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Titolo	Dynamical Systems in Population Biology // by Xiao-Qiang Zhao
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Descrizione fisica	1 online resource (XV, 413 p.)
Collana	CMS Books in Mathematics, Ouvrages de mathématiques de la SMC, , 1613-5237
Disciplina	577.88
Soggetti	Dynamics Ergodic theory Mathematics Biomathematics Dynamical Systems and Ergodic Theory Mathematics of Planet Earth Genetics and Population Dynamics
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Dissipative Dynamical Systems -- Monotone Dynamemics -- Nonautonomous Semiflows -- A Discrete-Time Chemostat Model -- N-Species Competition in a Periodic Chemostat -- Almost Periodic Competitive Systems -- Competitor-Competitor-Mutualist Systems -- A Periodically Pulsed Bioreactor Model -- A Nonlocal and Delayed Predator-Prey Model -- Traveling Waves in Bistable Nonlinearities -- The Theory of Basic Reproduction Ratios -- A Population Model with Periodic Delay -- A Periodic Reaction-Diffusion SIS Model -- A Nonlocal Spatial Model for Lyme Disease.
Sommario/riassunto	This research monograph provides an introduction to the theory of nonautonomous semiflows with applications to population dynamics. It develops dynamical system approaches to various evolutionary equations such as difference, ordinary, functional, and partial differential equations, and pays more attention to periodic and almost periodic phenomena. The presentation includes persistence theory, monotone dynamics, periodic and almost periodic semiflows, basic

reproduction ratios, traveling waves, and global analysis of prototypical population models in ecology and epidemiology. Research mathematicians working with nonlinear dynamics, particularly those interested in applications to biology, will find this book useful. It may also be used as a textbook or as supplementary reading for a graduate special topics course on the theory and applications of dynamical systems. Dr. Xiao-Qiang Zhao is a University Research Professor at Memorial University of Newfoundland, Canada. His main research interests involve applied dynamical systems, nonlinear differential equations, and mathematical biology. He is the author of more than 100 papers, and his research has played an important role in the development of the theory and applications of monotone dynamical systems, periodic and almost periodic semiflows, uniform persistence, and basic reproduction ratios.
