

Contents

1	Heterogeneity, Dynamism, and Diversity of Natural Systems	1
	The Complexity in Ecological Sciences.	1
	Environmental Variability	2
	Spatial Heterogeneity and Biological Diversity	4
	References.	6
2	The Concept of Disturbance	7
	Impact, Disturbance, Stress: A Population Ecology-Based Terminology	10
	References.	11
3	Role and Effects of Disturbances in Natural Systems	13
	Simplification of Communities Following a Disturbance	14
	Enrichment of Communities as a Result of a Disturbance	15
	Effects of Disturbances and Responses of Organisms	17
	Effects and Different Responses Among Sessile and Vagile Organisms.	21
	Interaction Among Disturbances.	23
	Effects of Disturbances on Biological Communities: Approaches and Metrics	23
	References.	28
4	The Disturbance Regime	31
	Spatial Components	32
	Temporal Components	33
	Magnitude and Modality Components.	35
	Disturbance Regime and Management Strategies	36
	Indicators for Disturbance Evaluation: A Plant Ecology Perspective	37
	References.	45

5	Disturbances and Coexistence of Species	47
	The Intermediate Disturbance Hypothesis (IDH).....	47
	The Huston Model of the Dynamic Equilibrium.....	50
	The Model of Gradual Climate Change (GCC)	51
	References.....	52
6	Classification Criteria for Disturbance Events	53
	Criteria Based on the Origin and Agent Type	53
	Criteria Based on Regime and on Impact Modalities.....	55
	Criteria Based on the Relation Between Disturbance and Environmental Components.....	56
	Criteria Based on Target Vulnerability	57
	References.....	58
7	Categories of Natural Disturbances	59
	Flooding and Other Events Connected to River Dynamics.....	60
	Fires.....	61
	Extreme Meteorological Events	64
	Water Fluctuations	65
	Geological Events	66
	Biotic Agents: Pathogens	67
	Biotic Agents: Animal Disturbance.....	67
	References.....	71
8	Anthropogenic Threats	73
	Threat Analysis: A New Discipline.....	81
	References.....	83
9	Nomenclature and Taxonomy of Threats	85
	References.....	103
10	Threat Regime	105
	References.....	109
11	Threat Quantification and Ranking	111
	Rating Typologies: Absolute Versus Relative Approaches	114
	Arithmetic Versus Comparative Approaches	116
	Influence and Knowledge Analysis.....	121
	Environmental Impact Assessment (EIA).....	123
	Further Tools for Threat Assessment.....	125
	References.....	130
12	Threat Mapping	133
	An Introduction	133
	Plant-Based Mapping as a Tool for Revealing Natural Disturbance and Anthropogenic Threats (Franco Pedrotti)	136
	References.....	163

