Contents

- Introduction
- Introduction 1.1
- **Population size** 1.2
- Ideal free distribution 1.3
- Habitat suitability 1.4
- **Buffer effect** 1.5
- Interference and depletion 1.6 Ideal despotic distribution 1.7Allee's principle 1.8 Sampling 1.9 Scale 1.10 Structure of the book 1.11 1.12 Summary Interference Introduction 2.1 Quantifying interference 2.2 Interference and the ideal free distribution 2.3 2.4 Differences in competitive ability Functional responses and aggregative responses 2.5 **Dominance** hierarchies 2.6 2.7 Kleptoparasitism 2.8 Summary Depletion J Introduction 3.1 3.2 Theoretical studies 3.3 Density dependence 3.4 Buffer effect 3.5 Productivity Combining interference and depletion 3.6 Continuous input 3.7 3.8 Does herbivory help herbivores? Switching between habitats 3.9 Inequalities in consumers 3.10 Summary 3.11

Introduction

3

5

6

7

9

9

10

11

12

13

14

15

15

15

17

20

24

27

29

31

viii	• Contents	
4	Prey availability	52
4.1 4.2 4.3	Introduction Sources of variation in availability Quantifying availability	52 52 55
4.4 4.5 4.6	Theory Functional and aggregative responses Summary	55 57 60
5	Prey populations	61
5.1 5.2 5.3 5.4 5.5	Introduction Theoretical pattern of prey mortality Examples of prey mortality Productivity Summary	61 64 66 66

67 **Territories** 6 Allee's principle 67 Introduction 6.1 67 6.2 Ideal despotic distribution 68 Settlement patterns 6.3 71 Theory of fixed territories 6.4 71 6.5 Floaters 74 An example of queueing 6.6 77 **Co-operative breeding** 6.7 77 Cost-benefit analysis 6.8 81 **Buffer effect** 6.9 Quantifying interference 84 6.10 Density dependence 87 Summary 6.11 Functional responses and ageregative Mating systems and reproductive success 89 7 89 Introduction 7.1 89 Distributions of males and females 7.2

7.3	Interference	90
7.4	Individual differences	91
7.5	Leks: theory	92
7.6	Leks: observations	96
7.7	The origin of female preferences	99
7.8	Summary	102
8	Population regulation	103
8.1	Introduction	103
8.2	Density-dependent mortality	103
8.3	Density-dependent mortality in group-living species	106
8.4	Density-dependent breeding output	107

Contents •	ix
------------	----

8.5	Equilibrium population size	108
8.0 07	Carrying canacity	111
0./	Variation in food supply and weather	113
0.0 8 9	Long-term consequences	115
8 10	Summary	116
0.10		
9	Migration	117
9.1	Introduction	117
9.2	Migration costs	118
9.3	Evolutionarily stable migration strategies	119
9.4	Ability to change routes	121
9.5	Constraints to changes in migration routes	124
9.6	Partial migrants	126
9.7	Age and sex differences	127
9.8	Summary	128
	-loned borners in foolution domits the wide needs accordition been The	2.645
10	Applied problems	130
10.1	Introduction	130
10.2	Models of specific systems	130
10.3	Predicting the consequences of changes in the number of	
	competitors	135
10.4	Predicting the consequences of habitat change	137
10.5	Predicting the consequences of increases in population	138
10.6	Summary	141
11	Habitat loss	142
	Tiabilat 1055	142
11.1	Introduction	142
11.2	Consequences within single sites	142
11.3	The evolutionery response to hebitet less	143
11.4	Observed changes in migratory nonulations	140
11.5	The future	155
11.0	Summary	155
11./	Summary	150
12	Predation and human disturbance	157
12.1	Introduction	157
12.2	Predation	157
12.3	Human disturbance	159
12.4	Theory of predation and disturbance	160
12.5	Examples of disturbance	162
12.6	Summary	165
	ally on benevroused scolely will increase the overall doption of	

- Contents
- **Modelling techniques** 13
- 13.1 Introduction
- 13.2 Interference models
- 13.3 Depletion models
- 13.4 Combining interference and depletion
- 13.5 Prey availability
- 13.6 Density-dependent mortality
- 13.7 Equilibrium population size
- 13.8 Migration routes
- 13.9 Models of specific systems

Summary 14

- Introduction 14.1

174

175 14.2 Decision making 175 14.3 General and specific models 176 14.4 Density dependence 176 14.5 Territoriality 177 14.6 Response to environmental change 178 14.7 Further applications Alodels of specific systems 179 References **Author Index** 203 209 **Subject Index**

Predation and human disturbance Introduction Predation Human disturbance Theory of predation and disturbance Examples of disturbance Summary Summary Human villament and the second private cooses privat-guorg at villament and a second private to gui second private and the second private and the second private to gui second private and the second private and the second private to gui second private and the second private and the second private to gui second private and the second private	