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2.5.2 Time Periodicity2.5.3 Additional Results on Eigenvalues and Positivity; 2.6 Connections with Other Topics and Models; 2.6.1 Eigenvalues, Solvability, and Multiplicity; 2.6.2 Other Model Types: Discrete Space and Time; Appendix; 3 Density Dependent Single-Species Models; 3.1 The Importance of Equilibria in Single Species Models; 3.2 Equilibria and Stability: Sub- and Supersolutions; 3.2.1 Persistence and Extinction; 3.2.2 Minimal Patch Sizes; 3.2.3 Uniqueness of Equilibria; 3.3 Equilibria and Scaling: One Space Dimension; 3.3.1 Minimum Patch Size Revisited
3.4 Continuation and Bifurcation of Equilibria3.4.1 Continuation; 3.4.2 Bifurcation Results; 3.4.3 Discussion and Conclusions; 3.5 Applications and Properties of Single Species Models; 3.5.1 How Predator Incursions Affect Critical Patch Size; 3.5.2 Diffusion and Allee Effects; 3.5.3 Properties of Equilibria; 3.6 More General Single Species Models; Appendix; 4 Permanence; 4.1 Introduction; 4.1.1 Ecological Overview; 4.1.2 ODE Models as Examples; 4.1.3 A Little Historical Perspective; 4.2 Definition of Permanence; 4.2.1 Ecological Permanence; 4.2.2 Abstract Permanence
4.3 Techniques for Establishing Permanence

Sommario/riassunto

Many ecological phenomena may be modelled using apparently random processes involving space (and possibly time). Such phenomena are classified as spatial in their nature and include all aspects of pollution. This book addresses the problem of modelling spatial effects in ecology and population dynamics using reaction-diffusion models.* Rapidly expanding area of research for biologists and applied mathematicians* Provides a unified and coherent account of methods developed to study spatial ecology via reaction-diffusion models* Provides the reader with the tools needed to construct