## Contents

	Ack	nowledgments	page viii
1	Inti	1	
	1.1	Conservation-area networks	2
	1.2	What do we mean by biodiversity?	5
	1.3	Systematic conservation planning	8
	1.4	Summary	16
2	Bio	Biodiversity surrogates	
	2.1	True and estimator surrogates	20
	2.2	Establishing the adequacy of an	
		estimator-surrogate set	22
	2.3	Traditional species-based surrogates	27
	2.4	Systematic surrogate sets	30
	2.5	Surrogacy and spatial scale	42
	2.6	A protocol for the identification of an	
		adequate surrogate set	43
	2.7	Diversity of ecological processes	44
	2.8	Summary	45
3	Dat	a collection	47
	3.1	Areas and features	47
	3.2	Sources of data	51
	3.3	Collecting new data with field surveys	56
	3.4	Summary	76
4	Data treatments		79
	4.1	Conceptual framework	79
	4.2	Multi-variate pattern analysis	83
	4.3	Heuristic models	90
	4.4	Regression models	93

V1	Contents

	4.5	Machine-learning methods	100
	4.6	Summary	103
5	Conservation-area networks		
	5.1	The role of conservation-area networks	105
	5.2	The goals of networks: representativeness,	
		persistence and economy	108
	5.3	Selecting networks: complementarity	112
	5.4	Selecting networks: rarity and adjacency	120
	5.5	Subsidiary goals: flexibility, transparency,	
		modularity, genericity and irreplaceability	121
	5.6	Algorithms for the selection of networks	124
	5.7	The trouble with scoring and ranking	
		procedures	127
	5.8	Summary	129
6	Per	sistence and vulnerability	131
	6.1	Incorporating biological processes	132
	6.2	Viability analysis	135
	6.3	Targets for representation	151
	6.4	Formal decision analysis	162
	6.5	Summary	166
7	Sati	sfying multiple criteria	169
	7.1	Iterative- and terminal-stage procedures	171
	7.2	The valuation framework	172
	7.3	Non-dominated alternatives	176
	7.4	Refining non-dominated sets	180
	7.5	Sensitivity analysis	188
	7.6	Summary	194
8	Syst	ematic conservation plans	197
	8.1	Complementarity by inspection in the	
		Nullarbor region, Australia	197
	8.2	Complementarity using species records	
		in Québec	205
	8.3	A marine conservation plan for the California	
		Channel Islands, United States	209
	8.4	A conservation plan for the Cape Floristic	
		Region of South Africa	214
	8.5	A conservation plan for Papua New Guinea	219
	8.6	Summary	225

			Contents	· V11
9	Cor	ıclusions		227
	9.1	Coping with uncertainty		228
	9.2	Practicing conservation science in		
		a complex world		231
	9.3	Future directions		233
	9.4	Summary		238
	Refe	rences		239
	Inde.	x		265

The colour plates are situated between pages 130 and 131.