

CONTENTS

<i>Contents</i>	v-vi
<i>Contributors</i>	vii-ix
<i>Preface</i>	xi

ECOSYSTEMS AS SYSTEMS

INTRODUCTION	<i>S E Jørgensen</i>	3
ECOSYSTEM ECOLOGY	<i>B D Fath</i>	6
ECOLOGICAL SYSTEMS THINKING	<i>D W Orr</i>	12
ECOSYSTEMS	<i>A K Salomon</i>	16
ECOSYSTEM SERVICES	<i>K A Brauman and G C Daily</i>	26
FUNDAMENTAL LAWS IN ECOLOGY	<i>S E Jørgensen</i>	33

ECOSYSTEM PROPERTIES

AUTOCATALYSIS	<i>R E Ulanowicz</i>	41
BODY-SIZE PATTERNS	<i>A Basset and L Sabetta</i>	44
CYCLING AND CYCLING INDICES	<i>S Allesina</i>	50
ECOLOGICAL NETWORK ANALYSIS, ASCENDENCY	<i>U M Scharler</i>	57
ECOLOGICAL NETWORK ANALYSIS, ENERGY ANALYSIS	<i>R A Herendeen</i>	64
ECOLOGICAL NETWORK ANALYSIS, ENVIRON ANALYSIS	<i>B D Fath</i>	76
INDIRECT EFFECTS IN ECOLOGY	<i>V Krivtsov</i>	81
EMERGENT PROPERTIES	<i>F Müller and S N Nielsen</i>	91
SELF-ORGANIZATION	<i>D G Green, S Sadedin, and T G Leishman</i>	98
ECOLOGICAL COMPLEXITY	<i>J L Casti and B Fath</i>	106
HIERARCHY THEORY IN ECOLOGY	<i>T F H Allen</i>	114
GOAL FUNCTIONS AND ORIENTORS	<i>H Bossel</i>	120
EXERGY	<i>S E Jørgensen</i>	128
OVERVIEW OF ECOSYSTEM TYPES, THEIR FORCING FUNCTIONS, AND MOST IMPORTANT PROPERTIES	<i>S E Jørgensen</i>	140

ECOSYSTEMS

AGRICULTURE SYSTEMS	<i>O Andrén and T Kätterer</i>	145
ALPINE ECOSYSTEMS AND THE HIGH-ELEVATION TREELINE	<i>C Körner</i>	150

ALPINE FOREST	<i>W K Smith, D M Johnson, and K Reinhardt</i>	156
BIOLOGICAL WASTEWATER TREATMENT SYSTEMS	<i>M Pell and A Wörman</i>	166
BOREAL FOREST	<i>D L DeAngelis</i>	181
BOTANICAL GARDENS	<i>M Soderstrom</i>	183
CAVES	<i>F G Howarth</i>	190
CHAPARRAL	<i>J E Keeley</i>	195
CORAL REEFS	<i>D E Burkepile and M E Hay</i>	201
DESERT STREAMS	<i>T K Harms, R A Sponseller, and N B Grimm</i>	214
DESERTS	<i>C Holzapfel</i>	222
DUNES	<i>P Moreno-Casasola</i>	241
ESTUARIES	<i>R F Dame</i>	247
FLOODPLAINS	<i>B G Lockaby, W H Conner, and J Mitchell</i>	253
FOREST PLANTATIONS	<i>D Zhang and J Stanturf</i>	264
FRESHWATER LAKES	<i>S E Jørgensen</i>	270
FRESHWATER MARSHES	<i>P Keddy</i>	274
GREENHOUSES, MICROCOSMS, AND MESOCOSMS	<i>W H Adey and P C Kangas</i>	281
LAGOONS	<i>G Harris</i>	296
LANDFILLS	<i>L M Chu</i>	303
MANGROVE WETLANDS	<i>R R Twilley</i>	308
MEDITERRANEAN	<i>F Médail</i>	319
PEATLANDS	<i>D H Vitt</i>	330
POLAR TERRESTRIAL ECOLOGY	<i>T V Callaghan</i>	339
RIPARIAN WETLANDS	<i>K M Wantzen and W J Junk</i>	342
RIVERS AND STREAMS: ECOSYSTEM DYNAMICS AND INTEGRATING PARADIGMS	<i>K W Cummins and M A Wilzbach</i>	351
RIVERS AND STREAMS: PHYSICAL SETTING AND ADAPTED BIOTA	<i>M A Wilzbach and K W Cummins</i>	363
ROCKY INTERTIDAL ZONE	<i>P S Petraitis, J A D Fisher, and S Dudgeon</i>	374
SALINE AND SODA LAKES	<i>J M Melack</i>	380
SALT MARSHES	<i>J B Zedler, C L Bonin, D J Larkin, and A Varty</i>	384
SAVANNA	<i>L B Hutley and S A Setterfield</i>	394
STEPPES AND PRAIRIES	<i>J M Briggs, A K Knapp, and S L Collins</i>	405
SWAMPS	<i>C Trettin</i>	414
TEMPERATE FOREST	<i>W S Currie and K M Bergen</i>	417
TEMPORARY WATERS	<i>E A Colburn</i>	427
TROPICAL RAINFOREST	<i>R B Waide</i>	439
TUNDRA	<i>R Harmsen</i>	443
UPWELLING ECOSYSTEMS	<i>T R Anderson and M I Lucas</i>	450
URBAN SYSTEMS	<i>T Elmqvist, C Alfson, and J Colding</i>	461
WIND SHELTERBELTS	<i>J-J Zhu</i>	468
INDEX		479