

Content

Foreword: Ecological networks	8
--------------------------------------	----------

1	Alpine nature protection: A global historic context and the conception of ecological networks	12
----------	--	-----------

Introduction	12
---------------------	-----------

1.1 The global framework for nature protection	13
---	-----------

1.1.1 International conservation agreements	13
---	----

1.1.2 Ground-level implementation efforts	15
---	----

1.2 Nature protection in the Alps – Which motivation?	17
--	-----------

1.2.1 Protection of Alpine nature in some of Europe's largest eco-systems	18
---	----

1.2.2 Protection from many and diffuse threats	21
--	----

1.2.3 Who are the beneficiaries of a new protection policy?	22
---	----

1.2.4 Conclusions: Nature protection with the people and for the people	23
---	----

1.3 Alpine Protected Areas: The long road to modern conservation policies in the centre of Europe	25
--	-----------

1.3.1 Short history of Alpine Protected Areas	25
---	----

1.3.2 Protected areas with special status	29
---	----

1.3.3 Different styles in different countries	30
---	----

1.3.4 Future developments within the Alpine Convention and the Alpine Macro-Regional approach	31
---	----

1.4 The conditions for success of nature protection in the Alps	32
--	-----------

1.4.1 Different political systems need to cooperate and exchange competences	32
--	----

1.4.2 Different historical and cultural backgrounds and use of the Alpine space should not be a disincentive for future-orientated policies	32
---	----

1.4.3 Nature protection needs to evolve from a static to a dynamic approach and policy	33
--	----

1.4.4 Ecological connectivity entails networking and persuasion	34
---	----

1.5 The science of connectivity measures	37
---	-----------

1.6 Fostering cooperation globally – A memorandum of cooperation between the Convention on Biological Diversity, the Alpine Convention and the Carpathian Convention	39
---	-----------

1.7 Exchange and experience on ecological connectivity in the Carpathians	40
--	-----------

1.8 Ecological connectivity and large scale conservation – A planetary response to save nature	44
---	-----------

Box 1: The hierarchical ecological networks – Ten years of experiments in Isère	46
--	-----------

2	Current status of Alpine ecological networks	48
----------	---	-----------

Introduction	48
---------------------	-----------

2.1 History and implementation of ecological networks in the Alps	49
--	-----------

2.1.1 Ecological connectivity in the Alps – 12 years of experience	49
--	----

2.1.2 Working on different geographic levels, from the local to the European scale	50
--	----

2.2 Alpine Protected Areas and their contribution to the Alpine ecological network	51
---	-----------

2.2.1 Alpine Protected Areas as key elements	51
--	----

2.2.2 Beyond borders	53
----------------------	----

2.2.3 A homogenous representation over the Alpine arch	53
--	----

2.3	Alpine national strategies and visions for ecological networks	54
2.3.1	Austria	54
2.3.2	France	55
2.3.3	Germany	57
2.3.4	Italy	58
2.3.5	Slovenia	60
2.3.6	Switzerland	61
2.3.7	Transnational cooperation	63
2.3.8	Work in progress	63
2.4	Strategic elements and landscape visions of current Alpine ecological networks	64
2.4.1	The trans-sectoral landscape vision of connectivity	64
2.4.2	Different solutions for different situations	65
2.4.3	Towards a connectivity conservation management framework?	72
2.5	Netzwerk Naturwald – An innovative network of protected areas in the Northern Limestone Alps	77
2.6	Linking policy, science and implementation – The Platform Ecological Network of the Alpine Convention	79
2.6.1	Background and objectives	79
2.6.2	Selected activities and achievements	79
2.6.3	Added value	80
2.6.4	Looking ahead – Exploring further opportunities	80
	Box 2: Ecological connectivity across provincial borders (Netzwerk Naturwald)	81
	Box 3: Working with stakeholders in the Pilot Region Berchtesgaden-Salzburg	82
3	The challenges of engendering ecological connectivity – Topics and impacts	84
	Introduction	84
3.1	Planning dynamic landscapes: Opportunities and limitations of spatial planning in creating ecological networks	85
3.1.1	Spatial planning: Biodiversity matters	85
3.1.2	Top down or bottom up?	86
3.1.3	Structural or functional connectivity?	86
3.1.4	Control or dynamic?	86
3.1.5	Connect administrations and sectors	87
3.1.6	Conclusion	87
	Box 4: Green Infrastructure	87
3.2	Networking for nature – The challenges of bringing the “right” people together	88
3.2.1	Deficits in trans-sectoral stakeholder involvement	89
3.2.2	The need for better coordination from the start	91
3.3	Expanding renewable energy within the Alpine ecological network	93
3.4	Ecological connectivity and expansion of transport in the Alps	98
3.5	Tourism in the Alps – A nature and biodiversity perspective	100
3.6	Ecological connectivity and alien species	101
3.7	Enhancing ecological connectivity in the Alps – A catch-22 situation in respect to disease spread in wildlife and livestock?	103
3.8	Alpine ecological connectivity and management of hunting	105

