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Contents

1. Introduction
2. Hutchinson's Equation
3. Recruitment Models
4. The Allee E®ect
5. Food-Limited Models
6. Regulation of Haematopoiesis
7. A Vector Disease Model
8. Multiple Delays
9. Volterra Integrodi®erential Equations
10. Periodicity
11. State Dependent Delays
12. Diffusive Models with Delay
References

**From the Introduction**

Time delays of one type or another have been incorporated into biological models to represent resource regeneration times, maturation periods, feeding times, reaction times, etc. by many researchers. We refer to the monographs of Cushing (1977a), Gopalsamy (1992), Kuang (1993) and MacDonald (1978) for discussions of general delayed biological systems. In general, delay differential equations exhibit much more complicated dynamics than ordinary differential equations since a time delay could cause a stable equilibrium to become unstable and cause the populations to fluctuate. In this survey, we shall review various delay differential equations models arising from studying single species dynamics.