate It is through studies like this one that these important answers can be obtained along with data on the insects and their behaviors themselves The authors present new theories on modeling and data accumulation using cutting edge processes never before published for such a wide audience This volume presents the state of the art in the science and it is an essential piece of any entomologist s and forest engineer s library Ecological Orbits Lev Ginzburg, Mark Colyvan, 2004-04-29 A famous ecologist and a philosopher of science team up to offer a fresh new approach to population biology and ecology Challenging the traditionally accepted Lotka Volterra model which is based on predator prey interactions this new model emphasizes maternal effects specifically the significance of a mother s interest in the success of her female offspring **Plant Ecology, Herbivory, and Human Impact in Nordic Mountain Birch Forests** Frans E. Wielgolaski, 2006-01-12 This work analyzes vegetation and soils and investigates the influence of climate change insect pests grazing pressure by sheep and reindeer construction of roads and other consequences of increasing tourism in the Nordic mountain birch forests Nose Dive Harold McGee, 2020-10-20 The ultimate guide to the smells of the universe the

ambrosial to the malodorous and everything in between from the author of the acclaimed culinary guides *On Food and Cooking* and *Keys to Good Cooking* From Harold McGee James Beard Award winning author and leading expert on the science of food and cooking comes an extensive exploration of the long overlooked world of smell In *Nose Dive* McGee takes us on a sensory adventure from the sulfurous nascent earth more than four billion years ago to the fruit filled Tian Shan mountain range north of the Himalayas to the keyboard of your laptop where trace notes of phenol and formaldehyde escape between the keys We ll sniff the ordinary wet pavement and cut grass and the extraordinary ambergris and truffles the delightful roses and vanilla and the challenging swamplands and durians We ll smell one another We ll smell ourselves Through it all McGee familiarizes us with the actual bits of matter that we breathe in the molecules that trigger our perceptions that prompt the citrusy smells of coriander and beer and the medicinal smells of daffodils and sea urchins And like everything in the physical world molecules have histories Many of the molecules that we smell every day existed long before any creature was around to smell them before there was even a planet for those creatures to live on Beginning with the origins of those molecules in interstellar space McGee moves onward through the smells of our planet the air and the oceans the forest and the meadows and the city all the way to the smells of incense perfume wine and food Here is a story of the world of every smell under our collective nose A work of astounding scholarship and originality *Nose Dive* distills the science behind the smells and translates it as only McGee can into an accessible and entertaining guide Incorporating the latest insights of biology and chemistry and interweaving them with personal observations he reveals how our sense of smell has the power to expose invisible intangible details of our material world and trigger in us feelings that are the very essence of being alive

The Science of Renewable Energy Frank R. Spellman, 2016-07-06 Latest Edition Explores Fresh New Alternatives to Fossil Fuels The *Science of Renewable Energy* Second Edition takes a look at ways to produce sustainable and reliable energy sources and presents practical examples along with scientific methods models observations and tools Developed by esteemed author Frank R Spellman this book includes inpu

Dictionary of Environmental Health Frank R. Spellman, 2022-04-11 Every branch of science every profession and every engineering process has its own language for communication Environmental health is no different To work even at the edge of the major environmental aspects of this challenging field you must acquire a fundamental but wide ranging vocabulary and understanding of the components that make it up As Voltaire said If you wish to converse with me define your terms In this publication we define and in many instances fully explain in plain English the terms or tools concepts and ideas used by environmental health professionals environmental science professionals safety industrial hygiene practitioners engineers and non science professionals It is important to point out that environmental health is not a single topic but rather a complex colorful and diversified range of interrelated subjects including all of the basic sciences computer science government engineering energy renewable energy hydraulic fracking security disease industrial hygiene injury identification prevention and control and much more The

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African Ecology Clive Alfred Spinage, 2012-01-28 In view of the rapidly changing ecology of Africa this work provides benchmarks for some of the major and more neglected aspects with an accent on historical data to enable habitats to be seen in relation to their previous state forming a background reference work to understanding how the ecology of Africa has been shaped by its past Reviewing historical data wherever possible it adopts an holistic view treating man as well as animals with accent on diseases both human and animal which have been a potent force in shaping Africa s ecology a role neglected in ecological studies

Population Fluctuations in Rodents Charles J. Krebs, 2024-05-31 How did rodent outbreaks in Germany help to end World War I What caused the destructive outbreak of rodents in Oregon and California in the late 1950s the large population outbreak of lemmings in Scandinavia in 2010 and the great abundance of field mice in Scotland in the spring of 2011 Population fluctuations or outbreaks of rodents constitute one of the classic problems of animal ecology and in *Population Fluctuations in Rodents* Charles J Krebs sifts through the last eighty years of research to draw out exactly what we know about rodent outbreaks and what should be the agenda for future research Krebs has synthesized the research in this area focusing mainly on the voles and lemmings of the Northern Hemisphere his primary area of expertise but also referring to the literature on rats and mice He covers the patterns of changes in reproduction and mortality and the mechanisms that cause these changes including predation disease food shortage and social behavior and discusses how landscapes can affect population changes methodically presenting the hypotheses related to each topic before determining whether or not the data supports them He ends on an expansive note by turning his gaze outward and discussing how the research on rodent populations can apply to other terrestrial mammals Geared toward advanced undergraduate students graduate students and practicing ecologists interested in rodent population studies this book will also appeal to researchers seeking to manage rodent populations and to understand outbreaks in both natural and urban settings or conversely to protect endangered species

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