3.9 Connectivity and ecosystem services in the Alps	107
3.9.1 Introduction	107
3.9.2 Connectivity: Role and limits	108
3.9.3 Biodiversity, ecological functionality and bioindicators	110
3.9.4 Ecosystem functions and landscape connectivity	111
3.9.5 The ESS concept/approach/ framework and spatial planning	111
3.9.6 Which ecosystem services for Alpine connectivity?	112
3.9.7 Conclusions	114
3.10 Agriculture and ecological connectivity	115
3.10.1 The link between agriculture production, biodiversity and ecological connectivity	115
3.10.2 What do ecological networks mean in agricultural areas?	117
3.10.3 Conclusions	121
Box 5: The Ecological Continuum Initiative – Catalysing and multiplying connectivity in the Alpine area	122
3.11 The Alps and their soils	123
Box 6: The Contribution of ecological connectivity to greening the economy	125
4 Connectivity contributes to continuity	126
Introduction	126
4.1 Methods and tools for connectivity implementation in the Alps	127
4.1.1 Methodological approach	127
4.1.2 Implementation	128
4.1.3 Awareness raising and communication	129
4.1.4 First promising results in the Alpine Pilot Regions for ecological connectivity	130
4.2 Participatory processes and social impact assessment	131
4.2.1 Social acceptance as prerequisite for success of ecological connectivity implementation projects	131
4.2.2 A four-step participatory process	131
4.3 Interference welcome!	134
4.3.1 Flaz	134
4.3.2 Verwall	134
4.3.3 Assertion of power or cooperation?	135
4.3.4 How does participation work?	136
4.3.5 How can a participation process work?	136
4.4 Mapping relevant factors for ecological connectivity – The JECAMI mapping service	137
4.4.1 Introduction	137
4.4.2 The JECAMI framework	139
4.4.3 The continuum suitability index – A structural connectivity approach	139
4.4.4 Mapping species migration areas and corridors	140
4.4.5 Technical solution	141
4.4.6 A case study with JECAMI: Defining ecological connectivity hotspots in the Alps	141
4.5 The 50 most important questions relating to the maintenance and restoration of an ecological continuum in the European Alps	147
4.6 Introduction to the ecosystem services approach	152
Box 7: Total Economic Value (TEV) of ecosystem services	154
4.7 Alpine Pilot Regions for ecological connectivity	155
4.7.1 The Alpine Pilot Regions	155
4.7.2 Protected areas in the heart of Pilot Regions	156
4.7.3 Governance of Pilot Regions	160
4.7.4 Results in Pilot Regions	160
Box 8: Ecological connectivity in mixed-use landscapes	163
Box 9: Restructuring forest to enhance biodiversity	165

5	The future: Beyond the current continuum	168
	Introduction	168
	5.1 Description of the Macro-Regional context (EUSALP) and the opportunities of the Macro Region	169
	5.2 Financing the ecological continuum – Funding options and strategic project development	172
	5.2.1 Interreg as an option for cross-border and transnational cooperation	173
	5.2.2 LIFE: Innovative demonstration projects in the field of biodiversity and nature conservation	173
	5.3 EU initiatives on Green Infrastructure and the role of the Alpine region: Towards an 'Alpgreen Infrastructure'	174
	5.4 Alpine connectivity – A green island?	176
	5.4.1 The aim of the map	176
	5.4.2 The approach of the map	176
	5.4.3 The interpretation of the map	177
	5.5 The future of Alpine biodiversity – Potential scenarios for Alpine ecological connectivity in 2030	182
	5.5.1 Connectivity scenarios for the densely populated inner Alpine Valleys – Ecological Intervention Areas	183
	5.5.2 Connectivity scenarios for areas retaining well-functioning connectivity – Ecological Conservation Areas	192
	5.5.3 Connectivity scenarios for areas with a high potential of connectivity – Ecological Potential Areas	201
	5.5.4 Conclusion statement	210
	5.5.5 The macro-regional context	210
	5.5.6 Recommendations for future biodiversity and connectivity policy	211
	5.6 Conclusions and recommendations: Steps to undertake until 2030 – The Alpine Ecological Vision 2030	213
	5.6.1 Develop an integrated, trans-sectoral landscape vision for the Alps	213
	5.6.2 Migrate from practices that require compensation for environmental damage to the valuation of and payment for ecosystem services	213
	5.6.3 Ensure trans-sectoral implementation of ecological connectivity measures	214
	5.6.4 Ensure project results are visible and given due consideration in EU policies and strategies	214
	5.6.5 Empower municipalities to implement strategic biodiversity conservation and ecological connectivity measures	215
	5.6.6 Sanction protected area administrations to operate beyond the borders of protected areas	215
	5.6.7 Key statements of this publication	216
	5.6.8 Closing by viewing – Summarising priorities by mapping – An outlook	217
	5.6.9 Final considerations	218
	Box 10: The Danube Habitat Corridor – Bridging biogeographic regions and protected areas	222
	Box 11: “Connecting Alpine actors” – A short profile of EUSALP AG 7 “Developing ecological connectivity in the entire EUSALP territory”	225
	Epilogue: “Alpine Nature 2030” – Creating [ecological] connectivity for generations to come	226
	Literature	228
	Footnotes	244
	List of tables	244
	List of figures	245
	List of maps	246
	Abbreviations	246
	Main Authors	248
	Life needs connectivity	249
	Picture credits	250