
Contents

1 Landscape Resilience at Risk—Forest Plantations as an Answer?	1
1.1 Natural Hazard Regimes are Changing—Spatial Planning has to Adapt	1
1.2 Theoretical Frameworks	2
1.2.1 Landscape Resilience	2
1.2.2 Risk	3
1.3 Aims and Research Questions	4
1.4 Rationales for the Selection of the Study Area	5
1.5 Structure of this Book	7
2 Pinus Plantations Impact Hillslope Stability and Decrease Landscape Resilience by Changing Biogeomorphic Feedbacks in Chile	9
2.1 Introduction	10
2.1.1 Background	10
2.1.2 State of the Art	11
2.1.3 Open Questions	15
2.1.4 Aims of the Study	16
2.2 Study Site	16
2.2.1 Physical Geography	17
2.2.2 Soils	18
2.2.3 Vegetation Assemblages and Land Use	19
2.3 Materials and Methods	20

2.3.1	Selection of Sampling Plots	20
2.3.2	Derivation of Soil Indicators as Proxy Variables for Mechanical and Hydrological Mechanisms of Soil Stabilization	22
2.3.3	In-Situ Measurements	23
2.3.4	Laboratory Methods	24
2.3.5	Statistical Treatment	24
2.4	Results	25
2.4.1	Soil Indicators Under the Different Vegetation Assemblages	27
2.4.2	Multivariate Analysis of Soil Stability	29
2.5	Discussion	32
2.5.1	Vegetation Assemblage Specific Biogeomorphic Interactions and Hillslope Stability	32
2.5.2	Impacts on Biogeomorphic Feedbacks	35
2.5.3	Land Use, Biogeomorphic Feedbacks, Risks and Consequences for Landscape Resilience	39
2.6	Conclusions	40
2.7	Annex	41
3	<i>“Industry Impacts More Than Nature”: Risk Perception of Natural Hazards in More-than-human Worlds</i>	43
3.1	Introduction	44
3.2	State of the Art Theoretical Design	45
3.2.1	Conceptualizations of Risk and its Perception	45
3.2.2	Recent Critics and Potentials of the Actor-Network-Theory in Disaster Risk (Perception) Research	48
3.3	Study Site	50
3.3.1	Physical Geography	51
3.3.2	Natural Hazards and Environmental Degradation	51
3.3.3	Human Geography and Socio-Environmental Conflicts	52
3.3.4	Sociological Lense: Vulnerabilities	53
3.3.5	Disaster Event in 2007	54
3.4	Materials and Methods	55
3.4.1	Risk Map	55
3.4.2	Risk Perception	55
3.5	Results and Discussion	58

3.5.1	Risk Analysis	58
3.5.2	Risk Perception	62
3.5.3	Hybrid Understanding for Symmetrical Relations	73
3.6	Conclusions and Outlook	75
4	Navigating a Trojan Horse in the Last of the Wild: Pine Trees, Agroforestry, and Land Zoning Assemble the Landscape Resilience Dilemma in Patagonia	79
4.1	Introduction	80
4.2	Study Site	83
4.3	Materials and Methods	86
4.4	Results	88
4.4.1	Goals, Objectives and Action Plans of the Regional Territorial Plan	88
4.4.2	Disaster Prevention Plan	89
4.4.3	Land Use Zoning	90
4.4.4	Conformance Evaluation	92
4.4.5	Performance Evaluation	93
4.5	Discussion	94
4.5.1	Low Performing Biodiversity Conservation and Natural Hazard Mitigation	94
4.5.2	Neglected (Indigenous) Risk Perception	95
4.5.3	Inspirations from Polycentric Governance	96
4.5.4	From Critique to Proposals	98
4.6	Summary and Conclusions	102
5	What Can We Learn from Aysén?—Discussion and Derivation of Follow-up Research Questions	105
5.1	Biogeomorphic Feedbacks, Land Use and Landscape Resilience—Underestimated Interactions?	105
5.2	Risk Perception: Does the Distinction Between Natural Hazards and Environmental Degradation Still Make Sense? Are We Looking at the Wrong Side of Risk?	106
5.3	Reflection on the Contribution of Land Zoning to Landscape Resilience and Governance Analysis Research Proposal	107
5.4	Lessons Learned from Chilean Patagonia	108
	References	109