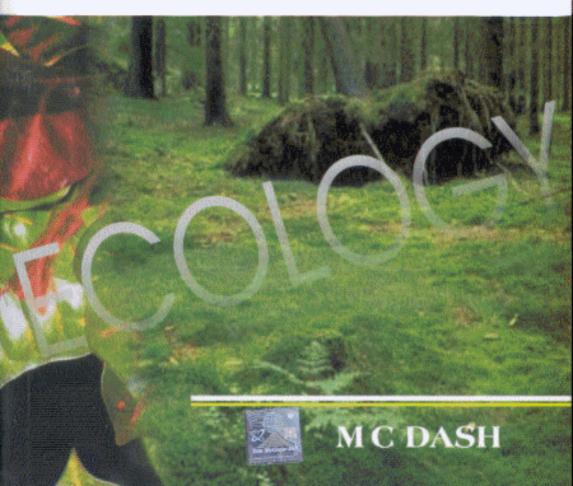
Second Edition

FUNDAMENTALS OF EGOLLOGY



Contents

Preface to the Second Edition	vi	
Preface to the First Edition		
List of Symbols		
1.1 Concept of Stress and Strain 3 1.2 Adaptation and Concept of Limiting Factor 4 1.3 Concept of Habitat and Niche 1.1 1.4 Scope of Ecology 21	1	
2. Systems Concept in Ecology	35	
 2.1 Systems Concept 35 2.2 Integrative Approach 37 2.3 Ecosystem 37 2.4 Functional Attributes of an Ecosystem 45 2.5 Primary and Secondary Production 57 2.6 Food Chain and Trophic Levels 82 2.7 Energy Flow in Ecosystems 92 2.8 Material Cycling 109 2.9 Homeostasis and Feedback 121 2.10 Development and Evolution of Ecosystems 123 2.11 Concept of Model and Ecosystem Modelling 12 	4	
3. Ecosystems of the World and Distribution of Flora and Fauna	145	
 3.1 Terrestrial Ecosystems 145 3.2 Aquatic Ecosystems 160 3.3 Principles of Plant Geography and Animal Distribution 173 		

	3.4	Floristic and Zoogeographical Realms 173	
	3.5	Principles of Dynamic Phytogeography 175	
4.	Env	ironment in Action	182
	4.1	Concept 181	
		Climatic Factors 182	
	4.3	Topographic Factors 198	
		Edaphic Factors (The Soil) 199	
		Biotic Factors 208	
	4.6	Co-evolution 213	
	4.7	Biological Clock 217	
5.	Con	nmunity Ecology	225
	5.1	Concept of Community and Basic Terms 225	
		Community Structure, Composition	
		and Stratification 227	
	5.3	Community Function 245	
6.	Pop	ulation Ecology	254
	6.1	Concept of Population and	
		Population Attributes 254	
	6.2	Biotic Potential and Natality 254	
	6.3	Mortality, Survivorship Curves,	
		Life Table, Age Structure 256	
	6.4	Concept of Carrying Capacity	
		and Environmental Resistance 261	
		Population Growth Forms 263	
		Life History Strategy 268	
		Population Fluctuations 272	
		Population Interactions 276	
	6.9	Concept of Density-Dependent and Density	
		-Independent Action in Population Control 289	
	6.10	Human Population Growth 289	
7.	Nati	ural Resource Ecology	295
		Concept and Classification of Resource 295	
		Non-renewable Resources 296	•
		Renewable Resources 298	
	7.4	Conservation and Resource Management 331	
8.	Poli	ution Ecology	360
	8.1	Concept of Pollution 360	

	0.0	41 D II 41 C 4 261	
		Air Pollution: Concept 361	
		Water Pollution 398	
		Solid Waste Pollution 419	
		Hazardous Waste and Toxic Chemicals 430	
		Soil Pollution 436	
		Drug Abuse 439	
		Noise Pollution 440	
		Indoor Pollution 446	
		Pollution Due to Radiation 446	
		Bioindicators 448	
		Industrial Accidents 450	
	8.13	Provisions in the Indian Constitution	
		and Environmental Laws 456	
	8.14	Environmental Management 458	
9.	Env	ironmental Toxicology	461
		Toxic Chemicals and Definition of Toxicology 461	
		Toxic Chemicals 462	
		Factors Affecting Toxicity 464	
		Routes and Rate of Administration 465	
		Environmental Factors/Behavioural Factors 466	
		Effect and Response 467	
		Synergism and Antagonism 468	
		Basic Principles of Dose Response 468	
		Statistical Concept of Toxicity 472	
		Translocation of Toxicants 473	
		Mechanism of Toxicant Action 475	
		Biotransformation of Toxicants 477	
		Bio-accumulation of Pollutants/Xenobiotics 479	
		Antidotes 479	
		Toxicity Tests 480	
		Some Case Studies 480	
	7.10	Appendix I 488	
		Appendix II 488	
		Appenuis II 400	
	Bibl	iography	490
	Inde	•	519