

Contents

1	Introduction	1
1.1	An Introduction to Allee Effects	6
1.2	Preliminaries	8
1.3	Outline of the Book	9
	References	11
2	Positive Periodic Solutions of Nonlinear Functional Differential Equations with a Parameter λ	15
2.1	Positive Periodic Solutions of the Equation $x'(t) = -a(t)x(t) + \lambda f(t, x(h(t)))$	17
2.2	Positive Periodic Solutions of the Equation $x'(t) = a(t)x(t) - \lambda f(t, x(h(t)))$	34
2.3	Positive Periodic Solutions of the Equation $x'(t) = a(t)x(t) - \lambda b(t)f(t, x(h(t)))$	39
2.4	Periodic Solutions of State-Dependent Differential Equations	46
2.5	Applications to Some Mathematical Models	57
	References	60
3	Multiple Periodic Solutions of a System of Functional Differential Equations	61
3.1	Positive Periodic Solutions of the Equation $x'(t) = A(t, x)x(t) + \lambda f(t, x_t)$	63
3.2	Applications to Some Mathematical Models	67
	References	71
4	Multiple Periodic Solutions of Nonlinear Functional Differential Equations	73
4.1	Positive Periodic Solutions of the Equation $x'(t) = a(t)x(t) - f(t, x(h(t)))$	75
4.2	Applications to Some Mathematical Models	91
4.3	Application to Renewable Resource Dynamics	93
	References	97

5 Asymptotic Behavior of Periodic Solutions of Differential Equations of First Order	99
5.1 Existence and Global Attractivity of Positive Periodic Solutions of Fishing Model.	100
5.2 Existence and Global Attractivity of Positive Periodic Solutions of Lasota-Ważewska Model	119
5.3 Global Attractivity of Periodic Solutions of a Red Blood Cell Production Model	128
5.4 Global Attractivity of Periodic Solutions of Nicholson's Blowflies Model	133
Appendix	137
References	141
Bibliography	143

Periodic Solutions of First-Order Functional Differential
Equations in Population Dynamics

Padhi, S.; Graef, J.R.; Srinivasu, P.D.N.

2014, XIV, 144 p. 8 illus., Hardcover

ISBN: 978-81-322-1894-4