

Brief Contents

PART I

HUMANS AND SUSTAINABILITY: AN OVERVIEW 1

- 1 Environmental Issues, Their Causes, and Sustainability 2
- 2 Environmental History: An Overview 23

PART II

SCIENTIFIC PRINCIPLES AND CONCEPTS 43

- 3 Science, Systems, Matter, and Energy 44
- 4 Ecosystems: Components, Energy Flow, and Matter Cycling 71
- 5 Evolution and Biodiversity: Origins, Niches, and Adaptation 102
- 6 Biogeography: Climate, Biomes, and Terrestrial Biodiversity 120
- 7 Aquatic Ecology: Biodiversity in Aquatic Systems 152
- 8 Community Ecology: Structure, Species Interactions, Succession, and Sustainability 173
- 9 Population Dynamics, Carrying Capacity, and Conservation Biology 198
- 10 Geology: Processes, Hazards, and Soils 211

PART III

HUMAN POPULATION, RESOURCES, AND SUSTAINABILITY 237

- 11 The Human Population: Growth, Demography, and Carrying Capacity 238
- 12 Food Resources 261
- 13 Water Resources 294
- 14 Geologic Resources: Nonrenewable Mineral and Energy Resources 320
- 15 Energy Efficiency and Renewable Energy 358

PART IV

ENVIRONMENTAL QUALITY AND POLLUTION 395

- 16 Risk, Toxicology, and Human Health 396
- 17 Air and Air Pollution 417
- 18 Climate Change and Ozone Loss 446
- 19 Water Pollution 476
- 20 Pesticides and Pest Control 502
- 21 Solid and Hazardous Waste 518

PART V

BIODIVERSITY, LAND USE, AND CONSERVATION 549

- 22 Sustaining Wild Species 550
- 23 Sustaining Terrestrial Biodiversity: The Ecosystem Approach 585
- 24 Sustaining Aquatic Biodiversity 629
- 25 Sustainable Cities: Urban Land Use and Management 658

PART VI

ENVIRONMENT AND SOCIETY 687

- 26 Economics, Environment, and Sustainability 688
- 27 Politics, Environment, and Sustainability 715
- 28 Environmental Worldviews, Ethics, and Sustainability 740

Appendices A1

Glossary G1

Index I1