

Contents

Preface to the Second Edition	<i>page</i> ix
1 Introduction to conservation	1
1.1 General introduction	1
1.2 Introduction to biodiversity	7
1.3 The philosophy and ethics of conservation: why conserve?	11
1.4 Economics and stability	20
1.5 Extinction rates	31
2 Threats to biodiversity	41
2.1 Identifying causes of recent extinctions	41
2.2 Human population growth and movement	43
2.3 Human consumption patterns and habitat loss	45
2.4 Local pollution	61
2.5 Atmospheric pollution	65
2.6 Introduced species, diseases and genes	72
2.7 Infrastructure (including roads)	81
2.8 Recreation	83
2.9 Secondary extinctions, multiple stressors and synergistic impacts	84
3 Evaluation of priorities for species and habitats	87
3.1 Choosing species to protect: species quality	88
3.2 Choosing habitats to protect: habitat quality	96
3.3 Conservation indices	109
3.4 Global priorities	110
3.5 Strategic conservation planning, decision theory and triage	121
4 Monitoring and Environmental Impact Assessment	125
4.1 Aims and requirements	125
4.2 Sampling methods and analysis	126
4.3 Methods for different groups	132

vi	Contents	
4.4	Measures and indicators of site quality	137
4.5	Rapid Biodiversity Assessment	150
4.6	Long-term and large-scale monitoring, and ecosystem function	151
4.7	Environmental Impact Assessment (EIA)	157
5	Management of natural and fragmented habitats	161
5.1	Continental biomes	163
5.2	Management of oceanic islands	172
5.3	Management of aquatic habitats	173
5.4	Management of fragmented habitats	179
5.5	Effectiveness of protected areas	198
6	Management of species	203
6.1	Metapopulations	204
6.2	Conservation genetics	207
6.3	Population viability	215
6.4	<i>In situ</i> methods	219
6.5	<i>Ex situ</i> methods	225
6.6	Climate change responses	234
7	Sustainable use, semi-natural cultural landscapes and the matrix	237
7.1	What does sustainability mean?	238
7.2	Maximum Sustainable Yields (MSYs)	240
7.3	Semi-natural habitats and traditional cultural landscapes	243
7.4	Sustainability and traditional management	256
7.5	Sustainability in the landscape matrix	259
7.6	Overview of sustainability	268
8	Restoration and offsetting	271
8.1	Targets and baselines in restoration	273
8.2	Re-introduction and conservation introduction	275
8.3	Control of introduced species	280
8.4	Restoring habitats and ecosystem function	284
8.5	Translocation of habitats	298
8.6	Mitigation and biodiversity offsets	300
8.7	Anthropogenic novel ecosystems, including urban wildlife	303
8.8	Measuring success and cost-effectiveness	305
9	Environmental policy	309
9.1	Social components of conservation and the human–nature relationship	309

	Contents	vii
9.2	Attitudes to conservation	309
9.3	Economic methods	317
9.4	Law	330
9.5	Conservation policy	334
9.6	Population and planned parenthood	339
9.7	Sustainability	339
9.8	Conservation successes	342
9.9	Case study. The Mali elephants: a complex socio-ecological system	344
9.10	Conclusions	346
	References	349
	Index to species names	395
	Index	406

The color plates are to be found between pages 86 and 87.