
Contents

List of contributors	<i>page</i> xii
Foreword	xv
DENIS A. SAUNDERS	
Preface	xvii
Acknowledgements	xx
1 Introduction: ecological networks and greenways	1
ROB H. G. JONGMAN AND GLORIA PUNGETTI	
1.1 Nature conservation and landscape ecological principles	1
1.2 Concepts and dualities in ecological networks and greenways	3
1.3 A new perspective in landscape ecology	4
2 The context and concept of ecological networks	7
ROB H. G. JONGMAN	
2.1 Introduction	7
2.2 A short nature conservation history	8
2.3 The driving force: land use change	10
2.4 New functions in the landscape: fragmentation	12
2.5 Landscape ecology concepts in landscape planning	13
2.6 Ecological networks	23
2.7 Conclusions	32
3 Greenways in the USA: theory, trends and prospects	34
JACK AHERN	
3.1 Introduction	34
3.2 Greenway theory	37

viii CONTENTS

3.3	Historical development of greenways in the USA	48
3.4	Contemporary trends	52
3.5	Conclusions and prognosis	53
4	Ecological functioning of ecological networks: a species perspective	56
	JANA VERBOOM AND ROGIER POWELS	
4.1	Introduction	56
4.2	Four different assessment methods	57
4.3	The theory and practice of functional network analysis	59
4.4	Example of a network analysis	64
4.5	Discussion	70
5	Impacts of roads on ecological networks and integration of conservation and transportation planning: Florida as a case study	73
	DANIEL J. SMITH	
5.1	Introduction	73
5.2	Recent trends in population growth and infrastructure development in Florida	74
5.3	Ecological effects of roads	76
5.4	Projects for restoring landscape connectivity	79
5.5	Approaches for integrating conservation and transportation planning	82
5.6	Conclusions	91
6	Ecological corridors on a European scale: a typology and identification of target species	94
	IRENE M. BOUWMA, RUUD P. B. FOPPEN AND ALEXANDER J. F. M. VAN OPSTAL	
6.1	Introduction	94
6.2	Corridor terminology: a species-specific approach	95
6.3	Need and potential of corridors with a European dimension	100
6.4	Discussion	104
6.5	Conclusions	105
7	Planning the future landscape between nature and culture	107
	GLORIA PUNGETTI AND BERNARDINO ROMANO	
7.1	Introduction	107
7.2	Nature and culture	108

7.3	The de-anthropisation of the plan	109
7.4	Biopermeability and environmental continuity	110
7.5	Planning ecological networks	113
7.6	Assessing environmental continuity and fragmentation	115
7.7	Developing ecological networks	123
7.8	Discussion	124
7.9	Conclusions	126
8	From models to reality: design and implementation process	128
	MARIUS BOLCK, GIUSEPPE DE TOGNI, THEO VAN DER SLUIS AND ROB H. G. JONGMAN	
8.1	Introduction	128
8.2	Modelling: the LARCH analysis	131
8.3	Towards sustainable networks	137
8.4	The implementation process	146
8.5	Conclusions	149
9	Design of the Pan-European Ecological Network: a national level attempt	151
	KALLE REMM, MART KÜLVİK, ÜLO MANDER AND KALEV SEPP	
9.1	Introduction	151
9.2	Map of ecological network as a map of habitat values	153
9.3	A habitat key for the PEEN project	156
9.4	Groups of habitats	157
9.5	Map of ecological network values of Estonian square kilometres	159
9.6	The development of an expert-designed ecological network in Estonia	165
9.7	Conclusions	170
10	Ecological 'black spots' within the ecological network: an improved design for rural road network amelioration	171
	CATHARINUS F. JAARSMA	
10.1	Introduction	171
10.2	The relations between wildlife, roads and their traffic flows	172
10.3	The road network dismantled	175
10.4	Regional traffic planning as a solution	176

X CONTENTS

10.5	Case studies	178
10.6	Discussion	186
10.7	Conclusions	187
11	An ecological network for the Milan region based on focal species	188
	RENATO MASSA, LUCIANO BANI, MARCO BAIETTO, LUCIANA BOTTONI AND EMILIO PADOA SCHIOPPA	
11.1	Introduction	188
11.2	Geographical ecology	188
11.3	The ecological network	190
11.4	New concepts and new technology	190
11.5	The Italian Northern Lowland pilot project	191
11.6	Forest core areas identification on a larger scale	193
11.7	A case study in an agricultural landscape	195
11.8	Conclusions	198
12	Connecting corridors: implementing metropolitan greenway networks in North America	200
	DONNA L. ERICKSON	
12.1	Introduction	200
12.2	Background	201
12.3	Case studies	203
12.4	Cross-case themes	213
12.5	Conclusions	219
13	The Florida Statewide Greenways Project: its realisation and political context	222
	THOMAS S. HOCTOR, MARGARET H. CARR, PAUL D. ZWICK AND DAVID S. MAEHR	
13.1	Towards a Florida Ecological Network	222
13.2	The Florida Ecological Greenways model	223
13.3	Methods	224
13.4	Model results	230
13.5	Discussion	236
13.6	Conclusions	248
14	The ecological network development in the Yungas, Argentina: planning, economic and social aspects	251
	DANIEL SOMMA, MARÍA BETTINA AUED AND LIA BACHMAN	
14.1	Introduction	251
14.2	Land cover changes in the Yungas region	252

Cambridge University Press

0521535026 - Ecological Networks and Greenways: Concept, Design, Implementation - Edited by Rob H. G.

Jongman and Gloria Pungetti

Table of Contents

[More information](#)

CONTENTS xi

14.3	Socio-economic aspects	259
14.4	Our expectations and the need to co-ordinate actions	265
14.5	The future of the Yungas network	268
15	The river corridor of the Guadamar	270
	ANTONIO MORA AND JOSÉ M. ARENAS	
15.1	Introduction	270
15.2	The Guadamar River and its catchment	271
15.3	The Aznalcóllar mine accident and the emergency measures plan	273
15.4	The strategy of the Guadamar Green Corridor	275
15.5	PICOVER: a multi-disciplinary applied research programme	286
15.6	The future protection of this natural space	287
15.7	Conclusions	289
16	Conclusions: into the twenty-first century	290
	ROB H. G. JONGMAN AND GLORIA PUNGETTI	
16.1	The context	290
16.2	A framework of linkages	291
16.3	Planning and implementation	292
16.4	Land use implications	295
16.5	Partners and public involvement	296
16.6	Instruments for ecological network and greenway development	298
16.7	Epilogue	300
	References	302
	Index	323