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Titolo	An Introduction to Mathematical Population Dynamics : Along the trail of Volterra and Lotka / / by Mimmo Iannelli, Andrea Pugliese
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ISBN	3-319-03026-4
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Descrizione fisica	1 online resource (XIV, 346 p.)
Collana	La Matematica per il 3+2, , 2038-5722 ; ; 79
Disciplina	570.285
Soggetti	Biomathematics
	Ecology
	Applied mathematics
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	Theoretical Ecology/Statistics
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Lingua di pubblicazione	Inglese
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Nota di contenuto	1 Malthus, Verhulst and all that -- 2 Delayed population models -- 3 Models of discrete-time population growth -- 4 Stochastic modeling of population growth -- 5 Spatial spread of a population -- 6 Prey-predator models -- 7 Competition among species -- 8 Mathematical modeling of epidemics -- 9 Models with several species and trophic levels -- 10 Appendices: A Basic theory of Ordinary Differential Equations; B Delay Equations; C Discrete dynamics; D Continuous-time Markov chains.
Sommario/riassunto	This book is an introduction to mathematical biology for students with no experience in biology, but who have some mathematical background. The work is focused on population dynamics and ecology, following a tradition that goes back to Lotka and Volterra, and includes a part devoted to the spread of infectious diseases, a field where mathematical modeling is extremely popular. These themes are used as the area where to understand different types of mathematical modeling and the possible meaning of qualitative agreement of modeling with

data. The book also includes a collections of problems designed to approach more advanced questions. This material has been used in the courses at the University of Trento, directed at students in their fourth year of studies in Mathematics. It can also be used as a reference as it provides up-to-date developments in several areas.